



Cisco Products

## **Quick Reference Guide**

November 2003



CISCO SYSTEMS



# Cisco Products Quick Reference Guide

November 2003

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# Introduction

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## Cisco Products Quick Reference Guide (CPQRG)

### CPQRG Background

The Cisco Products Quick Reference Guide (CPQRG) is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many of Cisco's products. The CPQRG is primarily published to support Cisco partners, resellers, sales account teams, and even end-user customers who need a broad, high-level overview of Cisco products, but at that moment do not have access to Cisco's Web site, Cisco.com at <http://www.cisco.com>.

Because this book is only published twice per year, there are likely to be new products, configurations, and part numbers not included in this edition. Note: For the most up-to-date and comprehensive information about Cisco products and solutions, please refer to our on-line information or consult a Cisco representative.

### Additional Information

Additional printed copies of this book can be purchased on an as-needed basis. For questions, comments, to download an Adobe PDF version, or learn how to order a hard copy of the CPQRG, go to <http://www.cisco.com/go/guide>.

## How to Get More Complete Product Information

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<b>Cisco Product Catalog</b>	For more comprehensive information on all of Cisco's products, please refer to the Cisco Product Catalog at: <a href="http://www.cisco.com/univercd/cc/td/doc/pcat/">http://www.cisco.com/univercd/cc/td/doc/pcat/</a>
<b>Cisco.com</b>	For even more complete product and solution information, please go to Cisco.com at <a href="http://www.cisco.com">http://www.cisco.com</a> . In addition to product, technology, and network solutions support, Cisco.com provides a wealth of information including how to find an authorized representative or partner, how to order products, technical support/customer service, Cisco Corporate news and information, and links to training/events/seminars.

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## Cisco Systems Overview

Cisco Systems, Inc. is the worldwide leader in networking for the Internet. Cisco's Internet Protocol-based (IP) networking solutions are the foundation of the Internet and most corporate, education, and government networks around the world. Cisco provides the broadest line of solutions for transporting data, voice and video within buildings, across campuses, or around the world.

Today, the Internet and computer networking are an essential part of business, learning and personal communications and entertainment. Virtually all messages or transactions passing over the Internet are carried quickly and securely through Cisco equipment. Cisco solutions ensure that networks both public and private operate with maximum performance, security, and flexibility. In addition, Cisco solutions are the basis for most large, complex networks used by corporations, public institutions, telecommunication companies, and are found in a growing number of medium-sized commercial enterprises.

Cisco was founded in 1984 by a group of computer scientists from Stanford University. Since the company's inception, Cisco engineers have been prominent in advancing the development of IP—the basic language to communicate over the Internet and in private networks. The company's tradition of innovation continues today with Cisco creating leading products and key technologies that will make the Internet more useful and dynamic in the years ahead. These technologies include: advanced routing and switching, voice and video over IP, optical networking, wireless, storage networking, security, broadband, and content networking.

In addition to technology and product leadership, Cisco is recognized as an innovator in how business is conducted. The company has been a pioneer in using the Internet to provide customer support, sell products, offer training, and manage finances. Drawing upon the company's own Internet best practices and core-value of customer focus, Cisco has established the Internet Business Solutions Group (IBSG) dedicated to helping top business leaders transform their own businesses into e-businesses.

As a company, Cisco operates on core values of customer focus and corporate citizenship. The company's philanthropic efforts are committed to helping communities prosper while also encouraging Cisco employees to learn about the needs of the communities where Cisco operates. Also, to help bolster education around the world, the company has founded Cisco Networking Academies in 128 countries dedicated to teaching students to design, build, and maintain computer networks.

# Cisco Channel Partner Program - Expand Your Options

The Cisco Channel Partner Program is designed to help you create a sustainable business model in fast-changing environments, where customers require value-added services, focused technical expertise, and higher levels of satisfaction.

There are three types of relationships offered through the Cisco Channel Partner Program:

- **Cisco Registered Partner**—The first to reaping the rewards of the Cisco Channel Partner Program and is a prerequisite for the additional benefits of being a Cisco certified or specialized partner.
- **Cisco Specialized Partner**—Developing expertise in a selected area of focus can help differentiate businesses from competitors, pursue new markets, and migrate to higher margin-based services and solution-based business models. There are both technology and services specializations, in areas ranging from Content Networking, IP Telephony, and Network Management to Wireless LANs and VPN Security Services.
- **Cisco Certified Partner**—Also work toward achieving certification. To qualify for the certification program, every partner is required to specialize in one or more technology areas as outlined in the program requirements.

Three levels of certification are available to fit particular business models, each with a wealth of sales and marketing resources, information, tools, and support. With each level of certification, receive an increased level of support from Cisco.

- **Cisco Gold Certified Partner**—Offers the highest credibility in the marketplace. In fact, many governments and large corporations require Cisco Gold Certification as part of their Request for Proposal (RFP) process.
- **Cisco Silver Certified Partner**—Provides instant credibility and a high level of support and resources from Cisco.
- **Cisco Premier Certified Partner**—Provides access to Cisco programs and support to help create a sustainable business model.

As a Cisco partner, you receive backing from the Cisco brand. Additionally, you access world-class products and service packages, technical support, productivity tools, online training, marketing resources and sales promotions.

## For More Information

See the Cisco Channel Partner Program web site at <http://www.cisco.com/go/partner>

## Reseller and Customer Support

### Reseller Sales and Technical Assistance Contact Information

Customer Help Lines	Contact Information
US Distribution Presales Helplines <sup>1</sup>	Comstor: 800-COMSTOR, option 3 Ingram Micro: 800-445-5066, enter Ingram customer #, dial extension 24041 Tech Data: 800-237-8931, extension 77776
Presales—Partner/Reseller Helpline	800 553-6387 (within U.S.) 408 526-7208 (outside U.S.) <a href="http://CiscoPartner.custhelp.com/">http://CiscoPartner.custhelp.com/</a>
Post-Sales—Technical Assistance Center (TAC)	800 553-6387 (within U.S.) 408 526-7209 (outside U.S.) <a href="mailto:tac@cisco.com">tac@cisco.com</a> (e-mail)

1. Follow voice prompts to access: Pre-sales Assistance of Network Validation & Product Information, Reseller Support, Customer Service, Service Contract Sales, Reporting a technical problem/open a trouble ticket, and Seminars, Events, Training & Certification

## Helpful Cisco Web Sites

Cisco Web Site	URL <sup>1</sup>
<b>Worldwide Contacts</b> Cisco office locations; directions; maps; and sales, partners, and channel contacts.	<a href="http://www.cisco.com/go/wwcontacts">http://www.cisco.com/go/wwcontacts</a>
<b>Technical Support</b> For customer support tips, software center, online documents, and more.	<a href="http://www.cisco.com/go/support">http://www.cisco.com/go/support</a>
<b>Cisco Products Quick Reference Guide</b> This guide is available on line (in PDF and HTML); it is continually updated between bi-yearly printings. Cisco.com login required.	<a href="http://www.cisco.com/go/guide">http://www.cisco.com/go/guide</a>
<b>Partner Help</b> Search partners' frequently asked questions and ask for the help you need	<a href="http://ciscopartner.custhelp.com/">http://ciscopartner.custhelp.com/</a>
<b>Certification/Specialization Application</b> Apply for a Cisco Certification or Specialization	<a href="http://tools.cisco.com/WWWChannels/cpapp/index.jsp">http://tools.cisco.com/WWWChannels/cpapp/index.jsp</a>
<b>Find a Channel Account Manager</b> Search for the Cisco Channel Account Manager assigned to your company	<a href="http://tools.cisco.com/WWWChannels/CAMLOC/jsp/cam_locator.jsp">http://tools.cisco.com/WWWChannels/CAMLOC/jsp/cam_locator.jsp</a>
<b>Partner Registration</b> Begin your relationship with Cisco by registering as a Cisco Registered or Certified Partner	<a href="http://tools.cisco.com/WWWChannels/GETLOG/jsp/GetLogin.jsp?page=PartnerUserHomePage">http://tools.cisco.com/WWWChannels/GETLOG/jsp/GetLogin.jsp?page=PartnerUserHomePage</a>
<b>Tool Index</b>	<a href="http://www.cisco.com/en/US/partners/partners_tool_index.html">http://www.cisco.com/en/US/partners/partners_tool_index.html</a>
<b>Get Cisco.com Access</b> Register for a guest-level Cisco.com ID as a prerequisite for partner level access	<a href="http://tools.cisco.com/RPF/register/register.do">http://tools.cisco.com/RPF/register/register.do</a>
<b>Associate Myself With A Partner</b> If you are an employee of Cisco Registered and Cisco Certified or Specialized Partners, you can associate yourself with your company and upgrade your current Cisco.com ID to partner level	<a href="http://tools.cisco.com/WWWChannels/GETLOG/jsp/GetLogin.jsp?page=PartnerUserHomePage">http://tools.cisco.com/WWWChannels/GETLOG/jsp/GetLogin.jsp?page=PartnerUserHomePage</a>
<b>Partner Self Service</b> Use this suite of tools to manage personal and company information in the Cisco partner database	<a href="http://tools.cisco.com/WWWChannels/GETLOG/welcome.do">http://tools.cisco.com/WWWChannels/GETLOG/welcome.do</a>
<b>Update Company Data</b> If you are a registered partner administrator, you can update company and contact information	<a href="http://tools.cisco.com/WWWChannels/GETLOG/welcome.do">http://tools.cisco.com/WWWChannels/GETLOG/welcome.do</a>
<b>Worldwide Distributors Web Site</b> List, by country, of authorized Cisco Distributors who stock and resell Cisco products.	<a href="http://tools.cisco.com/WWWChannels/LOCATR/jsp/distributor_locator.jsp">http://tools.cisco.com/WWWChannels/LOCATR/jsp/distributor_locator.jsp</a>
<b>Distribution Product Reference Guide (DPRG)</b> Complete list of pricing information, part numbers, and more for distribution (2-tier) products. Data is refreshed nightly. Cisco.com login required.	<a href="http://www.cisco.com/appcontent/echannels/pcb/">http://www.cisco.com/appcontent/echannels/pcb/</a>
<b>Partner Business Central—Browse and Configure Products</b> An ecommerce web site with a configuration tool to validate channel product options; also select and compare products, check price and availability, and submit your order to your distributor online. Cisco.com login required—click on "Browse and Configure Products".	<a href="http://www.cisco.com/appcontent/echannels/pcb/">http://www.cisco.com/appcontent/echannels/pcb/</a>
<b>End-of-Life Matrix</b> Last order and end-of-life dates for Cisco products.	<a href="http://www.cisco.com/en/US/products/prod_end_of_life.html">http://www.cisco.com/en/US/products/prod_end_of_life.html</a>
<b>Training</b> Cisco University—Offers detailed course material on the latest technical topics throughout the year targeted for Resellers, Partners and Cisco Sales representatives. Also see the Partner E-Learning Connection.	<a href="http://www.cisco.com/warp/public/10/ciscou/">http://www.cisco.com/warp/public/10/ciscou/</a> <a href="http://www.cisco.com/warp/public/10/wwtraining/pec/pecllogin.html">http://www.cisco.com/warp/public/10/wwtraining/pec/pecllogin.html</a>

1. Additional Cisco.com access required for most URLs.

# Partner and Reseller Service and Support Offerings

Various partner and reseller service and support programs are available according to certification level, qualifications and method of purchase from Cisco:

Method of Purchase	Service and Support Offerings
<b>Direct from Cisco (only available to Partners with Direct contracts)</b>	<ul style="list-style-type: none"> <li>• <b>Shared Support</b>—Currently available in the US, Canada, Australia, New Zealand, Japan, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, South Africa, Sweden, Switzerland, and United Kingdom. It is a service program for Gold and Silver certified partners that meet the high standards of the Cisco Shared Support eligibility requirements and ongoing performance criteria, demonstrating their ability to sell, renew, and deliver high-quality service under their own brand. Shared Support is appropriate for partners who wish to provide their own brand of support to their end customers while leveraging Cisco's Technical Assistance Center (TAC) and logistics infrastructure</li> <li>• <b>Cisco Brand Resale</b>—Cisco Brand Resale is a program through which Cisco Gold, Silver, and Premier one-tier channel partners resell Cisco-brand services such as SMARTnet, SAS/SASU and SPbase</li> <li>• <b>System Integrator Support</b>—System Integrator Support 98 (SIS98) program is designed for Silver and Gold partners who wish to provide their own brand of support to their end customers with back-end support from Cisco. SIS98 will be End of Sale in Canada, Australia, New Zealand and Japan as of March 31st, 2004 and in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, South Africa, Sweden, Switzerland, and United Kingdom as of July 31st, 2004</li> <li>• <b>SMARTspares</b> provides partners using SIS98 the opportunity to leverage Cisco's logistics infrastructure to provide their customers with enhanced delivery services</li> </ul>
<b>2-Tier (through a Distributor)</b>	<ul style="list-style-type: none"> <li>• <b>Packaged Services</b>—Partners and Resellers may purchase warranty extension, hardware replacement, installation and configuration, technical support, software upgrades, and online services. Several of these services have been bundled together to offer convenient service solutions for Cisco customers.</li> </ul>

## Packaged Resalable Service Products (only via Distributors/2-Tier):

Product	Description
<b>Maintenance Services</b>	
SMARTnet	<p>Provides customers with software maintenance, registered access to Cisco.com, advance replacement of hardware, and technical support required for self-maintenance. SMARTnet has three delivery options:</p> <ul style="list-style-type: none"> <li>• SMARTnet 8x5xNBD (Next Business Day)—8 hours/day, 5 days/week, next-business-day hardware replacement</li> <li>• SMARTnet 8x5x4—8 hours/day, 5 days/week, 4-hour hardware replacement</li> <li>• SMARTnet 24x7x4—24 hours/day, 7 days/week, 4-hour hardware replacement</li> </ul> <p>Available through resellers and distributors.</p>
SMARTnet Onsite	<p>Provides all the benefits of SMARTnet, plus one of the following onsite hardware services for repairs:</p> <ul style="list-style-type: none"> <li>• SMARTnet Onsite 8x5xNBD—8 hours/day, 5 days/week, next-business-day response</li> <li>• SMARTnet Onsite 8x5x4—8 hours/day, 5 days/week, 4-hour response</li> <li>• SMARTnet Onsite 24x7x4—24 hours/day, 7 days/week, 4-hour response</li> </ul> <p>Packaged SMARTnet OnSite 24x7x4 provides SMARTnet OnSite 24x7x4 service in a shrink-wrapped package, allowing it to be effectively marketed through resellers.</p>
Software Application Support (SAS) and Software Application Support plus Upgrades (SASU)	<p>Software Application Support and Software Application Support plus Upgrades provide customers with software maintenance releases (SAS) or maintenance release plus upgrades (SASU) for Cisco Application Software, registered access to Cisco.com plus technical support, for one year. For when a customer needs investment protection on software purchases and/or access to the latest software while eliminating unexpected budget revisions.</p>
Noncontract and Consulting Services	<p>Cisco provides noncontract services at current time-and-materials rates. For more information contact Customer Services at 1-800-553-NETS or 1-415-326-1941.</p>
<b>Startup Services</b>	
Total Implementation Services (TIS)	<p>Cisco Total Implementation Solutions (TIS) is a portfolio of services that deliver the tools, expertise, and resources needed to install, configure, and implement Cisco equipment. TIS is intended to supplement services that resellers provide, either directly or indirectly, to their customers. Product Components: Installation, Configuration, and Implementation. For more information, see <a href="http://www.cisco.com/go/tis">http://www.cisco.com/go/tis</a></p>

## For More Information

See the Partner and Reseller Support Services Web page at:

<http://www.cisco.com/en/US/products/index.html> (Cisco.com login required)



## Product Warranty Information

All Cisco hardware and software products are covered for a minimum of 90 days. Some products have a longer or more appropriate coverage, ranging from One-Year to Limited Lifetime warranties. Note that all Warranties are applicable to original owner only and support is subject to product end-of-life terms.

Warranty <sup>1</sup>	Entitlements Description
<b>Cisco Standard 90-day Hardware Warranty, Software Warranty and License Agreement (78-5235-vvrr)</b>	<ul style="list-style-type: none"><li>• Advance Replacement shipping within 10 business days from RMA date, within 90 days of original shipment from Cisco or from Cisco Reseller</li><li>• 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications</li><li>• Guest Access to Cisco.com</li></ul>
<b>90-Day Limited Hardware Warranty(78-5236-vvrr)</b>	<ul style="list-style-type: none"><li>• Advance Replacement shipping within 10 business days from RMA date, within 90 days of original shipment from Cisco or from Cisco Reseller</li><li>• 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications</li><li>• Guest Access to Cisco.com</li></ul>
<b>One-Year Limited Hardware Warranty (78-10747-vvrr)</b>	<ul style="list-style-type: none"><li>• Advance Replacement shipping within 10 business days from RMA date within One Year of original shipment from Cisco or from Cisco Reseller</li><li>• 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications</li><li>• Guest Access to Cisco.com</li></ul>
<b>Limited Lifetime Hardware Warranty (78-6310-vvrr)</b>	<ul style="list-style-type: none"><li>• Advance Replacement shipping within 10 business days from RMA date during supported life of the product, starting original ship date from Cisco or Cisco reseller. (fan and power supply warranty limited to 5 years from ship-date)</li><li>• 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications</li><li>• Guest Access to Cisco.com</li></ul>
<b>End-User Software License Agreement and Software Warranty (78-3621-vvrr)</b>	<ul style="list-style-type: none"><li>• 90-Day Assurance that the Media SW is delivered is defect-free and the SW conforms to its published specifications</li><li>• End User License Agreement terms</li><li>• Guest Access to Cisco.com</li></ul>
<b>5-Years Limited Hardware and 1-Year Limited Software Warranty (78-13712-vvrr)</b>	<ul style="list-style-type: none"><li>• Replacement shipping within 15 business days from RTF date within 5 years from the original ship date from Cisco or Cisco reseller</li><li>• One-Year Assurance that the SW Media is defect-free and the SW conforms to its published specifications</li><li>• Guest Access to Cisco.com</li></ul>

1. “vv” and “rr” suffixes of the warranty document numbers represent the revision and version numbers respectively.

## For More Information

See the Web site:

[http://www.cisco.com/en/US/products/prod\\_warranties\\_listing.html](http://www.cisco.com/en/US/products/prod_warranties_listing.html)

## Cisco Systems Capital Financing

Cisco Systems Capital® Corporation—a wholly owned subsidiary of Cisco Systems, Inc.—specializes in financing networks by providing innovative, flexible, and worldwide financial services. The Cisco Systems Capital lease program enables partners to acquire a Cisco solution quickly and easily without making a capital expenditure. In addition to protecting customers from technology obsolescence, leasing solutions give customers the flexibility to use revenue derived from enhanced network performance to pay for their equipment. Cisco Systems Capital works closely with Cisco account managers, resellers, and channel partners to deliver network products at competitive rates.

## For More Information

See the Cisco Systems Capital Web site: <http://www.cisco.com/go/CiscoCapital>

Within the United States, call 800 730-4090.

## Cisco Authorized Refurbished Equipment (Select Countries Only)

Customers looking for used Cisco equipment can now be assured of the quality and support they come to expect from new Cisco products, through the Cisco Authorized Refurbished Equipment program. Cisco Authorized Refurbished Equipment gives customers a price competitive alternative to buying uncertified and unlicensed products off the secondary market. All equipment sold through this program is labeled “Refurbished by Cisco Systems,” indicating that the product is Cisco tested, refurbished, authorized, and supported. The program is limited to certain countries, so interested customers should check with their local Cisco account manager or Cisco authorized reseller for availability.

### For More Information

End Users/Customers:

[cisco.com/en/US/ordering/or6/or17/order\\_refurbished\\_equipment\\_program\\_description.html](http://cisco.com/en/US/ordering/or6/or17/order_refurbished_equipment_program_description.html)

Resellers: <http://www.cisco.com/go/refurb> (click on “Refurbished Products”)

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## Cisco Services

Cisco Services offers a wide range of services and support to customers, partners and resellers. Through a suite of support services Cisco enables you to improve the overall efficiency of your network operations and network performance, while benefiting from the broad range of Cisco engineering knowledge and experience base, leading practices and innovative, web-based tools.

Cisco Advanced Services (AS) is a comprehensive suite of professional engineering support offerings of Cisco networking solutions delivering the highest levels of availability, quality of service, and security for your specific network needs to realize business return on investment through high performance networking and communications applications enablement. Cisco Technical Support Services (TSS) offer leading-edge services to improve customer productivity, protect customer investment, and maximize operational efficiency. Cisco TSS solutions provide access to highly skilled engineers with technical expertise on multiple disciplines of technology. In addition, Cisco TSS provides you with the online tools and resources, software support and hardware replacement options to address your challenges and provide rapid problem resolution. Key support tools and knowledge provide your staff with the ability to avoid problems, maximize network utility, and expedite problem resolution.

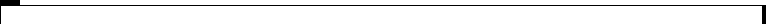
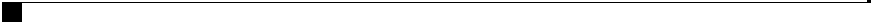
### For More Information

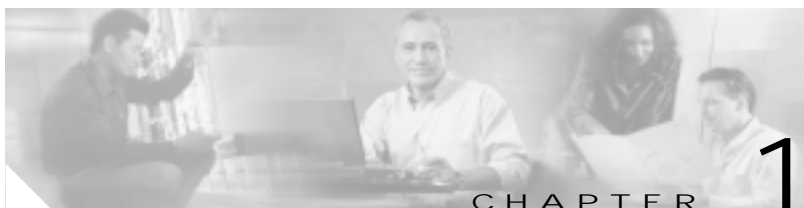
Technical Support Services:

[http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/serv\\_group\\_home.html](http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/serv_group_home.html)

Advanced Services:

[http://www.cisco.com/en/US/products/svcs/ps11/serv\\_category\\_home.html](http://www.cisco.com/en/US/products/svcs/ps11/serv_category_home.html)





# Routers

## Routers at a Glance

Product	Features	Page
<b>Cisco IOS® Software</b>	See the Chapter 9—Cisco IOS Software and Network Management for an overview of Cisco IOS Software	9-3
<b>Cisco SOHO Series Secure Broadband Routers</b>	<p>Ethernet, ADSL, ADSL over ISDN, and G.SHDSL Routers for Small Office and Home Offices</p> <ul style="list-style-type: none"> <li>• Integrated security of Cisco IOS Software with Stateful Inspection Firewall and software-based 3DES encryption</li> <li>• Easy setup and deployment using Cisco Router Web Set Up Tool (CRWS)</li> <li>• Offers many local and remote debug and troubleshooting features in Cisco IOS Software</li> </ul>	1-10
<b>Cisco 800 Series Routers</b>	<p>Ethernet, ADSL, ADSL over ISDN, G.SHDSL, ISDN, and serial routers for small remote offices and teleworkers</p> <ul style="list-style-type: none"> <li>• WAN Interfaces: 1-port Ethernet, 1-port ADSL, ADSL over ISDN or G.SHDSL or 1-port BRI (optional NT1), or 1-port serial</li> <li>• LAN: 4-port Ethernet hub or 10/100 switch on most models and 2 analog telephone ports on ISDN models and 4 analog voice ports on 827-4V</li> <li>• Advanced security features including stateful inspection firewall and hardware assisted encryption (830 series)</li> <li>• Toll quality voice with VoIP (Cisco 827-4V)</li> <li>• Dial back up and out-of-band management (Cisco 830 series)</li> </ul>	1-11
<b>Cisco 1700 Series Router</b>	<p>Flexible, secure, modular access routers</p> <ul style="list-style-type: none"> <li>• 1-port autosensing 10/100 Fast Ethernet LAN</li> <li>• Modular slots support a wide variety of WAN and voice interface cards</li> <li>• Supports secure Internet, intranet, and extranet access as well as new WAN applications including VPNs, integrated voice/data (VoIP), and broadband services</li> <li>• VLAN Capability</li> <li>• Supports up to three Ethernet connections with 1FE and 2 ENET WICs</li> </ul>	1-13
<b>Cisco 2600 Series Router</b>	<p>Modular multiservice router</p> <ul style="list-style-type: none"> <li>• Single or dual LAN (10/100 Mbps Ethernet and Token Ring/Ethernet options)</li> <li>• Wide variety of interface support, including integrated 16-port switching, high-density analog and digital, voice, Cisco IOS Firewall and VPN, Content, async and sync serial, ISDN, Fractional and channelized T1/E1, Ethernet, analog modems, ADSL, G.SHDSL, switching integration, and ATM support</li> <li>• Shares WAN interface cards and network modules with Cisco 1700, 3600 and 3700 series</li> <li>• Optional AC, DC or RPS versions</li> </ul>	1-16
<b>Cisco 3700 Series Router</b>	<p>Modular multiservice high-density access router</p> <ul style="list-style-type: none"> <li>• Enable higher levels of application and service integration in enterprise branch offices in a small form factor <ul style="list-style-type: none"> <li>– Supports integrated firewall, intrusion detection, and VPN capabilities with off-loaded encryption processing to on-board Advanced Integration Module (AIM), and full-featured IDS network module.</li> <li>– Combines flexible routing and low density switching in a single platform with 16 and 36-port EtherSwitch modules</li> <li>– Delivers internal in-line phone power for the EtherSwitch ports for a single platform Branch Office IP Telephony and Voice Gateway</li> <li>– Supports Cisco Call Manager Express to deliver an all-in-one branch office telephony solution.</li> <li>– Conserves WAN bandwidth with Content Engine modules to combine intelligent caching, content routing and management</li> <li>– Higher performance enables scalable deployment of multiple, concurrent applications</li> </ul> </li> <li>• Wide variety of interface support, high-density analog and digital, voice, Cisco IOS Firewall/IDS and VPN, Fractional and channelized T1/E1, T3/E3, DS3, E3 and OC-3 ATM, Ethernet, Gigabit Ethernet and DSL.</li> <li>• Shares WAN interface cards (WICs), Voice Interface Cards (VICs), and Network Modules with Cisco 1700, 2600/2600XM, and 3600 series</li> </ul>	1-21

Product	Features	Page
<b>Cisco 7100 Series VPN Router</b>	Large branch and central site VPN router, for a dedicated site-to-site VPN solution See Chapter 5—VPN and Security for information on the Cisco 7100 Series VPN Routers	5-16
<b>Cisco 7200 Series Router</b>	WAN-edge router providing intelligent services, modularity, high performance, investment protection, and scalability in a small form factor <ul style="list-style-type: none"> <li>• Modular 3 RU Chassis</li> <li>• 4- or 6-slot models and choice of system processors for up to 1 Mpps performance</li> <li>• Wide variety of LAN and WAN options, including Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring, FDDI, serial, ISDN, HSSI, ATM, Packet over SONET, DPT/RPR</li> </ul>	1-25
<b>Cisco 7300 Series</b>	Network Edge router with high performance IP services delivered at optical speeds for service 1-28 providers and enterprise networks <ul style="list-style-type: none"> <li>• Compact and modular 4 rack unit chassis—4 slots</li> <li>• High performance connectivity—T3 through OC48/STM16 with 3.5 Mpps performance</li> <li>• Built-in Gigabit Ethernet connectivity</li> <li>• Multiprotocol routing: IP, IPX, AppleTalk, DLSw</li> <li>• Compact size, high availability and optimal cooling</li> </ul>	
<b>Cisco 7500 Series</b>	High-end services-enabled core and WAN aggregation router for enterprise and service provider applications <ul style="list-style-type: none"> <li>• 5-, 7-, and 13-slot models</li> <li>• 1-, 2-, or 4-bus models offering 1, 2, or 4 Gbps backplanes</li> <li>• Wide variety of LAN and WAN options including Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring, FDDI, serial, ISDN, HSSI, ATM, and Packet over SONET</li> </ul>	1-30
<b>Cisco 7600 Series</b>	Service provider and high-end enterprise-class router delivering optical WAN and Metropolitan Area Network services with high-touch IP services at the network edge. <ul style="list-style-type: none"> <li>• Consolidated LAN/WAN/MAN in a single platform</li> <li>• Scalable backplane bandwidth from 32 Gbps to 256 Gbps and performance from 15 Mpps to 30 Mpps</li> <li>• High-volume aggregation of Ethernet traffic (server farms)</li> <li>• Wide range of WAN/MAN interfaces from NxDS0, T1, T3 to OC-48 with line rate services</li> <li>• Ideal for Internet data center, metropolitan aggregation, WAN edge aggregation, and enterprise core applications</li> <li>• Also supports Catalyst 6000 series line cards</li> </ul>	1-33
<b>Cisco 10000 Series</b>	Service provider-class edge services router <ul style="list-style-type: none"> <li>• High-Performance IP, MPLS, and Broadband Services — The Cisco 10000 Series enables service providers to deploy revenue-generating services without worrying about performance degradation</li> <li>• Carrier-Class High Availability — With its carrier-class high availability, the Cisco 10000 Series minimizes costly network outages and maximizing end-customer satisfaction</li> <li>• Application Integration — The Cisco 10000 Series leverages service providers' current investments by enabling leased line and broadband aggregation features on a single platform</li> <li>• Application Flexibility — The Cisco 10000 Series has a broad range of channelized, clear channel, ATM and LAN interfaces. Physical interface speeds from E1/T1 up to OC-48c/STM-16c</li> </ul>	1-36
<b>Cisco 10700 Series</b>	Service provider-class metro edge services router <ul style="list-style-type: none"> <li>• Optimized building block for the next generation metro Ethernet/IP access networks</li> <li>• Equipped with either (24) 10/100 or 4 GbE and 8 FE ports for customer access and OC-48c/STM-16c dynamic packet transport/resilient packet ring (DPT/RPR) technology or Packet Over SONET (POS) for metro optical connectivity</li> <li>• Powered by Cisco IOS 12.0S software and the parallel express forwarding (PXF) architecture</li> <li>• Cost-effective, reliable, high-performance platform supporting full suite of IP/MPLS features and services found in Cisco Internet Routers</li> <li>• With DPT/RPR architecture, enables optimal fiber connectivity as well as features such as IP class of service, VoIP, L2 VPN (EoMPLS and L2TPv3) and L3 VPN (MPLS) services</li> </ul>	1-38
<b>Cisco 12000 Series</b>	Premier high-end routing portfolio for service provider backbone and high-speed edge applications. With its unique, modular distributed system architecture, the Cisco 12000 Series Router, is the industry choice for building Carrier IP/MPLS networks with its portfolio of 10Gbps systems and interfaces: <ul style="list-style-type: none"> <li>• Seven chassis options that fit your scaling and real estate requirements offering the only complete solution for small to large POPs; backbone or edge.</li> <li>• The only platforms supporting backbone—or edge-optimized line cards in the same chassis, maximize the value of line-rate edge applications with 10G uplinks, and sustained line-rate performance as they scale to maximum capacity.</li> <li>• Proven investment protection with simple, field upgrades to higher switching capacities.</li> <li>• The only complete priority packet delivery solution set—the industry's only IP QoS implementation that uniquely enables premium real time IP services such as VoIP and video.</li> <li>• Extensive portfolio of line cards offering leading edge technologies (POS, ATM, DPT/RPR, GbE/FE), support a wide range of networking speeds (from DS1 to OC-192c/STM-64c).</li> <li>• The industry's only high-end router proven (via independent lab testing) to maintain customer connections and network traffic with zero packet loss despite a route processor failure.</li> </ul>	1-40



	SOHO Series	800 Series	1700 Series	2600 Series	3700 Series	7100 Series	7200 Series	7300 Series	7500 Series	7600 Series	10000 Series	10720 Series	12000 Series
Sync Serial		X	X	X	X		X	X	X	X			
Sync Serial w/ CSU			X	X	X						X		
ISDN BRI (S/T)		X	X	X	X	X	X	X	X				
ISDN BRI (U)		X	X	X	X	X	X	X	X				
ISDN PRI/Ch T1				X	X	X	X	X	X	X			
ISDN PRI w/ CSU				X	X		X	X	X	X			
Async			X	X	X								
Analog/POTS		X		X	X								
Integrated Modems			X	X	X								
Integrated Modem WICs			X	X	X								
HSSI				X <sup>1</sup>	X	X	X		X	X			
DS3				X	X	X	X	X	X	X	X		X
ATM OC-3				X <sup>1</sup>	X	X	X	X	X	X	X		X
ATM OC-12							X		X	X	X		X
ATM				X	X		X	X	X	X	X		X
ATM - T1/E1				X	X	X	X	X	X	X			
POS OC-x/STM-x						X	X	X	X	X	X		X
DPT/RPR OC-12/STM-4							X		X				X
DPT/RPR OC-48/STM-16										X	X	X	X
DPT/RPR OC-192/STM-64													X
ADSL	X	X	X	X	X								
ADSL over ISDN	X	X	X	X	X								
G.SHDSL	X	X	X	X	X								
IDSL		X	X	X	X								
DPT							X		X		X	X	X
<b>Voice Over IP</b>													
Analog Voice Interfaces		X	X	X	X								
Digital			X	X	X		X	X	X	X			
ISDN BRI Digital Voice Interfaces			X	X	X								
<b>Integrated Switching</b>													
Integrated 16-port Switching				X	X								
Integrated 36-port Switching					X								
Inline Power				X <sup>2</sup>	X								
<b>Content Acceleration</b>													
Content Engine				X	X								
<b>Security VPN</b>													
IDS				X	X	X							
Encryption Advanced Integration Modules				X	X								
Encryption Network Module			X		X								

1. Supported on the 2691 only
2. Requires external power source

## Memory Information for Routers

Router	Memory Type	Slots	Default Memory	Max Memory	Default Configuration (Notes)	
SOHO 78	Flash	1	8 MB	8 MB	No Upgradeable Memory	
	DRAM	1	16 MB	16 MB		
SOHO 90	Flash	1	8 MB	8 MB	No Upgradeable Memory	
	DRAM	1	32 MB	32 MB		
801, 802, 803, and 804	Flash	1	8 MB	12 MB	4MB on board and 4MB or 8MB Mini flash card	
	DRAM	1	8 MB	12 MB		4MB onboard and 4MB or 8MB DIMM module
805	Flash	1	4 MB	12 MB	4MB On board + 4MB Mini Flash	
	DRAM	1	8 MB (On board)	16 MB		
811 and 813	Flash	1	8MB	12MB	4MB On board + 4MB or 8MB Mini Flash	
	DRAM	1	8MB	16MB		8MB on board and 4MB or 8MB DIMM Module
827-4V	Flash	1	8 MB	16 MB	8MB On board + 4MB Mini Flash	
	DRAM	1		48 MB		16MB Onboard and 32 MB DIMM module
828	Flash	1	8 MB	16 MB		
	DRAM	1	32 MB	32 MB		
831, 836, 837	Flash	1	12 MB	24 MB		
	DRAM	1	48 MB	48 MB		
1711 and 1712	Flash	1	32 MB	32 MB		
	DRAM	1	64 MB	128 MB		
1721	Flash	1	32 MB	32 MB		
	DRAM	1	64 MB (On board)	128 MB		
1751	Flash	1	32 MB	32 MB		
	DRAM	1	64 MB	128 MB		
1760	Flash	1	32 MB	32 MB		
	DRAM	1	64 MB	128 MB		
2500 Series	Flash	2	8 MB	16 MB	Slot 0 = 8 MB	
	DRAM	1	4 MB	16 MB		
2600 Series	Flash (261xXM, 262xXM, 265xXM)	1	32 MB	48 MB	16 MB on Mother Board; Slot 0 = 32 MB	
	Flash (2612)	1	8 MB	16 MB	Slot 0 = 8 MB	
	Flash (2691)	2	32 MB	128 MB	Slot 0 = 32 MB	
	DRAM (261XM, 262xXM)	2	96 MB	128 MB	Slot 0 = 64 MB; Slot 1 = 32MB	
	DRAM (265xXM)	2	128 MB	128 MB	Slot 0 = 64 MB; Slot 1 = 64 MB	
	DRAM (2612)	2	32MB	64 MB	Slot 0 = 32MB; Slot 1 = empty	
	DRAM (2691)	2	128 MB	256 MB	Slot 0 = 128 MB; Slot 1 = empty	
3700	Flash (Internal)	1	32 MB	128 MB		
	Flash (External)	1	0 MB	32-128 MB		
	DRAM (SoDIMM)	2	128 MB	256 MB		Slot 0 = 128 MB
7100 Series	Flash (PCMCIA)	2	48 MB	110 MB	Slot 0 = 48 MB	
	System SDRAM	2	64 MB	256 MB	Slot 0 = 64 MB	
	Packet SDRAM		64 MB	64 MB		
7200 Series	Flash (PCMCIA)	2	20 MB	128 MB		
	Flash (non-volatile, fixed config)		128 KB	128 KB		
	Flash (C7200-IO-FE bootflash)	1	4 MB	4 MB		
	Flash (C7200-IO-2FE, C7200-IO-GE/E bootflash)	1	4 or 8 MB	4 or 8 MB		
	DRAM (NPE-225)	1	128 MB	256 MB		Slot 0 = 128 MB DIMM
	DRAM (NPE-300)	4	32+128 MB	32+256 MB		Slot 0 = 32 MB DIMM, Slot 2 = 128 MB DIMM
	DRAM (NPE-400)	1	128 MB	512 MB		Slot 0 = 128 MB SoDIMMs
	DRAM (NSE-1)	1	128 MB	256 MB		Slot 0 = 128 MB DIMM
DRAM (NPE-G1)	1	256 MB	1 GB	Slot 0 = 128 MB SoDIMM, Slot 2 = 128 MB SoDIMM		
7300 Series	Flash (CFM)	1	64 MB	128 MB		
	DRAM	1	128 MB	512 MB		
7400 Series	Flash (PCMCIA)	2	64 MB	128 MB		
	DRAM (NSE-1) BB	1	256 MB	512 MB		
	DRAM (NSE-1) CP	1	128 MB	512 MB		



Router	Memory Type	Slots	Default	Default	
			Memory	Max Memory Configuration (Notes)	
<b>7500 Series</b>	Flash (PCMCIA) RSP2, RSP4+	1	16 MB	20 MB	
	Flash (PCMCIA) RSP8	2	20 MB	40 MB	
	Flash (PCMCIA) RSP16	1	48 MB	128 MB	
	Flash (SIMM)	1	8 MB	8 MB	
	DRAM (RSP2)	4	32 MB	128 MB	
	DRAM (RSP4+, RSP8)	2	64 MB	256 MB	
	DRAM (RSP16)	2	128 MB	1 GB	
	DRAM (VIP2-40)	1	32 MB	64 MB	
	DRAM (VIP2-50)	1	32 MB	128 MB	
	DRAM (VIP4-50/80)	1	64 MB	256 MB	
DRAM (VIP6-80)	1	64 MB	256 MB		
<b>7600 Series</b>	Flash (PCMCIA)	1	16 MB	512 MB	
	DRAM (Sup 2)	1	128 MB	512 MB	
	DRAM (MSFC2)	1	128 MB	512 MB	
	DRAM (PFC2)	1	128 MB	256 MB	
	DRAM (Sup720)	1	512 MB	1 GB	
<b>10000 Series</b>	Flash (PCMCIA)	2	48 MB	128 MB	1 x 48MB ships as default; 128MB is optional
	Flash (Internal)	1	32 MB	32 MB	
	Shared (PRE-1)	1	128 MB	128 MB	
	DRAM (PRE-1)	1	512 MB	512 MB	
<b>10700 Series</b>	Flash (Internal)	1	32 MB	64 MB	Maximum memory is configured with No Option
	SDRAM RP	1	512 MB	512 MB	
	Packet Buffer	1	64 MB	64 MB	
<b>12000 Series</b>	Flash (PCMCIA)	2	20 MB	20 MB	
	DRAM (GRP-B)	1/2	128 MB	512 MB	Route Memory
	SDRAM (PRP-1)	1/2	512 MB	1 GB	Route Memory
	DRAM (Line Cards)	1/2	128-256 MB	256-512 MB	Route Memory (line card dependent)
	SDRAM (Line Cards)	1/2	128-256 MB	256-512 MB	Packet Memory (line card dependent)
	Shared (PRE-2)	1	128 MB	128 MB	
	DRAM (PRE-2)	1	512 MB	512 MB	

## Cisco 7000 Series Port Adapter Compatibility Matrix

Port Adapter	7200VXR	7301	7304 Carrier Card	7400	7500	7600
<b>ATM Port Adapters</b>						
PA-A2-4E1XC-OC3SM CES OC-3 port adapter 4 E1 ports 120 ohms	*	-	-	-	-	-
PA-A2-4E1XC-E3ATM CES port adapter E3/E1 120 ohms	*	-	-	-	-	-
PA-A2-4E1YC-OC3SM	*	-	-	-	-	-
PA-A2-4E1YC-E3ATM	*	-	-	-	-	-
PA-A2-4T1C-OC3SM ATM CES port adapter, 4 T1 CES ports and 1 OC-3 ATM SM port	*	-	-	-	-	-
PA-A2-4T1C-T3ATM ATM CES port adapter, 4 T1 CES ports and 1 T3 ATM port	*	-	-	-	-	-
PA-A3-8T1IMA 8-port ATM inverse Mux T1 port adapter	*	*	-	*	*	*
PA-A3-8E1IMA 8-port ATM inverse Mux E1 (120 ohm) port adapter	*	*	-	*	*	*
PA-A3-OC3-MM 1-port ATM-enhanced OC-3c/STM1 multimode port adapter	*	*	*	*	*	• (Native) • (Hybrid)
PA-A3-OC12-MM 1-port ATM-enhanced OC-12/STM4 multimode	-	-	-	-	*	-
PA-A3-T3/E3 1-port ATM-enhanced DS3 port adapter	*	*	*	*	*	• (Native) • (Hybrid)
PA-A6-OC3XXX 1-port ATM OC-3 port adapter	*	-	-	*	-	-
PA-A6-T3 or E3 1-port ATM DS3 (E3) port adapter	*	-	-	*	-	-
<b>Ethernet Port Adapters</b>						
PA-2FE-TX/FX 2-port Fast Ethernet 100Base-TX/FX port adapter	*	*	• (TX)	*	*	-
PA-4E 4-port Ethernet 10Base-T port adapter	*	*	*	*	*	-
PA-5EFL 5-port Ethernet 10Base-FL port adapter	*	*	-	-	*	-
PA-8E 8-port Ethernet 10Base-T port adapter	*	*	*	*	*	-
PA-FE-TX/FX 1-port Fast Ethernet 100Base-FX/TX port adapter	*	*	*	*	*	-
PA-GE Gigabit Ethernet port adapter	*	-	*	*	-	-
<b>Other LAN Port Adapters</b>						
PA-4R-DTR 4-port dedicated Token Ring, 4/16 Mbps, HDX/FDX	*	-	-	-	-	-
PA-F-MM/SM 1-port FDDI full duplex multimode/single-mode port adapter	-	-	-	-	*	-
PA-F/FD-MM/SM 1-port FDDI full duplex multimode/single-mode port adapter	-	-	-	-	*	-

Port Adapter	7200VXR	7301	7304 Carrier Card	7400	7500	7600
<b>Serial Port Adapters</b>						
PA-4E1G/120 4-port E1 G.703 serial port adapter (120 ohm/balanced)	•	•	•	•	•	–
PA-4T+ 4-port serial port adapter, enhanced	•	•	•	•	•	• (Native) • (Hybrid)
PA-8T-XXX 8-port serial, 232 port adapter	•	•	•	•	•	• (Native) • (Hybrid)
<b>High-speed Serial Port Adapters</b>						
PA-H 1-port HSSI port adapter	•	•	•	•	•	• (Native) • (Hybrid)
PA-2H 2-port HSSI port adapter	•	•	•	•	•	• (Native) • (Hybrid)
PA-E3 1-port E3 serial port adapter with E3 DSU	•	•	•	•	•	• (Native) • (Hybrid)
PA-2E3 2-port E3 serial port adapter with E3 DSUs	•	•	•	•	•	• (Native) • (Hybrid)
PA-T3+ 1-port T3 serial port adapter, enhanced	•	•	•	•	•	• (Native) • (Hybrid)
PA-2T3+ 2-port T3 serial port adapter, enhanced	•	•	•	•	•	• (Native) • (Hybrid)
<b>Multichannel Serial Port Adapters</b>						
PA-4B-U	•	•	–	–	–	–
PA-8B-S/T 8-port BRI port adapter, S/T interface	•	•	–	–	–	–
PA-MC-2T(1) 2-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	–	•	–
PA-MC-4T(1) 4-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	–	•	• (Native) • (Hybrid)
PA-MC-8T(1) 8-port multichannel T1 port adapter with integrated CSU/DSUs	•	•	•	•	•	• (Native) • (Hybrid)
PA-MC-8TE1+ 8-port multichannel T1/E1 8PRI port adapter	•	•	•	•	•	•
PA-MC-2E1/120 2-port multichannel E1 port adapter with G.703 120 ohm interface	•	•	•	•	•	–
PA-MC-8E1/120 8-port multichannel E1 port adapter with G.703 120 ohm interface	•	•	•	•	•	• (Native) • (Hybrid)
PA-MC-E3 1-port multichannel E3 port adapter	•	•	•	•	•	• (Native) • (Hybrid)
PA-MC-T3 1-port multichannel T3 port adapter	•	•	•	•	•	• (Native) • (Hybrid)
PA-MC-2T3+ 2-port multichannel T3 port adapter	•	•	•	•	•	• (Native) • (Hybrid)
PA-MC-STM-1MM 1-port multichannel STM-1 multimode port adapter	•	•	•	–	•	• (Native) • (Hybrid)
PA-MCX-2TE(1) 2-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	–	–	–	–	–
PA-MCX-4TE(1) 4-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	–	–	–	–	–
PA-MCX-8TE(1) 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	•	–	–	–	–	–

Port Adapter	7200VXR	7301	7304 Carrier Card	7400	7500	7600
PA-POS-OC3-SMI 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	*	*	*	*	*	*
PA-POS-OC3-SML 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	*	*	*	*	*	*
PA-POS-20C3 2-port OC-3/STM1 POS port adapter	*	-	-	*	*	-
<b>SONET PAs</b>						
PA-POS-OC3-MM 1-port packet/SONET OC-3c/STM1 multimode port adapter	*	*	*	*	*	*
<b>Other Port Adapters and SAs</b>						
PA-4C-E 1-port-enhanced ESCON channel port adapter	*	-	-	-	-	-
PA-FC-1G Cisco Fiber Channel over IP port adapter interface	*	-	-	*	*	-
SA-ISA Integrated Services Adapter	*	-	-	-	-	-
SA-VAM VPN acceleration module for Cisco 7100 and 7200 Series	*	-	-	*	-	-
SA-VAM2 VPN acceleration module 2	*	-	-	-	-	-
PA-SRP-OC12SMI DPT-OC-12 single-mode intermediate PA	*	-	-	-	-	-
PA-SRP-OC12SMX DPT-OC-12 single-mode extended reach PA	*	-	-	-	-	-
PA-VXC-2TE1+ 2-port T1/E1 high-capacity enhanced-voice PA	*	*	-	-	*	-
PA-VXB-2TE1+ 2-port T1/E1 moderate-capacity enhanced-voice PA	*	*	-	*	*	-
PA-VXA-1TE1-24+ 1-port T1/E1 digital voice port adapter with 24 channels	*	-	-	-	*	-

## Cisco SOHO Series Ethernet, ADSL over ISDN, ADSL and G.SHDSL Routers



The Cisco SOHO series provides an affordable, secure, multi-user access solution to small office/home office (SOHO) customers while reducing deployment and operational costs for service providers. Through the power of Cisco IOS software technology, the Cisco SOHO 91 Ethernet to Ethernet Router, the SOHO 96 ADSL over ISDN, the SOHO 97 ADSL and SOHO 78 G.SHDSL routers provide superior manageability and reliability.

### When to Sell

#### Sell This Product

##### Cisco SOHO 91

#### When a Customer Needs These Features

- Ethernet WAN port for use with an external DSL or cable modem with 4-port 10/100 switch, stateful firewall and software based encryption

##### Cisco SOHO 96

- ADSL modem for use of ADSL over ISDN with 4-port 10/100 switch, stateful firewall and software based encryption

##### Cisco SOHO 97

- ADSL modem for ADSL over POTS with 4-port 10/100 switch, stateful firewall and software based encryption

##### Cisco SOHO 78

- 4-port Ethernet Hub and 1 G.SHDSL port with firewall security and Cisco IOS manageability and reliability

### Key Features

- Integrated security of Cisco IOS Software with Stateful Inspection Firewall and software-based 3DES encryption (no encryption on the SOHO 78)
- Easy setup and deployment using Cisco Router Web Set Up Tool (CRWS)
- Offers many local and remote debug and troubleshooting features in Cisco IOS Software

### Competitive Products

• 3Com: OfficeConnect 810	• Netopia: R6100, 4533
• Alcatel: Speed Touch Pro Router	• Westel: Wirespeed 36R566
• Cayman: 3220H	• Zyxel: 641, 782
• Efficient: 5861, 5660	• Nokia: MW1352
• Lucent: CellPipe 50A	• Linksys: Etherfast models

### Specifications

Feature	SOHO 91	SOHO 96	SOHO 97	SOHO 78
<b>Fixed LAN Ports</b>	4-port 10/100 Switch	4-port 10/100 Switch	4-port 10/100 Switch	4-port Ethernet (10BASE-T)
<b>Fixed WAN Ports</b>	1-port Ethernet (connects to external DSL or cable modem)	1-port ADSL over ISDN	1-port ADSL over POTS	1-port G.SHDSL
<b>Flash Memory</b>	8 MB	8 MB	8 MB	8 MB
<b>DRAM Memory</b>	32 MB	32 MB	32 MB	16 MB
<b>Dimensions (HxWxD)</b>	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)

### For More Information

See the Cisco SOHO Web site: <http://www.cisco.com/go/soho90>

## Cisco 800 Series

The Cisco 800 series router provides enhanced network security and proven reliability through Cisco IOS software, for small offices and telecommuters. It connects users to the Internet or to a corporate LAN via one ADSL, ADSL over ISDN, G.SHDSL, IDSL, ISDN, or serial connection (up to 512 Kbps), or with an Ethernet WAN port connected to an external broadband modem.



### When to Sell

#### Sell This Product When a Customer Needs These Features

##### Cisco 800 Series

- Companies who Cisco IOS-based networks who want to add telecommuters
- Service providers who offer value-added services to small offices
- VARs who are familiar with Cisco IOS software and want to profitably service small office customers
- Ethernet LAN ports and variety of WAN connectivity, including: ISDN BRI, Frame Relay, ADSL, G.SHDSL, async dialup (see Specifications for details)

### Key Features

- Fixed configuration support for several types of WAN connections
- Standard security with ACLs, PAT/NAT, PAP/CHAP, MS-CHAP, Lock and Key, and Generic Routing Encapsulation (GRE) tunneling
- Enhanced security with stateful inspection firewall, IPSec encryption (hardware based on Cisco 830s and AES encryption on Cisco 830s)
- Dial backup via aux/console port on the 830 routers
- Dial backup via integrated ISDN port on the 836
- X.25 over D-channel support on 836
- Toll quality voice with VoIP on Cisco 827-4V
- Integrated 4-port 10/100 Ethernet Switch on Cisco 830 series
- Bandwidth optimization features such as compression, Bandwidth-on-Demand, Dial-on-Demand, Always-On-Dynamic-ISDN (AODI), and X.25 over D channel (Cisco 801- 804)
- Support for CAPI applications in the European market (801, 803)

### Competitive Products

- |                                       |                               |
|---------------------------------------|-------------------------------|
| • 3Com: Office Connect Remote 511/521 | • Netopia: R3100, R6100, 4533 |
| • Alcatel: Speed Touch Pro Routers    | • Nortel/Bay: Nautica 250     |
| • Ascend: Pipeline 75/85              | • Nokia: MW1352               |
| • Efficient: 5861 / 5660              | • Zyxel: 782                  |
| • Intel: Express 8100                 | • Linksys: Etherfast          |

### Specifications

Feature	801	802	803	804	811	813
<b>Fixed LAN Port Connections</b>	1-port Ethernet (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)	4-port Ethernet hub (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)
<b>Fixed WAN Port Connections</b>	1-port ISDN BRI (S/T)	1-port ISDN BRI (U) NT-1	1-port ISDN BRI (S/T) 2 analog ports	1-port ISDN BRI (U) NT-1 2 analog ports	1-port ISDN BRI S/T and 1-port ISDN BRI (U) NT-1 2 analog ports	1-port ISDN BRI S/T and 1-port ISDN BRI (U) NT-1 2 analog ports
<b>Flash Memory</b>	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	8MB (default) 12 MB (max)	4MB (default) 12MB (max)	8MB (default) 12MB (max)

Feature	801	802	803	804	811	813
<b>DRAM Memory</b>	4MB (default) 12MB (max)	4MB (default) 12MB (max)	4MB (default) 12MB (max)	4MB (default) 12MB (max)	8MB (default) 16MB (max)	8MB (default) 16MB (max)
<b>Dimensions (HxWxD)</b>	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)	Same as Cisco 801	Same as Cisco 801	Same as Cisco 801	Same as Cisco 801	Same as Cisco 801

Feature	805	827-4V	828	831	836	837
<b>Fixed LAN Port Connections</b>	1-port Ethernet (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet hub (10BASE-T)	4-port Ethernet (10BASE-T)	1-port Ethernet (10BASE-T)	4-port Ethernet (10BASE-T)
<b>Fixed WAN Port Connections</b>	1-port Serial (Up to 512 KBPS)	1-port ADSL	1-port G.SHDSL	1-port Ethernet	1-port ADSL-over-ISDN, 1-port ISDN S/T	1-port ADSL over POTS
<b>Flash Memory</b>	4MB (default) 12MB (max)	8MB (default) 16MB (max)	8MB (default) 16MB (max)	8MB (default) 24MB (max)	8MB (default) 24MB (max)	8MB (default) 24MB (max)
<b>DRAM Memory</b>	8MB (default) 16MB (max)	24MB (default) 32MB (max)	16MB (default) 32MB (max)	32MB (default) 48MB (max)	32MB (default) 48MB (max)	32MB (default) 48MB (max)
<b>Dimensions (HxWxD)</b>	2.0 x 9.9 x 8.3 in. (5.1 x 25.2 x 21.1 cm)	Same as Cisco 805	Same as Cisco 805	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.	2.0 x 9.7 x 8.5 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 800 Series Routers

CISCO801	1-port 10BASE-T, 1-port BRI (S/T), IP s/w
CISCO802	1-port 10BASE-T, 1-port BRI (U) w/ NT-1, IP s/w
CISCO803	4-port 10BASE-T hub, 1-port BRI (S/T), 2-port POTS, IP s/w
CISCO804	4-port 10BASE-T hub, 1-port BRI (U) w/ NT-1, 2-port POTS, IP s/w
CISCO805	1-port 10BASE-T, 1-port serial, IP s/w
CISCO801-CAPI	ISDN/Ethernet Router with one-user CAPI license
CISCO803-CAPI	ISDN/Ethernet Router with one-user CAPI license, 4-port hub
CISCO827-4V	1-port ADSL, 1-port 10BASE-T, 4 ports FXS, IP/Voice s/w
CISCO828	1-port G.SHDSL, 4-port 10BASE-T hub, IP s/w
CISCO831-K9 USD 649.00	Cisco 831 Ethernet Router
CISCO836-K9	Cisco 836 ADSL over ISDN Router
CISCO837-K9	Cisco 837 ADSL Router

### Cisco 800 Series CD Feature Packs

CD08-BHL-12.0.7XV=	Cisco 800 Series IP/IPX/FW Plus IPSec 56
CD08-BP-12.07.XV=	Cisco 800 Series IP/IPX/Plus
CD800-5CAP1=	CAPI 5 User CD
CD08-IC-12.0.5T=	Cisco 800 Series Internet DSL
CD08-ICHL-12.0.5T=	Cisco 800 Series Internet DSL FW IPSec56
CD08-IBHL-12.0.5T=	Cisco 800 Series Internet DSL IPX FW IPSec56

### Cisco 800 Series Memory Options

MEM800-4F=	Cisco 800 Series, 4 MB Flash Mini-Card
MEM800-8F=	Cisco 800 Series, 8 MB Flash Mini-Card
MEM800-4D=	Cisco 800 Series, 4 MB DRAM DIMM
MEM800-8D=	Cisco 800 Series, 8 MB DRAM DIMM
MEM820-8U16F	Cisco 820 Flash upgrade 8Mbyte-16Mbyte
MEM820-16U20D	Cisco 820 DRAM upgrade 16Mbyte-20Mbyte (16Mbyte-24Mbyte & 16Mbyte-32Mbyte also available)
MEM820-24U32D	Cisco 820 DRAM 24Mbyte upgrade to 32 Mbytes

### Cisco 800 Series Accessories

PWR-8xx-WW1=	Cisco 8xx Series, AC Power Supply Spare
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### Cisco 800 Series Basic Maintenance

CON-SNT-PKG1	Cisco 800 Series SMARTnet Maintenance (8x5xNBD)
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1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Cisco 800 Series Web site: <http://www.cisco.com/go/800>

## Cisco 1700 Series

The Cisco 1700 series modular access routers are designed to provide a cost-effective integrated access platform for small and medium-sized businesses and enterprise small branch offices.



These Cisco IOS-based routers deliver high-speed network access, comprehensive security features, and multiservice data/voice/video/fax integration to meet the most demanding business requirements. Within the Cisco 1700 series, Cisco 1711 and 1712 security access routers work with existing broadband modems to provide advanced routing and security functionality, Cisco 1721 modular access routers provide flexible, high-performance data access, and Cisco 1751 and Cisco 1760 modular access routers are optimized for both voice and data traffic, providing a simple and cost-effective path to multi-service networking—today or in the future.

### When to Sell

#### Sell This Product

#### When a Customer Needs These Features

##### Cisco 1711/1712

- Advanced routing and security functionality in one device when connecting to the Internet using a broadband modem
- Hardware-assisted high speed 3DES VPN encryption
- Back-up interface is need for highly reliable apps
- VLAN Configuration is necessary

##### Cisco 1721

- Secure data-only access solution that adapts to customers' evolving network requirements
- Support for data applications including VPNs and broadband access services
- A broad array of WAN services supported, including Frame Relay, leased line, ADSL, G.SHDSL, ISDN BRI, X.25, SMDS and more
- IPSec 3DES VPN encryption at full T1/E1 speeds
- IEEE 802.1Q VLAN Support

##### Cisco 1751

- All the above, plus:
- Analog and digital voice support in a desk-top form factor
  - 3 modular slots for WAN and Voice interface cards

##### Cisco 1760

- All the above, plus:
- 19" rackmount form factor
  - 4 slots with 2 WIC/VIC and 2 VIC slots
  - Multiservice analog and digital voice support
  - Highest performance multi-service router in the Cisco 1700 family
  - Higher density analog and digital voice support than Cisco 1751

### Key Features

- Support for up to 4 serial interfaces or 2 ISDN BRI; 1 autosensing 10/100 Mbps Fast Ethernet LAN connection; 1 auxiliary (AUX) port for dial-up management or low-speed asynchronous connections (up to 112.5 kbps)
- Flexibility—Cisco 1700 Series supports a diverse set of WAN and Voice Interface Cards that are shared with the 1600 (WAN only), 2600/2600XM, and 3600 series routers enabling field upgradeability
- Integrated Device—Cisco 1700 series combines WAN routing, VPN and multiservice access in a single device
- Expansion Slot—optional hardware VPN module for wire-speed IPSec 3DES encryption and can enable future technologies (standard on Cisco 1710)
- Integrated Security—Supports context-based access control for dynamic firewall filtering, denial-of-service detection and prevention, Java blocking, real-time alerts, Intrusion Detection System (IDS), and encryption.
- IEEE 802.1Q VLAN Support



## Specifications

Feature	Cisco 1711/1712	Cisco 1721	Cisco 1751/1751-V	Cisco 1760/1760-V
<b>Fixed LAN Ports (connections)</b>	4-port 10/100 Mbps switch, 1-port autosensing 10/100 Mbps Ethernet	1-port autosensing 10/100 Mbps Ethernet	1-port autosensing 10/100 Mbps Ethernet	1-port autosensing 10/100 Mbps Ethernet
<b>Fixed WAN Ports</b>	1-port analog modem (1711), 1-port ISDN S/T interface (1712)	None	None	None
<b>Modular Slots</b>	None	2 WAN slots	3 slots (2 WAN or Voice slots and 1 Voice-only slot)	4 Slots (2 WAN or Voice slots and 2 Voice-only slots)
<b>WAN Interface Card (WIC) Modules</b>	None	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Voice Interface Cards (VIC) Modules</b>	None	None	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Flash Memory</b>	32 MB Flash (default/max)	32 MB (default); 32 MB (max)	1751 base model: 32 MB (default); 32 MB (max) 1751-V multiservice ready configuration: 32 MB (default); 32 MB (max)	1760 base model: 32-MB Flash Memory (on board) 64-MB (max) 1760-V: 32-MB Flash 64-MB (max)
<b>DRAM Memory</b>	64 MB	64 MB (default); 128 MB (max)	1751 base model: 64 MB (default); 128 MB (max) 1751-V multiservice-ready configuration: 96 MB (default); 128 MB (max)	1760 base model: 64 MB (default) 128 MB (max) 1760-V: 96 MB (default) 128 MB (max)
<b>Dimensions (HxWxD)</b>	3.1 x 11.2 x 8.7 in.	3.1 x 11.2 x 8.7 in.	4.0 x 11.2 x 8.7 in.	1.7 x 17.5 x 12.8 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 1700 Series Modular Access Routers

CISCO1760	10/100 Modular Router w/ 4 slots, 19-in Chassis, 32F/64D
CISCO1760-ADSL	1760 bundle, w/ADSL POTS WIC, IP/ADSL, 32MB FL/64MB DR
CISCO1760-SHDSL	1760 bundle, w/WIC-1SHDSL, IP/ADSL, 32MB FL/64MB DR
CISCO1760-VPN/K9	1760 VPN Bndl w/VPN Mod, 96MB DRAM, 32MB Flash, IP Plus/FW/3DES
CISCO1760-VPN/K9-A	1760 VPN Bnd w/ADSL WIC, VPN Mod, 96MB DR, 32MB FL, IP+/FW/3DES
CISCO1760-V	10/100 Modular Router w/Voice, 19-in Chassis, 32MB FL/96MB DR
CISCO1760-V-SRST	Cisco 1760-V with 24-user SRST Feature License, 32F/128D
CISCO1760-V3PN/K9	V3PN Bndl w/1760-V/128MB DR/32MB FL/VPN Module/4-Ch DSP
CISCO1751	10/100 Modular Router w/ 3 slots, IOS IP, 32F/64D
CISCO1751-V	10/100 Modular Router w/Voice, 32F/96D
CISCO1751-VPN/K9	1751 VPN Bndl w/VPN Mod, 96MB DRAM, 32MB Flash, IP Plus/FW/3DES
CISCO1751-VPN/K9-A	1751 VPN Bnd w/ADSL WIC, VPN Mod, 96MB DR, 32MB FL, IP+/FW/3DES
CISCO1721	10/100 BaseT Modular Router w/2 WAN slots, 16M Flash/32M DRAM
CISCO1721-ADSL	1721 bundle, w/ADSLoPOTS WIC, IP/ADSL, 32MB FL/64MB DR
CISCO1721-ADSLI	1721 bundle w/ADSLoISDN WIC, IP/ADSL, 32MB FL/64MB DR
CISCO1721-ADSL-DG	1721 bundle w/WIC-1ADSL-DG, IP/ADSL, 32MB FL/64MB DR
CISCO1721-VPN/K9	1721 VPN Bndl w/VPN Mod, 96MB DRAM, 32MB Flash, IP Plus/FW/3DES
CISCO1721-VPN/K9-A	1721 VPN Bnd w/ADSL WIC, VPN Mod, 96MB DR, 32MB FL, IP+/FW/3DES
CISCO1721-SHDSL	1721 bundle, w/WIC-1SHDSL, IP/ADSL, 32MB FL/64MB DR
CISCO1711-VPN/K9	1711 Security Router w/VPN Mod, 32MB Flash, 64MB DRAM
CISCO1712-VPN/K9	1712 Security Router w/VPN Mod, 32MB Flash, 64MB DRAM

### Cisco 1751 Software Feature Packs for Cisco IOS Release 12.1.(5)YB

CD17-C-12.1.5=	IP
CD17-C-12.1.5=	IP ADSL
CD17-C7P-12.1.5=	IP Plus ADSL
CD17-C7K2-12.1.5=	IP Plus IPSec 3DES ADSL
CD17-CH-12.1.5=	IP/FW/IDS
CD17-B-12.1.5=	IP/IPX
CD17-B7HP-12.1.5=	IP/IPX/FW/IDS Plus ADSL
CD17-C7HK2-12.1.5=	IP/FW/IDS Plus IPSec 3DES ADSL
CD17-Q7HK2-12.1.5=	IP/IPX/AT/IBM/FW/IDS Plus IPSec 3DES
CD17-C7VP-12.1.5=	IP/Voice Plus
CD17-C7VP-12.1.5=	IP/Voice Plus ADSL
CD17-C7HV-12.1.5=	IP/Voice/FW/IDS Plus ADSL
CD17-C7VK2-12.1.5=	IP/Voice Plus IPSec 3DES ADSL
CD17-C7HVK2-12.1.5=	IP/Voice/FW/IDS Plus IPSec 3DES ADSL
CD17-Q7HVK2-12.1.5=	IP/IPX/AT/IBM/FW/IDS/Voice Plus IPSec 3DES

**Cisco 1700 Series Memory Options**

MEM-1700-4MFC=	Cisco 1700 Series, 4 MB Mini-Flash Card
MEM-1700-8MFC=	Cisco 1700 Series, 8 MB Mini-Flash Card
MEM-1700-16D=	Cisco 1700 Series, 16 MB DRAM DIMM
MEM-1700-32D=	Cisco 1700 Series, 32 MB DRAM DIMM
MEM-1700-64D=	Cisco 1700 Series, 64 MB DRAM DIMM

**Cisco 1700 Series WAN Interface Cards (WICs)**

WIC-1T	1-port Serial WAN Interface Card
WIC-2T	2-port Serial WAN Interface Card
WIC-2A/S	2-port Async/Sync Serial WAN Interface Card
WIC-1B-S/T	1-port BRI (S/T) WAN Interface Card (dial and leased line)
WIC-1B-U-V2	1-Port ISDN BRI NT-1 WIC for 1700, 2600, 3600 and 3700 series
WIC-1DSU-56K4	1-port 4-Wire 56/64 Kbps w/ (DSU/CSU) WAN Interface Card
WIC-1DSU-T1	1-port T1/Fr T1 w/ (DSU/CSU) WAN Interface Card
WIC-1DSU-T1-V2	1-Port T1/Fractional T1 DSU/CSU WAN Interface Card; Ver. 2
WIC-1ADSL=	1-port ADSL WAN Interface Card
WIC-1ADSL-I-DG=	1-port ADSLoISDN Wan Interface Card
WIC-1ADSL-DG=	1-port ADSLoPOTS WIC w/Dying Gasp
WIC-1SHDSL	1-port G.SHDSL WAN Interface Card
WIC-1ENET=	1-port Ethernet Interface Card

**Cisco 1751/1760 Voice Interface Cards**

VIC-2FXS	2-port Voice Interface Card FXS
VIC-4FXS	4-port Voice Interface Card FXS
VIC-2FXO	2-port Voice Interface Card FXO
VIC-2E/M	2-port Voice Interface Card E&M
VIC-2FXO-EU	2-port Voice Interface Card FXO for Europe
VIC-2FXO-M	32-port Voice Interface Card FXO for Australia
VIC-2BRI-NT/TE	2-port Voice Interface Card-BRI (NT & TE)
VIC-2FXO-M1	2-port FXO for U.S. with battery reversal
VIC-2FXO-M2	2-port FXO for Europe with battery reversal
VIC-2DID	2-port FXO analog DID
VIC2-2FXS	Two-port Voice Interface Card - FXS
VIC2-2FXO	Two-port Voice Interface Card - FXO (Universal)
VIC2-4FXO	Four-port Voice Interface Card - FXO (Universal)
VIC2-2E/M	Two-port Voice Interface Card - EandM
VIC2-2BRI-NT/TE	Two-port Voice Interface Card - BRI (NT and TE)

**Cisco 1700 Multiflex Voice / WAN interface Cards**

VVIC-1MFT-E1	1-Port RJ-48 Multiflex Trunk - E1
VVIC-1MFT-E1=	1-Port RJ-48 Multiflex Trunk - E1
VVIC-1MFT-G703	1-Port RJ-48 Multiflex Trunk - G.703
VVIC-1MFT-G703=	1-Port RJ-48 Multiflex Trunk - G.703
VVIC-2MFT-E1	2-Port RJ-48 Multiflex Trunk - E1
VVIC-2MFT-E1=	2-Port RJ-48 Multiflex Trunk - E1
VVIC-2MFT-E1-DI	2-Port RJ-48 Multiflex Trunk - E1 With Drop and Insert
VVIC-2MFT-E1-DI=	2-Port RJ-48 Multiflex Trunk - E1 With Drop and Insert
VVIC-2MFT-G703	2-Port RJ-48 Multiflex Trunk - G.703
VVIC-2MFT-G703=	2-Port RJ-48 Multiflex Trunk - G.703
VVIC-1MFT-T1	1-Port RJ-48 Multiflex Trunk - T1
VVIC-1MFT-T1=	1-Port RJ-48 Multiflex Trunk - T1
VVIC-2MFT-T1-DI	2-Port RJ-48 Multiflex Trunk - T1 With Drop and Insert
VVIC-2MFT-T1-DI=	2-Port RJ-48 Multiflex Trunk - T1 With Drop and Insert
VVIC-2MFT-T1	2-Port RJ-48 Multiflex Trunk - T1
VVIC-2MFT-T1=	2-Port RJ-48 Multiflex Trunk - T1

**Cisco 1700 Module Options**

MOD1700-VPN	Cisco 1700 Series VPN Module
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**Cisco 1700 Spares and Accessories**

PWR-1700-WW1=	Cisco 1700 AC Power Supply-worldwide
PVDM-256K-4=	4-Channel Packet Voice/Fax DSP Module
PVDM-256K-8=	8-Channel Packet Voice/Fax DSP Module
PVDM-256K-12=	12-Channel packet Voice/Fax DSP Module
PVDM-256K-16HD=	16-Channel Packet Voice/Fax DSP Module for 1700
PVDM-256K-20HD=	20-Channel Packet Voice/Fax DSP Module for 1700

**Cisco 1700 Series Basic Maintenance**

CON-OSP-1721	24x7x4 Onsite Svc, 10/100BaseT Modular Router w/2 WAN slots
CON-OSP-1751	24x7x4 Onsite Svc, 10/100 Modular Router (1751)
CON-OSP-1760	24x7x4 Onsite Svc, 10/100 Modular Router w/ 2WIC/VIC,2VIC

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the Cisco 1700 Series Web site: <http://www.cisco.com/go/1700>

**Cisco 2600 Series**

The Cisco 2600 series is an award-winning family of modular multiservice access routers, providing flexible LAN and WAN configurations, multiple security options, voice/data integration, and a range of high performance processors. These features make the Cisco 2600 series the ideal branch-office router for today's and tomorrow's customer requirements.

The Cisco 2600 series family of modular routers include the Cisco 2600XM models, the Cisco 2691 and the Cisco 2612 token ring router. These new models deliver extended performance, higher density, enhanced security performance and increased concurrent application support to meet the growing demands of branch offices.

The Cisco 2600XM models are based on the classic Cisco 2600 platform architecture, and extend the performance by as much as 33%. They also increase default platform memory and provide increases in memory capacity at the same price as their Cisco 2600 predecessor.

The highest performing router in the Cisco 2600 family that extends the density of emerging branch office applications, is the Cisco 2691 offering almost twice the performance of the Cisco 2650XM platform while leveraging the same modules from other Cisco 2600, Cisco 3600 and Cisco 3700 Series routers. Compared to the Cisco 2600XM models, the new Cisco 2691 is designed to offer a higher degree of versatility, providing greater throughput for higher density WAN applications, support for high speed interfaces and increased performance to handle new services.

**When to Sell****Sell This Product When a Customer Needs These Features**

<b>Cisco 2691</b>	<ul style="list-style-type: none"> <li>• Enterprises wanting a higher level of performance for a broadened range of concurrent remote office applications, including unparalleled voice/data integration, Virtual Private Network (VPN) performance, increased bandwidth to support voice and video applications, and the delivery of Web-based applications.</li> </ul>
<b>Cisco 2600XM Series</b>	<ul style="list-style-type: none"> <li>• Enterprises considering the Cisco 2600 for branch office applications should now regard the Cisco 2600XM as the preferential platform for delivering high performing, flexible solutions to branch and remote offices.</li> <li>• High Performance 10/100 Dual Ethernet Router with 3 WIC Slots, 1 NM</li> </ul>
<b>Cisco 2651XM</b>	<ul style="list-style-type: none"> <li>• High performance Dual 10/100 Modular Router with Cisco IOS IP</li> </ul>
<b>Cisco 2650XM</b>	<ul style="list-style-type: none"> <li>• High performance 10/100 Modular Router with Cisco IOS IP</li> </ul>
<b>Cisco 2621XM</b>	<ul style="list-style-type: none"> <li>• Mid Performance Dual 10/100 Ethernet Router with Cisco IOS IP</li> </ul>
<b>Cisco 2620XM</b>	<ul style="list-style-type: none"> <li>• Mid Performance 10/100 Ethernet Router with Cisco IOS IP</li> </ul>
<b>Cisco 2611XM</b>	<ul style="list-style-type: none"> <li>• Dual 10/100 Ethernet Router with Cisco IOS IP</li> </ul>
<b>Cisco 2610XM</b>	<ul style="list-style-type: none"> <li>• 10/100 Ethernet Router with Cisco IOS IP</li> </ul>
<b>Cisco 2612</b>	<ul style="list-style-type: none"> <li>• One Token Ring port and one Ethernet port for mixed LANs and migrating from Token Ring to Ethernet</li> </ul>

## Key Features

- Integration/manageability—Lowers cost of ownership and improves ease of remote management, providing integrated “branch-in-a-box” networking that combines CSU/DSUs, multiplexers, modems, voice/data gateways, ISDN NT1s, firewalls, VPNs, encryption, and compression devices
- Multiservice voice/data networks—Reduces phone/fax costs between offices; using Cisco IOS software QoS features (such as RSVP, WFQ, CAR, and RED), voice/fax traffic is digitized and encapsulated in Frame Relay or IP packets and consolidated with data traffic
- Enterprise/Provider class solution—Meets the requirements of multiservice enterprises and their managed service CPE providers with high reliability features, multiple WAN connections, and the ability to migrate from data- only to TDM voice and data to packetized voice and data infrastructure
- High-density analog/fax network modules provide the ability to directly connect PSTN and legacy telephony equipment to existing Cisco 2600 and 3600 routers
- An EtherSwitch network module for the Cisco 2600/3600 series with 16 ports of 10/100 Ethernet and one optional 1000BaseT (Gigabit Ethernet) connection, providing a fully integrated Layer 2 (L2) switch with the capability to support both Line Power to Cisco IP phones and current Aironet 802.11 wireless base stations (with the addition of an external power supply). This provides a single box solution for branch offices deploying converged IP telephony, extending data, voice and video by delivering IP routing, Ethernet switching, fixed wireless solutions and voice gateway capabilities
- A wide range of Virtual Private Network modules (VPN) optimize the Cisco 2600 Series platforms for virtual private networks (VPNs) and delivers a rich integrated package of routing, firewall, intrusion-detection, and VPN functions
- The introduction of the WIC-ADSL and WIC-1SHDSL, offers business-class broadband service with scalable performance, flexibility, and security for branch and regional offices
- Content Networking Integration and Branch-Office Routing with router-integrated content-delivery system that combines intelligent caching, content routing and management with robust branch-office routing, WAN bandwidth for branch IP services such as voice over IP (VoIP)

## Competitive Products

- 3Com: SuperStack II NETBuilder SI and Pathbuilder S400
- Intel/Shiva: LanRover Family
- Motorola: Vanguard 645x/643x
- Nortel/Bay: Advanced Remote Node (ARN), Passport 4400 series
- FutureWei/Quidway®: R2630/31E
- Tasman: 2004, 1400

## Specifications

Feature	2610/11XM	2620/21XM	2650/51XM	2691
Performance	Up to 20Kpps	Up to 30Kpps	Up to 40Kpps	Up to 70Kpps
Flash Memory (Default/Max)	32 MB/48 MB	32 MB/48 MB	32 MB/48 MB	32 MB/128 MB (Compact Flash)
System Memory (Default/Max)	96 MB/128 MB	96 MB/128 MB	128 MB/128 MB	128 MB/256 MB
Integrated WIC Slots	2	2	2	3
Onboard AIM Slot	1	1	1	2
Minimum Cisco IOS Release	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or later	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or later	12.1(14) mainline, 12.2(12) mainline, 12.2(8)T1or later	12.2(8)T1 or later
Onboard LAN Ports	1 to 2 10/100 FE ports	1 to 2 10/100 FE ports	1 to 2 10/100 FE ports	2 10/100 FE ports
Rack Mounting	Yes, 19" and 23" options	Yes, 19" and 23" options	Yes, 19" and 23" options	Yes, 19" and 23" options
Wall Mounting	Yes	Yes	Yes	No

## Cisco IOS Software<sup>1</sup>

Most Cisco IOS software CD feature packs for the Cisco 2600 series include several selected Cisco IOS releases. Some configurations will require more than the recommended minimum.

### Distribution

Part Number	Feature Pack Description
CD26XM-AESK9=	Cisco 2600XM Ser IOS ADV ENT SERVICES Feature Pack
CD26XM-AHK9=	Cisco 2600XM Ser IOS ENT/FW/IDS PLUS IPSEC 3DES Feature Pack
CD26XM-AISK9=	Cisco 2600XM Ser IOS ADV IP SERVICES Feature Pack
CD26XM-AP=	Cisco 2600XM Ser IOS ENT PLUS Feature Pack
CD26XM-APU=	Cisco 2600XM Ser IOS ENT PLUS/H323 MCM Feature Pack
CD26XM-ARIK9=	Cisco 2600XM Ser IOS ENT/SNASW PLUS IPSEC 3DES Feature Pack
CD26XM-AR1P=	Cisco 2600XM Ser IOS ENT/SNASW PLUS Feature Pack
CD26XM-ASK9=	Cisco 2600XM Ser IOS ADV SECURITY Feature Pack
CD26XM-B=	Cisco 2600XM Ser IOS IP/IPX/APPLETALK Feature Pack
CD26XM-BP=	Cisco 2600XM Ser IOS IP/IPX/APPLETALK PLUS Feature Pack
CD26XM-C=	Cisco 2600XM Ser IOS IP Feature Pack
CD26XM-CH=	Cisco 2600XM Ser IOS IP/FW/IDS Feature Pack
CD26XM-CHK9=	Cisco 2600XM Ser IOS IP/FW/IDS PLUS IPSEC 3DES Feature Pack
CD26XM-CP=	Cisco 2600XM Ser IOS IP PLUS Feature Pack
CD26XM-EB=	Cisco 2600XM Ser IOS ENT BASE Feature Pack
CD26XM-ESK9=	Cisco 2600XM Ser IOS ENT SERVICES Feature Pack
CD26XM-IPB=	Cisco 2600XM Ser IOS IP BASE Feature Pack
CD26XM-IPV=	Cisco 2600XM Ser IOS IP VOICE Feature Pack
CD26XM-SPSK9=	Cisco 2600XM Ser IOS SP SERVICES Feature Pack
CD269-AESK9=	Cisco 2691 Ser IOS ADV ENT SERVICES Feature Pack
CD269-AHK9=	Cisco 2691 Ser IOS ENT/FW/IDS PLUS IPSEC 3DES Feature Pack
CD269-AISK9=	Cisco 2691 Ser IOS ADV IP SERVICES Feature Pack
CD269-AP=	Cisco 2691 Ser IOS ENT PLUS Feature Pack
CD269-APU=	Cisco 2691 Ser IOS ENT PLUS/H323 MCM Feature Pack
CD269-ARIK9=	Cisco 2691 Ser IOS ENT/SNASW PLUS IPSEC 3DES Feature Pack
CD269-AR1P=	Cisco 2691 Ser IOS ENT/SNASW PLUS Feature Pack
CD269-ASK9=	Cisco 2691 Ser IOS ADV SECURITY Feature Pack
CD269-B=	Cisco 2691 Ser IOS IP/IPX/APPLETALK Feature Pack
CD269-BP=	Cisco 2691 Ser IOS IP/IPX/APPLETALK PLUS Feature Pack
CD269-C=	Cisco 2691 Ser IOS IP Feature Pack
CD269-CH=	Cisco 2691 Ser IOS IP/FW/IDS Feature Pack
CD269-CHK9=	Cisco 2691 Ser IOS IP/FW/IDS PLUS IPSEC 3DES Feature Pack
CD269-CP=	Cisco 2691 Ser IOS IP PLUS Feature Pack
CD269-EB=	Cisco 2691 Ser IOS ENT BASE Feature Pack
CD269-ESK9=	Cisco 2691 Ser IOS ENT SERVICES Feature Pack
CD269-IPB=	Cisco 2691 Ser IOS IP BASE Feature Pack
CD269-IPV=	Cisco 2691 Ser IOS IP VOICE Feature Pack
CD269-SPSK9=	Cisco 2691 Ser IOS SP SERVICES Feature Pack
CD26-C-12.0.7=	IP only
CD26-CP-12.0.7=	IP Plus
CD26-CH-12.0.7=	IP/Firewall
CD26-CHL-12.0.7=	IP/Firewall Plus IPsec 56
CD26-CHK2-12.0.7=	IP/Firewall Plus IPsec 3DES
CD26-CK2-12.0.7=	IP Plus IPsec 3DES
CD26-CL-12.0.7=	IP Plus IPsec 56
CD26-B-12.0.7=	IP/IPX/AT/DEC
CD26-BP-12.0.7=	IP/IPX/AT/DEC Plus
CD26-BHP-12.0.7=	IP/IPX/AT/DEC/Firewall Plus
CD26-AP-12.0.7=	Enterprise Plus
CD26-AL-12.0.7=	Enterprise Plus IPsec 56
CD26-AHK2-12.0.7=	Enterprise/Firewall Plus IPsec 3DES
CD26-AHL-12.0.7=	Enterprise/Firewall Plus IPsec 56

**Distribution****Part Number**      **Feature Pack Description**

CD26-AK2-12.0.7=      Enterprise Plus IPSec 3DES

CD26-E-12.0.7=      Remote Access Server

- For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information." For users with CCO access, search by IOS feature or release via the *Feature Navigator* at <http://www.cisco.com/go/fin>

**Selected Part Numbers and Ordering Information<sup>1</sup>****Cisco 2600/2600XM Series Router Chassis**

1CISCO2610XM	10/100 Ethernet Router w/ Cisco IOS IP
CISCO2610XM-DC	10/100 Ethernet Router w/ Cisco IOS IP - DC
CISCO2610XM-RPS	10/100 Ethernet Router w/ Cisco IOS IP - use w/ ext RPS
CISCO2611XM	Dual 10/100 Ethernet Router w/ Cisco IOS IP
CISCO2611XM-DC	Dual 10/100 Ethernet Router w/ Cisco IOS IP - DC
CISCO2611XM-RPS	Dual 10/100 Ethernet Router w/ Cisco IOS IP - use w/ ext RPS
CISCO2620XM	Mid Performance 10/100 Ethernet Router with Cisco IOS IP
CISCO2620XM-DC	Mid Performance 10/100 Ethernet Router w/Cisco IOS IP-DC
CISCO2620XM-RPS	Mid Performance 10/100 Ethernet Rout w/Cisco IOS IP-RPS ADPT
CISCO2621XM	Mid Performance Dual 10/100 Ethernet Router with Cisco IOS IP
CISCO2621XM-DC	Mid Performance Dual 10/100 Ethernet Rout w/Cisco IOS IP-DC
CISCO2621XM-RPS	Mid Performance Dual 10/100 Ethernet Rout w/IOS IP-RPS ADPT
CISCO2650XM	High Performance 10/100 Modular Router w/Cisco IOS IP
CISCO2650XM-DC	High Performance 10/100 Modular Rout w/Cisco IOS IP-DC NEBs
CISCO2650XM-RPS	High Performance 10/100 Modular Rout w/Cisco IOS IP-RPS ADPT
CISCO2651XM	High Performance Dual 10/100 Modular Router with Cisco IOS IP
CISCO2651XM-DC	High Performance Dual 10/100 Modular Rout w/IP-DC NEB
CISCO2651XM-RPS	High Performance Dual 10/100 Mod Rout w/IP-RPS ADPT
CISCO2691	High Performance 10/100 Dual Eth Router w/3 WIC Slots,1 NM
CISCO2691-DC-U	2691 router w/Universal Power Supply 24/48 volts
CISCO2691	High Performance 10/100 Dual Eth Router w/3 WIC Slots/1 NM-RPS ADPT
CISCO2612	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, IP s/w
CISCO2612-DC	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, DC Power, IP s/w
CISCO2612-RPS	1-port 10BASE-T, 1-port TR, 1 network module slot, 1 AIM slot, 2 WIC slots, RPS adapter, IP s/w

**Cisco 2600 Series Voice Gateway Bundles**

CISCO2651XM-V	CISCO2651XM, AIM-VOICE-30, IOS IP Voice, 128D/32F
CISCO2651XM-V-SRST	CISCO2651XM, FL-SRST-MEDIUM, AIM-VOICE-30, IOS IP Voice, 128D/32F

**Cisco 2600 Series VPN Bundles**

CVPN2600FIPS/KIT=	KIT (Instructions, labels) to configured 2600 for FIPS
C2651XM-2FE/VPN/K9	2651XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM
C2621XM-2FE/VPN/K9	2621XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM
C2611XM-2FE/VPN/K9	2611XM/VPN Bundle, AIM-VPN/BPII/2FE/IOS FW/IPSec 3 DES, 128DRAM
C2691-VPN/K9	2691 VPN Bundle, AIM-VPN/EPII, Plus IOS/FW/IPSEC3DES

**Cisco 2600 Series DSL Bundles**

CISCO2651XM-ADSL	2651XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM
CISCO2621XM-ADSL	2621XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM
CISCO2611XM-ADSL	2611XM-ADSL Bundle, WIC-1ADSL, 2FE, IP Plus, 32F/128DRAM
CISCO2651XM-SHDSL	2651XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM
CISCO2621XM-SHDSL	2621XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM
CISCO2611XM-SHDSL	2611XM-SHDSL Bundle, WIC-1SHDSL, 2FE, IP Plus, 32F/128DRAM

**Cisco 2600 Series LAN Modules**

NM-1E=	1-port 10BASE-T network module
NM-4E=	4-port 10BASE-T network module
NM-1GE	1-port Gigabit Ethernet Network Module (2691 only)

**Cisco 2600/3600/3700 Series WAN Interface Cards (WICs)**

WIC-1B-S/T=	1-port BRI (S/T) WAN Interface Card (Dial and Leased Line)
WIC-1B-U-V2	1-port BRI (U) w/NT-1 WAN Interface Card (Dial and Leased Line)
WIC-1DSU-56K4=	1-port Serial W/ 4-Wire 56/64Kbps DSU/CSU WAN Interface Card
WIC-1DSU-T1=	1-port Serial w/ FrT1/T1 DSU/CSU WAN Interface Card
WIC-1T=	1-port Serial WAN Interface Card
WIC-2T=	2-port Serial WAN Interface Card
WIC-2A/S=	2-port Async/Sync Serial WAN Interface Card
WIC-1ADSL=	1-port ADSL WAN Interface Card
WIC-1SHDSL=	1-port G.SHDSL WAN Interface Card
WIC-1AM=	1-port Analog Modem WAN Interface Card
WIC-2AM=	2-port Analog Modem WAN Interface Card

**Cisco 2600/3600/3700 Series Multiflex Voice and WAN Interface Cards<sup>2</sup>**

2VVIC-1MFT-T1=	1-port RJ-48 Multiflex Trunk-T1
VVIC-2MFT-T1=	2-port RJ-48 Multiflex Trunk-T1
VVIC-2MFT-T1-DI=	2-port RJ-48 Multiflex Trunk-T1 With Drop and Insert
VVIC-1MFT-E1=	1-port RJ-48 Multiflex Trunk-E1
VVIC-1MFT-G703=	1-port RJ-48 Multiflex Trunk-G.703
VVIC-2MFT-E1=	2-port RJ-48 Multiflex Trunk-E1
VVIC-2MFT-G703=	2-port RJ-48 Multiflex Trunk-G.703
VVIC-2MFT-E1-DI=	2-port RJ-48 Multiflex Trunk-E1 With Drop and Insert

**Cisco 2600/3600/3700 Series Voice/Fax Network Modules and Expansion Modules**

NM-1V=	1-slot voice/fax network module
NM-2V=	2-slot voice/fax network module
NM-HDV-FARM-C36	Network Module 36 Port DSP Farm Bundle
NM-HDV-FARM-C54	Network Module 54 Port DSP Farm Bundle
NM-HDV-FARM-C90	Network Module 90 Port DSP Farm Bundle
NM-HDV-1T1-24=	1-port T1 24 channel voice/fax network module
NM-HDV-1T1-24E=	1-port T1 24 enhanced channel voice/fax network module
NM-HDV-2T1-48=	2-port T1 48 channel voice/fax network module
NM-CE-BP-20G-K9=	Content Engine NM-Basic Perf-20GB
NM-CE-BP-40G-K9=	Content Engine NM-Basic Perf-40GB
NM-CE-BP-SCSI-K9=	Content Engine NM-Basic Perf-SCSI Adapter
N-CIDS-K9=	Cisco IDS Network Module, 20-GB IDE hard disk
NM-HDV-1E1-30=	1-port E1 30 channel voice/fax network module
NM-HDV-1E1-30E=	1-port E1 30 enhanced channel voice/fax network module
NM-HDV-2E1-60=	2-port E1 60 channel voice/fax network module
NM-HDV=	High density voice network module, spare (no T1/E1 or DSPs)
NM-HDA-4FXS=	High density analog voice/fax network module with 4 FXS
EM-HDA-8FXS=	8-port FXS voice/fax expansion module
EM-HDA-4FXO=	4-port FXO voice/fax expansion module
DSP-HDA-16	16-channel DSP module for NM-HDA
NM-1FE1R2W	1 10/100 Ethernet 1 4/16 Token-Ring 2 WAN Card Slot NM (2691 only)

**Cisco 2600/3600/3700 Series ATM Modules**

NM-4T1-IMA=	4-port T1 ATM network module with IMA
NM-4E1-IMA=	4-port E1 ATM network module with IMA
NM-8T1-IMA=	8-port T1 ATM network module with IMA
NM-8E1-IMA=	8-port E1 ATM network module with IMA

**Cisco 2600/3600/3700 Series EtherSwitch Modules**

NM-16ESW=	Sixteen 10BaseT/100BaseTX autosensing ports EtherSwitch
NM-16ESW-PWR=	Sixteen 10BaseT/100BaseTX autosensing ports EtherSwitch with power daughter card

**Cisco 2600/3600/3700 Series High-Density Voice/Fax DSP Upgrade Modules**

PVDM-12=	12-channel Packet Voice/Fax DSP Module
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**Cisco 2600/3600/3700 Series Voice Interface Cards (VICs)**

VIC-2E/M=	2-port E&M Voice Interface Card
VIC-2FXO=	2-port FXO Voice Interface Card
VIC-2FXS=	2-port FXS Voice Interface Card
VIC-2DID=	2-port DID Voice/Fax Interface Card
VIC-2FXO-EU=	2-port FXO Voice Interface Card (for Europe)
VIC-2FXO-M3=	2-port FXO Voice Interface Card (for Australia)
VIC-2BRI-S/T-TE=	2-port BRI (S/T user side) Voice Interface Card
VIC-2FXO-M1=	2-port Voice Interface Card-FXO w/ Reversal (for EU+)
VIC-2FXO-M2=	2-port Voice Interface Card-FXO w/ Reversal (for EU)

**Cisco 2600/3600/3700 Series WAN Network Modules**

NM-4B-S/T=	4-port BRI (S/T) network module
NM-8B-S/T=	8-port BRI (S/T) network module
NM-4B-U=	4-port BRI (U) w/ NT1 network module
NM-8B-U=	8-port BRI (U) w/ NT1 network module
NM-4A/S=	4-port Async/Sync Serial network module
NM-8A/S=	8-port Async/Sync Serial network module
NM-16A=	16-port Async Serial network module
NM-32A=	32-port Async Serial network module
NM-1CT1=	1-port Channelized T1/ISDN-PRI network module
NM-2CT1=	2-port Channelized T1/ISDN-PRI network module
NM-1CT1-CSU=	1-port Channelized T1/ISDN-PRI w/ CSU network module
NM-2CT1-CSU=	2-port Channelized T1/ISDN-PRI w/ CSU network module
NM-1ATM-25=	1-port ATM 25 network module

**Cisco 2600/3600/3700 Series Modem Network Modules**

NM-8AM=	8-port Analog Modem network module
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NM-16AM=	16-port Analog Modem network module
<b>Cisco 2600/3600/3700 Series Network Modules (International)</b>	
NM-1CE1B=	1-port Channelized E1/ISDN-PRI balanced network module
NM-1CE1U=	1-port Channelized E1/ISDN-PRI unbalanced network module
NM-2CE1B=	2-port Channelized E1/ISDN-PRI balanced network module
NM-2CE1U=	2-port Channelized E1/ISDN-PRI unbalanced network module
<b>Cisco 2600/3600/3700 Series Modem Management Technology Licenses (MMTL)</b>	
3MMTL-3600/2600-8=	MMTL for 8 Analog Modems
<b>Cisco 2600 Series Advanced Integration Modules</b>	
AIM-COMPR2=	Data Compression AIM for the Cisco 2600/2600XM series
AIM-COMPR4=	Data Compression AIM for the Cisco 2691/3660/3700 series
AIM-VPN/BP=	DES/3DES VPN Encryption AIM for 2600-Base Performance
AIM-ATM=	ATM SAR Only AIM
AIM-VPN/BP1=	DES/3DES/AES VPN Encryption Module for 2600XM
AIM-ATM-1T1=	High Performance ATM AIM/T1 Bundle AIM-ATM
AIM-ATM-1E1=	High Performance ATM AIM/E1 Bundle AIM-ATM
AIM-VPN/-EP=	DES/3DES VPN Encryption Module for 2600-Enhanced Performance
AIM-VPN/-EP1=	DES/3DES/AES VPN Encryption Module for 2691/3725
AIM-ATM-VOICE-30=	30-Channel T1/E1 Digital Voice Module
AIM-VOICE-30=	SAR and 30-Channel T1/E1 Digital Voice Module
<b>Cisco 2600 Series Factory Memory Options</b>	
MEM2691-32CF-EXT	32MB External Compact Flash Memory for the 2691
MEM2691-64CF-EXT	64MB External Cisco Flash Memory for the 2691
MEM2691-128CF-EXT	128MB External Cisco Flash Memory for 2691
<b>Cisco 2600 Series Factory DRAM Memory Upgrades</b>	
MEM2600XM-96U128D	96 to 128MB DRAM factory upgrade for Cisco 2600XM
MEM2691-128U192D	128 to 192MB DIMM DRAM factory upgrade for the Cisco 2691
MEM2691-128U256D	128 to 256MB DIMM DRAM factory upgrade for the Cisco 2691
<b>Cisco 2600/2600XM Series Factory Flash Memory Upgrades</b>	
MEM2600-8U16FS	8 to 16 MB Flash Factory Upgrade for the Cisco 2600 Series
MEM2600XM-32U48FS	32 to 48MB Flash Factory Upgrade for the Cisco 2600XM
MEM2691-32U128CF	32 to 128MB Cisco 2691 Compact Flash factory upgrade
MEM2691-32U64CF	32 to 64MB Cisco 2691 Compact Flash factory
MEM-CE-256U512D	256MB DRAM Factory Upgrade for NM-CE-BP
<b>Cisco 2600 Series SMARTnet Maintenance</b>	
CON-SNT-PKG5	Cisco 2600 Series Packaged SMARTnet 8x5xNBD Maintenance
<b>Cisco 2691 Series Network Modules</b>	
NM-1GE=	1 Port GE Network Module
NM-1T3/E3=	One port T3/E3 network module

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).
2. VoIP and VoFR require use of a Voice/Fax network module

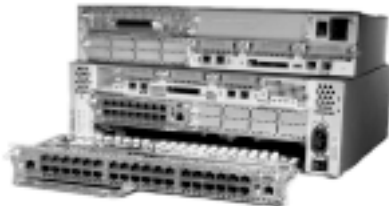
## For More Information

See the Cisco 2600 Series Web site: <http://www.cisco.com/go/2600>

## Cisco 3700 Series

The Cisco 3700 Series of modular routers enable flexible and scalable deployment of new applications in an integrated branch office access platform. The Cisco 3700 Series is ideal for sites and solutions requiring the highest levels of integration at the branch for IP

Telephony, and integrated flexible routing with low-density switching solutions. Integrated security, intrusion detection, and VPN protect the network at the perimeters, while integrated caching conserves WAN bandwidth. The Cisco 3700 Series provides a consolidated service infrastructure and high service density in a compact form factor that enables the incremental incorporation of branch applications.





## When to Sell

### Sell This Product

#### Cisco 3725

### When a Customer Needs These Features

- New levels of branch office service density in a compact form factor (2RU)
- Integrated Security, intrusion detection, and VPN
- Integrated flexible routing and low-density switching (16-or-36 ports)
- Flexible incremental and scalable migration to a voice/data converged branch office network
  - Compatibility with more than 90% of the world's legacy analog and digital TDM PBXs
  - Survivable Remote Site Telephony (SRST) features that enable centralized call processing with local branch IP Telephony redundancy
  - Inline power for IP Telephony
- Content Networking and Caching integrated for WAN bandwidth conservation

#### Cisco 3745

Same features as above plus:

- New levels of branch office service density in a compact form factor (3RU)
- Availability features such as redundant power, online insertion and removable components, and field replaceable components
- Increased performance and density

## Key Features

- Optimized for multiple high density services, such as voice and security
- Versatile High Density Service Module (HDSM) supports the 36-port EtherSwitch Network Module
- Integrated connectivity options free up network module slots
- Optional features enhance availability/resiliency (3745 only): internal redundant power, hot-swappable modules, and field-serviceable components
- Optimized for Integrated IP Telephony: IP phone powered switch, high density voice gateway, flexible WAN routing, Survivable Remote Site Telephony, and Cisco Call Manager Express
- Flexible combination of analog and/or digital voice with scalable port density
- Full support for Cisco IOS voice suite of features
- Platforms performance-tuned for scaling packet voice solutions, security and content
- Integrated switching modules (16- and 36-port)
- Optimized for security and VPN deployments with IPSec VPN, stateful Cisco IOS Firewall, and full-featured intrusion detection
- Simplified management from a single platform for ease of configuration, deployment, and troubleshooting
- Integrated inline power for wireless access points and IP phones
- Gigabit Ethernet connectivity

## Specifications

Feature	Cisco 3725	Cisco 3745
Network Module Slots	2	4
Advanced Integration Module (AIM) Slots	2	2
WAN Interface Card (WIC) Slots	3	3
10/100 FE Ports	2	2
WAN Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
ATM Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
Voice/Fax Network Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
WAN Interface Card (WIC) Modules	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information

<b>Multiflex Voice/WAN Interface Cards</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Voice Interface Card (VIC) Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Modem Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>EtherSwitch Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Performance</b>	100 kpps	225 kpps
<b>VPN/Security Advanced Integration Modules (AIM)</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Content Network Modules</b>	See Part Numbers and Ordering Information	See Part Numbers and Ordering Information
<b>Flash Memory</b>	32 MB (default); 128 MB (max)	32 MB (default); 128 MB (max)
<b>Flash Memory (External)</b>	32 MB -128 MB (optional)	32 MB -128 MB (optional)
<b>DRAM Memory</b>	128 MB (default) 256 MB (max)	128 MB (default) 256 MB (max)
<b>Power Supply</b>	AC, DC, external redundant AC	AC, DC, internal redundant AC
<b>Dimensions (HxWxD)</b>	3.5 x 17.25 x 14.7 in.	5.25 x 17.25 x 15 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 3700 Series Modular Multiservice Access Router

CISCO3725	2-slot Modular Multiservice Router with IP Software
CISCO3745	4-slot Modular Multiservice Router with IP Software

### Serial Network Modules

NM-4A/S	4-port async/sync serial network module
NM-8A/S	8-port async/sync serial network module
NM-16A/S	16-port async/sync serial network module
NM-1HSSI	1-port high speed serial interface module
NM-1T3/E3	1-port clear channel T3/E3 network module

### Asynchronous Network Modules

NM-16A	16 Async Ports network module
NM-32A	32 Async Ports network module

### LAN Network Modules and Mixed-Media LAN & WAN Network Modules

NM-2W	2 WAN Card Slot Network Module (no LAN)
NM-1FE2W-V2	1 10/100 Ethernet 2 WAN Card Slot Network Module
NM-1FE1R2W	1 10/100 Ethernet 1 4/16 Token Ring 2 WAN Card Slot NM
NM-2FE2W-V2	2 10/100 Ethernet 2 WAN Card Slot Network Module
NM-1FE-FX-V2	1-port Fast Ethernet network module (10/100Base Fiber only)
NM-1GE	1 port GE network module

### Digital Packet Voice and Fax Trunk Modules

NM-HDV-1T1-12	High Density Voice Network Module, with 1 VVIC-1MFT-T1 and 1 PVDM-12
NM-HDV-1E1-12	High Density Voice Network Module, with 1 VVIC-1MFT-E1 and 1 PVDM-12
NM-HDV-1E1-30	Single-port, 30-channel E1 voice/fax Network Module (supports 30 channels) of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 12 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax)
NM-HDV-1E1-30E	Single-port, enhanced 30-channel E1 voice/fax Network Module (supports 30 channels of high and medium complexity VoCoders: G.729a/b, G.726, G.729, G.728, G.723.1, G.711 and fax)
NM-HDV-2E1-60	Dual-port, 60-channel E1 voice/fax Network Module (supports 60 channels) of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 30channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax) Supports add/drop multiplexing (drop and insert)
NM-HDV-1T1-24	Single-port, 24-channel T1 voice/fax Network Module (supports 24 channels of medium complexity VoCoders: G.729a/b, G.726, G.711 and fax or 12 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax)
NM-HDV-1T1-24E	Single-port, enhanced 24-channel T1 voice/fax Network Module (supports 24 channels of high and medium complexity VoCoders: G.729a/b, G.726, G.729, G.728, G.723.1, G.711 and fax)
NM-HDV-2T1-48	Dual-port, 48-channel T1 voice/fax Network Module (supports 48 channels) of medium complexity VoCoders:G.729a/b,G.726,G.711 and fax or 24 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711 and fax) Supports add/drop multiplexing (drop and insert)

### AIM-ATM-VOICE-30 SAR and 30 Channel T1/E1 Digital Voice module

AIM-VOICE-30	30 Channel T1/E1 Digital Voice module
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### Analog Packet Voice and Fax Trunk Network Modules

NM-1V	1-slot voice and fax network module
NM-2V	2-slot voice and fax network module
NM-HDA	High Density Analog Module
NM-HD-1V	One-slot IP Communications Voice/Fax Network Module
NM-HD-2V	Two-slot IP Communications Voice/Fax Network Module
NM-HD-2VE	Two-slot IP Communications Enhanced Voice/Fax Network Module

**Voice Interface Cards**

VIC-2FXS	2-port voice interface card-FXS
VIC-2FXO	2-port voice interface card-FXO
VIC-2FXO-EU	2-port voice interface card-FXO (for Europe)
VIC-2FXO-M1	2-port voice interface card-FXO (with battery reversal, for North America)
VIC-2FXO-M2	2-port voice interface card-FXO (with battery reversal, for Europe)
VIC-2FXO-M3	2-port voice interface card-FXO (for Australia)
VIC-2E/M	2-port voice interface card-E&M
VIC-2DID	2-port voice interface card-DID (Direct Inward Dial)
VIC-2BRI-S/T-TE	2-port voice interface card-BRI (Terminal side)
VIC-2BRI-NT/TE	2-port voice interface card-BRI (Network side)
VIC2-2FXS	Two-port Voice Interface Card - FXS
VIC2-2FXO	Two-port Voice Interface Card - FXO (Universal)
VIC2-4FXO	Four-port Voice Interface Card - FXO (Universal)
VIC2-2E/M	Two-port Voice Interface Card - EandM
VIC2-2BRI-NT/TE	Two-port Voice Interface Card - BRI (NT and TE)
VIC-4FXS/DID	4 port FXS or DID VIC

**ATM Network Modules**

NM-4T1-IMA	4-port T1 ATM network module with Inverse Multiplexing over ATM (IMA)
NM-4E1-IMA	4-port E1 ATM network module with IMA
NM-8T1-IMA	8-port T1 ATM network module with IMA
NM-8E1-IMA	8-port E1 ATM network module with IMA
NM-1A-T3	1-port DS3 ATM network module
NM-1A-E3	1-port E3 ATM network module
NM-1A-OC3MM	1-port ATM OC3 Multimode NM for 2691, 3600 and, 3725
NM-1A-OC3SMI	1-port ATM OC3 Singlemode Inter Reach NM for 2691, 3600 and, 3725
NM-1A-OC3SML	1-port ATM OC3 Singlemode Ling Reach NM for 2691, 3600 and, 3725
NM-1A-OC3MM-EP	1-port ATM OC3 Multimode NM for 3745
NM-1A-OC3SMI-EP	1-port ATM OC3 Singlemode Inter Reach NM for 3745
NM-1A-OC3SML-EP	1-port ATM OC3 Singlemode Ling Reach NM 3745
AIM-ATM	ATM cell processing module

**Serial WAN Interface Cards**

WIC-1DSU-T1-V2	One T1 CSU/DSU - Integrated
WIC-2T	2-port High Speed Serial
WIC-2-A/S	2-port Async/Sync Serial
WIC-1DSU-56K4	1-port, four-wire 56/64-Kbps with CSU/DSU

**Digital Voice/WAN Interface Cards**

VVIC-1MFT-T1	1-port RJ-48 MultiFlex Trunk-T1
VVIC-2MFT-T1	2-port RJ-48 MultiFlex Trunk-T1
VVIC-2MFT-T1-DI	2-port RJ-48 MultiFlex Trunk-T1 with Drop and Insert
VVIC-1MFT-E1	1-port RJ-48 MultiFlex Trunk-E1
VVIC-2MFT-E1	2-port RJ-48 MultiFlex Trunk-E1
VVIC-2MFT-E1-DI	2-port RJ-48 MultiFlex Trunk-E1 with Drop and Insert Add not for VVICs VIC slots & WIC slots
VVIC-1MFT-G703	1-port RJ-48 MultiFlex Trunk-E1 unstructured
VVIC-2MFT-G703	2-port RJ-48 MultiFlex Trunk-E1 unstructured

**ISDN WAN Interface Cards**

WIC-1B-S/T	1-port ISDN BRI
WIC-1B-U-V2	1-port ISDN BRI with NT1

**ISDN and Channelized Serial Network Modules**

NM-1CE1T1-PRI	1-Port Channelized E1/T1/ISDN-PRI Network Module
NM-2CE1T1-PRI	2-Port Channelized E1/T1/ISDN-PRI Network Module
NM-4B-S/T	4-port ISDN BRI network module
NM-4B-U	4-port ISDN BRI with NT1 network module
NM-8B-S/T	8-port ISDN BRI network module (S/T interface)
NM-8B-U	8-port ISDN BRI with NT1 network module (U interface)

**Modem Modules**

WIC-1AM	1-port analog modem WAN interface card (WIC)
WIC-2AM	2-port analog modem WAN interface card (WIC)
NM-6DM	6-port digital modem network module
NM-12DM	12-port digital modem network module
NM-18DM	18-port digital modem network module
NM-24DM	24-port digital modem network module
NM-30DM	30-port digital modem network module
NM-8AM	8-port analog modem Network Module
NM-16AM	16-port analog modem Network Module

**Digital Subscriber Line (DSL)**

WIC-1ADSL	1-port ADSL WAN Interface Card
WIC-1ADSL-DG	1-port ADSLoSDN Wan Interface Card
WIC-G.SHDSL	1-port G.shdsl WAN Interface Card

**Encryption Advanced Integration Modules**

AIM-COMPR4	Data Compression AIM for 3660 Series (4 E1 performance)
AIM-VPN/HPII	DES/3DES/AES VPN Encryption/Compression Module for 3660/3745
AIM-VPN/EP II	DES/3DES/AES VPN Encryption/Compression Module for 2691/3725

**Content Engine Network Modules**

NM-CE-BP-20G-K9	Content Engine Network Module, Basic Performance, 20GB IDE Hard Disk
NM-CE-BP-40G-K9	Content Engine Network Module, Basic Performance, 40GB IDE Hard Disk
NM-CE-BP-SCSI-K9	Content Engine Network Module, Basic Performance, SCSI Controller

**Dry Contact Closure Alarm NM**

NM-AIC-64	Alarm Monitoring and Control Network Module
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**Cisco EtherSwitch Modules**

NM-16ESW	One 16-Port 10/100 EtherSwitch Network Module
NM-16ESW-PWR	One 16 port 10/100 EtherSwitch NM with Inline Power support
NM-16ESW-1GIG	One 16 port 10/100 EtherSwitch NM with 1 GE (1000BaseT) port
NM-16ESW-PWR-1GIG	One 16 port 10/100 EtherSwitch NM with Inline Power and GE
PPWR-DCARD-16ESW	One Inline power daughter card for 16 port EtherSwitch NM
NMD-36-ESW	One 36 port 10/100 EtherSwitch High Density Service Module
NMD-36-ESW-PWR	One 36 port 10/100 EtherSwitch HDSM with Inline Power
NMD-36-ESW-2GIG	One 36 port 10/100 EtherSwitch HDSM with two GE (1000BaseT)
NMD-36-ESW-PWR-2G	One 36 port 10/100 EtherSwitch HDSM + Inline Power and two GE
PPWR-DCARD-36ESW	One Inline Power daughter card for 36 port EtherSwitch HDSM
GE-DCARD-ESW	One GE (1000BaseT) daughter card for EtherSwitch Modules
PPWR-PS-360W	One 48V (360W) power supply for EtherSwitch Modules
PPWR-PS-CHASSIS	One power supply chassis for Cisco 48V (360W) power supply
PWR-CHASSIS-360W	One power supply chassis and 48V power supply for EtherSwitch
CAB-PPWR-PS1-1	Connects one EtherSwitch power supply to one EtherSwitch Module
CAB-PPWR-PS1-2	Connects one EtherSwitch power supply to two EtherSwitch Modules
CAB-PPWR-PS2-1	Connects two EtherSwitch power supplies to one EtherSwitch Module

**Intrusion Detection Network Module**

NM-CIDS-K9	Intrusion Detection System Network Module
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1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the Distribution Product Reference Guide at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the Cisco 3700 Series Web site: <http://www.cisco.com/go/3700>

**Cisco 7200 Series**

The Cisco 7200 Series routers deliver exceptional price/performance, versatility, and feature-richness in a compact form factor. The Cisco 7200 is ideal as a WAN aggregator for the Service Provider (small POP) or enterprise edge, an enterprise WAN gateway, a high-end managed CPE, or as a small core router. The platform also supports sites that require IBM data center connectivity as well as sites that require multifunction capabilities that combine all the above for multiservice voice, video, and data traffic.



A key strength of the Cisco 7200 is its modularity. With a choice of 4- and 6-slot chassis, a selection of processors providing up to 1 Mpps, an extensive range of LAN and WAN interfaces with up to 48 ports per chassis, and single or dual power supplies, the customer can customize their system to achieve the performance, connectivity, and capacity desired. This modularity combined with a low initial price point guarantees both investment protection and maximum return on investment, allowing the customer to upgrade and/or redeploy their Cisco 7200 as their network needs change.

## When to Sell

### Sell This Product

#### Cisco 7204VXR

- 4-slot chassis
- Modular processor: 225, 400, or 1 Mpps (NPE-225, NPE-400, NPE-G1)
- 1.2 Gbps backplane
- MIX-enabled bus for data/voice/video applications

#### Cisco 7206VXR

- 6-slot chassis
- Modular processor: 225, 400, or 1 Mpps (NPE-225, NPE-400, NPE-G1)
- 1.2 Gbps backplane
- MIX-enabled bus for data/voice/video applications

### When a Customer Needs These Features

## Key Features

- **Compact Form Factor**—Up to six port adapters in a fully modular 3RU form factor.
- **Exceptional Value**—As the most powerful single-processor platform, the Cisco 7200 offers customers a superior price/performance ratio supporting high-speed media and high-density configurations with up to 1 million packets per second processing at a competitive price point
- **Feature Rich**—Full support for Cisco IOS software and enhancements for high-performance network services enables the Cisco 7200 to offer industry-leading network services, including: MPLS, broadband aggregation, quality of service (QoS), security, and voice/video/data support
- **Connectivity/Flexibility**—Provides high port density and an extensive range of LAN and WAN media, the Cisco 7200 dramatically reduces the cost per port and allows for flexible configurations to meet your specific network needs
- **Common port adapters**—Port adapters are shared with the Cisco 7300, 7400, 7500, and 7600 (w/FlexWAN Module), which simplifies sparing and protects customer investment in interfaces

## Competitive Products

- Redback: SMS-500, SMS-1800
- Juniper: M5, M10

- Juniper: ERX700, ERX1400

## Specifications

Feature	Cisco 7204VXR	Cisco 7206VXR
Fixed Ports	None	Same as 7204VXR
Expansion Slots	4	6
WAN Port Adapters	DS0 to OC-12	Same as 7204VXR
Processor	RM7K RISC Processor with optional PXF Processor	Same as 7204VXR
Forwarding Rate	Up to 1 Mpps	Same as 7204VXR
Backplane Capacity	1.2 Gbps	Same as 7204VXR
Flash PCMCIA Memory	48 MB (expandable to 256 MB)	Same as 7204VXR
System DRAM Memory	128 MB (expandable to 1 GB)	Same as 7204VXR
Minimum Cisco IOS Release	12.0(1)XE	Same as 7204VXR
Internal Power Supply	AC or DC, dual option	Same as 7204VXR
Redundant Power Supply	Yes, for AC or DC	Same as 7204VXR
Chassis Height	3 RU	Same as 7204VXR
Rack Mountable	Yes, up to 16 per rack	Same as 7204VXR
Dimensions (HxWxD)	5.25 x 16.8 x 17 in.	Same as 7204VXR

## Cisco IOS Software and Memory Requirements<sup>1</sup>

To run the Cisco IOS Feature Packs, you need, at a minimum, the amount of memory shown in the following table. Some configurations will require more.

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required	DRAM Memory Required
CD72-C-12.1T=	IP	12.1T	16MB	64MB
CD72-CK2-12.1E=	IP IPSEC 3DES	12.1E	16MB	64MB
CD72-CHK2-12.1T=	IP/FW/IDS IPSEC 3DES	12.1T	16MB	64MB
CD72-A-12.1T=	Enterprise	12.1T	16MB	64MB

1. For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information." For users with CCO access, search by IOS feature or release via the *Feature Navigator* at <http://www.cisco.com/go/featurenavigator>

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7204 Chassis

CISCO7204VXR Cisco 7204VXR, 4-slot chassis, 1 AC Supply w/IP Software  
CISCO7204VXR/225 7204VXR Bundle with NPE-225 and I/O Controller with 2 FE/E

### Cisco 7206 Chassis

CISCO7206VXR Cisco 7206VXR, 6-slot chassis, 1 AC Supply w/IP Software  
C7206VXR/400/2FE 7206VXR with NPE-400 and I/O Controller with 2 FE/E Ports  
C7206VXR/400/GE 7206VXR with NPE-400 and GE+E I/O controller  
7206VXR/NPE-G1 7206VXR with NPE-G1 processing engine

### Cisco 7200 Voice Bundles

C7206VXR/VOICE/400 7206VXR w/ NPE-400, Voice PA-VXC-2TE1+, I/O contrl w/ 2FE

### Cisco 7200 VPN Bundle

7204VXR/VPN/400K9 7204VXR VPN Bundle NPE400,128MB, I/O 2FE, ISA,IPSEC 3DES IOS  
7204VXR/400/VPNK9 7204VXR VPN Bundle NPE400,128MB, I/O 2FE, VAM,IPSEC 3DES IOS  
7204VXR/225/VPNK9 7204VXR VPN Bundle NPE225,128MB, I/O 2FE, VAM,IPSEC 3DES IOS  
7206VXR/400/VPNK9 7206VXR VPN Bundle NPE400,256MB, I/O 2FE, VAM,IPSEC 3DES IOS  
7206VXR/1/VPNK9 7206VXR VPN Bundle NPE-G1,256MB, 3 FE/GE, VAM,IPSEC 3DES IOS

### Cisco 7200 Series Processors

NPE-G1= Cisco 7200 Network Processing Engine NPE-G1 including 256MB default DRAM and 64MB default flash memory.  
NPE-225= Network Processing Engine 225 (128MB default memory)-spare  
NPE-400= 7200VXR NPE-400 (128MB default memory),SPARE

### Cisco 7200 Series Input/Output Controller

C7200-I/O= Cisco 7200 Input/Output Controller, Spare  
C7200-I/O-2FE/E= Cisco 7200 Input/Output Controller with Dual 10/100 Ethernet  
C7200-I/O-GE+E= Cisco 7200 Input/Output Controller with GE and Ethernet

### Cisco 7200 Processor Memory: NPE-G1

MEM-NPE-G1-256MB= Two 128MB memory modules (256MB total) for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-512MB= Two 256MB memory modules (512MB total) for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-1GB= Two 512MB memory modules (1GB total) for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-FLD64= 64MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-FLD128= 128MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-NPE-G1-FLD256= 256MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1  
MEM-SD-NPE-256MB= 2 128MB memory modules (256MB total) for the NPE-300 in 7200

### Cisco 7200 Processor Memory: NPE-225

MEM-SD-NPE-128MB= 128MB Memory Upgrade Kit for NPE-300/NPE-225/NPE-175

### Cisco 7200 Processor Memory: NPE-400

MEM-NPE-400-128MB= 128MB Memory for NPE-400 in 7200 Series  
MEM-NPE-400-256MB= 256MB Memory for NPE-400 in 7200 Series  
MEM-NPE-400-512MB= 512MB Memory for NPE-400 in 7200 Series

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 7200 Series Web site: <http://www.cisco.com/go/7200>

## Cisco 7300 Series

The Cisco 7300 Series Routers are optimized for flexible, high performance IP/MPLS services at the network edge, where service providers and enterprises link together.

Coupled with powerful network processing, a broad set of interfaces and a compact,

modular form factor the Cisco 7300 Series Routers are ideal for intelligent, multi-gigabit network connectivity.

The Cisco 7304 Series Router is ideally applied as a high-end CPE or as an Internet Gateway router. Architected for network High Availability and multi-protocol support, the 7304 supports the broad set of existing Cisco 7000 Series Port Adapters with the Cisco 7304 Port Adapter Carrier Card.

The Cisco 7301 Series Router is a compact single rack unit router coupled with a broad set of interfaces and Cisco IOS software features. It packs high performance in a space and power efficient form factor that includes a single 7000 Series port adapter slot, 3 on-board Gigabit Ethernet (copper or optical)/Fast Ethernet ports and a new high-speed bus technologies.



### When to Sell

#### Sell This Product

##### Cisco 7301

#### When a Customer Needs These Features

- Compact, power efficient 1RU form factor
- Three times the performance increase over existing single rack unit routers like the Cisco 7401
- Single 7000 Series Port Adapter Slot

##### Cisco 7304

- Highly modular price and performance optimized platform, rich in IP services
- High performance connectivity—DS-1 through OC48/STM16 with 3.5 Mpps performance
- Built-in Gigabit Ethernet connectivity
- Multiprotocol routing: IP, IPX, AppleTalk, DLSw
- Compact size, high availability and optimal cooling

### Key Features

- Cisco 7301: With nearly 1 million-packets-per-second (Mpps) processing performance, the fastest Cisco 1RU general-purpose processor, as of October 2003; 3 fixed 10/100/1000-Mbps ports (RJ-45 or SFP optics) directly on the processor; Full Cisco IOS feature support; Pluggable Gigabit Ethernet optics (SFPs); Up to 1GB of available DRAM; Up to 256MB of removable compact flash memory; Front-back airflow and single sided management
- Cisco 7304: Compact modular form factor with four RU with four port adapter slots per chassis; PXF IP processor hardware-accelerated services such as Cisco Express Forwarding (CEF), NetFlow v8, and Turbo ACL; Offers up to 3.5Mpps performance for PXF-accelerated services with the NSE-100 Network Services Forwarding Engine; Two Gigabit Ethernet ports per NSE-100; System redundancy: optional dual processors and dual AC or DC power supplies increases network availability

### Competitive Products

- Redback: SMS-500, SMS-1800
- Juniper: M5, M10

- Juniper: ERX700, ERX1400

## Specifications

Feature	Cisco 7301	Cisco 7304
<b>Fixed Ports</b>	Three Gigabit Ethernet ports	Same as 7301
<b>Expansion Slots</b>	1	4
<b>WAN Interface Range</b>	DS-1 to OC-3	DS-1 to OC-48
<b>Processor</b>	RM 7000 MIPS Processor + PXF Processor	RM 7000 MIPS Processor + PXF Processor
<b>Forwarding Rate</b>	Up to 1 Mpps	Up to 3.5 Mpps
<b>Backplane Capacity</b>	1.2 Gbps	16 Gbps
<b>Flash PCMCIA Memory</b>	64 MB (expandable to 128 MB)	Same as 7301
<b>System DRAM Memory</b>	128 MB (expandable to 512 MB)	Same as 7301
<b>Minimum Cisco IOS Release</b>	12.2(11)YZ	12.1(9)EX
<b>Internal Power Supply</b>	AC or DC	Same as 7301
<b>Redundant Power Supply Support</b>	Yes, for AC or DC	Same as 7301
<b>Chassis Height</b>	1 RU	4 RU
<b>Rack Mountable</b>	Yes, up to 40 per rack	Yes, up to 11 per rack
<b>Dimensions (HxWxD)</b>	1.73 x 17.3 x 13.87 in.	7 x 17.2 x 20.5 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7300 System

PWR-7301/2-AC	Cisco 7301 Dual AC Power Supply Option
PWR-7301/2-DC48	Cisco 7301 Dual DC48 Power Supply Option
CISCO7301	Cisco 7301 chassis, 256MB memory, A/C power,64MB Flash
CISCO7304=	Cisco 7300, 4-slot chassis, NSE100, Power, IP Software
CISCO7304-CH	Cisco7304 channel bundle
7300-NSE-100=	Cisco 7304 Network Services Engine 100
7300-NPE-G100=	Cisco 7304 NPE-G100 w/1GB SDRAM, 256MB Flash, 3 GE/FE Ports
7300-NSE-100/2	Redundant Cisco 7304 NSE-100 w/Redundancy Feature License
7304-NPE-G100/2	Redundant 7304 NPE-G100 w/1GB SDRAM, 256MB Flash, 3 GE/FE Ports
7300-PWR-DC=	Cisco 7304 DC Power Supply Spare
7300-PWR-AC=	Cisco 7304 AC Power Supply Spare
7300-PWR/2-DC	Cisco 7304 Redundant DC Power Supply Option
7300-PWR/2-AC	Cisco 7304 Redundant AC Power Supply Option

### Cisco 7300 Memory Options

MEM-7301-1GB=	1GB memory upgrade for 7301
MEM-7301-512MB=	512MB memory upgrade for 7301
MEM-7301-256MB=	256MB memory upgrade for Cisco 7301
7300-MEM-128=	128MB default SDRAM for 7304 NSE-100, spare
7300-MEM-256=	256MB SDRAM for 7304 NSE-100, spare
7300-MEM-512=	512MB SDRAM for 7304 NSE-100, spare
7300-I/O-CFM-64M=	Cisco 7304 Compact Flash Memory, 64 MB
7300-I/O-CFM-128M=	Cisco 7304 Compact Flash Memory, 128 MB

### Cisco 7300 Series Compact Flash Disk Options

MEM-7301-FLD64=	Compact Disk Flash for 7301,64MB option
MEM-7301-FLD128=	Compact Disk Flash for 7301, 128MB option
MEM-7301-FLD256	Compact Disk Flash for 7301, 256MB Option

### Cisco 7300 Line Cards

7300-10C12POS-MM=	1-port OC12 POS line card for Cisco 7304 w/ Multi-mode
7300-10C12POS-SMI=	1-port OC12 POS line card for Cisco 7304 w/ Single-mode IR
7300-10C12POS-SML=	1-port OC12 POS line card for Cisco 7304 w/ Single-mode LR
7300-10C48POS-SMI=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode IR
7300-10C48POS-SML=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode LR
7300-10C48POS-SMS=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode SR
7300-20C12POS-MM=	2-port OC12 POS line card for Cisco 7304 w/ Multi-mode
7300-20C12POS-SMI=	2-port OC12 POS line card for Cisco 7304 w/ Single-mode IR
7300-20C12POS-SML=	2-port OC12 POS line card for Cisco 7304 w/ Single-mode LR
7300-20C3ATM-MM=	2-port OC3 ATM line card for Cisco 7304 w/ Multi-mode
7300-20C3ATM-SMI=	2-port OC3 ATM line card for Cisco 7304 w/ Single-mode IR
7300-20C3ATM-SML=	2-port OC3 ATM line card for Cisco 7304 w/ Single-mode LR
7300-20C3POS-MM=	2-port OC3 POS line card for Cisco 7304 w/ Multi-mode
7300-20C3POS-SMI=	2-port OC3 POS line card for Cisco 7304 w/ Single-mode IR



7300-2OC3POS-SML=

2-port OC3 POS line card for Cisco 7304 w/ Single-mode LR

7300-4OC3POS-MM=

4-port OC3 POS line card for Cisco 7304 w/ Multi-mode

7300-4OC3POS-SMI=

4-port OC3 POS line card for Cisco 7304 w/ Single-mode IR

7300-6T3=

6-port OC3 POS line card for Cisco 7304 w/ Single-mode LR

7300-6T3=

6-port T3 line card for Cisco 7304 w/ DSU

**Cisco 7300 Carrier Cards**

7300-CC-PA=

7304 Carrier Card for 7200 Series Port Adapters

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Cisco 7300 Series Web site: <http://www.cisco.com/go/7300>

**Cisco 7500 Series**

An essential part of both Enterprise and Service Provider networks, the Cisco 7500 Series routers are the market leader for edge applications, due to its breadth of services, diverse interfaces, reliability, and performance. Since its inception, the Cisco 7500 has seen huge improvements in performance and its ability to scale, most recently with the Route Switch Processor 16 (RSP16) and Versatile Interface Processor 6-80 (VIP6-80) module.



This series combines Cisco's proven software technology with exceptional reliability, availability, serviceability, and performance features to meet the requirements of today's most mission-critical networks.

**When to Sell****Sell This Product****When a Customer Needs These Features****Cisco 7505**

- 5 expansion slots
- One CyBus
- DS0 to OC-12 connectivity (all platforms)

**Cisco 7507**

- 7 expansion slots
- Dual CyBuses
- Redundant power supplies
- Diverse set of routing protocols (all platforms)

**Cisco 7513**

- 13 expansion slots
- Dual CyBuses
- Redundant power supplies
- Diverse set of routing protocols (all platforms)

## Key Features

- High-performance switching—Delivers high performance for mission-critical applications by supporting high-speed media and high-density configurations; using the processing capabilities of the Versatile Interface Processors and Cisco Express Forwarding—the Cisco 7500 series system capacity can exceed two million packets per second
- Full support for Cisco IOS software and enhancements for high-performance network services—Performs network services such as quality of service, security, compression, and encryption at high speed; VIP technology extends the performance of these services through distributed IP services
- High port density—Provides high port density and an extensive range of LAN and WAN media; this feature dramatically reduces the cost per port and allows a flexible configuration
- Unmatched interface flexibility—The Cisco 7500 supports a broad selection of Interface Processors (IPs) and Port Adapters (PAs). Port adapters are shared with the Cisco 7200, 7300, 7400, and 7600 (with FlexWAN Module)
- High Availability—Enhanced features and capabilities include redundant route processors, power supplies, fans, and software fault isolation with Stateful Switchover and NonStop Forwarding

## Competitive Products

• Redback: SMS-500, SMS-1800  
• Juniper: M5, M10, M20

• Juniper: ERX700, ERX1400  
• Huawei: NE8 and NE16

## Specifications

Feature	Cisco 7505	Cisco 7507	Cisco 7513
Fixed Ports	None	Same as Cisco 7505	Same as Cisco 7505
Expansion Slots	5	7	13
WAN Interface Range	DS0 to OC-12	Same as Cisco 7505	Same as Cisco 7505
Processor	MIPS RISC Processor	Same as Cisco 7505	Same as Cisco 7505
Forwarding Rate	Up to 1.1 Mpps	Up to 2.2 Mpps	Up to 2.2 Mpps
Backplane Capacity	1 Gbps	2 Gbps	2 Gbps
Flash PCMCIA Memory	16MB (expandable to 128MB)	Same as Cisco 7505	Same as Cisco 7505
System DRAM Memory	32MB (expandable to 1GB)	Same as Cisco 7505	Same as Cisco 7505
Minimum Cisco IOS Release	11.3	Same as Cisco 7505	Same as Cisco 7505
Internal Power Supply	AC or DC	AC, dual AC/DC, or dual DC	AC, dual AC/DC, or dual DC
Redundant Power Supply Support	No	Yes	Yes
Chassis Size	6 RU	13 RU	20 RU
Rack Mountable	Yes, up to 6 per rack	Yes, up to 3 per rack	Yes, up to 2 per rack
Dimensions (HxWxD)	10.5 x 17.5 x 17 in.	19.25 x 17.5 x 25 in.	33.75 x 17.5 x 22 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7500 Series Products

CISCO7505/4	Cisco 7505 5-Slot, 1 CyBus, 1RSP4, Single Power Supply
CISCO7507/8-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 1 RSP8, 1 PS
CISCO7507/8X2-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 2 RSP8, 2 PS
CISCO7507/4	Cisco 7507 7-Slot, 2 CyBus, 1RSP4, Single Power Supply
CISCO7507/4X2	Cisco 7507 7-Slot, 2 CyBus, 2 RSP4, Dual Power Supply
CISCO7513/4	Cisco 7513 13-Slot, Dual Bus, 1RSP4, 1 PS
CISCO7513/4X2	Cisco 7513 13-Slot, Dual Bus, 2 RSP4, 2 PS
CISCO7513/8-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 1 RSP8, 1 PS
CISCO7513/8X2-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 2 RSP8, 2 PS
CISCO7507/16-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 1 RSP16, 1 PS
CISCO7507/16X2-MX	Cisco 7507, 7 Slot, MIX-Enabled, Dual Bus, 2 RSP16, 2 PS
CISCO7513/16-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 1 RSP16, 1 PS
CISCO7513/16X2-MX	Cisco 7513, 13 Slot, MIX-Enabled, Dual Bus, 2 RSP16, 2 PS

### Cisco 7500 Series Processors and Accessories

RSP4+=	Cisco 7500 Series Route Switch Processor 4+ (Spare)
RSP8=	Cisco 7500 Series Route Switch Processor 8 (Spare)
RSP16=	Cisco 7500 Series Route Switch Processor 16 (Spare)

### Route Switch Processor Memory Options (RSP4)

MEM-RSP4-FLC16M=	RSP4 Flash Card: 16 MB Kit
MEM-RSP4-FLC20M=	RSP4 Flash Card: 20 MB Kit
MEM-RSP4-FLC32M=	RSP4/4+ Flash Card: 32 MB Kit
MEM-RSP4-32M=	RSP4 32MB DRAM Upgrade Kit
MEM-RSP4-64M=	RSP4/RSP4+ 64MB DRAM Upgrade Kit
MEM-RSP4-128M=	RSP4/RSP4+ 128MB DRAM Upgrade Kit
MEM-RSP4-128-4PK=	RSP4 128MB DRAM Upgrade Kit (4-pack)
MEM-RSP4-256M=	RSP4/RSP4+ 256MB DRAM Upgrade Kit
MEM-RSP4-256-4PK=	RSP4 256MB DRAM Upgrade Kit (4-pack)
MEM-16F-RSP4+=	RSP4+ 16MB Boot Flash (Spare)
MEM-V250-128-10PK=	128 MByte DRAM Upgrade for VIP2-50/xIP-50 (10-pack)

### Route Switch Processor Memory Options (RSP8)

MEM-RSP8-64M=	RSP8 64MB DRAM Option
MEM-RSP8-128M=	RSP8 128MB DRAM Upgrade Kit
MEM-RSP8-256M=	RSP8 256MB DRAM Upgrade Kit
MEM-RSP8-FLC16M=	RSP8 Flash Card: 16 MB Kit
MEM-RSP8-FLC20M=	RSP8 Flash Card: 20 MB Kit
MEM-RSP8-FLC32M=	RSP8 Flash Card: 32 MB Kit
MEM-RSP8-FLD48M=	RSP8 Flash Disk: 48 MB Kit
MEM-RSP8-FLD128M=	RSP8 Flash Disk: 128 MB Kit

### Route Switch Processor Memory Options (RSP16)

MEM-RSP16-FLD48M=	RSP16 Flash Disk: 48 MB Option
MEM-RSP16-FLD128M=	RSP16 Flash Disk: 128 MB Option
MEM-RSP16-128M=	RSP16 128MB ECC SDRAM Memory Spare
MEM-RSP16-256M=	RSP16 256MB ECC SDRAM Memory Spare
MEM-RSP16-512M=	RSP16 512MB ECC SDRAM Memory Spare
MEM-RSP16-1G=	RSP16 1GB ECC SDRAM Memory Spare

### CISCO7500 Series Gigabit Ethernet Interface Processor

GEIP=	Gigabit Ethernet Interface Processor
GEIP+=	Enhanced Gigabit Ethernet

### Cisco 7500 Series Interface Processors

CX-CIP2-ECA1=	CHANNEL IP:CIP2 W/ ECA-1 PORT
CX-CIP2-ECA2=	CHANNEL IP:CIP2 W/ ECA-2 PORTS
FEIP2-DSW-2TX=	2-Port Fast Ethernet IP with Dist. Switching (100TX)
FEIP2-DSW-2FX=	2-Port Fast Ethernet IP with Dist. Switching (100FX)
CX-ECA1-U	ESCON Interface Upgrade for CX-CIP-ECA1 or CX-CIP-PCA1

**Cisco 7500 Series Versatile Interface Processors**

VIP2-40=	VERSATILE INT. PROCESSOR-2,MODEL 40
VIP2-50=	Versatile Interface Processor 2, Model 50
VIP2-10/15-UPG	VIP2-10 to VIP2-15 Upgrade
VIP2-10/40-UPG	VIP2-10 TO VIP2-40 UPGRADE
VIP2-15/40-UPG	VIP2-15 to VIP2-40 Upgrade
VIP2-20/40-UPG	VIP2-20 TO VIP2-40 UPGRADE
VIP4-50=	Versatile Interface Processor 4, Model 50
VIP4-80=	Versatile Interface Processor 4, Model 80
VIP6-80=	Services Accelerator Versatile Interface Processor 6-80

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Cisco 7500 Series Web site: <http://www.cisco.com/go/7500>

**Cisco 7600 Series**

The Cisco 7600 Series combines optical WAN/MAN networking and high-volume Ethernet aggregation with a focus on line-rate delivery of high-touch IP services in large data centers and at the edge of service provider networks. It provides customers the flexibility of four different form factors: Cisco 7603, 7606, 7609, and 7613. As the most scalable system in the industry, each router offers the ability to deliver DS0 to OC-48 WAN connectivity, and 10-Mbps Ethernet to 10-Gigabit Ethernet LAN connectivity into Internet data center, metropolitan aggregation, WAN edge aggregation, and enterprise networking applications.

**When to Sell****Sell This Product****When a Customer Needs These Features**

<b>Cisco 7603</b>	<ul style="list-style-type: none"> <li>• 3 slot (horizontal) chassis</li> <li>• 32 Gbps backplane bandwidth</li> <li>• 15 Mpps forwarding rate</li> <li>• NEBs Compliant</li> </ul>
<b>Cisco 7606</b>	<ul style="list-style-type: none"> <li>• 6 slot (horizontal) chassis</li> <li>• 160 Gbps backplane bandwidth</li> <li>• 30 Mpps forwarding rate</li> <li>• NEBs Compliant</li> </ul>
<b>Cisco 7609</b>	<ul style="list-style-type: none"> <li>• 9 slot (vertical) chassis</li> <li>• 256 Gbps backplane bandwidth</li> <li>• 30 Mpps forwarding rate</li> <li>• NEBs Compliant</li> </ul>
<b>Cisco 7613</b>	<ul style="list-style-type: none"> <li>• 13 slot (horizontal) chassis</li> <li>• 720 Gbps backplane bandwidth</li> <li>• 30 Mpps forwarding rate</li> <li>• NEBs Compliant</li> </ul>

## Key Features

- Hardware accelerated IP services on each Optical Services Module (OSM), delivering up to 6 Mpps per slot
- 15 to 30 Mpps forwarding processor and up to 512 MB DRAM for Internet routing
- Modular and scalable from 32 Gbps to 720 Gbps switch fabric
- One of the widest, most complete ranges of WAN interfaces in the industry, with DS0 to OC-48 connectivity
- Leveraging the FlexWAN Module, 7x00 port adapters are shared with the Cisco 7200, 7300, 7400, and 7500 which simplifies sparing and protects customer investment in interfaces
- Compatible with Catalyst 6500 LAN interfaces, offering 10 Mbps Ethernet to 10 Gbps

## Competitive Products

• Redback: SMS-500, SMS-1800	• Juniper: ERX700, ERX1400
• Juniper: M5, M10, M20, M40	• Extreme: Black Diamond 6808

## Specifications

Feature	Cisco 7603	Cisco 7606	Cisco 7609	Cisco 7613
<b>Fixed Ports</b>	None	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Expansion Slots</b>	3 (horizontal)	6 (horizontal)	9 (vertical)	13 (horizontal)
<b>WAN Interface Range</b>	DS0 to OC-48	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Processor</b>	Supervisor Engine 2 w/MSFC2 and PFC2	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Forwarding Rate</b>	Up to 15 Mpps	Up to 30 Mpps	Same as Cisco 7606	Same as Cisco 7606
<b>Backplane Capacity</b>	32 Gbps	160 Gbps	256 Gbps	720 Gbps
<b>Flash PCMCIA Memory</b>	16MB (expandable to 24MB)	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>System DRAM Memory</b>	128MB (expandable to 512MB)	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Minimum Cisco IOS Release</b>	12.1(8)AE3	Same as Cisco 7603	12.1(8)(A)EX	12.1(13)E
<b>Internal Power Supply</b>	AC or DC	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Redundant Power Supply Support</b>	Yes	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
<b>Chassis Height</b>	4 RU	7 RU	20 RU	18 RU
<b>Rack Mountable</b>	Yes, up to 10 per rack	Yes, up to 6 per rack	Yes, up to 2 per rack	Yes, up to 2 per rack
<b>Dimensions (HxWxD)</b>	7 x 17.37 x 21.75 in.	12.25 x 17.37 x 21.75 in.	36.75 x 17.2 x 20.7 in.	33.3 x 17.2 x 18.1 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7613 Systems

#### CISCO7613

7613-AC-BUN

7613-DC-BUN-2500W

7613-SUP720-PS

7613 Chassis Bundles

Cisco 7613, w/FAN2,4kW AC P/S, S2U-MSFC2 w/512mB, FR-IRC6

w/FAN2, 2.5kW DC P/S, S2UMSFC2- 512mB, FR-IRC6

Cisco 7613 Chassis, 13-slot, SUP720, Power Supply

### Cisco 7609 Systems

CISCO7609

7609-AC-BUN

7609-DC-BUN-2500W

OSR-7609-AC

OSR-7609-DC

7609 Chassis Bundles

Enhanced 7609 Chassis, SUP2/MSFC2, 4000W AC P/S, 512MB DRAM

Enhanced 7609 Chassis, SUP2/MSFC2, 2500W DC P/S, 512MB DRAM

7609 Chassis, SUP2/MSFC2, 2500W AC P/S, 512MB DRAM

7609 Chassis, SUP2/MSFC2, 2500W DC P/S, 512MB DRAM

### Cisco 7606 Systems

CISCO7606

7606-AC-BUN

7606-DC-BUN

Cisco 7606 Chassis Bundle

7606 Chassis, SUP2/MSFC2, 1900W AC P/S, PEM, 256MB DRAM

7606 Chassis, SUP2/MSFC2, 1900W DC P/S, PEM, 256MB DRAM

**Cisco 7603 Systems**

CISCO7603	Cisco 7603 Chassis Bundle
7603-AC-BUN	7603 Chassis, SUP2/MSFC2, 950W AC P/S, PEM, 256MB DRAM
7603-DC-BUN	7603 Chassis, SUP2/MSFC2, 950W DC P/S, PEM, 256MB DRAM
CISCO7603-CHASS	CISCO 7603 Chassis

**Cisco 7600 Optical Services Modules (OSMs)**

OSM-1CHOC12/T1-SI=	1-port CHOC-12/CHSTM-4 OSM IR, to DS0 and T1/E1, w/4GE
OSM-12CT3/T1=	12-port Channelized DS-3 to DS-1/DS-0
OSM-1CHOC48/T3-SS=	1-port CHOC-48/CHSTM-16 OSM, to T3/E3, SM-SR, with 4 GE
OSM-1CHOC12/T3-SI=	1-port CHOC-12/CHSTM-4 OSM, to T3/E3, SM-IR, with 4 GE
OSM-10C48-POS-SI+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-IR, with 4 GE
OSM-10C48-POS-SL+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-LR, with 4 GE
OSM-10C48-POS-SS+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-SR, with 4 GE
OSM-20C12-ATM-MM=	2-port OC-12/STM-4 ATM OSM, MM, with 4 GE
OSM-20C12-ATM-SI=	2-port OC-12/STM-4 ATM OSM, SM-IR, with 4 GE
OSM-20C12-POS-MM+=	Enhanced 2-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 GE
OSM-20C12-POS-SI+=	Enhanced 2-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 GE
OSM-20C12-POS-SL=	2-port OC-12/STM-4 SONET/SDH OSM, SM-LR, with 4 GE
OSM-2+4GE-WAN+=	Enhanced OSM with 4 GE WAN Ports & 2GE LAN Ports
OSM-40C3-POS-SI+=	Enhanced 4-port OC-3/STM-1 SONET/SDH OSM, with 4 GE
OSM-40C12-POS-MM+=	Enhanced 4-port OC-12/STM-4 SONET/SDH OSM, MM, with 4 GE
OSM-40C12-POS-SI+=	Enhanced 4-port OC-12/STM-4 SONET/SDH OSM, SM-IR, with 4 GE
OSM-40C12-POS-SL=	4-port OC-12/STM-4 SONET/SDH OSM, SM-LR, with 4 GE
OSM-80C3-POS-MM=	8-port OC-3/STM-1 SONET/SDH OSM, MM, with 4 GE
OSM-80C3-POS-SI+=	Enhanced 8-port OC-3/STM-1 SONET/SDH OSM, SM-IR, with 4 GE
OSM-80C3-POS-SL+=	Enhanced 8-port OC-3/STM-1 SONET/SDH OSM, SM-LR, with 4 GE
+OSM-160C3-POS-MM=	16-port OC-3/STM-1 SONET/SDH OSM, MM, with 4 GE
OSM-160C3-POS-SI+=	Enhanced 16-port OC-3/STM-1 SONET/SDH OSM, SM-IR, with 4 GE
OSM-160C3-POS-SL=	16-port OC-3/STM-1 SONET/SDH OSM, SM-LR, with 4 GE
OSM-20C48/1DPT-SS=	2-port OC-48/STM-16 POS/DPT OSM, SM-SR, with 4 GE
OSM-20C48/1DPT-SI	2-port OC-48/STM-16 POS/DPT OSM, SM-IR, with 4 GE
OSM-20C48/1DPT-SL=	2-port OC-48/STM-16 POS/DPT OSM, SM-LR, with 4 GE

**Cisco 7600/Catalyst 6500 Ethernet Modules**

WS-F6K-DFC=	Distributed Forwarding Card
WS-X6348-RJ-45=	Catalyst 6000 48-port 10/100, Upgradable to Voice, RJ-45
WS-X6516-GBIC=	Catalyst 6500 16-port GigE Mod: fabric-enabled (Req. GBICs)
WS-X6524-100FX-MM=	Catalyst 6500 24-port 100FX, MT-RJ, fabric-enabled
WS-X6502-10GE=	Catalyst 6500 10 Gigabit Ethernet Base Module(Req OIM)
WS-X6816-GBIC=	Catalyst 6500 16-port GigE mod, 2 fab I/F w/DF, (Req GBICs)
WS-X6548-RJ-21=	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled
WS-X6548-RJ-45=	Catalyst 6500 48-port 10/100, RJ-45, x-bar
WS-X6516-GE-TX=	Catalyst 6500 16-port Gig/Copper Module, x-bar

**Cisco 7600 Services Modules**

WS-SVC-IPSEC-1=	IPSec VPN Security Module
WS-SVC-FWM-1-K9=	Firewall blade
WS-SVC-NAM-1=	Network Analysis Module-1
WS-SVC-NAM-2=	Network Analysis Module-2
WS-X6066-SLB-APC=	Content Switching Module
WS-SVC-SSL-1-K9=	SSL Module
WS-SVC-MWAM-1=	Multi-Processor WAN Application Module

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.
2. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Cisco 7600 Series Web site: <http://www.cisco.com/go/7600>

## Cisco 10000 Series

The Cisco 10000 Series is the industry's only edge router that delivers consistent, high performance services for carriers deploying IP, MPLS, and broadband services to DSL and private line customers. Coupled with proven high availability and innovative adaptive network processing technology, the Cisco 10000 Series is uniquely designed to meet the service needs of carriers up to DS3/E3 aggregation speeds.



### When to Sell

#### Sell This Product When a Customer Needs These Features

##### Cisco 10008

- Broadband features including PPP over ATM, PPP over Ethernet, routed bridge encapsulation, and Layer 2 Tunneling Protocol
- MPLS, MPLS VPN, and MPLS Quality of Service edge features
- Leased line features such as seamless integration from a dedicated access environment (TDM or SONET/SDH) to the ATM core.

### Key Features

- Industry-leading high availability—nonstop performance, with a complete set of reliability features for high availability (99.999 percent uptime). Full hardware redundancy, hot-swappable elements, and seamless route processor cutover provide continuous traffic forwarding.
- Lowest total cost of ownership—the Cisco 10000 offers the highest leased-line, ATM, frame, and broadband session densities on a single platform, and its high reliability reduces network downtime and operational expenses
- Broad portfolio of line-rate IP sessions—critical service features, such as QoS, MPLS, Multilink PPP, and ACLs are hardware accelerated to deliver exceptional throughput for every connection
- Industry-leading session density—the Cisco 10000 supports thousands of DS0, DS1/E1 connections, or hundreds of clear-channel DS3 connections on a single platform, providing the highest port density of DS3-and-below interfaces

### Competitive Products

- Redback: SMS-10000
- Juniper: M5, M10, M20

- Juniper: ERX700, ERX1400

## Specifications

Feature	Cisco 10008
Fixed Ports	None
Expansion Slots	8 (for interfaces)
WAN Interface Range	DS0 to OC-12
Processor	Cisco PXF Processor
Forwarding Rate	Up to approximately 6 Mpps
Backplane Capacity	51.2 Gbps
Flash PCMCIA Memory	48 MB (expandable to 128 MB)
System DRAM Memory	512 MB
Minimum Cisco IOS Release	12.0(9)SL
Internal Power Supply	AC or DC, dual option
Redundant Power Supply	Yes, for both AC and DC
Chassis Height	13 RU
Rack Mountable	Yes, up to 3 per rack
Dimensions (HxWxD)	21.75 x 17.5 x 12 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 10008 Pricing Bundles

1ESR10008-1P1AC	C10000 8-slot chassis, 1 PRE, 1 AC PEM
ESR10008-1P1AC+6	C10000 8-slot chassis, 1 PRE, 1 AC PEM, 1CT3 module
ESR10008-1P1DC	C10000 8-slot chassis, 1 PRE, 1 DC PEM
ESR10008-1P1DC+6	C10000 8-slot chassis, 1 PRE, 1 DC PEM, 1CT3 module
ESR10008-1P1AC+4CH	C10000 8-slot chassis, 1 PRE, 1 AC PEM, 1 CH STM-1 Module
ESR10008-1P1DC+4CH	C10000 8-slot chassis, 1 PRE, 1 DC PEM, 1 CH STM-1 Module
ESR10008-2P2AC	C10000 8-slot chassis, 2 PREs, 2 AC PEMs
ESR10008-2P2AC+6	C10000 8-slot chassis, 2 PREs, 2 AC PEMs, 1 CT3 module
ESR10008-2P2DC	C10000 8-slot chassis, 2 PREs, 2 DC PEMs
ESR10008-2P2DC+6	C10000 8-slot chassis, 2 PREs, 2 DC PEMs, 1 CT3 module
ESR10008-2P2AC+4CH	C10000 8-slot chassis, 2 PREs, 2 AC PEMs, 1 CH STM-1 Module
ESR10008-2P2DC+4CH	C10000 8-slot chassis, 2 PREs, 2 DC PEMs, 1 CH STM-1 Module
ESR10008-1P1DC-SK	ESR10008 BBA Starter Kit with PRE1, DC, 4-port OC3, GE
10000-1P2-1AC	Cisco 10000 eight-slot chassis, 1 PRE2, 1 AC PEM
10000-1P2-1DC	Cisco 10000 eight-slot chassis, 1 PRE2, 1 DC PEM
10000-2P2-2AC	Cisco 10000 eight-slot chassis, 2 PRE2s, 2 AC PEMs
10000-2P2-2DC	Cisco 10000 eight-slot chassis, 2 PRE2s, 2 DC PEMs

### Cisco 10000 Series Processors

ESR-PRE1=	Performance Routing Engine, 512 DRAM and 32M Flash
ESR-PRE2=	Performance Routing Engine, 512 DRAM and 32M Flash

### Cisco 10000 Series Line Cards

ESR-24CT1/E1=	24port Channelized E1/T1 Line Card
ESR-8E3/DS3=	8 port clear channel E3/DS3 Line Card
ESR-8E3DS3-ATM=	8 port E3/DS3 ATM Line Card
ESR-6OC3/P-SMI=	6 Port OC3/STS3c/STM1c POS Line Card, single mode
ESR-6CT3=	6 port channelized T3 line card
ESR-HH-1GE=	1 port Gigabit Ethernet Half-Slot Line Card
ESR-1GE=	1 pt Gigabit Ethernet line card (requires a GBIC)
ESR-4OC3-CHSTM1	4 pt OC3 chan. STM1 SDH SM line card
ESR-4OC3ATM-SM=	4 Port OC3/STS3c/STM1c ATM Line Card, single mode
ESR-1CO3C12-SMI=	1 pt ChOC12 (STS12) line card, single mode intermed. reach
ESR-1OC12/P-SMI=	1 pt OC12/STS12c/STM4 POS, single mode, int reach
ESR-1OC12ATM-SM=	1 pt OC12/STM4 ATM Line Card, Single-Mode
ESR10C48/P/SRPSML=	OC-48/STM-16 POS/SRP SM-LR
ESR-HH-8FE-TX=	8 port Fast Ethernet Half-Slot Line Card

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 10000 Series Web site: <http://www.cisco.com/go/10000>



## Cisco 10720 Series

The Cisco 10720 Internet Router is a high-performance router and a principle building block in the metro IP network. It enables service providers to offer innovative and differentiated IP services to their



customers at optical speeds. Equipped with Ethernet technology for customer access and the innovative Dynamic Packet Transport (DPT)/RPR (Resilient Packet Ring) technology or Packet over SONET (POS) for metro optical connectivity, the Cisco 10720 allows service providers to offer IP services closer to the user, enabling them to better control admission to network resources. This allows service providers to bypass traditional DS1 and DS3 access options. The dual counter rotating ring technology of DPT is also cost effective, since it uses both rings and can be deployed over dark fiber and still maintain the less than 50ms restoration common in SONET/SDH systems. For multiservice applications, DPT can also be deployed over traditional SONET/SDH ADMs and wavelength division multiplexing (WDM) systems.

The Cisco 10720 is a cost-effective, reliable platform that not only supports the full suite of IP routing protocols such as IS-IS, OSPF and BGP, but also allows advanced IP features to be introduced efficiently, without compromising on performance. Although primarily designed for high-speed Internet services for multitenant and business-park applications in the metro, the Cisco 10720 Internet Router is also suitable for a range of other applications such as: Internet data center applications, intra-POP aggregation, cable multisystem operator (MSO) internetworking, and voice-over-IP (VoIP) aggregation.

### When to Sell

#### Sell This Product

**Cisco 10720 Internet Router**

#### When a Customer Needs These Features

- Any service provider planning to offer high-performance IP services as part of their business strategy by extending IP further out into the network
- Any service provider wanting to simplify their current network and implement the simple, scalable, reliable features of DPT technology while maximizing fiber usage
- Any customer already using DPT technology in their network, most likely with DPT cards on the 12000 Internet Router
- Metro Ethernet Services such as L2 and L3 VPN with FE/GE hand off to the Customer and 50ms restoration over dark fiber using DPT.

### Key Features

- Equipped with Redundant Power Supply by default
- SRP specific features—IPS with <50 ms restoration time and SRP MIB support
- Multicast support including PIM SM, PIM DM, MBGP
- L2 VPN—UTI, L2TPv3 and EoMPLS for Layer 2 to Layer 2 LAN extension; L3 VPN MPLS VPN
- QoS—Modular QoS CLI, CAR, WRED, VTMS traffic shaping, and access lists
- Ethernet features—MDI-MDI-X support, 10/100 speed auto-negotiation, HDX-FDX negotiation and time delay reflectometry (TDR) for 10/100BaseTX
- Hot Standby Routing Protocol (HSRP)/Multiple Hot Standby Routing Protocol (MHSRP)
- 64-MB built-in Flash for software and configuration load
- Optical receive power monitoring support on OC-48/STM-16 Interface and GE
- Supported management information bases (MIBs) include SNMP, SRP, SONET, Etherlike, OSPF

## Competitive Products (vs. Cisco's Metro IP RPR Solution using the 10720)

• Extreme Summit: 48/Blackdiamond comb for GigE Hub & Spoke • Riverstone: RS3000/RS8600 combo for GigE Hub & Spoke

### Specifications

Feature	Cisco 10720
<b>Security Features</b>	Including AAA, RADIUS authentication, TACACS+, and encrypted passwords
<b>Management</b>	Cisco IOS CLI TACACS+ and RADIUS Configuration and administration features including Telnet and Cisco Discovery Protocol (CDP) Serial (aux) and console ports for local and remote administration Remote software download via TFTP and RCP IP over DCC for remote management of the Cisco ONS 15104 OC-48/STM-16 Optical Regenerator, where applicable
<b>Physical Interfaces</b>	Uplink Modules: 2-port single-mode OC-48c/STM16c DPT (SR 2 km (1.2 miles), IR 15 km (9.3 miles), LR1 40km (24 miles) and LR2 80km (50miles) Interface Modules—The Cisco 10720 Internet Router has two dedicated slots for interface modules—modules are not interchangeable or hot swappable: <ul style="list-style-type: none"> <li>• Upper slot is dedicated for DPT or POS Uplink module equipped with two physical ports of OC-48c/STM16c that provide an aggregate bandwidth of approximately 5 Gbps. The cards are available in two four versions of optics, short reach (SR) and intermediate reach (IR), Long Reach1 (LR1) and Long Reach2 (LR2) with two small form-factor OC-48 ports with LC connectors.</li> <li>• A third option for the upper slot is the CON-AUX module, which is a depopulated uplink card equipped with Console and Auxiliary ports only; this allows the configuration of the 10720 as an "Ethernet Router" allowing the use of one or more of the Ethernet ports in the lower slot for network connectivity</li> <li>• Lower slot is dedicated for 24-port Fast Ethernet module—available in TX (100 m reach), FX-MM (2 km reach) or FX-SM (15 km reach). The TX module is equipped with RJ-45 connectors while the FX-SM and FX-MM modules are equipped with MT-RJ connectors.</li> <li>• Also available is a combination 4 Gigabit Ethernet with Small Form Factor Plug-able (SFP) Optics available in SX 550m, LH 10km, ZH 70km and Copper plus an additional 8 Ports of Fast Ethernet 10/100 TX Copper ports.</li> </ul> <p>The TX and the FX-MM versions of the 24-port Fast Ethernet modules accommodate copper or multimode fiber deployments within MTUs and the FX-SM allows for deployment of the Cisco 10720 Internet Router in a central location covering Ethernet connectivity to buildings for a radius of up to 15 km.</p>
<b>Dimensions</b>	3.5 x 17.25 x 18.25 in. (8.9 x 43.81 x 46.35 cm)

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco 10700 Series

CISCO10720-AC-A	Cisco 10720 Internet Router with dual AC power supply
CISCO10720-DC-A	Cisco 10720 Internet Router with dual DC Power Supply
10720-FE-TX	24-port 10/100 Ethernet Access Module RJ45 connectors
10720-FE-FX-MM	24-port 100Mbps Multimode Fiber Ethernet Access Module 2km MTRJ connectors
10720-FE-FX-SM	24-port 100Mbps Single mode Fiber Ethernet Access Module 15km MTRJ connectors
10720-GE-FE-TX-B	4-port 100Mbps SFP GE with 8-ports of 10/100 Ethernet TX-RJ45
10720-GE-SFP-SX	GE SFP - Short Reach 550M LC connectors
10720-GE-SFP-LH	GE SFP - Intermediate Reach 10KM LC connectors
10720-SR-LC	OC-48c/STM-16c SRP Short Reach (2km) Uplink Module LC connectors
10720-IR-LC	OC-48c/STM-16c SRP Intermediate Reach (15km) Uplink Module LC connectors
10720-LR1-LC	OC-48c/STM-16c SRP Long Reach 1 (40km) Uplink Module LC
10720-LR2-LC	OC-48c/STM-16c SRP Long Reach 2 (80km) Uplink Module LC connectors
10720-CON-AUX	Console and Auxiliary port that fits in the Upper Slot
10720-SR-LC-POS	OC-48c/STM-16c POS Short Reach (2km) Uplink Module LC connectors
10720-IR-LC-POS	OC-48c/STM-16c POS Intermediate Reach (15km) Uplink Module LC connectors
10720-LR1-LC-POS	OC-48c/STM-16c POS Long Reach 1 (40km) Uplink Module LC
10720-LR2-LC-POS	OC-48c/STM-16c SRP Long Reach 2 (80km) Uplink Module LC connectors

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco 10720 Internet Router Web site: <http://www.cisco.com/go/10700>

## Cisco 12000 Series

The Cisco 12000 Series Internet Router is part of Cisco's family of multimillion packets-per-second (mpps) IP and MPLS routing platforms for building profitable networks in today's communications economy. The Cisco 12000 Series is the premier high-end routing platform for service provider



backbone and edge applications, enabling service providers to meet the challenge of building packet networks to satisfy services demand while increasing profitability. The Cisco 12000 Series offers the only portfolio of 10 Gbps per slot systems and interfaces (including Packet over SONET [POS], Dynamic Packet Transport/Resilient Packet Ring [DPT/RPR], and Gigabit Ethernet [GbE]), delivering 10G economies of scale anywhere in the network. The Cisco 12000 Series provides the highest reliability, the richest set of service enablers, the lowest total cost of ownership, and the only proven investment protection, including systems that can be upgraded in the field to increase switching capacity. This innovative combination of features and capabilities enables service providers to build the most competitive IP and MPLS networks.

### When to Sell

#### Sell This Product

##### Cisco 12400 Internet Routers (10G)

#### When a Customer Needs These Features

- 10 Gbps/slot, from 80 to 320 Gbps of non-blocking switching capacity
- Support for high-density, high-speed interfaces: ATM, DPT/RPR, POS, GbE/FE ranging from channelized DS3 (to DS1) through OC-192c/STM-64c
- 4 10G platforms to choose from: 12416, 320 Gbps, 16 slots, 40 RU; 12410, 200 Gbps, 10 slots, 20 RU; 12406, 120 Gbps, 6 slots, 10 RU; 12404, 80 Gbps, 4 slots, 5 RU
- Support for industry-leading QoS/CoS features ideal for peering, transit, POP consolidation, and IDC bandwidth aggregation as well as latency-sensitive applications like voice and video
- Support for IP or MPLS forwarding
- Support for hundreds of thousands of routes
- Proven carrier-class reliability and availability through enhanced features such as Online Insertion and Removal, High Availability (RPR+, NSF and SSO) and APS/MPS

##### Cisco 12000 Internet Routers (2.5G)

- 2.5 Gbps/slot, from 40 to 80 Gbps switching capacity
- Support for high-density, high-speed interfaces: ATM, DPT/RPR, POS, GbE/FE ranging from channelized DS3 (to DS1) through OC-48c/STM-16c
- 3 chassis to choose from: 12016, 80 Gbps, 16 slots, 40 RU; 12012, 60 Gbps, 12 slots, 32 RU; 12008, 40 Gbps, 8 slots, 14 RU
- The 12016 Internet Router is upgradeable to 320 Gbps via an easy, field-installed switch fabric upgrade kit—no need to pull out existing line cards

##### Cisco 12000 Manager

- An element management solution to increase service velocity and decrease operation costs

## Key Features

- Proven investment protection, offering full forward compatibility for all line cards, and the only high-end system with a modular, replaceable switch fabric for field-installed capacity upgrades
- Only fully distributed system architecture scales to the edge, supporting backbone- or edge-optimized line cards in the same chassis
- Only platform that maximizes the value of line-rate edge applications with 10G uplinks. By deploying Cisco 12000 Series IP Services Engine (ISE) line cards in Cisco 12400 Internet Routers, Service Providers benefit from line cards optimized for edge applications, while removing the bandwidth bottleneck with full 10 Gbps uplinks using cost-effective VSR optics or 10 GbE for intra-POP connections.
- The only complete priority packet delivery solution set
- Industry's only complete IP QoS and congestion control implementation that uniquely enables premium real-time services such as VoIP and video. Its distributed architecture and class of service features such as priority based congestion control (WRED) and dedicated low latency queuing (MDRR), along with virtual output queuing (VoQ), eliminate head of line blocking (HOL) and maintain packet sequence integrity under all conditions
- Non-service—impacting online insertion and removal (OIR) of components (including switch fabric cards) and front accessibility reduce downtime and simplify maintenance
- High availability features such as Cisco Non Stop Forwarding (NSF) and Cisco Stateful Switchover (SSO) eliminate single points of failure, help maintain system performance, and prevent service interruption. With these features, packet forwarding remains uninterrupted before, during and after a route processor switchover on the Cisco 12000 Series. Coupled with OIR, the faulty route processor can be replaced without affecting operation
- Designed for NEBS compliance to meet service provider carrier-class requirements

## Competitive Products

• Juniper: T640, M160, M40E, M40, and M20

• Avici: Stackable Switch Router (SSR)

## Specifications

Feature	Cisco 12008	Cisco 12012	Cisco 12016	Cisco 12404	Cisco 12406	Cisco 12410	Cisco 12416
Switching Capacity	40 Gbps	60 Gbps	80 Gbps	80 Gbps	120 Gbps	200 Gbps	320 Gbps <sup>1</sup>
Capacity per slot (full duplex)	2.5 Gbps	2.5 Gbps	2.5 Gbps	10 Gbps	10 Gbps	10 Gbps	10 Gbps <sup>1</sup>
Chassis Size	1/3 Rack	Full Rack	Full Rack	1/8 Rack	1/4 Rack	1/2 Rack	Full Rack
Chassis Slots	8	12	16	4	6	10	16
Supported Line Cards	All Cisco 12000 Series 2.5 Gbps line cards	Same as Cisco 12008 line cards	All 2.5 Gbps line cards plus all 10 Gbps line cards when upgraded	Same as Cisco 12416	Same as Cisco 12416	Same as Cisco 12416	All Cisco 12000 Series Line Cards
	See Part Numbers and Ordering Information						

<b>Supported Protocols</b>	IPv4, MPLS, BGPv4, IS-IS, OSPF v. 2.0, EIGRP, RIP v2, IGMP, PIM (dense and sparse mode)	Same as Cisco 12008	Same as Cisco 12008	Same as Cisco 12416	Same as Cisco 12416	Same as Cisco 12416	IPv4, MPLS, BGPv4, IS-IS, OSPF v. 2.0, EIGRP, RIP v2, IGMP, DVMRP, PIM DM/SM
<b>Management</b>	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager	CLI, SNMP, Cisco 12000 Manager
<b>Dimensions</b>	24.85 x 17.4 x 21.2 in. (63.1 x 44.2 x 53.8 cm)	56 x 17.3 x 21 in. (142.2 x 43.9 x 53.3 cm)	72.5 x 18.75 x 24 in. (184.2 x 47.6 x 61 cm) <sup>2</sup>	87.5 x 18.9 x 27.5 in. (22.23 x 48.01 x 69.85 cm)	18.5 x 18.9 x 28 in. (47 x 48 x 71.1 cm) <sup>3</sup>	37.5 x 19 x 24 in. (95.25 x 48.26 x 61 cm) <sup>4</sup>	72.5 x 18.75 x 24 in. (184.2 x 47.6 x 61 cm) <sup>2</sup>

1. The Cisco 12016 may be field upgraded to a Cisco 12416 via a Switch Fabric Upgrade kit, providing 10 Gbps full duplex capacity per slot, for an overall 320 Gbps switching capacity
2. Includes power, front cover, rack mount flanges, and cable-management system
3. Includes rack-mount flanges, power entry module pullouts, blower, and handle
4. Includes cable-management system and front cover

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 12000 Series of Gigabit Switch Routers (GSR)

GSR6/120-AC	GSR6/120 w/ 1GRP, 3SFC, 1 CSC, 2Alarms & 1 AC Power Supply
GSR6/120-DC	GSR6/120 w/ 1GRP, 3SFC, 1 CSC, 2Alarms & 1 DC Power Supply
GSR8/40	Cisco12008 GSR 40Gbps;1GRP,1CSC-GSR8,3SFC-GSR8,1DC
GSR10/200-AC	Cisco 12410 200 Gbps; 1GRP, 2 CSC, 5 SFC, 2 Alarm, 2 AC
GSR10/200-DC	Cisco 12410 200 Gbps; 1GRP, 2 CSC, 5 SFC, 2 Alarm, 2 DC
GSR12/60	Cisco12012 GSR 60Gbps;1GRP,1CSC,3SFC,1DC
GSR4/80-AC	GSR12404- 4 slot AC System
GSR4/80-DC	GSR12404- 4 slot DC System
GSR16/80-AC-8R	Cisco 12016 80 Gpbs: 1GRP, 2CSC, 3SFC, 2Alarm, 3AC, 8Ralls
GSR16/80-AC4-8R	Same As GSR16/80-AC-8R But W/ 4AC And Requires 8 Foot Rack
GSR16/80-DC-8R	Cisco 12016 80 Gpbs: 1GRP, 2CSC, 3SFC, 2Alarm, 4DC, 8Ralls
GSR16/320-AC	Cisco 12416 320 Gbps: 1GRP, 2CSC, 3SFC, 2Alarm, 3AC, 8Ralls
GSR16/320-AC4	Same As GSR16/320-AC-8R But W/ 4 AC And Requires 8 Foot Rack
GSR16/320-DC	Cisco 12416 320 Gbps: 1GRP, 2CSC, 3SFC, 2Alarm, 4DC, 8Ralls

### Cisco 12000 Series Processors

GRP-B	Route Processor, 128MB and 20MB Flash, ECC support
GRP-B/R	GSR Route Processor, Redundant Option
PRP-1	Cisco 12000 Series Performance Route Processor
PRP-1/R	Redundant PRP-1 chassis upgrade option, factory only

### Cisco 12000 Series Line Cards

LC-4OC3/POS-SM	4port OC3/STM1 Packet Over SONET/SDH Line Card, Single-Mode
LC-4OC3/POS-MM	4port OC3/STM1 Packet Over SONET/SDH Line Card, Multi-Mode w
LC-10C12/POS-SM	1port OC12/STM4 Packet Over SONET/SDH Line Card, Single-Mode
LC-10C12/ATM-MM	1 port OC12/STM4 ATM Line Card, Multi-Mode
LC-10C12/ATM-SM	1 port OC12/STM4 ATM Line Card, Single-Mode
LC-10C12/POS-MM	1 port OC12/STM4 Packet Over SONET/SDH Line Card, Multi-Mode
CHOC48/DS3-SR-SC	1 port channelized C-48 to DS3
2CHOC3/STM1-IR-SC	Channelized OC3/STM1 -> DS1/E1, 2 ports Intermediate Reach
4CHOC12/DS3-I-SCB	4 PORT CHANNELIZED OC12 B
4OC3/ATM-IR-SC	4 port OC3/STM1 ATM Line Card intermediate reach
4OC3/ATM-MM-SC	4 port OC3/STM1 multimode ATM line card
4OC3/POS-LR-SC	4 port OC-3/STM1 SONET/SDH Long Reach LC with SC connector
4OC12/ATM-IR-SC	4 port OC-12/STM4 ATM LC Intermediate Reach
4OC12/ATM-MM-SC	4 port OC-12/STM4 ATM Line Card multimode
4OC12/POS-MM-SC-B	4OC12/POS-MM-SC-B
4OC12X/POS-M-SC-B	4-port OC12/POS Eng3 Multi-mode
4OC12/POS-IR-SC-B	4OC12/POS-IR-SC-B
4OC12X/POS-I-SC-B	4 PORT OC12 POS B
4OC48/SRP-SFP=	4 Port OC48c/STM16c SRP Linecard, SFP Optics
4OC48E/POS-LR-SC	Edge 4 Port OC-48c/STM-16c SONET/SDH LR with SC
4OC48E/POS-SR-SC	Edge 4 Port OC-48c/STM-16c SONET/SDH SR with SC
8OC03/ATM/TS-IR-B	8-port OC03/STM1 ATM IR LC with SC connector
8OC03/ATM/TS-MM-B	8-port OC03/STM1 ATM MM LC with SC Connector
OC12/SRP-IR-SC-B	OC12 SRP IR line card
OC12/SRP-LR-SC-B	OC12 SRP LR line card
OC12/SRP-MM-SC-B	OC12 SRP MM line card

OC12/SRP-XR-SC	OC12 SRP single ring linecard, single mode 1550, XR
OC48/SRP-LR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Long Reach
OC48/SRP-SR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Short Reach, GSR
OC48E/POS-LR-SC-B=	1 Port OC-48c/STM-16c SONET/SDH 1550nm LR with SC
OC48E/POS-SR-SC-B=	1 Port OC-48c/STM-16c SONET/SDH 1310nm SR with SC, GSR
OC48X/POS-LR-SC	CONCATENATED OC48 WITH EXTENDED FEATURES LONG REACH
OC48X/POS-SR-SC	1 port OC48 POS Extended features
8OC3/POS-MM=	8 port OC3/STM1 SONET/SDH Multi-Mode LC with MTRJ conn Spare
8OC3/POS-SM=	8 port OC3/STM1 SONET/SDH Single-Mode LC with LC conn Spare
1X10GE-LR-SC=	Cisco 12000 1-Port 10GE Card, 1310nm serial, 10km, SC
16OC3/POS-MM=	16 port OC3/STM1 SONET/SDH Multi-Mode LC with MTRJ conn
16OC3/POS-SM=	16 port OC3/STM1 SONET/SDH Single-Mode LC with LC conn Spare
16OC3X/POS-I-LC-B	16 PORT OC3 WITH EXTENDED FEATURES RELEASE B
EPA-GE/FE-BBRD	Cisco 12000 Modular GE Baseboard w/ 1GE and 3 EPA Slots
EPA-3GE-SX/LH-LC	Cisco 12000 3-Port GE Port Adapter for EPA-GE/FE-BBRD
3GE-GBIC-SC	GSR12000 three-port GE line card
GE-GBIC-SC-B	GSR12000 single port Gigabit Ethernet line card
GBIC-SX-MM	1000base-SX GBIC module, multimode, standardized for GSR12000
GBIC-LH-SM	1000base-LH GBIC module, singlemode, standardized for GSR12000
GBIC-ZX-SM	GBIC very long reach GBIC module for the GE line card
6CT3-SMB	Channelized T3 for the GSR
GLC-LH-SM	GE SFP, LC connector LH transceiver
GLC-SX-MM	GE SFP, LC connector SX transceiver
6DS3-SMB-B	6DS3-SMB-B w/ ECC
6E3-SMB	E3 line card, 6 ports
12DS3-SMB-B	12DS3-SMB-B w/ ECC
12E3-SMB	E3 line card, 12 ports
CHOC12/STS3-IR-SC=	Channelized OC-12/STM-4 with four STS-3c/STM-1 POS paths
LC-OC12-DS3	1 port Channelize OC-12 with 12 DS3s
8FE-FX-SC-B	GSR 8-port 100baseFX, SC connector, version B
8FE-TX-RJ45-B	8-port 100baseTX, RJ45 connector type, version B
OC192/POS-IR-SC	1 Port OC192c/STM64c POS, 1550nm IR, SC
OC192/POS-SR-SC	1 Port OC192c/STM64c POS, 1310nm SR, SC
OC192/POS-VSR	1 Port OC192c/STM64c POS, VSR Optics
OC192E/POS-VSR	1 Port OC192c/STM64c POS Edge Card, VSR Optics
OC192E/POS-IR-SC	1 Port OC192c/STM64c POS Edge Card, 1550nm IR, SC
OC192E/POS-SR-SC	1 Port OC192c/STM64c POS Edge Card, 1310nm SR, SC
OC192/SRP-VSR	1 Port OC192c/STM64c SRP Linecard, 850nm VSR, MTP
OC192/SRP-IR-SC	1 Port OC192c/STM64c SRP Linecard, 1550nm IR, SC
OC192/SRP-SR-SC	1 Port OC192c/STM64c SRP Linecard, 1310nm SR, SC
4GE-SFP-LC=	4 port-GE line card for Cisco 12000

#### Cisco 12000 Series Pluggable Optic Modules

POM-OC48-LR2-LC	1-port OC-48/STM-16 Pluggable Optic Module, 1550nm SM-LR2 LC
POM-OC48-SR-LC	1-port OC-48/STM-16 Pluggable Optic Module, 1310nm SM-SR LC

1. Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 12000 Series Web site: <http://www.cisco.com/go/12000>





# LAN Switching

## LAN Switching Products at a Glance

Product	Features	Page
Catalyst 2900 Series	Fixed-configuration Ethernet switches <ul style="list-style-type: none"> <li>• 10/100 auto sensing and auto negotiating interface</li> <li>• Managed</li> </ul>	2-3
Catalyst 2940 Series	Fixed-configuration 10/100 Ethernet switches <ul style="list-style-type: none"> <li>• 8 10/100 ports + 1 10/100/1000BASE-T port (WS-C2940-8TT-S)</li> <li>• 8 10/100 ports + 1 100BASE-FX or SFP port (WS-C2940-8TF-S)</li> <li>• Small form factor (10.6 in. long and 6.4 in. deep) and all metal shell</li> <li>• Silent operation with no fans</li> <li>• Flexible mounting capabilities</li> <li>• Simplified network management through Cisco Cluster Management Suite</li> </ul>	2-4
Catalyst 2950 Series	Fixed-configuration basic and Intelligent Ethernet 10/100 switches <ul style="list-style-type: none"> <li>• 12/24/48 10/100 port managed switches with stackable and standalone models</li> <li>• Flexible uplink options: fixed 100Base FX, fixed 1000BaseT, fixed 1000BaseSX, and GBIC-based ports</li> <li>• Industrial-grade, rugged models (Catalyst 2955) for harsh environment deployments</li> <li>• Wire-speed, high performance switch</li> <li>• Models with the Standard Image software (SI) provide Layer 2 Cisco IOS functionality for basic data, voice, and video services at the edge of the network.</li> <li>• Models with the Enhanced Image software (EI) bring Layer 2-4 intelligent services such as advanced Quality of Service, rate limiting, security filtering and multicast management capabilities</li> <li>• Stackable up to 9 switches with Gigastack GBIC</li> <li>• Simplified network management through Cisco Cluster Management Suite up to 16 fixed configuration Catalyst switches</li> </ul>	2-6
Catalyst 2970 Series	The Cisco Catalyst 2970 Series switches are affordable Gigabit-to-the-desktop Ethernet switches that deliver wire-speed intelligent services for small and medium-sized businesses and enterprise branch offices.	2-10
Catalyst 3500 Series XL	Fixed-configuration 10/100 and Gigabit Ethernet switches <ul style="list-style-type: none"> <li>• 24 ports with 2 GBIC-based Gigabit Ethernet ports with in-line power(3524-PWR XL)</li> <li>• 8 GBIC-based ports (3508G XL)</li> <li>• Stackable up to 9 switches with GigaStack GBIC</li> <li>• Cisco Switch Clustering capable</li> <li>• Managed</li> </ul>	2-12
Catalyst 3550 Series	Fixed-configuration Intelligent Ethernet switches in stackable 10/100, inline power, or Gigabit Ethernet configurations <ul style="list-style-type: none"> <li>• Network control and bandwidth optimization via advanced Quality of Service (QoS), granular rate-limiting, Access Control Lists (ACLs), and multicast services</li> <li>• Network security through a wide range of authentication methods, data encryption technologies, and access restriction features based on users, ports, and MAC addresses</li> <li>• Network scalability through advanced routing protocols such as EIGRP, OSPF, BGP, and PIM (requires Enhanced Multilayer Software Image (EMI))</li> <li>• Intelligent adaptability through Cisco Identity Based Networking Services (IBNS) offering greater flexibility and mobility to stratified users</li> </ul>	2-13
Catalyst 3750 Series	Provides the highest levels of resilient stacking, intelligent network services, and Gigabit Ethernet optimization <ul style="list-style-type: none"> <li>• 24 and 48 port 10/100 models with SFP uplinks</li> <li>• 24 port 10/100/1000 models with and without SFP uplinks</li> <li>• 12 ports of SFPs</li> <li>• Stackable up to 9 switches</li> </ul>	



Product	Features	Page
<b>Catalyst 4500 Series—Modular Configuration (4503, 4506 and 4507R)</b>	<p>Modular, multilayer switch with integrated intelligent services for converged networks in enterprise campus wiring closets, Layer2/Layer3 distribution, and integrated LAN/WAN branch office.</p> <ul style="list-style-type: none"> <li>Resilient architecture for mission critical applications</li> <li>Up to 240 ports of Ethernet, Fast Ethernet or Gigabit Ethernet over Fiber or Copper</li> <li>High performance, Cisco Express Forwarding (CEF) Layer 2/3/4 switching up to 48 Mpps</li> <li>Up to 64 Gbps of switching capacity</li> <li>Advanced network control with predictable performance, granular QoS, advanced security, comprehensive management</li> <li>Managed</li> </ul>	2-19
<b>Catalyst 4000 Series—Fixed Configuration (Catalyst 4912G)</b>	High performance fixed Gigabit Ethernet switch with intelligent enterprise Cisco IOS services	2-21
<b>Catalyst 6500 Series</b>	<p>High-performance, multilayer switch with integrated intelligent services for enterprise campus backbones, wiring closets, server aggregation, or internet data centers</p> <ul style="list-style-type: none"> <li>Up to 576 10/100 or 10/100/1000 ports, up to 290 high performance Gigabit Ethernet ports, up to 32 10GE ports, multigigabit L4-7 and Security Services such as Firewall, Intrusion Detection and Load Balance</li> <li>Layer 4-7 services</li> <li>Up to 720 Gbps of switching capacity and Packet throughput scalable to 400 Mpps IPv4 (200 Mpps IPv6)</li> </ul>	2-22
<b>Catalyst 8500 Series</b>	<p>High-performance, modular, multimedia switch router</p> <ul style="list-style-type: none"> <li>Wire speed, nonblocking IP, IPX, IP multicast Layer 3 switching</li> <li>Multiple interface options</li> <li>Managed</li> </ul>	2-25

## Cisco LAN and MAN Products Port Matrix

	Switches									
	Catalyst 2900	Catalyst 2940	Catalyst 2950	Catalyst 2970	Catalyst 3500 XL	Catalyst 3550	Catalyst 3750	Catalyst 4500	Catalyst 6500	Catalyst 8500
Fixed Ports Only	X									
Fixed and Modular Ports		X	X	X	X	X	X	X		
Modular Ports Only									X	X
<b>Ports</b>										
10BASE-T Switched	X	X	X		X	X	X	X	X	
10BASE-FL Switched									X	
100BASE-T Switched	X	X	X		X	X	X	X	X	
100BASE-FX Switched		X	X			X	X	X	X	X
10/100 Autosensing Switched	X	X	X		X	X	X	X	X	X
Gigabit Ethernet	X	X	X	X	X	X	X	X	X	X
10/100/1000BaseT				X	X	X	X		X	
10GE									X	
ATM									X	X
Integrated Power over Ethernet (PoE)					X	X	X	X	X	
Integrated Server Load Balancing									X	

## Cisco Catalyst 2900 Series

The Catalyst 2948G and 2980G deliver all the Ethernet switching needed for many small to medium-sized wiring closets in a single system without the need for additional modules, cables or other interconnects. Utilizing the same



industry-leading software and functionality of the Catalyst 4000, 5000, and 6000 families, the Catalyst 2948G and 2980G have consistent end-to-end services, which ensure complete interoperability with enterprise Catalyst switches.

### When to Sell

#### Sell This Product

##### Catalyst 2980G Series

#### When a Customer Needs These Features

- A single box solution without additional cables, modules or configuration
  - Up to 80 ports of wire-speed, non-blocking performance with large MTBF reliability
  - End-to-end VLANs, EtherChannel, multicasting, and security
  - Mature/proven Catalyst software compatibility in the wiring closet and data center
- Catalyst 2948G Series
- The same features as 2980G but up to 48 ports of wire-speed, non-blocking performance

### Key Features

- Powerful non-blocking performance with proven Cisco IOS services
- Wire speed 18 Million pps switching throughput
- Intelligent multilayer IOS services (security, multicast, quality of service [QoS])
- Advanced multiple queue QoS architecture
- Security (TACACS+, RADIUS, port lockdown)
- Spanning-Tree Protocol (802.1D) with enhancements (UplinkFast, PortFast) for deterministic/fast failover
- Redundant Power Supply (option)

### Competitive Products

- HP Procurve: 4108gl, 4000M
- 3Com: SS3300

- Nortel/Bay: BayStack 350T and 450T
- Extreme: Summit 48si

### Specifications

Feature	Catalyst 2980G	Catalyst 2948G
<b>Fixed Ports (connections)</b>	80-port 10/100BASE-TX 2-port 1000BASE-X (GBIC)	48-port 10/100BASE-TX 2-port 1000BASE-X (GBIC)
<b>Backplane</b>	24 Gbps	24 Gbps
<b>Stackable</b>	No	No
<b>Full-Duplex Capabilities</b>	All ports	All ports
<b>VLAN Maximum</b>	1024	1024
<b>FEC</b>	Yes	Yes
<b>ISL</b>	No	No
<b>802.1Q</b>	Yes	Yes
<b>Management Capabilities</b>	CiscoWorks 2000, CWSI, CiscoView, CDP, VTP, Enhanced SPAN, SNMP, Telnet Client, BOOTP, TFTP	CiscoWorks 2000, CWSI, CiscoView, CDP, VTP, Enhanced SPAN, SNMP, Telnet Client, BOOTP, TFTP
<b>Processor Speed (Type)</b>	200 MHz (R5000 RISC)	200 MHz (R5000 RISC)
<b>Flash Memory</b>	12 MB	12 MB
<b>DRAM Memory</b>	64 MB	64 MB
<b>Embedded RMION</b>	Statistics, history, alarms, events	Statistics, history, alarms, events
<b>Dimensions (HxWxD)</b>	3.5 x 17.5 x 17 in.	2.62 x 17.5 x 15 in.
<b>RPS</b>	Yes (WS-C2980G-A), RPS 300	Yes, RPS 600

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 2900 Series Switches

WS-C2948G	Catalyst 2948G Switch, 48 10/100Tx (RJ-45) + 2 1000x (GBIC Slots)
WS-C2980G-A	Catalyst 2980G Switch, 80 10/100Tx (RJ-45) + 2 1000x (GBIC Slots)

### Catalyst 2900 Series Modules

WS-G5484=	GBIC Module, fiber media SX
WS-G5486=	GBIC Module, fiber media LX/LH
WS-G5487=	GBIC Module, Fiber Media Zx

### Mini-RMON Agent License

WS-C2948G-EMS-LIC	Catalyst 2948G RMON Agent License
WS-C2980G-EMS-LIC	Catalyst 2980G RMON Agent Agreement

### Catalyst 2900 Series Accessories

WS-X2948G-RACK=	Catalyst 2948G Rack Kit (spare)
WS-X2980G-RACK=	Catalyst 2980G Rack Kit (Spare)
PWR600-AC-RPS-CAB=	Redundant Power Supply (RPS), 600 Watts (2948G only)
PWR600-AC-RPS-NCAB=	RPS 600 without Cable (2948G only)
PWR300-AC-RPS-N1=	RPS 300 with one Cable (2980G-A only)
PWR675-AC-RPS-N1=	RPS 675 with one Cable (2980G-A only)
CAB-RPS-1414=	One DC power cable for RPS 300

### Catalyst 2900 Series Basic Maintenance

CON-SNT-PKG8	Catalyst 2948G and 2980G Packaged SMARTnet Maintenance 8x5xNBD
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1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 2900 Web site: <http://www.cisco.com/go/2900>

## Cisco Catalyst 2940 Series

The Cisco Catalyst 2940 series switches are small, standalone, managed switches with eight Fast Ethernet ports and a single integrated Fast Ethernet or Gigabit Ethernet uplink. The switches are designed to be used outside the wiring closet in the end-user workspace, and feature a durable metal shell, no fan for silent operation, easy wall or under-the-desk mounting, a security lock slot to prevent theft, and an available cable guard to secure the Ethernet cables and switch.

The Cisco Catalyst 2940 series is extremely easy to setup and configure via Cisco Express Setup, a simple Web-based setup utility. For more advanced configuration and ongoing management, the Cisco Catalyst 2940 series has a console port and supports remote management protocols such as Telnet, Simple Network Management Protocol (SNMP), as well as the Cisco Cluster Management Suite (CMS), which is a free Java-enabled Web-based monitoring and configuration tool that comes embedded in the switch and can manage up to 16 switches at once. Combine this with the rich functionality of Cisco IOS Software, and these switches provide comprehensive functionality and manageability for classrooms, conference rooms, or other very small workgroup environments.



## When to Sell

### Sell This Product

#### Catalyst 2940 Series

### When a Customer Needs These Features

- Low port density and price with high performance 10/100 Mbps connectivity
- Small size
- Quiet operation
- Fiber or 10/100/1000BaseT uplink
- Flexible mounting capabilities

## Key Features

- Cisco Cluster Management Suite (CMS) offers superior manageability, ease-of-use and ease-of-deployment and enhanced configuration wizards
- Express Setup is a Web browser utility that allows simple switch setup so that novices can even perform a basic configuration
- Wire-speed performance across all ports
- Deployed in small workgroups environments outside of the wiring closet
- QoS and security based on Layer 2 information

## Specifications

Feature	Catalyst 2940-8TT	Catalyst 2940-8TF
<b>Fixed Ports</b>	8 port 10/100 autosensing & 1 port 10/100/1000	8 port 10/100 autosensing & 1 port 100BASE-FX or 1000BASE-X Small Form-Factor Pluggable
<b>Forwarding Bandwidth</b>	3.6 Gbps	Same as Catalyst 2940-8TT
<b>Forwarding Rate</b>	2.7 Mpps	Same as Catalyst 2940-8TT
<b>Full Duplex Capabilities</b>	All Ports	Same as Catalyst 2940-8TT
<b>VLAN Maximum</b>	4-port-based VLANs	Same as Catalyst 2940-8TT
<b>FEC</b>	Yes	Same as Catalyst 2940-8TT
<b>802.1Q</b>	Yes	Same as Catalyst 2940-8TT
<b>Security</b>	Port Security with MAC aging, Private VLAN Edge, 802.1x, TACACS+, RADIUS	Same as Catalyst 2940-8TT
<b>Multicast</b>	IGMP Snooping	Same as Catalyst 2940-8TT
<b>QoS</b>	802.1p, 4 egress queues, WRR, SPS	Same as Catalyst 2940-8TT
<b>Management Capabilities</b>	SNMP, Telnet, RMON, CiscoWorks, CMS	Same as Catalyst 2940-8TT
<b>Flash Memory</b>	8 MB	Same as Catalyst 2940-8TT
<b>CPU DRAM</b>	16 MB	Same as Catalyst 2940-8TT
<b>Embedded RMON</b>	History, Events, Alarms, Statistics	Same as Catalyst 2940-8TT
<b>Dimensions (HxWxD)</b>	1.55 x 10.6 x 6.42 in. (3.94 x 26.92 x 16.3 cm)	Same as Catalyst 2940-8TT
<b>Weight</b>	3 lb (1.36 kg)	Same as Catalyst 2940-8TT

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 2940 Series

WS-C2940-8TF	8 10/100 ports and 1 100BASE-FX or SFP port
WS-C2940-8TT	8 10/100 ports and 1 10/100/1000 port
CABLEGUARD-C2940=	Cable Guard secures switch; prevents tampering w/ Ethernet jacks

### Small Form-Factor Pluggable (SFP) Transceivers

GLC-LH-SM=	1000BASE-LX/LH Gigabit Ethernet SFP, LC connector, LH transceiver
GLC-SX-MM=	1000BASE-SX Gigabit Ethernet SFP, LC connector, SX transceiver

### Fiber Patch Cables

CAB-MTRJ-SC-MM-1M=	1-meter, MT-RJ-to-SC multimode cable
CAB-MTRJ-ST-MM-1M=	1-meter, MT-RJ-to-ST multimode cable
CAB-MTRJ-SC-MM-3M=	3-meter, MT-RJ-to-SC multimode cable
CAB-MTRJ-ST-MM-3M=	3-meter, MT-RJ-to-ST multimode cable
CAB-MTRJ-SC-MM-5M=	5-meter, MT-RJ-to-SC multimode cable
CAB-MTRJ-ST-MM-5M=	5-meter, MT-RJ-to-ST multimode cable

### Catalyst 2940 Series Packaged SMARTnet Maintenance 8x5xNBD

CON-SNT-29408TF	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2940-8TF
CON-SNT-29408TT	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2940-8TT

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 2940 Web site: <http://www.cisco.com/go/catalyst2940>

## Cisco Catalyst 2950 Series Intelligent Ethernet Switches

The Catalyst 2950 Series with Intelligent Ethernet Switches are fixed-configuration, standalone and stackable models that provide wire-speed Fast Ethernet and Gigabit Ethernet connectivity for small, mid-sized, service



provider and industrial networks. The 2950C-24, 2950T-24, 2950G-12-EI, 2950G-24-EI, 2950G-48-EI and 2950G-24-EI-DC are part of an affordable product line that brings intelligent services, such as advanced quality of service, rate-limiting, security filters, and multicast management, to the network edge-while maintaining the simplicity of traditional LAN switching. When a Catalyst 2950 Switch is combined with a Catalyst 3550 Series Switch, the solution is capable of enabling IP routing from the edge to the core of the network. These Intelligent Ethernet Switches come with Enhanced Image (EI) software configuration only.

In addition to the range of Intelligent Ethernet switches, the Catalyst 2950 Series also includes switches with Standard Image (SI) software configuration only. The Cisco Catalyst 2950SX-48, 2950T-48, 2950SX-24, 2950-24 and 2950-12, members of the Cisco Catalyst 2950 Series Switches, are standalone, fixed-configuration, managed 10/100 switches with Gigabit uplinks (2950SX-48, 2950T-48, and 2950SX-24 only) providing user connectivity for small to mid-sized networks. These wire-speed desktop switches come with Standard Image (SI) software features and offer Cisco IOS functionality for basic data, video and voice services at the edge of the network.

The Catalyst 2950 Series also includes the Cisco Catalyst 2955T-12, 2955C-12, and 2955S-12. The Cisco Catalyst 2955 are industrial-grade switches that provide Fast Ethernet and Gigabit Ethernet connectivity for deployment in harsh environments. With a range of copper and fiber uplink options, the Catalyst 2955 operates in environments such as industrial networking solutions (industrial Ethernet deployments), intelligent transportation systems (ITSs), and transportation network solutions. It is also suitable for many military and utility market applications where the environmental conditions or suspended solid concentrations exceed the specifications of other commercial switching products.

Embedded in all the products in the Catalyst 2950 Series is the Cisco Cluster Management Suite (CMS) Software, which allows users to simultaneously configure and troubleshoot multiple Catalyst desktop switches using a standard Web browser.

## When to Sell

### Sell This Product

#### Catalyst 2950 Series Intelligent Ethernet Switches with Enhanced Image (EI)

##### Catalyst 2950G-48-EI

- Layer 2/3/4 based services: Advanced QoS, Security, High availability and STP enhancements
- Wire-speed performance
- Advanced QoS, Security, High availability and STP enhancements
- Cisco Cluster Management
- Stackable
- GBIC based uplink ports for media flexibility

##### Catalyst 2950G-24-EI

- Ideal for desktop connectivity
- Medium Port Density

##### Catalyst 2950G-24-EI-DC

- Ideal for Telco/DCN environments
- NEBS compliant
- Medium Port Density

##### Catalyst 2950G-12-EI

- Ideal for desktop connectivity
- Low Port density

##### Catalyst 2950T-24

- High speed uplink connectivity with 2 fixed 10/100/1000BASE-T ports
- Low price per port

##### Catalyst 2950C-24

- High speed uplink connectivity over extended distances with 2 fixed 100BASE-FX connections using MT-RJ connectors
- Low price per port

#### Catalyst 2950 Series with Standard Image (SI)

##### Catalyst 2950-12

- Wire speed, high performance switches for delivering 10/100 Mbps speed connectivity to desktop PCs, servers and other systems
- Layer 2-based QoS and Security features
- Cisco Cluster Management
- Ideal for desktop connectivity:

##### Catalyst 2950-24

- Low Port density

##### Catalyst 2950SX-24

- High speed uplink connectivity with 2 fixed 1000BASE-SX ports
- Medium port density

#### Catalyst 2955 Series with Enhanced Image (EI)

##### Catalyst 2955T-12

- Ideal for harsh network environments
- Rugged: Implements industrial-grade components, a compact form factor, convection cooling, and relay output signaling. Designed to operate at extreme temperatures and under extreme vibration and shock.
- Layer 2/3/4 based services: Advanced QoS, Security, High availability and STP enhancements
- Wire-speed performance

##### Catalyst 2955C-12

- Twelve 10/100 ports and two 10/100/1000BASE-TX (Copper) uplinks

##### Catalyst 2955S-12

- Twelve 10/100 ports and two 100BASE-FX (Multimode Fiber) uplinks

- Twelve 10/100 ports and two 100BASE-LX (Singlemode Fiber) uplinks

## Key Features

- Cisco Cluster Management (CMS) Software offers superior manageability, ease-of-use and ease-of-deployment and enhanced configuration wizards
- Wire-speed performance in connecting end-stations to the LAN
- Catalyst 2950: Ideal for small- and mid-sized networks
- Catalyst 2955: Ideal for harsh network environments
- Sophisticated Multicast Management via IGMP Snooping
- Scalability and high availability features
- Support for Cisco Redundant Power System 675 (RPS 675)

## Competitive Products

- Hewlett Packard: Procurve 2500 /2650
- Nortel: BPS 2000/450T/420T
- 3 Com: Superstack 3300/4300/4400/4400SE/4200 series
- Extreme: Summit 24 e2e3
- Dell: Powerconnect 3024/3048/3248
- Hirschmann
- GarretCom
- Sixnet

## Specifications

Feature	Catalyst 2950G-48-EI	Catalyst 2950G-24-EI	Catalyst 2950G-24-EI-DC	Catalyst 2950G-12-EI	Catalyst 2950T-24
<b>Fixed Ports</b>	48 port 10/100 autosensing & 2 GBIC-based Gigabit Ethernet ports	24 port 10/100 autosensing & 2 GBIC ports	24 port 10/100 autosensing & 2 GBIC ports and DC Power	12 port 10/100 autosensing & 2 GBIC ports	26-port (24 10/100 autosensing & 2 ports 1000BaseT)
<b>Forwarding Bandwidth</b>	13.6 Gbps	8.8 Gbps	8.8Gbps	6.4Gbps	8.8 Gbps
<b>Forwarding Rate</b>	10.1 Mpps	6.6 Mpps	6.6 Mpps	4.8 Mpps	6.6 Mpps
<b>Full-Duplex Capabilities</b>	All Ports	All Ports	All Ports	All Ports	All Ports
<b>VLAN Maximum</b>	250-port-based VLANs	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
<b>FEC</b>	Yes	Yes	Yes	Yes	Yes
<b>802.1Q</b>	Yes	Yes	Yes	Yes	Yes
<b>Security</b>	Port Security, with MAC aging, Private VLAN Edge, ACL, 802.11x, iBNS, SSH, RADIUS, TACACS+, SNMPv3 (crypto), BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
<b>Multicast</b>	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration
<b>QoS</b>	802.1P, 4 egress queues, Weighted Round Robin, Strict Priority Scheduling, Expedite Queuing, Policing, Marking, Layer 3 and 4 Services, Auto QoS	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
<b>Management Capabilities</b>	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS, RSPAN	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
<b>Software Image</b>	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)
<b>Flash Memory</b>	8 MB	8 MB	8 MB	8 MB	8 MB
<b>CPU DRAM</b>	16 MB	16 MB	16 MB	16 MB	16 MB
<b>Embedded RMON</b>	History, Events, Alarms, Statistics	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI	Same as Catalyst 2950G-48-EI
<b>Dimensions (H x W x D)</b>	1.72 x 17.5 x 13 in.	1.72 x 17.5 x 9.52 in.	1.72 x 17.5 x 9.52 in.	1.72 x 17.5 x 9.52 in.	1.75 x 17.5 x 16 in.

Feature	Catalyst 2950SX-24	Catalyst 2950-24	Catalyst 2950-12	Catalyst 2950SX-24
<b>Fixed Ports</b>	26-port (24 10/100 autosensing & 2 ports 100BaseFX)	24-port 10/100 autosensing	12-port 10/100 autosensing	26-port (24 10/100 autosensing & 2 ports 1000BaseSX)
<b>Forward Bandwidth</b>	5.2 Gbps	4.8 Gbps	2.4 Gbps	8.8 Gbps
<b>Forwarding Rate</b>	3.9 Mpps	3.6 Mpps	1.8 Mpps	6.6 Mpps
<b>Full-Duplex Capabilities</b>	All Ports	Same as 2950 C-24	Same as 2950 C-24	Same as 2950 C-24
<b>VLAN Maximum</b>	250-port-based VLANs	64-port-based VLANs	64-port-based VLANs	64-port-based VLANs
<b>FEC</b>	Yes	Yes	Yes	Yes
<b>802.1Q</b>	Yes	Yes	Yes	Yes

<b>Security</b>	Port Security, with MAC aging, Private VLAN Edge, ACL, 802.11x, IBNS, SSH, RADIUS, TACACS+, SNMPv3 (crypto), BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard
<b>Multicast</b>	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration
<b>QoS</b>	802.1P, 4 egress queues, Weighted Round Robin, Strict Priority Scheduling.	802.1P, 4 egress queues, WRR, Strict Priority Scheduling	802.1P, 4 egress queues, WRR, Strict Priority Scheduling	802.1P, 4 egress queues, WRR, Strict Priority Scheduling
<b>Management Capabilities</b>	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS, RPSAN	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS
<b>Software Image</b>	Enhanced Image (EI)	Standard Image (SI)	Standard Image (SI)	Standard Image (SI)
<b>Flash Memory</b>	8 MB	8 MB	8 MB	8 MB
<b>CPU DRAM</b>	16 MB	16 MB	16 MB	16 MB
<b>Embedded RMON</b>	History, Events, Alarms, Statistics	HSame as 2950 C-24	Same as 2950 C-24	Same as 2950 C-24
<b>Dimensions (H x W x D)</b>	1.75 x 17.5 x 11.8 in.	1.75 x 17.5 x 11.8 in.	1.75 x 17.5 x 9.52 in.	1.75 x 17.5 x 9.52 in.

	<b>Catalyst 2950T-48</b>	<b>Catalyst 2950SX-48</b>	<b>Catalyst 2955 (T-12,C-12,S-12)</b>
<b>Feature</b>			
<b>Fixed Ports</b>	50-port (48 10/100 autosensing & 2 ports 10/100/1000BASE-T) T-12: 2 fixed 10/100/1000BASE-T uplink ports	50-port (48 10/100 autosensing & 2 ports 1000BASE-SX) C-12:2 fixed 100BASE-FX multimode uplink ports	12 10/100 ports S-12: 2 fixed 100BASE-LX single-mode uplink ports
<b>Forward Bandwidth</b>	13.6 Gbps	13.6 Gbps	13.6 Gbps
<b>Forwarding Rate</b>	13.6 Mpps	13.6 Mpps	2 Mpps
<b>Full-Duplex Capabilities</b>	All Ports	All Ports	All Ports
<b>VLAN Maximum</b>	64-port-based VLANs	64-port-based VLANs	250-port-based VLANs
<b>FEC</b>	Yes	Yes	Yes
<b>802.1Q</b>	Yes	Yes	Yes
<b>Security</b>	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard	Port Security, with MAC aging, Private VLAN Edge, 802.11x, RADIUS, TACACS+, SNMPv3 (non-crypto)
<b>Multicast</b>	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	IGMP Snooping, IGMP filtering, Multicast VLAN Registration
<b>QoS</b>	802.1P, 4 egress queues, WRR, Strict Priority Scheduling	802.1P, 4 egress queues, WRR, Strict Priority Scheduling	802.1P, 4 egress queues, WRR, Strict Priority Scheduling
<b>Management Capabilities</b>	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS
<b>Software Image</b>	Standard Image (SI)	Standard Image (SI)	Enhanced Image (EI)
<b>Flash Memory</b>	8 MB	8 MB	16 MB
<b>CPU DRAM</b>	16 MB	16 MB	32 MB
<b>Embedded RMON</b>	History, Events, Alarms, Statistics	History, Events, Alarms, Statistics	History, Events, Alarms, Statistics
<b>Dimensions (H x W x D)</b>	1.75 x 17.5 x 13 in.	1.75 x 17.5 x 13 in.	3.78x8.07x5.03in: connectors facing forward OR 5.03x8.07x3.78in: connectors facing downward



## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 2950 Series Switches

WS-C2950G-48-EI	Catalyst 2950G-48 switch with 48 10/100 ports and 2 Gigabit Interface Converter (GBIC)-based GE ports, Enhanced Image
WS-C2950G-24-EI	Catalyst 2950G-24 switch with 24 10/100 ports and 2 GBIC ports, Enhanced Image
WS-C2950G-24-EI-DC	Catalyst 2950G-24-DC switch with 24 10/100 ports, 2 GBIC ports and DC Power, Enhanced Image
WS-C2950G-12-EI	Catalyst 2950G-12 switch with 12 10/100 ports and 2 GBIC ports, Enhanced Image
WS-C2950T-24	Catalyst 2950C-24T switch with 24 10/100 ports and two fixed 1000BaseT Uplink ports, Enhanced Image
WS-C2950C-24	Catalyst 2950C-24 switch with 24 10/100 ports and two fixed 100BaseFX Uplink ports, Enhanced Image
WS-C2950SX-48-SI	Catalyst 2950SX-48 switch with 48 10/100 ports and two fixed 1000BASE-SX Uplink ports, Standard Image
WS-C2950T-48-SI	Catalyst 2950T-48 switch with 48 10/100 ports and two fixed 10/100/1000BASE-T Uplink ports, Standard Image
WS-C2950SX-24	Catalyst 2950SX-24 switch with 24 10/00 ports and two fixed 1000BaseSX Uplink ports, Standard Image
WS-C2950-24	Catalyst 2950-24 switch with 24 10/100 ports, Standard Image
WS-C2950-12	Catalyst 2950-12 switch with 12 10/100 ports, Standard Image

### Gigabit Interface Converters (GBICs)

WS-X3500-XL	GigaStack GBIC Gigabit Ethernet stacking GBIC and 50 cm cable
WS-G5484=	1000BaseSX GBIC short wavelength GBIC (multimode fiber only)
WS-G5486=	1000BaseLX/LH GBIC long wavelength/long haul GBIC (single or multimode fiber)
WS-G5487=	1000BaseZX GBIC extended-reach GBIC (single mode fiber only)
WS-G5483=	1000BaseT GBIC- Gigabit-Ethernet-over-copper GBIC

### Redundant Power System (RPS)

PWR675-AC-RPS-N1=	675W Redundant Power Supply with 1 connector cable
VAB-RPS-1414=	1.2 meter cable for Cisco RPS 300 to external device connection

### Cables/Accessories

CAB-RPS-1614=	1 RPS 675 connector cable 16/14
CAB-GS-50CM	50 centimeter cable for GigaStack GBIC
STK-RACKMOUNT-1RU=	Rack mount kit for 1 RU versions of Catalyst 2950, 3500 XL, 2900 XL, 1900, and FastHub 400 switches

### Packaged SMARTnet 8x5xNBD Maintenance Contract

CON-SNT-PKG3	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-12, 2950-24 and 2950-12
CON-SNT-PKG4	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-24 and 2850G-24-DC
CON-SNT-PKG6	Packaged SMARTnet 8x5xNBD Maintenance for the Catalyst 2950G-48

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 2950 Series Web site: <http://www.cisco.com/go/catalyst2950>

## Cisco Catalyst 2970 Series

The Cisco Catalyst 2970 Series switches are affordable Gigabit-to-the-desktop Ethernet switches that deliver wire-speed intelligent services for small and medium-sized businesses and enterprise branch offices. Featuring a complete set of intelligent services, the Cisco Catalyst 2970 Series switches can enhance network performance and increase productivity for today's knowledge workers by intelligently scaling beyond 100 Mbps.

## Specifications

Feature	Catalyst 2970
Performance	<p>Forwarding bandwidth: 28 Gbps (Cisco Catalyst 2970G-24TS), 24 Gbps (Cisco Catalyst 2970G-24T)</p> <p>Forwarding rate based on 64-byte packets: 38.7 Mpps (Cisco Catalyst 2970G-24TS), 35.7 Mpps (Cisco Catalyst 2970G-24T)</p> <p>128 MB DRAM and 16 MB flash memory</p> <p>Up to 8000 MAC addresses configurable</p> <p>Up to 1000 IGMP groups and bridging entries configurable</p> <p>Configurable maximum transmission unit (MTU) of up to 9018 bytes (Jumbo frames) for bridging on Gigabit Ethernet ports, and up to 1546 bytes for bridging on Fast Ethernet ports</p>
Connectors and cabling	<p>10BASE-T ports: RJ-45 connectors; 2-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling</p> <p>100BASE-TX ports: RJ-45 connectors; 2-pair Category 5 UTP cabling</p> <p>1000BASE-T ports: RJ-45 connectors; 2-pair Category 5 UTP cabling</p> <p>1000BASE-T SFP-based ports: RJ-45 connectors, 2-pair Category 5 UTP cabling</p> <p>1000BASE-SX, -LX/LH, -ZX, and CWDM SFP-based ports: LC fiber connectors (single-mode or multimode fiber)</p> <p>Management console port: RJ-45-to-DB9 cable for PC connections</p>
Indicators	Per-port status LEDs: link integrity, disabled, activity, speed, and full-duplex indications. System-status LEDs: system, RPS, and bandwidth-utilization indications
Predicted mean time between failure (MTBF)	163,222 hrs (Cisco Catalyst 2970G-24TS) 219,108 hrs (Cisco Catalyst 2970G-24T)
Power connectors	Customers can provide power to a switch by using either the internal power supply or the Cisco RPS 675. The connectors are located at the back of the switch.
Internal Power Supply Connector	<p>Customers can provide power to a switch by using either the internal power supply or the Cisco RPS 675. The connectors are located at the back of the switch.</p> <p>Internal Power Supply Connector</p> <ul style="list-style-type: none"> <li>• The internal power supply is an autoranging unit.</li> <li>• The internal power supply supports input voltages between 100 and 240 VAC.</li> <li>• Use the supplied AC power cord to connect the AC power connector to an AC power outlet.</li> <li>• Cisco RPS 675 Connector</li> <li>• Offers connection for an optional Cisco RPS 675 that uses AC input and supplies DC output to the switch.</li> <li>• Offers a 675 W RPS that supports up to 6 external network devices and provides power to 1 failed device at a time.</li> <li>• Automatically senses when the internal power supply of a connected device fails and provides power to the failed device, preventing loss of network traffic.</li> <li>• Only the Cisco RPS 675 (Model PWR675-AC-RPS-N1=) should be attached to the RPS receptacle.</li> </ul>
Power consumption	165 W (maximum), 563 BTUs per hour (Cisco Catalyst 2970G-24TS) 135 W (maximum), 460 BTUs per hour (Cisco Catalyst 2970G-24T)
AC input voltage/frequency	100 to 127 or 200 to 240 VAC (autoranging), 50 to 60 Hz
DC input voltages	RPS input+12 V at 17 A (Cisco Catalyst 2970G-24TS) +12 V at 13 A (Cisco Catalyst 2970G-24T)
Dimensions (H x W x D)	Cisco Catalyst 2970G-24TS: 2.59 x 17.5 x 11.6 in. (6.58 x 44.5 x 29.5 cm) Cisco Catalyst 2970G-24T: 1.73 x 17.5 x 12.83 in. (4.39 x 44.5 x 32.6 cm)
Weight	Cisco Catalyst 2970G-24TS: 12.5 lb (5.68 kg) Cisco Catalyst 2970G-24T: 10 lb (4.54 kg)

## For More Information

See the Catalyst 2970 Web site: <http://www.cisco.com/go/catalyst2970>

## Cisco Catalyst 3500 Series XL

The Cisco Systems Catalyst 3500 series XL is a scalable line of stackable 10/100 and Gigabit Ethernet switches that delivers premium performance, flexibility, and manageability with unparalleled investment protection. This line of low-cost, high-performance switching solutions provides next-generation stackable switching through an independent high-speed stacking bus that preserves valuable desktop ports. Cisco's breakthrough Switch Clustering technology expands the stacking domain beyond a single wiring closet, enabling up to 16 interconnected Catalyst 3550, 2950, 3500 XL, 2950, 2900 XL and 1900 switches—regardless of geographic location—to form a flexible, single IP managed network.



### When to Sell

#### Sell This Product

#### When a Customer Needs These Features

##### Catalyst 3524-PWR XL

- A stackable, wire-speed 10/100 and Gigabit Ethernet switch for delivering dedicated 10 or 100 Mbps to individual users and servers
- Advanced QoS, high availability, and integrated in-line power enabling easy deployment of IP phones and wireless access points.

##### Catalyst 3508G XL

- A stackable Gigabit Ethernet switch with eight GBIC-based ports for aggregating a group of Gigabit Ethernet switches and servers through Cisco GigaStack GBICs or standard 1000BASE-X GBICs
- Dedicated, high-speed Gigabit Ethernet performance

### Key Features

- 10.8 Gbps switch fabric, up to 8 Mpps forwarding rate, and maximum forwarding bandwidth of 5.4 Gbps across all 10/100 ports
- Built-in Gigabit Ethernet ports accommodate a range of GBIC transceivers, including the Cisco GigaStack GBIC, 1000BASE-T, 1000BASE-SX and 1000BASE-LX/LH GBICs, and 1000BASE-ZX extended reach GBIC
- Low-cost, 2-port Cisco GigaStack GBIC offers a range of configurable stacking and performance options by delivering 1-Gbps connectivity in a daisy-chained connection or up to 2-Gbps in a dedicated, switch-to-switch connection
- Support for IEEE 802.1p technology for prioritization of mission-critical and time-sensitive application such as voice and telephony traffic
- 3524-PWR XL provides in-line power to IP phones and other devices

### Competitive Products

- 3Com: SuperStack 3 Switch 3300 and 3900
- Nortel: BayStack 450T and BPS 2000 switches
- Hewlett Packard: ProCurve 2524, 2424M, 4000, and 8000

### Specifications

Feature	Catalyst 3524-PWR XL	Catalyst 3508G XL
Fixed Ports	24-port 10/100 autosensing 2-port 1000BASE-X (GBIC)	8-port 1000BASE-X (GBIC)
Modular Slots	None	None
Backplane	10 Gbps	10 Gbps
Stackable	Yes	Yes
Full-Duplex	All ports	All ports
VLAN Maximum	250 port-based VLANs or ISL/802.1Q trunks	250 port-based VLANs or ISL/802.1Q trunks
FEC	Yes	Yes
Inter-Switch Link	Yes	Yes
In-Line Power	Yes	No

Feature	Catalyst 3524-PWR XL	Catalyst 3508G XL
Management Capabilities	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded Cisco Visual Switch Manager, Web-based interface	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded Cisco Visual Switch Manager, Web-based interface
Processors	Cisco designed ASICs	Cisco designed ASICs
Flash Memory	4 MB	4 MB
CPU DRAM	8 MB	8 MB
Embedded RMON	History, Events, Alarms, Statistics	History, Events, Alarms, Statistics
Dimensions (HxWxD)	1.75 x 17.5 x 11.8 in	1.75 x 17.5 x 11.8 in

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 3500 Series XL Switches

WS-C3524-PWR-XL-EN	24-port 10/100 (autosensing), 2 1000X GBIC Slots, inline power
WS-C3508G-XL-EN	8 1000X GBIC Slots

### Catalyst 3500 Series XL Accessories

WS-X3500-XL	GigaStack GBIC
WS-G5484=	1000BASE-SX GBIC
WS-G5486=	1000BASE-LX/LH GBIC
WS-G5487=	1000BASE-ZX extended reach GBIC
WS-G5483=	1000BASE-T GBIC

### Catalyst 3500 Series XL Basic Maintenance

CON-SNT-PKG4	Catalyst 3512 XL SMARTnet 8x5xNBD Maintenance
CON-SNT-PKG5	Catalyst 3524 XL and 3524-PWR XL SMARTnet 8x5xNBD Maintenance
CON-SNT-PKG6	Catalyst 3548 XL SMARTnet 8x5xNBD Maintenance
CON-SNT-PKG9	Catalyst 3508G XL SMARTnet 8x5xNBD Maintenance

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 3500 series XL Web site: <http://www.cisco.com/go/3500xl>

## Cisco Catalyst 3550 Series Intelligent Ethernet Switches



The Cisco Catalyst 3550 Series Intelligent Ethernet Switches is a line of enterprise-class, stackable, multilayer switches that provide high availability, scalability, security and control to enhance the operation of the network. With a range of Fast Ethernet and Gigabit Ethernet configurations, the Catalyst 3550 Series can serve as both a powerful access layer switch for medium enterprise wiring closets and as a backbone switch for small networks. Now customers can deploy network-wide intelligent services, such as advanced quality of service, rate-limiting, Cisco security access control lists, multicast management, and high-performance IP routing—while maintaining the traditional LAN switching.

## When to Sell

### Sell This Product

#### Catalyst 3550 Series

#### Catalyst 3550-48-EMI (Enhanced Multilayer Software Image)

#### Catalyst 3550-48-SMI (Standard Multilayer Software Image)

### When a Customer Needs These Features

- Enterprise-class intelligent services such as ACLs, advanced QoS, and rate-limiting
- Cisco Cluster Management Suite (CMS) Software
- Advanced IP routing
- High Port Density
- Ideal as a powerful access layer switch for a medium enterprise wiring closet with routed uplinks
- High Port Density
- Ideal for a powerful access layer switch for a medium enterprise wiring closet
- Basic IP routing

**Sell This Product**

**Catalyst 3550-24-EMI**  
(Enhanced Multilayer  
Software Image)

- Advanced IP routing
- Medium Port Density
- Ideal for a powerful access layer switch for a medium enterprise wiring closet with routed uplinks

**Catalyst 3550-24-SMI**  
(Standard Multilayer  
Software Image)

- Medium Port Density
- Ideal for a powerful access layer switch for a medium enterprise wiring closet
- Basic IP routing

**Catalyst 3550-24PWR-EMI**  
(Enhanced Multilayer  
Software Image)

- Advanced IP routing
- Medium Port Density
- Integrated Power over Ethernet to Cisco IP telephones and Cisco wireless LAN access points
- Ideal for a powerful access layer switch for a medium enterprise wiring closet with routed uplinks

**Catalyst 3550-24PWR-SMI**  
(Standard Multilayer  
Software Image)

- Medium Port Density
- Integrated Power over Ethernet to Cisco IP telephones and Cisco wireless LAN access points
- Ideal for a powerful access layer switch for a medium enterprise wiring closet
- Basic IP routing

**Catalyst 3550-24-DC-SMI**  
(Standard Multilayer  
Software Image)

- Medium Port Density
- DC powered, NEBS level 3 compliant
- Basic IP routing

**Catalyst 3550-24-FX-SMI**  
(Standard Multilayer  
Software Image)

- Medium Port Density
- Ideal for 100FX aggregation
- Basic IP routing

**Catalyst 3550-12G**

- High performance IP routing
- Gigabit Ethernet aggregation using fiber
- Ideal for stack aggregation, server aggregation, or as a backbone switch in a mid-sized network

**Catalyst 3550-12T**

- Advanced IP routing
- Gigabit Ethernet aggregation using Category 5 copper cabling
- Ideal for stack aggregation, server aggregation, or as a backbone switch in a mid-sized network

**CD-3550-EMI**

- Advanced IP routing
- EMI upgrade kit for standard versions of the Catalyst 3550-24, 3550-24 PWR, 3550-24-DC, 3550-24-FX, and 3550-48 switches

**Key Features**

- Network control and bandwidth optimization via advanced Quality of Service (QoS), granular rate-limiting, Access Control Lists (ACLs), and multicast services
- Network security through a wide range of authentication methods, data encryption technologies, and access restriction features based on users, ports, and MAC addresses
- Network scalability through advanced routing protocols such as EIGRP, OSPF, BGP, and PIM (requires Enhanced Multilayer Software Image (EMI))
- Intelligent adaptability through Cisco Identity Based Networking Services (IBNS) offering greater flexibility and mobility to stratified users
- Lower Total Cost of Ownership (TCO) for IP Telephony and Wireless LAN deployments through integrated inline power (Catalyst 3550-24 PWR only)
- Easy switch configuration and deployment of advanced services through the embedded Cluster Management Suite (CMS) Software
- Stackable up to 9 switches with the Gigastack GBIC

**Competitive Products**

- Extreme Networks: Summit5i, Summit 24/48, Summit 48i
- Foundry: FastIron 4802
- Nortel: BPS 2000

## Specifications

Feature	Catalyst 3550-48	Catalyst 3550-24	Catalyst 3550-24PWR	Catalyst 3550-12G	Catalyst 3550-12T	Catalyst 3550-24-DC	Catalyst 3550-24-FX
<b>Fixed Ports</b>	48 10/100 ports 2 GBIC-based Gigabit Ethernet ports	24 10/100 ports 2 GBIC-based Gigabit Ethernet ports	24 10/100 ports 2 GBIC-based Gigabit Ethernet ports	10 GBIC-based Gigabit Ethernet ports 2 10/100/1000 ports	10 10/100/1000 ports 2 GBIC-based Gigabit Ethernet ports	24 10/100 ports 2 GBIC-based Gigabit Ethernet port	24 100FX MMF ports 2 GBIC-based Gigabit Ethernet port
<b>Switching Fabric</b>	13.6 Gbps	8.8 Gbps	8.8 Gbps	24 Gbps	24 Gbps	8.8 Gbps	8.8 Gbps
<b>VLAN Maximum</b>	1005	1005	1005	1005	1005	1005	1005
<b>FEC/GEC</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>GBICs</b>	Gigastack, 1000BaseT, SX, LX/LH, ZX, CWDM	Gigastack, 1000BaseT, SX, LX/LH, ZX, CWDM	Gigastack, 1000BaseT, SX, LX/LH, ZX, CWDM	Gigastack, 1000BaseT, SX, LX/LH, ZX, CWDM	Gigastack, 1000BaseT, SX, LX/LH, ZX, CWDM	Gigastack, 1000BaseT, SX, LX/LH, ZX, CWDM	Gigastack, 1000BaseT, SX, LX/LH, ZX, CWDM
<b>802.1Q and ISL</b>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Power over Ethernet (PoE)</b>	No	No	Yes	No	No	No	No
<b>QoS</b>	802.1p, DSCP, 4 egress Queues, WRR, Strict Priority Queueing, WRED	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48
<b>Multicast</b>	IGMP Snooping, PIM (requires EMI), DVMRP (requires EMI), CGMP Server (requires EMI)			IGMP Snooping, PIM, DVMRP, CGMP Server	IGMP Snooping, PIM, DVMRP, CGMP Server		
<b>Management Capabilities</b>	SNMP, Telnet, RMON, Cisco Works, CLI-based out-of-band, embedded CMS, Express Setup	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48
<b>Flash Memory</b>	16 MB	16 MB	16 MB	16 MB	16 MB	16 MB	16 MB
<b>CPU DRAM</b>	64 MB	64 MB	64 MB	64 MB	64 MB	64 MB	64 MB
<b>Embedded RMON</b>	History, Events, Alarms, Statistics	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48	Same as Catalyst 3550-48
<b>Dimensions (H x W x D)</b>	1.75 x 17.5 x 16.3 in.	1.75 x 17.5 x 14.4 in.	1.75 x 17.5 x 17.4 in.	2.63 x 17.5 x 15.9 in.	2.63 x 17.5 x 15.9 in.	1.75 x 17.5 x 14.4 in.	1.75 x 17.5 x 16.3 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 3550 Series Intelligent Ethernet Switches

WS-C3550-48-SMI	Catalyst 3550-48 multilayer switch with 48 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; SMI installed
WS-C3550-48-EMI	Catalyst 3550-48 multilayer switch with 48 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; EMI installed
WS-C3550-24-SMI	Catalyst 3550-24 multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; SMI installed
WS-C3550-24-EMI	Catalyst 3550-24 multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; EMI installed
WS-C3550-24PWR-SMI	Catalyst 3550-24 multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; integrated inline power; SMI installed
WS-C3550-24PWR-EMI	Catalyst 3550-24 multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; integrated inline power; EMI installed
WS-C3550-24-DC-SMI	Catalyst 3550-24-DC multilayer switch with 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports; SMI installed; DC-powered
WS-C3550-24-FX-SMI	Catalyst 3550-24-FX multilayer switch with 24 100FX multimode fiber ports and 2 GBIC-based Gigabit Ethernet ports; SMI installed
WS-C3550-12G	10 GBIC-based Gigabit Ethernet ports and 2 10/100/1000 ports; EMI installed
WS-C3550-12T	10-10/100/1000BaseT ports and 2 GBIC-based Gigabit Ethernet ports; EMI installed
CD-3550-EMI=	EMI upgrade kit for the standard versions of the Catalyst 3550-24, 3550-48, 3550-24PWR, 3550-24-DC, and 3550-24-FX

**Gigabit Interface Converters (GBICs)**

WS-X3500-XL	GigaStack Stacking GBIC and 50 cm cable
WS-G5484=	1000BaseSX GBIC-short wavelength GBIC (multimode fiber only)
WS-G5486=	1000BaseLX/LH GBIC-long wavelength/long haul GBIC (single or multimode fiber)
WS-G5487=	1000BaseZX GBIC-extended reach GBIC (single mode fiber only)
WS-G5483=	1000BaseT GBIC-Gigabit Ethernet over Copper GBIC

**Redundant Power System (RPS)**

PWR675-AC-RPS-N1=	675W Redundant Power Supply with 1 connector cable
VAB-RPS-1614=	1.2 meter connector cable for Cisco RPS 675 to external device connection

**Spare Rack Mount Kits for the Catalyst 3550**

RCKMNT-3550-1.5RU=	Rack mount kit for the Catalyst 3550-12T and 3550-12G switches
RCKMNT-1RU=	Rack mount kit for the Catalyst 3550-24, 3550-48, 3550-24PWR, 3550-24-DC, and 3550-24-FX switches

**Packaged SMARTnet 8x5xNBD Maintenance Contract for Two-Tier Customers**

CON-SNT-PKG9	Packaged SMARTnet 8x5xNBD for the WS-C3550-12T and WS-C3550-12G
CON-SNT-PKG4	Packaged SMARTnet 8x5xNBD for the WS-C3550-24-SMI and WS-C3550-24PWR-SMI
CON-SNT-PKG5	Packaged SMARTnet 8x5xNBD for the WS-C3550-24-DC-SMI
CON-SNT-PKG6	Packaged SMARTnet 8x5xNBD for the WS-C3550-24-EMI, WS-C3550-24PWR-SMI and WS-C3550-48-SMI
CON-SNT-PKG7	Packaged SMARTnet 8x5xNBD for the WS-C3550-48-EMI and WS-C3550-24-FX-SMI

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the Catalyst 3550 Series Web site: <http://www.cisco.com/go/cat3550>

**Cisco Catalyst 3750 Series Ethernet Switches**

The Cisco Catalyst 3750 Series switches are an innovative product line that improves LAN operating efficiency by combining industry-leading ease of use and the highest resiliency available for stackable switches. This product series represents the next generation in desktop switches, and features Cisco StackWise™ technology, a 32-Gbps stack interconnect that allows customers to build a unified, highly resilient switching system—one switch at a time.

**When to Sell****Sell This Product****When a Customer Needs These Features**

<b>Catalyst 3750-24TS</b>	For networks requiring low-density access with switch stacking capability, Layer 2+ features, and 1 or more fiber or copper uplinks.
<b>Catalyst 3750-48TS</b>	For networks requiring medium-density access with switch stacking, Layer 2+ features, and 1 or more fiber or copper uplinks.
<b>Catalyst 3750G-24T</b>	For networks requiring Layer 2+ Gigabit Ethernet to the desktop (GTTD) or Gigabit Ethernet aggregation with copper Gigabit Ethernet or no uplinks.
<b>Catalyst 3750G-24TS</b>	For networks requiring Layer 2+ GTTD or Gigabit Ethernet aggregation with stacking, and 1 or more fiber or copper uplinks.
<b>Catalyst 3750-12S</b>	For aggregation of wiring closet switches with optical connectivity and stacking

## Key Features

- Ease of Use—“Plug-and-Play” Configuration; A working stack is self-managing and self-configuring. When switches are added or removed, the master switch automatically updates all the routing tables to reflect changes. Upgrades are applied universally and simultaneously to all members of the stack.
- Scalability—Fast Ethernet to Gigabit Ethernet
- Mix-and-Match Switch Types—Pay as You Expand Your Network
- Availability—Non-Stop Performance at Layer 2 and Layer 3
- Smart Multicast—With Cisco StackWise technology, offers greater efficiency for multicast applications such as video. Each data packet is put on to the backplane only once, which provides more effective support for more data streams.
- Superior Quality of Service—Across the Stack and at Wire Speed; Gigabit Ethernet speed with intelligent services; Mechanisms for marking, classification, and scheduling deliver best-in-class performance for data, voice, and video traffic—all at wire speed.
- Security—Granular Control for the Access Environment; Supports a comprehensive set of security features for connectivity and access control, including ACLs, authentication, port-level security, and identity-based network services with 802.1x and extensions.
- Single IP Management—Many Switches, One Address
- Jumbo Frames—Support for High-Demand Applications
- IPv6 Capable

## Competitive Products

- Extreme Networks: Summit5i, Summit 24/48, Summit 48i
- Foundry: FastIron 4802
- Nortel: 5510

## Specifications

Feature	Catalyst 3750-24TS	Catalyst 3750-48TS	Catalyst 3750G-24T	Catalyst 3750G-24TS	Catalyst 3750G-12S
Fixed Ports	24 1/10	48 1/10	24 10/100/1000	24 10/100/1000	12
Uplinks	2	4	0	4	12
Switching Fabric	32 Gbps	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
VLAN Maximum	1005	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
FEC/GEC	Yes	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
SFPs	1000BaseT, SX, LX/LH, ZX, CWDM	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
802.1Q and ISL	Yes	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
In-Line Power	No	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
QoS	802.1p, DSCP, 4 egress Queues, SRR, Strict Priority Queuing, WTD	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Multicast	IGMP Snooping, PIM (requires EMI), DVMRP (requires EMI), CGMP Server (requires EMI)	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Management Capabilities	SNMP, Telnet, RMON, CWSI, CLI-based out-of-band, embedded CMS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Flash Memory	16 MB	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
CPU DRAM	128 MB	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Embedded RMON	History, Events, Alarms, Statistics	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS	Same as 3750-24TS
Dimensions (H x W x D)	1.73 x 17.5 x 11.83 in.	1.73 x 17.5 x 11.83 in.	1.73 x 17.5 x 12.83 in.	2.59 x 17.5 x 11.6 in.	1.73 x 17.5 x 12.83 in.



## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 3750 Series Ethernet Switches

WS-C3750G-24TS-E	24 Ethernet 10/100/1000 ports and 4 SFP-based Gigabit Ethernet ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1.5 rack units (RU) stackable, multilayer switch; Enterprise-class intelligent services delivered to the network edge; EMI installed; Full dynamic IP routing
WS-C3750G-24TS-S	24 Ethernet 10/100/1000 ports and 4 SFP-based Gigabit Ethernet ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1.5 RU stackable, multilayer switch; Enterprise-class intelligent services delivered to the network edge; Standard Multilayer Software Image (SMI) installed; Basic RIP and static routing, upgradable to full dynamic IP routing
WS-C3750G-24T-E	24 Ethernet 10/100/1000 ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1 RU stackable, multilayer switch; Enterprise-class intelligent services delivered to the network edge; EMI installed; Full dynamic IP routing
WS-C3750G-24T-S	24 Ethernet 10/100/1000 ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1 RU stackable, multilayer switch; Enterprise-class intelligent services delivered to the network edge; SMI installed; Basic RIP and static routing, upgradable to full dynamic IP routing
WS-C3750G-12S-E	12 SFP-based Gigabit Ethernet ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1 rack unit (RU) stackable multilayer switch; Delivers enterprise-class intelligent services to the network edge; EMI installed, provides full dynamic IP routing
WS-C3750G-12S-S	12 SFP-based Gigabit Ethernet ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1 rack unit (RU) stackable multilayer switch; Delivers enterprise-class intelligent services to the network edge; SMI installed, provides basic RIP and static routing, upgradable to full dynamic IP routing
WS-C3750-48TS-E	48 Ethernet 10/100 ports and 4 SFP-based Gigabit Ethernet ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1 RU stackable, multilayer switch; Enterprise-class intelligent services delivered to the network edge; EMI installed; Provides full dynamic IP routing
WS-C3750-48TS-S	48 Ethernet 10/100 ports and 4 SFP-based Gigabit Ethernet ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1 RU stackable, multilayer switch; Enterprise-class intelligent services delivered to the network edge; SMI installed; Basic RIP and static routing, upgradable to full dynamic IP routing
WS-C3750-24TS-E	24 Ethernet 10/100 ports and 2 SFP-based Gigabit Ethernet ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1 RU stackable, multilayer switch; Enterprise-class intelligent services delivered to the network edge; EMI installed; Full dynamic IP routing
WS-C3750-24TS-S	24 Ethernet 10/100 ports and 2 SFP-based Gigabit Ethernet ports; 32-Gbps, high-speed stacking bus; Innovative stacking technology; 1 RU stackable, multilayer switch; Enterprise-class intelligent services delivered to the network edge; SMI installed; Basic RIP and static routing, upgradable to full dynamic IP routing
PWR675-AC-RPS-NI=	Cisco Redundant Power System 675 (RPS 675) with 1 connector cable
CAB-RPS-1614=	1.2 meter cable for Cisco RPS 675 to external device connection
CD-3750G-EMI=	Enhanced Multilayer Software Image (EMI) upgrade kit for standard versions of the Catalyst 3750G-24TS, 3750G-24T, 3750G-12S switches; Provides advanced IP routing
CD-3750-EMI=	Enhanced Multilayer Software Image (EMI) upgrade kit for standard versions of the Catalyst 3750-48TS, 3750-24TS switches; Provides advanced IP routing
CAB-STACK-50CM=	Cisco StackWise 50CM Stacking Cable
CAB-STACK-1M=	Cisco StackWise 1M Stacking Cable
CAB-STACK-3M=	Cisco StackWise 3M Stacking Cable
RCKMNT-3550-1.5RU=	Spare rack mount kit for the Catalyst 3750G-24TS
RCKMNT-1RU=	Spare rack mount kit for the Catalyst 3750-24TS, 3750-48TS, 3750G-24T
RCKMNT-REC-1.5RU=	1.5RU recessed rack mount kit for the Catalyst 2970, 3550, 3750
RCKMNT-REC-1RU=	1RU recessed rack mount kit for the Catalyst 2970, 3550, 3750
GLC-LH-SM=	GE SFP, LC connector LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-ZX-SM=	GE SFP, LC connector ZX transceiver
GLC-T=	GE SFP, RJ45 connector, 10/100/1000BT transceiver
CWDM-SFP-1470=	Cisco CWDM SFP 1470 nm; Gigabit Ethernet and 1G/2G FC (Grey)
CWDM-SFP-1490=	Cisco CWDM SFP 1490 nm; Gigabit Ethernet and 1G/2G FC (Violet)
CWDM-SFP-1510=	Cisco CWDM SFP 1510 nm; Gigabit Ethernet and 1G/2G FC (Blue)
CWDM-SFP-1530=	Cisco CWDM SFP 1530 nm; Gigabit Ethernet and 1G/2G FC (Green)
CWDM-SFP-1550=	Cisco CWDM SFP 1550 nm; Gigabit Ethernet and 1G/2G FC (Yellow)
CWDM-SFP-1570=	Cisco CWDM SFP 1570 nm; Gigabit Ethernet and 1G/2G FC (Orange)
CWDM-SFP-1590=	Cisco CWDM SFP 1590 nm; Gigabit Ethernet and 1G/2G FC (Red)
CWDM-SFP-1610=	Cisco CWDM SFP 1610 nm; Gigabit Ethernet and 1G/2G FC (Brown)
CSS5-CABLX-LCSC=	CSS11500 10-Meter Fiber Single Mode LX LC-to-SC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-Meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-Meter Fiber Multimode SX LC-to-SC Connectors
CAB-SM-LCSC-1M	1-Meter Fiber Singlemode LC-to-SC Connectors
CAB-SM-LCSC-5M	5-Meter Fiber Singlemode LC-to-SC Connectors

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## For More Information

See the Catalyst 3750 Series Web site: [www.cisco.com/go/catalyst3750](http://www.cisco.com/go/catalyst3750)

## Cisco Catalyst 4500 Series

A next generation Cisco Catalyst 4000 Series platform for Intelligent Switching, the Catalyst 4500 Series includes three Catalyst chassis:

Catalyst 4507R (7-slot: redundant Supervisor capable), Catalyst 4506 (6-slot) and Catalyst

4503 (3-slot). A key component of Cisco AVVID (Architecture for Voice, Video and Integrated Data), the Catalyst 4500 extends control to Enterprise wiring closets, branch office and Layer 3 distribution points. A variety of network infrastructure solutions are enabled by the Catalyst 4500 Series including: Cisco IOS Network Services, IP Telephony, Power Over Ethernet, 10/100/1000 to the desktop, Wireless LAN, NetFlow Services and Metro Ethernet Switching.



### When to Sell

#### Sell This Product

##### Catalyst 4507R

#### When a Customer Needs These Features

- When network resiliency via redundant Supervisor Engines is crucial to customer success
- Port density up to 240-10/100, 100-FX, or 10/100/1000BASE-T with modular investment protection
- Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 64 Gbps, 48 Mpps

##### Catalyst 4506

- Port density up to 240-10/100, 100-FX, or 10/100/1000BASE-T with modular investment protection
- Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 64 Gbps, 48 Mpps

##### Catalyst 4503

- Port density up to 96-10/100, 100-FX, or 10/100/1000BASE-T with modular investment protection
- Layer 2 and Layer 3 Cisco Express Forwarding (CEF)-based switching up to 28 Gbps, 21 Mpps

Note: Compatible sparring between Catalyst 4507R, 4506, and 4503 chassis provides investment protection with common Supervisor Engines, power supplies and switching line cards.

### Competitive Products

- Extreme Networks: Alpine 3802, Alpine 3804, and Alpine 3808
- Enterasys: Matrix E-5, Matrix E-6, Matrix E-7
- Foundry: FastIron 400/800, FastIron II, II+, III
- Hewlett Packard: Procurve 5300XL, 4108GL
- Nortel: Passport 8100

### Specifications

Feature	Supervisor II (WS-X4013)	Supervisor II-Plus (WS-X4013+)	Supervisor IV (WS-X4515)
Switching Capacity & Throughput	24Gbps, 18Mpps	64 Gbps, 48Mpps	64Gbps, 48Mpps
Multilayer Switching	Layer 2 only	Basic L2/3/4 Services	Enhanced L2/3/4 Services & Routing
(E)IGRP, OSPF, IS-IS, BGP	No	No	Yes
Platform Support	Catalyst 4506, 4503, 4006	Catalyst 4507R, 4506, 4503, 4006	Catalyst 4507R 4506, 4503, 4006
Supervisor Redundancy	No	Yes (4507R Only)	Yes (4507R Only)
Operating System	CatOS	IOS	IOS
QoS	System based (2Q/Port)	Port based (4Q/Port), advanced features	Port based (4Q/Port), advanced features
CPU	150 MHz	266 MHz	333 MHz
NetFlow Support	No	No	Yes
ISL	No	Yes	Yes
ACLS	No	Yes	Yes
IP FIB entries	No	32K (1 Fwd TCAM only)	128K (4 Fwd TCAMs)
MAC Addresses	16K	32K	32K
On-Board Flash	16 MB	32 MB	64 MB
Compact Flash Support	No	Yes	Yes

Feature	Catalyst 4507R	Catalyst 4506	Catalyst 4503
<b>Fixed Ports</b>	2 Gigabit uplink ports on Supervisor Engine II, II-Plus, and IV	2 Gigabit uplink ports on Supervisor Engine II, II-Plus, and Supervisor IV	2 Gigabit uplink ports on Supervisor Engine II, II-Plus, and Supervisor IV
<b>Modular Slots</b>	240 (10/100 Fast Ethernet) 240 (100-FX Fast Ethernet) 240 (10/100/1000BASE-T)	240 (10/100 Fast Ethernet) 240 (100-FX Fast Ethernet) 240 (10/100/1000BASE-T)	96 (10/100 Fast Ethernet) 96 (100-FX Fast Ethernet) 96 (10/100/1000BASE-T)
<b>Available Modules</b>	Supervisor Engine II-Plus and IV	Supervisor Engine II, II-Plus and IV	Supervisor Engine II, II-Plus and IV
<b>Redundant Supervisor Capable</b>	Yes	No	No
<b>Backplane Capacity</b>	64 Gbps	64 Gbps	28 Gbps
<b>Stackable</b>	No	No	No
<b>Hot-Swappable Power Supplies</b>	Yes	Yes	Yes
<b>1+1 Power Supply Protection</b>	Yes	Yes	Yes
<b>Embedded RMON</b>	Statistics, History, Alarm, Events	Statistics, History, Alarm, Events	Statistics, History, Alarm, Events
<b>Dimensions (H x W x D)</b>	19.19 x 17.31 x 12.50 in (48.74 x 43.97 x 31.70 cm)	17.38 x 17.31 x 12.50 in (44.13 x 43.97 x 31.70 cm)	12.25 x 17.31 x 12.50 in (31.12 x 43.97 x 31.70 cm)

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 4500 Series Switches

WS-C4507R	Catalyst 4500 Chassis (7-Slot), fan, no p/s, Red Sup Capable
WS-C4506	Catalyst 4500 Chassis (6-Slot), fan, no p/s
WS-C4503	Catalyst 4500 Chassis (3-Slot), fan, no p/s

### Catalyst 4500 Series Common Equipment

WS-X4013+=	Catalyst 4500 Supervisor Engine II-Plus (Cisco IOS Software-based)
WS-X4013=	Catalyst 4500 Supervisor Engine II, Console (RJ-45), Mgt. (RJ-45) (Spare)
WS-X4515=	Catalyst 4500 Supervisor IV, 2 GE, Console(RJ-45)
WS-F4531=	Catalyst 4500 NetFlow Services card for Supervisor Engine IV
PWR-C45-1000AC=	Catalyst 4500 1000W AC Power Supply (Data Only)
PWR-C45-1300ACV=	Catalyst 4500 1300W AC Power Supply (with PoE)
PWR-C45-2800ACV=	Catalyst 4500 2800W AC Power Supply (with PoE)

**Catalyst 4500 Series Line Card Modules and GBICs**

WS-X4124-FX-MT=	Catalyst 4500 FE Switching Module, 24-port 100FX (MTRJ)
WS-X4148-FX-MT=	Catalyst 4500 FE Switching Module, 48-100FX MMF (MTRJ)
WS-X4148-RJ=	Catalyst 4500 10/100 Fast Ethernet Module, 48 Ports (RJ-45)
WS-X4148-RJ21=	Catalyst 4500 Telco switch module, 48-port 10/100 (4xRJ21)
WS-X4148-RJ45V=	Catalyst 4500 PoE 10/100, 48-port (RJ45)
WS-X4232-GB-RJ=	Catalyst 4500 E/FE/GE Module, 2-GE (GBIC), 32-10/100 FE (RJ-45)
WS-X4232-RJ-XX=	Catalyst 4500 FE Base Module, 32-10/100(RJ45)+ Modular Uplink slot
WS-X4306-GB=	Catalyst 4500 Gigabit Ethernet Module, 6 Ports (GBIC)
WS-X4424-GB-RJ-45=	Catalyst 4500 24 port 10/100/1000 Auto-Sensing Module (RJ45)
WS-X4548-GB-RJ45=	Catalyst 4500 48 port 10/100/1000 Auto-Sensing Module (RJ45)
WS-X4418-GB=	Catalyst 4500 GE Module, Server Switching 18 Ports (GBIC)
WS-X4604-GWY=	Catalyst 4500 Access Gateway Module with IP/FW software
WS-G5483=	1000BASE-T GBIC (RJ-45)
WS-G5484=	1000BASE-SX Shortwave GBIC Module (Multimode Only)
WS-G5486=	1000BASE-LX/LH Long Haul GBIC Module (Multimode or Single Mode)
WS-G5487=	1000 BASE-ZX GBIC module (Single Mode Only)

**Catalyst 4500 Series Software**

S4KL3-12119EW=	Cisco IOS BASIC L3 SW Cat4500 SUP II-Plus/3/4(RIPSt.Routes,IPX,AT)
S4KL3E-12119EW=	Cisco IOS ENHANCED L3 SW Cat4500 SUP3/4(OSPF,IGRP,EIGRP,IS-IS)
SC4K-SUPK8-8.1.1=	Catalyst OS L2 SW Cat4500 Sup 2
WS-C4507R-EMS-LIC=	Catalyst 4507R RMON Agent License
WS-C4506-EMS-LIC=	Catalyst 4506 RMON Agent License
WS-C4503-EMS-LIC=	Catalyst 4503 RMON Agent License

**Catalyst 4500 Series Basic Maintenance**

CON-SNT-WS-C4507	Catalyst 4507R SMARTnet 8x5xNBD Maintenance
CON-SNT-WS-C4506	Catalyst 4506 SMARTnet 8x5xNBD Maintenance
CON-SNT-WS-C4503	Catalyst 4503 SMARTnet 8x5xNBD Maintenance

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**For More Information**

See the Catalyst 4500 series Web site: <http://www.cisco.com/go/cat4000>

**Cisco Catalyst 4900 Series — Fixed Configuration**

The Catalyst 4912G is a CatOS based, dedicated Gigabit Ethernet fixed configuration switch. It provides the high performance Layer 2 switching required for midsize Gigabit Ethernet aggregation with optimum port density.

**When to Sell****Sell This Product When a Customer Needs These Features**

<b>Catalyst 4912G</b>	• Advanced wirespeed, non-blocking Layer 2 Gigabit Ethernet performance with intelligent Cisco IOS services and high-speed connections to workstations or servers; flexible Gigabit Interface Converter (GBIC) interfaces on all ports
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**Key Features**

- Catalyst 4912G:
  - Wire-speed performance with 24 Gbps of dedicated bandwidth for nonblocking Gigabit Ethernet concentration, broad Gigabit EtherChannel availability, and GBIC flexibility on fiber port interfaces covering a wide range of cabling distances

## Competitive Products

• Extreme Networks: Summit 1

• Foundry: Turbo Iron 8

## Specifications

Feature	Catalyst 4912G
Fixed Ports	12 (All Layer 2)
Backplane Capacity	24 Gbps
Stackable	No
VLAN Maximum	244
802.1Q	Yes
ISL	No
Management Capabilities	Inboard console via terminal or modem, outboard via Telnet, SNMP, CiscoView, CWSI, CiscoWorks 2000
Dimensions (H x W x D)	2.75 x 17.5 x 15 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 4900 Switch Series

WS-C4912G	Catalyst 4912G switch, fixed 12-ports switched 1000BASE-X (GBIC)
WS-G5484=	1000BASE-SX GBIC module
WS-G5486=	1000BASE-LX/LH GBIC module
WS-G5487=	1000BASE-ZX GBIC module

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Catalyst 4000 series Web site: <http://www.cisco.com/go/cat4000>

## Cisco Catalyst 6500 Series

The Catalyst 6500 Family delivers highly available secure converged network services for the Enterprise and Service Provider networks. Designed to address the increased requirements for gigabit scalability, high-availability, rich services, and multilayer switching in backbone, distribution, and wiring closet topologies as well as datacenter environments, the Catalyst 6500 Family delivers exceptional scalability and price/performance, supporting a wide range of interface densities, performance, and integration of powerful service modules. The Catalyst Family delivers a wide range of intelligent switching solutions, enabling corporate intranets, extranets, and the internet for multimedia, mission-critical data, and voice applications.



## When to Sell

### Sell This Product

### When a Customer Needs These Features

Catalyst 6513	<ul style="list-style-type: none"> <li>A high capacity chassis for Ethernet connectivity, with slots to spare for services modules providing network curity and management; Port density 576 10/100 or 10/100/1000 ports, 290 Gigabit ports, 20 10 GE Ports; Up to 720 Gbps of switching capacity and Packet throughput scalable to 400 Mpps</li> </ul>
Catalyst 6509	<ul style="list-style-type: none"> <li>A traditional chassis for the wiring closet, distribution and core, data center, and WAN edge; Port density 384 10/100 or 10/100/1000 ports, 194 Gigabit ports, 32 10 GE Ports; Up to 720 Gbps of switching capacity and Packet throughput scalable to 387 Mpps</li> </ul>
Catalyst 6506	<ul style="list-style-type: none"> <li>A traditional chassis for the wiring closet, distribution and core, data center, and WAN edge; Port density 240 10/100 or 10/100/1000 ports, 122 Gigabit ports, 20 10 GE Ports; Up to 480 Gbps of switching capacity and Packet throughput scalable to 243 Mpps</li> </ul>
Catalyst 6503	<ul style="list-style-type: none"> <li>A low-density, wiring-closet chassis sharing interface modules and supervisor engines with larger chassis for common sparing; Port density 96 10/100 or 10/100/1000 ports, 50 Gigabit ports, 8 10GE ports; Up to 240 Gbps of switching capacity and Packet throughput scalable to 99 Mpps</li> </ul>

## Key Features

- Supervisor Engine 720—Position for enterprise core, distribution, and data centers: Up to 720 Gbps Switch Fabric Connection; 400 Mpps; Supports new accelerated Cisco Express Forwarding (CEF720) and distributed Cisco Express Forwarding (dCEF720) interface modules; IPv6 and MPLS in hardware
- Supervisor Engine 2 MSFC2—Position for enterprise distribution, data centers, and WAN edge: Up to 256 Gbps Switch Fabric Connection with SFM; 210 Mpps; Supports distributed Cisco Express Forwarding (dCEF256) interface modules; Supports Layer 3 routing protocols
- Supervisor Engine 2 PFC2—Position for premium wiring closet and data center access; Up to 256 Gbps Switch Fabric Connection with SFM; 30 Mpps Centralized Forwarding using Cisco Express Forwarding (CEF) in hardware
- Supervisor Engine 1A-2GE—Position for Low-density, wiring-closet: 32-Gbps shared bus connection to modules; 15 Mpps; Centralized Layer 2 forwarding

## Competitive Products

- Extreme: Black Diamond
- Foundry: Big Iron
- Lucent: Cajun Switch 550
- Nortel: Passport 8600

## Specifications

Feature	6503	6506	6509	6513
<b>Modular Slots</b>	3	6	9	13
<b>Maximum Port Density</b>	96 10/100 97 10/100/1000 50 Gigabit 8 10GE	240 10/100 241 10/100/1000 122 Gigabit 20 10GE	384 10/100 385 10/100/1000 242 Gigabit 32 10GE	576 10/100 577 10/100/1000 290 Gigabit 20 10GE
<b>WAN Interfaces</b>	DS0 to OC-48	DS0 to OC-48	DS0 to OC-48	DS0 to OC-48
<b>Available Bandwidth</b>	Scalable to 240 Gbps	Scalable to 480 Gbps	Scalable to 720 Gbps	Scalable to 720 Gbps
<b>Throughput</b>	Scalable to 99 Mpps	Scalable to 243 Mpps	Scalable to 387 Mpps	Scalable to 400+ Mpps
<b>Redundant Supervisor</b>	Yes	Yes	Yes	Yes
<b>Hot-Swappable Power Supplies</b>	Yes	Yes	Yes	Yes
<b>VLAN Maximum</b>	4000	4000	4000	4000
<b>FEC/GEC</b>	Yes	Yes	Yes	Yes
<b>Management Capabilities</b>	CiscoWorks 2000, RMON, Enhanced Switched Port Analyzer (ESPA), SNMP, Telnet, BOOTP, and Trivial File Transfer Protocol (TFTP)	Same as Catalyst 6503	Same as Catalyst 6503	Same as Catalyst 6503
<b>Dimensions</b>	4 RU, 7 x 17.37 x 21.75 in.	12 RU, 20.1 x 17.2 x 18.1 in.	15 RU, 25.2 x 17.2 x 18.1 in.	20 RU, 33.3 x 17.2 x 18.1 in.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 6500 - Bundles

WS-C6503-2GE	Cat6503 SMARTnet Bundle chassis,Sup1A-2GE,Fan Tray,No PwrSup
WS-C6503-PFC2	Cat6503 SMARTnet Bundle chassis,Sup2-PFC2,Fan Tray,No PwrSup
WS-C6503-PFC2-48GT	Cat6503 w/S2-PFC2,WS-X6148-GE-TX (Req PS Purch)
WS-C6503-PFC2-48V	Cat6503 w/S2-PFC2,WS-X6148-RJ45V (Req PS Purch)
WS-C6503-FWM-K9	Cisco Catalyst 6503 Firewall Security System
WS-C6503-IPSEC-K9	Cisco Catalyst 6503 IPsec VPN System
WS-C6506-2GE	Cat6506 SMARTnet Bundle chassis,Sup1A-2GE,Fan Tray,No PwrSup
WS-C6506-PFC2	Cat6506 SMARTnet Bundle chassis,Sup2-PFC2,Fan Tray,No PwrSup
WS-C6506-PFC2-48GT	Cat6506 w/S2-PFC2,WS-X6148-GE-TX (Req PS Purch)
WS-C6506-PFC2-48V	Cat6506 w/S2-PFC2,WS-X6148-RJ45V (Req PS Purch)
WS-C6506-FWM-K9	Cisco Catalyst 6506 Firewall Security System
WS-C6506-IPSEC-K9	Cisco Catalyst 6506 IPsec VPN System
WS-C6509-2GE	Cat6509 SMARTnet Bundle chassis,Sup1A-2GE,Fan Tray,No PwrSup
WS-C6509-PFC2	Cat6509 SMARTnet Bundle chassis,Sup2-PFC2,Fan Tray,No PwrSup
WS-C6509-PFC2-48GT	Cat6509 w/S2-PFC2,WS-X6148-GE-TX (Req PS Purch)
WS-C6509-PFC2-48V	Cat6509 w/S2-PFC2,WS-X6148-RJ45V (Req PS Purch)
WS-C6509-6816-16	Cat6509 w/S2-MSFC2,SFM2,WS-X6816-GBIC (Req Purch 2 2500W)

WS-C6509-6816-32	Cat6509 w/S2-MSFC2,SFM2,2xWS-X6816-GBIC (Req Purch 2 2500W)
WS-C6509-RJ21-96	Cat6509 chassis w/ 2x2500WAC, 1xSup1A-PFC, 2xWS-X6148-RJ21V
WS-C6509-RJ45-96	Cat6509 chassis w/ 2x2500WAC, 1xSup1A-PFC, 2xWS-X6148-RJ45V

**Catalyst 6500 - Chassis**

WS-C6503	Cat 6503 Chassis, 3slot, 4RU, No Pow Supply, No Fan Tray
WS-C6506	Cat 6506 Chassis, 6slot, 12RU, No Pow Supply, No Fan Tray
WS-C6509	Cat 6509 Chassis, 9slot, 15RU, No Pow Supply, No Fan Tray
WS-C6509-NEB	Cat 6509 Chassis,NEBS,9 slot vert,20RU,w/ Fan Tray,No PowSup
WS-C6509-NEB-A	Cat 6509 Chassis for SUP720 and NEBS Envirnmnts No PS, No Fan
WS-C6513	Cat 6513 Chassis, 13slot, 19RU, No Pow Supply, No Fan Tray

**Catalyst 6500 - Supervisor Engines & Switch Fabric Modules**

WS-X6K-SUP1A-2GE=	Catalyst 6000 Supervisor Engine1A, Enhanced QoS, 2GE
WS-X6K-S2-PFC2=	Catalyst 6500 Supervisor Engine-2, 2GE, plus PFC-2
WS-X6K-S2-MSFC2=	Catalyst 6500 Supervisor Engine-2, 2GE, plus MSFC-2 / PFC-2
WS-X6K-S2U-MSFC2=	Cat6K Sup2 with 256MB DRAM on Sup2 and MSFC2
WS-SUP720=	Catalyst 6500 / Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3A
WS-C6500-SFM=	Catalyst 6500 Switch Fabric Module
WS-X6500-SFM2=	Catalyst 6500 Switch Fabric Module 2, Spare

**Catalyst 6500 10GE**

WS-X6502-10GE=	Catalyst 6500 10 Gigabit Ethernet Base Module(Req OIM),Spare
WS-X6704-10GE=	Cat6500 4-port 10 Gigabit Ethernet Module (req. XENPAKS)

**Catalyst 6500 - Gigabit Ethernet**

WS-X6148-GE-TX=	Catalyst 6500 48-port 10/100/1000 GE Mod., RJ-45
WS-X6148V-GE-TX=	Catalyst 6500 48-port 10/100/1000 Inline Power Module, RJ-45
WS-X6316-GE-TX=	Catalyst 6000 16-port 1000TX GE Mod., RJ-45
WS-X6408A-GBIC=	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)
WS-X6416-GBIC=	Catalyst 6000 16-port Gig-Ethernet Mod. (Req. GBICs), Spare
WS-X6416-GE-MT=	Catalyst 6000 16-port Gig-Ethernet Mod., MT-RJ, Spare
WS-X6516-GBIC=	Catalyst 6500 16-port GigE Mod: fabric-enabled (Req. GBICs)
WS-X6516A-GBIC=	Catalyst 6500 16-port GigE Mod, fabric-enabled (Req. GBICs)
WS-X6516-GE-TX=	Catalyst 6500 16-port Gig/Copper Module, x-bar
WS-X6548-GE-TX=	Catalyst 6500 48-port fabric-enabled 10/100/1000 Module
WS-X6548V-GE-TX=	Catalyst 6500 48-port fab-enabled 10/100/1000 inline pwr mod
WS-X6724-SFP=	Catalyst 6500 24-port GigE Mod: fabric-enabled (Req. SFPs)
WS-X6748-GE-TX=	Cat6500 48-port 10/100/1000 GE Mod: fabric enabled, RJ-45
WS-X6816-GBIC=	Cat6500 16-port GigE mod, 2 fab I/F, (Req GBICs, DFC/DFC3)

**Catalyst 6500 - 10/100 Ethernet**

WS-X6024-10FL-MT=	Catalyst 6000 24-port 10BaseFL MT-RJ Module, Spare
WS-X6148-RJ-45=	Catalyst 6500 48-Port 10/100, Upgradable to Voice, RJ-45
WS-X6148-RJ45V=	Catalyst 6500 48-port 10/100 Inline Power, RJ-45
WS-X6148-RJ-21=	Catalyst 6500 48-Port 10/100 Upgradable to Voice, RJ-21
WS-X6148-RJ21V=	Catalyst 6500 48-port 10/100 Inline Power Module, RJ-21
WS-X6348-RJ-45=	Catalyst 6000 48-port 10/100, Upgradable to Voice, RJ-45
WS-X6348-RJ45V=	Catalyst 6000 48-port 10/100, Enh QoS, Inline Power, RJ-45
WS-X6348-RJ21V=	Catalyst 6000 48-port 10/100, Inline Power, RJ-21
WS-X6324-100FX-MM=	Catalyst 6000 24-port 100FX, Enh QoS, MT-RJ, MMF
WS-X6324-100FX-SM=	Catalyst 6000 24-port 100FX, Enh QoS, MT-RJ, SMF
WS-X6524-100FX-MM=	Catalyst 6500 24-port 100FX, MT-RJ, fabric-enabled
WS-X6548-RJ-45=	Catalyst 6500 48-port 10/100, RJ-45, x-bar
WS-X6548-RJ-21=	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

**For More Information**

See the Catalyst 6000 Family Web site: <http://www.cisco.com/go/6000>

## Cisco Catalyst 8500 Multiservice Switch Routers

The Catalyst 8500 family multiservice switch routers integrate multiservice ATM switching with wire-speed multiprotocol routing for Gigabit Ethernet and Fast Ethernet into a single platform that also supports advanced Cisco IOS services for QoS and security. This family delivers enterprise MAN/WAN and Service Provider multiservice edge solutions with scalable performance, lower cost of ownership, and offer multiple interface options in a modular chassis. The Catalyst 8500 series consists of the modular Catalyst 8510 (10-Gbps, 5-slot) switch and the modular Catalyst 8540 (40-Gbps, 13-slot) switch. Both switches implement Cisco IOS Software to provide a variety of network services including reliability, security, management, and QoS with CiscoAssure policy networking.



### When to Sell

#### Sell This Product

Catalyst 8540 and  
Catalyst 8510

#### When a Customer Needs These Features

- Integrated 10/100 FE, GE, and ATM
- Flexible ATM interfaces (T1/E1, IMA, DS3/E3, OC-3, OC-12, and OC-48)
- Frame relay and circuit emulation services
- Wire-speed performance
- Multiservice MAN/WAN applications
- Multiservice Edge solutions
- Voice, data, and video solutions
- MPLS VPN

### Key Features

- Ideal for integrated multiservice ATM switching with wire-speed multiprotocol routing for gigabit Ethernet (L3eATM or Layer 3 enabled ATM)
- Ideal for aggregating multiprotocol traffic from multiple wiring closets or from workgroup switches such as the Catalyst 5000 or distribution/server aggregation switches such as the Catalyst 6000 Family
- Provides nonblocking routing for IP, IPX, and IP multicast while also offering wire-speed Layer 2 switching for nonroutable protocols such as NetBIOS and DECnet local-area transport (LAT)
- Aggregate throughput of up to 24 million packets per second (pps) for non-blocking, wirespeed Layer 3 switching

### Competitive Products

- Foundry: Big Iron
- Lucent: PSAX 1250 and 2300
- Marconi: ASX 1000, 1200, and 4000
- Alcatel: Omniswitch

### Specifications

Feature	Catalyst 8510	Catalyst 8540
Modular Slots	5	13
Available Modules	See Part Numbers and Ordering information for a partial parts list	
Backplane	10 Gbps	40 Gbps
Throughput Performance	6 Mpps	24 Mpps
MAN / WAN	Gig Ethernet / ATM	Gig Ethernet / ATM
Dimensions (HxWxD)	10.5 x 17.2 x 18.14 in.	25.25 x 17.3 x 18.25 in.



## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 8540—Common Equipment

C8540MSR-SKIT-AC	C8540 MSR Starter Kit w/ Stratum 4 Clock Module—AC Power (also available in DC Power)
C8545MSR-MRP4CLK=	C8540 MSR Multiservice Route Processor (spare)
C8546MSR-MRP3CLK=	C8540 MSR Route Processor Stratum 3 (spare)
C8546MSR-MSP-FCL=	C8540 MSR Switch Processor with ATM FC (spare)
C8540-CHAS13=	Catalyst 8540 - Chassis (spare)
C8540-PWR-AC=	C8540 Power Supply—AC (also available in DC Power)

### Catalyst 8510—Common Equipment

C8510MSR-SKIT-AC	Catalyst 8510 MSR Starter Kit with AC Power (also available as -DC for DC Power)
C8515-MSRP=	C8510 Multiservice Switch Route Processor (spare)
C8510-SRP=	C8510 Layer 3 Switch Route Processor (spare)
C8510-CHAS5=	Catalyst 8510 - Chassis (spare)
C8510-PWR-AC=	C8510 power supply, AC (spare) (also available in DC power)

### Catalyst 8500 Family—ATM Router Module Equipment

C8540-ARM-64K=	C8540 ATM Router Module 64K (also available for 8510)
C8540-ARM2=	C8540 Enhanced ATM Router Module (spare)

### Catalyst 8500—Layer 3 Modules and ATM Interface Modules and Uplinks

C85EGE-2X-16K=	C8540 2-port Enhanced GE 16K (also available in 64K and 256K)
C85GE-8X-64K=	C8540 8-port GE 64K
C85FE-16TACL-64K=	C8540 16-port 10/100 RJ-45 w/ACL 64K
C8540-ACL=	C8540 ACL Daughter Card (also available for C8510/LS1010)
C85GE-1X-16K=	C8510/LS1010 1-port Gigabit Ethernet 16K (also available in 64K)
C85FE-8T-64K=	C8510/LS1010 8-port 10/100 RJ-45 64K
C85MS-4F-OC12SS=	C8540 4-port OC-12c/STM-4 SMF
C85MS-4F-OC12MM=	C8540 4-port OC-12c/STM-4 MMF
C85MS-16F-OC3MM=	C8540 16-port OC-3c/STM-1 MMF (spare)
C85MS-16F-OC3SM=	C8540 16-port OC-3c/STM-1 SMF-LR (spare)

### Catalyst 8500—Port Adapter Modules

C85MS-SCAM-2P=	C8540 SuperCAM for Port Adapter Modules (spare)
C8510TSCAM-2P=	CS8510/LS1010 Traffic Shaping Carrier Access Modules (spare)
WATM-CAM-2P=	C8510 / LS1010 Carrier Modules (spare)
WAI-T1C-4RJ48=	4 Port T1 (circuit emulation) RJ-48 PAM (also available in E1 and in E1 BNC)
C85MS-4E1-FRRJ48=	C8500 4-port E1 Frame-Relay/FUNI PAM (spare)
WAI-OC3-4MM=	4 Port OC-3c/STM-1 MMF PAM (also available in SMF-IR & SMF-LR)
WAI-OC3-1S3M=	OC-3c/STM-1 Mix PAM, 1-port SMF-IR + 3-port MMF (spare)
WAI-OC12-1MM=	1 Port OC-12c/STM-4c MMF PAM (also available in SMF-IR and SMF-LR)
WAI-T3-4BNC=	4 Port DS-3 PAM (spare and in E3 BNC)
C85MS-8T1-IMA=	C8500MSR/LS1010 8-port T1 IMA PAM (also available in E1 120 ohm)
WAI-T1-4RJ48=	4 Port T1 (ATM) RJ-48 PAM (spare also available in E1 and E1 BNC E1)

### Catalyst 8500 Software Feature License Options

FR-8510-TAGSW=	C8510 Tag Switching upgrade license (also available with HPNNI and HPNNI + Tag Switching)
FR-8540MSR-HPNNI=	Cat 8540MSR—Hierarchical PNNI License (also available with Tag Switching)

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Catalyst 8500 series Web site: <http://www.cisco.com/go/8500>

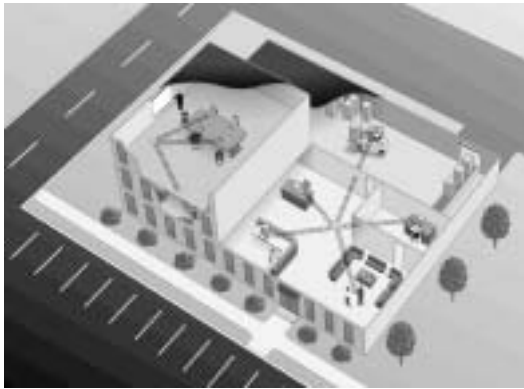


# Wireless LAN Products

## Wireless LAN Products at a Glance (IEEE 802.11b)

Product	Features	Page
<b>Cisco Aironet 1200 Series Access Points</b>	<ul style="list-style-type: none"> <li>Offers investment protection and a smooth migration path to future technologies through a dual band radio design</li> <li>Delivers an enterprise class security solution with the IEEE 802.11x-based Cisco Wireless Security Suite</li> <li>Industry-leading security, network management, throughput and software feature set</li> <li>Provides end-to-end solution support for Intelligent Network Services. Produces predictable and consistent network behavior with uniform applications and services</li> </ul>	3-2
<b>Cisco Aironet 1100 Series Access Point</b>	<ul style="list-style-type: none"> <li>Single 802.11b radio, upgradable to 802.11g</li> <li>Provides end-to-end solution support for Intelligent Network Services</li> <li>Delivers an enterprise class security solution with the IEEE 802.11x-based Cisco Wireless Security Suite</li> <li>Cost effective, yet feature-rich</li> </ul>	3-5
<b>Cisco Aironet 1400 Series Wireless Bridge</b>	<ul style="list-style-type: none"> <li>Support for both point-to-point or point-to-multipoint configurations</li> <li>Industry leading range and throughput, supporting data rates up to 54 Mbps</li> <li>Enhanced security mechanisms based on 802.11 standards</li> <li>Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range</li> </ul>	3-6
<b>Cisco Aironet 5 GHz 54 Mbps Wireless LAN Client Adapter</b>	<ul style="list-style-type: none"> <li>IEEE 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands</li> <li>Complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require</li> </ul>	3-9
<b>Cisco Aironet 350 Series Client Adapters</b>	<ul style="list-style-type: none"> <li>Superior range and throughput</li> <li>Secure network communications</li> <li>World mode for international roaming</li> <li>PCMCIA card and PCI form factors</li> <li>IEEE 802.11b</li> </ul>	3-11
<b>Cisco Aironet 350 Series Workgroup Bridge</b>	<ul style="list-style-type: none"> <li>Driverless installation of up to eight Ethernet-enabled devices</li> <li>Optimum wireless performance and range</li> <li>Standards-based centralized security</li> <li>IEEE 802.11b</li> </ul>	3-13
<b>Cisco Aironet 350 Series Wireless Bridge</b>	<ul style="list-style-type: none"> <li>High-speed, high-power radios, delivering building-to-building links of up to 25 miles (40.2 km)</li> <li>A metal case for durability and plenum rating</li> <li>Supports both point-to-point and point-to-multipoint configurations</li> <li>Broad range of support antennas</li> <li>Simplified installation, improved performance, and upgradeable firmware, ensuring investment protection</li> <li>IEEE 802.11b</li> </ul>	3-15
<b>Cisco Aironet Antennas and Accessories</b>	<ul style="list-style-type: none"> <li>A wide array of options</li> <li>FCC-approved directional and omni-directional antennas</li> <li>Low-loss cable, mounting hardware, and other accessories available</li> </ul>	3-17
<b>Cisco Aironet 5 GHz Bridge Antennas and Accessories</b>	<ul style="list-style-type: none"> <li>Enable a customized solution for almost any installation</li> <li>With Cisco antennas, customize a wireless solution meeting requirements of most challenging application</li> </ul>	3-17
<b>CiscoWorks Wireless LAN Solution Engine</b>	<p>A hardware-based wireless LAN management solution that provides template-based configuration with user-defined groups to effectively manage a large number of access points and bridges.</p> <ul style="list-style-type: none"> <li>Monitors LEAP authentication servers</li> <li>Enhances security management through mis-configuration detection on access points and bridges</li> </ul>	9-27

## Sample Wireless LAN Solution Overview—In-Building or Site-to-Site



### Enterprise, Small/Medium Business Applications

Service common areas for mobile workers  
Support employees working in multiple offices  
Cost effective, quick network deployment for temporary or leased offices

### Sample Vertical Markets

Healthcare, retail, government  
Public Access  
Multiple Tenant/Dwelling Units  
Airports, Hotels, Convention Centers  
Education: K-12 and Universities

## Cisco Aironet 1200 Series Access Points

The Cisco Aironet 1200 Series Access Point sets the enterprise standard for next-generation high performance secure, manageable, and reliable wireless local-area networks (WLANs) while also providing investment protection because of its upgrade capability and compatibility with current standards. The modular design of the Cisco Aironet 1200 supports IEEE 802.11a and



802.11b technologies in both single-and dual-mode operation. You can configure the Cisco Aironet 1200 to meet customer-specific requirements at the time of purchase and then reconfigure and upgrade the product in the field as these requirements evolve.

The Cisco Aironet 1200 Series protects current and future network infrastructure investments. Compliant with IEEE 802.11a and 802.11b standards, The 802.11a radio supports data rates of up to 54 Mbps and eight non-overlapping channels that offer high performance as well as maximum capacity and scalability. The 802.11b radio provides data rates up to 11 Mbps and three non-overlapping channels to support widely deployed 802.11b clients. The Mini-PCI form factor of the 802.11b radio allows for upgrade to higher-speed 2.4 GHz technologies such as the draft IEEE 802.11g standard. The Cisco Aironet 1200 Series extends end-to-end intelligent networking to the wireless access point with support for enterprise-class virtual LANs (VLANs) and quality of service (QoS).

Wireless LAN security is a primary concern. The Cisco Aironet 1200 Series secures the enterprise network with a scalable and manageable system featuring the award-winning Cisco Wireless Security Suite. Based on the 802.11x standard for port-based network access, the Cisco Wireless Security Suite takes advantage of the Extensible Authentication Protocol (EAP) framework for user-based authentication.

## When to Sell

### Sell This Product

#### Cisco Aironet 1200 Series Access Point

### When a Customer Needs These Features

- IT Professionals or business executives want mobility within the enterprise to increase productivity, as an addition or alternative to wired networks.
- Business owners or IT directors need flexibility for frequent LAN wiring changes, either throughout the site or in selected areas.
- Any company whose site is not conducive to LAN wiring because of building or budget limitations, such as older buildings, leased space or temporary sites.
- Offers future revenue opportunities via 802.11g upgrades.
- Suitable for deployment in any standards-based environment

## Key Features

- Offers investment protection because of its upgrade capability and compatibility with current standards
- Delivers an enterprise class security solution with the IEEE 802.11x-based Cisco Wireless Security Suite
- Industry-leading security, network management, and software feature set
- Support for both inline power over Ethernet or local power
- Simultaneous support for both IEEE 802.11b and IEEE 802.11a

## Specifications

	Cisco Aironet 1200 Series		
	Access Points with 802.11a radio installed	With 802.11b radio installed	With both 802.11a and 802.11b radio installed
<b>Feature</b>			
<b>Data Rates Supported</b>	6, 9, 12, 18, 24, 36, 48, 54 Mbps	1, 2, 5.5, and 11 Mbps	Same as 802.11a and 802.11b combined
<b>Uplink</b>	Autosensing 802.3 10/100BaseT Ethernet	Autosensing 802.3 10/100BaseT Ethernet	Same as 802.11a and 802.11b combined
<b>Form Factor</b>	CardBus (32-bit)	Mini-PCI (32-BIT)	Same as 802.11a and 802.11b combined
<b>Frequency Band</b>	5.15 to 5.35 GHz (FCC UNII 1 and UNII 2), 5.15 to 5.25 GHz (TELEC), 5.15 to 5.25 GHz (Singapore), 5.25 to 5.35 GHz (Taiwan)	2.412 to 2.462 GHz (FCC), 2.412 to 2.472 GHz (ETSI), 2.412 to 2.484 GHz (TELEC), 2.412 to 2.462 GHz (MII), 2.422 to 2.452 GHz (Israel)	Same as 802.11a and 802.11b combined
<b>Wireless Medium</b>	Orthogonal Frequency Division Multiplexing (OFDM)	Direct Sequence Spread Spectrum (DSSS)	Same as 802.11a and 802.11b combined
<b>Modulation</b>	(OFDM subcarrier): BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-QAM @ 24 and 36 Mbps; 64-QAM @ 48 and 54 Mbps	DBPSK @ 1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps	Same as 802.11a and 802.11b combined
<b>Operating Channels</b>	FCC: 8; TELEC (Japan): 4; Singapore: 4; Taiwan: 4	ETSI: 13; Israel: 7; North America: 11; TELEC (Japan): 14; MII: 11	Same as 802.11a and 802.11b combined
<b>Nonoverlapping Channels</b>	Eight (FCC only); Four (Japan, Singapore, Taiwan)	Three	Eleven
<b>Available Transmit Power Settings<sup>1</sup></b>	40 mW (16 dBm); 20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm); Maximum power setting will vary according to individual country regulations.	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm); Maximum power setting will vary according to individual country regulations	Same as 802.11a and 802.11b combined
<b>Range (typical @ maximum power setting, 2.2 dBi gain diversity dipole antenna)</b>	Omni directional Antenna: Indoor: 60 ft (18m) @ 54 Mbps, 130 ft (40m) @ 18 Mbps, 170 ft (52m) @ 6 Mbps; Outdoor: 100 ft (30m) @ 54 Mbps, 600 ft (183m) @ 18 Mbps, 1000 (304m) ft @ 6 Mbps; Patch Antenna: Indoor: 70 ft (21m) @ 54 Mbps, 150 ft (45m) @ 18 Mbps, 200 ft (61m) @ 6 Mbps; Outdoor: 120 ft (36m) @ 54 Mbps, 700 ft (213m) @ 18 Mbps; 1200 ft (355m) @ 6 Mbps	Indoor: 130 ft (40m) @ 11 Mbps; 107m) @ 1 Mbps; Outdoor: 800 ft (244m) @ 11 Mbps; 2000 ft (610m) @ 1Mbps	Same as 802.11a and 802.11b combined
<b>SMTP Compliance</b>	MIB I and MIB II	MIB I and MIB II	MIB I and MIB II
<b>Antenna</b>	Integrated 6 dBi diversity patch (55 degree horizontal, 55 degree vertical beamwidths, 5 dBi diversity omnidirectional with 360 degree horizontal and 40 degree vertical beamwidths)	Two RP-TNC connectors (antennas optional, none supplied with unit)	5 GHz: Integrated 6 dBi diversity patch (55 degree horizontal, 55 degree vertical beamwidths, 5 dBi diversity omnidirectional with 360 degree horizontal and 40 vertical beamwidths; 2.4 GHz: Two RP-TNC connectors (antennas optional, none supplied with unit)

	Cisco Aironet 1200 Series Access Points with 802.11a With 802.11b radio		With both 802.11a and 802.11b radio installed
Feature	radio installed	installed	
<b>Security architecture client authentication</b>	Cisco Wireless Security Suite including: Authentication: 802.11x support including LEAP, PEAP, EAP-TLS, EAP-TTLS, and EAP-SIM to yield mutual authentication and dynamic, per-user, per-session WEP Keys; MAC address and by standard 802.11 authentication mechanisms; Supports Wi-Fi Protected Access (WPA) Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation	Cisco Wireless Security Suite including: Authentication: 802.11x support including LEAP, PEAP, EAP-TLS, EAP-TTLS, and EAP-SIM to yield mutual authentication and dynamic, per-user, per-session WEP Keys; MAC address and by standard 802.11 authentication mechanisms; Supports Wi-Fi Protected Access (WPA) Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation	Same as 802.11a and 802.11b combined
<b>Software Image Network and Inventory support</b>	CiscoWorks RME <sup>2</sup> , CiscoWorks SWIM <sup>3</sup>	CiscoWorks RME <sup>2</sup> , CiscoWorks SWIM <sup>3</sup>	CiscoWorks RME <sup>2</sup> , CiscoWorks SWIM <sup>3</sup>
<b>Remote configuration support</b>	BOOTP, DHCP, Telnet, HTTP, FTP, TFTP, Telnet, HTTP, FTP, TFTP, and SNMP and SNMP		Telnet, HTTP, FTP, TFTP, and SNMP
<b>Local configuration</b>	Direct consoled port (RJ-45 interface)	Direct consoled port (RJ-45 interface)	Direct consoled port (RJ-45 interface)
<b>Environmental</b>	-4° to 122°F (-20° to 50°C), 10 to 90% humidity (noncondensing)	-4° to 131°F (-20° to 55°C), 10 to 90% humidity (noncondensing)	-4° to 122°F (-20° to 50°C), 10 to 90% humidity (noncondensing)
<b>Input Power Requirements</b>	90 to 240 VAC +/- 10% (power supply); 48 VDC +/- 10% (device)	90 to 240 VAC +/- 10% (power supply); 48 VDC +/- 10% (device)	90 to 240 VAC +/- 10% (power supply); 48 VDC +/- 10% (device)
<b>Power Draw</b>	8 watts, RMS	6 watts, RMS	11 watts, RMS
<b>Warranty</b>	One year	One year	One year

1. Management Information Base
2. CiscoWorks Resource Manager Essentials
3. Software Image Manager

## Selected Part Numbers and Ordering Information<sup>1</sup>

### 1200 Series Access Points

AIR-AP1200	AP Platform, Cardbus and MPC1 Slots (no radio), Enet Uplink
AIR-AP1220B-A-K9	802.11b AP w/Avail CBus Slot, FCC Cnfg
AIR-AP1220B-E-K9	802.11b AP w/Avail CBus Slot, ETSI Cnfg
AIR-AP1220A-J-K9	802.11a AP w/Avail MPC1 Slot, Enet Uplink, TELEC Cnfg
AIR-AP1220B-J-K9	802.11b AP w/Avail CBus Slot, Japan Cnfg

### 1230 Series Access Points

AIR-AP1210	IOS based AP Platform, Cardbus and MPC1 Slots (no radio), Enet Uplink
AIR-AP1230B-A-K9	IOS based 802.11b AP w/Avail CBus Slot, FCC Cnfg
AIR-AP1230B-E-K9	IOS based 802.11b AP w/Avail CBus Slot, ETSI Cnfg
AIR-AP1230A-J-K9	IOS based 802.11a AP w/Avail MPC1 Slot, Enet Uplink, TELEC Cnfg
AIR-AP1230B-J-K9	IOS based 802.11b AP w/Avail CBus Slot, Japan Cnfg

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the Distribution Product Reference Guide at: <http://www.cisco.com/dprg> (limited country availability)

## For More Information

See the Cisco Aironet Web site: <http://www.cisco.com/go/aironet>

## Cisco Aironet 1100 Series Access Points

The Cisco Aironet® 1100 Series Access Point provides a secure, affordable, and easy-to-use wireless LAN solution that combines mobility and flexibility with the enterprise-class features required by networking professionals.

Taking advantage of the Cisco Wireless Security Suite for the strongest enterprise security available and of Cisco IOS® Software for ease-of-use and familiarity, the Cisco Aironet 1100 Series Access Point delivers manageability, performance, investment protection, and scalability in a cost-effective package with a low total cost of ownership. The Cisco Aironet 1100 Series features a single,

upgradable 802.11b radio, integrated diversity dipole antennas, and an innovative mounting system for easy installation in a variety of locations and orientations.

The first access point based on Cisco IOS Software, the Cisco Aironet 1100 Series extends end-to-end intelligent networking to the wireless access point. Cisco command-line interface (CLI) allows customers to quickly and consistently implement extended capabilities available in Cisco IOS Software. Customers can manage and standardize their networks using tools they have developed internally for their Cisco routers and switches.

Enterprise-class features including virtual LANs (VLANs), quality of service (QoS), and proxy mobile Internet Protocol (IP) make the Cisco Aironet 1100 Series ideal for enterprise installations. The Cisco Aironet 1100 Series also supports standard Cisco Aironet features such as hot-standby and load balancing, allowing enterprises to implement intelligent, reliable network services.



### When to Sell

#### Sell This Product

**Cisco Aironet 1100 Series Access Point**

#### When a Customer Needs These Features

- A cost-effective and upgradable WLAN solution that combines the mobility and flexibility of a WLAN solution with the enterprise-class features required by a business LAN
- Want an off the shelf WLAN solution that does not require simultaneous dual band operation, or the additional range offered by high-gain antennas
- Suitable for deployment in any 802.11b environment
- Offers future revenue opportunities via 802.11g upgrades

### Key Features

- Single 802.11b radio, upgradable to 802.11g
- Provides end-to-end solution support for Intelligent Network Services
- Variety of mounting options
- Cost effective, yet feature-rich

### Specifications

Feature	Cisco Aironet 1100 Series Access Points
Data Rates Supported	1, 2, 5.5, 11 Mbps
Network standard	IEEE 802.11b
Uplink	Autosensing 802.3 10/100BaseT Ethernet
Frequency Band	2.412 to 2.462 GHz (FCC); 2.412 to 2.472 GHz (ETSI); 2.422 to 2.452 GHz (Israel); 2.412 to 2.484 GHz (TELEC)
Network architecture type	Infrastructure, star topology
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Modulation	DBPSK @ 1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
Operating Channels	ETSI: 13; Israel: 7; Americas: 11; TELEC (Japan): 14
Nonoverlapping Channels	Three

Feature	Cisco Aironet 1100 Series Access Points
Receive sensitivity	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm
Available Transmit Power Settings <sup>1</sup>	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm) Maximum power setting will vary according to individual country regulations
Range (typical @ maximum power setting, 2.2 dBi gain diversity dipole antenna)	Indoor: 150 ft (45 m) @ 11 Mbps; 400 ft (122 m) @ 1 Mbps; Outdoor: 800 ft (244 m) @ 11 Mbps; 2000 ft (610 m) @ 1 Mbps
SMTP Compliance	MIB I and MIB II
Antenna	Integrated 2.2 dBi diversity dipole antennas
Security architecture client authentication	Cisco Wireless Security Suite including: Authentication: 802.11x support including LEAP, PEAP, EAP-TLS, EAP-TTLS and EAP-SIM to yield mutual authentication and dynamic, per-user, per-session WEP keys; MAC address and by standard 802.11 authentication mechanisms Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation
Software Image Network and Inventory support	CiscoWorks CiscoView, Resource Manager Essentials, and Campus Manager
Remote configuration support	BOOTP, DHCP, Telnet, HTTP, FTP, TFTP, and SNMP
Dimensions	4.1 in. (10.4 cm) wide; 8.1 in. (20.5 cm) high; 1.5 in. (3.8 cm) deep
Weight	10.5 oz. (297 g)
Environmental	-32° to 104° F (0° to 40° C); 10-90% humidity (noncondensing)
System Memory	16 MB RAM; 8 MB Flash
Input Power Requirements	100 to 240 VAC 50 to 60Hz (power supply); 33 to 57 VDC (device)
Power Draw	4.9 watts, RMS
Warranty	One year

1. Management Information Base

## For More Information

See the Cisco Aironet Web site: <http://www.cisco.com/go/aironet>

## Cisco Aironet 1400 Series Wireless Bridge

The Cisco Aironet® 1400 Series Wireless Bridge creates a new benchmark for wireless bridging by providing a high-performance and feature-rich solution for connecting multiple LANs in a metro area. Building a metropolitan area wireless infrastructure with the Cisco Aironet 1400 Series Wireless Bridge provides

deployment personnel with a flexible, easy to use solution that meets the security requirements of wide area networking professionals. Designed to be a cost-effective alternative to leased lines, it is engineered specifically for harsh outdoor environments, yet also works well in indoor deployments. The Cisco Aironet 1400 Series Wireless Bridge is the premier high-speed, high-performance outdoor bridging solution for line-of-sight applications and provides either the sole connection, the primary connection with an additional technology such as a T1 line providing redundancy, or as a back up solution for additional resiliency in conjunction with other technologies such as fiber optics.

Operating in the unlicensed 5.8 GHz band, the Cisco Aironet 1400 Series Wireless Bridge sets a new standard for performance, combining powerful 250 mW radios, industry-leading receive sensitivity, installation tools to assist in bridge placement,



delay spread capabilities, and a choice of integrated or connectorized high gain antennas, Cisco provides a complete solution for a wide variety of fixed wireless applications.

## When to Sell

### Sell This Product

#### Cisco Aironet 1400 Series Wireless Bridge

### When a Customer Needs These Features

- A cost-effective, high-bandwidth way to connect networks in multiple locations within a metro area
- A rapid payback period and a lower total cost of ownership than a leased line
- High performance data rates of 54 Mbps at point-to-point ranges of 7.5 miles and 2 miles for point-to-multipoint ranges

## Key Features

- Support for both point-to-point or point-to-multipoint configurations
- Industry leading range and throughput, supporting data rates up to 54 Mbps
- Enhanced security mechanisms based on 802.11 standards
- Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range
- Integrated or optional external antennas for flexibility in deployment
- Designed specifically for ease-of-installation and operation

## Specifications

	AIR-BR1410A-A-K9	AIR-BR1410A-A-K9-N	Power Injector LR
<b>Frequency band</b>	5.725 to 5.825 GHz (FCC UNII 3)	Same as AIR-BR1410A-A-K9	
<b>Wireless modulation</b>	Coded Orthogonal Frequency Division Multiplexing (COFDM)	Same as AIR-BR1410A-A-K9	
<b>Media access protocol</b>	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)	Same as AIR-BR1410A-A-K9	
<b>Modulation</b>	BPSK @ 6 and 9 Mbps, QPSK @ 12 and 18 Mbps, 16-QAM @ 24 and 36 Mbps, 64-QAM @ 48 and 54 Mbps	Same as AIR-BR1410A-A-K9	
<b>Non-overlapping channels</b>	4	Same as AIR-BR1410A-A-K9	
<b>Receive sensitivity (10% PER with 3200byte packets)</b>	6 Mbps: -83 dBm, 9 Mbps: -83 dBm, 12 Mbps: -81 dBm, 18 Mbps: -80 dBm, 24 Mbps: -77 dBm, 36 Mbps: -74 dBm, 48 Mbps: -70 dBm, 54 Mbps: -68 dBm	Same as AIR-BR1410A-A-K9	
<b>Maximum Operational Receive Level</b>	-19 dBm	Same as AIR-BR1410A-A-K9	
<b>Maximum Survivable Receive Level</b>	0 dBm	Same as AIR-BR1410A-A-K9	
<b>Available transmit power settings</b>	250 mW (24 dBm), 200 mW (23 dBm), 155 mW (22 dBm), 125 mW (21 dBm), 60 mW (18 dBm), 30 mW (15 dBm), 15 mW (12 dBm) Maximum power setting will vary according to individual country regulations	Same as AIR-BR1410A-A-K9	
<b>Point-to-point range1</b>	7.5 miles (13 km) @ 54 Mbps, 16 miles (26 km) @ 9 Mbps	12 miles (19 km) @ 54 Mbps, 23 miles (37 km) @ 9 Mbps, (Antennas are 28 dBi dish)	
<b>Point-to-multipoint range (sector antenna at root)2</b>	2 miles (3 km) @ 54 Mbps, 8 miles (13 km) @ 9 Mbps	4 miles (7 km) @ 54 Mbps, 11 miles (18 km) @ 9 Mbps, (Non-root antenna is 28 dBi dish)	
<b>Antenna</b>	Captured Linear Polarization: 22.5dBi gain: 10 E-plane by 12 H-plane beamwidth	One N-Type connector for professional installations (antennas sold separately)	



	<b>AIR-BR1410A-A-K9</b>	<b>AIR-BR1410A-A-K9-N</b>	<b>Power Injector LR</b>
<b>Security</b>	Cisco Wireless Security Suite, including: Authentication: 802.1x support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits Pre-standard TKIP WEP enhancements: key hashing (per packet keying) and Message Integrity Check (MIC)	Same as AIR-BR1410A-A-K9	
<b>SNMP compliance</b>	v1 and v2	Same as AIR-BR1410A-A-K9	
<b>Status LEDs</b>	Four LEDs: Install, Radio, Status, Ethernet	Same as AIR-BR1410A-A-K9	Four LEDs: Power ON, Injector status, LAN Ethernet status, Bridge Ethernet status
<b>RSSI port</b>	BNC connector DC Voltage port (0VDC to 2.7 VDC)	BNC connector DC Voltage port (0VDC to 2.7 VDC)	NA
<b>Uplink</b>	100 Mbps over dual coaxial cables	100 Mbps over dual coaxial cables	10/100BaseT Ethernet
<b>Configuration support</b>	Telnet, HTTP, FTP, TFTP, SNMP	Telnet, HTTP, FTP, TFTP, SNMP	NA
<b>Compliance</b>	Standards: Safety: UL 60950, CSA C22.2 No. 60950-00, IEC 60950, EN 60950 Radio Approvals: FCC Part 15.207, 15.407, & 15.209 Class B, ICES-003 Class B (Canada), Canada DGTP-010, FCC Bulletin OET-65C, Industry Canada RSS-102, RSP100, RSS 210 Issue 5 EMI and Susceptibility (ClassB): FCC Part 15.107 & 15.109 Class B, ICES-003 Class B (Canada), EN 55022 Class B, EN 55024	Standards: Safety: UL 60950, CSA C22.2 No. 60950-00, IEC 60950, EN 60950, NEMA 4 Radio Approvals: FCC Part 15.207, 15.407, & 15.209 Class B, ICES-003 Class B (Canada), Canada DGTP-010, FCC Bulletin OET-65C, Industry Canada RSS-102, RSP100, RSS 210 Issue 5 EMI and Susceptibility (ClassB): FCC Part 15.107 & 15.109 Class B, ICES-003 Class B (Canada), EN 55022 Class B, EN 55024	Standards: Safety: UL 60950, CSA C22.2 No. 60950-00, IEC 60950, EN 60950 EMI and Susceptibility (ClassB): FCC Part 15.107 & 15.109 Class B, ICES-003 Class B (Canada), EN 55022 Class B, EN 55024
<b>Dimensions</b>	11.4in x 11.4in x 4.2in (29cm x 29cm x 11cm)	11.6in x 11.6in x 3.6in (29cm x 29cm x 9cm)	6.7in x 6.3in x 1.3in (17cm x 16cm x 3cm)
<b>Weight</b>	11 lbs. (5 kg)	10 lbs. (5 kg)	1.4lbs. (0.6kg)
<b>Operational temperature</b>	-30 to +55C (-22 to +131F)	Same as AIR-BR1410A-A-K9	0 to +50C (32 to 122F)
<b>Storage temperature</b>	-40 to +85C (-40 to +185F)	Same as AIR-BR1410A-A-K9	-40 to +70C (-40 to +158F)
<b>Operational altitude</b>	4206 m (13,800 ft.)	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Storage altitude</b>	4877 m (16,000 ft.)	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Humidity</b>	0 to 100% (condensing)	Same as AIR-BR1410A-A-K9	0 to 90% (non-condensing)
<b>Vibration</b>	0.001 G2/Hz from 5 - 100 Hz	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Storage vibration</b>	0.01 G2/Hz from 5 - 100 Hz	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Enclosure</b>	Aluminum with environmentally sealed plastic radome	NEMA-4, aluminum	Metal case
<b>AC power</b>	Not Required as uses DC voltage from Power Injector	Same as AIR-BR1410A-A-K9	100 to 240 VAC, +/- 10% (power supply)
<b>DC power</b>	48 VDC +/-2V	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9
<b>Warranty</b>	One year	Same as AIR-BR1410A-A-K9	Same as AIR-BR1410A-A-K9

## For More Information

See the Cisco Aironet Web site: <http://www.cisco.com/go/aironet>

## Cisco Aironet 5 GHz 54 Mbps Wireless Client Adapter



The Cisco Aironet® 5 GHz 54 Mbps Wireless LAN client adapter is an Institute of Electrical and Electronic Engineers (IEEE) 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands. The client adapter complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require.

Wireless LAN client adapters can increase productivity by enabling mobile users to have network and Internet access anywhere within a building that is equipped with a wireless network infrastructure. Wireless client adapters connect a variety of devices to a wireless network either in ad hoc peer-to-peer mode or in infrastructure mode with access points. With this client adapter, you can quickly add new employees to a network, support temporary workgroups, or enable Internet access in conference rooms or other meeting spaces. And the Cisco Aironet client solution is easy to use, making the benefits of wireless mobility completely transparent.

With Cisco, you can confidently deploy a wireless solution that provides robust enterprise-class security. All Cisco Aironet products feature the award-winning Cisco Wireless Security Suite, which is based on the IEEE 802.11x standard for port-based network access.

The Cisco Wireless Security Suite takes advantage of the Extensible Authentication Protocol (EAP) framework for user-based authentication. It supports a variety of 802.11x authentication types including EAP Cisco Wireless (LEAP) and EAP-Transport Layer Security (EAP-TLS).

The Cisco Aironet Client Utility (ACU), with an intuitive graphical user interface, provides an easy way to configure, monitor, and manage the Cisco Aironet 5 GHz Wireless LAN Client Adapter. The ACU includes site-survey tools that present easy-to-understand detailed graphical information to assist in the placement of access points. Profile Manager allows you to create specific profile settings for various environments, such as the office or home, making it simple for telecommuters and business travelers to move from one environment to another.

### When to Sell

#### Sell This Product

**Cisco Aironet 5 GHz 54Mbps Wireless LAN Client Adapters**

#### When a Customer Needs These Features

- Industry leading security: IEEE 802.11x support, including LEAP and EAP-TLS, for mutual authentication and dynamic per-user, per session WEP keys
- Multiple transmit power settings (20 mW/(13 dBm), 10 mW/(10 dBm), and 5 mW (7 dBm))
- End-to-end Cisco branded solution

### Key Features

- IEEE 802.11a-compliant CardBus adapter that operates in the UNII-1 and UNII-2 bands
- Complements the Cisco Aironet 1200 Series 802.11a Access Point, providing a solution that combines performance and mobility with the security and manageability that enterprises require

## Specifications

Feature	Cisco Aironet 5 GHz 54 Mbps Wireless Client Adapter
Form Factor	CardBus Type II
Interface	32-bit CardBus (PCI)
Operational voltage	3.3 V (+/- 0.33 V)
LED	Status (green) and Activity (amber)
Data Rates Supported	6, 9, 12, 18, 24, 36, 48, 54 Mbps (configurable as fixed or auto selecting to extend range)
Network Standard	IEEE 802.11a
Frequency Band	5.15 to 5.35 GHz (FCC UNII 1 and UNII 2); 5.15 to 5.25 GHz (TELEC); 5.15 to 5.25 GHz (Singapore); 5.25 to 5.35 GHz (Taiwan)
Network architecture type	Infrastructure, star topology
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Wireless Medium	Orthogonal Frequency Division Multiplexing (OFDM)
Modulation	(OFDM sub-carrier): BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-QAM @ 24 and 36 Mbps; 64-QAM @ 48 and 54 Mbps
Operating Channels	FCC: 8 channels (UNII-1 4 channels and UNII-2 4 channels); 4 channels for Japan, Singapore, and Taiwan
Available Transmit Power Settings <sup>1</sup>	20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm) Maximum power setting will vary according to individual country regulations.
Current steady state (typical)	Transmit: 520 mA; Receive: 580 mA; Sleep: 20 mA
Range	Omni directional Antenna: Indoor: 60 ft (18m) @ 54 Mbps, 130 ft (40m) @ 18 Mbps, 170 ft (52m) @ 6 Mbps Outdoor: 100 ft (30m) @ 54 Mbps, 600 ft (183m) @ 18 Mbps, 1000 (304m) @ 6 Mbps Patch Antenna: Indoor: 70 ft (21m) @ 54 Mbps, 150 ft (45m) @ 18 Mbps, 200 ft (61m) @ 6 Mbps Outdoor: 120 ft (36m) @ 54 Mbps, 700 ft (213m) @ 18 Mbps, 1200 ft (355m) @ 6 Mbps
Power Management	3 levels of power consumption available, including: CAM (Constantly Awake Mode), Fast PSP (Power Save Mode), Max PSP (Maximum Power Savings)
Antenna	Integrated 5dBi gain patch antenna
Security architecture client authentication	Cisco Wireless Security Suite including: Authentication: 802.11x support for LEAP and EAP- TLS to yield mutual authentication and dynamic, per-user, per-session WEP keys; MAC address and by standard 802.11 authentication mechanisms Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Pre-standard TKIP WEP enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation
Drivers	Windows, 98/98SE, Windows ME, Windows 2000 and Windows XP
Environmental	-30° to 70°C; 95% humidity (noncondensing)
Warranty	One year

1. Management Information Base

## For More Information

See the Cisco Aironet Web site: <http://www.cisco.com/go/aironet>

## Cisco Aironet 350 Series Client Adapters

Wireless client adapters are the key to adding mobility and flexibility to an enterprise—increasing productivity by enabling users to have network and Internet access anywhere within a building without the limitation of wires. The Cisco Aironet 350 Series 802.11b Client Adapters are a complement to Aironet



350 Series infrastructure devices, providing an enterprise-ready solution that combines mobility with the performance, security, and manageability that people have come to expect from Cisco. Wireless client adapters connect a variety of devices to a wireless network either in ad hoc peer-to-peer mode or in infrastructure mode with Access Points. Available in PC Card (PCMCIA) and Peripheral Component Interconnect (PCI) form factors, Cisco Aironet 350 Series Client Adapters quickly connect desktop and mobile computing devices wirelessly to all network resources. With this product, you can instantly add new employees to the network, support temporary workgroups, or enable Internet access in conference rooms or other meeting spaces.

Cisco Aironet 350 Series Client Adapters deliver superior range, reliability, and performance for business users needing information access anytime, anywhere. Combined with Cisco Aironet unique security services, this product ensures that business-critical information is secure. Most importantly, the Cisco client solution is easy to use, making the benefits of wireless mobility completely transparent.

### When to Sell

#### Sell This Product

##### Cisco Aironet 350 Series Client Adapters

#### When a Customer Needs These Features

- IT Professionals or business executives want mobility within the enterprise to increase productivity, as an addition or alternative to wired networks
- Business owners or IT directors need flexibility for frequent LAN wiring changes, either throughout the site or in selected areas
- Any company whose site is not conducive to LAN wiring because of building or budget limitations, such as older buildings, leased space or temporary sites
- Support LEAP authentication for secure wireless transmissions

### Key Features

- Superior range and throughput for IEEE 802.11b networks
- Secure network communications
- World mode for international roaming
- Full-featured utilities for easy configuration and management
- Compliance with the IEEE 802.11b high-rate standard
- Support for all popular operating systems

### Specifications

Feature	Cisco Aironet 350 Series Client Adapters
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Network Standard	IEEE 802.11b
System Interface	AIR-PCM35x: PC Card (PCMCIA) Type II AIR-PCI 35x: peripheral component interconnect (PCI) Bus
Frequency Band	2.4 to 2.4897 GHz
Network Architecture Types	Infrastructure and ad hoc
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @ 1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11; ETSI: 13; Japan: 14

Feature	Cisco Aironet 350 Series Client Adapters
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm 2 Mbps: -91 dBm 5.5 Mbps: -89 dBm 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
Available Transmit Power Settings <sup>1</sup>	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
Range (typical)	Indoor: 130 ft (40 m) @ 11 Mbps; 350 ft (107 m) @ 1 Mbps Outdoor: 800 ft (244 m) @ 11 Mbps; 2000 ft (610 m) @ 1 Mbps
Compliance	Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards
Operating Systems Supported	Windows 95, 98, NT 4.0, 2000, ME, XP, CE 2.11, CE 3.0, Mac OS 9.x, and Linux
Antenna	AIR-PCM35x: Integrated diversity dipoles AIR-LMC35x: Two MMCX connectors (antennas optional, none supplied with unit) AIR-PCI35x: External, removable 2.2 dBi Dipole with RP-TNC Connector
Encryption Key Length	128-bit
Authentication Type	EAP-Cisco Wireless LEAP
Status Indicators	Link Status and Link Activity
Dimensions (W x D x H)	AIR-PCM35x: 2.13 in. (5.4 cm) x 4.37 in. (11.1 cm) x 0.1 in. (0.3 cm) AIR-LMC35x: 2.13 in. (5.4 cm) x 3.31 in. (8.4 cm) x 0.1 in. (0.3 cm) AIR-PCI35x: 6.6 in. (16.8 cm) x 3.9 in. (9.8 cm) x 5 in. (1.3 cm)
Weight	AIR-PCM35x: 1.6 oz (45g) AIR-LMC35x: 1.4 oz (40g) AIR-PCI35x: 4.4 oz (125g)
Environmental	AIR-PCM35x and AIR-LMC35x: -22° to 158° F (-30° to 70° C) AIR-PCI35x: 32° to 131° F (0° to 55° C) 10 to 90% (noncondensing)
Input Power Requirements	+5 VDC +/- 5%
Typical Power Consumption (at 100 mW transmit power setting)	Transmit: 450 mA; Receive: 270 mA; Sleep mode: 15 mA

1. Maximum power setting will vary according to individual country regulations.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Aironet 350 Series Client Adapters

AIR-PCM352	350 Series PC Card with Diversity Antennas & 128-bit WEP
AIR-PCI352	350 Series PCI Card with 2.2 dBi Dipole Antenna & 128-bit WEP

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability)

## For More Information

See the Cisco Aironet Web site: <http://www.cisco.com/go/aironet>

## Cisco Aironet 350 Series Workgroup Bridge

Designed to meet the needs of remote workgroups, satellite offices, and mobile users, the Cisco Aironet 350 Series Workgroup Bridge brings the freedom and flexibility of wireless connectivity to any Ethernet-enabled device. The 802.11b workgroup bridge quickly connects up to eight Ethernet-enabled laptops or other portable computers to a wireless LAN (WLAN), providing a link from these devices to any Cisco Aironet Access Point (AP) or Wireless Bridge (line-of-sight).



Any Ethernet-ready device, including printers, copiers, PCs, point-of-sale devices, or monitoring equipment, can be placed directly at the point of work using the workgroup bridge—without the expense or delay of cabling. For temporary classrooms or temporary office space, the workgroup bridge provides flexible, easy network access for up to eight devices through the use of a standard eight-port Ethernet hub.

Equipment can be easily moved as workgroups change in number or location, lowering facilities costs.

The Cisco Aironet 350 Series Workgroup Bridge supports Wired Equivalent Privacy (WEP) security architecture and provides up to 128-bit encryption. The Cisco Aironet security architecture is based upon an IEEE 802.11x standard utilizing the Extensible Authentication Protocol (EAP), an open standard that enables wireless manufacturers and RADIUS server vendors to independently develop interoperable hardware and software. For authentication of devices attached to the workgroup, a username and password may be stored in the workgroup bridge in either static or dynamic memory. When authenticated, the workgroup bridge receives a single-session, single-user encryption key from the Remote Access Dial-In User Service (RADIUS) server via the associated AP. With this centralized and standards-based architecture, wireless security scales to meet the requirements of any enterprise.

### When to Sell

#### Sell This Product

**Cisco Aironet 350 Series Workgroup Bridge**

#### When a Customer Needs These Features

- Connectivity to a network for remote workgroups located in an area that may be difficult or not practical for wiring.
- Supports up to eight Ethernet-based devices (with use of Ethernet hub)
- Broadens market for wireless LAN solutions
- Provides inroad to remote offices and branches

### Key Features

- Driverless installation of up to eight Ethernet-enabled devices
- Optimum wireless performance and range
- Standards-based centralized security
- Two versions for a range of application requirements
- Full-featured utilities and robust management

## Specifications

Feature	Cisco Aironet 350 Series Workgroup Bridge
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Client Interface	10BaseT Ethernet
Clients Supported	Direct: One Via hub: Eight
Network Architecture Types	Infrastructure (via Cisco Aironet Access Point or Bridge)
Frequency Band	2.4 to 2.4897 GHz
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @1 Mbps; DQPSK @ 2 Mbps; CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11; ETSI: 13; Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
Available Transmit Power Settings <sup>1</sup>	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
Range (typical)	Indoor: 130 ft (40 m) @ 11 Mbps; 350 ft (107 m) @ 1 Mbps Outdoor: 800 ft (244 m) @ 11 Mbps; 2000 ft (610 m) @ 1 Mbps
Compliance	Operates license free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with EN 300.328 standards
SNMP Compliance	MIB I and MIB II
Antenna	AIR-WGB352C: One nonremovable 2.2-dBi dipole AIR-WGB352R: Two RP-TNC connectors (antennas optional, none supplied with unit)
Encryption Key Length	AIR-WGB352x: 128-bit
Remote Configuration Support	Telnet, HTTP, FTP, TFTP, and SNMP
Dimensions (W x D x H)	6.30 in. (16 cm) x 4.72 in. (12 cm) x 1.45 in. (3.7 cm)
Weight	12.3 oz (350g)
Environmental	Temperature: 32° to 122° F (0° to 50° C); 10 to 90% (Noncondensing)
Input Power Requirements	North American: 120 VAC @ 60 Hz; Universal: 90 to 264 VAC @ 47 to 63 Hz

1. Maximum power setting will vary according to individual country regulations.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Aironet 350 Series Workgroup Bridge

AIR-WGB352C	350 Series Workgroup Bridge with Captured Antenna & 128-bit WEP
AIR-WGB352R	350 Series Workgroup Bridge with Dual RP-TNC & 128-bit WEP

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability)

## For More Information

See the Cisco Aironet Web site: <http://www.cisco.com/go/aironet>

## Cisco Aironet 350 Series Wireless Bridge

The Cisco Aironet 350 Series Wireless Bridge enables high-speed long-range outdoor links between buildings and is ideal for installations subject to plenum rating and harsh environments. It is designed to meet the requirements of even the most challenging applications. The 802.11b wireless bridge delivers high data rates and superior

throughput for data-intensive, line-of-sight applications. The bridges connect hard-to-wire sites, noncontiguous floors, satellite offices, school or corporate campus settings, temporary networks, and warehouses. They can be configured for point-to-point or point-to-multipoint applications and allow multiple sites to share a single, high-speed connection to the Internet. For functional flexibility, the wireless bridge may also be configured as an access point.

The Cisco Aironet 350 Series Wireless Bridge features an extended operating temperature range of -20° to 55° C, allowing for placement outdoors in a NEMA enclosure or in harsh indoor environments such as warehouses and factories. With a durable metal case, the Cisco Aironet 350 Series Wireless Bridge is UL 2043 certified, and designed to achieve plenum rating as defined by various municipal fire codes.



### When to Sell

#### Sell This Product

**Cisco Aironet 350 Series Ethernet Bridge**

#### When a Customer Needs These Features

- Any company who needs to connect sites into a single LAN, even when separated by obstacles such as freeways, railroads and bodies of water that are normally inaccessible via cabling.
- Business owners who want a low-cost, easy-to-deploy solution for connecting line-of-sight networks located in different buildings.
- Business owners or IT directors who want multiple buildings on a campus to share a single high-speed line to the Internet.
- A complete wireless bridge solution.
- An affordable alternative to leased-line services.
- Increase revenue opportunity with site surveys and installations.

### Key Features

- High-speed (11-Mbps), high-power (100-mW) radios, delivering building-to-building links of up to 25 miles (40.2 km)
- A metal case for durability and plenum rating and an extended operating temperature rating for harsh environments
- Supports both point-to-point and point-to-multipoint configurations
- Broad range of supported antennas
- Simplified installation, improved performance, and upgradeable firmware, ensuring investment protection



## Specifications

Feature	Cisco Aironet 350 Series Wireless Bridge
Data Rates Supported	1, 2, 5.5, and 11 Mbps
Frequency Band	2.4 to 2.497 GHz
Wireless Medium	Direct Sequence Spread Spectrum (DSSS)
Media Access Protocol	Carrier sense multiple access with collision avoidance (CSMA/CA)
Modulation	DBPSK @ 1 Mbps DQPSK @ 2 Mbps CCK @ 5.5 and 11 Mbps
Operating Channels	North America: 11; ETSI: 13; Japan: 14
Nonoverlapping Channels	Three
Receive Sensitivity	1 Mbps: -94 dBm; 2 Mbps: -91 dBm; 5.5 Mbps: -89 dBm; 11 Mbps: -85 dBm
Delay Spread	1 Mbps: 500 ns; 2 Mbps: 400 ns; 5.5 Mbps: 300 ns; 11 Mbps: 140 ns
Available Transmit Power Settings <sup>1</sup>	100 mW (20 dBm); 50 mW (17 dBm); 30 mW (15 dBm); 20 mW (13 dBm); 5 mW (7 dBm); 1 mW (0 dBm)
Range (typical, contingent upon antenna selected)	18 miles (28.9 km) @ 11 Mbps Up to 25 miles (40.2 km) @ 2 Mbps
Compliance	Operates license-free under FCC Part 15 and complies as a Class B device; complies with DOC regulations; complies with ETS 300.328, FTZ 2100, and MPT 1349 standards; complies with UL 2043 (The use of this device in a system operating either partially or completely outdoors may require the user to obtain a license for the system according to the Canadian regulations. For further information, contact your local industry Canada office.)
SNMP Compliance	MIB I and MIB II
Antenna	Two RP-TNC connectors (antennas optional, none supplied with unit)
Encryption Key Length	128-bit
Security	128-bit WEP in bridge mode IEEE 802.11x (includes EAP and RADIUS) in AP mode
Status Indicators	Three indicators on the top panel provide information concerning association status, operation, error/warning, firmware upgrade, and configuration, network/modem, and radio status
Automatic Configuration Support	BOOTP and DHCP
Remote Configuration Support	Telnet, HTTP, FTP, TFTP, and SNMP
Local Configuration	Direct console port (with supplied serial cable)
Bridging Protocol	Spanning Tree
Dimensions	6.74 x 6.25 x 1.31 in. (17.1 x 15.9 x 3.3 cm)
Weight	1.43 lbs (.648 kg)
Environmental	Temperature: -4° to 131° F (-20° to 55° C) 10 to 90% (noncondensing)
Enclosure	Metal case (for plenum rating); UL 2043 certified
Input Power Requirements	24VDC 10% to 60 VDC (Ethernet line power)

1. Maximum power setting will vary according to individual country regulations

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Aironet 350 Series Wireless Bridge

AIR-BR350-x-K9 350 Series 11Mbps DSSS Bridge with 128-bit WEP

### Cisco Aironet 350 Series Wireless Bridge Basic Maintenance

CON-SNT-PKG2 SMARTnet Maintenance for AIR-BR350-A-K9

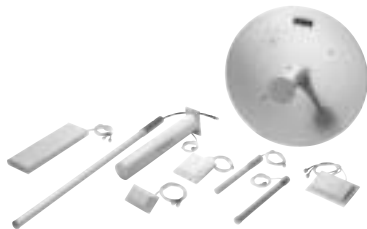
1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Cisco Aironet Web site: <http://www.cisco.com/go/aironet>

## Cisco Aironet Antennas and Accessories

Every wireless Local Area Network (LAN) deployment is different. When engineering an in-building solution, varying facility sizes, construction materials, and interior divisions raise a host of transmission and multipath considerations. When implementing a building-to-building solution, distance, physical obstructions between facilities, and number of transmission points involved must be considered.



Cisco is committed to providing not only the best access points, client adapters, and bridges in the industry—it is also committed to providing a complete solution for any wireless LAN deployment. That is why Cisco has the widest range of antennas, cable, and accessories available from any wireless manufacturer.

With the Cisco FCC-approved directional and omnidirectional antennas, low-loss cable, mounting hardware, and other accessories, installers can customize a wireless solution that meets the requirements of even the most challenging applications.

### Key Features

- **Client Adapter Antennas**—Cisco Aironet wireless client adapters come complete with standard antennas that provide sufficient range for most applications at 11 Mbps. To extend the transmission range for more specialized applications, a variety of optional, higher-gain antennas are provided that are compatible with selected client adapters
- **Access Point Antennas**—Cisco Aironet access point antennas are compatible with all Cisco RP-TNC-equipped access points. The antennas are available with different gain and range capabilities, beam widths, and form factors. Coupling the right antenna with the right access point allows for efficient coverage in any facility, as well as better reliability at higher data rates
- **Bridge Antennas**—Cisco Aironet bridge antennas allow for extraordinary transmission distances between two or more buildings. Available in directional configurations for point-to-point transmission and omnidirectional configuration for point-to-multipoint implementations, Cisco has a bridge antenna for every application
- **Low-loss cable** extends the length between any Cisco Aironet bridge and the antenna. With a loss of 6.7 dB per 100 feet (30m), low-loss cable provides installation flexibility without a significant sacrifice in range
- Cisco offers a complete range of antennas for 5 GHz bridging applications that enable a customized wireless solution for almost any installation.

## Specifications

### Client Adapter Antennas

Feature	AIR-ANT3351
Description	POS diversity dipole <sup>1</sup>
Application	Indoor diversity antenna <sup>2</sup> to extend the range of Aironet LMC client adapters
Approximate Indoor Range at 1 Mbps <sup>3</sup>	350 ft. (107m)
Approximate Indoor Range at 11 Mbps <sup>3</sup>	100 ft. (51 m)
Cable Length	5 ft. (1.5m)
Dimensions	Base: 7 x 2 in. (18 x 5 cm) Height: 8 in. (20 cm)
Weight	9.2 oz. (261g)

1. A type of low-gain (2.2 dBi) antenna consisting of two (often internal) elements.
2. A ratio of decibels to an isotropic antenna that is commonly used to measure antenna gain. The greater the dBi value, the higher the gain and, as such, the more acute the angle of coverage.
3. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

### Access Point Antennas

Feature	AIR-ANT5959	AIR-ANT2410Y-R	AIR-ANT2012	AIR-ANT3213
Description	Diversity omni-directional ceiling mount	Yagi mast or wall mount	Diversity patch wall mount	Pillar mount diversity omni
Application	Indoor unobtrusive antenna, best for ceiling mount. Excellent throughput and coverage solution in high multipath cells and dense.	Indoor/Outdoor directional antenna for use with Access Points or Bridges	Indoor/Outdoor, unobtrusive medium range antenna	Indoor, unobtrusive medium-range antenna
Approximate Indoor Range at 1 Mbps <sup>1</sup>	350 ft. (105m)	800 ft. (244 m)	547 ft. (167m)	497 ft. (151m)
Approximate Indoor Range at 11 Mbps <sup>1</sup>	130 ft. (45m)	230 ft. (70 m)	167 ft. (51m)	142 ft. (44m)
Cable Length	3 ft. (0.91m)	3 ft. (0.91 m)	3 ft. (0.91m)	3 ft. (0.91m)
Dimensions	5.3 x 2.8 x 09. in. (13.5 x 7.1 x 2.3 cm)	7.25 x 5 in. (18.4 x 12.7 cm)	4.78 x 6.66 x .82 in. (12.14 10 x 1 in. (25.4 x 2.5 cm) x 16.92 x 2.08 cm)	
Weight	0.3 lbs. (0.14kg)	8 oz.	9.6 oz. (272g)	1 lb. (460g)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

### Access Point Antennas (cont.)

Feature	AIR-ANT1728	AIR-ANT4941	AIR-ANT3549	AIR-ANT1729
Description	High gain omnidirectional ceiling mount	2.2 dBi dipole antenna	Patch wall mount	Patch wall mount
Application	Indoor medium-range antenna, typically hung from crossbars of drop ceilings	Indoor omni-directional coverage	Indoor, unobtrusive, long-range antenna (may also be used as a medium-range bridge antenna)	Indoor, unobtrusive, medium-range antenna (may also be used as a medium-range bridge antenna)
Approximate Indoor Range at 1 Mbps <sup>1</sup>	497 ft. (151m)	350 ft.	Access Point: 700 ft. (213m) Bridge: 2.0 miles (3.2 km)	Access Point: 542 ft. (165m) Bridge: 1.1 miles (1.8 km)
Approximate Indoor Range at 11 Mbps <sup>1</sup>	142 ft. (44m)	130 ft.	Access Point: 200 ft. (61m) Bridge: 3390 ft. (1032m)	Access Point: 155 ft. (47m) Bridge: 1900 ft. (580m)
Cable Length	3 ft. (0.91m)	N/A	3 ft. (0.91m)	3 ft. (0.91m)
Dimensions	Length: 9 in. (22.86 cm) Diameter: 1 in. (2.5 cm)	5.5 in.	5 x 5 in. (12.4 x 12.4 cm)	4 x 5 in. (9.7 x 13 cm)
Weight	4.6 oz. (131g)	1.1 oz.	5.3 oz. (150g)	4.9 oz. (139g)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

### Bridge Antennas

Feature	AIR-ANT2506	AIR-ANT24120	AIR-ANT1949	AIR-ANT3338
Description	Omnidirectional Mast mount	High-gain omnidirectional Mast mount	Yagi mast mount	Solid dish
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-multipoint applications	Outdoor medium-range directional connections	Outdoor long-range directional connections

Feature	AIR-ANT2506	AIR-ANT24120	AIR-ANT1949	AIR-ANT3338
Approximate Indoor Range at 1 Mbps <sup>1</sup>	5000 ft. (1525m)	4.6 miles (7.4 km)	6.5 miles (10.5 km)	25 miles (40 km)
Approximate Indoor Range at 11 Mbps <sup>1</sup>	1580 ft. (480m)	1.4 miles (2.3 km)	2.0 miles (3.3 km)	11.5 miles (18.5 km)
Cable Length	3 ft. (0.91m)	1 ft. (0.30m)	1.5 ft. (0.46m)	2 ft. (0.61m)
Dimensions	Length: 13 in. (33 cm) Diameter: 1 in. (2.5 cm)	Length: 42 in. (103 cm) Diameter: 1.5 in. (3 cm)	Length: 18 in. (46 cm) Diameter: 3 in. (7.6 cm)	Diameter 24 in. (61 cm)
Weight	6 oz. (17g)	1.5 lb. (0.68 kg)	1.5 lb. (0.68 kg)	11 lb. (5 kg)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

### Low-Loss/Ultra Low-Loss Antenna Cable

Feature	AIR-CAB020LL-R	AIR-CAB050LL-R	AIR-CAB100ULL-R	AIR-CAB150ULL-R
Cable Length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)	150 ft. (46m)
Transmission Loss	1.3 dB	3.4 dB	4.4 dB	6.6 dB

### Cisco Aironet Accessories

Feature	AIR-ACC2537-060	AIR-ACC3354	AIR-ACC2662
Description	60 in. (152 cm) bulkhead extender	Lightning arrester	Yagi articulating mount
Application	Flexible antenna cable that extends access point cabling typically within an enclosure	Helps prevent damage due to lightning-induced surges or static electricity	Adds swiveling capability to mast-mounted yagi antennas

### Cisco Aironet 1400 Wireless Bridge Antennas

Feature	AIR-ANT58G9VOA-N	AIR-ANT58G10SSA-N	AIR-ANT58G28SDA-N
Description	Omni-directional Mast mount	Sector antenna Mast mount	Dish antenna Mast mount
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-point and point-to-multipoint applications	Outdoor long-range directional connections
Gain (including supplied jumper cable)	9.0 dBi	9.5 dBi	28.0 dBi
Polarization	Vertical	Vertical or horizontal Field configurable	Vertical or horizontal Field configurable
Elevation adjustment	None	None	+/- 12.5 degrees
Approximate range at 9 Mbps <sup>6</sup>	8 miles (13 km) (with 22.5 dBi captive antenna on the remote site)	Same as AIR-ANT58G9VOA-N	23 miles (37 km) (with 28 dBi antennas on each end)
Approximate range at 54 Mbps <sup>6</sup>	2 miles (3 km) (with 22.5 dBi captive antenna on the remote site)	Same as AIR-ANT58G9VOA-N	12 miles (19 km) (with 28 dBi antennas on each end)
Beam width	360 H, 6 V	60 H, 60 V	5.7 H, 6 V
Supplied jumper cable length	4.9 ft. (1.5 m)	Same as AIR-ANT58G9VOA-N	Same as AIR-ANT58G9VOA-N
Dimensions	Length: 18 in. (46 cm) Diameter: 1 in. (2.5 cm)	Length: 2.5 in. (6.4 cm) Width: 2.5 in. (6.4 cm) Depth: 1.75 in. (4.5 cm)	Diameter: 29 in. (74 cm) Depth: 14.5 in. (36.8 cm)
Weight	2.0 lb. (0.9 kg)	1.25 lb. (0.6 kg)	9.5 lb. (4.3 kg)

### Cisco Aironet Bridge Accessory

Feature	AIR-ACCRWM1400	AIR-ACCBRGB=	AIR-ACCMFM1400=
Description	Roof/Wall mount kit	Grounding block	Multifunction mount
Application	Allows mounting to flat surfaces. Includes full elevation and azimuth adjustment	Helps prevent damage due to lightning-induced surges or static electricity	Allows mounting to poles with a diameter between 1.5 in. and 2.5 in. Includes both elevation and polarization adjustment

### Cisco Aironet Power Injector Cables

Feature	AIR-CAB020DRG6-F=	AIR-CAB050DRG6-F=	AIR-CAB100DRG6-F
Cable length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)

## Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco Aironet Accessories

AIR-ACC2662	Yagi Antenna Articulating Mount
AIR-ACC3354	Lightning Arrester w/ grounding ring

#### Cisco Aironet Antennas and Accessories

AIR-CAB020LL-R	20 ft. (6m) low-loss antenna cable
AIR-CAB050LL-R	50 ft. (15m) low loss antenna cable
AIR-CAB100ULL-R	100 ft. (30m) low loss antenna cable
AIR-CAB150ULL-R	150 ft. (46m) low loss antenna cable

**Cisco Aironet Antennas**

AIR-ANT1728	5.2 dBi Omni Ceiling Mount Antenna
AIR-ANT1729	6 dBi Patch Wall Mount Antenna
AIR-ANT1949	13.5 dBi Yagi Mast Mount Antenna
AIR-ANT2012	6.5 dBi Diversity Patch Wall Mount Antenna
AIR-ANT2506	5.2 dBi Omnidirectional Mast Mount Antenna
AIR-ANT3195	3 dBi Patch Wall Mount Antenna
AIR-ANT3213	5.2 dBi Pillar-Mount Diversity Omni Antenna
AIR-ANT3338	21 dBi Solid Dish Antenna
AIR-ANT3351	2.2 dBi POS Diversity Dipole Antenna
AIR-ANT3549	8.5 dBi Hemispherical Patch Antenna
AIR-ANT24120	12 dBi Omnidirectional Mast Mount Antenna
AIR-ANT4941	2.2 dBi Dipole Antenna (Standard Rubber Duck)
AIR-ANT5959	2.0dBi Diversity Omni Ceiling Mount Antenna

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**For More Information**

See the Aironet Antennas & Accessories Web site <http://www.cisco.com/go/antenna>



# IP Telephony, Video, & Web Collaboration

## Campus IP Telephony, Video, & Web Collaboration at a Glance

Product	Features	Page
Cisco CallManager 3.3	<ul style="list-style-type: none"> <li>The software-based call processing and call control component of Cisco's IP Telephony solution</li> <li>Resides on Cisco Media Convergence Servers (MCS), Cisco ICS7750, or selected third-party servers (CallManager 3.3)</li> </ul>	4-3
Cisco Unity—Unified Messaging and Voice Mail	<p>Voicemail and unified messaging system delivers all messages into single inbox for access via 4-6 phone, email or Internet</p>	
Cisco CallManager Express	<ul style="list-style-type: none"> <li>IOS®-based call control - supported on standard Cisco multiservice routers (1751,1760,2600XM,3600,3700, and IAD 2400 series)</li> <li>Configurable Key-system or Hybrid-PBX feature set for up to 100 users</li> <li>Intuitive GUI for system administration and administration</li> <li>Supports all Cisco standard IP phones</li> </ul>	4-8
Cisco Emergency Responder	<ul style="list-style-type: none"> <li>Works with Cisco CallManager to automatically provide E9-1-1 features in North America, 4-10 and is compatible with any emergency number including 112 in Europe, 999 in UK, and 000 in Australia.</li> <li>Dynamically tracks the location of IP phones, routes emergency calls to the appropriate E9-1-1 network, and provides the current location information to E9-1-1 call center dispatchers.</li> <li>Provides real-time alert notifications to on-site or contracted security groups, to facilitate a timely response to emergency situations.</li> </ul>	4-10
Cisco IP Contact Center (IPCC) Enterprise Edition	<p>Cisco IP Contact Center (IPCC) Enterprise Edition delivers intelligent call routing, network-to-desktop CTI, and multi-channel media contact management to contact center agents over an IP network. It includes several applications, including the following:</p> <ul style="list-style-type: none"> <li>CallManager</li> <li>Cisco Intelligent Contact Manager (ICM)</li> <li>Cisco IP IVR/IP Queue Manager</li> </ul>	4-12
Cisco IP Contact Center Express Edition	<ul style="list-style-type: none"> <li>Cisco IPCC Express is a software-based ACD, IVR, and CTI application for mid-sized contact centers with Cisco IP Telephony networks based on Cisco AVVID.</li> <li>Cisco IPCC Express is an open systems platform allowing ease of configuration.</li> <li>It has a graphically driven workflow editor providing a common interface for creating interactions, or call flows, and creates business logic between IVR and ACD functions.</li> </ul>	4-13
Cisco IP IVR	<p>Cisco IP IVR, a new world interactive voice response (IVR) solution, provides a feature-rich foundation for the creation of an IP-based IVR that is open and expandable. Cisco IP IVR has the following key features:</p> <ul style="list-style-type: none"> <li>Provides an IP-empowered application-generation environment for self service and call treatment solutions</li> <li>Offers Web-based activation and administration</li> <li>HTML, XML, ODBC, JDBC integrations supported</li> <li>Offers optional Automatic Speech Recognition and Text to Speech</li> <li>Extendable through custom Java steps</li> </ul>	4-14
Cisco Internet Service Node (ISN)	<ul style="list-style-type: none"> <li>Web-based prompt, collect, queuing, and call control services, using standard Internet technologies</li> <li>Offers a self-service IVR option</li> <li>Supports automatic speech recognition (ASR) and text to speech (TTS)</li> <li>Integrates fully with both traditional and IP-based contact centers</li> </ul>	4-15
Cisco Personal Assistant	<p>Software application allows users to browse voicemail, dial by name, and conference from any phone using voice commands instead of telephone keypad via speech recognition</p>	4-16
Cisco Web Collaboration Option	<ul style="list-style-type: none"> <li>Web-based collaboration,</li> <li>Share any Windows desktop application</li> <li>Ideal for both sales- and service-oriented customer service organizations</li> </ul>	4-17
Cisco E-mail Manager	<ul style="list-style-type: none"> <li>Automates the process of tracking and responding to inbound email.</li> <li>Automatically assigns email requests to the most appropriate agent</li> <li>Graphical rules engine makes it easy to define custom rules for the processing of email</li> </ul>	4-15

Product	Features	Page
<b>CiscoWorks Manager IP Telephony Environment Monitor</b>	A suite of management applications that helps ensure the readiness and manageability of converged networks that are supporting VoIP and IP telephony traffic and applications. The bundle includes: Voice Health Monitor; Default Fault Manager; CiscoView <ul style="list-style-type: none"> <li>• CCO Downloadable Modules: IP Phone Information Utility; IP Phone Help Desk Utility; Fault History Manager</li> </ul>	9-21
<b>Cisco Survivable Remote Site Telephony Software (SRST)</b>	<ul style="list-style-type: none"> <li>• IOS software that runs on local branch office router provides IP Telephony backup redundancy for IP phones in that office when IP phones detect that WAN is down or/and CallManager is unreachable</li> </ul>	4-18
<b>Cisco IP SoftPhone</b>	<ul style="list-style-type: none"> <li>• Windows-based application for PC, allows users to make and receive calls from PC without a dedicated phone</li> </ul>	4-19
<b>Cisco Conference Connection (CCC)</b>	<ul style="list-style-type: none"> <li>• Enables enterprises to bring geographically dispersed employees and customers together to facilitate meetings and collaboration. CCC provides a cost-effective and time-efficient method of doing business without the hassle of travel.</li> </ul>	4-20
<b>Cisco IP Phones IP 7900 Series</b>	<ul style="list-style-type: none"> <li>• An exciting, distinctively stylish, and pure Voice over IP phone portfolio to meet the wide range of business communication needs at affordable prices</li> <li>• Display-based technology provides ease-of-use</li> <li>• Integrated inline power and 2-port Ethernet Switch provides end-to-end infrastructure integration</li> <li>• Rich application environment enabled by open APIs based on XML</li> </ul>	4-20
<b>Cisco ATA Series of Analog Telephone Adaptors</b>	<ul style="list-style-type: none"> <li>• Turns any analog telephone into an IP telephone. Each of the two voice ports supports independent telephone numbers, providing two separate lines.</li> <li>• Interoperable with multiple standards including H.323, SIP, MGCP and SCCP</li> <li>• Enables analog devices, such as phones and fax machines, to support Voice over IP services by converting the analog signal into an IP signal</li> </ul>	4-22
<b>Cisco MCS 7800 Series Media Convergence Servers</b>	<ul style="list-style-type: none"> <li>• High availability server platform for Cisco IP telephony systems</li> <li>• Turnkey solution, includes CallManager or other software</li> <li>• For large- and medium-sized enterprise IP telephony deployments</li> </ul>	4-24
<b>Cisco Voice Gateways<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• The Cisco VG248 dedicated voice gateway provides connectivity between IP networks and legacy telephony systems/PSTN</li> <li>• VG248 supports up to 48 Foreign eXchange Station (FXS) ports for connecting analog telephones.</li> <li>• Fully manageable by Cisco CallManager, a CLI interface via Telnet, or via SNMP</li> </ul>	4-25
<b>Cisco IP/VC 3500 Series Videoconferencing Products</b>	<ul style="list-style-type: none"> <li>• Videoconferencing over IP solution</li> <li>• Cost-effective, easy-to-manage</li> <li>• Translates between H.323 and H.320 systems</li> <li>• Management and Quality of Service</li> </ul>	4-26
<b>Cisco IP/TV 3400 Series Video Servers</b>	<ul style="list-style-type: none"> <li>• High-quality video communications over enterprise networks</li> <li>• Support live and scheduled video, video on demand</li> <li>• Enable training, corporate communications, business TV, and distance learning</li> </ul>	4-27

1. Cisco's full line of multiservice routers also provide analog and digital voice gateway functionality through use of network modules and voice interface cards. Please see the 1700, 2600XM, 3600, 7200, 5x00 series in Chapter 1—Routers, as well as Chapter 7—Access Products.

## Cisco CallManager 3.3

Cisco CallManager call-processing software extends enterprise telephony features and capabilities to enterprise LANs and packet telephony network devices such as IP phones, media processing devices, voice-over-IP (VoIP) gateways, and multimedia applications. Additional data, voice, and video services such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems interact with the IP telephony solution through CallManager's open telephony application programming interfaces (API). Cisco CallManager is installed on the Cisco Media Convergence Server (MCS) and selected third-party servers. It ships with a suite of integrated voice applications and utilities, including the Cisco Attendant Console—a software-only manual attendant console; a conferencing application; and administrative reporting tools. For more VoIP network management features, see the CiscoWorks Manager IP Telephony Environment Monitor, page 9-21.

Cisco CallManager version 3.3 provides a scalable, distributable, and highly available enterprise IP telephony call-processing solution. Multiple servers are clustered and managed as a single entity; yielding scalability of up to 30,000 users per cluster. By interlinking multiple clusters, system capacity can be increased to as many as one million users in a 100-site system. Clustering aggregates the power of multiple, distributed Cisco CallManagers, enhancing the scalability and accessibility of the servers to phones, gateways, and applications. Triple call-processing server redundancy improves overall system availability.

The benefit of this distributed architecture is improved system availability and scalability. Call admission control ensures that voice quality of service (QoS) is maintained across constricted WAN links, and automatically diverts calls to alternative Public Switched Telephone Network (PSTN) routes when WAN bandwidth is not available. A Web-browsable interface to the configuration database enables remote device and system configuration.

### Key Features

- Cisco CallManager includes a suite of integrated voice applications that perform voice conferencing and manual attendant console functions, eliminating the need for special-purpose voice processing hardware
- Supplementary and enhanced services such as hold, transfer, forward, conference, multiple line appearances, automatic route selection, speed dial, last-number redial, and other features are extended to IP phones and gateways
- Capabilities enhancements are achieved through software upgradeability, avoiding expensive hardware costs traditional to legacy PBX systems
- Cisco CallManager Attendant Console—This Web-enabled application supports the traditional role of a manual attendant console and allows the attendant to quickly accept and dispatch calls to enterprise users. An integrated directory service provides traditional busy lamp field (BLF) and direct station select (DSS) functions for any line in the system. It monitors the state of every line in the system without requiring hardware-based line monitoring devices, thereby saving costs
- Software-only applications such as the Cisco Interactive Voice Response system, Cisco IP Contact Center, Cisco Automated Attendant, and Cisco SoftPhone are applications that interact with the CallManager through telephony APIs



## Specifications

Feature	Cisco CallManager 3.3 <sup>1</sup>
Platforms	Media Convergence Server (MCS) Integrated Communications Server (ICS-7750) Selected third-party servers
Pre-Installed Software	Cisco CallManager version 3.3 (call processing and call-control application) Cisco CallManager version 3.3 configuration database (contains system and device configuration information, including dial plan) Cisco CallManager Administration software Cisco Conference Bridge Cisco Attendant Console Bulk Administration Tool (BAT) CDR Analysis and Reporting (CAR) tool Real Time Monitoring Tool RTMT
Sample Subset of System Capabilities	H.323 scalability improvements - 1,000 H.323 calls per CallManager server in cluster Virus checker certification Cisco Intrusion Detection System (IDS) Host-Based Sensor certification
Summary of Administrative Features	Application discovery and registration to SNMP manager Automated Alternate Routing Groups Bulk Administration Call Back Call Detail Records (CDR) Call forward reason code delivery Centralized, replicated configuration database, distributed Web-based management viewers Configurable and default ringer WAV files per phone Configuration database API Database automated change notification Date/time display format configurable per phone Debug information to common syslog file Device addition through wizards Device downloadable feature upgrades—Phones, hardware transcoder resource, hardware conference bridge resource, VoIP gateway resource Device groups and pools for large system management Device mapping tool-IP address to MAC address Distinctive ring per line Dynamic Host Configuration Protocol (DHCP) block IP assignment-phones and gateways Dialed number translation table (inbound/outbound translation) Dialed Number Identification Service (DNIS) Enhanced 911 service H.323-compliant interface to H.323 clients, gateways, and gatekeepers Individual line Call Waiting Alert Configuration JTAPI 1.2 computer telephony interface LDAP version 3 directory interface to selected vendor's LDAP directories <ul style="list-style-type: none"> <li>• Active Directory</li> <li>• Netscape Directory Server</li> </ul> Manager Assistant Mappable softkeys MGCP signaling and control to selected Cisco VoIP gateways Multilevel Administration Access (MLA) Native supplementary services support to Cisco H.323 gateways Network Specific Facilities Paperless phone DNIS-display driven button labels on phones Performance monitoring SNMP statistics from applications to SNMP manager or to operating system Performance Monitor QoS statistics recorded per call Q.SIG Support Redirected DNIS (RDNIS), inbound, outbound (to H.323 devices) Select specified line appearance to ring; Select specified phone to ring Single CDR per cluster Single point system/device configuration Sortable component inventory list by device, user, or line System event reporting-to common syslog or operating system event viewer TAPI 2.1 computer telephony interface Time-zone configurable per phone XML API into IP phones (794X/6X) Zero cost automated phone moves; Zero cost phone adds

Feature	Cisco CallManager 3.3 <sup>1</sup>
Summary of User Features	Answer/answer release Auto-answer/ <sup>2</sup> intercom Call connection Call coverage Call forward-all (off-net/on-net); Call forward-busy; Call forward-no answer Call hold/retrieve Call park/pickup; Call pickup group-universal Call status per line (state, duration, number) Call waiting/retrieve Calling Line Identification (CLID); Calling party name identification (CNID) Calling Line Identification Restriction (CLIR) Direct inward dial (DID); Direct outward dial (DOD) Directory dial from phone-corporate, <sup>2</sup> personal Directories-missed, placed, received calls list stored on selected IP phones Distinctive ring (on-net vs. off-net); Distinctive ring per phone Drop last conference party (ad-hoc conferences) Extension mobility support Hands-free, full-duplex speakerphone HTML help access from phone Last number redial (off-net/on-net) Message waiting indication Multiparty conference-Ad-hoc with add-on, Meet-me Multiple line appearances per phone Music-on-hold Mute capability from speakerphone and handset On-hook dialing Operator attendant-Web-browser interface, loop key notification, logon/logoff, busy/available, left/right hand access, headphone access, busy lamp field, direct station select, drag and drop transfer, call status (state, duration, and number) Privacy Real-time QoS statistics through http browse to phone Recent dial list-calls to phone, calls from phone, auto-dial, and edit dial Single button data collaboration on SoftPhone-chat, whiteboard, and app sharing Single directory number, multiple phones-bridged line appearances Speed dial-multiple speed dials per phone Station volume controls (audio, ringer) Transfer-with consultation hold User-configured speed dial and call forward through Web access Web services access from phone Wideband audio codec support—proprietary 16-bit resolution, 16 kHz sampling rate codec

1. Additional RAM may be required in Media Convergence Servers to support existing and enhanced services in Cisco CallManager 3.3.
2. Indicates new feature or service for Cisco CallManager version 3.3

## For More Information

See the Cisco CallManager Web sites: <http://www.cisco.com/go/callmgr>

## Cisco Unity—Unified Messaging and Voice Mail

Cisco Unity is a powerful Unified Communications server that provides advanced, convergence-based communication services and integrates them with the desktop applications business professionals use everyday, improving customer service and productivity. Designed for enterprise-scale organizations, Cisco Unity delivers unified messaging that gives subscribers the ability to access and manage messages and calls from anywhere, at any time, regardless of device or media type. Subscribers can listen to e-mail over the telephone, check voice messages from the Internet, and if a fax server is present, forward faxes to any local fax machine. Cisco Unity voice messaging features robust automated attendant functionality that includes intelligent routing, and easily customizable call screening and message notification options. Cisco Unity supports localized versions in multiple languages and supports multiple languages on a single system.

Cisco Unity's optional digital networking module enables connectivity to other Cisco Unity servers at the same site via the LAN or remotely via WAN. Digital networking gives users the ability to send subscriber-to-subscriber messages anywhere in the world.

Cisco Unity supports both Cisco CallManager and leading legacy telephone systems—even simultaneously—to help smooth the transition to IP telephony and protect existing infrastructure investments. Built on a scalable platform, it uses streaming media and an intuitive HTML browser-style system administration interface. Costs are minimized when Cisco Unity's server architecture is truly unified with an organization's data network.

### Key Features

- Architecture allows IT staff to set one back-up procedure, one message storage policy, and one security policy
- Enhanced scalability allows up to 72 ports per server; up to 7,500 subscribers per server; or a total of 250,000 users in an Exchange environment or 100,000 users in a Domino environment up
- Support for Exchange 2000/Active Directory as the single message store and directory; AMIS-A and VPIM interoperability for Exchange systems.
- Enhanced networking for large deployments—support for complex TDM telephone networks (multiple dialing domains)
- Support for multiple CCM clusters; ability to light Message Waiting Indicators
- With Exchange/Domino off-line, utilizes pre-MTA queue to take messages and give basic message access; Support for Lotus Domino as the single message store
- Fault-tolerant system tools—robust security, file replication, event logging, and optional software RAID levels 0-5
- Support for Windows 2000<sup>1</sup> in a mixed/native mode
- Unity Inbox/VMI (Visual Messaging Interface) is an Internet Explorer-based voice mail inbox providing unified messaging
- Unity Bridge provides advanced message interchange functionality with legacy Avaya/Octel voice mail systems—unlocking proprietary networking to deliver open standards-based IP migration

1. Unity will not support Windows NT on the Unity server, although it can be installed into an NT environment.

## Specifications

Feature	Cisco Unity 3.1
<b>Unity Voice Mail (VM) and Unified Messaging (UM) Possible Configurations</b>	16, 32 and Max sessions Configured for CallManager or configured for legacy PBX/dual integration <sup>1</sup>
<b>Options</b>	Voice Mail; Voice Mail with Multi-lingual option; Unified Messaging with Text-to-Speech (TTS) option Unified Messaging with Multi-lingual option; Exchange or Domino; AMIS for Exchange; VPIM for Exchange; Unity Inbox/Visual Messaging Interface; Failover for Exchange; Unity Bridge for Exchange

1. Contact your Cisco Software Sales Representative for integration information.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Unity Servers

MCS-7815I-2.0-ECS1	MCS 7815 rack-mountable; Unity and Unity Bridge; 512MB; Win2K
MCS-7825H-2.2-ECS1	MCS 7825 rack; 512MB; RAID 1; Win2K
MCS-7835H-2.4-ECS1	MCS 7835-HP; rack; 512MB; RAID 1; Win2K
MCS-7845H-2.4-ECS1	MCS 7845-HP; VM-6HDD; rack; 1GB; RAID 1(x3) DUAL CPU; Win2K
MCS-7845H-2.4-ECS2	MCS 7845-HP; UM-4HDD; rack; 1GB; RAID 1(x2) DUAL CPU; Win2K
MCS-7835I-2.4-ECS1	MCS 7835-IBM; rack; 512MB; RAID 1; Win2K
MCS-7845I-2.4-ECS1	MCS 7845-IBM; VM-6HDD; rack; 1GB; RAID 1(x3) DUAL CPU; Win2K
MCS-7845I-2.4-ECS2	MCS 7845-IBM; UM-4HDD; rack; 1GB; RAID 1(x2) DUAL CPU; Win2K
MCS-7855I-1.5-ECS1	MCS7855; VM-8HDD; rack; 2GB; RAID 1(x2) + 10; CPU(x2); Win2K
MCS-7855I-1.5-ECS2	MCS 7855; UM-4HDD; rack; 2GB; RAID 1(x2); CPU(x2); Win2K
MCS-7865I-1.5-ECS1	MCS7865; VM-8HDD; rack; 4GB; RAID 1(x2) + 10; CPU(x4); Win2K
MCS-7865I-1.5-ECS2	MCS 7865; UM-4HDD; rack; 4GB; RAID 1(x2); CPU (x4); Win2K
UNITY-IBM-DAT=	Tape drive for MCS-7855I and MCS-7865I
UNITY-MCS-ML-DAT=	Hot-Swap tape drive for MCS-7835H and MCS-7845H
UNITY-EXP-CHAS=	Expansion chassis

### Cisco Unity 4.0 Unified Messaging and Voicemail Software

UNITYU4-50USR-E=	Unity UM Exchange, 50 users, 16 session, 2 TTS
UNITYU4-100USR-E=	Unity UM Exchange, 100 users, 16 session, 2 TTS
UNITYU4-200USR-E=	Unity UM Exchange, 200 users, 16 session, 2 TTS
UNITYU4-300USR-E=	Unity UM Exchange, 300 users, 16 session, 2 TTS
UNITYV4-50USR=	Unity VM, 50 users, 16 sessions
UNITYV4-100USR=	Unity VM, 100 users, 16 sessions
UNITYV4-200USR=	Unity VM, 200 users, 16 sessions
UNITYV4-300USR=	Unity VM, 300 users, 16 sessions
UNITY-DVD-4.0=	UNITY 4.0 DVD set
UNITY-CD-4.0=	UNITY 4.0 CD set

### Cisco Unity Options

UNITY-AMIS	Unity, AMIS-A networking
UNITY-ADDL-LANG	Support for an additional language. May order up to 17.
UNITY-RS-ML	Unity, one session Real Speak TTS
UNITY-VPIM	Unity, VPIM - Per Server

### Cisco Unity Bridge

UNITY-BRIDGE-3.0	Unity Bridge 3.0, requires Unity 4.0.3 or later
UNITY-BRIDGE-2.1	Unity Bridge 2.1, requires Unity 4.0.2 or earlier

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco Unity site: <http://www.cisco.com/go/unity>

## Cisco CallManager Express

Cisco ® CallManager Express is a solution embedded in Cisco IOS ® Software that provides call processing for Cisco IP phones. This solution enables the large portfolio of Cisco multiservice access routers to deliver features similar to those of a key system or low-end private branch exchange (PBX), thereby enabling deployment of a cost-effective, highly reliable, IP Communications solution for the small office. Customers can now scale IP telephony to a small site or branch office with a solution that is very simple to deploy, administer, and maintain. The Cisco CallManager Express solution provides customers with a low-cost, reliable, feature-rich solution for a deployment of up to 100 users.

### Key Features

- Cost-effective operations through a single, integrated voice-and-data platform for all branch office needs
- Provides integrated IP telephony services for multiservice access routers that allows customers to deploy one device in their office to address all their business needs, simplifying management, maintenance, and operations, and delivering a lower total cost of ownership (TCO)
- Robust set of key system and low-end PBX capabilities—Delivers a robust set of telephony features for the small office, and delivers unique value-added capabilities through Extensible Markup Language (XML) that enhance the productivity of the end user and of the business, and that cannot be delivered by traditional solutions
- Investment protection and ease of upgrade to centralized call-processing solutions—Simple software or firmware upgrade capabilities
- Remote maintenance and troubleshooting using Cisco IOS Software command-line interface (CLI) or Web-based GUI—Acts as a standalone call-processing engine for IP phones located in the branch office

### Specifications

Feature	Cisco IP Manager Assistant
Platform	Cisco IAD2400, 1751, 1760, 2600XM, 2691, 3640, 3640A, 3660, and 3700 Series Multi-Service Routers.
Phones supported	Cisco 7960 7940, 7935, 7912, 7905, 7902, 7910, ATA
IOS Images	Cisco Call Manager Express 3.1 supported in 12.2(15)ZJ3

### For More Information

See the Cisco CallManager Express Web site:

<http://www.cisco.com/en/US/products/sw/voicesw/ps4625/index.html>

## Cisco Unity Express

Cisco® Unity Express provides voice mail and automated attendant services specifically for the small and medium branch office environment. The Cisco Unity Express application is delivered on a network module which is supported on a variety of access router platforms. With Cisco Unity Express, users can easily and conveniently manage their voice messages with intuitive telephone prompts and a straight forward Graphical User Interface (GUI). The Cisco Unity Express automated attendant provides a professional, full-time greeting for all callers, increasing office productivity and performance.

Cisco Unity Express is an essential component of the Cisco CallManager Express solution. The combination of these Cisco IP Communications products creates a solution that enables small and medium businesses and branch offices to deliver voice, data, and telephony management services integrated on a single, router-based platform. The solution offers a core set of phone features to meet everyday business needs, while providing the rich telephony feature sets that customers have grown to expect.

### Key Features

- Cost-effective operations through a single, integrated voice-and-data platform for all branch office needs
- Boosts the professionalism, productivity and customer service available to the small and medium office through built-in automated attendant and voice mail capabilities.
- Remote maintenance and troubleshooting using Cisco command-line interface (CLI) or Web-based GUI
- Integrated IP based voice mail and automated attendant services for multiservice access routers allows customers to deploy one device in their office to address all their business needs, simplifying management, maintenance, and operations, and delivering a lower total cost of ownership (TCO)

### Specifications

Feature	Cisco IP Manager Assistant
Hardware	NM-CUE, fully self-contained network module with license, operating system and application, onboard storage, memory and processing
Software	Requires Cisco IOS 12.2(15)ZJ and Cisco Unity Express release 1.0.1
Platform Support	2600XM, 2691 and 3700 Series Multi-Service Routers

### For More Information

See the Cisco Unity Express Web site: <http://www.cisco.com/go/ccmecue>

## Cisco Emergency Responder

Cisco Emergency Responder revolutionizes enterprise telephony support for E9-1-1 in North America, E1-1-2 in Europe, and other emergency telephone services across the globe. Traditional PBX E9-1-1 implementations in North America support “automatic location identification” of emergency callers through daily manual database update processes, which limit the frequency of location updates and increase the likelihood of update errors. The Cisco Emergency Responder software application works with Cisco CallManager to automatically track the location of Cisco IP phones in enterprise campuses, route emergency calls to an appropriate public safety answering point (PSAP), and provide the location of the caller to the Public Safety Answering Point (PSAP).

Cisco ER performs these functions without requiring tedious manual database updates after phone moves/adds/changes, which significantly reduces the time, headcount, and costs associated with traditional PBX E9-1-1 maintenance. While some vendors may automate location updates, they still require manual PBX configuration changes to trigger the updates. The Cisco ER solution, when coupled with the automated phone moves/adds/changes features in Cisco CallManager, is the first in the industry to completely automate the phone move process while maintaining E9-1-1 and location data integrity.

In addition, Cisco ER can use email/pager messaging, telephone calls, and auto-refreshing webpage updates to notify on-site security operations personnel and third-party agencies of emergency calls in progress.

### Key Features

- Meets and exceeds traditional E9-1-1 requirements
- Automates all user and phone moves, adds, and changes; Enables users and phones to move an unlimited number of times per day
- Avoids the expense and burden of daily PS-ALI record uploads
- Avoids daily error-prone documentation and database updates
- Enables quicker and more effective emergency response from onsite personnel and public agencies
- Provides configuration auditing to facilitate responsible change management and investigative or legal processes
- Provides call history logs for capacity planning, management of emergency call abuse, and incident documentation
- Compatible with any emergency number

## Specifications

Feature	Cisco Emergency Responder
<b>Supported Platform</b>	Cisco Media Convergence Server, MCS-7835-1266, MCS-7825-1133, MCS-78151-2.0-EVV1, MCS-7825H-2.2-EVV1, MCS-7835I-2.4-EVV1, MCS-7835H-2.4-EVV1 and MCS-7845H-2.4-EVV1
<b>System Capacity</b>	A single Cisco Emergency Responder server can (depending on server platform) support 30,000 phones, 120,000 Ethernet switch ports and 10,000 manually entered endpoints such as analog or proprietary phones or H.323 clients. Cisco recommends a second Emergency Responder server to form a fully redundant Cisco Emergency Responder Group with the same capacity and increased availability compared with a single Cisco Emergency Responder server. Larger campuses and distributed systems are supported via a network of Cisco Emergency Responder groups called a Cisco Emergency Responder Cluster.
<b>Configurable Elements</b>	
<b>Cisco CallManager</b>	Call routing and digit manipulation to forward user-initiated emergency calls and PSAP return calls to and from Cisco Emergency Responder as appropriate
<b>Cisco Emergency Responder</b>	System administration interface-for access to all configuration components or oversight of outsourced vendors LAN administration interface-for IT LAN group or an outsourced vendor Emergency Response Location (ERL) administration interface-for IT telecom group or an outsourced vendor
<b>Other Components</b>	Configure e-mail account on a Simple Mail Transfer Protocol (SMTP) Internet mail server for use by Cisco Emergency Responder Configure an email-to-pager gateway, or use an email paging service Configure a PS-ALI transfer application provided by the PS-ALI database service provider (often requires a dialup modem connection) Provision an E9-1-1 capable voice trunk (Centralized Automated Message Accounting [CAMA] or Primary Rate Interface [PRI]) through a local exchange carrier
<b>Supported Switches<sup>1</sup></b>	Cisco Catalyst 2950, 3500, 3550, 4000, 4500, 5000, 6000, and 6500 Series

1. Check for updates on CCO, and following is list of tested switch platforms at time of printing

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Emergency Responder

SW-CER1.2-SVR=	Cisco Emergency Responder software (MCS platforms) on CD, including 100 user licenses
KEY-CER1.2-100=	CER 1.2 user license for 100 phones
KEY-CER1.2-500=	CER 1.2 user license for 500 phones
KEY-CER1.2-1K=	CER 1.2 user license for 1,000 phones
KEY-CER1.2-5K=	CER 1.2 user license for 5,000 phones

1. Redundant user licenses are not required when ordering redundant CER servers for a single CER group.

## For More Information

See the Cisco Emergency Responder Web site: <http://www.cisco.com/go/cer>



## Cisco IP Contact Center (IPCC) Enterprise Edition

Cisco IP Contact Center (IPCC) Enterprise Edition delivers intelligent contact routing, call treatment, network-to-desktop computer telephony integration (CTI), and multi-channel contact management over an IP infrastructure. By combining multi-channel automatic call distributor (ACD) functionality with IP telephony in a unified solution, Cisco IPCC Enterprise enables companies to rapidly deploy a distributed contact center infrastructure.

Cisco IPCC Enterprise Edition segments customers, monitors resource availability, and delivers each contact to the most appropriate resource anywhere in the enterprise. The software profiles each customer using contact-related data such as dialed number and calling line ID, caller-entered digits, data submitted on a Web form, and information obtained from a customer profile database lookup. At the same time, the system knows which resources are available to meet the customer's needs based on real-time conditions (agent skills and availability, interactive voice response [IVR] status, queue lengths, and so on) continuously gathered from various contact center components.

Cisco IPCC Enterprise provides a state of the art VoIP contact center solution that allows seamless integration of inbound and outbound voice applications with Internet applications including real-time chat, Web collaboration and e-mail. This integration allows for unified capabilities, enabling a single agent to support multiple interactions simultaneously regardless of the communications channel the customer has chosen. Since each interaction is unique and may require individualized service, Cisco provides contact center solutions to manage each interaction based on virtually any contact attribute.

Furthermore, Cisco can bridge the gap between TDM and IP infrastructures, providing a seamless integration of voice, chat, e-mail, and Web collaboration applications over both of these technology platforms. This allows companies to preserve the value of their existing investments in call center products such as ACDs, IVRs, PBXs, etc. while leveraging Cisco's wide range of solutions to support the same contact center requirements in a converged network environment.

### Key Features<sup>1</sup>

- Full Scalability from less than a hundred to thousands of seats
- Multi-channel interaction—Web collaboration with chat and callback, email, voice mail and fax routing
- Multi-site Contact Centers support; CRM Integration
- Cradle-to-grave contact call detail records
- Common agent and supervisor desktops across all Cisco customer interaction management products
- Pre-defined and custom historical reports; Real-time reports integrated in the agent and supervisor desktops
- Support for custom call treatment for calls in queue includes support for music in queue and custom messaging
- Standard screen pop allows any caller-entered information to be popped to the agent
- Full support for agent/supervisor interaction via chat
- Ability to pre-define agent-supervisor messages

#### 1. Abbreviated list of IPCC Features

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco IP Contact Center

IPC-Bundle	Includes - ICM, 1 Call Manager PG, 1 IVR PG, 24 Agent Desktop Licenses, 1 Supervisor Desktop License, 1 System Manager AWS – full, 1 full documentation set plus on-line documentation
IPC-AGTCTD-L	Cisco Toolkit Desktop For IPCC License
IPC-SUPCTS-L	Cisco Toolkit Supervisor For IPCC License
IPC-AGTCAD-L	Cisco Agent Desktop For IPCC License
IPC-AGTCADCTI-L	Cisco Agent Desktop For IPCC With CTI License
IPC-SUPCSD-L	Cisco Supervisor Desktop For IPCC License

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco IPCC Enterprise Edition Web site: <http://www.cisco.com/go/ipcc>

## Cisco IPCC Express Edition

Cisco IPCC Express Edition is an easy-to-install, and easy-to-use automatic call distributor (ACD) designed to meet the needs of departmental, enterprise branch, or small to medium-size companies planning to deploy an entry-level or mid-market contact center solution. It is seamlessly integrated with all other customer response applications, including Cisco IP Interactive Voice Response (IP IVR) and Cisco IP Automated Attendant. Key benefits of IPCC Express include: a low-cost, entry-level ACD that is easy to install, administer, and use; it supports multimedia (voice, data, and Web) access when used with Cisco IP IVR; it provides complete customization tools for call flow scripts; and it supports seamless integration with Cisco customer response applications.

Cisco IPCC Express provided in two versions: Cisco IPCC Express Standard and Cisco IPCC Express Enhanced. The Standard version is priced for entry-level users, allowing you to capture opportunities in the small and medium-size business market segment. The Enhanced version offers a full-featured ACD for entry- to mid-size contact centers. The Enhanced version also provides a migration pathway to Cisco IP Contact Center (IPCC), Cisco's premier contact center product.

### Key Features<sup>1</sup>

- Browser-based Cisco IPCC Express administration is fully integrated with Cisco CallManager browser-based administration
- Cradle-to-grave contact call detail records
- Standard screen allows any caller-entered information to be popped to the agent
- Pre-defined or custom historical reports
- Real-time reports within the agent and supervisor desktops
- Common agent and supervisor desktops across all Cisco customer interaction management products including Cisco IPCC Express Standard, Enhanced and Cisco IP Contact Center Enterprise Edition
- Full support for agent/supervisor interaction via chat; Ability to pre-define agent-supervisor messages
- Full IP call queue points and prompt; Collect voice interaction capabilities
- Optional Automatic Speech Recognition (ASR) and Text to Speech (TTS) capabilities
- Support for custom call treatment such as music for calls in queue

#### 1. Abbreviated list of IPCC Features

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco IPCC Express Edition

ICD-3.0-STD-BS SW	Standard ICD 3.0 Standard Bundle
ICD-3.0-STD-BB	Bid Set ICD 3.0 Standard Bundle
ICD-3.X-S-AGT1	1 Cisco Standard Agent Desktop ICD 3.X
ICD-3.X-S-AGT5	5 Cisco Standard Agent Desktops ICD 3.X
ICD-3.X-S-AGT10	10 Cisco Standard Agent Desktops ICD 3.X
ICD-3.X-S-AGT25	25 Cisco Standard Agent Desktops ICD 3.X
ICD-3.X-S-AGT50	50 Cisco Standard Agent Desktops ICD 3.X
ICD-3.X-S-SUP1	1 Cisco Standard Supervisor Desktop ICD 3.X
ICD-3.X-S-HIST1	1 Cisco Standard Historical Reporting ICD 3.X
ICD-3.0-ENH-BS	ICD 3.0 Enhanced Bundle
ICD-3.X-E-AGT1	1 Cisco Enhanced Agent Desktop ICD 3.X
ICD-3.X-E-AGT5	5 Cisco Enhanced Agent Desktops ICD 3.X
ICD-3.X-E-AGT10	10 Cisco Enhanced Agent Desktops ICD 3.X
ICD-3.X-E-AGT25	25 Cisco Enhanced Agent Desktops ICD 3.X
ICD-3.X-E-AGT50	50 Cisco Enhanced Agent Desktops ICD 3.X
ICD-3.X-E-SUP1	1 Cisco Enhanced Supervisor Desktop ICD 3.X
ICD-3.X-E-HIST1	1 Cisco Enhanced Historical Reporting ICD 3.X

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco IPCC Express Edition Web site: <http://www.cisco.com/go/icd>

## Cisco IP IVR

Cisco IP IVR, an interactive voice response (IVR) solution, provides a feature rich foundation for the creation of an IP-based Cisco IP IVR that is open and expandable. Written in Java to provide customer flexibility, IVR includes the following features:

- Multimedia (voice/data/Web) IP-empowered application-generation environment
- Support for optional Automated Speech Recognition (ASR) and Text-to-Speech (TTS)
- Support for VoiceXML
- Multiple Language support
- Cisco IP IVR can be located in anywhere the IP network
- Offers web-based activation and administration
- Flows (the IP IVR applications) are stored in an industry standard LDAP directory
- Cisco IP IVR is sold with Cisco CallManager and can be co-resident on the same server as CallManager or can function on a separate, dedicated media convergence servers (MCSs) or Cisco-approved customer provided server

Packages available to scale up to 300 ports

## Cisco Internet Service Node

The Cisco Internet Service Node (ISN) harnesses the power of IP to provide an efficient and highly scalable way to automate customer interaction. It integrates fully with both traditional and IP-based contact centers, and offers a powerful self-service IVR option. Using automatic speech recognition (ASR) and text to speech (TTS), callers can get answers to their questions, check on orders, review account status, and find information—all without interacting with an agent. If agent assistance is required, however, Cisco ISN provides industry-leading call routing and transfer services over the IP network.

The Cisco ISN provides Web-based prompt, collect, queuing, and call control services, using standard Internet technologies, as well as VXML to provide the flexibility and openness lacking in traditional IVR systems.

Through integration with Cisco Intelligent Contact Management (ICM) and IP Contact Center (IPCC) products, the Cisco ISN delivers these services as part of a comprehensive customer contact strategy for service providers and midsize to large enterprises.

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco Internet Service Node (ISN)

ISN-APSSVR	ISN Application Server
ISN-VBRSVR	ISN Voice Browser

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco Internet Service Node Web site:

<http://www.cisco.com/en/US/products/sw/custcosw/ps1006/index.html>

## E-Mail Response Management—Cisco E-mail Manager

Cisco E-Mail Manager is a comprehensive, enterprise-class solution for managing high volumes of customer inquiries submitted to your company mailboxes or Web site.

Based on customizable business rules, Cisco E-Mail Manager accelerates the response process by automatically directing messages to the right agent or support team, categorizing and prioritizing messages, suggesting relevant response templates, and, if desired, sending automated replies. A full-featured, browser-based interface provides your agents with the productivity tools and knowledge resources they need to provide fast, accurate and personalized responses to your customers. Cisco E-Mail Manager gives managers the queue management, reporting and outbound marketing tools they need to ensure that desired service standards are met, gain valuable insight into customer needs and generate new revenue opportunities.

Whether you are building a customer support system from the ground up or integrating with existing organizational structures and legacy systems, Cisco E-Mail Manager's uniquely flexible, extensible and scalable design delivers a cost-effective, easy-to-implement strategy for building customer relationships over the Internet.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Email Manager

CEM-SVR-W

Cisco Email Manager Server (Win 2K)

CEM-AGT

Cisco Email Manager Agent License

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## Cisco Personal Assistant

Cisco Personal Assistant streamlines communications with personal call rules, speech recognition, an optional enhanced text-to-speech engine and productivity services for IP phones. As an integral part of Cisco AVVID (Architecture for Voice, Video and Integrated Data), it interoperates with Cisco CallManager and scales to meet the present and future needs of your employees. Users can access voice mail, dial by name, and conference from any telephone using speech recognition instead of the telephone keypad. The Web-based and telephone user administration interfaces allow users to forward and screen calls in advance or in real time. The phone services enable users to check e-mail, voice mail, calendar, and personal contact information using the large, pixel-based LCD and interactive soft keys on the Cisco IP Phone 7940 or 7960.

### Key Features

- **Ubiquitous Access:** Cisco Personal Assistant with Speech Recognition and IP Phone Productivity Services integrate with Cisco CallManager, Cisco Unity, and Microsoft Exchange within Cisco AVVID to streamline communications
- **Automatic Speech Recognition (ASR):** Speech recognition interface allows users to utilize simple voice commands to perform tasks such as retrieval, replying, recording, and deletion of voice messages; Entries can be dialed from personal address books or the corporate enterprise Lightweight Directory Access Protocol (LDAP) directory; Users can synchronize their Microsoft Exchange contact lists with their personal address books for quick name-dialing and ad-hoc group conferencing; Access to sensitive features such as voice mail is controlled by user authentication
- **Manage Inbound and Outbound Calls (Rules-Based Routing):** Using a Web interface to create rules, users can forward and screen calls based on caller identification, time of day, and meeting schedules; With "follow me," a special rule that uses speech recognition, users can forward all calls to a phone number immediately; Users can activate sets of pre-created rules from any telephone
- **CalendarView:** Users can keep track of appointments right on the IP phone, directly from the Microsoft Exchange server with no synchronization necessary. In addition, users can choose to be notified of an upcoming event on the phone display or by pager
- **MailView:** Cisco Personal Assistant presents users with access to e-mail and Cisco Unity voice-mail messages in the inboxes on the corporate messaging server. Users can access messages from a conference room, lobby phone, or colleague's phone, as well as their own. Any operation performed on the messages using MailView is automatically reflected in Microsoft Exchange and Cisco Unity; Cisco Personal Assistant interfaces with Microsoft Exchange and IMAP 4 message stores for MailView features.

## Specifications

Feature	Cisco Personal Assistant
Platform	Cisco Media Convergence Server MCS-7825H-2.2-EVV1 and MCS-7835H-2.4-EVV1
Web Server Requirements for IP Phone Productivity Services Platform	Basic Web Server: Microsoft IIS 4.0 or later Separate server for Cisco Personal Assistant Server and Speech Recognition Server
Software Compatibility	Cisco CallManager 3.1+, 3.2+, and 3.3+ Cisco Unity 2.46+, 3.0+, and 4.0+ for voice-mail features Microsoft Exchange 5.5 and Exchange 2000 for calendar, e-mail, contact synchronization features

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Personal Assistant

PASR-BUNDLE	Cisco Personal Assistant Bundle
SW_PASR1.4-SVR2S=	Cisco Personal Assistant 1.2 Server Software with Speech Recognition <sup>2</sup>
SW-PASR1-USR=	Personal Productivity User License
SW-PASR1-USR10=	Personal Productivity 10 User License
SW-PASR1-KX=	Cisco Personal Assistant 1.4, Expansion Speech Recognition Session <sup>3</sup>
SW-PASR1-TX=	Cisco Personal Assistant 1.4 Enhanced Text-to-Speech Session

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).
2. Cisco Personal Assistant can be purchased with an MCS-7825H-2.2-EVV1 or an MCS-7835H-2.4-EVV1 media convergence server.
3. Various session combinations available.

## For More Information

See the Cisco Personal Assistant Web site: <http://www.cisco.com/go/personalassist>

## Cisco Web Collaboration Option

The Cisco Web Collaboration Option enables businesses to combine the personal value of human interaction with the information value of the Web—creating a powerful environment for driving increased sales, exceptional service, and customer satisfaction.

The Cisco Web Collaboration Option allows you to add “click-for-help” buttons on your Web site that enable customers to interact with your contact center agents over the Web while conducting a voice conversation (PSTN or Voice over IP [VoIP]) or text chat. Contact center agents and callers can share Web pages—including personalized or dynamically generated pages, complete forms in a collaborative fashion, and share any Windows desktop application using nothing more than a Web browser. By facilitating effective, personalized assistance designed to greatly enhance the customer experience, the Cisco Web Collaboration Option is an ideal solution for both sales- and service-oriented contact centers.

The Cisco Web Collaboration Option can be deployed in a pure IP environment or can be seamlessly integrated with your organization's existing telephony infrastructure to provide automated, blended delivery of phone and Web-based inquiries.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Web Collaboration Option

CCS-CCSSVR	Cisco Web Collaboration and Media Blender Software
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1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco Web Collaboration Option Web site: <http://www.cisco.com/go/ccs>

## Cisco SRST

Survivable Remote Site Telephony (SRST) provides key backup telephony functions at remote branch office routers if connectivity to the centrally-located Cisco CallManager fails (i.e. WAN link is interrupted). In this case the SRST-enabled router will take over and provide basic telephony service (including off-net calls to 911).

SRST is ideal for enterprise organizations looking to cost-effectively deploy IP telephony in their branch office location. SRST v3.0 with 12.2(15)ZJ is available on Cisco 1751V, 1760V, 2600 XM, 2691, 3600, 3725/3745, and Cisco 7200 series of routers. SRS Telephony 2.1 features are available in 12.2(11)YT, and 12.3T on Cisco 1751, 1760, 2650, 2600XM, 2691, 3640/3640A, 3660, and Cisco 3725/3745 routers.

### Key Features

- SRST 3.0 features: Enhanced dial plan-pattern command, secondary dial tone, Dual line appearance per button, 3-party G.711 ad-hoc conferencing, Call transfer with consult, Music-on-hold multicast, European Date Formats, Increase in Directory number maximums, additional language options for IP phone, configurable system message, syslogs and improved debugs for phones, symmetric SIP GW-to-GW DTMF relay, Ringing timeout for phones, E1 R2 support and Cisco 7905 support.
- SRST 2.1 features: International language support; Call forward no-answer/busy to Unity server with Personal Greeting; Cisco 7914 and 7935 support; VG248 support
- SRST 2.0 features: Huntstop support; Music/Tone on Hold; Class of Restriction; Distinctive Ringing; Global forwarding to voicemail across PSTN during Cisco CallManager fallback; TCL based simple AA and IVR on local gateway (SRS Telephony router); Transfer across H323 network of Cisco endpoints; Alias lists for single number to be designated for unregistered phones.

### Selected Part Numbers and Ordering Information

#### SRST 3.0 Platform Density and Feature License Part Numbers

Platform	Number of Phones Supported	Part Number	Part Number (Spare)
Cisco 1751V, 1760V, 26xxXM, 3620	Up to 24 phones	FL-SRST-SMALL	FL-SRST-SMALL=
Cisco 265xXM routers	Up to 48 phones	FL-SRST-MEDIUM	FL-SRST-MEDIUM=
Cisco 2691	Up to 72 phones	FL-SRST-SMALL and FL-SRST-MEDIUM	FL-SRST-SMALL= and FL-SRST-MEDIUM=
Cisco 3725 router	Up to 144 phones	FL-SRST-144	FL-SRST-144=
Cisco 3660, 3745, 7200 NPE300/400	Up to 240 phones	FL-SRST-240	FL-SRST-240=
Cisco 7200NPE400/G1	Up to 480 phones	FL-SRST-480	FL-SRST-480=

### For More Information

See the Cisco SRS Telephony Web site: <http://www.cisco.com/go/srs>

## Cisco IP SoftPhone

Cisco IP SoftPhone 1.3 is a PC based application that allows you to use your phone extension from wherever you connect to your corporate IP network, even over the Internet when using a VPN client.

It's dual mode operation allows you to either control a physical IP phone, or perform all the functions of a phone in standalone mode using your PC's soundcard or a USB audio handset or headset.

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco Survivable Remote Site Telephony (SRS Telephony) Licenses

FL-SRST-SMALL	SRS Telephony Site License for the Cisco IAD 2400/2600/3620/Catalyst 4224 (up to 24 phones)
FL-SRST-MEDIUM	SRS Telephony Site License for the Cisco 3640 (up to 48 phones) or order multiple licenses for the Cisco 3660 (up to 144 phones, each supports up to 48 phones)

#### Cisco IP SoftPhone

SW-IPSOFTPHONE25=	Cisco IP Softphone CD; 25 licenses (licenses also available for 1, 50, and 100 users)
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### For More Information

See the Cisco IP SoftPhone Web site: <http://www.cisco.com/go/softphone>

## Cisco IP Manager Assistant<sup>1</sup>

Cisco IP Manager Assistant is a tool that allows an assistant to provide call coverage for up to five managers simultaneously. When a user is configured as an IPMA manager, they are associated with a primary and secondary assistant. The configured manager is always logged onto the service and selects the preferred assistant from the 7960 services menu. Features available to the manager are initiated from softkeys on the manager's phone. Assistant user features are initiated and managed from a PC-based application named the Assistant Console.

### Key Features

- **Manager tools:** 7960 IP phone—selection of assistant from pre-configured list; Divert All, Immediate Divert, Transfer to Voice Mail, Intercept, DND, SetWatch, Assistant Watch, Call Filtering feature invocation; display of toggled feature status for Divert All, Filtering, DND, Assistant Watch and Assistant availability; speed dial and line appearance configuration for intercom functionality; Manager Desktop—secure, browser-based access to configuration for default assistant assignment, Divert All target, Immediate Divert target and filter list (CLID) configuration.
- **Admin Assistant Tools:** 7960 IP Phone/7914 line extender—speed dial and line appearance configuration for intercom functionality; 7960 IP phone—invocation of new softkey features including Transfer to Voice Mail and Immediate Divert, speed dial to manager's intercom line; Assistant Console application—Windows application installed on assistant PC. GUI consistent with CallManager Attendant Console application. User-sizable application window and panes

1. IP Manager Assistant is available as part of Cisco CallManager 3.3 for no additional charge.



## Specifications

<b>Feature</b>	<b>Cisco IP Manager Assistant</b>
<b>Platform</b>	Media Convergence Server (MCS)
<b>Software Compatibility</b>	Cisco CallManager version 3.3 Assistant Console Application—Microsoft Windows 98, NT desktop, ME, 2000 Desktop and XP

### For More Information

See the Cisco Media Convergence Server Web site: <http://www.cisco.com/go/ipma>

## Cisco Conference Connection

Cisco Conference Connection (CCC) is designed for small to medium enterprises and remote offices of larger enterprises. Cisco Conference Connection facilitates relevant participation regardless of location, enables faster decisions, and eliminates travel cost and time and disruptions caused by requirements for a physical conference room presence. Typical applications include service calls, project management, sales reviews, corporate announcements, customer and employee training, and other business meetings. This application is ideal for enterprises trying to increase productivity while reducing expense. Simple web-based interface enables employees to manage their conference schedules and eliminates the service charges to conference service providers.

### For More Information

See the Cisco Conference Connection Web site:  
<http://www.cisco.com/en/US/products/sw/voicesw/ps752/index.html>

## Cisco 7900 Series IP Phones

Cisco IP Phones provide unmatched levels of integrated business functionality and converged communications beyond today's conventional voice systems. The Cisco IP Phone 7970G includes a color, high-resolution backlit touch-screen display promoting easy access to feature-rich phone functionality and time-saving applications. The Cisco IP Phone 7960G "manager set" addresses the communication needs of the professional, with a high or busy amount of phone traffic. The Cisco IP Phone 7940G "business set" addresses the communication needs of a transaction type worker, in a office cubicle environment, who conducts medium to high telephone traffic. The Cisco IP Phone 7912G, 7910G+SW, 7910G, and 7905G "basic sets" address the communication needs of a cubicle worker who conducts low to medium telephone traffic. The Cisco IP Phone 7902G "entry set" addresses voice communication needs of a lobby, lab, manufacturing floor, and other areas where only a minimal amount of features are required. Cisco IP Phone Expansion Module 7914 extends the Cisco IP Phone 7960G with additional buttons and LCD, increasing the total number of buttons to 20 with one module, or 34 with two modules. Cisco IP Conference Station 7935, a high-quality hands-free conference station, is designed for use on desktops and offices and in small to medium-sized conference rooms.



## Key Features

- Dynamic soft keys make the telephone simpler to use by presenting calling options based on context
- Open APIs using XML to deliver applications to the display
- Automatic phone discovery, VLAN configuration, and registration
- Quality of Service (QoS) is provided via support of 802.1pq, in addition to configurable DIFFSERV and TOS
- Voice-activity detection, silence suppression, comfort-noise generation, and error concealment
- G.711a, G.711u, G.729ab audio-compression coder-decoders (codecs)
- Software upgrade support via Trivial File Transfer Protocol (TFTP) server
- Microsoft NetMeeting enabled—features such as application sharing and video conferencing are available simply by pressing a button on your Cisco IP telephone
- Integrated Ethernet Switch supporting Ethernet connectivity for a downstream PC
- Integrated Inline power support allows the phone to receive power over the LAN
- A hearing-aid-compatible handset

## Specifications

Feature	Cisco IP Phone				
	Cisco IP Phone 7902G	Cisco IP Phone 7905G	Cisco IP Phone 7910G and 7910G+SW	Cisco IP Phone 7912G	Cisco IP Phone 7940G
Display	None	Pixel-Based	Character-Based	Pixel-based	Pixel-Based
Dynamic Soft Keys	0	4	0	4	4
Inline Power	Yes	Yes	Yes	Yes	Yes
10/100Base-T Ethernet Switch	No	No	Yes, 7910G+SW No, 7910G	Yes	Yes
Lines	1	1	1	1	2
Speaker Phone	No	Monitor Only	Monitor Only	Monitor Only	Yes
Headset Jack	No	No	No	No	Yes
3rd Party XML Applications	No	Yes	No	Yes	Yes

Feature	Cisco IP Phone 7960G	Cisco IP Phone 7970G	Cisco 7914 Expansion Module	Cisco IP Conference Station 7935
	Display	Pixel-Based	Pixel-based	Pixel-based
Dynamic Soft Keys	4	8	N/A	0
Inline Power	Yes	Yes	Yes	No
10/100Base-T Ethernet Switch	Yes	yes	N/A	No
Lines	6	8	14	1
Speaker Phone	Yes	Yes	N/A	Yes
Headset Jack	Yes	Yes	N/A	No
3rd Party XML Applications	Yes	Yes	N/A	No

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7900 Series IP Power and Phones

CP-7960G	Cisco IP Phone 7960G, Manager Set
CP-7940G	Cisco IP Phone 7940G, Business Set
CP-7912G	Cisco IP Phone 7912G, Basic Set w/ Switch
CP-7910G+SW	Cisco IP Phone 7910G+SW, Basic Set w/ Switch
CP-7910G	Cisco IP Phone 7910G, Basic Set
CP-7905G	Cisco IP Phone 7905G, Basic Set
CP-7902G	Cisco IP Phone 7902G, Entry Set
CP-7935	Cisco IP Conference Station
CP-7914=	Cisco 7914 IP Phone Expansion Module for the 7960 IP Phone
CP-SINGLFOOTSTAND=	Single module footstand
CP-DOUBLFOOTSTAND=	Double module footstand
CP-WALLMOUNTKIT=	Non-Locking Wall Mount Kit for 7910/40/60G series IP phones
CP-LCKNGWALLMOUNT=	Locking Wallmount Kit for the 7910/40/60G series IP phones
CP-LCKNGWALLMNT2=	Locking Wallmount Kit for the 7902/05/12G series IP phones
CP-PWR-CUBE=	IP Phone power transformer for 7900 series IP phones
WS-PWR-PANEL	Catalyst 48 port Inline Power Patch Panel

1. This is only a small subset of all parts. Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco IP Telephones Web site: <http://www.cisco.com/go/iptel>

## Cisco ATA Series of Analog Telephone Adaptors



The Cisco ATA 186 and 188 Analog Telephone Adaptors bring analog telephones into the networked world. The Cisco ATA series of products address the low-end product portfolio need by targeting the enterprise, business local services, small-office environment and the emerging managed voice services market. These cost effective handset-to-Ethernet adaptors enable analog devices, such as phones and fax machines, to support voice-over-IP (VoIP) services. The Cisco ATA 186 is equipped with, and a single RJ-45 Ethernet port. The Cisco ATA 188 has two RJ-11 voice ports and two RJ-45 ports. The internal Ethernet switch allows for a direct connection to a 10/100BASE-T Ethernet network and connectivity to a co-located PC or other Ethernet-based device via the RJ-45 ports.

Both models ship with a bootload image and must be upgraded to a signaling firmware image available on Cisco.com before deployment. Cisco ATAs can be configured<sup>1</sup> to use the standards-based Voice over IP (VoIP) protocols H.323, Session Initiation Protocol (SIP), Media Gateway Control Protocol (MGCP) and Skinny Client Control Protocol (SCCP).

## When to Sell

### Sell This Product

**Cisco ATA Series of Analog Telephone Adaptors**

### When a Customer Needs These Features

- Enable analog devices, such as phones and fax machines, to support Voice over IP services by converting the analog signal into an IP signal
- Continue use of existing analog phones with IP network

1. Two software image combinations are available on Cisco.com: H.323/SIP and MGCP/SCCP. MGCP/SCCP image includes the letters, ms, in its name.

Cisco ATA Series of Analog Telephone Adaptors

## Key Features

- Auto-provisioning with Trivial File Transfer Protocol (TFTP) provisioning servers
- Automatic assignment of IP address, network route IP, and subnet mask via Dynamic Host Configuration Protocol (DHCP)
- Optional web configuration through built-in Web server
- Optional touch-tone telephone keypad configuration with voice prompt
- Administration password to protect configuration and access
- Advanced pre-processing to optimize full-duplex voice compression
- High performance line-echo cancellation eliminates noise and echo
- Voice activity detection (VAD) and comfort noise generation (CNG) save bandwidth by delivering voice, not silence
- Dynamic network monitoring to reduce jitter artifacts such as packet loss

## Specifications

Feature	Cisco ATA 186	Cisco ATA 188
<b>Telephone and network interfaces</b>	2 RJ-11 FXS ports 1 RJ-45 interface for network connection	2 RJ-11 FXS ports 1 RJ-45 interface for network connection 1 RJ-45 "switch port" for connection to PC or another downstream Ethernet device Note: "Daisy chaining" multiple ATAs together through the second RJ45 port is not supported
<b>Dimensions (H x W x D)</b>	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)
<b>Weights</b>	15 oz (425 gm)	15 oz (425 gm)
<b>Voice-over-IP (VoIP) protocols</b>	H.323 v2; H.323 v4; SIP (RFC 2543); MGCP 1.0 (RFC 2705); MGCP 1.0/network-based call signaling (NCS) 1.0 Profile; MGCP 0.1; SCCP	H.323 v2; H.323 v4; SIP (RFC 2543); MGCP 1.0 (RFC 2705); MGCP 1.0/network-based call signaling (NCS) 1.0 Profile; MGCP 0.1; SCCP

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco ATA Series of Analog Telephone Adaptors

ATA186-I1	Cisco ATA 186 2-port adaptor, 600 ohm impedance
ATA186-I2	Cisco ATA 186 2-port adaptor, complex impedance (270 ohm in series with 750 ohm and 150 nF in parallel)
ATA188-I1	Cisco ATA 188 2-port adaptor with switch, 600 ohm impedance
ATA188-I2	Cisco ATA 188 2-port adaptor with switch, complex impedance (270 ohm in series with 750 ohm and 150 nF in parallel)

### Cisco ATA Series of Analog Telephone Adaptors Power Supply Cables

ATACAB-NA	ATA power supply cable for North American-style power systems
ATACAB-EU	ATA power supply cable for Continental European-style power systems
ATACAB-UK	ATA power supply cable for United Kingdom
ATACAB-AR	ATA power supply cable for Argentina
ATACAB-JP	ATA power supply cable for Japan
ATACAB-AU	ATA power supply cable for Australia

1. Some countries have telephone networks that list multiple impedance requirements. It is important to closely approximate the impedance of the typical handsets used in the region when selecting the proper configuration. The incorrect choice may lead to poor echo cancellation performance.

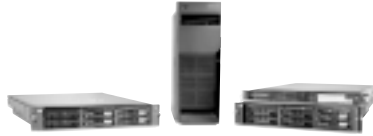
## For More Information

See the Cisco ATA Series Web site: <http://www.cisco.com/go/ata186>

## Cisco MCS 7800 Series Media Convergence Servers

### Cisco MCS 7815I-2000

The Cisco MCS 7815I-2000 provides an entry level tower server equipped with an Intel Pentium™ 4 2000MHz processor, 40GB ATA hard drive and single non-hot swap power supply. An optional tape backup is available on some models of the MCS 7815I-2000.



### Cisco MCS 7825H-2266

The Cisco MCS 7825H-2266 provides an entry level rack mount server that occupies only one rack mounting space. This server is equipped with an Intel Pentium™ 4 2266MHz processor, 40GB ATA hard drive and a single non-hot swap power supply. An optional tape backup is available on some models of the MCS 7825H-2266.

### Cisco MCS 7835H-2400 and Cisco MCS 7835I-2400

These Cisco MCS platforms provide a highly available mid-level rack mounted server solution that is equipped with an Intel Prestonia Xeon™ 2400MHz processor, up to six hot-swap Small Computer Systems Interface (SCSI) hard disks, a Redundant Array of Independent Disks (RAID) 1/0 Controller, hot swap fans and redundant hot swap power supplies. An optional tape backup is available for some models of the MCS 7835H-2400 and MCS 7835I-2400.

### Cisco MCS 7845H-2400 and Cisco MCS 7845I-2400

These Cisco MCS platforms provide a powerful and highly reliable high level rack mounted server solution that is equipped with two Intel Prestonia Xeon™ 2400MHz processors, up to six hot-swap SCSI hard disks, RAID 1/0 controller, redundant hot swap fans and redundant hot swap power supplies. An optional tape backup is available for some models of the MCS 7845H-2400 and MCS 7845I-2400.

## Specifications

Cisco MCS-7815I-2000	Cisco MCS-7825H-1266	Cisco MCS-7835H-2400	Cisco MCS-7835I-2400	Cisco MCS 7845H-2400	Cisco MCS 7845I-2400
Intel Pentium® 4 2000-MHz processor 512KB L2 Cache 512MB SDRAM 40GB ATA/100 Hard Disk 1.44MB Floppy Disk DVD Drive Integrated ATA Controller Single 10/100/1000 Ethernet NIC Tower System with optional rack mount kit.	Intel Pentium® 2266-MHz processor 512KB L2 Cache SDRAM is configuration dependant Hard Disk is configuration dependant 1.44MB Floppy Disk DVD Drive Hard Disk Controller is configuration dependant Dual 10/100/1000 Ethernet NIC1U Rack Mount System	Intel Xeon® 2400-MHz processor 512KB Cache SDRAM is configuration dependant Hard Disk is configuration dependant SCSI Controller. Dual 10/100/1000 Ethernet NIC2U Rack Mount System.	Intel Xeon® 2400-MHz processor 512KB Cache SDRAM is configuration dependant Hard Disk is configuration dependant SCSI Controller. Dual 10/100/1000 Ethernet NIC2U Rack Mount System	Dual Intel Xeon® 2400-MHz processor 512KB Cache SDRAM is configuration dependant Hard Disk is configuration dependant SCSI Controller. Dual 10/100/1000 Ethernet NIC2U Rack Mount System	Dual Intel Xeon® 2400-MHz processor 512KB Cache SDRAM is configuration dependant Hard Disk is configuration dependant SCSI Controller. Dual 10/100/1000 Ethernet NIC2U Rack Mount System

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Media Convergence Server 7815I-2000<sup>1</sup>

MCS-7815I-2.0-EVV1; MCS-7815I-2.0-ECS1 Cisco Media Convergence Server 7815I-2000

### Cisco Media Convergence Server 7825H-2266

MCS-7825H-2.2-EVV1; MCS-7825H-2.2-ECS1 Cisco Media Convergence Server 7825H-2266

### Cisco Media Convergence Server 7835H-2400

MCS-7835H-2.4-EVV1; MCS-7835H-2.4-ECS1 Cisco Media Convergence Server 7835H-2400

### Cisco Media Convergence Server 7835I-2400

MCS-7835I-2.4-EVV1; MCS-7835I-2.4-ECS1 Cisco Media Convergence Server 7835I-2400

### Cisco Media Convergence Server 7845H-2400

MCS-7845H-2.4-EVV1; MCS-7845H-2.4-ECS1 Cisco Media Convergence Server 7845H-2400

MCS-7845H-2.4-ECS2

### Cisco Media Convergence Server 7845I-2400

MCS-7845I-2.4-ECS1; MCS-7845I-2.4-ECS2 Cisco Media Convergence Server 7845I-2400

### Cisco Media Convergence Server 7855I-1500

MCS-7855I-1.5-ECS1; MCS-7855I-1.5-ECS2 Cisco Media Convergence Server 7855I-1500

### Cisco Media Convergence Server 7865I-1500

MCS-7865I-1.5-ECS1; MCS-7865I-1.5-ECS2 Cisco Media Convergence Server 7865I-1500

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Cisco Media Convergence Server Web site: <http://www.cisco.com/go/mcs>

## Cisco Voice Gateways

Voice Gateways interface directly to PBXs or public telephone networks to carry voice traffic across IP networks—by converting IP calls to standard telephony calls and vice versa. They provide connectivity between packet telephony and legacy telephony such as PSTN, PBX, fax machines, and other devices.

Cisco's full line of multiservice routers can also add analog and digital voice gateway functionality through the use of network modules and voice interface cards<sup>1</sup>, such as the Catalyst 6000 Family FXS Analog Interface Module.

Cisco offers the Cisco VG248 dedicated voice gateway.

### Cisco VG248 Voice Gateway

The Cisco VG248 Voice Gateway is a 1 unit high rack mountable device allowing 48 analog devices (phones, fax machines & modems) to be used with Cisco Call Manager. It enables organizations with large numbers of analog phones (hotels, universities, hospitals, etc.) to deploy IP Telephony while maintaining the investment in legacy handsets. The analog lines are full featured (caller id, message waiting lights, feature codes) and the price per port is competitive with a legacy PBX.

The VG248 supports the legacy voicemail Simple Message Desk Interface (SMDI) mail interface that allows the connection of a Cisco Call Manager network to a legacy voicemail system. It also will allow the sharing of existing SMDI based voicemail systems between the Cisco Call Manager and the legacy PBX.

## Selected Part Numbers and Ordering Information

### Cisco VG 248 Voice Gateway

VG248 48 Port Voice over IP analog phone gateway

1. Please see the 1700, 2600, 3600, 7200, 5x00 series in Chapter 1—Routers, Chapter 7—Access Products.

## For More Information

See the Cisco Voice Gateways Web site: <http://www.cisco.com/go/voicegate>

## Cisco IP/VC 3500 Series Videoconferencing Products

The IP/VC 3500 series is for enterprises and service providers who want a reliable, easy-to-manage, cost-effective network infrastructure for videoconferencing over their IP networks. They consist of the IP/VC 3511 Multipoint Control Unit (MCU), also known as a “video bridge”), the IP/VC 3521 and 3526 H.320 to H.323 Gateways and the IP/VC 3540-Series Videoconferencing System. The Cisco IP/VC product family works with H.323-standards-based videoconference client devices from a variety of vendors and integrates with legacy H.320 networks.

- The Cisco IP/VC 3511 Multipoint Control Unit (MCU) is a 1RU stack/rack-mount system enabling adhoc videoconferences between three or more endpoints. Multiple participants in multiple locations attend the same meeting with real-time interactivity. It is suitable for small to medium enterprises and remote branch offices in larger enterprises
- The IP/VC 3521 and the IP/VC 3526 Videoconferencing Gateways are also 1RU stack/rack-mount systems that translate between H.320 and H.323 protocols. The IP/VC 3521 provides up to four BRI interfaces and the IP/VC 3526 provides one ISDN T1/E1 PRI interface
- The IP/VC 3540 Videoconferencing System integrates multipoint control units, and gateways I onto a single platform for cost-effective deployment of IP-centric videoconferencing networks. In addition, the IP/VC 3540 platform offers T.120 data conferencing through an optional collaboration server. Customers can add the Rate Matching module which enhances the video composition of any multipoint conference. Enhanced features such as Rate Matching, a number of robust Continuous Presence formats and audio transcoding are available
- The Multimedia Conference Manager (MCM) software is part of Cisco IOS Software and available across a wide range of Cisco router platforms, including the Cisco 2600/2600XM, 3600, 3700, and 7200 series. As a gatekeeper/proxy, it enables network managers to control and secure bandwidth and priority settings for H.323 videoconferencing services

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco IP/VC 3500 Series Videoconferencing Products

IPVC-3511-MCU	IP/VC 3511 H.323 Videoconference Multipoint Control Unit
IPVC-3521-GW-4B	IP/VC 3521 H.320-H323 Videoconferencing Gateway with 4 BRI ports
IPVC-3526-GW-1P	IP/VC 3526 H.320-H.323 Videoconferencing. Gateway-1 PRI
IPVC-3540-MC03A	IP/VC 3540 MCU Module - 30 Sessions - (also available in 60 and 100 session capacities)
IPVC-3540-XAM03	IP/VC 3540 Audio Transcoder for 30 session MCU (also available for 60 session MCU)
IPVC-3540-RM	IP/VC 3540 Rate Matching Module (allows different rates in the same conference)
IPVC-3540-GW2P	IP/VC 3540 H.320 to H.323 Gateway Module
IPVC-3540-XAG	IP/VC 3540 Gateway Audio Transcoder
IPVC-3540-AS	IP/VC 3540 Application Server (CPU required for T.120 Data Conferencing Server)
IPVC-3540-DS03	IP/VC 3540 T.120 Data Conferencing Server software (also available in 60 sessions)
MCM Images	IPH323 (Routers: 2600, 3600, 3700)
IOS 12.2(11)T	Enterprise Plus/ H323 MCM (Routers: 2600, 3600, 3700)
	Enterprise MCM (Routers: 7200)

1. This is only a small subset of all parts available. Some parts have restricted access or are not available through distribution channels.

## For More Information

See the IP/VC 3500 series Web site: <http://www.cisco.com/go/ipvc>

## Cisco IP/TV 3.4

Cisco IP/TV® 3.4 delivers a complete, highly scalable, bandwidth-efficient solution for high-quality video communications over enterprise networks. Cisco IP/TV supports live video, scheduled video, video on demand (VOD), synchronized presentations and screen captures, and a wide range of video management functions. The solution enables a broad spectrum of applications for enterprise communications including training, corporate communications, business TV, and distance learning.

Cisco IP/TV 3.4 are purchased as Cisco IP/TV 3400 Series Server appliances or software for third party servers. The Cisco IP/TV 3400 Series servers contain pre-configured software, preinstalled capture cards, network interface cards, and device drivers. The Cisco IP/TV 3400 Series includes the IP/TV 3412 Control Server, the IP/TV 3425 and 3425A Broadcast Servers, the IP/TV 3432 Archive Server, and the IP/TV 3417 Video Starter System. This product family offers a range of choices to best suit large-scale enterprise applications, performance requirements, and bandwidth availability.

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco IP/TV 3400 Series Video Servers

IPTV-3412-CTRL	Cisco IP/TV 3412 Control Server
IPTV-3425-BCAST-M	Cisco IP/TV 3425 MPEG-1, MPEG-2 Full D1 Broadcast Server
IPTV-3425A-BCAST-M	Cisco IP/TV 3425 MPEG-1 Broadcast Server
IPTV-3432-ARCH	Cisco IP/TV 3432 Archive Server
IPTV-3417-START-M	Starter Kit

#### Cisco IP/TV Software

IPTV-CM-3.4	IP/TV Content Manager
IPTV-SERV-3.4	Broadcast/Archive Server
IPTV-SERV-MP4-3.4	Server w/ MPEG-4 card & license
IPTV-START-HD1-3.4	Starter Kit

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the IP/TV 3400 series Web site: <http://www.cisco.com/go/iptv>







# VPN and Security Products

## VPN and Security Products at a Glance

Product	Features	Page
<b>Cisco PIX Security Appliance</b>	<p>Market-leading, purpose-built appliances which provide broad range of integrated security services</p> <ul style="list-style-type: none"> <li>• Robust stateful inspection firewalling with application awareness</li> <li>• High-performance and scalable remote access and site-to-site VPN</li> <li>• Intrusion protection with for real-time response to network attacks</li> <li>• Enhanced routing and network integration</li> <li>• Extensive support for multimedia and VoIP applications</li> <li>• Award-winning firewall stateful failover for enterprise-class resiliency</li> </ul>	5-2
<b>Firewall Blade for Catalyst 6500</b>	<p>Firewall Module is a high performance integrated stateful firewall solution for Catalyst 6500 family 2-22 of switches with performance exceeding 5GB. It is based on proven PIX technology while providing the following benefits to the customers</p> <ul style="list-style-type: none"> <li>• Investment protection</li> <li>• Low cost of ownership</li> <li>• Ease of use</li> <li>• Operational Consistency</li> <li>• Scalability</li> </ul> <p>See the Catalyst 6500 Series Switch in Chapter 2: LAN Switching, page 2-22, for more information</p>	
<b>Cisco VPN 3000 Family</b>	<p>Remote access Virtual Private Network platform</p> <ul style="list-style-type: none"> <li>• Has models for all size companies, from small to large enterprise organizations</li> <li>• Reduces communications expenditures</li> <li>• Enables users to easily add capacity and throughput</li> </ul>	5-5
<b>Cisco IDS Network Sensor</b>	<p>Network-based, real-time intrusion detection system capable of monitoring an entire enterprise network:</p> <ul style="list-style-type: none"> <li>• Capable of directing and forwarding alarms between local, regional, and headquarters-based monitoring consoles</li> <li>• Scalable architecture to allow the deployment of large numbers of sensors in order to provide comprehensive security coverage in large networks</li> <li>• Tight integration into the network through the delivery of the IDS Network Module for the Cisco Access Routers and the IDSM2 for the Catalyst 6500 switches</li> <li>• CTR (Cisco Threat Response) delivers adaptive scan techniques to minimize false alarms</li> <li>• Broad range of management options</li> </ul>	5-8
<b>Cisco Security Agent</b>	<p>The Cisco Security Agent provides threat protection for desktop and server computing systems by identifying and preventing malicious activity. By acting on threats or attacks before they can occur, Cisco Security Agent removes known and unknown security risks to enterprise networks and applications:</p> <ul style="list-style-type: none"> <li>• The Cisco Security Agent aggregates and extends multiple endpoint security functions by providing host intrusion prevention, distributed firewall, malicious mobile code protection, operating system integrity assurance, and audit log consolidation all within a single agent package</li> <li>• Protects against know and unknown attacks on both servers and desktops</li> </ul>	5-10
<b>Cisco Secure Access Control Server (ACS) for Windows and Cisco Secure Access Control Solution Engine</b>	<p>A centralized identity networking solution that simplifies user-management experience across all Cisco devices and security-management applications. An essential component of the Cisco Identity Based Networking Services (IBNS) architecture, it extends access security by combining authentication, user and administrator access, and policy control from a centralized identity networking framework. This allows greater flexibility and mobility, increased security, and user productivity gains. It helps ensure enforcement of assigned policies by allowing network administrators to control: Who can log in to the network, Privileges each user has in the network, and Security audit or account billing information that is recorded</p>	5-12

Product	Features	Page
<b>Cisco Secure User Registration Tool (URT)</b>	<p>Identifies users within the network and creates user registration policy bindings that help support 5-14 mobility and tracking:</p> <ul style="list-style-type: none"> <li>• Ensures that users are associated with their authorized subnet/VLAN</li> <li>• Addresses the challenges associated with campus user mobility</li> <li>• Supports Web-based authentication for Windows, Macintosh, and Linux client platforms</li> <li>• Secure user access to the VLAN with MAC address-based security option</li> <li>• Option to allow multiple users connected to a hub to access a VLAN served by a single switch port</li> </ul>	
<b>CiscoWorks VPN/Security Management Solution</b>	<p>Combines general device management tools for configuring, monitoring, and troubleshooting enterprise networks with powerful security solutions for managing virtual private networks (VPNs), firewalls, and network and host-based intrusion detection systems (IDS). An integral part of the Cisco SAFE Blueprint for Enterprise, this bundle also delivers network device inventory, change audit and software distribution features. CiscoWorks VMS is organized into several functional areas: Firewall Management, IDS Management, network and host-based, VPN Router Management, Security Monitoring, VPN Monitoring, and Operational Management</p> <p>See Chapter 9-1—IOS Software &amp; Network Management for more information on CiscoWorks VPN/Security Management Solution</p>	9-16
<b>CiscoWorks Security Information Management Solution and CiscoWorks Security Information Management Solution Engine</b>	<p>A solution that collects, analyzes, and correlates security event data from across the enterprise- letting you detect and respond to security events as they occur.</p> <ul style="list-style-type: none"> <li>• Event monitoring of multivendor security environments</li> <li>• Extensive reporting for operators and high-level administrators</li> <li>• Risk assessment information to understand overall vulnerability of critical network assets within the enterprise: Forensics tools to investigate attacks</li> <li>• Traffic utilization reports and graphs to understand changes in traffic patterns</li> </ul> <p>See Chapter 9-1—IOS Software &amp; Network Management for more information on CiscoWorks Security Information Management Solution</p>	9-18
<b>Cisco IOS Firewall</b>	<ul style="list-style-type: none"> <li>• Tightly integrated with IOS VPN and advanced routing technologies</li> <li>• Application aware stateful packet inspection via context-based access control (CBAC) for TCP, UDP, SIP, Skinny, H.323 and others</li> <li>• Supports user authentication for https, ftp and telnet connections</li> <li>• URL filtering through router exclusive domains or use of external Websense and N2H2 servers</li> <li>• Inline intrusion prevention for real-time response to network attacks supporting 100 common attack signatures</li> <li>• Dynamic, network-to network, per-user authentication and authorization via TACACS+ and RADIUS</li> </ul>	5-15
<b>Cisco VPN Security Router Bundles</b>	<p>Cisco 1700, 2600, 3600, 3700, and 7200 VPN Security Router Bundles with Enhanced Integrated Network Security. See individual product pages for more detail (page 1-1)</p>	1-1
<b>Cisco 1700, 2600, 3600, and 7200</b>	<p>Wide variety of modular router platforms with options for IOS-based and hardware-enabled VPN 1-1 and security support. See individual product pages and Cisco IOS Firewall Feature Set (page 5-15).</p>	
<b>Cisco 7100 Series</b>	<p>Large branch and central site VPN router</p> <ul style="list-style-type: none"> <li>• Comprehensive suite of VPN services, including encryption, tunneling, firewall, and bandwidth management</li> <li>• Embedded I/O for ease of deployment</li> <li>• Service module slot for IPSec and PPTP encryption coprocessing</li> <li>• Dedicated Site-to-Site VPN router</li> </ul>	5-16

## Cisco PIX Security Appliance Series

The world-leading Cisco PIX® Security Appliance Series provides enterprise-class, integrated network security services including stateful inspection firewalling, protocol and application inspection, virtual private networking (VPN), in-line intrusion protection, rich multimedia and voice security in cost-effective, easy-to-deploy solutions. Ranging from compact, “plug-and-play” desktop firewalls for small offices to carrier-class gigabit firewalls for the most demanding enterprise and service-provider environments, Cisco PIX Security Appliances provide robust security, performance, and reliability for network environments of all sizes.



## When to Sell

### Sell This Product

#### PIX 501

### When a Customer Needs These Features

- Small Office / Home Office desktop integrated security appliance
- Up to 60 Mbps of firewall throughput
- Up to 3 Mbps of 3DES and 3.4 Mbps of AES-256 IPsec VPN throughput<sup>1</sup>
- Hardware VPN client (Easy VPN Remote)
- VPN concentrator services (Easy VPN Server) for up to 10 remote users

#### PIX 506E

- Remote Office / Branch Office desktop integrated security appliance
- Up to 100 Mbps of firewall throughput
- Up to 16 Mbps of 3DES and 30 Mbps of AES-256 IPsec VPN throughput<sup>1</sup>
- Hardware VPN client (Easy VPN Remote)
- VPN concentrator services (Easy VPN Server) for up to 25 remote users
- Maximum of two 10BASE-T Ethernet interfaces
- OSPF dynamic routing support

#### PIX 515E

- Small-to-Medium Business (SMB) integrated security appliance
- Up to 188 Mbps of firewall throughput<sup>1</sup>
- Up to 130 Mbps of 3DES/AES-256 VPN throughput<sup>1</sup> using hardware acceleration (integrated in select models, optional for others)
- VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
- Up to six 10/100 FE interfaces
- VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
- Active/standby firewall stateful failover support

#### PIX 525

- Enterprise-class integrated security appliance
- Up to 330 Mbps of firewall throughput<sup>1</sup>
- Up to 145 Mbps of 3DES and 135 Mbps of AES-256 VPN throughput<sup>1</sup> using hardware acceleration (integrated in select models, optional for others)
- VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
- Gigabit Ethernet support; Up to eight 10/100 FE or three Gigabit Ethernet interfaces
- VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
- Active/standby firewall stateful failover support

#### PIX 535

- Carrier class large enterprise and service provider firewall appliance
- Up to 1.7 Gbps of firewall throughput<sup>1</sup>
- Up to 425 Mbps of 3DES/AES-256 VPN throughput using hardware acceleration (integrated in select models, optional for others)
- VPN concentrator services (Easy VPN Server) for up to 2,000 remote users
- Gigabit Ethernet throughput; Up to ten 10/100 FE or nine Gigabit Ethernet interfaces
- VLAN trunking (802.1q tag-based) and OSPF dynamic routing support
- Redundant, hot-swappable power supplies
- Active/standby firewall stateful failover support

1. At 1400-byte packets

## Key Features

- **Security**—Purpose-built appliance with a proprietary, hardened operating system
- **Performance**—Stateful inspection firewall capable of up to 500,000 concurrent connections and 1.7 Gbps of throughput (at 1400-byte packets on Cisco PIX 535 Security Appliances)
- **High availability**—Award-winning, active/standby firewall stateful failover provides enterprise-class, cost-effective resiliency
- **Virtual Private Networking (VPN)**—Supports both standards-based IPsec and L2TP/PPTP-based VPN services
- **Optional PIX VPN Accelerator Card+**—Scales 3DES/AES-256 VPN throughput up to 495 Mbps, using specialized co-processors designed for accelerating cryptographic operations
- **Free software Cisco VPN Client** provides secure connectivity across a broad range of platforms including Windows, Mac OS X, Linux and Solaris
- **Network Address Translation (NAT) and Port Address Translation (PAT)**—Conceals internal IP addresses and expands network address space
- **Denial-of-Service (DoS) Attack Protection**—Protects the firewall, internal servers and clients from disruptive hacking attempts
- **OSPF dynamic routing support** for improved network reliability and performance

- VLAN trunking (802.1q tag) support for simplified deployment in switched network environments
- Multimedia and VoIP support for widely popular standards, H.232 v4, TAPI, JTAPI, RTSP, SIP, MGCP and SCCP
- Web-Based PIX Device Manager (PDM)—For simplified configuration, real-time and historical reports, performance baselines and security events information
- Auto Update, SSH, SNMP, TFTP, HTTPS, and telnet for remote management
- Support from two 10/100 Ethernet interfaces to up to nine Gigabit Ethernet interfaces

## Competitive Products

- Check Point Software: FireWall-1 / VPN-1
- NetScreen: NetScreen Security Appliances
- Nokia: IP-Series Security Appliances
- SonicWALL: SonicWALL Security Appliances
- WatchGuard Technologies: Firebox-series and V-series Security Appliances

## Specifications

Feature	PIX 501	PIX 506E	PIX 515E	PIX 525	PIX 535
<b>Processor</b>	133 MHz	300 MHz	433 MHz	600 MHz	1.0 GHz
<b>RAM</b>	16 MB	32 MB	32 or 64 MB	128 or 256 MB	512 MB or 1 GB
<b>Flash Memory</b>	8 MB	8 MB	16 MB	16 MB	16 MB
<b>PCI Slots</b>	None	None	2	3	9
<b>Fixed Interfaces (Physical)</b>	Four port 10/100 switch (inside), One 10Base-T Ethernet (outside)	Two 10Base-T Ethernet	Two 10/100 Fast Ethernet	Two 10/100 Fast Ethernet	None
<b>Maximum Interfaces (Physical and Virtual)</b>	Four port 10/100 switch (inside), One 10Base-T Ethernet (outside)	Two 10Base-T Ethernet	Six 10/100 Fast Ethernet (FE) or 8 VLANs	Eight 10/100 FE or GE or 10 VLANs	Ten-10/100 FE or GE or 24 VLANs
<b>VPN Accelerator Card+ (VAC+) Option</b>	No	No	Yes, integrated in select models	Yes, integrated in select models	Yes, integrated in select models
<b>Failover Support</b>	No	No	Yes, UR/FO models only	Yes, UR/FO models only	Yes, UR/FO models only
<b>Size</b>	Desktop	Desktop	1 RU	2 RU	3 RU

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco PIX Bundles

PIX-535-UR-BUN	PIX 535 Unrestricted Bundle (Chassis, unrestricted software, two 10/100 ports, VPN Accelerator Card+)
PIX-535-R-BUN	PIX 535 Restricted Bundle (Chassis, restricted software, two 10/100 ports)
PIX-535-FO-BUN	PIX 535 Failover Bundle (Chassis, failover software, two 10/100 ports, VPN Accelerator Card+)
PIX-525-UR-GE-BUN	PIX 525 Unrestricted GE Bundle (Chassis, unrestricted software, two GE ports, two 10/100 ports, VPN Acceleration Card+)
PIX-525-FO-GE-BUN	PIX 525 Failover GE Bundle (Chassis, failover software, two GE ports, two 10/100 ports, VPN Acceleration Card+)
PIX-525-UR-BUN	PIX 525 Unrestricted Bundle (Chassis, unrestricted software, two 10/100 ports, VPN Accelerator Card+)
PIX-525-R-BUN	PIX 525 Restricted Bundle (Chassis, restricted software, two 10/100 ports)
PIX-525-FO-BUN	PIX 525 Failover Bundle (Chassis, failover software, two 10/100 ports, VPN Accelerator Card+)
PIX-515E-UR-FE-BUN	PIX 515E Unrestricted Bundle (Chassis, unrestricted software, six 10/100 ports, VPN Accelerator Card+)
PIX-515E-FO-FE-BUN	PIX 515E Failover Bundle (Chassis, failover software, six 10/100 ports, VPN Accelerator Card+)
PIX-515E-UR-BUN	PIX 515E Unrestricted Bundle (Chassis, unrestricted software, two 10/100 ports, VPN Accelerator Card+)
PIX-515E-R-BUN	PIX 515E Restricted Bundle (Chassis, restricted software, two 10/100 ports)
PIX-515E-FO-BUN	PIX 515E Failover Bundle (Chassis, failover software, two 10/100 ports, VPN Accelerator Card+)
PIX-515E-R-DMZ-BUN	PIX 515E DMZ Bundle (Chassis, restricted software, three 10/100 ports)
PIX-506E-BUN-K9	PIX 506E 3DES/AES Bundle (Chassis, software, 3DES/AES license, two 10-BaseT ports)2
PIX-501-BUN-K9	PIX 501 10 User/3DES/AES Bundle (Chassis, SW, 10 user/3DES/AES license, 4 port 10/100 switch)
PIX-501-50-BUN-K9	PIX 501 50 User/3DES/AES Bundle (Chassis, SW, 50 user/3DES/AES license, 4 port 10/100 switch)
PIX-501-UL-BUN-K9	PIX 501 Unlimited User/3DES/AES Bundle (Chassis, SW, Unlimited Users 3DES/AES license, 4 port 10/100 switch)

### Cisco PIX Interfaces and Cards

PIX-1GE-66	PIX 66-MHz Single-port Gigabit Ethernet interface card (multimode fiber, SC connector)
PIX-4FE-66	PIX 66-MHz Four-port 10/100 Fast Ethernet interface card, RJ45
PIX-1FE	PIX Single-port 10/100 Fast Ethernet interface card
PIX-VPN-ACCEL	PIX DES/3DES VPN Accelerator Card (VAC)
PIX-VPN-PLUS	PIX DES/3DES/AES VPN Accelerator Card+ (VAC+)

**PIX Accessories**

PIX-506E-PWR-AC

Redundant AC power supply for PIX 506E

PIX-515-PWR-DC

Redundant DC power supply for PIX 515/515E

1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

**For More Information**

See the PIX Security Appliance Web site: <http://www.cisco.com/go/pix>

**Cisco VPN 3000 Family**

The Cisco VPN 3000 Concentrator Series—

A family of purpose-built, remote access Virtual Private Network (VPN) platforms that incorporates



high availability, high performance and scalability with the most advanced encryption and authentication techniques available today. Customers can greatly reduce costs by leveraging their ISPs’ infrastructure and eliminate costly leased lines. This series supports small offices as well as large organizations with up to 10,000 simultaneous remote users per unit. With load balancing configured, multiple units can be clustered to enable unlimited remote access users. It also supports the widest range of VPN clients including Certicom MovianVPN client, Microsoft 2000 L2TP/IPsec Client, and Microsoft PPTP for Windows 95/98/ME/NT/2000/XP.

The Cisco VPN 3002 Hardware Client—Combines the best capabilities of a software client with the reliability and stability of a dedicated hardware platform, and scales to tens of thousands of users. It sets up connections to a variety of Cisco VPN concentrators, including the VPN 3000 series and PIX firewalls.

**When to Sell****Sell This****Product****When a Customer Needs These Features****VPN 3005 and 3015 Concentrators**

- A fixed configuration device designed for small- to medium-sized organizations with bandwidth requirements up to full-duplex T1/E1 (4 Mbps maximum performance) and up to 100 simultaneous remote access sessions
- Encryption processing is performed in software
- VPN 3015 is field-upgradable to the Cisco VPN 3030 and 3060 models and for redundancy

**VPN 3030 and 3060 Concentrators**

- VPN 3030 is for medium- to large-sized organizations with bandwidth requirements from full T1/E1 through T3/E3 (50 Mbps max. performance) and up to 1500 simultaneous sessions; field-upgradeable to the Cisco VPN 3060
- VPN 3060 is for large organizations, with high-performance, high-bandwidth requirements from fractional T3 through full T3/E3 or greater (100 Mbps max. performance) and up to 5000 simultaneous remote access sessions
- Both have specialized SEP modules to perform hardware-based acceleration

**VPN 3080 Concentrator**

- Optimized to support large enterprise organizations that demand the highest level of performance combined with support for up to 10,000 simultaneous remote access sessions
- Specialized SEP modules perform hardware-based acceleration

**VPN 3000 Client**

- Establishes secure, end-to-end encrypted tunnels to the Cisco VPN 3000 Concentrator and other Cisco Easy VPN compliant devices.

**VPN 3002****Hardware Client**

- Provided at no charge, installs on PCs and is available for Windows, MAC OS X and Linux/Solaris environments
- Emulates the software client in hardware
- Ideal for mixed operating system environments and where corporation does not own/control remote PC or for very large applications requiring large number of devices due to ease of deployment, upgradability & scalability

## Key Features

- Cisco VPN 3000 Concentrators Series
  - Support for industry standard IPsec DES/3DES/AES and Cisco IPsec/NAT for VPN Access through Port Address Translation firewalls
  - Unlimited-use license for Cisco VPN Client distribution included at no cost with multiple OS support including Windows, MAC OS X, Linux and Solaris; also integrates with Zone Alarms personal firewall
  - Supports standard authentication: RADIUS, SDI Tokens, and Digital Certificates
  - VPN load balancing allows for multiple units to cluster as a single shared pool
- Cisco VPN 3002 Hardware Client supports up to 253 users/stations per VPN 3002
  - Works with most operating systems including Windows, Linux, Solaris, and MAC OS X
  - Auto-upgrade capability automates upgrades with no user intervention required
  - Client technology employs push policy and automatic address assignment from the central site concentrator, enabling virtually unlimited scalability

## Competitive Products

- Nortel: Contivity products
- Netscreen: LAN to LAN environments
- Nokia

## Specifications

### Cisco VPN 3000 Series Concentrators

Feature	VPN 3005	VPN 3015	VPN 3030	VPN 3060	VPN 3080
Simultaneous Users	100	100	1500	5000	10,000
Encryption Throughput	4 Mbps	4 Mbps	50 Mbps	100 Mbps	100 Mbps
Encryption Method	Software	Software	Hardware	Hardware	Hardware
Encryption (SEP) Module	0	0	1	2	4
Redundant SEP	No	No	Optional	Optional	Yes
Expansion Slots	0	4	3	2	N/A
Upgradeable	No	Yes	Yes	N/A	N/A
Memory	32 MB	128 MB	128 MB	256 MB	256 MB
Hardware Configuration	1U, Fixed	2U, Scalable	2U, Scalable	2U, Scalable	2U
Power Supply	Single	Single, with a dual option	Single, with a dual option	Single, with a dual option	Dual
Client License	Unlimited	Unlimited	Unlimited	Unlimited	Unlimited
LAN-to-LAN Connections (internal user database)	100	100	500	1000	1000
Dimensions (HxWXD)	1.75 x 17.5 x 11.5 in.	3.5 x 17.5 x 14.5 in.	3.5 x 17.5 x 14.5 in.	3.5 x 17.5 x 14.5 in.	3.5 x 17.5 x 14.5 in.

### Cisco VPN 3002 Hardware Client

Feature	VPN 3002 Hardware Client
Hardware Processor	Motorola PowerPC processor; Dual flash image architecture
Network Interfaces	CPVN3002-K9: One Public 10/100Mbps RJ-45 Ethernet Interface and One Private Port 10/100Mbps RJ-45 Ethernet Interface CVPN3002-8E-K9: One Public 10/100Mbps RJ-45 Ethernet Interface and Eight Private Port 10/100Mbps RJ-45 Ethernet Interfaces via AUTO-MDIX switch
Physical Dimensions	1.967 x 8.6 x 6.5 in. (5 x 8.6 x 16.51 cm)
Power Supply	External AC Operation: 100-240V at 50/60 Hz with universal power factor correction; 4 foot cord included and international "pigtail" power cord selection
Tunneling Protocol Support	IPsec with IKE key management
Monitoring & Configuration	Event logging; SNMP MIB-II support Embedded management interface is accessible via console port or local web browser; SSH/SSL
Encryption Algorithms, Key Management & Authentication Algorithms	56-bit DES (IPsec); 168-bit Triple DES (IPsec); AES 128 & 256-bit (IPsec)

Feature	VPN 3002 Hardware Client
<b>Authentication and Accounting Servers</b>	Support for redundant external authentication servers including RADIUS Microsoft NT Domain authentication, X.509v3 Digital Certs (PKC7-PKCS10)
<b>Configuration Modes</b>	Client Mode—acts as client, receives random IP address from Concentrator Pool; Uses NAPT to hide stations 3002; Network behind 3002 is unroutable; few configuration parameters Network Extension Mode—acts as site-to-site device; Uses NAPT to hide stations only to Internet (stations visible to central site); Network behind 3002 is routable; additional configuration parameters

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco VPN 3000 Concentrator

CVPN3005-E/FE-BUN	CVPN3005-E/FE hw set, sw, client, & US power cord
CVPN3015-NR-BUN	CVPN3015-NR non-redundant hw set, sw, client, & US power cord
CVPN3030-NR-BUN	CVPN3030-NR non-redundant hw set, sw, client, & US power cord
CVPN3030-RED-BUN	CVPN3030-RED redundant hw set, sw, client, & US power cord
CVPN3060-NR-BUN	CVPN3060-NR non-redundant hw set, sw, client, & US power cord
CVPN3060-RED-BUN	CVPN3060-RED redundant hw set, sw, client, & US power cord
CVPN3080-RED-BUN	CVPN3080-RED redundant hw set, sw, client, & US power cord

### Cisco VPN 3000 Series Upgrades

CVPN1530-UPG-RED	Cisco VPN 3015 To 3030 (Redundant) Upgrade Kit
CVPN1560-UPG-NR	Cisco VPN 3015 To 3060 (Non-Redundant) Upgrade Kit
CVPN1560-UPG-RED	Cisco VPN 3015 To 3060 (Redundant) Upgrade Kit
CVPN1580-UPG-RED	Cisco VPN 3015 To 3080 (Redundant) Upgrade Kit
CVPN3030-UPG-RED	Cisco VPN 3030 To 3080 (Redundant) Upgrade Kit
CVPN3060-UPG-NR	Cisco VPN 3030 To 3060 (Non-Redundant) Upgrade Kit
CVPN3080-UPG-R/R	Cisco VPN 3030 (Redundant) to 3080 (Redundant) Upgrade Kit
CVPN3080-UPG-RED	Cisco VPN 3030 To 3080 (Redundant) Upgrade Kit
CVPN3060-UPG-RED	Cisco VPN 3030 To 3060 (Redundant) Upgrade Kit
CVPN6060-UPG-RED	Cisco VPN 3060 To 3060 (Redundant) Upgrade Kit
CVPN6080-UPG-RED	Cisco VPN 3060 To 3080 (Redundant) Upgrade Kit
CVPN3060-UPG-R/R	Cisco VPN 3030 (Redundant) to 3060 (Redundant) Upgrade Kit
CVPN6080-UPG-R/R	Cisco VPN 3060 (Redundant) to 3080 (Redundant) Upgrade Kit

### Cisco VPN 3000 Series Accessories

CVPN3000-PWR=	Cisco VPN 3000 Concentrator Power Supply
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### Cisco VPN 3000 Series Basic Maintenance

CON-SNT-PKG4	SMARTnet Maintenance for Cisco CVPN3005-E/FE-BUN
CON-SNT-PKG8	SMARTnet Maintenance for Cisco CVPN3015-NR-BUN
CON-SNT-PKG11	SMARTnet Maintenance for Cisco CVPN3030-NR-BUN
CON-SNT-PKG13	SMARTnet Maintenance for Cisco CVPN3030-RED-BUN
CON-SNT-PKG14	SMARTnet Maintenance for Cisco CVPN3060-RED-BUN

### Cisco VPN Client

CVPN-CLIENT-K9=	Cisco VPN Client CD (included with Concentrator purchase)
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## For More Information

See the Cisco VPN 3000 series Web site: <http://www.cisco.com/go/vpn3000>



## Cisco VPN Security Router Bundles with Enhanced Integrated Network Security

The Cisco VPN Security Router Bundles are based on the Cisco 1700, 2600XM, 2691, 3600, 3700, and 7200 modular multiservice router platforms. A benefit to purchasing the bundles is a single part number when ordering a Cisco router with all the necessary VPN and Security components at a reduced price compared to ordering each component separately. Each VPN bundle can have optional modules added as needed. All bundles include the selected router platform, a VPN hardware card, additional memory, and the Cisco IOS® to run IPSec 3DES or AES encryption and IOS Firewall with IDS (Intrusion Detection System). In addition the 2600XM and 3700 Series now have Advanced Security Network Modules available for ULR Filtering and hardware-based IDS. Cisco 1700, 2600XM, 2691, 3600, and 3700 Series based Security bundles come pre-installed with Security Device Manager (SDM) for fast and easy deployment based on Cisco TAC and ICSA Labs recommended router security configurations.

### When to Sell

#### Sell This Product When a Customer Needs These Features

- Cisco VPN Security Router Bundles**
- Deploying VPN or routers and want to have future option for VPN
  - Planning to use the Internet for remote business communications (remote access VPN)
  - When migrating from leased lines to VPN
  - Reduction of network equipment to manage
  - Needs to integrate Voice and VPN Services (V3PN)

### Specifications

Feature	Cisco VPN Security Router Bundles
All Bundles Include	Firewall with IDS; GRE and IPSec; High Availability/Failover; VPN OoS; AES in Hardware (excluding C1700 Bundles)
IPPCP Compression	Software: C1700 Bundles Hardware: C2600XM, C2691-VPN, C3725-VPN, C3745-VPN, 7200 Bundles
Max Tunnel	C1700: 100; C2600XM, C2691-VPN: 800; C3725-VPN, C3745-VPN: 2000; 7200 Bundles: 5000

### For More Information

See individual product pages for more detail (page 1-1).

## Cisco Intrusion Detection System (IDS) Network Sensors



Cisco integrated network security solutions enable organizations to protect productivity gains and reduce operating costs. The Cisco Intrusion Protection is designed to efficiently protect your data and information infrastructure. Cisco delivers four critical elements for efficient intrusion protection system which are:

- Accurate threat detection—Cisco Intrusion Detection System Version 4.0 (Cisco IDS 4.0) delivers the first step in providing a secure environment by comprehensively detecting all potential threats
- Intelligent threat investigation—Cisco Threat Response technology virtually eliminates false alarms, and automatically determines which threats need immediate attention to avoid costly intrusions.
- Ease of management—Browser-based tools simplify the user interaction, while providing powerful analytical tools that allow for a rapid and efficient response to threats.

- Flexible deployment options—A range of high-availability devices provide the flexible backbone for creating the secure and efficient intrusion protection system. The current Cisco IDS sensing portfolio includes the following sensor appliances: IDS 4215, IDS 4235, IDS 4250, and IDS 4250-XL. Additionally, Cisco IDS delivers solutions that are integrated into the Catalyst 6500 switch with the Intrusion Detection System Module (IDSM-2) and into the Cisco Access Routers with the IDS Network Module (NM-CIDS).

## When to Sell

### Sell This Product

#### Cisco IDS Network Sensors

### When a Customer Needs These Features

- A distributed intrusion detection system capable of directing and forwarding alarms between local, regional, and headquarters-based monitoring consoles
- A scalable architecture to allow the deployment of large numbers of sensors in order to provide comprehensive security coverage in large network environments
- Cisco network IDS appliances (Cisco IDS 4200 Series Appliances) that can be deployed throughout the network with the ability to monitor multiple subnets using a single appliance through the support of multiple interfaces
- The Cisco IDS Switch Module (IDSM2) enables customers to perform both security monitoring and switching functions within the same chassis
- The Cisco IDS Network Module enables full features intrusion protection integrated into the Cisco Access Routers
- Broad performance range from 10 Mbps to 1 Gbps
- Automated false alarm reduction capabilities through CTR (Cisco Threat Response)
- Flexible IDS signature customization options
- Broad range of management and monitoring options to fit any environment.
- A robust, 24 hour x 7 day-a-week monitoring and response system with the latest attack detection capabilities

## Key Features

- High-Speed Performance including support for full line rate gigabit environments
- Integrated solutions for the Cisco Catalyst Switch and Cisco Access Routers
- Easy Installation and Setup; Remote Configuration Capability
- Comprehensive Attack Database
- Notification actions; Automated response actions
- Comprehensive IDS Anti-Evasion Techniques
- Cisco IOS-like CLI for full featured IDS management capabilities

## Competitive Products

- Internet Security Systems (ISS): RealSecure
- Symantec: Recourse Manhunt & ManTrap/NetProwler
- Enterasys: Dragon IDS
- Intrusion.com: SecureNet
- Netscreen: OneSecure IDP
- Snort: IDS
- Tipping Point
- NAI: Intrushield
- Network Flight Recorder, Inc.: NFR

## Specifications

Feature	IDS Network					
	IDS-4215	IDS-4235	IDS-4250	IDS-4250-XL	IDS Module (IDSM-2)	Module (NM-CIDS)
Performance Processor	80 Mbps 850 MHz	250 Mbps 1.26 GHz	500 Mbps Dual 1.26 GHz	1000 Mbps Dual 1.26 GHz. Includes customized HW acceleration	600 Mbps Custom Hardware	45Mbps 10-45 Mbps
RAM	512 MB	1 GB	2 GB	2 GB	2 GB	512 MB

<b>Monitoring Interface</b>	Autosensing 10/100 Base-T Ethernet, (upgradable to support up to 5 monitoring interfaces)	Autosensing 10/100/1000 Base-T Ethernet (upgradable to support up to 5 monitoring interfaces)	Autosensing 10/100/1000BASE-TX (upgradable to support up to 5 monitoring interfaces) Optional 1000-Base SX (fiber) supported with the SX model	Dual 1000BASE-SX interface with MTRJ	PCI	Internal 10-/100-Mbps Ethernet and external 10-100-Mbps Ethernet
<b>Command &amp; Control Interface</b>	Autosensing 10/100 Base-T Ethernet	Autosensing 10/100/1000Base-TX	Autosensing 10/100/1000Base-TX	Autosensing 10/100/1000Base-TX	PCI	10/1010/100Base T

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco IDS Network Appliance Sensor

IDS-4215-K9	4215 Cisco IDS 4215 Sensor (chassis, software, SSH, 2 onboard 10/100 Base-T interfaces with RJ-45 connector) 80-Mbps
IDS-4215-4FE-K9	Cisco IDS 4215 Sensor (chassis, software, SSH, 2 onboard 10/100BASE-Tx interfaces with RJ-45 connector plus 4FE interface card), 80-Mbps
IDS-4235-K9	Cisco IDS 4235 Sensor (chassis, software, SSH, 10/100/1000BASE-T with RJ-45 connector, up to 200 Mbps)
IDS-4250-TX-K9	Cisco IDS 4250 Sensor (chassis, software, SSH, 10/100/1000BASE-T with RJ-45 connector)
IDS-4250-SX-K9	Cisco IDS 4250 Sensor (chassis, software, SSH, 1000BASE-SX with SC connector)
IDS-4250-XL-K9	Cisco IDS 4250-XL Sensor (chassis, software, SSH, hardware accelerator with dual 1000BASE-SX and MTRJ connectors)

### Cisco IDS Network Module for Cisco Access Routers

IDS NM-CIDS	Cisco IDS Network Module, 20-GB IDE hard disk
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1. This is only a small subset of all parts available via URL listed under “For More Information”. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).



**Note** **Export Considerations:** The Cisco IDS 4215, Cisco IDS 4235, Cisco IDS 4250, Cisco IDS 4250-XL, Cisco IDSM-2 & Cisco IDS Network Module are subject to export controls. Please refer to the export compliance Web site at <http://www.cisco.com/www/export/crypto> for guidance. For specific export questions, please contact [export@cisco.com](mailto:export@cisco.com).

## For More Information

See the Cisco IDS web site: <http://www.cisco.com/go/ids>

See the Cisco IDS Management solutions web site: <http://www.cisco.com/go/vms>

## Cisco Security Agent

The next-generation Cisco Security Agent network security software provides threat protection for server and desktop computing systems, also known as “endpoints.” The Cisco Security Agent goes beyond conventional host and desktop security solutions by identifying and preventing malicious behavior before it can occur, thereby removing potential known and unknown (“Day Zero”) security risks that threaten enterprise networks and applications. The Cisco Security Agent aggregates and extends multiple endpoint security functions by providing host intrusion prevention, distributed firewall, malicious mobile code protection, operating system integrity assurance, and audit log consolidation all within a single agent package.

The Cisco Security Agent analyzes behavior rather than relying on signature matching, its solution provides robust protection with reduced operational costs. Customers require robust endpoint security that prevents security attacks from affecting the network and critical applications.

As a key component of the SAFE blueprint for secure e-business, the Cisco Security Agent provides unprecedented endpoint protection that enables businesses to participate in e-commerce securely and take advantage of the Internet economy.

## When to Sell

### Sell This Product Cisco Security Agent

### When a Customer Needs These Features

- Host intrusion protection, distributed firewall, malicious mobile code protection, operating system hardening, file integrity and/or audit log consolidation. The Cisco Security Agent provides all of these features in one integrated package
- Protection against both known and unknown attacks
- Protection for servers and/or desktops/laptops
- A solution that is scalable to protect thousands of servers and desktops for large enterprise deployments

## Key Features

- Provides industry-leading protection for Unix and Windows servers
- Open, extensible architecture offers the capability to define and enforce security according to corporate policy

## Competitive Products

- Internet Security Systems (ISS)
- Symantec: Intruder Alert
- Enterasys: Squire
- Sana Security: Primary Response
- NAI: Intercept
- NFR (Centrax)

## Specifications

Feature	Cisco Security Server Agent	Cisco Security Desktop Agent	Cisco Security Agent Manager
<b>Platforms</b>	Windows 2000 Server and Advanced Server (up to Service Pack 3) Windows NT v4.0 Server and Enterprise Server (Service Pack 5 or later) Solaris 8 SPARC architecture (64-bit kernel)	Windows NT v4.0 Workstation (Service Pack 5 or later) Windows 2000 Professional (up to Service Pack 3) Windows XP Professional (up to Service Pack 1)	Microsoft Windows 2000 Server and Advanced Server (up to SP 2)

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Security Agent Options

CSA-SRVR-K9=	Cisco Security Server Agent (Win + Sol), 1 Agent
CSA-B10-SRVR-K9	Cisco Security Server Agent (Win + Sol), 10 Agent Bundle
CSA-B25-SRVR-K9	Cisco Security Server Agent (Win + Sol), 25 Agent Bundle
CSA-B50-SRVR-K9	Cisco Security Server Agent (Win + Sol), 50 Agent Bundle
CSA-B100-SRVR-K9	Cisco Security Server Agent (Win + Sol), 100 Agent Bundle
CSA-B25-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 25 Agent Bundle
CSA-B100-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 100 Agent Bundle
CSA-B250-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 250 Agent Bundle
CSA-B500-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 500 Agent Bundle
CSA-B1000-DTOP-K9	Cisco Security Desktop Agent (Win + Sol), 1000 Agent Bundle
CSA-PROFILER-K9	Cisco Security Agent Profiler



### Note

**Export Considerations:** The Cisco Security Agent is subject to export controls. Please refer to the export compliance Web site at <http://www.cisco.com/www/export/crypto> for guidance. For specific export questions, please contact [export@cisco.com](mailto:export@cisco.com).

## For More Information

See the Cisco Security Agent Web site: <http://www.cisco.com/go/securityagent>

## Cisco Secure Access Control Server (ACS) for Windows and Cisco Secure Access Control Solution Engine

Cisco Secure Access Control Server (ACS) version 3.2 for Windows, a key component of Cisco's Identity Based Networking Services (IBNS) architecture, extends access security by combining authentication, user/admin access and policy control from a centralized identity networking framework allowing for greater flexibility and mobility, increased security, and user productivity gains. Cisco Secure ACS also provides identity networking support for Cisco Structured Wireless Aware Networks (SWAN), as an extension of the local authentication provided on Cisco Aironet Access Points. ACS allows a network administrator to manage and administer user access for Cisco IOS® routers, virtual private networks (VPNs), firewalls, dial and broadband DSL, cable access solutions, storage, content, voice over IP (VoIP), Cisco wireless solutions, and Cisco Catalyst® switches via IEEE 802.1x access control.

Version 3.2 introduces a new, secure, hardware-based offering for Cisco Secure ACS. The Cisco Secure ACS Solution Engine, a 1-rack-unit (1-RU) security-hardened solution engine with a preinstalled Cisco Secure ACS license, provides essentially the same features and functions as the Cisco Secure ACS for Windows, in a dedicated, application-specific solution engine package. Cisco Secure ACS Solution Engine provides a z define access control lists of any length, per user or group of users. It extends per-user access control zero-touch installation and highly reliable AAA solution with increased total-cost-of-ownership protection through high availability and simplified day-to-day operation the Cisco Secure ACS service.

### When to Sell

#### Sell This Product

Cisco Secure Access Control Server (ACS) for Windows and Cisco Secure Access Control Solution Engine

#### When a Customer Needs These Features

- Centrally manage who can log in to the network from wired or wireless connections
- Privileges each user has in the network
- Accounting information recorded in terms of security audits or account billing
- What access and command controls are enabled for each configuration administrator
- Virtual VSA for Aironet rekey
- Secure server authentication and encryption
- Simplified firewall access and control through Dynamic Port Assignment
- Same User AAA services

### Key Features

- Protected Extensible Authentication Protocol (PEAP) support for Microsoft® Windows and Cisco clients—Provides support for Microsoft® PEAP on Windows 98, NT, 2000 and XP by supporting client authentication with MS-CHAPv2, and support for Cisco PEAP with one-time token authentication and support of non-MSCHAP end-user databases such as, NDS, and ODBC.
- EAP mixed configurations—Allows flexible EAP settings to be set concurrently and processed per the 802.1X protocol presented by the end user. ACS supports PEAP-EAP-GTC (Cisco PEAP), PEAP-EAP-MSCHAPv2 (Microsoft® PEAP), EAP-TLS, EAP-MD5, and Cisco EAP Wireless (LEAP).
- Accounting Support for Aironet—Supports user-based accounting from the Wireless Access Points when they are configured as RADIUS (Cisco Aironet) AAA clients.
- EAP-TLS enhancements—Extends ACS PKI capabilities with the addition of EAP-TLS authentication against ODBC user databases, and EAP-TLS silent session resume support which prevents users from re-authenticating during a RADIUS session timeout.

- Machine authentication support—Supports machine authentication by maintaining communication to a back end Windows Active Directory during boot time. ACS supports machine authentication using PEAP with MSCHAPv2 or EAP-TLS 802.1X authentication types.
- LDAP Multithreading—Increases performance by processing multiple LDAP authentication requests in parallel rather than in sequential order.
- Downloadable access control lists for VPN users—Allows administrators to define access control lists of any length, per user or group of users. It extends per-user access control list support to Cisco VPN solutions and PIX Firewall solutions.
- Integration with Cisco's security management software application—Provides a consolidated administrative TACACS+ control framework for many Cisco security management tools such as CiscoWorks VPN/Security Management Solution (VMS)

## Competitive Products

- Funk: Steel Belted RADIUS
- Nortel: Preside RADIUS Server (OEM of Funk product)
- Lucent/Avaya: Security Management Server (LSMS)

## Specifications

Feature	Cisco Secure Access Control Server (ACS) for Windows
Hardware <sup>1</sup>	<ul style="list-style-type: none"> <li>• Pentium processor, 550 MHz or faster</li> <li>• 256 MB RAM</li> <li>• 250 MB free disk space, more if you are running your database on the same device</li> <li>• Minimum resolution of 800 x 600 with 256 colors</li> </ul>

1. Cisco Secure Access Control Server Solution Engine system specifications are available in the Product Literature

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Secure Access Control Server (ACS) for Windows

CSACS-3.1-WIN-K9	Cisco Secure ACS 3.1 for Windows
CSACS-3.1-WINUP-K9	Upgrade to CSACS 3.1 for Windows from ACS versions 1.x, 2.x, 3.0 and Cisco Secure ACS for Unix version 2.x
CSACSE-1111-K9	Cisco Secure ACS Solution Engine version 3.2; includes Cisco 1111 hardware platform and Cisco Secure Access Control Server software, version 3.2
CSACSE-1111-UP-K9	Upgrade for customers using Cisco Secure ACS 3.X for Windows or Cisco Secure ACS for Unix customers to the Cisco Secure ACS Solution Engine version 3.2; includes Cisco 1111 hardware platform and Cisco Secure Access Control Server software, version 3.2
CSACS-3.2-WIN-K9	Cisco Secure ACS 3.2 for Windows
CSACS-3.2-WINUP-K9	Upgrade to CSACS 3.1 for Windows from ACS versions 1.x, 2.x, 3.x and Cisco Secure ACS for Unix version 2.x

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the Cisco Secure ACS for Windows Web site: <http://www.cisco.com/go/acs>

See the Cisco Secure ACS Solution Engine Web site:

<http://www.cisco.com/en/US/products/sw/secursw/ps5338/index.html>

## Cisco Secure User Registration Tool

Cisco Secure URT is a virtual LAN (VLAN) assignment service that provides LAN security by actively identifying and authenticating users and then associating them only to the specific network services and resources they need through dynamic VLAN assignments to Cisco Catalyst® Switch networks. URT v2.5 introduces many innovative features, including a Web-based logon from Windows, Macintosh, and Linux clients, RADIUS and Lightweight Directory Access Protocol (LDAP) authentication, and a secure link between the client and the VLAN Policy Server (VPS). It also includes a security feature based on the Media Access Control (MAC) address that prevents users from accessing the network if they are not using authorized machines. Web based LAN authentication allows for user mobility within the LAN environment.

### When to Sell

#### Sell This Product

Cisco Secure User Registration Tool (URT)

#### When a Customer Needs These Features

- Web-based LAN authentication for Windows, Macintosh, and Linux client platforms—ideal for mobile users within the LAN environment
- Extended security to protect user access to the logon VLAN from unregistered PCs through MAC-based security option
- RADIUS authentication and accounting support
- Multiple user access per port

### Key Features

- Web Client Logon Interface—Supports customizable Web-based authentication for Windows, Macintosh, and Linux client platforms
- MAC-Based Security Option—Provides extended security to protect user access to the logon VLAN from unregistered PCs
- RADIUS Authentication and Accounting Support—RADIUS authentication is offered for Web logon
- Secure Link Between Cisco Secure URT Client and VPS Server—Security authentication and data encryption have been added to URT v2.5 to enable a more secure connection from the user
- LDAP Support (Active Directory and NDS directories)—Cisco Secure URT v2.5 supports Windows' Active Directory and Novell's NDS LDAP servers
- Multiple Users Per Port—Previous versions of Cisco Secure URT support only a single user logon on a single port
- Display of Windows NT Groups—The URT Administrator interface is enhanced to display the users belonging to a Windows NT group
- MAC Address Events History—With URT v2.5 MAC-address-based logon/logoff events are added as an option and reported to the history events tool

### Specifications

Feature	Cisco Secure User Registration Tool (URT)
Hardware	Windows 2000 (SP2) server, professional, and Windows XP Professional—Min H/W (Pentium III, 512MB DRAM, 65 MB of disk space)
Browser for Web Login	Netscape version 4.79 and 6.2; IE version 5.5 (SP2) or 6.0
Client Software Requirements	Windows 98 (2ndE), Windows NT4 Workstation/Server (SP6A), Windows 2000 (SP2) Professional/Server, Windows XP Professional, Windows XP Home (Web Client Only), Mac OS 10.1 (Web client only), Linux Redhat/ SuSE/ Mandrake/ VA (Web Client only)—Min H/W for Web client (Pentium II, 256MB DRAM, 65 MB of disk space), Min H/W for traditional client (Pentium II, 64MB DRAM, 1MB of disk space)
Supported Cisco Products (latest tested version)	1900 series (1912, 1924), v9.00.05; C2800 series (2822, 2828), v9.00.05; C2900XL series (2908XL, 2916XL, 2912XL, 2912LRE-XL, 2924XL, 2924LRE-XL), v12.0(5)WC3b; C2948GL3 series (2948GL3, 4232), v12.0(18)W5(22b); C2950 series, v12.1.6.EA2c; C3500XL series (3508XL, 3512XL, 3524XL, 3548XL, 3550XL), v12.0(5)WC3b; C3550 series, v12.1.8.EA1c; C4000 series (4003, 4006, 4912g), v7.1(2); C5000 series (2900, 2926, 2948, 5000, 5002, 5500, 5505, 5509), v6.3(5); C6000 series (6006, 6009, 6506, 6509, 6513), v7.1(3)

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Secure User Registration Tool (URT)

URT-2.5-K9	Starter Kit: includes one (1) User Registration Tool 2.5 Software license, and one (1) Cisco 1101 VLAN Policy Server (VPS) appliance
URT-2.5-UP	Software only: upgrades customers from URT 2.X to 2.5; includes upgrade for both URT Admin Server and Cisco 1100 VPS appliance
URT-1101-HW-K9	Hardware Only: Cisco 1101 VPS appliance; additional appliance needed for backup, use in distributed deployments, or deployments requiring Web logon capabilities

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Cisco Secure User Registration Tool Web site: <http://www.cisco.com/go/urt>

## Cisco IOS Firewall

The Cisco IOS Firewall enriches Cisco IOS Software security capabilities, integrating robust firewall functionality and intrusion detection for every network perimeter. When combined with Cisco IOS IPSec software and other Cisco IOS Software-based technologies such as L2TP tunneling and quality of service (QoS), it provides a complete, integrated virtual private network solution. Because it is available for a wide range of Cisco routers, it gives customers the flexibility to choose a solution that meets their bandwidth, LAN/WAN density, and multiservice requirements, while benefiting from advanced security.

### When to Sell

#### Sell This Product When a Customer Needs These Features

- Cisco IOS Firewall**
- An integrated stateful firewall solution with powerful security and multiprotocol routing all on the same platform
  - Scalability options from the Cisco 800 up to the Cisco 7500 and the Catalyst 6000
  - Low cost solution where high performance is not a requirement
  - For secure extranet and intranet perimeters and Internet connectivity for branch and remote offices
  - Secure remote access or data transfer via a Cisco IOS Software-based VPN solution
  - Real-time (inline) integrated intrusion detection system (IDS) to complement firewall or existing IDS (Cisco Secure IDS)
  - Security and access to the network on a per-user basis

### Key Features

- Context-based access control (CBAC) provides secure, stateful, application-based packet inspection, supporting the latest protocols and advanced applications
- Intrusion detection for real-time inline monitoring, interception, and response to network misuse for 100 attack signatures
- Supports URL Filtering either local on the router through exclusive domains as well as use of external Websense and N2H2 servers.
- Dynamic, per-user authentication/authorization for LAN, WAN, and VPN clients
- Authentication proxy for https, ftp and telnet connections
- Supports Security Device Manager (SDM)
- Graphical configuration and management via the VPN/Security Management Solution (VMS) and the IP Solution Center (ISC)
- Provides strong perimeter security for a complete Cisco IOS Software-based VPN solution, including IPSec, QoS, and tunnelling

### Competitive Products

- Nortel: BaySecure Firewall-1
- Checkpoint, Nokia, Netscreen, etc



## Specifications

Feature	Cisco IOS Firewall
Supported Network Interfaces	All network interfaces on supported platforms
Supported Platforms	Cisco 1720, 2600/2600XM, 3600, 7100, and 7200 series router platforms (supports full feature set) Cisco 800, UBR900, 1600, and 2500 series router platforms include all firewall features with exception of intrusion detection and authentication proxy
Simultaneous Sessions	No maximum; dependent on platform, network connection, and traffic

## Part Numbers and Ordering Information

For Cisco IOS Images containing firewall (FW) and intrusion detection (IDS) capabilities, see individual product pages of supported platforms and the Cisco IOS Feature Navigator at <http://www.cisco.com/go/fn> (CCO login required) for part numbers and more info.

## For More Information

See the Cisco IOS Firewall Feature Set Web site: <http://www.cisco.com/go/csis>

## Cisco 7100 Series

The Cisco 7100 series VPN router is a high-end, integrated VPN solution that melds high-speed, industry-leading routing with a comprehensive suite of advanced site-to-site VPN services.

The Cisco 7100 series VPN router integrates

key features of VPNs—tunneling, data

encryption, security, firewall, advanced bandwidth management, and service-level

validation—to deliver self-healing, self-defending, VPN platforms that cost-effectively

accommodate remote-office and extranet connectivity using public data networks. The

Cisco 7100 series VPN router offers specific hardware configurations optimized for

VPN applications and network topologies. Optional WAN and embedded Fast Ethernet

interfaces combined with high-performance routing and rich VPN services provide

turnkey VPN routing solutions.



## When to Sell

### Sell This Product

Cisco 7120

### When a Customer Needs These Features

- Entry-level Cisco 7100 Series Router designed for large branch or central site VPN with VPN services throughput of up to 50 Mbps

- Designed primarily for site-to-site VPN deployments with incidental remote access requirements

Cisco 7140

- High-end site-to-site VPN platform for central site VPN applications with VPN services throughput up to 140 Mbps

- Provides superior routing and VPN services performance for central site environments, as well as dual power supplies for increased solution reliability

## Key Features

- Comprehensive suite of VPN services—tunneling, data encryption, security, firewall, quality of service, and service level validation—integrated with industry leading routing
- High performance RISC processor delivering high-speed, scalable VPN services and routing throughput and extensive memory for reliable, high-speed VPN services delivery
- Dual autosensing 10/100BASE-T Fast Ethernet ports for connectivity to the corporate LAN; the Cisco 7120 Series also has an integrated 4-port T1/E1 serial WAN interface
- Integrated Services Module (ISM) is included for support up to 2000 simultaneous tunneling sessions with 90 Mbps encryption performance and Windows 95/98/NT4.0 and Windows 2000 compatibility for remote access; an optional

Integrated Services Adapter (ISA) may be installed in the Cisco 7140 to provide dual encryption acceleration performance up to 3000 tunnels and 140 Mbps 3DES encryption throughput

## Competitive Products

- Check Point: VPN-1 Appliance
- Nortel: Contivity 4500
- Nokia: IP440

## Specifications

Feature	Cisco 7120	Cisco 7140
<b>Embedded Dual 10/100BASE-T Fast Ethernet Interfaces</b>	Autosensing, RJ-45	Autosensing, RJ-45
<b>WAN Physical Interfaces</b>	EIA/TIA-232, EIA/TIA-449, X.21, V.35, EIA-530	None
<b>WAN/LAN Interface Expansion Slot</b>	1 slot	1 slot
<b>Supported Network and Services Port Adapters</b>	Gigabit Ethernet 1000BASE-SX and 1000BASE-LX/LH Fast Ethernet 100BASE-TX and 100BASE-FX Fast Ethernet/ISL TX and ISL FX Ethernet 10BASE-T and 10BASE-FL Dedicated Token Ring Multichannel T1 and E1 ATM Synchronous Serial HSSI ISDN BRI Packet over SONET OS3/STM1 Integrated Services Adapter (ISA)	Same as Cisco 7120
<b>Service Module Slot</b>	1 slot	1 slot
<b>Included Service Modules</b>	Integrated Services Module (ISM)	Integrated Services Module (ISM)
<b>Console and Auxiliary Ports</b>	1 of each, RJ-45 interface	1 of each, RJ-45 interface
<b>SDRAM</b>	64 MB packet 128 MB system (expandable to 256 MB)	64 MB packet 128 MB system (expandable to 256 MB)
<b>Flash Memory</b>	48 MB	48 MB
<b>PCMCIA Slots for Flash Memory</b>	2	2
<b>Power Supply</b>	Single AC	Dual AC
<b>Dimensions (HxWxD)</b>	3.5 in. x 17.5 in. x 18.25 in.	3.5 in. x 17.5 in. x 18.25 in.

## Cisco IOS Software and Memory Requirements<sup>1</sup>

To run the Cisco IOS Software Feature Packs, you need, at a minimum, the amount of memory shown in the following table. Some configurations will require more than the recommended minimum.

Distribution Part Number	Feature Pack Description	IOS Image Release	Flash Memory Required	DRAM Memory Required
CD71-CL-12.1.6E=	IP IPSEC 56	12.1(6)E	16MB	64MB
CD71-CK2-12.1.6E=	IP IPSEC 3DES	12.1(6)E	16MB	64MB
CD71-CHK2-12.1.6E=	IP/FW/IDS IPSEC 3DES	12.1(6)E	16MB	64MB
CD71-AL-12.1.6E=	Enterprise IPSEC 56	12.1(6)E	16MB	64MB
CD71-AK2-12.1.6E=	Enterprise IPSEC 3DES	12.1(6)E	16MB	64MB
CD71-AHK2-12.1.6E=	Enterprise/FW/IDS IPSEC 3DES	12.1(6)E	16MB	64MB

1. For the complete list of IOS Feature Sets, refer to the parts list, via the URL listed under "For More Information". For users with CCO access, search by IOS feature or release via the *Feature Navigator* at <http://www.cisco.com/go/ftn>

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 7100 Series Bundles—7120

CISCO7120-4T1/VPN	7120-4T1 VPN Bundle, ISM, 2xFE, AC PS, IPSEC DES
C7120-4T1/VPN/K9	7120-4T1 VPN Bundle, ISM, 2xFE, AC PS, IPSEC 3DES

### Cisco 7100 Series Bundles—7140

CISCO7140-2FE/VPN	7140-2FE VPN Bundle, ISM, 2xFE, 2xAC PS, IPSEC DES
C7140-2FE/2VPN/K8	7140-2FE VPN Bundle, ISM & ISA, 2xFE, 2xAC PS, IPSEC DES
C7140-2FE/2VPN/K9	7140-2FE VPN Bundle, ISM & ISA, 2xFE, 2xAC PS, IPSEC 3DES
C7140-2FE/VPN/K9	7140-2FE VPN Bundle, ISM, 2xFE, 2xAC PS, IPSEC 3DES

### Cisco 7100 Port Adapters

PA-FE-TX	1-port Fast Ethernet 100BaseTx Port Adapter
PA-FE-FX	1-port Fast Ethernet 100BaseFx Port Adapter
PA-2FE-TX	2-port Fast Ethernet 100BaseTx Port Adapter
PA-2FE-FX	2-port Fast Ethernet 100BaseFx Port Adapter
PA-2FEISL-TX	2-port Token Ring ISL 100BaseTx Port Adapter
PA-2FEISL-FX	2-port Token Ring ISL 100BaseFx Port Adapter
PA-4E	4-port Ethernet 10BaseT Port Adapter
PA-8E	8-port Ethernet 10BaseT Port Adapter
PA-5EFL	5-port Ethernet 10BaseFL Port Adapter
PA-4T+	4-port Serial Port Adapter, Enhanced
PA-8T-V35	8-port Serial, V.35 Port Adapter
PA-8T-232	8-port Serial, 232 Port Adapter
PA-8T-X21	8-port Serial, X.21 Port Adapter
PA-4R-DTR	4-port Dedicated Token Ring, 4/16Mbps, HDX/FDX Port Adapter
PA-GE	Gigabit Ethernet Port Adapter
PA-H	1-port HSSI Port Adapter
PA-2H	2-port HSSI Port Adapter
PA-A3-T3	1-port ATM Enhanced DS3 Port Adapter
PA-A3-E3	1-port ATM Enhanced E3 Port Adapter
PA-A3-OC3MM	1-port ATM Enhanced OC3c/STM1 Multimode Port Adapter
PA-A3-OC3SMI	1-port ATM Enhanced OC3c/STM1 Single mode (IR) Port Adapter
PA-A3-OC3SML	1-port ATM Enhanced OC3c/STM1 Single mode (LR) Port Adapter
PA-4E1G/75	4-port E1 G.703 Serial Port Adapter (75ohm/Unbalanced)
PA-4E1G/120	4-port E1 G.703 Serial Port Adapter (120ohm/Balanced)
PA-E3	1-port E3 Serial Port Adapter with E3 DSU
PA-2E3	2-port E3 Serial Port Adapter with E3 DSUs
PA-T3	1-port T3 Serial Port Adapter with T3 DSUs
PA-2T3	2-port T3 Serial Port Adapter with T3 DSUs
PA-MC-2T1	2-port multichannel T1 port adapter with integrated CSU/DSUs
PA-MC-2E1/120	2-port multichannel E1 port adapter with G.703 120ohm interf
PA-MC-4T1	4-port multichannel T1 port adapter with integrated CSU/DSUs
PA-MC-8T1	8-port multichannel T1 port adapter with integrated CSU/DSUs
PA-MC-8E1/120	8-port multichannel E1 port adapter with G.703 120ohm interf
PA-POS-OC3MM	1-port Packet/SONET OC3c/STM1 Multimode Port Adapter
PA-POS-OC3SMI	1-port Packet/SONET OC3c/STM1 Single mode (IR) Port Adapter
PA-POS-OC3SML	1-port Packet/SONET OC3c/STM1 Single mode (LR) Port Adapter
SM-ISM	Integrated Services Module for IPsec & MPPE encryption
SA-ISA	Integrated Services Adapter for IPsec or MPPE encryption
PA-4B-U	4-port BRI Port Adapter, U Interface
PA-8B-S/T	8-port BRI Port Adapter, S/T Interface

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco 7100 series Web site: <http://www.cisco.com/go/7100>



# Content Networking Products

## Content Networking Products at a Glance

Product	Features	Page
<b>Cisco Content Engine 500 Series</b>	<ul style="list-style-type: none"> <li>Content services edge delivery platform for Enterprise networks</li> <li>• Functions as edge node device in an Application and Content Networking (ACN) system</li> <li>• Responsible for delivery of cached or distributed content to the end-user</li> <li>• Enables customers to rapidly deliver strategic applications to branch personnel including web application and content acceleration, content filtering and business video</li> <li>• Lays the foundation for advanced services such as e-learning and point of sale video delivery.</li> </ul>	6-2
<b>Cisco Content Engine 7300 Series</b>	<ul style="list-style-type: none"> <li>Content services platform for Enterprise data center and Service Provider networks</li> <li>• Offers premium hosting services</li> <li>• Caching capabilities optimize Web site performance and WAN bandwidth utilization</li> <li>• Offers transparent and Internet proxy caching, Content Filtering and ECDN capabilities in a single platform</li> <li>• Accelerates both HTTP and streaming media file formats</li> </ul>	6-2
<b>Content Engine Network Modules</b>	<ul style="list-style-type: none"> <li>Content services edge delivery network module for 2600, 3600, 3700 branch routers</li> <li>• Functions as edge node device in an Application and Content Networking (ACN) system</li> <li>• Enables delivery of new applications and services via a Cisco branch router with no performance degradation of core routing services</li> <li>• Allows rapid delivery of strategic applications to branch personnel including web application and content acceleration, content filtering and business video</li> </ul>	6-2
<b>Cisco 11500 Series Content Services Switches</b>	<ul style="list-style-type: none"> <li>Next-generation intelligent platform for Web site and e-commerce optimization</li> <li>• Provides an intelligent, distributed architecture to scale for today's e-business infrastructure</li> <li>• Offers Adaptive Session Redundancy (ASR)—a new industry standard in stateful failover</li> <li>• Delivers the greatest flexibility of any content switch in its class for customizing combinations of ports, performance, and services</li> </ul>	6-4
<b>Cisco Content Distribution Manager 4600 Series</b>	<ul style="list-style-type: none"> <li>Content networking policy and management device</li> <li>• Central control over acquisition and distribution of content, including live and video on demand video, over IP networks</li> <li>• Intuitive web-based GUI provides integrated, easy-to-use management over caching and content delivery functions such as multicast replication, intelligent cache bypass and bandwidth management</li> <li>• Roles based access control securely enables multiple administrators and content publishers across the organization</li> </ul>	6-6
<b>Cisco Content Router 4430</b>	<ul style="list-style-type: none"> <li>Integrated global load balancing solution for content delivery networks</li> <li>• Solves distributed server site selection problems</li> <li>• Uses HTTP (CR-4430) to redirect a client to the best site on the Internet based on network delay</li> <li>• Transparently redirection redirects end user requests to the end user and works with any IP application</li> <li>• Extremely fast site-selection algorithm is optimized for high performance Web-style transactions</li> </ul>	6-7
<b>Content Switching Module (CSM) for the Catalyst 6500 Series Switches</b>	<ul style="list-style-type: none"> <li>High performance Content Switching line card for Catalyst 6500</li> <li>• L4 and L7, Firewall, VPN, Cache and Server load balancing</li> <li>• Intelligently balances client traffic across multiple devices</li> <li>• Full State and Sticky State redundancy</li> <li>• Full Regular Expression support</li> </ul>	6-8
<b>Cisco SSL Module for Catalyst 6500</b>	<ul style="list-style-type: none"> <li>Offloads SSL encryption and decryption</li> <li>• Scalable performance</li> <li>• Stickyness</li> </ul>	6-10

Product	Features	Page
Cisco 11000 Series Secure Content Accelerator (SCA 11000)	<ul style="list-style-type: none"> <li>Appliance-based SSL solution</li> <li>Offloads SSL encryption/decryption from Web servers</li> <li>Supports 200 new SSL connections and 900 sustained SSL sessions per second</li> <li>Interoperates with the CSS 11000 for intelligent load balancing of SSL traffic</li> </ul>	6-11
Cisco DistributedDirector	<ul style="list-style-type: none"> <li>Global Internet service scaling solution</li> <li>Solves distributed server site selection problems. Enables a set of distributed servers to be seen as a single virtual server</li> <li>Uses DNS to redirect a client to the best site on the Internet based on a variety of options</li> <li>Configurable as authoritative Domain Name Services (DNS) caching name server and/or HTTP Session Redirector on a per-domain basis</li> </ul>	6-12
Cisco GSS 4480 Global Site Selector	<ul style="list-style-type: none"> <li>Global site selection for distributed data centers</li> <li>Delivers global load balancing for multiple data centers</li> <li>Offloads Domain Named System (DNS) servers by doing DNS resolution</li> <li>Scales to support hundreds of data centers or server load balancers (SLBs)</li> </ul>	6-13

## Content Networking Overview

Cisco Content Networking solutions are designed to optimize the delivery of content to end users. To accomplish this, Cisco offers solutions for both data center and edge delivery with industry-leading products in both categories.

In the data center, Cisco Content Switching, or L4-7 Switching, solutions optimize any size network to dynamically enable faster responses to Web requests and decrease network bandwidth congestion. Content switching, or intelligent load balancing, insures high levels of content availability and security, and leverages investment in Cisco IP infrastructure.

Cisco's Application and Content Networking (ACN) System allows enterprises to accelerate mission critical web applications such as Siebel and SAP, block viruses and inappropriate web sites and deliver business video, while laying the foundation for advanced services such as e-learning and point of sale video delivery. For Service Providers, the Cisco ACN System represents a highly profitable, new revenue opportunity by enhancing the customer/user Web experience and significantly accelerating the delivery of rich Web applications, content and streaming media.

## Cisco Content Engines

Within Cisco's content-networking solutions portfolio, the Cisco Application and Content Networking System (ACNS) Software enables a variety of services that optimize delivery of Web applications and content from the network edge to ensure enhanced speed, availability, and performance for users. ACNS Software combines the technologies of transparent caching and enterprise content-delivery network (ECDN) for accelerated delivery of Web objects, files, and streaming media from a single intelligent edge appliance, the Cisco Content Engine (CE).

The Cisco ECDN solution provides a platform that delivers immediate benefits from entry-level applications such as content and business application acceleration and URL filtering, while laying the foundation for advanced services such as business video and e-learning.



## When to Sell

### Sell This Product

#### Content Engine 7325

#### Content Engine 7305

#### Content Engine 565

#### Content Engine 510

#### Content Engine Network Modules

### When a Customer Needs These Features

- Ultra high-end content delivery capabilities for advanced applications such as streaming media, e-learning, and corporate communications
- High-end content delivery capabilities for advanced applications such as streaming media, e-learning, and corporate communications
- Mid-range branch office and datacenter cache ideal for transparent caching, URL filtering, and edge content delivery
- Entry-level transparent caching and URL filtering capabilities along with limited content delivery
- Router-integrated caching and content delivery network modules for 2600, 3600, 3700 branch access routers

## Key Features

- **Caching**—Provides accelerated content delivery, WAN bandwidth cost savings, and protection vs. uncontrollable bottlenecks
- **Content Filtering**—Enables administrators to block, monitor, and report on end users' access to non-business and objectionable content (uses N2H2 Internet Filtering Protocol, Secure Computing SmartFilter, or Websense Enterprise Software)
- **Content Delivery**—Use in conjunction with Cisco Content Distribution Manager to enable rich media e-learning and corporate communications; deliver new premium hosting services such as on-demand content delivery and streaming media; and, to scale Web sites

## Competitive Products

- Blue Coat: Blue Coat Server Accelerator 700 and 7000 Series and Blue Coat Systems Director
- Volera: Excelsator, Media Excelsator, Secure Excelsator
- Network Appliance: NetCache C1200/2100/6100 Series Appliances and Content Director

## Specifications

Feature	Cisco Content Engine 7325	Cisco Content Engine 7305	Cisco Content Engine 565	Cisco Content Engine 510	Cisco CE Network Module	Cisco SA-7 and SA-14
<b>Supported Interfaces</b>	Two 10/100/1000BASE-TX	Two 10/100/1000BASE-TX	Two 10/100/1000BASE-TX	Two 10/100/1000BASE-TX	One internal 10/100-Mbps Ethernet to router backplane; one external 10/100-Mbps Ethernet	
<b>SDRAM</b>	4 GB	2 GB	1 GB	512 MB	Up to 512 MB	
<b>Max Storage</b>	936 GB	936 GB	396 GB	80 GB	396 GB	252 or 540 GB
	Ultra2 SCSI	Ultra2 SCSI	Ultra2 SCSI	IDE	Ultra2 SCSI	Ultra2 SCSI
<b>Maximum Internal Storage</b>	432 GB	432 GB	72 GB	80 GB	20 GB or 40 GB	252 or 540 GB
	Ultra2 SCSI	Ultra2 SCSI	Ultra2 SCSSCO	IDE	IDE	Ultra2 SCSI
<b>Flash Memory</b>	128 MB	128 MB	128 MB	128 MB	16 MB internal; optional Compact Flash Memory	
<b>Storage Array Support</b>	Yes	Yes	Yes	No	Yes	
<b>Rack Units</b>	2 RU	2 RU	1 RU	1 RU	N/A	3 RU
<b>Dimensions (HxWxD)</b>	3.36 x 17.46 x 27.48 in.	3.36 x 17.46 x 27.48 in.	1.72 x 17.3 x 16.75 in.	1.72 x 17.3 x 16.75 in.	One slot in 2600/3600/3700 chassis	5.0 x 17.5 x 20.4 in.
<b>Weight</b>	62 lb.	62 lb.	28 lb.	28 lb.	1.5 lb.	76 lb.
<b>Power</b>	Hot-swappable redundant AC (DC available mid-2003)	Hot-swappable redundant AC (DC available mid-2003)	200W AC	200W AC	From 2600/3600/3700 chassis	AC (DC available mid-2003)

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Content Engine 7300 Series Hardware

CE-7325-K9	Content Engine 7325 AC Power, ACNS software
CE-7305-K9	Content Engine 7305 AC Power, ACNS software. Also runs as CDM or CR

### Cisco Content Engine 500 Series Hardware

CE-565-K9	Cisco Content Engine 565, AC Power, ACNS software. Also runs as CDM or CR
CE-510-K9	Cisco Content Engine 510 AC Power, ACNS software

### Cisco Content Engine Network Module Hardware

NM-CE-BP-20G-K9=	Content Engine Network Module, basic performance, 20-GB IDE hard disk
NM-CE-BP-40G-K9=	Content Engine Network Module, basic performance, 40-GB IDE hard disk
NM-CE-BP-SCSI-K9(=	Content Engine Network Module, basic performance, SCSI controller (requires external SCSI disk array such as the Cisco SA-6)

1. This is only a small subset of all parts available via URL listed under "For More Information."

## For More Information

See the Cisco Content Engine Web sites: <http://www.cisco.com/go/ce500> and <http://www.cisco.com/go/ce7300>

## Cisco CSS 11500 Series Content Services Switches

The Cisco CSS 11500 Series Content Services Switch is suitable for both enterprises and service providers seeking to reduce data center costs, boost e-business application performance, offer enhanced services, ensure online transaction integrity, and provide the best possible online experience for customers, business partners, and internal workers.



The Cisco CSS 11500 is available in three models—the standalone Cisco CSS 11501, the three-slot Cisco CSS 11503 and the six-slot Cisco CSS 11506. Both the CSS 11503 and CSS 11506 systems take advantage of the same high-performance, modular architecture and use the same set of I/O, Secure Sockets Layer (SSL), and session accelerator modules. Also, all three systems operate with the same WebNS software, enabling the Cisco CSS 11501, 11503 and 11506 to offer industry-leading content switching functionality within three compact, hardware platforms.

## When to Sell

### Sell This Product

### When a Customer Needs These Features

<b>CSS 11501</b>	<ul style="list-style-type: none"> <li>• Standalone, fixed-configuration switching platform with up to 8 Fast Ethernet ports and 1 optional Gigabit Ethernet port</li> <li>• Cost-effective server, cache, and firewall load balancing</li> <li>• Complex Web applications requiring high-level URL and cookie switching</li> </ul>
<b>CSS 11503</b>	<ul style="list-style-type: none"> <li>• Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to six Gigabit Ethernet ports</li> <li>• Cost-effective server, cache, and firewall load balancing</li> <li>• Integrated SSL capabilities for secure transactions</li> <li>• Complex Web applications requiring high-level URL and cookie switching</li> </ul>
<b>CSS 11506</b>	<ul style="list-style-type: none"> <li>• Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to six Gigabit Ethernet ports</li> <li>• Cost-effective server, cache, and firewall load balancing</li> <li>• Integrated SSL capabilities for secure transactions</li> <li>• Complex Web applications requiring high-level URL and cookie switching</li> </ul>

## Key Features

- Introduces an intelligent, distributed architecture
- Improves site availability and transaction integrity by introducing Adaptive Session Redundancy (ASR)—a new industry standard in stateful failover
- Delivers customized combinations of ports, performance, and services
- Scales secured transaction performance through support of an integrated, high-capacity Secure Sockets Layer (SSL) module (WebNS 5.20)
- Protects investment by enabling upgrades of performance, ports, and services through modularity

## Competitive Products

- |   |  |
|---|--|
| • Alteon/Nortel: ACEdirector and 700 Series   | • Radware: Web Server Director (WSD)             |
| • F5 Networks: Big/IP and LAN switch Partners | • Resonate: Central Dispatch and Global Dispatch |
| • Foundry Networks: ServerIron                |  |

## Specifications

Feature	Cisco CSS 11501	Cisco CSS 11503	Cisco CSS 11506
<b>Modular Slots</b>	N/A	3	6
<b>Base Configuration</b>	Switch Control with 8 10/100 Ethernet; 1 GBIC port	Switch Control Module 2 Gigabit Ethernet (GBIC) ports	Switch Control Module 2 Gigabit Ethernet (GBIC) ports
<b>Max GB Ethernet Ports</b>	1	6	12
<b>Max 10/100 Ethernet ports</b>	8	32	80
<b>2-port GB Ethernet I/O Module</b>		Max: 2	Max: 5
<b>16-port GB Ethernet I/O Module</b>		Max: 2	Max: 5
<b>8-port GB Ethernet I/O Module</b>		Max: 2	Max: 5
<b>SSL Module</b>		Max: 2	Max: 5
<b>Session Accelerator modules</b>		Max: 2	Max: 5
<b>Redundancy features</b>	Active-active Layer 5 Adaptive session redundancy Virtual IP Address (VIP) redundancy	Active-active Layer 5 Adaptive Session Redundancy VIP redundancy	Active-active Layer 5 Adaptive Session Redundancy VIP redundancy Active-standby SCM Redundant switch fabric module Redundant power supplies
<b>Height</b>	1/75 in. (1 rack unit)	3.5" (2 rack units)	8.75" (5 rack units)
<b>Bandwidth</b>	Aggregate 6 Gbps	Aggregate 20 Gbps	Aggregate 40 Gbps
<b>Storage</b>	512 MB hard disk or 256 MB Flash disk	512-MB hard disk or 256-MB Flash memory disk	512-MB hard disk or 256-MB Flash memory disk
<b>Power</b>	Integrated AC supply	Integrated AC or DC	Up to 3 AC or 3 DC

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco CSS 11500 Series Content Services Switches

CSS11506-2AC	Cisco 11506 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, 2 switch modules, 2 AC power supplies, and a fan (requires SFP GBICs)
CSS11506-2DC	Cisco 11506 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, 2 switch modules, 2 DC power supplies, and a fan (requires SFP GBICs)
CSS11503-AC	Cisco 11503 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, and integrated AC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS11503-DC	Cisco 11503 Content Services Switch including SCM with 2 Gigabit Ethernet ports, hard disk, and integrated DC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS5-SCM-2GE	Cisco CSS 11500 System Control Module with 2 Gigabit Ethernet ports and hard disk (requires SFP GBICs)
CSS5-IOM-8FE	Cisco CSS 11500 Fast Ethernet I/O Module: 8-port TX
CSS5-IOM-16FE	Cisco CSS 11500 Fast Ethernet I/O Module: 16-port TX
CSS5-IOM-2GE	Cisco CSS 11500 Gigabit Ethernet I/O Module: 2-port (requires SFP GBICs)
CSS5-SAM	Cisco CSS 11500 Session Accelerator Module
CSS5-SSL	Cisco CSS 11500 SSL Module
CSS11501	Cisco CSS 11501 Content Services Switch-8 Fast Ethernet, hard disk, AC

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the CSS 11500 series Web site: <http://www.cisco.com/go/11500>



## Cisco Content Distribution Manager 4600 Series

The Cisco Content Distribution Manager (CDM) configures network and device policy settings for edge node Content Engines (CE). Used to accelerate web content and save network bandwidth in a content networking architecture, the CDM can be easily integrated into existing network infrastructures. Deployed in an Enterprise or Service Provider Internet or extranet environment, the Cisco CDM and CEs provide transparent on-demand rich media streaming and static file delivery to standard PCs.



Cisco Enterprise Content Delivery Networks (ECDNs) allow service providers and enterprises to distribute rich media content closer to their target customers overcoming issues such as network bandwidth availability, distance or latency obstacles, origin server scalability, and congestion issues during peak usage periods. The ECDN solution enables content delivery services for web hosting, streaming, e-commerce, e-learning, corporate communications, and mission critical e-business applications.

### When to Sell

#### Sell This Product

CDM 4630  
CDM 4650  
CDM 4670

#### When a Customer Needs These Features

- Low-cost early deployment, or small enterprise network trials, proof of concept, and pilot programs
- Medium and large enterprise networks, supports up to 1000 Cisco Content Engines
- Service provider deployment, supports thousands of Cisco Content Engines

### Key Features

- Complete CDN solution with Cisco Content Router and Cisco Content Engines
- Central control over delivery of high-bandwidth content, live and video-on-demand over any IP network
- Easy-to-use management capabilities through a Web-based GUI; services include previewing and scheduling replication of media to edge devices, bandwidth and content management
- Automatically generates thumbnail reference images and sample Web pages for integration with corporate extranet, intranet, and Internet sites
- One URL per media file provides seamless integration into any Web site
- Integrates with standards for Web multimedia presentation, including HTML/DHTML, eXtensible Markup Language (XML) and SMIL
- Secure and fault-tolerant file transfer using Secure Socket Layer (SSL) encryption for secure media transfers
- Channel configuration for media distribution to any number of discrete audiences using “distribution lists”
- Host content for a variety of customers within a single CDN
- Ability to create multiple virtual CDNs addressing targeted media distribution
- Content registration in cache logs for billing capabilities

### Competitive Products

• Cacheflow: Client and Server Accelerators  
• Inktomi: Traffic Server

• Network Appliance: ContentDirector

## Specifications

Feature	Content Distribution Manager 4630	Content Distribution Manager 4650	Content Distribution Manager 4670
<b>Sampling of Rich Media File Formats</b>	MPEG RealVideo Windows Media QuickTime HTML, GIF, JPEG Adobe Acrobat Macromedia Shockwave CAD/CAM MRI	Same as CDM 4630	N/A—file formats handled by the CES
<b>Supported Interfaces</b>	Autosensing 10/100BASE-T	Autosensing 10/100BASE-T	Autosensing 10/100BASE-T
<b>Recommended Network Size</b>	Less than 100 CES	Less than 1000 CES	Less than 10,000 CES
<b>Processor Speed</b>	600-MHz PIII	2x866 Xeon	2x866 Xeon
<b>RAM</b>	512 MB	1 GB	1 GB
<b>Internal Storage</b>	One 30 GB, 10K RPM, Ultra2 SCSI disk drive	140 GB RAID 5	36 GB <sup>1</sup>
<b>Rack Units</b>	1	7	7
<b>Dimensions (HxWxD)</b>	1.72 x 17.5 x 14.1 in.	12.25 x 17.5 x 28 in.	12.25 x 17.5 x 28 in.

1. Minimum storage required for DM service provider configurations

## Selected Part Number and Ordering Information<sup>1</sup>

### Cisco Content Distribution Manager 4600 Series Hardware

CDM-4630	Cisco Content Distribution Manager 4630
CDM-4650	Cisco Content Distribution Manager 4650
CDM-4670	Cisco Content Distribution Manager 4670

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Content Distribution and Management Web site:

<http://www.cisco.com/go/cdm>

## Cisco Content Router 4430

The Cisco Content Router 4430 (CR 4430) is a compact, high-performance solution for enabling premium Web services over public or private networks. Featuring either Cisco Enterprise Content-Delivery Network (ECDN) or Content Router 1.1 Software, customers can transparently route user Web browsers to the optimal content engine for file delivery.



With its patented routing technology, the Cisco CR 4430 provides redundancy, scalability, and performance enhancements for network Web sites in either an enterprise or public service provider network. Using Hypertext Transfer Protocol (HTTP)-based re-direction, the Cisco CR 4430 can redirect users over the public network or behind the security of a corporate firewall, making it a vital component of the Cisco end-to-end Content Networking Solution.

## When to Sell

### Sell This Product When a Customer Needs These Features

- Cisco Content Router 4430**
- When a customer needs to support a Cisco Enterprise Content Delivery Network with HTTP redirection
  - Supports resiliency for ECDNs when used with a Cisco CSS 11500 content services switch
  - Up to five Cisco CR 4430s can be deployed in an ECDN network to provide greater network availability and performance

## Key Features

- Uses HTTP to redirect a client to the best site on the Internet based on network delay
- Transparent redirection to the end user and works with any IP application
- Easy configuration through a Cisco IOS-style command-line interface
- Redundant configurations, multiple CRs can be deployed at the origin site to provide fail-over and load scaling

## Specifications

Feature	Cisco Content Router CR4430
Network Interface Card	10/100BASE-TX
Processor	600- MHz PIII
RAM	1 GB
Internal Storage	18 GB
Rack Units	1
Dimensions (HxWxD)	1.72 x 17.50 x 14.13 in.
Weight	12.5 lbs.

## Selected Part Number and Ordering Information

### Cisco Content Routers

CR-4430 Content router that utilizes HTTP redirection for use with the ECDN product

## For More Information

See the Cisco Content Router Web site: <http://www.cisco.com/go/cr>

## Cisco Content Switching Module

The Cisco Content Switching Module (CSM) is a Catalyst 6500 line card that balances client traffic to farms of servers, firewalls, SSL devices, or VPN termination devices. The CSM provides a high-performance, cost-effective load balancing solution for enterprise and Internet Service Provider (ISP) networks. The CSM meets the demands of high-speed Content Delivery Networks, tracking network sessions and server load conditions in real time and directing each session to the most appropriate server. Fault tolerant CSM configurations maintain full state information and provide true hitless failover required for mission-critical functions.

## When to Sell

### Sell This Product When a Customer Needs These Features

- Cisco Content Switching Module**
- A high performance, L4 to L7 load balancing solution integrated with Cisco's Catalyst 6500
  - Load balancing for the highest traffic sights
  - Support for up to 1,000,000 concurrent TCP connections

## Key Features

- Market-leading performance—Establishes up to 150,000 Layer 4 connections per second and provides high-speed content switching, while maintaining 1 million concurrent connections
- Outstanding price/performance value for large data centers and ISPs—Features a low connection cost and occupies a small footprint. The CSM slides into a slot in a new or existing Catalyst 6500 and enables all ports in the Catalyst 6500 for layer 4 through layer 7 content switching. Multiple CSMs can be installed in the same Catalyst 6500 for redundancy and scalable performance
- Uses the same Cisco IOS Command Line Interface (CLI) that is used to configure the Catalyst 6500 Switch

## Competitive Products

- Alteon/Nortel: Web Switching Module, Application Switch, and Web Switches
- Foundry Networks: ServerIron
- Radware: Web Server Director (WSD)
- Resonate: Central Dispatch and Global Dispatch
- F5 Networks: Big/IP

## Specifications

Feature	Cisco Content Switching Module (CSM)
Configuration Limits	512 total VLANs (client and server); 4000 virtual servers; 4000 server farms; 16,000 real servers; 4000 probes; 16,000 access control list (ACL) items
Connections	1,000,000 concurrent TCP connections 150,000 connection setups per second-Layer 4 75,000 connection setups per second-Layer 7
Throughput	4 Gigabits-per-second total combined (client-to-server and server-to-client) throughput 1.25 million packets per second
Catalyst Switch Platform Requirements	Native support (switch running Cisco IOS Software only) Hybrid Support (switch running IOS/CatOS) Functions as a bus enabled line card-not fabric enabled Multilayer switch feature card-MSFC or MSFC2

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Content Switching Module

WS-X6066-SLB-APC

Catalyst 6500 Content Switching Module

## For More Information

See the Cisco Content Switching Module Series Web site at:  
<http://www.cisco.com/go/csm>

## Cisco SSL Module for Catalyst 6500

The SSL Services Module is an integrated service module for the Cisco Catalyst® 6500 Series that offloads the processor-intensive tasks related to securing traffic with Secure Sockets Layer (SSL) and increases the number of secure connections supported by a Web site.

### When to Sell

#### Sell This Product

**SSL Module for Catalyst 6500**

#### When a Customer Needs These Features

- An integrated SSL encryption/decryption solution featuring Cisco's Catalyst 6500
- Scalable SSL processing; 2,500 connection setups/second per module-10,000 per Chassis fully-populated with SSL modules

### Key Features

- Server SSL offload—performs all SSL-related tasks, allowing servers to handle high-speed clear text traffic
- Scalable performance—provides a simple means of addressing increased performance requirements by installing additional SSL modules in a Catalyst 6500 switch
- Stickiness—maintains persistence even when clients request new session IDs, in Integrated Mode with Content Switching Module (CSM)
- Certificate optimization—provides cost savings by requiring only a single certificate copy vs. a copy for each server subject to customer and certificate authority agreement

### Competitive Products

• F5 Networks eCommerce 540

• Nortel/Alteon iSD 410 SSL Accelerator

### Specifications

Feature	Cisco SSL Module for Catalyst 6500
System Capacity and Performance	2500 connection setups/sec per module-10K per chassis; 60K concurrent client connections-240K per chassis; 300 Mbps bulk rate encryption-1.2 Gbps per chassis; 256 key pairs; 256 key certificates; Up to 2K key sizes-256 proxy servers
Scalability	Up to four SSL modules in the same Catalyst 6500
Integration with Server Load Balancing	Tightly integrated in the Cisco Catalyst 6500 Switch with the CSM

### Selected Part Numbers and Ordering Information<sup>1</sup>

Cisco SSL Module for Catalyst 6500

WS-SVC-SSL-1-K9=

Cisco SSL Module for Catalyst 6500

### For More Information

See the Catalyst 6500 Series Web site at: <http://www.cisco.com/go/cat6500>

## Cisco 11000 Series Secure Content Accelerator (SCA 11000)



The Cisco 11000 Series Secure Content Accelerator (SCA 11000) is an appliance-based solution that increases the number of secure connections supported by a Web site by offloading the processor-intensive tasks related to securing traffic with SSL. Available in two versions, the SCA 11000 simplifies security management and allows Web servers to process more requests for content and handle more e-transactions.

### Key Features

- Offloads all encryption, decryption, and secure process for a Web site, freeing Web servers to perform essential Web tasks and eliminating the need for SSL server software
- Boosts e-commerce site performance up to 50 times through dedicated SSL processing hardware—supports 200 or 800 new SSL connections per second
- Centralizes and manages the widest range of digital certificates to ensure complete independence from the Web server
- Provides linear scalability and fault tolerance—interoperates with the Cisco 11500 series Content Services Switches (CSS 11500) for intelligent load balancing of SSL traffic
- Works with any Web server platform to provide SSL support for any Web site
- Installs quickly and easily with very low maintenance—no special software required on Web servers or Cisco 11500 series switches

### Specifications

Cisco SCA 11000	SCA2	SCA
<b>Number of Ports</b>	Two 10/100BaseTX Ports	Two 10/100Base TX Ports
<b>Port Description</b>	Network Ports: Two 10/100Base TX; Console Port: DB9 Serial Port; Fallover Port: DB9 Serial Port	Network Ports: Two 10/100Base TX; Console Port: DB9 Serial Port; Fallover Port: DB9 Serial Port
<b>Data Transfer Rates</b>	Ethernet: 10 Mbps (half duplex), 20 Mbps (full duplex) Fast Ethernet: 100 Mbps (half duplex), 200 Mbps (full duplex)	Ethernet: 10 Mbps (half duplex), 20 Mbps (full duplex) Fast Ethernet: 100 Mbps (half duplex), 200 Mbps (full duplex)
<b>Configuration Software OS Support</b>	Windows NT 4.0; Red Hat Linux 5.0, 6.0, 6.1, 6.2	Windows NT 4.0; Red Hat Linux 5.0, 6.0, 6.1, 6.2
<b>Memory</b>	64 MB RAM; 16 MB Flash ROM	64 MB RAM; 16 MB Flash ROM
<b>Dimensions</b>	8.875 x 1.75 x 19 in.	8.875 x 1.75 x 19 in.
<b>Connection Rates</b>	800	200
<b>Concurrent Sessions</b>	5,000	30,000

### Selected Part Numbers and Ordering Information

#### Cisco SCA 11000

CSS-SCA-2FE-K9

CSS Secure Content Accelerator

CSS-SCA2-2FE-K9

CSS Secure Content Accelerator version 2

### For More Information

See the Cisco SCA 11000 Web site: <http://www.cisco.com/go/sca11000>

## Cisco DistributedDirector<sup>1</sup>

DistributedDirector provides dynamic, transparent, and scalable Internet traffic load distribution between multiple geographically-dispersed servers. DistributedDirector is a global Internet service-scaling solution that utilizes Cisco IOS software and leverages routing table information, delay characteristics, and other information to make “network intelligent” load distribution and site selection decisions.

DistributedDirector transparently redirects end-user service requests to the closest responsive server, which increases access performance and reduces transmission costs. Users need only a single subdomain name or URL-embedded hostname for accessing a distributed set of servers, thus providing the appearance of a single virtual server.

### When to Sell

#### Sell This Product

Cisco Distributed Director

#### When a Customer Needs These Features

- Load distribution across geographically/topologically dispersed TCP/IP servers
- High availability for dispersed mission-critical applications
- Data center redundancy and failover

### Key Features

- Transparent distribution of all IP Services (TCP and UDP), including HTTP, FTP, Telnet, and Gopher; provides global scalability for all IP-based network services
- Improves access performance by redirecting to the topologically closest server
- Calculates client-to-server round-trip times in real time; redirects clients to server with lowest client-to-server link latency, maximizing end-to-end performance
- Redirects clients only to responsive servers, resulting in maximized availability
- Cisco IOS Software & standard command line interface for device configuration
- Transparently add and remove distributed servers, simplifying maintenance
- Supports multiple domains; cost-effective IP service scalability solution

### Competitive Products

- 
- Alteon Networks: ACEdirector and Web Switches with WebOS GLSB
  - Resonate, Inc.: Global Dispatch
  - F5 Labs: 3DNS
  - RND Networks, Inc.: Web Server Director - Network Proximity (WSD-NP)
  - Foundry Networks: ServerIron Switch with Internet IronWare
- 

### For More Information

See the DistributedDirector Web site at <http://www.cisco.com/go/dd>

1. DistributedDirector is available in Cisco IOS software for 2600/2600XM, 3600, and 7200 series routers, starting on release 12.2(4)T Enterprise Plus feature sets; Dedicated routers may be recommended for DistributedDirector to meet performance targets of both routing and load balancing; If no dedicated hardware platform is available for running DistributedDirector, it is recommended customers use the Configurable DD Cache feature (available in 12.2(8)T) to limit the memory DistributedDirector may consume for DNS caching; To take advantage of enhanced caching capabilities, routers should be configured with additional DRAM (128MB or more)

## Cisco GSS 4480 Global Site Selector

The Cisco GSS 4480 is a networking product that globally load balances distributed data centers. The Cisco GSS 4480 acts as the cornerstone of multisite disaster recovery plans in deployments of Cisco's market-leading content switches. Customers deploying new Cisco content switches such as the Cisco CSS 11500 Content Services Switch and the Content Switching Module (CSM) for the Cisco Catalyst® 6500 Series switches or have already deployed legacy switches such as the Cisco CSS 11000 and Cisco Local Directors can benefit from the new levels of traffic management and centralized command and control provided by the Cisco GSS 4480.

### Key Features

- Provides resilient architecture critical for disaster recovery and multisite Web applications deployments
- Offers flexible heterogeneous support for all Cisco SLBs and DNS-capable networking products
- Provides centralized command and control of DNS resolution process for direct and precise control of global load-balancing process
- Offers site persistence for e-commerce applications
- Offers a unique DNS race feature-The Cisco GSS 4480 can in real time direct content consumers to the closest data center
- Supports a Web-based graphical user interface (GUI) and DNS wizard to simplify the DNS command and control

### Competitive Products

• F5 Networks eCommerce 540

• Nortel/Alteon ISD 410 SSL Accelerator

### Specifications

Feature	Cisco GSS 4480
Number of Ports	Two 10/100Base TX Ports
Port Description	Network Ports: Two 10/100Base TX; Console Port
DNS requests per second	4000, depending on configuration (~ 345 million DNS requests per day per Cisco GSS 4480; an entire system is capable of 2.7 billion DNS requests per day)
Configuration Software OS Support	Windows NT 4.0; Red Hat Linux 5.0, 6.0, 6.1, 6.2
Network management	Console port-CLI Access to system via Telnet; Secure copy (SCP) or FTP; GUI-Secure HTTP (HTTPS) for Internet Explorer and Netscape Navigator
Storage	One 36-GB hard drive
Physical	One-rack unit size chassis; Network management serial port1 GB of RAM600-MHz PIII CPU
Dimensions	1.72 x 17.5 x 14.13 in. (43.7 x 444.5 x 358.9 cm)

### Selected Part Numbers and Ordering Information<sup>1</sup>

#### Cisco GSS 4480

Cisco GSS 4480-K9

Global site selector

SF-GSS-V1.0-K9

SF-GSS-V1.0-K9Global site selector software

### For More Information

See the Cisco GSS 4480 Web site: <http://www.cisco.com/go/gss>







# Broadband and Dial Access Products

## Broadband and Dial Access Products at a Glance

### Remote Dial Access—Data and Voice (VoIP)

Product <sup>1</sup>	Features	Page
<b>Cisco AS5350 Series Universal Gateways</b>	<ul style="list-style-type: none"> <li>High performance, 1RU, universal gateway</li> <li>Universal Port technology for multiple data, voice, and fax services on any port at any time</li> <li>2, 4, &amp; 8 CT1/7 CE1/PRI configurations for 48 to 240 channels</li> <li>Supports broad range of async/ISDN/VoIP/wireless protocols</li> <li>Two 10/100 Ethernet ports, two 8 Mbps serial backhaul ports</li> <li>Two 8 Mbps serial backhaul ports</li> <li>Cisco SS7 signaling gateway interoperability</li> <li>Flexible, redundant backhaul methods</li> </ul>	7-4
<b>Cisco AS5400 Series Universal Gateways</b>	<ul style="list-style-type: none"> <li>High performance, 2RU, universal gateway</li> <li>Universal Port technology for multiple data, voice, and fax services on any port at any time</li> <li>Two models: Cisco AS5400HPX and Cisco AS5400</li> <li>8 to 16 CT1/CE1/PRI or 1 T3 configuration for 192 to 648 channels</li> <li>Low power and high availability design</li> <li>Supports a broad range of async/ISDN/VoIP/fax/wireless protocols</li> <li>Cisco SS7 signaling gateway interoperability</li> <li>Flexible, redundant backhaul methods</li> </ul>	7-7
<b>Cisco AS5850 Universal Gateway</b>	<ul style="list-style-type: none"> <li>The highest density universal gateway in the marketplace</li> <li>Supporting at least 2,688 sessions data, voice, and fax services on any port at any time using T1, E1, DS3 or STM-1 trunk interface</li> <li>Constant density regardless of codec type, ECAN or VAD settings</li> <li>Extensive high availability features</li> <li>TDM grooming capability</li> </ul>	7-9
<b>SS7 Signaling &amp; Softswitch Products</b>	<ul style="list-style-type: none"> <li>Cisco PGW 2200 Softswitch—Call Agent providing signaling and call control functionality for PSTN Gateway and transit applications in international markets</li> <li>Cisco BTS 10200 Softswitch—MGCP-based softswitch for large-scale Voice over IP and ATM applications</li> </ul>	7-11

1. For Cisco 2509 and 2511 Access Servers, see page 1-16.

## Broadband Cable

Product	Features	Page
<b>Headend and Distribution Hub Equipment</b>		
<b>Cisco uBR7100 Series Universal Broadband Router</b>	<ul style="list-style-type: none"> <li>Entry-level, fixed-configuration CMTS and integrated router for lower-density residential and MxU customers serviced by Tier 2/Tier 3 cable operators or ISPs.</li> <li>Choice of four DOCSIS- and EuroDOCSIS-qualified, fixed-configuration models that include: Cisco uBR7111, Cisco uBR7111E, Cisco uBR7114, and Cisco uBR7114E</li> <li>Integrated upconverter/modulator on the cable interface</li> <li>Embedded dual 10/100 BaseT Ethernet network interface</li> <li>Additional network interface with a variety of LAN and WAN options</li> <li>Supports up to 2,000<sup>1</sup> data subscribers</li> </ul>	7-12

Product	Features	Page
<b>Cisco uBR7246VXR Universal Broadband Router</b>	<ul style="list-style-type: none"> <li>Modular, standards-based communications-grade CMTS and integrated router for high-growth 7-13 broadband cable deployments</li> <li>Supports up to 8,000 subscribers and offers a large variety of LAN and WAN interface options and processors</li> <li>Supports a large variety of LAN and WAN interface options and processors</li> <li>Offers four cable line cards that include Cisco MC28C, MC16S, MC16E, MC16C, and MC14C Universal Broadband Router (uBR) cards and Cisco uBR7200 Series MC28U, MC28X, MC16U, and MC16X Broadband Processing Engines (BPEs)</li> <li>Supports up to 10,000 subscribers</li> </ul>	
<b>Cisco uBR10012 Universal Broadband Router</b>	<ul style="list-style-type: none"> <li>Highest-capacity communications-grade CMTS and integrated router on the market today that 7-15 delivers the services, performance, scale, and carrier-class reliability large cable operators and ISPs demand</li> <li>High-performance aggregation platform that uses Parallel Express Forwarding technology</li> <li>Eight cable line cards that include Cisco 5X20S and 5X20U Broadband Processing Engine (BPE)s, as well as earlier Cisco uBR line cards used with line card processors</li> <li>Four network interfaces that include support for 1 Gbps over Gigabit Ethernet, 622 Mbps over OC-12 Packet over SONET, and OC-48-Dynamic Packet Transport (DPT) Interface Module Set</li> <li>Supports up to 80,000 subscribers</li> </ul>	
<b>Cisco RF Switches</b>	<ul style="list-style-type: none"> <li>uBR 3x10 RF Switch: <ul style="list-style-type: none"> <li>Exceeds packet cable availability requirements</li> <li>Enables a fully redundant CMTS with no single point of failure; works with the Cisco uBR7246VXR and uBR10012</li> <li>Maximizes density with more than 250 MCX-type connector</li> </ul> </li> <li>uBR 2x12 RF Switch: <ul style="list-style-type: none"> <li>Reconfiguration of the Cisco uBR 3x10 RF Switch to allow optimized N+1 redundancy for the Cisco uBR7246VXR</li> <li>Supports two downstream switch modules and 12 upstream modules</li> </ul> </li> </ul>	7-16
<b>Customer Premise Equipment (CPE)</b>		
<b>Cisco uBR900 Series Cable Access Router</b>	<ul style="list-style-type: none"> <li>Integrated DOCSIS-based cable modem and router with hardware accelerated IPsec VPN tunneling support that includes: <ul style="list-style-type: none"> <li>Cisco uBR925 with 4 Ethernet, 1 CATV, 1 USB and 2 FXS ports that support telecommuter and small office DOCSIS-based data, VoIP, and VPN services</li> <li>Cisco uBR905 with 4 Ethernet and 1 CATV port that supports DOCSIS-based data and VPN services</li> </ul> </li> </ul>	7-18
<b>Video Edge QAM Equipment</b>		
<b>Cisco uMG9820 QAM Gateway</b>	<ul style="list-style-type: none"> <li>Offers the highest-density Gigabit Ethernet QAM product available today on the market for 7-19 digital video networks</li> <li>Modular, single-rack-unit chassis design enhances scalability by making it easy to add QAM channels as VoD service grows</li> <li>Optimized for Gigabit Ethernet networking accepting full line-rate Gigabit Ethernet video transport feeds</li> </ul>	
<b>Network Management</b>		
<b>Cisco Broadband Configurator</b>	<ul style="list-style-type: none"> <li>Provides a user interface to collect information needed to generate DOCSIS or PacketCable 7-20 configuration files</li> </ul>	
<b>Cisco Broadband Troubleshooter</b>	<ul style="list-style-type: none"> <li>Provides a diagnostic tool for RF technicians to quickly and easily isolate problems in the cable 7-20 plant</li> <li>Analyzes and sorts RF conditions into specific categories such as attenuation, provisioning, noise or packet corruption (CRC) errors</li> <li>Provides dashboard views of network health, CMTS and CM statistics, and CM snapshots</li> <li>Correlates CM to subscriber information</li> <li>Works with an optional tool to map CMs and status to subscriber street-level views</li> </ul>	
<b>Cisco Cable Diagnostic Manager</b>	<ul style="list-style-type: none"> <li>Provides fault, configuration, and performance management for Cisco CMTS products and DOCSIS and EuroDOCSIS CMs via proactive network surveillance</li> <li>Supports CM software image downloads</li> <li>Offers topology tree map of CMTS and CMs</li> <li>Provides tabular and graphical historical utilization and performance reports</li> <li>Offers color-coded chassis views to provide at-a-glance status</li> </ul>	7-20

1. Numbers are for reference only. Actual numbers for specific systems will vary depending on network/service loading, traffic, and other parameters.

## DSL (Digital Subscriber Line) Access

Product	Features	Page
DSL Access CPE <sup>1</sup>	Wide variety of Cisco router-based DSL CPE solutions for business-class to small office applications	7-21
Broadband Services Aggregation	<ul style="list-style-type: none"> <li>• Cisco 7200 Series Router—Up to 16000 broadband sessions on a 3 RU platform, including aggregation of PPP, PPPoE, and PPPoA</li> <li>• Cisco 7301 Series Router—1 RU Broadband Aggregation Router that is capable of delivering up to 16000 sessions per chassis</li> <li>• Cisco 7400 Series Router—1 RU broadband optimized appliance that delivers up to 8,000 sessions per chassis</li> <li>• Cisco 10000 Series Router—A carrier-class router that supports up to 32,000 broadband sessions with 99.999 percent system uptime</li> </ul>	7-22

1. For ADSL, ISDN, and IDSL small office/home office (SOHO) customer premise equipment (CPE), see Chapter 1: Routers

## ATM Multiservice WAN Switching

Product	Features	Page
Cisco BPX 8600 Series Switches	<ul style="list-style-type: none"> <li>• Large-scale Advanced ATM switch for service provider and large enterprise applications</li> <li>• Narrowband and broadband services in a single, highly reliable platform using a multishelf architecture with intelligent call processing for Frame Relay and ATM switched virtual circuits (SVCs)</li> <li>• 20 Gbps of high-throughput switching for multiple traffic types data, voice, and video</li> </ul>	7-23
Cisco MGX 8850 Series Advanced ATM Multiservice Switches	<ul style="list-style-type: none"> <li>• Multiservice switch, scales from DS0 to OC-48c/STM-16 speeds</li> <li>• Serves as a stand-alone device for narrowband services, an integrated edge concentrator or a broadband edge switch when equipped with 45 Gbps switch card and broadband ATM modules</li> <li>• Supports PNNI routing</li> </ul>	7-23
Cisco MGX 8830 Series Multiservice Switches	<ul style="list-style-type: none"> <li>• Multiservice switch scales from DS0 to OC-3c/STM-1 speeds</li> <li>• A standalone switch with narrowband interfaces and broadband trunking to remote sites with low density and high service mix requirements with 1.2 Gbps switch fabric</li> <li>• Supports PNNI routing</li> </ul>	7-24
Cisco IGX 8400 Series Multiservice WAN Switches	<ul style="list-style-type: none"> <li>• ATM-based WAN switching, connects to public services for reduced leased-line costs</li> <li>• Available with 8, 16, or 32 slots</li> </ul>	7-25
Cisco MGX 8200 Series Multiservice Gateways	<ul style="list-style-type: none"> <li>• Edge concentrators family provide a cost-effective narrowband multiservice solution for low to mid-band ATM and Frame Relay aggregation with QoS management features</li> </ul>	7-24

## Long Reach Ethernet

Product	Features	Page
Cisco Catalyst 2950 LRE XL Switches	Fixed configuration Ethernet switches for delivering converged voice, video, and data services over existing category 1/2/3 wiring for the MxU and enterprise markets <ul style="list-style-type: none"> <li>• 8 or 24 LRE ports + 2 10/100/1000BASE-T ports + 2 Small Form-Factor Pluggable (SFP) ports (two of the four uplinks active at one time), deliver Ethernet traffic (up to 15 Mbps) over standard copper cabling (up to 5000 feet); ideal for MxU broadband Internet access</li> <li>• Co-exists with POTS and ISDN traffic on the same line and compatible with ADSL</li> <li>• Advanced quality of service for supporting converged voice, video, and data services</li> </ul>	7-26
Cisco LRE CPE Devices	<ul style="list-style-type: none"> <li>• Cisco 575 LRE CPE—Compact, includes one RJ-45 Ethernet connection and two RJ-11 connectors (for telephone)</li> <li>• Cisco 585 LRE CPE—Compact, includes four RJ-45 switched Ethernet connections and two RJ-11 connectors (for telephone). Supports 802.1p QoS</li> </ul>	7-26
Cisco LRE POTS Splitter	<ul style="list-style-type: none"> <li>• Cisco LRE 48 POTS Splitter—48 ports in 1RU. Ensures that POTS service is separate, and never compromised by LRE switch reconfiguration or downtime</li> </ul>	7-26
Cisco Broadband Building Service Manager	<ul style="list-style-type: none"> <li>• Server system enables automated online activation, integrated billing, tiered service levels</li> <li>• Ideal for any form of broadband access technology, including Ethernet, LRE, Cable access, DSL, Wireless, or Fiber</li> </ul>	7-28

## Memory Information for Access Routers

Router	Memory Type	Slots	Default Memory	Max Memory	Default Config. (Notes)
Cisco AS5350 Universal Gateway	System Flash	N/A	32 MB	64 MB	
	SDRAM		128 MB	512 MB	
	Shared Boot Flash		64 MB	128 MB	
Cisco AS5400HPX Universal Gateway	Main SDRAM	2	256 MB	512 MB	Cisco AS5400HPX and Cisco AS5400 use different Boot and System Flash — NOT interchangeable
	Shared	1	64 MB	128 MB	
	Boot Flash (3V)	1	8 MB	16 MB	
	System Flash (3V)	2	32 MB	64 MB	

Router	Memory Type	Slots	Default Memory	Max Memory	Default Config. (Notes)
Cisco AS5400 Universal Gateway	Main SDRAM Shared Boot Flash (5V) System Flash (5V)	2 1 1 2	256 MB 64 MB 8 MB 32 MB	512 MB 128 MB 16 MB 64 MB	Cisco AS5400HPX and Cisco AS5400 use different Boot and System Flash — NOT interchangeable
Cisco AS5850 Universal Gateway	RSC SDRAM Feature Cards SDRAMS		1 GB 128 MB	1 GB 128 MB	Ships with all required memory
Cisco CVA120 Series	Config NVRAM DRAM Flash		128 kB 16 MB 8 MB		

## Cisco AS5350 Universal Gateway



The Cisco AS5350 Universal Gateway is the only one-rack-unit gateway supporting two-, four-, or eight-port T1/seven-port E1 configurations that provides universal port data, voice, and fax services on any port at any time. The Cisco AS5350 Universal Gateway offers high performance and high reliability in a compact, modular design. This cost-effective platform is ideally suited for Internet service providers (ISPs) and enterprise companies that require innovative universal services.

The Cisco AS5350 Universal Gateway eliminates the need for switches and routers to create a point-of-presence (POP) or “POP-in-a-box” solution. The Cisco AS5350 Universal Gateway has three primary universal gateway configurations: two Channelized T1 (CT1)/Channelized E1 (CE1)s, four CT1/CE1s, and eight CT1/seven CE1s. It also includes integrated signaling link termination (SLT) functionality for direct connection to a SS7/C7 signaling gateway.

The Cisco AS5350 Universal Gateway comes two high-speed serial ports are provided to support Frame Relay, Point-to-Point Protocol (PPP), and High-Level Data Link Control (HDLC) backhaul. All backhaul interfaces support Hot Standby Router Protocol (HSRP), and all cards and the fan tray are hot-swappable for carrier-class resiliency. The Cisco AS5350 Universal Gateway is the only access server in this form factor that offers universal port capability with these high-availability features.

### When to Sell

#### Sell This Product

Cisco AS5350

#### When a Customer Needs These Features

- 2 to 8 channelized CT1/7 CE1/PRI compact and modular universal
- High-performance modem, ISDN, and voice call termination
- Universal port services (data, voice, fax)

### Key Features

- 1 RU modular high-performance 2 to 8 channelized CT1/7 CE1/PRI system
- Universal Gateway—which supports multiple data, voice, and fax services on any port at any time
- Ideal for Tier 2/3 ISPs and enterprises requiring innovative universal services
- Feature cards: 2, 4, or 8 CT1/7 E1/PRI feature cards (ISDN calls terminated on the card); 60 or 108 channel Universal Port feature card
- Two 10/100BaseT autosensing Ethernet LAN ports
- Two 8 MB serial WAN ports for Frame Relay, HDLC, or PPP WAN backhaul
- Carrier Class Resiliency: All feature cards and fan tray are hot swappable, modem and voice DSP are pooled and can be configured as spares, AC internal power supply with dual fans, Redundant LAN/WAN backhaul ports, Thermal management and environmental monitoring, ETSI/NEBS Level 3 compliant

Cisco AS5350 Universal Gateway

- Cisco SS7 signaling gateway interoperability

## Competitive Products

- Lucent/Ascend: Max TNT
- 3Com/CommWorks: Total Control 1000
- Alcatel: 7505 Series
- Nuera: BTX Series
- Siemens: HiPath Series

## Specifications

Feature	Cisco AS5350
<b>Processor</b>	250 MHz RISC processor
<b>Memory</b>	SDRAM: 128 MB (default), 512 MB (maximum) Shared Input/output (I/O): 64 MB (default), 128 MB (maximum) Boot Flash: 8 MB (default), 16 MB (maximum) System Flash: 32 MB (default), 64 MB (maximum) Layer 3 Cache: 2 MB
<b>Feature Card Slots</b>	Three slots
<b>Egress Ports</b>	Two 10/100-MB Ethernet ports Two 8-Mbps serial ports T1/E1 DS1 trunk feature cards
<b>LAN Protocols</b>	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q
<b>WAN Protocols</b>	Frame Relay, PPP, HDLC (leased line)
<b>Routing Protocols</b>	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AT-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-Based Routing Protocol (AURP)
<b>QoS Protocols</b>	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFO), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP) fragmentation and interleaving, 802.1P
<b>Access Protocols</b>	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote
<b>Bandwidth Optimization</b>	Multilink PPP (MP), MLP, TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), bandwidth on demand, nonfacility-associated signaling (NFAS), traffic shaping
<b>Voice Compression</b>	G.711, G.723.1, (5.3K and 6.3K), G.726, G.729ab, G.Clear, GSM-FR
<b>DSP Voice Features</b>	Echo cancellation, programmable up to 128 ms Transparent transcoding between A-law and mu-law encoding Voice activity detection, silence suppression, comfort noise generation Fixed and adaptive jitter buffering Call progress tone detection and generation - Dial tone, busy, ring-back, congestion, and re-order tones with local country variants DTMF, Multifrequency (MF) Continuity Testing (COT)
<b>Voice and Fax Signaling Protocols</b>	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice Extensible Markup Language (VoiceXML), Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP) T.38 real-time fax relay T.37 fax store and forward Fax detection Fax and modem passthrough Open Settlements Protocol (OSP) Media Recording Control Protocol (MRCP) Text to Speech (TTS) Servers Automatic Speech Recognition (ASR) Servers
<b>SS7</b>	Integrated SLT functionality
<b>Network Security</b>	RADIUS or TACACS+ PAP or CHAP authentication Local user/password database DNS, CLID, call-type preauthentication Inbound/outbound traffic filtering (including IP, IPX, AppleTalk, bridged traffic) Network Address Translation (NAT) Dynamic access lists SNMPv2, SNMPv3
<b>Virtual Private Networking</b>	IP Security (IPSec) Policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CAR], Random Early Detection [RED], IP Precedence, policy-based routing)
<b>Channelized T1</b>	Robbed-bit signaling; Loop Start, Immediate Start, and Wink Start Protocols
<b>Channelized E1</b>	CAS, PRI, E1 R1, E1 R2, leased line, Frame Relay, G.703, G.704
<b>ISDN Protocols Supported</b>	Sync mode PPP, V.120, V.110 at rates up to 38400 bps Network- and User-side ISDN NFAS with backup D-channel QSIG, Feature Group B, Feature Group D DoVBS

Feature	Cisco AS5350
<b>Modem Protocols Supported</b>	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments V.92 Modem on Hold V.44 Compression Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0, at modulations V.33, V.17, V.29, V.27ter, and V.21 K56Flex at 56000 to 32000 in 2000 -bps increments ITU-T V.34 Annex 12 at 33600 and 31200 bps and many others
<b>Wireless Protocols Supported</b>	V.110, V.120
<b>Full Cisco IOS Support</b>	IP Plus and Enterprise Plus feature sets
<b>Console and Auxiliary Ports</b>	Asynchronous serial (RJ-45)
<b>Chassis</b>	Dimensions (H x W x D): 1.75 x 17.5 x 20.5 in. Weight (fully loaded): 22 lbs. (10 kg)

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco AS5350 Universal (Data) System Bundles

AS535-2T1-48-AC	AC AS5350: 2T1, 60 ports, IP+ IOS, 48 Data Lic
AS535-4T1-96-AC	AC AS5350: 4T1, 108 ports, IP+ IOS, 96 Data Lic
AS535-8T1-192-AC	AC AS5350: 8T1, 216 ports, IP+ IOS, 192 Data Lic
AS535-2E1-60-AC	AC AS5350: 2E1, 60 ports, IP+ IOS, 60 Data Lic
AS535-4E1-120-AC	AC AS5350: 4E1, 120 ports, IP+ IOS, 120 Data Lic
AS535-8E1-210-AC	AC AS5350: 8E1, 216 ports, 240 ISDN ports, IP+ IOS, 210 Data Lic

### Cisco AS5350 Universal (Voice) System Bundles

AS535-2T1-48-AC-V	AC AS5350 Voice: 2T1, 60 ports, IP+ IOS, 48 Voice Lic
AS535-4T1-96-AC-V	AC AS5350 Voice: 4T1, 108 ports, IP+ IOS, 96 Voice Lic
AS535-8T1-192-AC-V	AC AS5350 Voice: 8T1, 216 ports, IP+ IOS, 192 Voice Lic
AS535-2E1-60-AC-V	AC AS5350 Voice: 2E1, 60 ports, IP+ IOS, 60 Voice Lic
AS535-4E1-120-AC-V	AC AS5350 Voice: 4E1, 120 ports, IP+ IOS, 120 Voice Lic
AS535-8E1-210-AC-V	AC AS5350 Voice: 8E1, 216 ports, IP+ IOS, 210 Voice Lic

### Cisco AS5350 Spare Chassis

AS5350-AC=	AC 5350 Chassis with Motherboard, IP Plus IOS, default memory
AS5350-DC=	DC 5350 Chassis with Motherboard, IP Plus IOS, default memory

### Cisco AS5350 Software

S535AK8-12202XA	Cisco AS5350 Series IOS ENTERPRISE PLUS IPSEC 56
S535AP-12202XA	Cisco AS5350 Series IOS ENTERPRISE PLUS
S535CK8-12202XA	Cisco AS5350 Series IOS IP PLUS IPSEC 56
S535CP-12202XA	Cisco AS5350 Series IOS IP PLUS

### Cisco AS5350 Memory Options & Spares

MEM-UP1-AS535	16M Bootflash, 64M System Flash, 256M Main, 128M Shared I/O Memory
MEM-16BF-AS535	AS5350 16MB Boot Flash upgrade
MEM-64F-AS535	AS5350 64MB System Flash upgrade
MEM-256M-AS535	AS5350 256MB Main SDRAM upgrade
MEM-128S-AS535	AS5350 128MB Shared I/O upgrade

### Cisco AS5350 Spare DFC Boards

AS535-DFC-2CT1=	AS5350 Dual T1/PRI DFC card
AS535-DFC-2CE1=	AS5350 Dual CE1/PRI DFC card
AS535-DFC-4CT1=	AS5350 Quad T1/PRI DFC card
AS535-DFC-4CE1=	AS5350 Quad E1/PRI DFC card
AS535-DFC-8CT1=	AS5350 Octal T1/PRI DFC card
AS535-DFC-8CE1=	AS5350 Octal E1/PRI DFC card
AS535-DFC-60NP=	AS5350 60 Nextport DFC card
AS535-DFC-108NP=	AS5350 108 Universal Port Card

### Cisco AS5350 Spare Accessories

AS5350RM-19/24=	AS5350 19/24 Rack Mount Kit, Spare
AS535-FTA=	AS5350 Fan Tray Assembly, Spare
AS535-AC-PWR=	AS5350 AC Power Supply, Spare
AS535-DC-PWR=	AS5350 DC Power Supply, Spare
AS535-DFC-CC=	AS5350 DFC Carrier Card

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco AS5350 Universal Gateway Web site: <http://www.cisco.com/go/as5350>

## Cisco AS5400 Series Universal Gateways



Cisco AS5400 Series Universal Gateways offer unparalleled capacity in only two rack units (2RUs) and provides universal port data, voice and fax services on any port at any time. High-density (up to 1 CT3), low power consumption (7.2A at 48 VDC per CT3), and universal port digital signal processors (DSPs) make Cisco AS5400 Series Universal Gateways ideal for many network deployment architectures, especially colocation environments and mega points of presence (POPs).

The Cisco AS5400 Series consists of two models, the Cisco AS5400 and the Cisco AS5400HPX. The gateways share the same architecture; the primary difference is the processing capability of the two platforms. The Cisco AS5400 offers unparalleled dial capacity and scalability for MLPPP, L2TP, and V.120 sessions, whereas the Cisco AS5400HPX provides enhanced performance for processor intensive voice and fax applications.

Cisco AS5400 Series support a wide range of IP-based value-added services such as high-volume Internet access, regional/branch-office connectivity, corporate virtual private networks (VPNs), mobile wireless solutions, long distance for Internet service providers (ISPs), international wholesale long distance, distributed prepaid calling, Signaling System 7 (SS7) interconnect, and enhanced voice services.

### When to Sell

#### Sell This Product

Cisco AS5400HPX

#### When a Customer Needs These Features

- High density in a small footprint (16 CT1/CE1 or 1 CT3)
- Universal port services (data, voice, fax)
- Enhanced performance for processor intensive voice and fax applications
- Compact form factor—easy to add capacity as the network grows
- Low power per port
- High performance async/ISDN/VoIP/wireless
- T.38 real-time fax relay, T.37 fax store and forward, fax detection, unified communications
- Flexible redundant backhaul methods

Cisco AS5400

- Async/ISDN/Wireless data to 1 CT3
- Universal port services (data, voice, fax) or voice only services to 16 CT1/CE1

### Key Features

- The Industry's only 2RU, CT3-capable universal gateway on the market with hot-swappable cards, internal redundant power supply
- Universal Gateway which provides universal port data, voice, and fax services on any port at any time
- Feature cards: 8 or 16 CT1/CE1 feature cards; 60 or 108 channel Universal Port feature card; All feature cards and fan trays are hot-swappable
- Redundant 10/100 Ethernet ports and redundant 8 Mbps serial backhaul ports for Frame Relay, HDLC or PPP WAN Backhaul
- One fast console port for local administrative access; one auxiliary port for remote administrative access
- Redundant LAN/WAN backhaul ports
- ETSI/NEBS Level 3 compliant
- AC or DC power supply with dual fans
- Cisco SS7 signaling gateway interoperability



## Competitive Products

- 3Com/CommWorks: Total Control C1000
- Alcatel: 7505 Series
- Lucent: Max TNT
- Siemens: HiPath Series

## Specifications

<b>Processor Type</b>	Cisco AS5400HPX: 390-MHz RISC processor Cisco AS5400:250-MHz RISC processor
<b>Calls Supported</b>	Cisco AS5400HPX: Voice or universal port services - to 648 concurrent calls (to 20T1s/16E1s) or Remote access services - to 648 calls (to 1CT3/16E1s) Cisco AS5400: Voice or universal port services - to 480 concurrent calls (to 20T1s/16E1s) or Remote access services - to 648 calls (to 1CT3/16E1s)
<b>SDRAM</b>	256 MB (default), 512 MB (maximum)
<b>Boot Flash</b>	8 MB (default) 16 MB (maximum)
<b>System Flash</b>	32 MB (default) 64 MB (maximum)
<b>Layer 3 Cache</b>	Cisco AS5400HPX: 8 MB Cisco AS5400:2 MB
<b>Shared input/output (I/O)</b>	64 MB (default) 128 MB (maximum)
<b>Feature Slots</b>	7
<b>Trunk Feature Cards</b>	8 T1/E1/PRI 1 CT3
<b>DSP Feature Card</b>	60/180 Universal ports
<b>LAN Protocols</b>	IP, IPX, AppleTalk, DECnet, ARA, NetBEUI, bridging, HSRP, 802.1Q
<b>WAN Protocols</b>	Frame Relay, PPP, HDLC (leased line)
<b>Routing Protocols</b>	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AT-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-Based Routing Protocol (AURP)
<b>QoS Protocols</b>	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFG), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP) fragmentation and interleaving, 802.1P
<b>Access Protocols</b>	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, LAT, Telnet), & XRemote
<b>Bandwidth Optimization</b>	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), Bandwidth on demand, Traffic shaping
<b>Voice Compression</b>	G.711, G.723.1 (5.3k and 6.3k), G.726, G.729ab, G.Clear, GSM-FR
<b>DSP Voice Features</b>	G.168 echo cancellation, programmable up to 128 ms Transparent transcoding between A-law and mu-law encoding Voice activity detection, silence suppression, comfort noise, fixed and adaptive jitter buffering Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones, with local country variants Continuity Testing (COT) DTMF, MF
<b>Voice and Fax Signaling Protocols</b>	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice Extensible Markup Language (VoiceXML), Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP) T.37 fax store and forward T.38 real-time fax relay Fax detection Fax and modem passthrough Open Settlements Protocol (OSP) Media Recording Control Protocol (MRCP) Text to Speech (TTS) Servers Automatic Speech Recognition (ASR) Servers
<b>SS7</b>	Integrated SLT functionality
<b>Network Security</b>	RADIUS or TACACS+, PAP or CHAP authentication, local user/password database DNS, CLID, call-type pre-authentication Inbound/outbound traffic filtering (including IP, IPX, AppleTalk, bridged traffic) Network Address Translation (NAT) and Dynamic access lists SNMPv2, SNMPv3
<b>Virtual Private Networking</b>	IP Security (IPSec) and Policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection
<b>Channelized T1</b>	Robbed-bit signaling: loop start, immediate start, and wink start protocols
<b>Channelized E1</b>	CAS, E1 R1, E1 R2, leased line, Frame Relay, G.703, G.704
<b>ISDN Protocols Supported</b>	Sync mode PPP, V.120, V.110 at rates up to 38400 bps Network- and User-side ISDN DoVBS QSIG NFAS with backup D-channel
<b>Modem Protocols Supported</b>	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments V.92 Modem on Hold, Quick Connect V.44 Compression Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0, at modulations V.33, V.17, V.29, V.27ter, and V.21 K56Flex at 56000 to 32000 in 2000 bps increments ITU-T V.34 Annex 12 at 33600 and 31200 bps and many others
<b>Wireless Protocol</b>	V.110, V.120
<b>Full Cisco IOS Support</b>	IP Plus and Enterprise Plus feature sets

<b>Console and Auxiliary Ports</b>	Asynchronous serial (RJ-45)
<b>Chassis Dimensions (H x W x D)</b>	3.5 x 17.5 x 18.25 in.
<b>Chassis Weight (fully loaded)</b>	35 lb maximum (15.8 kg)

## For More Information

See the Cisco AS5400 Universal Gateways Web site: <http://www.cisco.com/go/as5400>

## Cisco AS5850 Universal Gateway

The Cisco AS5850 Universal Gateway is a high-density universal gateway, with carrier-class attributes, offering highest capacity and high availability in its class. It offers high-availability features such as hot-swap on all cards, load-sharing and redundant hot-swappable power supplies, redundant blower for cooling, enhanced redundant route switch controller (eRSC) cards, and Call Admission Control (CAC), all part of the carrier class attributes required to provide a highly available system. Higher capacity configurations, depending on dial, voice, and fax application types are also supported. The Cisco AS5850 supports a wide range of IP-based value-added services such as high-volume Internet



access, corporate virtual private networks (VPNs), long distance for Internet service providers (ISPs), international wholesale long distance, distributed prepaid calling, Signaling System 7 (SS7) interconnect, and managed voice services such as hosted IP telephony, managed IP-PBX, multiservice VPNs, and IP contact centers.

Using the rich set of Cisco IOS Software features and Signaling System 7 (SS7) interconnection, service providers can quickly provision their network for new services to meet the rapidly changing demands of the communications provider marketplace.

As a highly flexible voice gateway, the Cisco AS5850 supports any coder-decoder (CODEC) at 100-percent capacity simplifying network engineering. An open programmable architecture streamlines rapid voice service creation with H.323, Session Initiation Protocol (SIP) or Media Gateway Control Protocol (MGCP).

## When to Sell

### Sell This Product

Cisco AS5850

### When a Customer Needs These Features

- Supporting at least 2,688 sessions of data, voice, and fax services on any port at any time using T1, E1, channelized DS3 and STM-1 trunk interfaces. Larger configurations are supported for dial, MGCP voice, TDM switching, and simple H.323 or SIP applications.
- Service provider or IP-focused installations
- Highly available single system with multiple redundancy
- Wholesale dial/voice, retail dial/voice, TDM grooming or wireless applications

## Key Features

- Hot-swappable redundant power supplies and power feeds
- Redundant DSPs and RSC
- Router Processor Redundancy+ for high availability
- Thermal/Power management and redundant fans
- DSP Resource Recovery Feature
- Supports H.323v2, H.323v3, H.323v4, SIP and MGCP 1.0
- Application-specific support including AOL and Prodigy traffic
- WAN optimization including routing filters, snapshot routine, dial-on-demand routing ASAP
- ETSI/NEBS Level 3 compliant
- Cisco SS7 signaling gateway interoperability
- Stratum-3 clock support
- 802.1Q/1p VLAN/ISL support

## Competitive Products

- 3Com: TC 2000
- Lucent: APX 8000
- Siemens: HiPath Series
- Alcatel: 7505 Series

## Specifications

Feature	Cisco AS5850
Slots	12 feature board slots 2 eRSC slots
Processor Type	650 MHz Broadcom 1250 Dual Core
RSC Switch Fabric	5 Gbps, Layer 3 / 4 switching
Memory	1 GB SDRAM with ECC per RSC 128 MB SDRAM (with parity) per feature card
Trunk Cards	Single CT3 plus 216 DSP Channel feature card 24 CE1/CT1 feature card Single port Channelized STM-1 feature card
Universal Port Card	324 Channel DSP-feature card
Egress Ports	Dual Gigabit load-balanced redundant Ethernet ports with GBIC interfaces for user traffic Dual 10/100-Mbps Ethernet port with RJ45 connector for management traffic
LAN Protocols	IP
Service Support	Port Policy Management and SS7/C7
Routing Protocols	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, Next Hop Resolution Protocol (NHRP)
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), Bandwidth on demand, Nonfacility-associated signaling (NFAS), traffic shaping
Network Security	RADIUS or TACACS+, PAP or CHAP authentication, local user/password database, DNS, CLID, call-type pre-authentication, Inbound/outbound traffic filtering (including IP), SNMPv2, SNMPv3
Virtual Private Networking	IP Security (IPSec) and Policy enforcement (RADIUS or TACACS+), L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels, Firewall security and intrusion detection, IP Precedence, policy-based routing
Channelized T1	PRI, robbed-bit signaling: loop start, immediate start, and wink start protocols, SS7 IMT
Channelized DS3	PRI, robbed-bit signaling: loop start, immediate start, and wink start protocols, SS7 IMT
Channelized E1	CAS, E1 R2, PRI, SS7 IMT
Channelized STM-1	CAS, E1 R2, PRI, SS7 IMT
ISDN Protocols	Sync mode PPP, V.120, V.110 at rates up to 38400
Voice Protocols	G.711, G.723.1, G.726, G.729ab, G.Clear, GSM-FR H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0 ECAN up to 128ms T.38 real-time fax relay Fax detection Fax and modem passthrough
Modem Protocols	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333-bps increments V.44 supporting increased throughput by more than 100 percent for Internet browsing Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0, at modulations V.33, V.17, V.29, V.27ter, and V.21 K56Flex at 56000 to 32000 in 2000-bps increments ITU-T V.34 Annex 12 at 33600 and 31200 bps and more
ISDN Protocols	Sync mode PPP, V.120, V.110 at rates up to 38400 bps

### Cisco AS5850 Universal Gateway

Wireless Protocol	V.110
Console	Asynchronous serial (RJ-45)
Chassis Dimensions (HxWxD)	24.5 x 17.5 x 24 in.
Chassis Weight	220 lb (100 kg)

### For More Information

See the Cisco AS5850 Web site: <http://www.cisco.com/go/AS5850>

## SS7 Signaling & Softswitch Products

Cisco AS5x00 series products interoperate with various SS7 and Softswitch products, including the Cisco SC2200 Signaling Controller, the Cisco PGW 2200 Softswitch and the Cisco BTS 10200 Softswitch.

### Cisco SC2200 Signaling Controller

Please see PGW 2200 Softswitch.

### Cisco PGW 2200 Softswitch

The Cisco PGW 2200 provides the signaling and call control functionality that enables service providers (SPs) to bridge the boundary between the legacy PSTN and today's new world packet networks. Combined with Cisco's award winning media gateways, the PGW 2200 is the catalyst for PSTN Gateway solutions enabling dial offload, transit, business voice, H.323 and SIP based applications. The PGW 2200 leverages its protocol library of 90+ SS7/C7 variants to enable interconnect worldwide. In signaling mode the PGW adds SS7/C7 to the AS5X00 gateways, giving service providers around the world a proven cost-saving and reliable solution for connecting VoIP and Internet Dial Access solutions to the PSTN. SS7 signaling allows service providers to enter into new markets, optimize their networks for both voice and data traffic, and save drastically on monthly interconnect fees.

### Cisco BTS 10200 Softswitch

The Cisco BTS 10200 Softswitch provides call-control intelligence for establishing, maintaining, routing, and terminating voice calls. The Cisco BTS 10200 Softswitch also serves as an interface to enhanced service and application platforms. Leveraging the power of packet networks while seamlessly operating with legacy circuit switched infrastructures, the Cisco BTS 10200 Softswitch empowers service providers and carriers to gracefully transition to packet-based technology. Implementing the Cisco BTS 10200 Softswitch ensures rapid service deployment, carrier-grade reliability, service flexibility, scalability to millions of subscribers, and cost savings through investment optimization and operational efficiencies.

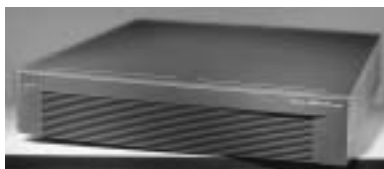
### For More Information

See SS7 Signaling & Softswitch Products Web site:  
<http://www.cisco.com/en/US/products/hw/vcallcon/index.html>

## Additional Remote Dial Access Products

- In addition to the AS5350/AS5400/AS5850 series access gateways, the Cisco 2600/3600 series routers (see pages 1-16 and 1-21) also support dial-up, data, and voice access via network and modem modules, and voice interface cards
- For sites that require access via multiple external analog modems, the AS2509/AS2511-RJ access servers (see page 1-16) and 2600 series routers (see page 1-16) are ideal for low-density, dial applications
- For small office ISDN connectivity, see Cisco 800 series routers (see page 1-11)

### Cisco uBR7100 Series Universal Broadband Router



The Cisco uBR7100 Series is a complete, compact, easy-to-use product that enables cost-effective, high-speed Internet access in the hospitality multidwelling (MDU) and multitenant (MTU) market space using the coaxial cable already in a building. The product requires exceptionally low capital investment and minimal setup time to provide online Internet access and support residential voice services. For Tier 2 or Tier 3 cable operators, it is the industry's most cost-effective, feature-rich CMTS and integrated router. The Cisco uBR7111 and Cisco uBR7114 models are CableLabs qualified to DOCSIS 1.0 specifications. The Cisco uBR7111E and Cisco uBR7114E models are tComLabs qualified to EuroDOCSIS 1.1 specifications. The Cisco uBR7111 and Cisco uBR7111E contain one downstream port and one upstream port. The Cisco uBR7114 and Cisco uBR7114E contain one downstream port and four upstream ports. All models support bidirectional or telco-return traffic.

#### When to Sell

##### Sell This Product

Cisco uBR7100 Series

##### When a Customer Needs These Features

- For MxU customers: the Cisco uBR7100 Series enables high-value Internet and residential voice services over a DOCSIS or EuroDOCSIS cable infrastructure
- For cable operators: the Multi-tenant/dwelling Unit (MxU) market represents an untapped opportunity to expand broadband cable service. Given the small subscriber base of a typical MxU setting, the challenge has been to deliver robust services quickly and cost-effectively for an accelerated break-even point and a quicker return on investment—enabled by the Cisco uBR7100 Series

#### Key Features

- Complete package that includes a full Layer 3 router and CMTS with an integrated upconverter, and embedded Network Interface, and configuration tools to provision hosts, cable modems, and set top boxes
- Standards-based: DOCSIS and EuroDOCSIS
- Reliable operation to ensure the system remains online
- Uses Cisco IOS Software

## Specifications

Feature	Cisco uBR7111 and uBR7114	Cisco uBR7111E and uBR7114E
<b>Memory</b>	Flash: 48 MB; System: 128 MB	Flash: 48 MB; System: 128 MB
<b>Line Card with Integrated Upconverter (Cable Plant Interface)</b>	uBR7111: 1 downstream and 1 upstream uBR7114: 2 downstream and 4 upstreams	uBR7111E: 1 downstream and 1 upstream uBR7114E: 2 downstream and 4 upstreams
<b>Integrated Upconverter</b>	DOCSIS Annex B, 6 MHz High level output: =+61dBmV, 55 to 858 MHz Optimized for 64 and 256 QAM	DOCSIS Annex A, 8 MHz, High level output: = +61 dBmV, 55 to 858 MHz Optimized for 64 and 256 QAM
<b>Power Options</b>	Single; 100 to 240 VAC input voltage	Same as Cisco uBR7111 and Cisco uBR7114
<b>Recommended Minimum Cisco IOS Software Release</b>	12.1(19)EC1 or later	12.1(7)EC minimum
<b>Port Adapter (WAN or backbone Interface)</b>	Embedded dual 10/100 BaseT Ethernet (TX FE) provided supports one additional PA that includes: Ethernet: <ul style="list-style-type: none"> <li>• PA-4E-4-port Ethernet 10BASE-T</li> <li>• Fast Ethernet:</li> <li>• PA-FE-TX-1-port 100BASE-TX Fast Ethernet</li> <li>• PA-FE-FX-1-port 100BASE-FX Fast Ethernet</li> <li>• PA-2FE-TX 2-port 100BASE-TX Fast Ethernet</li> <li>• PA-2FE-FX 2-port 100BASE-FX Fast Ethernet</li> </ul> Serial: <ul style="list-style-type: none"> <li>• PA-MC-4T1 4-port multichannel T1 Port Adapter with integrated CSU/DSUs</li> <li>• PA-MC-2T1 2-port multichannel T1 Port Adapter with integrated CSU/DSUs</li> <li>• PA-E3-1-port E3 serial Port Adapter with E3 DSU</li> <li>• PA-T3-1-port T3 serial Port Adapter with T3 DSU</li> <li>• PA-2E3-2-port E3 serial Port Adapter with E3 DSUs</li> <li>• PA-2T3-2-port T3 serial Port Adapter with T3 DSUs</li> <li>• PA-4T+-4-port serial Port Adapter, enhanced</li> <li>• PA-4E1G-75-4-port E1-G.703 serial Port Adapter (75-ohm/unbalanced)</li> <li>• PA-4E1G-120-4-port E1-G.703 serial Port Adapter (120-ohm/balanced)</li> </ul> ATM: <ul style="list-style-type: none"> <li>• PA-A3-8T1IMA, 8-port ATM inverse T1 multiplexer Port Adapter</li> <li>• PA-A3-OC3SML—1-port OC-3c ATM, PCI-based single-mode long reach port adapter</li> <li>• PA-A3-OC3MM, 1-port ATM enhanced OC3c/STM1 multimode Port Adapter</li> <li>• PA-A3-OC3SMI—1-port OC-3c ATM, PCI-based single-mode intermediate reach port adapter</li> </ul> POS: <ul style="list-style-type: none"> <li>• PA-POS-OC3SMI, 1-port Packet/SONET OC3c/STM1 single-mode Port Adapter</li> </ul>	Same as Cisco uBR7111 and Cisco uBR7114

### For More Information

See the Cisco uBR7100 series Web site: <http://www.cisco.com/go/ubr7100>

## Cisco uBR7246VXR Universal Broadband Router

The Cisco uBR7246VXR—a member of the Cisco uBR7200 Series—combines the functionality of a CMTS with an advanced router. The Cisco uBR7246VXR provides a single, multiservice, scalable platform that gives cable companies and ISPs the ability to deliver IP data, voice and video services to DOCSIS or EuroDOCSIS-compliant cable modems and set-top boxes. The Cisco uBR7246VXR is CableLabs qualified to DOCSIS 1.1, as well as PacketCable 1.0 specifications. The product is also tComLabs qualified to EuroDOCSIS 1.1 specifications.



## When to Sell

### Sell This Product Cisco uBR7246VXR

#### When a Customer Needs These Features

- Positioned for high-growth cable deployments
- Flexible port expansion for multiservice deployment options
- Supports up to 10,000 subscribers per chassis with 3.2 Gbps back plane<sup>1</sup>
- 4 cable line card slots, 2 port adapter slots, 1 I/O controller slot, 1 NPE slot, and 1 clock card slot for VoIP

1. Numbers are for reference only. Actual numbers for specific systems will vary depending on network/service loading, traffic, and other parameters

## Key Features

- Standards—based-Supports PacketCable 1.0, DOCSIS/EuroDOCSIS 1.1
- Modularity allows for customized configuration per plant characteristics for optimization of topology and network bandwidth
- Cisco IOS Software—Delivers proven stability and offers advanced features such as multiprotocol routing, tunneling, bandwidth management, QoS, guaranteed service levels, service-level monitoring and many CPE management options
- Ease of management and upgrades—Supports online insertion and removal of components to allow seamless upgrades of port adapters, line cards, and power supplies without service interruption. Provides single, centralized point of administration for remote devices

## Specifications

Feature	Cisco uBR7246VXR
Cable Line Cards and Number of Slots	4
Supported cable line cards (Cable Plant Interfaces)	uBR7200 Series MC28U, MC28X, MC16U, and MC16X Broadband Processing Engines uBR-MC14C, MC16C, MC16E, MC16S and MC28C Universal Broadband Router line cards
Port Adapter Slots (LAN/WAN interfaces)	2
Supported PA categories	Ethernet: Fast Ethernet; Gigabit Ethernet Serial (V.35, E1-G.703/G.704, T3/E3) Serial Multi-channel T1 HSSI ATM T3/E3 ((PCI-based) ATM OC-3c (PCI-based) POS OC-3c DPT OC-12c/STM4c
Power Supply Slots	2
Power Supply Option	AC; Dual AC; DC; Dual DC
Input/Output (I/O) controller	uBR7200-I/O uBR7200-I/O-FE uBR7200-I/O-2FE/E
I/O flash options for PCMCIA slots	Flash disk (48 MB) Flash disk (128 MB)
Network processing engines (NPE)	uBR7200-NPE-G1, NPE-400, and NPE-225
Add-on processor memory options	SDRAM (128 MB, 256 MB) for NPE-225 only SDRAM (128 MB, 256 MB = 512 MB) for NPE-400 only 1 GB, 512 MB, 128 MB for uBR7200-NPE-G1
Router Bandwidth	3.2 Gbps

## For More Information

See the uBR7200 Web site: <http://www.cisco.com/go/ubr7200>

## Cisco uBR10012 Universal Broadband Router

The Cisco uBR10012 Universal Broadband Router is a new class of CMTS, that handles the volume, capacity, and complexity of large cable headends or distribution hubs. It combines the revenue-generating features and stability of the market-leading Cisco uBR7200 Series with an architecture that is optimized for aggregation and virtually limitless future growth. The Cisco uBR10012 goes beyond the traditional “carrier class” definition, to deliver the highest level of service availability and capacity of any production CMTS available today. It employs a mix of distributed, centralized, and parallel processing to enable consistently high, real-world performance. The Cisco uBR10012 is CableLabs qualified to DOCSIS 1.0 and DOCSIS 1.1 specifications. The product is also tComLabs qualified to EuroDOCSIS 1.0 specifications.



### When to Sell

#### Sell This Product Cisco uBR10012

#### When a Customer Needs These Features

- High-end throughput, capacity, and service handling for a mix of IP data, voice, and video services over cable—supporting a wide variety of applications, media, session types, subscriber profiles, and access devices
- Support for advanced feature sets, varying QoS requirements, service-level differentiations, and transport strategies (MPEG, IP, multicast, unicast, broadcast) that include implementing flow control to various cable CPE devices

### Key Features

- Highest-capacity CMTS that leverages the proven stability of the industry-standard Cisco uBR7200 Series, the highly scalable architecture of the Cisco 10000 Internet Router, and feature-rich Cisco IOS Software
- Multiservice support, optimized to provide high throughput and accelerated processing using PXF technology; exceptional throughput on each connection in the chassis is achieved
- Standards-based design, support includes DOCSIS 1.0 and DOCSIS 1.1
- Reliability—Designed to eliminate single points of failure and allow technicians to swap out cards online; architected to provide redundancy throughout the system that includes redundant processing engines, bus interconnects, and power supplies
- Secure, scalable choices protect your investment and ensure current and future business growth can be accommodated; the architecture supports planned system and network expansion, including scaling IP services forwarding capacity, increasing connection speeds and densities, and extensive route scaling techniques

### Specifications

Feature	Cisco uBR10012
<b>Modular Slots</b>	8 slots for cable line cards 4 slots for LAN/WAN interfaces 2 slots for Performance Routing Engines (PREs) 2 slots for Timing Communication and Control Plus (TCC+) modules
<b>Supported Cards</b>	Cable line cards that include: Cisco uBR line cards with a Cisco Line Card Processor (LCP2) and Cisco 5X20 BPE Timing, Communications, and Control Plus (TCC+) card Gigabit Ethernet (GE) network uplink card OC-12 Packet Over SONET (POS) network uplink card OC-48 DPT Interface
<b>Processor Type</b>	Parallel Express Forwarding (PXF)
<b>Flash Memory</b>	48 MB (default); 128 MB (maximum)
<b>DRAM Memory</b>	512 DRAM (default)



<b>Feature</b>	<b>Cisco uBR10012</b>
<b>Software Supported</b>	Minimum software requirement: Cisco IOS Software Release 12.2(11)BC1 minimum for the Cisco 5X20 BPE, Cisco IOS Software Release 12.2(13)BC minimum for the Cisco OC-48 DPT Interface
<b>Power Supply</b>	DC, AC
<b>Hot-Swappable</b>	Yes
<b>Backplane Capacity</b>	51.2 Gbps
<b>Physical Dimensions (H x W x D)</b>	Height: 31.25 in. (79.4 cm)—18 rack units (RU) Width: 17.2 in. (43.7 cm) Depth: 22.75 in. (57.8) Mounting: 19 in. rack mountable (front or rear), 2 units per 7 ft. rack Note: Mounting in 23 in. racks is possible with optional third-party hardware
<b>Weight</b>	Weight: 235 lb (106.6 kg) fully configured chassis

## For More Information

See the Cisco uBR10012 Web site: <http://www.cisco.com/go/ubr10012>

## Cisco RF Switches

Cisco RF Switches work with the Cisco uBR10002 and uBR7246VXR universal broadband routers to provide a fully redundant system that enables cable service providers to achieve PacketCable system availability, minimize service disruptions, and simplify operations. Cisco RF Switches are part of Cisco's newest high-availability N+1 solution sets. In combination with the Cisco uBR10012 and uBR7246VXR, a Cisco RF Switch enables a fully redundant CMTS with no single point of failure. Cisco offers two models of RF switches:



- Cisco uBR 3x10 RF Switch works with both the Cisco uBR10012 and uBR7246VXR and supports three downstream switch modules and 10 upstream modules
- Cisco uBR 2x12 RF Switch works with the Cisco uBR7246VXR and supports two downstream switch modules and 12 upstream modules; this model is a reconfiguration of the Cisco uBR 3x10 to allow optimized N+1 redundancy for the Cisco uBR7246VXR

Both RF Switch models maximize density with more than 250 MCX-type connectors that interface the CMTS to the cable plant. Cisco RF Switches contain RF combiners/splitters, RF switch logic, and RF switch driver.

### When to Sell

#### Sell This Product Cisco RF Switches

#### When a Customer Needs These Features

As cable service providers enter the VoIP market, high availability (24x7 service) for broadband cable IP services is becoming a requirement. The Cisco RF Switch enables cable service providers to achieve PacketCable system availability, minimize service disruptions, and simplify operations.

## Key Features

- Front-panel serviceability with module Hot Swap capability that eliminates downtime for RF paths
- Unmatched RF performance designed to support DOCSIS, EuroDOCSIS and PacketCable specifications
- Most comprehensive set of high availability features and configuration flexibility available
- Modular upstream and downstream capacity with ten upstream, three downstream, and one blank slot that optimizes the serviceability of the CMTS; each of the 14 modules represent a port on a cable line card. Each switch module contains seven working or “active” inputs, plus one protect or “standby” input and seven protected outputs. Inputs are connections from the Cisco uBR10012 and uBR7246VXR to the Cisco RF Switch. Outputs are connections from the Cisco RF Switch to the HFC plant
- Fully passive working path; hardware components do not affect data and VoIP services
- Active components only in protect path; servicing of protect cards offer no disruption to data and VoIP services
- Position-sensing latching relays; robust design maintains operation during power disruptions
- Flexible, external design with more than 250 connectors—unmatched port density
- N+1 redundancy
- 10BaseT Ethernet control

## Specifications

Feature	Cisco RF Switches
<b>Input Power Requirements</b>	<ul style="list-style-type: none"> <li>• AC: 100 to 240 VAC, 50 or 60 Hz, operating range: 90 to 254 VAC</li> <li>• DC: -48 to -60 VDC, operating range: -40.5 to -72 VDC, 200 mVpp ripple/noise</li> </ul>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>• Operational temperature range: 0 to +40°C</li> <li>• Operating temperature range: -5 to +55°C</li> </ul>
<b>Unit Control</b>	<ul style="list-style-type: none"> <li>• 10BaseT Ethernet—SNMP</li> <li>• Switching time from active (working) to standby (protect): 150 mS maximum after SNMP command</li> </ul>
<b>Connectors</b>	<ul style="list-style-type: none"> <li>• RF connectors: MCX</li> <li>• AC power: IEC320 type</li> <li>• DC power: Three terminal block</li> <li>• Ethernet: RJ-45</li> <li>• RS-232 Bus: 9-pin male D</li> </ul>
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• 41,000 MTBF @ +50°C as calculated by Bellcore 5, 80 percent confidence factor</li> </ul>

Feature	Cisco RF Switches
Physical	<ul style="list-style-type: none"> <li>• Dimensions (H x W x D): 19 x 15.5 x 5.25 in. (48.2 x 384 x 132 cm)</li> <li>• Weight: 36 lbs (16.4 kg)</li> </ul>
RF requirements	<ul style="list-style-type: none"> <li>• Input/output impedance: 75 ohms</li> <li>• Maximum RF input power: +15 dBm (63.75 dBmV)</li> <li>• Switch type: Electro-mechanical, absorptive for working path, non-absorptive on the protect path</li> <li>• Switch setting time per switch module: 20 ms maximum</li> <li>• Downstream frequency range: 54 to 860 MHz</li> <li>• Typical downstream insertion loss: +/-1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant; 5.5 dB from working to output; 8.0 dB from protect to output</li> <li>• Downstream insertion loss flatness: +/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant</li> <li>• Downstream output return loss: &gt;15.0dB at &lt;450 MHz, &gt; 12.0 dB at &gt;= 450 MHz</li> <li>• Downstream input return loss: &gt;15.0 dB</li> <li>• Downstream isolation: &gt; 60 dB from channel to channel in working mode; &gt; 52 dB from CMTS to protect when in protect mode</li> <li>• Upstream frequency range: 5 to 70 MHz</li> <li>• Typical upstream insertion loss: 4.1 dB from cable plant to CMTS; 5.2 dB from cable plant to protect</li> <li>• Upstream insertion loss flatness: +/- 0.4 dB from cable plant to CMTS, +/- 0.6 dB from cable plant to protect</li> <li>• Upstream input return loss:&gt; 16 dB</li> <li>• Upstream isolation: &gt; 60 dB from channel to channel in working mode; &gt; 60 dB from CMTS to protect when in protect mode</li> <li>• Protect mode: CMTS return loss &gt;10 dB, cable plant return loss: &gt;10dB</li> </ul>

### For More Information

See the Cisco RF Switches Web site: <http://www.cisco.com/go/rfswitch>

## Broadband Cable—Customer Premise Equipment (CPE)<sup>1</sup>

### Cisco uBR900 Series Cable Access Routers

The Cisco uBR900 Series Cable Access Routers provide commercial services for cable operators, allowing them to expand their broadband service offerings. Both the Cisco uBR905 and Cisco uBR925 support IP data transmission over a cable plant and offer hardware-accelerated IPSec VPN support.



### When to Sell

#### Sell This Product

Cisco uBR905 Cable Access Router

Cisco uBR925 Cable Access Router

#### When a Customer Needs These Features

- Data-only broadband services (or voice separately via Ethernet)
- High-speed, secure remote tunneling via hardware accelerated IPSec VPN
- Two voice (VoIP) connections via RJ-11 ports
- Data broadband services, router functionality, and VPN support
- Easy-to-manage solution for telecommuters and small offices

1. Cisco VoIP Residential CPE Partner Program—To help drive deployment of residential VoIP services to market, Cisco offers a program that identifies low-cost residential VoIP modems that have passed interoperability testing with Cisco. Cable service providers should contact their sales representatives for vendors, models, pricing and volume discount opportunities.

## Key Features

- Integrated high-speed cable modem and router that operates with any DOCSIS 1.1 or DOCSIS 1.0-compliant CMTS; both Cisco uBR900 Series models are DOCSIS 1.1-ready
- Integrated Cisco IOS Software router, cable modem, and four-port Ethernet hub that offers advanced networking capabilities and investment protection

## Specifications

Feature	Cisco uBR905	Cisco uBR925
<b>Ports</b>	4-port 10Base-T Ethernet hub 1-port console 1-port CATV (Female F Connector)	4-port 10Base-T Ethernet hub 1-port USB 2 ports RJ-11 1-port console 1-port CATV
<b>Routing Features</b>	NAT/PAT, DHCP Server	Same as Cisco uBR905
<b>Security Features</b>	56-bit IPSec 3DES IPSec optional IPSec hardware acceleration Firewall optional	Same as uBR905
<b>Voice Support</b>	No	Yes

## For More Information

See the uBR900 series Web site: <http://www.cisco.com/go/ubr900>

## Video Edge QAM Equipment

### Cisco uMG9820 QAM Gateway

The Cisco uMG9820 QAM Gateway is a high-density, Gigabit Ethernet-optimized video QAM product that offers nonstop high-performance operation for VoD services. The Cisco uMG9820 QAM Gateway performs as the IP-to-MPEG-2 gateway between the Gigabit Ethernet transport network and the HFC cable network. The modular design of the Cisco uMG9820 QAM Gateway offers an initial base configuration of 8 QAM channels and scales to a maximum of 24 QAM channels in a single-rack-unit chassis. The product accepts full line-rate Gigabit Ethernet video transport feeds, providing 100% efficiency. Customers no longer need to daisy-chain QAM devices, eliminating the single point of failure present in the first QAM device in the chain. The Cisco uMG9820 QAM Gateway lowers headend/distribution hub capital expenditures and increases resiliency by reducing switching costs inherent in other QAM devices with lower densities.

### When to Sell

**Sell This Product**  
Cisco uMG9820 QAM Gateway

#### When a Customer Needs These Features

- Cost-effective, high-density, and scalable QAM product for North American digital video service deployments
- Reduced VoD costs—Cisco uMG9820 accepts full line-rate Gigabit Ethernet transport feeds from video servers, eliminating the need to cascade multiple QAM devices
- Flexible expansion—Easy for customers to add more QAM channels as VoD service grows and allows customers to purchase spare components, rather than an entire fixed-configuration system
- High-availability features allow hot-swappable installation of QAM modules on active systems in operation.

## Remote Cable Access—Network Management Products

### Cisco Cable Manager

Cisco Cable Manager is a client/server application that helps cable service providers deploy, maintain, monitor and troubleshoot cable equipment on an HFC network. The product manages DOCSIS and EuroDOCSIS-compliant CMTS and CPE, providing both operations center visibility, as well as technician access.

See the Cable Manager Web site: <http://www.cisco.com/go/cablemgr>

See the Cisco Cable Troubleshooter Web site:

<http://www.cisco.com/go/troubleshooter>

### Cisco Broadband Troubleshooter

Cisco Broadband Troubleshooter is an easy-to-use tool that gives network administrators and technicians a Graphical User Interface (GUI) that streamlines RF problem resolution. The tool dynamically monitors RF characteristics on a per modem or per upstream basis, provides a measurement interface for the upstream that looks and feels like a spectrum analyzer, decentralizes RF monitoring and analysis, and automatically sorts and categorizes RF problem conditions. The product provides a fault-analysis tool that enables network managers and RF technicians to quickly and easily isolate performance, cable plant, and CM problems. On-demand and scheduled diagnostics can be issued.

Cisco Broadband Troubleshooter automates reporting and expert analysis of the measured RF statistics. Diagnostics are available from both customer-account and network-event perspectives. The product allows a technician to characterize upstream and downstream trouble patterns and quickly identify “flapping” CPE devices that are experiencing persistent connectivity problems. Operators can quickly discern CPE connectivity impairments by identifying noise, attenuation, provisioning, and packet-corruption issues.

#### For More Information

See the Cisco Broadband Troubleshooter Web site:

<http://www.cisco.com/en/US/products/sw/netmgtsw/ps530/index.html>

### Cisco Broadband Configurator

Cisco Broadband Configurator is an easy-to-navigate, Java-based application that simplifies the creation and maintenance of configuration files for PacketCable 1.0 media terminal adapters (MTAs) and DOCSIS 1.0 and 1.1 cable modems. The product provides a simple-to-use, forms-based approach that leads cable operators through the process of configuring or editing values of a configuration file. These values include RF parameters, vendor information, DOCSIS 1.0 class of service, DOCSIS 1.1 service flow or Service Flow Identifiers (SFIDs), Simple Network Management Protocol (SNMP) values, DOCSIS 1.0 baseline privacy (BPI), DOCSIS 1.1 BPI+, as well as customer premises equipment (CPE) data.

#### For More Information

See the Cisco Broadband Configurator Web site:

<http://www.cisco.com/en/US/products/sw/netmgtsw/ps819/index.html>

## Cisco Cable Diagnostic Manager

Cisco Cable Diagnostic Manager is an automated, web-based tool that enables customer service representatives (CSRs) to quickly diagnose problems with DOCSIS networks, better handle subscriber inquiries, and improve the routing of trouble tickets. The tool provides first-line CSR troubleshooting and support. Cisco Cable Diagnostic Manager enables a CSR to quickly identify to a customer reporting a problem with their cable modem service if the problem resides with the cable modem (CM), set top box (STB), hybrid fiber coax (HFC) cable plant segment, the CMTS, or a provisioning server. The CSR simply enters a customer identifier such as the customer's phone number, assigned IP address, or cable modem media access control (MAC) address to obtain relevant information.

Cisco Cable Diagnostic Manager uses Simple Network Management Protocol (SNMP), DOCSIS, and Cisco-extension management information bases (MIBs) to retrieve real-time information from the CMTS and CM or STB. The product uses scripts to poll subscriber and provisioning information from appropriate databases. Gathered information is presented using color-coding to help CSRs identify problems at-a-glance. CSRs can then know how to route problems appropriately.

### For More Information

See the Cisco Cable Diagnostic Manager Web site:

<http://www.cisco.com/en/US/products/sw/netmgtsw/ps3825/index.html>

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## DSL Remote Access—Customer Premise Equipment (CPE)

Cisco offers the industry's broadest array of business-class DSL (G.SHDSL and ADSL) CPE solutions, from Enterprise to branch office, to Small Office/Home Office (SOHO) applications. Cisco's CPE solutions offer the choice of key features including Firewall, VPN, and Voice-over DSL support. And, Cisco's industry leading IOS-based capabilities enable QoS, policy management, and standardized set-up and configuration. Cisco CPE Products include:

- Cisco SOHO Series Ethernet, ADSL over ISDN, ADSL and G.SHDSL Routers (page 1-10)
- Cisco 800 Series Routers (page 1-11)
- G.SHDSL WAN Interface Cards (WICs) for 1700, 2600/2600XM, 3600 Series (see Chapter 1: Routers)

## Broadband Services Aggregation

The Cisco broadband aggregation portfolio includes the Cisco 6400 Broadband Aggregator, Cisco 7200 Series Router, the Cisco 7400 Series Internet Router, and the Cisco 10000 Series Internet Router. This portfolio covers all possible broadband aggregation markets. The Cisco 6400 and Cisco 10000 Series routers are carrier class broadband aggregation routers designed to provide high-density, high-performance services while maintaining the high-availability standards of large-scale carrier deployments. The Cisco 7200, Cisco 7301 and Cisco 7400 Series routers cover the ISP and retail space by providing a dense, feature-rich platform but only taking a small footprint in the network.

- Cisco 7400: Highest density PPP aggregation per rack-unit
  - Cisco 7301: Highest Density PPP aggregation per rack-unit
  - Cisco 7200: Most versatile platform
  - Cisco 10000: Highest availability on a carrier-class integrated edge router
- With this portfolio, Cisco can address the broadest set of requirements in terms of form factor, density, performance and scale, and offer customers a unique level of choice, with products optimized for any customer deployment.

### Cisco 7200 Series

When ordered with the Cisco IOS 7200 Series Broadband User Services License (part number FR-BUS72), the 7200 delivers scaled PPP, RBE, and L2TP sessions and tunnels in addition to rich IP services. It enables service providers to provision broadband Internet access and supports all of the popular access technologies deployed today, including DSL, Cable, Wireless, and Dial Access. It is ideal for medium-density applications and is capable of handling up to 16000 subscribers in a single chassis. The 7200 is a modular platform with a choice of processing engines and a wide variety of WAN and LAN port adapters, including T1/E1, DS3, OC-3, Fast Ethernet, and Gigabit Ethernet. See page 1-25 for more information on the 7200 series.

### Cisco 7301 Series

When ordered as 7301-BB-8K and 7301-BB-16K the Cisco 7301 Series Router provides a compact, high-performance single-rack-unit (1RU) router coupled with a broad set of interfaces and Cisco IOS® Software features, which makes it ideal for Broadband applications. The Cisco is capable of handling up to 16,000 simultaneous sessions and allowing for a pay-as-you-grow “rack and stack” architecture.

### Cisco 10000 Series

With recent enhancements, the Cisco 10000 is the industry’s only integrated edge router that delivers highly available, line-rate performance without compromises for service providers deploying IP services to broadband, leased line, ATM, and frame relay customers. With 99.999 percent uptime, the platform delivers high-performance broadband features including support for 61,500 broadband subscribers, hardware-accelerated PPP over Ethernet and PPP over ATM, routed bridge encapsulation and 1483 routing. See page 1-36 for more information on the 10000 series.

## ATM Multiservice WAN Switching

### Cisco BPX 8600 Series—Advanced ATM Multiservice Switches

The Cisco BPX 8600 series is an ATM switch with advanced IP and ATM capabilities. Designed to meet the demanding, high-traffic needs of a public service provider or large private enterprise, the BPX switch delivers high-performance ATM switching, multiservice adaptation and aggregation for all types of user traffic. Proven in the world's largest ATM and Frame Relay networks, the BPX 8600 enables service providers and large enterprises to meet skyrocketing network demands.

The Cisco BPX 8600 series switch offers up to 20 Gbps of high-throughput switching for multiple traffic types data, voice, and video and supports a wide range of interfaces, from Frame Relay to full broadband subscriber interfaces, up to 622 Mbps with a connection to a Edge Concentrator. You can offer multiple services for LAN, X.25, SNA, IP, Frame Relay, and ATM traffic from a single BPX platform. The Cisco BPX 8600 series supports multiprotocol label switching (MPLS) today, and this functionality can be easily added to any BPX switch already installed in the field.

#### For More Information

See the Cisco BPX Web site: <http://www.cisco.com/go/bpx>

### Cisco MGX 8850 ATM Multiservice Switch

The Cisco MGX 8850 ATM Multiservice Switch enables delivery of a complete portfolio of service offerings while scaling from DS0 to OC-48c/STM-16 speeds. It enables service providers to be first to market with the new high-margin voice and data services while maintaining existing services.

The MGX 8850 universal chassis provides a unified ATM architecture that delivers a complete portfolio of differentiated services—from circuit emulation to IP VPNs—all with a single chassis, to enable service providers to easily add new services.

The Cisco MGX 8850 can function in three different modes of operation:

- PXM-1 configuration—Operates as a stand-alone device for narrowband services, or as an integrated edge concentrator for the Cisco BPX 8600 series or the Cisco MGX 8850 PXM-45
- PXM-1E configuration—Operates as a stand alone switch for low density narrowband services and included 1.2 Gbps switch card and PNNI routing
- PXM-45 configuration—Serves as a broadband edge switch and includes the 45 Gbps switch card and broadband ATM modules. The PXM-45 configuration also supports standards-based PNNI routing.

#### Key Features

- Flexible ATM multiservice platform
- Highly scalable—from 1.2 to 45 Gbps of non-blocking throughput in single chassis
- Highest reliability, availability, and serviceability in the industry
- IP VPNs using Cisco IOS software-based Multiprotocol Label Switching (MPLS)
- Market-leading Frame Relay capabilities, with price-per-port leadership and advanced QoS
- High-density Point-to-Point protocol (PPP) for Internet access and aggregation



- Full-featured narrowband ATM for managed data, voice, and video services; high-density broadband ATM for wholesale ATM services
- Circuit Emulation for Private Line replacement
- Highly scalable packet voice gateway providing VoIP, VoATM(AAL1 & AAL2), ATM SVCs, Onboard MPLS

### For More Information

See the Cisco MGX 8850 Web site: <http://www.cisco.com/go/mgx8850>

## Cisco MGX 8830 ATM Multiservice Switch

The Cisco MGX 8830 Advanced ATM Multiservice Switch extends a full suite of narrowband interfaces and broadband trunking to remote sites with low density and high service mix requirements, using PNNI and MPLS for flexible network and services evolution. The Cisco MGX 8830, with a switching capacity of up to 1.2 Gbps, acts as a standalone switch, and offers a full range of service interfaces.

### For More Information

See the Cisco MGX 8830 Series Web site: <http://www.cisco.com/go/mgx8830>

## Cisco MGX 8200 Series

### Cisco MGX 8230 Edge Concentrator

The Cisco MGX 8230 Edge Concentrator provides the most cost-effective gateway for narrowband services in space and power limited situations. It can act as a stand-alone gateway or as an edge concentrator for the Cisco BPX 8600, Cisco MGX 8850 with PXM-45, and IGX 8400 series multiservice switches. The MGX 8230 offers a full range of narrowband service interfaces and a switching capacity up to 1.2 Gbps. The Cisco MGX 8230 Edge Concentrator provides 8 half-height slots for narrowband service module or 4 full-height slots for RPM insertion.



### Cisco MGX 8250 Edge Concentrator

The Cisco MGX 8250 is a high-density edge concentrator designed for service providers needing flexibility for aggregation of IP, voice, Frame Relay, circuit emulation, and ATM services. An ATM narrowband edge concentrator, the MGX 8250 can serve as a stand-alone edge concentrator or as a feeder node for the Cisco BPX 8600 series and MGX 8850 switches. The MGX 8250 Edge Concentrator offers up to 1.2 Gbps of IP + ATM switching capacity. The Cisco MGX 8250 supports up to 24 half-height slots or 12 full-height slots for narrowband and RPM insertion.

### For More Information

See the Cisco MGX 8200 Series Web site: <http://www.cisco.com/go/mgx8200>

## Cisco IGX 8400 Series Multiservice WAN Switch

Efficient bandwidth utilization, intelligent QoS management features, and carrier-class reliability make the IGX 8400 series switch the ideal choice for meeting unique Wide-Area Networking (WAN) needs. This series provides the ATM backbone required to deliver data, voice, fax, and video services with guaranteed quality of service (QoS). The IGX 8400 series switch connects to public services for reduced leased-line costs by maximizing the use of these WAN links. Available with 8, 16, or 32 slots, the IGX 8400 series switches offers high flexibility to meet a wide range of Enterprise and Service Provider needs. Tight integration with the broad range of Cisco access products enables you to efficiently and cost-effectively run backbone-to-branch data, voice, fax, and video services between premises. By integrating IOS technology, the Cisco IGX 8400 series switch helps deliver a seamless migration path to technologies such as VoIP and MPLS.



### For More Information

See the Cisco IGX 8400 Web site: <http://www.cisco.com/go/igx>

## Cisco Long Reach Ethernet Solution

Cisco LRE enables the transport of symmetrical, bi-directional data over unshielded, copper twisted-pair telephone wires originally intended for the frequency bands used for traditional telephone voice services (300 Hz and 3.4 KHz). The system employs Frequency Division Duplexing (FDD) to separate the downstream channel, the upstream channel, and POTS, ISDN, or PBX signaling services in the frequency domain. This enables users to overlay LRE on existing POTS, ISDN, or analog PBX signaling services without disruption, extending intelligent Ethernet services at distances of up to 5000 over existing phone or legacy wiring. Both LRE and POTS/ISDN/analog PBX services may be transmitted over the same line without interfering with each other.



The Cisco 2950 LRE solution includes the Cisco Catalyst® 2950 LRE switches, the Cisco 575 and 585 LRE Customer Premise Equipment (CPE) devices, and the Cisco LRE POTS Splitter. Each LRE link is terminated with either the Cisco 575 or 585 LRE CPEs, and a POTS splitter is required when POTS traffic coexists with the LRE link over the same line.

## Catalyst 2950 LRE Series Intelligent Ethernet Switches

The Cisco Catalyst® 2950 LRE switches are fixed-configuration, stackable models that provide wire-speed LRE and Gigabit Ethernet connectivity for small and midsized networks. The Catalyst 2950 Series is an affordable product line that brings enhanced security, high availability and advanced quality of service (QoS), to the network edge-while maintaining the simplicity of traditional LAN switching. When a Catalyst 2950 LRE switch is combined with a Catalyst 3550 Series switch, the solution can enable IP routing from the edge to the core of the network. Embedded in Catalyst 2950 Series switches is the Cisco Cluster Management Suite (CMS) Software, which allows users to simultaneously configure and troubleshoot multiple Catalyst desktop switches using a standard Web browser. In addition to CMS, Cisco Catalyst 2950 LRE switches provide extensive management tools using Simple Network Management Protocol (SNMP) network management platforms such as CiscoWorks for Switched Internetworks.

The two built-in Gigabit Ethernet SFP ports support 1000BASE-SX and 1000BASE-LX modules. The dual SFP-based and copper Gigabit Ethernet implementation provides customers with tremendous deployment flexibility-allowing customers increased availability with the redundant uplinks. High levels of stack resiliency can also be implemented by deploying dual redundant Gigabit Ethernet uplinks and UplinkFast technologies for high-speed uplink and stack interconnection failover, and Per VLAN Spanning Tree Plus (PVST+) for uplink load balancing.

## Cisco 575 and 585 LRE CPE Devices

Each LRE port is terminated in the room with either the Cisco 575 or 585 LRE Customer Premise Equipment (CPE) devices. These compact devices bridge LRE and Ethernet. The 575 CPE has one RJ-45 Ethernet connection and two RJ-11 connectors—one for the wall and one for a telephone. The 585 CPE has four RJ-45 switched Ethernet connections and two RJ-11 connectors and supports 802.1p QoS so that voice and video traffic are prioritized over normal data traffic. Both the Cisco 575 and 585 LRE CPE device can be mounted on or under a desk, or on a wall. They ship with a mount lock-in mechanism and clip-on Ethernet cable guard to discourage theft. It supports voice (Plain Old Telephone Service—POTS) traffic-including ISDN or digital phones-that coexists over the same LRE line by splitting LRE and POTS traffic at the CPE device.

## Cisco LRE 48 POTS Splitter

The Cisco LRE 48 POTS Splitter is a high-density, low-cost device that is ideal for building deployments where the PBX system is on-site and POTS traffic must coexist over the same copper wiring as LRE traffic. Unlike “splitterless” building broadband network solutions, the Cisco LRE 48 POTS Splitter ships as a separate, compact form factor to ensure that POTS service is separate, and never compromised by LRE switch reconfigurations or downtime.

The Cisco LRE 48 POTS Splitter supports 48 ports in a 1RU form factor. Each splitter has six RJ-21 connectors-two each for connectivity to the patch panel, the LRE switch(es), and the on-site PBX system.

## Key Features

- Performance—Delivers 2-15 Mbps symmetric over existing category 1/2/3 wiring at distances up to 5000 feet. Rate Selection feature automates the process of selecting a data rate for a line for ease of installation and increased robustness.
- Powerful Gigabit Ethernet uplink options—1000BaseT and SFP ports
- Superior control through intelligent services—advanced quality of service and security based on Layer 2 through Layer 4 parameters.
- Multicast support—Multicast VLAN Registration (MVR) and IGMPv3 Snooping.
- Enhanced Cisco IOS Services
- Network Management—Cisco Switch Clustering technology and the advanced, Web-based Cisco Cluster Management Suite (CMS) software deliver easy-to-use configuration and ongoing monitoring and management of up to 16 switches. This software is embedded in the switches and delivers remote management of clustered switches and connected CPE devices through a single IP address

## Competitive Products

- Paradyne Networks: BitStorm solution (Etherloop) and ReachDSL products
- Extreme Networks: Alpine chassis with FM-8VI blade (Ethernet over VDSL)
- Tut Systems: IntelliPOP VDSL
- Huawei: Quidway s3026v

## Specifications

Feature	Cisco 2950ST 24 LRE	Cisco 2950ST 8 LRE
<b>Fixed Ports</b>	24 LRE ports + 2 10/100/1000BASE-T ports + 2 Small Form-Factor Pluggable (SFP) ports (two of the four uplinks active at one time)	8 LRE ports + 2 10/100/1000BASE-T ports + 2 SFP ports (two of the four uplinks active at one time)
<b>Backplane</b>	8.8 Gbps	Same as Cisco 2950ST 24 LRE
<b>Forwarding Rate</b>	3.5 Mpps	3.2 Mpps
<b>VLAN Maximum</b>	250 port based VLANs or ISL/802.1Q trunks	Same as Cisco 2950ST 24 LRE
<b>FEC</b>	Yes	Same as Cisco 2950ST 24 LRE
<b>802.1Q</b>	Yes	Same as Cisco 2950ST 24 LRE
<b>Multicast</b>	IGMPv3 Snooping, IGMP Throttling	Same as Cisco 2950ST 24 LRE
<b>QoS</b>	802.1 p, 4 egress queues, WRR, Layer 3 and 4 services	Same as Cisco 2950ST 24 LRE
<b>Management Capabilities</b>	SNMP, Telnet, RMON, CW2000, CLI-based out-of-band, embedded Cisco Cluster Management Suite (CMS), Web-based interface	Same as Cisco 2950ST 24 LRE
<b>Memory</b>	84 MB (Flash); 32 MB (CPU DRAM)	Same as Cisco 2950ST 24 LRE
<b>Embedded RMON</b>	History, Events, Alarms, Statistics	Same as Cisco 2950ST 24 LRE
<b>Dimensions (HxWxD)</b>	1.75" (44.5 mm) x 17.5" (444.5 mm) x 9.7" (246.6 mm)	Same as Cisco 2950ST 24 LRE

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Catalyst 2950 LRE Series Switches

- WS-C2950ST-24-LRE Catalyst 2950 LRE switch: 24-port LRE + 2 10/100/1000BASE-T ports + 2 SFP ports  
 WS-C2950ST-8-LRE Catalyst 2950 LRE switch: 8-port LRE + 2 10/100/1000BASE-T ports + 2 SFP ports

### Cisco 575 and 585 LRE CPE Device

- CISCO575-LRE Cisco 575 LRE CPE device: 1-port Ethernet + 2 RJ-11 connectors  
 CISCO575-LRE-6P Cisco 575 LRE CPE device (6 pack): 1-port Ethernet + 2 RJ-11 connectors  
 CISCO575-LRE-24P Cisco 575 LRE CPE device (24 pack): 1-port Ethernet + 2 RJ-11 connectors  
 CISCO585-LRE Cisco 585 LRE CPE device: 4-port Ethernet + 2 RJ-11 connectors  
 CISCO585-LRE-6P Cisco 585 LRE CPE device (6 pack): 4-port Ethernet + 2 RJ-11 connectors  
 CISCO585-LRE-24P Cisco 585 LRE CPE device (24 pack): 4-port Ethernet + 2 RJ-11 connectors

### Cisco LRE 48 POTS Splitter

- PS-1M-LRE-48 Cisco LRE 48 POTS Splitter: 48 ports

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the LRE Web site: <http://www.cisco.com/go/lre>

## Cisco Building Broadband Service Manager (BBSM) Version 5.3

Cisco Building Broadband Service Manager (BBSM) is an access gateway for public access networks that enables simple, plug-and-play access, end user self-provisioning of services, customizable portal and advertising platforms and Web-based management, reporting and configuration. In addition, multiple automated authentication and billing options are supported, including credit card, RADIUS, property management system and access code.

The Cisco BBSM platform manages Internet access services with no routine IT support, enabling venues to offer services in remote and unattended locations. BBSM supports tiered service levels in order to deliver targeted customer offerings. For instance, a hotel can set-up daily network access for a series of meetings providing a variety of bandwidth/pricing options to capture lucrative meeting room revenue opportunities.

LAN products to provide a complete solution that enables venues to create, market and operate broadband access services in markets such as: Hospitality, Higher-Education, Healthcare, Retail, Enterprise guest access, and Public Access.

### Cisco BBSM Hotspot Server Version 5.3

The Cisco Building Broadband Service Manager (BBSM) Hotspot server connects mobile users to broadband services anywhere, anytime. Cisco BBSM Hotspot is a cost effective access management gateway suited for small- to medium-sized public access locations, as well as for guest access in enterprise locations. BBSM Hotspot enables simple plug-and-play connectivity, end user self-provisioning of services, and multiple authentication options.

BBSM Hotspot works with Cisco Local Area Network (LAN) products to provide a complete solution for secure wired and wireless Internet Access for visitors, contractors, patients, and other temporary users. Use Cisco BBSM Hotspot to manage and operate broadband access services in public hotspots, small hotels, and public overlays on enterprise networks.

### For More Information

See the BBSM Web site: <http://www.cisco.com/go/bbsm>



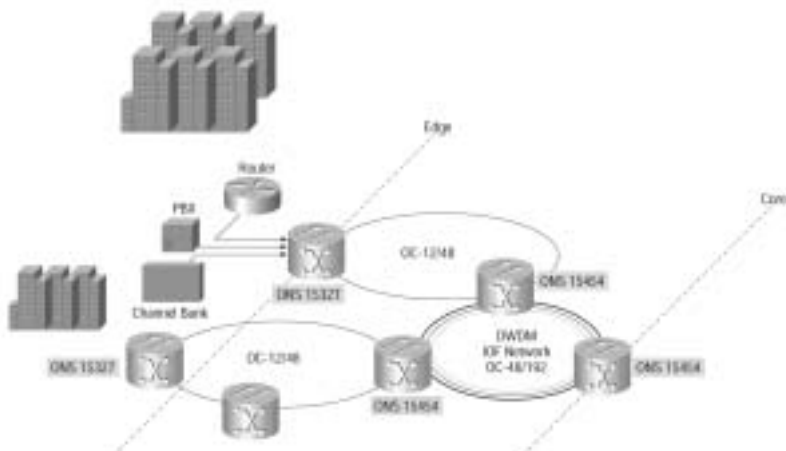
# Optical Transport

## Optical Transport Products at a Glance

Product	Features	Page
Cisco ONS 15216 Metro DWDM Series	<ul style="list-style-type: none"> <li>Provides an open and flexible solution to combine wavelengths launched by the Cisco ONS 15454, and ONS 15530. This approach creates a more desirable cost per-wavelength</li> <li>32-wavelength terminal filter solution (multiplexing and demultiplexing).</li> <li>Allows service providers to cost effectively deliver more services per wavelength and more wavelengths per fiber</li> <li>Compact, modular design</li> </ul>	8-3
Cisco ONS 15216 and 15501 Optical Transmission Families	<ul style="list-style-type: none"> <li>Cisco ONS 15216 Metro DWDM Series</li> <li>Supports 32 ITU-grid wavelengths at 100 GHz spacing and provides unprecedented transport flexibility with optical filtering</li> <li>Optical Add/Drop Multiplexing (OADM)</li> <li>Optical Performance Monitoring and Amplification</li> <li>Allows carriers to deliver more services per wavelength and more wavelengths per fiber</li> <li>Cisco ONS 15501 Optical Amplifier</li> <li>Constant flat gain of 17 dB over the 1530nm to 1563nm band simplifies network design.</li> <li>Metro optimized auto gain control and variable gain</li> <li>Low noise figure of &lt;6.0 dB allows the use multiple amplifiers in cascade</li> <li>Input power range of -29 to 0 dBm</li> </ul>	8-3
Cisco ONS 15302/15305 SDH Multiservice Access Platforms (MSAP)	<ul style="list-style-type: none"> <li>Ultra-compact integrated systems that extend next-generation optical networks (access nodes or CPE):</li> <li>Low-cost access/customer premise equipment (CPE) platform</li> <li>E1, E3, DS3, 10/100 BaseT Ethernet and GigE</li> <li>STM-1 (15302) or STM-1/4/16 (15305)</li> </ul>	8-3
Cisco ONS 15327 SONET Multiservice Provisioning Platform (MSPP)	<ul style="list-style-type: none"> <li>Offers optimized bandwidth management, high-speed IP-based data services, rapid service provisioning, and multiple optical interfaces</li> <li>Aggregates and switches TDM10/100 BaseT Ethernet and GigE, data and video services</li> <li>Compact footprint (3 rack-units), modular design and industrially hardened</li> </ul>	8-4
Cisco ONS 15454 SONET/SDH Multiservice Provisioning Platform (MSPP)	<ul style="list-style-type: none"> <li>Integrates the functions of legacy SONET or SDH network elements with next generation SONET/SDH transport, integrated DWDM optical networking, and multiservice interfaces</li> <li>Aggregation and transport of services from DS1/E1 to OC-192/STM64 (and integrated DWDM wavelengths).</li> <li>Switched 10/100/1000Mbps Ethernet for improved bandwidth utilization</li> <li>Line-rate 10Mbps, 100Mbps and Gigabit Ethernet transport</li> <li>Combines multiplexing, optical networking, and switching functionality in one easy-to-use platform that supports all metro topologies</li> </ul>	8-4
Cisco ONS 15501 Erbium Doped Fiber Amplifier	<ul style="list-style-type: none"> <li>Designed for Enterprise and Service Provider environments</li> <li>Low-noise, gain flattened C-band optical amplifier</li> <li>Complements the Cisco ONS 155xx DWDM solution</li> <li>Capable of extending 100GHz, 32-channel, 2.5Gbps / 10Gbps optical infrastructure over longer distances</li> </ul>	8-5
Cisco ONS 15530 Metro DWDM Aggregation Platform	<ul style="list-style-type: none"> <li>High-density and scalable dense wavelength division multiplexing (DWDM) multiservice aggregation platform</li> <li>Ideal for both enterprises and managed service providers</li> <li>Network consolidation of storage, data, and legacy applications</li> <li>Up to 8 Fibre Channel / FICON / GbE services or up to 40 ESCON services per wavelength</li> <li>Scales from 2.5Gbps to 10Gbps</li> <li>Supports wide range of protocols over a highly-available optical infrastructure</li> <li>Highly resilient network with flexible topology design options</li> </ul>	8-5

Product	Features	Page
<b>Cisco ONS 15540 Extended Services Platform</b>	<p>Highly modular and scalable next-generation Dense Wave Division Multiplexing (DWDM) platform offering Industry Leading Wavelength Density</p> <ul style="list-style-type: none"> <li>• Ideal for enterprises requiring Business Continuity (BC) and Disaster Recovery (DR) Solutions and service providers offering Enterprise Business Continuity (BC) and Disaster Recovery (DR) Managed Services</li> <li>• Delivers the integration of data, storage and metro networking</li> <li>• Ultra-high bandwidth intelligent optical infrastructure</li> </ul>	8-6
<b>Cisco ONS 15454 Sonet/SDH Multiservice Platform (MSTP)</b>	<p>Delivers intelligent DWDM functionality for metropolitan and regional networks:</p> <ul style="list-style-type: none"> <li>• SAN: 1- and 2-Gbps Fibre Channel, ESCON, FICON</li> <li>• Ethernet: Gigabit Ethernet, 10 Gigabit Ethernet (LAN/WAN)</li> <li>• SONET/SDH: OC-3/STM-1 to OC-192/STM-64</li> <li>• Video: D1, HDTV</li> </ul>	8-7
<b>Cisco ONS 15600 Multiservice Switching Platform (SONET/SDH)</b>	<p>Allows service providers to seamlessly integrate their metro core and metro edge networks, while dramatically reducing initial turn up costs.</p> <ul style="list-style-type: none"> <li>• Combines the functionality of multiple metro systems including SONET/SDH multiplexers and digital cross-connect network elements</li> <li>• Provides carrier class availability, serviceability, and management</li> <li>• Scalable, easy-to-use platform supports all metro topologies</li> </ul>	8-8
<b>Cisco ONS 15808 Long-Haul/Extended Long-Haul DWDM Transport Platform</b>	<p>A 2.5 and 10 Gbps DWDM transmission platform designed to support long-haul (0 to 600 km) and extended long-haul (600 to 2000 km range) applications.</p> <ul style="list-style-type: none"> <li>• Complete band independence allows capacity to be optimized by fiber type and application</li> <li>• Supports more than 160 channels, with an architecture that scales to over 300 channels and to a 40-Gbps transmission rate</li> <li>• Single platform for both ANSI and ETSI markets for a truly global solution</li> </ul>	8-8
<b>Cisco Transport Manager (CTM 4.x)</b>	<p>Advanced optical transport domain manager that delivers element and network management layer functionality for the Cisco ONS Family of optical networking products</p> <ul style="list-style-type: none"> <li>• Supports all Cisco optical platforms</li> <li>• Enables native circuit/equipment provisioning for ONS 15454 (SONET/SDH), ONS 15327, and ONS 15600 product families</li> <li>• Offers a variety of northbound interface options (e.g., SNMP, TL1 and CORBA)</li> </ul>	8-9
<b>Cisco 10720 Internet Router</b>	<p>Service provider-class metro access services router</p> <ul style="list-style-type: none"> <li>• Equipped with 24 ports of Ethernet technology for customer access and dynamic packet transport (DPT) technology for metro optical connectivity</li> <li>• With DPT architecture, enables optimal fiber connectivity as well as features such as IP class of service, TLS, VoIP and VPN services</li> </ul> <p>See Chapter 1—Routers for more information on the Cisco 10720 Internet Router</p>	1-38

## Sample Metro Optical Transport Solution Overview



## Cisco ONS 15216 Metro DWDM Series

The Cisco ONS 15216 Metro DWDM solution supercharges wavelength services by supporting up to 32 ITU-grid wavelengths, and provides unprecedented transport flexibility with optical filtering, Optical Add/Drop Multiplexing (OADM), Optical Performance Monitoring and Amplification. It allows service providers to deliver more services per wavelength and more wavelengths per fiber.



The Cisco ONS 15216 Metropolitan Dense Wavelength-Division Multiplexing (DWDM) FlexLayer filter solution is an ultraflexible filter architecture that allows cable multiple system operators and service providers to build “pay-as-you-grow” networks with the flexibility to upgrade in-service without provisioning channels that are not required. This approach creates a more desirable per-wavelength cost.

The FlexLayer architecture allows for deployment of point-to-point, point-to-multipoint, ring, bus, and tree-and-branch architectures. These networks can be deployed as unprotected or protected networks, and they may also be deployed in transmit-only applications for broadcast networks. This flexibility is inherent in the design of the FlexLayer architecture.

### For More Information

See the ONS 15216 Metro DWDM System Web site:

<http://www.cisco.com/en/US/products/hw/optical/ps1996/ps1999/index.html>

## Cisco ONS 15302/15305 SDH Multiservice Access Platforms (MSAP)



The Cisco ONS 15302/ONS 15305 Multiservice

CPE and Aggregation solutions are ultra-compact integrated systems that offer cost effective solutions. These platforms provide native multiservice capabilities (i.e., TDM interfaces, multiplexing and Ethernet data interfaces).

The ONS 15302 CPE platform provides the STM-1 uplink (protected or unprotected STM-1 optical uplink, 1+1 MSP, future SNCP) and E1 customer interfaces (12 E1 ports) interfaces. It provides native Ethernet customer access via 4-port 10/100BaseT module that supports full layer 2 capacity, bridging, VLANs, spanning tree, and priority management. An optional WAN module is available for point to multi-point applications.

The ONS 15305 Aggregation platform provides the following TDM interfaces—protected or unprotected optical interfaces (8 port S-1.1 optical module, 2 port S-4.1 optical module, 1 port S-16.1 optical module, 1+1 MSP, SNCP, 2F MS-SPRing for STM-16) and electrical customer interfaces (8 and 63 port E1 modules and a 6 port E3/DS3 module). This product also provides native Ethernet customer access via an 8-port 10/100BaseT module and a 2-port GigE module (supports full layer 2 capacity, bridging, VLANs, spanning tree, and priority management). An optional WAN module is available for point to multi-point applications.

### For More Information



See the ONS 15302/ONS 15305 web site: <http://www.cisco.com/go/ons15300>

## Cisco ONS 15454 and 15327 Multiservice Provisioning Platforms

The Cisco ONS 15454 and ONS 15327 Multi-service Provisioning Platforms (MSPP) are key building blocks in today's optical networks due to their unprecedented transport performance and economics. They offer supercharged transport capability by combining the best of traditional SONET TDM (time division multiplexing) and statistical multiplexing in single units.



The Cisco ONS 15454 aggregates traditional facilities such as DS1, DS3, STS-1, OC-3, OC-12, and OC-48 including multi-wavelength DWDM optics, but it also supports data interfaces for 10/100/GigE, data and video. This enables drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and life cycle deployment. A single ONS 15454 shelf can support combinations of OC-3/c, OC-12/c, OC-48/c, and OC-192.

The new Cisco ONS 15454 SDH MSPP offers an international optical transport solution that combines the best of traditional SDH TDM and statistical multiplexing in a single platform. The Cisco ONS 15454 SDH MSP can aggregate traditional services such as E1, E3, DS3, STM-1, STM-4, STM-16 and STM-64 including multi-wavelength DWDM optics, but is also designed to support data interfaces such as Ethernet/IP.

The Cisco ONS 15327 combines industry-leading bandwidth capacity and service diversity in a very compact footprint, enabling service providers to achieve radical economics at the metro edge. Based on the same technology as the industry leading Cisco ONS 15454, the ONS 15327 supports high optical bandwidth and has the ability to drop a DS1 from an OC-48 stream. With comprehensive STS- and VT-level bandwidth management and integrated data switching, the Cisco ONS 15327 also serves as a digital cross-connect without the need for additional equipment. It aggregates and switches TDM, Ethernet, and ATM services, and can be managed using the Cisco Transport Manager element management system.

### For More Information

See the ONS 15454 SONET Web site: <http://www.cisco.com/go/ons15454>

See the ONS 15454 SDH Web site: <http://www.cisco.com/go/15454sdh>

See the ONS 15327 Web site: <http://www.cisco.com/go/ons15327>

## Cisco ONS 15501 Erbium Doped Fiber Amplifier



The Cisco ONS 15501 is a low-noise, gain-flattened C-band optical erbium doped fiber amplifier designed to extend the distance of today's metro high-bandwidth optical network beyond existing optical budget constraints. The Cisco ONS 15501 complements the Cisco ONS 155xx DWDM and Catalyst 6500 solutions, providing customers with the capability to extend their 2.5-Gbps or 10-Gbps optical infrastructures over greater distances. Packaged in a one-rack-unit (1RU) chassis, the Cisco ONS 15501 incorporates features such as 17-dB constant flat gain, automatic gain control, and low noise figure for excellent Optical Signal to Noise Ratio (OSNR) characteristics.

### For More Information

See the Cisco ONS 15501 Web site: <http://www.cisco.com/go/ons15501>

## Cisco ONS 15530

The Cisco ONS 15530 is a highly scalable dense wavelength division multiplexing (DWDM) multiservice aggregation platform that integrates storage, data networking, and legacy applications over an ultra-high-bandwidth, intelligent optical infrastructure.

The following new features were recently added to strengthen the ONS 15530 platform in support of storage solutions including: Fibre Channel extension over DWDM via buffer-to-buffer credit support to significantly increase disaster recovery distances; Industry-leading aggregation of IBM Coupling Facility Links used in IBM GDPS storage networks; New Low-band Variable Rate Small Form-factor Pluggable Optics for expanded protocol support.



### Key Features

- Industry leading Service Aggregation—up to 8 ports of Fibre Channel, FICON, or Gigabit Ethernet or up to 40 ports of ESCON per wavelength
- Capacity—Fiber capacity is maximized when used with a 32-wavelength system providing up to 256 Fibre Channel, FICON, or Gigabit Ethernet services or up to 1280 ESCON services on a single fiber pair.
- Scalability—up to 32 wavelengths ranging from 2.5 Gbps to 10 Gbps
- Multiservice Interfaces—tunable variable rate transponders supporting data rates between 16Mbps to 2.5Gbps for protocols
- Service mixing—Ability to mix a combination of Fibre Channel, FICON, ESCON, and Gigabit Ethernet services over the same wavelength
- Complete Amplification Solution—Enables enterprises and service providers to further expand their optical DWDM networks over greater distances when used with the ONS 15501 EDFA optical amplifier and the VOA (Variable Optical Attenuator) modules

### For More Information

See the Cisco ONS 15530 Web site: <http://www.cisco.com/go/ons15530>

## Cisco ONS 15540 Extended Services Platform (ESPx)

The ONS 15540 Extended Services Platform with external cross connect capability (ESPx) is a highly modular, flexible, and scalable next generation dense wave division multiplexer (DWDM) platform that integrates data networking, storage area networking (SAN), time division multiplexing, (TDM) Synchronous Optical Network (SONET) and Synchronous Digital Hierarchy (SDH) technologies over an ultra high bandwidth, intelligent optical infrastructure that can support any packet, over any wavelength on any platform.



- **Flexible Multi-Protocol Support**—The Cisco ONS 15540 offers both variable rate transparent and fixed rate multi-protocol transponders that feature user selectable small form factor pluggables (SFPs) and support a variety of industry standard data rates between 16Mbps to 2.5Gbps as well as 10Gb Ethernet
- **Scalable, flexible, and modular architecture in a high-density compact footprint**—Provides superior operational support and network expansion on an as needed basis through its hot swappable modular lines cards, transponders, and optical multiplexers
- **Simple Network Consolidation and Comprehensive Multi Service Support** provided by the available ONS 15540 2.5GB and 10GbE transponders
- **Optical, Service, and Application Level Performance Monitoring**—provides industry-leading supports for service level agreements (SLAs)
- **High Availability for mission critical networks**—Provides 99.999% availability for demanding Managed Network Service Providers and enterprise business continuance applications, with hardware redundancy and automatic protection switching to protect against fiber cuts and equipment failures
- **Multi-Service Integration**—Transports ESCON, FICON, 1Gb/2GB Fibre Channel for Storage Area Networking (SAN), Fast and Gigabit Ethernet, and 10 Gb Ethernet for data networking, and SONET/SDH at OC-3/STM1, OC-12/STM4, and OC-48/STM12

### Key Features:

- **Compact modular design with external connectorization:** External Direct Connect system from Line card to OADMs; Optional cross connect and fiber management system
- **Transparent Tunable Variable data rate Type 1 Transponders:** 16Mbps to 622Mbps MM fiber support; 16Mbps to 2.5Gbp SM fiber support; 16 Tunable transponders support 32 channels for reduced sparing costs; Multi-protocol support for Enterprise

- Tunable Type 2 Transponders with Multi Protocol Small form Factor Pluggables (SFPs): Variable data rate support between 16Mbps to 2.5Gbps; 16 Tunable transponders support 32 channels for reduced sparing costs; Multi-protocol SFP Support—Now featuring Variable Rate SFPs and support for IBM Sysplex/GDPS applications.
- Standards based Management support for SNMP, Ciscoview and Cisco Transport Manager (CTM)
- Protection Switch Module provides highly cost effective solution for fiber trunk protection
- Standards based Optical architecture conforming to ITU G.692 100GHz channel spacing
- This system has been qualified by IBM for Geographically Dispersed Parallel Sysplex (GDPS), and by EMC for Symmetrix Synchronous support as tested in their E-LAB environment

### For More Information

See the Cisco ONS 15500 Series Web site: <http://www.cisco.com/go/ons15500>

## Cisco ONS 15454 SONET/SDH Multiservice Transport Platform (MSTP)

The Cisco® ONS 15454 Multiservice Transport Platform sets the industry benchmark for metropolitan and regional dense wavelength-division multiplexing solutions by using proven Cisco Multiservice Provisioning Platform networking technologies to deliver simple, fast, and intelligent DWDM capabilities and lower capital and operating expenditures



A metropolitan network, being close to or on a customer's premises-unlike its long-haul counterpart-requires support for a great diversity of service interfaces. The service interfaces allow network providers to offer new tariffs and enable enterprise customers to natively transport a wide variety of services over a common transport network without unnecessary conversion stages and equipment. Additionally, a wide service mix simplifies the planning for services. The Cisco ONS 15454 MSTP, with its MSPP capabilities, supports a broad range of standards-based services in a single platform. Critical to offering a wide service mix is a DWDM system's ability to offer the level of transparency required by the service. The Cisco ONS 15454 MSTP solution offers the choice of multiservice aggregation, wavelength aggregation, and wavelength transport, combined with integrated, intelligent DWDM transmission, in a single platform to optimize network costs for any mix of service types. Using digital-wrapper technology (defined in ITU-T G.709) enables transparency while still allowing enhanced wavelength management and providing extended optical reach with integrated Forward Error Correction (FEC).

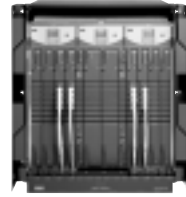
### For More Information

See the ONS 15454 MSTP web site:

<http://www.cisco.com/en/US/products/hw/optical/ps2006/ps5320/index.html>

## Cisco ONS 15600 Multiservice Switching Platform

The Cisco ONS 15600 provides unparalleled flexibility in designing next generation metro networks. Fully engineered and optimized for metro networks, the Cisco ONS 15600 MSSP simplifies and revolutionizes bandwidth management in the metro core by allowing service providers to seamlessly integrate their metro core and metro edge networks, while dramatically reducing initial turn up costs. Delivering scalability to 960 Gbps of traffic in a single rack, it complements the market-leading Cisco ONS 15454 Multiservice Provisioning Platform (MSPP) by leveraging its proven architecture and operating software. This allows service providers to dramatically simplify their metro networks and realize immediate cost, space and operational benefits. The Cisco ONS 15600 MSSP provides complete integration of metro core and edge networks for service provisioning and network management.



### For More Information

See the ONS 15600 Series web site: <http://www.cisco.com/go/ons15600>

## Cisco ONS 15808 Long-Haul/Extended Long-Haul DWDM Transport Platform

The Cisco ONS 15808 is a 2.5- and 10-Gbps DWDM transmission platform designed to support applications in the LH (0 to 600 km range) and ELH (600 to 2000 km range) markets. Technology enhancements in the Cisco ONS 15808 allow for tighter channel spacing, higher channel capacity, higher bit rate, and greatly extended transmission distances, which enable the platform to support more than 160 channels, with an architecture that further scales to over 300 channels and to a 40-Gbps transmission rate.

Service Providers can achieve service and application management by deploying the Cisco ONS 15808 in the network and growing the system to carry LH optimized traffic, ELH optimized traffic-or both. Platform modularity facilitates system scaling the without affecting service. Complete band independence allows capacity to be optimized by fiber type and application, offering customers a scalable, cost-effective platform.



### For More Information

See the ONS 15808 Series web site:  
<http://www.cisco.com/en/US/products/hw/optical/ps2016/ps2018/index.html>

## Cisco Transport Manager (CTM 4.x) (Optical Element/Network Management)

Cisco Transport Manager is an integrated optical element management system for Cisco ONS 15000 series optical networking platforms. CTM manages configuration, fault isolation, performance, and security for Cisco optical network elements. With integrated support for SONET, SDH, DWDM and Ethernet, along with open interfaces to

operations support systems (OSS), CTM delivers the full power of Cisco's wide range of advanced optical systems to today's network operators and enterprises.

CTM is a powerful tool that increases the productivity of the network operations staff. The system provides GUI-based point-and-click network management. As such, CTM has a low learning curve while providing advanced management capabilities such as A-to-Z circuit provisioning. Explorer-style navigation, the extensive use of wizards, tool tips, legends, and online help make it easy for an operator to perform tasks quickly and efficiently. Many otherwise tedious, time-consuming, and error-prone tasks can be fully streamlined using CTM's features.

CTM works for small networks, but can also scale up to 2500 network elements and 100 concurrent clients per server. This solution is appropriate for small enterprise networks as well as large service provider networks. CTM is extremely cost-effective (uses industry-standard platforms such as Sun Solaris, Oracle8i, and Microsoft Windows). CTM fits smoothly into most companies' information technology environments. Using scalable Sun server platforms, customers can minimize up-front investment, but still accommodate growth by adding additional processors, memory, and disk space.







# IOS Software & Network Management

## Cisco IOS® Software & Network Management Products at a Glance

Product	Features	Page
<b>Cisco IOS Software</b>	<p>Feature-rich network operating system supported on wide range of Cisco products</p> <ul style="list-style-type: none"> <li>• Provides a common IP fabric, functionality, and command-line interface (CLI) across network infrastructures</li> <li>• Enables a vast array of key routing, multiservice, traffic shaping, security/firewall, and traffic monitoring applications, and a broad variety of network connections</li> </ul>	9-3
<b>CiscoWorks Small Network Management Solution</b>	<p>Web-based network management solution designed for small to medium businesses (SMB)</p> <ul style="list-style-type: none"> <li>• Device auto-discovery using SNMP simplifies setup and reduces startup time</li> <li>• Standards-based, multi-vendor management</li> <li>• Event management and topology mapping application</li> <li>• Includes Cisco's popular CiscoView Element Management Tool</li> </ul>	9-10
<b>CiscoWorks for Windows</b>	<p>An entry level suite of integrated network management tools for smaller networks:</p> <ul style="list-style-type: none"> <li>• Event management and topology mapping application</li> <li>• Includes Cisco's popular CiscoView Element Management Tool</li> </ul>	9-12
<b>CiscoWorks Routed WAN Management Solution</b>	<p>A comprehensive set of applications for managing the router elements of a multiservice Enterprise wide-area network. This bundle includes:</p> <ul style="list-style-type: none"> <li>• Access Control List Manager</li> <li>• Internetwork Performance Monitor</li> <li>• Resource Manager Essentials</li> <li>• CiscoView</li> </ul>	9-13
<b>CiscoWorks LAN Management Solution</b>	<p>Provides key applications needed to manage Cisco switch-based Enterprise campus networks. This bundle includes:</p> <ul style="list-style-type: none"> <li>• Campus Manager</li> <li>• Device Fault Manager</li> <li>• nGenius Real Time Monitor</li> <li>• Resource Manager Essentials</li> <li>• CiscoView</li> </ul>	9-15
<b>CiscoWorks VPN/Security Management Solution</b>	<p>Combines general device management tools for configuring, monitoring, and troubleshooting enterprise networks with powerful security solutions for managing virtual private networks (VPNs), firewalls, and network and host-based intrusion detection systems (IDS). CiscoWorks VMS is organized into several functional areas:</p> <ul style="list-style-type: none"> <li>• Firewall Management</li> <li>• IDS Management, network and host-based</li> <li>• VPN Router Management</li> <li>• Security Monitoring</li> <li>• VPN Monitoring</li> <li>• Operational Management</li> </ul>	9-16
<b>CiscoWorks Security Information Management Solution and CiscoWorks Security Information Management Solution Engine</b>	<p>A solution that collects, analyzes, and correlates security event data from across the enterprise- letting you detect and respond to security events as they occur. The hardware-based solution engine option provides the same features and functions as the CiscoWorks SIMS software on a dedicated appliance. The Solution Engine requires minimal setup and installation.</p> <ul style="list-style-type: none"> <li>• Event monitoring of multivendor security environments</li> <li>• Extensive reporting for operators and high-level administrators</li> <li>• Risk assessment information to understand overall vulnerability of critical network assets within the enterprise</li> <li>• Forensics tools to investigate attacks</li> </ul>	9-18



Product	Features	Page
<b>CiscoWorks Network Connectivity Monitor</b>	<p>An advanced application that provides real-time, detailed network connectivity analysis for Cisco networks. The connectivity analysis intelligence built in doesn't require users to determine rules, polling parameters, or valid threshold values.</p> <ul style="list-style-type: none"> <li>• Provides automated network-wide connectivity and impact analysis for Cisco networks by identifying service-affecting problems, including the impact on interrelated logical and physical device connectivity.</li> <li>• Consolidates the results of network connectivity analysis and fault analysis to provide a unified view of faults and pinpoint the source of connectivity issues</li> <li>• Helps improve alert notification by forwarding its network connectivity analysis to other multidevice, multivendor event management systems</li> </ul>	9-20
<b>CiscoWorks Manager IP Telephony Environment Monitor</b>	<p>A suite of telephony management applications that ensures the readiness and manageability of converged networks supporting VoIP and IP telephony traffic and applications. It enables operations and administrative personnel to check the state and operational health of key resources in their converged networks that support IP telephony implementations. The bundle includes:</p> <ul style="list-style-type: none"> <li>• Voice Health Monitor</li> <li>• Default Fault Manager</li> <li>• CiscoView and Downloadable Modules: <ul style="list-style-type: none"> <li>• IP Phone Information Utility</li> <li>• IP Phone Help Desk Utility</li> <li>• Fault History Manager</li> </ul> </li> </ul>	9-21
<b>CiscoWorks Voice Manager for Voice Gateways</b>	<p>Enables the management and monitoring of devices used as gateways between analog voice equipment and the data network.</p> <ul style="list-style-type: none"> <li>• Enhanced capabilities to configure and provision voice ports</li> <li>• Create and modify dial plans on voice-enabled Cisco routers for voice over IP (VoIP), voice over Frame Relay (VoFR), and voice over ATM (VoATM) network deployments</li> </ul>	9-23
<b>CiscoWorks QoS Policy Manager (QPM)</b>	<p>Enables centralized administration and automated deployment of bandwidth reservation and prioritization policies for network applications across converged voice, video and data networks.</p> <ul style="list-style-type: none"> <li>• Differentiates services of Web applications, voice traffic, and business-critical applications</li> <li>• Validate QoS settings and results with traffic analysis</li> <li>• Real time and historical reports for QoS troubleshooting</li> <li>• Control roles and privileges for policy view, modification and deployment</li> </ul>	9-24
<b>Cisco Ethernet Subscriber Solution Engine</b>	<p>A hardware-based management system for metro access networks that use the Cisco ONT 1000 Gigabit Ethernet Series Optical Network Terminator.</p> <ul style="list-style-type: none"> <li>• Enables complete remote management and troubleshooting of the customer demarcation point for Ethernet over fiber</li> </ul>	9-26
<b>CiscoWorks Wireless LAN Solution Engine</b>	<p>A hardware based wireless LAN management solution that provides template-based configuration with user-defined groups to effectively manage a large number of access points and bridges</p> <ul style="list-style-type: none"> <li>• Monitors LEAP authentication servers</li> <li>• Enhances security management through mis-configuration detection on access points and bridges</li> </ul>	9-27
<b>CiscoWorks Hosting Solution Engine</b>	<p>A hardware-based content management solution for e-business operations in Cisco-powered data Centers. This product provides network infrastructure monitoring and Layer 4-7 hosted services configuration and activation.</p> <ul style="list-style-type: none"> <li>• Flexible security model offers tiered user access to server management</li> </ul>	9-28
<b>Cisco Catalyst 6500 Series Network Analysis Modules 1 and 2</b>	<p>NAM is an integrated, network monitoring instrumentation and Web-browser based traffic analysis solution for the Catalyst 6500 based environments. It enables greater visibility into traffic at all layers of the network by providing real time traffic analysis and troubleshooting capabilities.</p>	9-29
<b>Cisco Secure User Registration Tool (URT)</b>	<p>Provides organizations with increased LAN security by actively identifies users within the network and creates user registration policy bindings that help support mobility and tracking:</p> <ul style="list-style-type: none"> <li>• Ensures that users are associated with their authorized subnet/VLAN</li> <li>• Addresses the challenges associated with campus user mobility</li> <li>• Supports Web-based authentication for Windows, Macintosh, and Linux client platforms</li> <li>• Secure user access to the VLAN with MAC address-based security option to allow multiple users connected to a hub access to a VLAN served by single switch port</li> </ul>	5-14
<b>Cisco Secure Access Control Server (ACS) for Windows and Cisco Secure Access Control Server Solution Engine</b>	<p>A centralized identity networking solution that simplifies user-management experience across all Cisco devices and security-management applications. An essential component of the Cisco Identity Based Networking Services (IBNS) architecture, it extends access security by combining authentication, user and administrator access, and policy control from a centralized identity networking framework. The Solution Engine adds new security improvements, simplified management, and reduced total cost of ownership (TCO) for the operation of the underlying ACS service.</p> <p>It helps ensure enforcement of assigned policies by allowing network administrators to control:</p> <ul style="list-style-type: none"> <li>• Who can log in to the network</li> <li>• Privileges each user has in the network</li> <li>• Security audit or account billing information that is recorded</li> </ul>	5-12

## Cisco IOS® Software

Cisco's IOS Software is a feature-rich network operating system that provides network intelligence for the majority of today's Internet and for most of the world's business-critical networking applications.

Supporting Cisco's extensive range of platforms, Cisco IOS Software provides a common IP fabric, functionality and command-line interface (CLI) across network infrastructures. Cisco IOS Software enables a vast array of key routing functions, multi-service capabilities, traffic shaping, connections, security/firewall protection, traffic monitoring, and highly flexible network and product configuration.

Below is an abbreviated list of key capabilities, intelligent network technologies, and architectures enabled by Cisco IOS Software:

- Quality of service (QoS)
- Converged data, voice, and video over IP
- IP/ATM/Frame Relay network connectivity and scalability features
- Security/firewall/IPSec/access lists
- Traffic monitoring and NetFlow-based monitoring, accounting, and billing
- Wide range of routing protocols (including MPLS)
- IPv6
- Multicast

### Quality of Service (QoS)

The promise of networking is sharing networked resources among many users and applications for greater productivity and competitive advantage. Cisco IOS quality of service (QoS) capabilities enable complex networks to control and predictably service a variety of applications. Every network needs QoS for optimum efficiency, whether it is for a small business, a large enterprise, or a service provider.

QoS expedites the handling of mission-critical applications, while sharing network resources with non-critical applications. QoS also ensures available bandwidth and minimum delays required by time-sensitive multimedia and voice applications. It also gives network managers control over network applications, improves cost-efficiency of WAN connections, and enables advanced differentiated services. QoS technologies are elemental building blocks for other Cisco IOS enabling services—particularly for converged data and voice networks (LAN/WAN + telephony), video conferencing over IP, and IBM networking, and for future business applications in campus, WAN, and service provider networks.

### Key QoS Capabilities:

<b>Committed Access Rate (CAR)</b>	Performs two QoS functions: <ul style="list-style-type: none"> <li>• Bandwidth management through rate limiting, which allows you to control the maximum rate for traffic sent or received on an interface</li> <li>• Packet classification through IP precedence and QoS group setting, which allows you to partition your network into multiple priority levels or classes of service (CoS)</li> </ul>
<b>Differentiated Services (DiffServ)</b>	QoS architecture that divides traffic into a small number of classes and provides QoS to large aggregates of traffic by treating some traffic better than the rest (faster handling, more bandwidth on average, lower loss rate on average). This is a statistical preference, not a hard and fast guarantee.
<b>Expedited Forwarding (EF)</b>	Per-hop behavior (PHB) in the DiffServ standard, used to create a virtual leased line service.
<b>Integrated Services (IntServ)</b>	A QoS architecture in which each network element is required to identify the coordinated set of QoS control capabilities it provides in terms of the functions it performs, the information it requires, and the information it exports.
<b>Random Early Detection (RED)</b>	Monitors traffic levels on very large networks to prevent congestion and guarantee priority traffic delivery.
<b>Resource Reservation Protocol (RSVP)</b>	A protocol that supports the reservation of resources across an IP network.

<b>Weighted Fair Queueing (WFQ)</b>	Adds new levels of control to previous queueing methods
<b>Weighted Random Early Detection (WRED)</b>	Combines the capabilities of the random early detection (RED) algorithm with IP precedence or the differentiated services code point (DSCP). This combination provides for preferential traffic handling for higher-priority packets.

## Key QoS Categories

<b>Classification</b>	<ul style="list-style-type: none"> <li>• Committed Access Rate (CAR)</li> <li>• Policy Based Routing (PBR)</li> <li>• QoS Policy Propagation Through BGP</li> </ul>
<b>Congestion Management</b>	<ul style="list-style-type: none"> <li>• First In First Out (FIFO)</li> <li>• Priority Queueing (PQ)</li> <li>• Custom Queueing (CQ)</li> <li>• Weighted Fair Queueing (WFQ)</li> <li>• Weighted Random Early Detection (WRED)</li> </ul>
<b>Policy and Shaping</b>	<ul style="list-style-type: none"> <li>• Committed Access Rate (CAR)</li> <li>• Generic Traffic Shaping (GTS)</li> <li>• Frame Relay Traffic Shaping (FRTS)</li> </ul>
<b>Link Efficiency Mechanisms</b>	<ul style="list-style-type: none"> <li>• Compressed Real Time Protocol (CRTP)</li> <li>• Link Fragmentation and Interleaving (LFI)</li> <li>• Data Compression</li> </ul>

## Converged LAN/WAN and Telephony Networks

A broad range of Cisco products support standards-based voice over packet implementations, including H.323-based Voice over IP (VoIP). These products enable highly efficient, converged IP-based telephony in today's enterprise and service provider networks, thereby eliminating the need for legacy telephone equipment and overlay networks (including PBXs and central office circuit switched network equipment). Furthermore, a single IT organization can now support campus and enterprise requirements—regardless if for data, voice, or video requirements.

In addition, Cisco voice over packet technologies enable businesses and service providers to avoid long distance telephone charges by leveraging their existing data networks, instead of paying for dedicated voice connections and circuits.

## Cisco Connectivity and Scalability Solutions

A wide range of access solutions are enabled via Cisco IOS Software including:

- Virtual Private Networking; DSL; Dial Access (including ISDN, modem, fax, voice)
- Frame Relay, X.25
- ATM; VoIP, VoFR, VoATM
- SONET, OC-x/STM-x, Packet-over-SONET
- Broadband Services Aggregation (includes large-scale PPPoE, PPPoA, L2TP tunneling)
- Cable Access Solutions

## Security

Cisco's powerful suite of Cisco IOS Software-embedded security and firewall technologies includes:

<b>Digital Signature Standard (DSS) and Digital Certification</b>	Positively authenticates users or devices
<b>Network Address Translation (NAT) and Port Address Translation (PAT)</b>	Hides private topology and IP addresses from an external network
<b>IPSec</b>	Enables secure communications of data over public networks
<b>Time-Based Access Control Lists (ACLs)</b>	Implements access lists based on time of day
<b>Password Authentication Protocol (PAP)</b>	Allows a remote node to establish its identity using a two-way handshake

<b>Terminal Access Controller Access Control System Plus (TACACS+) and Remote Access Dial-In User Service (RADIUS)</b>	Gives complete network access security for dial-in connections, for enterprise and service provider applications
<b>Challenge Handshake Authentication Protocol (CHAP)</b>	Allows a remote node to establish its identity using a three-way handshake
<b>Calling Line Identification (CLID)</b>	Uses calling line identification to compare the telephone number of a calling device against a list of known callers
<b>Access Lists</b>	Checks the source address of packets (standard access lists) and checks the source and destination addresses and other parameters (extended access lists)
<b>Context-Based Access Control (CBAC)</b>	Provides secure, application-based stateful filtering for the most popular protocols and a wide variety of advanced applications; available in the Cisco IOS Firewall feature set

## Cisco IOS NetFlow

NetFlow technology provides the metering base for a key set of applications including network traffic accounting, usage-based network billing, network planning, network monitoring, outbound marketing, and data mining capabilities for both service provider and enterprise customers. Cisco provides a set of NetFlow applications to collect exported NetFlow data, to perform data volume reduction, and to post process and display data. Cisco is working with a number of partners to provide customers with comprehensive solutions for NetFlow-based billing, planning, and monitoring. NetFlow also provides the measurement base for Cisco's new Internet quality of service (QoS) initiatives. NetFlow captures the traffic classification or precedence associated with each flow, enabling differentiated charging based on QoS. Furthermore, the combination of NetFlow data along with Cisco IOS Software-based routing information can prove key to developing effective security policies and preventive measures for denial of service (DoS).

## Cisco IOS Routing Services

Cisco IOS Software has long been recognized for its rich support of multiple protocols including IP, SNA, Novell IPX, and OSI.

### IP Routing Protocols

Cisco IOS Software offers the industry's widest variety of enterprise and service provider-class routing protocols, including On-Demand Routing (ODR), Routing Information Protocol (RIP), Interior Gateway Routing Protocol (IGRP), Open Shortest Path First (OSPF), IP multicast, Integrated IS-IS, Enhanced Interior Gateway Routing Protocol (EIGRP), Border Gateway Protocol (BGP), and MPLS

### Multi-protocol Label Switching (MPLS)

Cisco IOS MPLS fuses intelligent routing capabilities with the performance of switching. It provides significant benefits to networks with pure IP architectures and those with IP and ATM or a mix of other Layer 2 technologies. MPLS technology is key to implementing scalable Virtual Private Networks (VPNs) and end-to-end QoS, enabling efficient utilization of existing networks to meet growth needs and to rapidly correct link fault and node failure. This technology also helps deliver highly scalable, differentiated IP services with simpler configuration, management, and provisioning for both Internet service providers and end-user customers.

## Common MPLS Applications Available with Cisco IOS Software

- Traffic engineering is enabled through MPLS mechanisms that allow traffic to be directed through a specific path, which may not necessarily be the least-expensive path. Network managers can implement policies to ensure optimal traffic distribution and improve overall network utilization
- Guaranteed bandwidth is a value-added enhancement to traditional traffic-engineering mechanisms. MPLS lets service providers deliver guaranteed pipes and bandwidth allocations. Guaranteed bandwidth also allows bookkeeping of quality of service (QoS) resources to traffic engineer both premium and best-effort traffic such as voice and data
- Fast reroute (FRR) allows extremely quick recovery if a node or link fails. Such fast recovery prevents end-user applications from timing out and also prevents loss of data
- MPLS VPNs greatly simplify service deployment compared to traditional IP VPNs. As the number of routes and customers increases, MPLS VPNs easily scale, while providing the same level of privacy as Layer 2 technologies. In addition, they can transport non-unique IP addresses across a public domain
- MPLS class of service (CoS) capability ensures that important traffic is given the appropriate priority over the network and that latency requirements are met. IP QoS mechanisms can be seamlessly implemented in an MPLS environment

## MPLS Mechanisms

Cisco IOS MPLS delivers both traffic engineering (TE) and VPN solutions built on the following mechanisms:

- Cisco AutoBandwidth Allocator: Automatically increases or decreases MPLS TE tunnel bandwidth based on measured traffic load
- Constraint-Based Routing Label Distribution Protocol (CR-LDP): A signaling mechanism used to support TE across a MPLS backbone
- Fast Reroute (FRR): Enables quick recovery in case of link failures, which prevents end-user applications from timing out and also prevents loss of data
- Label Distribution Protocol (LDP): Provides communication between edge and core devices. Assigns labels in edge and core devices to establish Label Switched Paths (LSPs) in conjunction with routing protocols such as OSPF, IS-IS, EIGRP, or BGP
- Transmission Control Protocol (TCP): Connection-oriented transport-layer protocol that provides reliable full-duplex data transmission. Part of the TCP/IP protocol stack

## For More Information

See the Cisco IOS MPLS Web site: <http://www.cisco.com/go/mpls>

## IP Multicast and Multicast Solutions

IP multicast is a bandwidth-conserving technology that reduces traffic by simultaneously delivering a single stream of information to thousands of corporate recipients and homes. Applications that take advantage of multicast technologies include video conferencing, corporate communications, distance learning, and distribution of software, stock quotes, and news.

Multicast technology is key to preventing severe network slowdown and Cisco IOS multicast is the gateway to Internet broadcasting applications. Internet service providers (ISPs) and content providers use Cisco IOS multicast solutions successfully to host events such as live concerts, radio shows, and football games.

Another application of multicast technologies relates to replacing dedicated point-to-point telephone/voice circuits and specialized bridging and mixing multi-user audio conferencing telephone equipment for “always-on” service (referred to in some industries as “hoot and holler” systems). This ability eliminates the need for dedicated, costly, overlay voice networks and point-to-point telephone company circuits, and allows the same capabilities to be implemented over a converged IP network without requiring users to dial in.

### Multicast Solutions

Cisco IOS multicast solutions are classified as Multicast-Lite, Core Multicast, and Enhanced Multicast, and are the building blocks for Internet broadcast. Customers can start with Multicast-Lite, then add more sophisticated interactive communication capabilities, as needed.

- Multicast-Lite provides for one-to-many broadcast capability with no back channel. This solution is eminently suitable for content distribution and broadcasting over the Internet. It does not require setting up of source discovery across domains and autonomous systems. Multicast-Lite includes Protocol Independent Multicast version 2 (PIMv2), Internet Group Management Protocol (IGMPv1/v2/v3), or Universal Resource Locator Rendezvous Directory (URD).
- Core Multicast provides interactive, reliable campus multicast for interactive distance learning, corporate videoconferencing, inventory updates, software distribution, and content distribution. Core Multicast includes PIM, IGMP, Cisco Group Management Protocol (CGMP), and now Pragmatic General Multicast (PGM).
- Enhanced Multicast provides interactive Internet multicast across domains for network gaming, inter-company conferencing, Internet software distribution, and extranet content distribution. Enhanced Multicast includes Multicast Border Gateway Protocol (MBGP) and Multicast Source Discovery Protocol (MSDP) in addition to all the protocols supported in Core Multicast.

Multicast is available across all Cisco IOS Software-based platforms, including Cisco routers and Catalyst family switches. Multicast-supported routing platforms include the following: Cisco 1600, 2500, 2600/2600XM, 3600, 3700, 3800, 7200, 7500, and 12000 series; it also is available on Catalyst 6000 and 8500 platforms.

## Multicast Features

Cisco has the greatest depth of experience with IP multicast in the industry, and offers multicast features such as:

<b>Bi-dir PIM</b>	An extension to the PIM suite of protocols that implements shared sparse trees with bi directional flow of data.
<b>Cisco Group Management Protocol (CGMP)</b>	Cisco-developed protocol that allows Layer 2 switches to leverage IGMP information on Cisco routers to make Layer 2 forwarding decisions.
<b>Internet Group Management Protocol v2 (IGMP)</b>	Used by IP routers and their immediately connected hosts to communicate multicast group membership states: <ul style="list-style-type: none"> <li>• Query: IGMP messages originating from the router to elicit multicast group membership information from its connected hosts</li> <li>• Report: IGMP messages originating from the hosts that are joining, maintaining or leaving their membership in a multicast group</li> </ul>
<b>Internet Group Management Protocol v3 (IGMP)</b>	Version 3 of IGMP adds support for "source filtering," that is, the ability for a system to report interest in receiving packets only from specific source addresses, or from all but specific source addresses, sent to a particular multicast address.
<b>IGMP Snooping</b>	Requires the LAN switch to examine, or "snoop," some Layer 3 information in the IGMP packet sent from the host to the router. When the switch hears an IGMP Report from a host for a particular multicast group, the switch adds the host's port number to the associated multicast table entry. When it hears an IGMP leave group message from a host, it removes the host's port from the table entry.
<b>Inter-domain Multicast</b>	Supports inter domain routing and source discovery across the Internet or across multiple domains comprising an enterprise
<b>Intra-domain Multicast</b>	Supports multicast applications within an enterprise campus
<b>Multicast Source Discovery Protocol (MSDP)</b>	A mechanism to connect multiple PIM sparse mode (SM) domains. MSDP allows multicast sources for a group to be known to all rendezvous points (RPs) in different domains.
<b>Multicast Routing Monitor (MRM)</b>	A management diagnostic tool that provides network fault detection and isolation in a large multicast routing infrastructure
<b>Multi-protocol Extensions for Border Gateway Protocol (MBGP)</b>	Also known as BGP+, MBGP adds capabilities to BGP to enable multicast routing policy throughout the Internet and to connect multicast topologies within and between BGP autonomous systems.
<b>Pragmatic General Multicast (PGM)</b>	A reliable multicast transport protocol for applications that require ordered, duplicate-free, multicast data delivery from multiple sources to multiple receivers. PGM guarantees that a receiver in a multicast group either receives all data packets from transmissions and retransmissions, or can detect unrecoverable data packet loss.
<b>Protocol Independent Multicast (PIM)</b>	A multicast routing architecture that enables IP multicast routing on existing IP networks: <ul style="list-style-type: none"> <li>• SM = Sparse Mode (RFC 2362): Relies upon an explicitly joining method before attempting to send multicast data to receivers of a multicast group.</li> <li>• DM = Dense Mode (Internet Draft Spec): Actively attempts to send multicast data to all potential receivers (flooding) and relies upon their self-pruning (removal from group) to achieve desired distribution.</li> </ul>
<b>Unidirectional Link Routing (UDLR) Protocol</b>	A routing protocol that provides a way to forward multicast packets over a physical unidirectional interface (such as a satellite link of high bandwidth) to stub networks that have a back channel.
<b>URL Rendezvous Directory (URD)</b>	Directly provides the network with information about the specific source of a content stream. It enables the network to quickly establish the most direct distribution path from the source to the receiver, thus significantly reducing the time and effort required in receiving the streaming media. URD allows an application to identify the source of the content stream through a web page link or web directly.

## For More Information

See the Multicast Web site: <http://www.cisco.com/go/multicast>

## IPv6

Internet Protocol version 6 (IPv6) most notably offers expanded IP addresses to accommodate the proliferation of Internet devices such as personal computers, personal digital assistants, wireless devices, and new Internet appliances—and the expansion of Internet access, particularly “always-on” connections throughout the world. IPv6 also provides integrated auto configuration for “plug-and-play” capabilities, enhanced mobility and end-to-end security.

Incorporating IPv6 into Cisco IOS Software further enables growth of the Internet and expansion into new applications and capabilities, while maintaining compatibility with existing Internet services. Cisco’s IPv6 solution was first made available in Cisco IOS Software Release 12.2(1)T. Platforms supported include: Cisco 800, 1700, 2500, 2600/2600XM, 3600, 7100, 7200, and 7500 series routers, and Cisco AS5300 and AS5400 Universal access servers.

### For more information

See the Cisco IOS IPv6 Web site: <http://www.cisco.com/go/ipv6>

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## Cisco IOS Software Release Process

There are three categories of Cisco IOS Software releases: Early Deployment, Major, and General Deployment (GD) releases.

- Early Deployment releases (i.e. T, S, X, E release families)—Provide advanced networking technologies to customers for delivery of leading-edge Internet applications. These offer new software capabilities, new platforms, and interface extensions. Customers for whom receiving a new feature is critical to their competitive advantage will benefit from these releases
- Major releases—Consolidate features, platform support, and functionality from early deployment releases, and emphasize stability. Regular maintenance releases do not introduce new functionality or platform support, but provide continuous improvement and greater quality, leading to general deployment
- General Deployment certification (i.e. Release 12.0) Releases—Have had extensive market exposure in a wide range of network environments and are qualified through extensive metrics that analyze stability, software defect trends, and customer satisfaction surveys. Used for major, business-critical applications

At some point, GD releases are replaced by newer releases with the latest networking technologies. A release retirement process has been established with three principal milestones: End of Sales (EOS), End of Engineering (EOE), and End of Life (EOL).

### For More Information on Cisco IOS Software

See the Cisco IOS Software Web site: <http://www.cisco.com/go/ios>



## Cisco Network Management Overview

Cisco is transforming traditional network management by focusing on the strengths of Internet-based architectures for greater accessibility and simplification of network management tools, tasks, and processes. Cisco's network management strategy calls for a Web-based model with the following characteristics:

- Simplification of tools, tasks, and processes
- Web-level integration with NMS platforms and general management products
- Capable of providing end-to-end solutions for managing routers, switches, and access servers
- Creation of a management intranet by integrating discovered device knowledge with CCO and third-party application knowledge

### Cisco Network Management Products

The CiscoWorks product line offers a set of solutions designed to manage the enterprise network. These solutions focus on key areas in the network such as; optimization of the wide area network (WAN), administering switch-based local area networks (LAN), securing remote and local virtual private networks, and measuring service level agreements within all types of networks. The expanding CiscoWorks product line offers the flexibility to deploy end-to-end network management when and where it is needed.

### CiscoWorks Small Network Management Solution

CiscoWorks Small Network Management Solution (SNMS) is an end-to-end network management solution ideal for small networks which might include two or three branch offices. CiscoWorks SNMS is a comprehensive, cost-effective, and user-friendly solution that provides advanced monitoring, and configuration capabilities. It also provides management capabilities that simplify network administration. CiscoWorks SNMS enables network operators to more efficiently and effectively manage the network through a simplified browser-based interface that can be accessed anytime from anywhere within the network. CiscoWorks SNMS provides tools that make the job of configuring, monitoring, and troubleshooting routers, switches, firewalls, and other business applications, quicker and helps reduce the likelihood of human errors. Businesses that use CiscoWorks SNMS can enjoy the twin advantages of decreasing downtime and the ability to easily roll out changes in the network.

Positioned between CiscoWorks for Windows (CWW) and the CiscoWorks LAN Management Solution (LMS), SNMS introduces network administrators to the functionality of Resource Manager Essentials along with the multi-vendor device monitoring and SNMP management features of WhatsUp Gold. SNMS provides a cost effective solution that can be easily installed and used today while providing a transition path to CiscoWorks LAN Management Solution.

### When to Sell

#### Sell This Product

**CiscoWorks Small Network Management Solution**

#### When a Customer Needs These Features

- Simple integrated installation, autodiscovery and automated import of devices using SNMP
- Standards-based multi vendor management
- Reduce the time and complexity of keeping the networks' configuration, software version and connectivity optimized

## Key Features

- Aids in avoiding configuration mismatches via templates for Simple Network Management Protocol (SNMP) community, Terminal Access Controller Access Control System (TACACS), enable, syslog, SNMP trap destinations, Cisco Discovery Protocol (CDP) and Domain Name System (DNS) to prevent CLI command errors
- Provides a snapshot of the current state of a specific device with detailed graphical back and front views
- Provides a single window to monitor and manage Cisco network devices and non-network devices such as PCs, servers, and applications
- Monitors and reports on hardware, configuration, and inventory changes
- Provides reports that analyze prerequisites and impacts of proposed software updates
- Simplifies remote access to SNMS applications through a secure web browser while providing tiered user access based upon role permission

## CiscoWorks Small Network Management Solution Components

CiscoWorks Small Network Management Solution includes the following tools:

- CiscoView—Provides graphical back and front panel views of Cisco devices; dynamic, color-coded graphical displays to simplify device-status monitoring, device-specific component diagnostics, device configuration, and application launching
- CiscoWorks Server—Provides the common management desktop services and security across the CiscoWorks family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
- Support for secure browser communications with CiscoView and RME sessions via Secure Socket Layer (SSL) and Secure Shell (SSH) protocol
- WhatsUp Gold from Ipswitch, Inc.—Provides network discovery, mapping, monitoring, and alarm tracking
- Resource Manager Essentials—Resource Manager Essentials (RME) provides tools for building and managing network inventory, deploying configuration and software image changes, archiving configurations, and providing an audit trail of network changes

Important: RME has a device limit of 40 or fewer Cisco devices.

## Specifications

Feature	CiscoWorks Small Network Management Solution
Server	Hardware: PC-compatible computer with 1 GHz or faster Pentium processor; CD-ROM drive; 100Base-T or faster connection; 512 MB RAM; 9 GB available disk drive space; 1 GB virtual memory Software: Windows 2000 Professional, Server, and Advanced Server (Service Pack 3)
Client	Hardware: PC-compatible computer with 1 GHz or faster Pentium processor Operating System: Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP SP1 with Microsoft VM Browser: Internet Explorer 6.0 Service Pack 1, on Windows operating systems

## Selected Part Numbers and Ordering Information

### CiscoWorks Small Network Management Solution

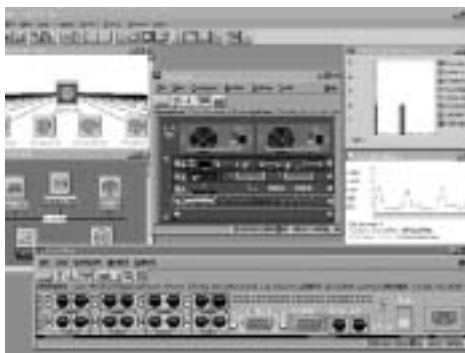
CWSNM-1.5-K9	CiscoWorks Small Network Management Solution 1.5 for Windows; includes WhatsUp Gold 8.0, Common Services 2.2 with CiscoView 6.0, Resource Manager Essentials 3.5 (40 Cisco device restriction)
CWSNM-1.5-WINMR-K9	Maintenance kit for customers that purchased SNMS 1.0 X and now want new device support and code upgrades; kit includes support for Windows and updates to all components - September 2003

## For More Information

See the CiscoWorks Small Network Management Solution Web Site:  
<http://www.cisco.com/go/wrsnms>

## CiscoWorks for Windows

CiscoWorks for Windows is a powerful set of network management tools to easily manage your small to medium network or workgroup. It provides information such as dynamic status, statistics, and comprehensive configuration information for Cisco routers, switches, hubs, and access servers. Using the included WhatsUp Gold from Ipswitch, you can also monitor printer, workstations, servers and important non Cisco network services.



## When to Sell

### Sell This Product

CiscoWorks for Windows

### When a Customer Needs These Features

- A single solution for managing all resources attached to a small multivendor network
- A smaller solution, where centralize management of configurations of a software distribution is not needed
- Low-cost network management
- Needs to quickly understand basic network connectivity, access individual device configurations and statistics, and troubleshoot problems

Also available for small and medium size customers is the CiscoWorks Small Network Management Solution (Small NMS). Small SNMS includes all the features above and includes CiscoWorks Resource Manager Essentials (Essentials) which provides additional functionality that allows the customer to of build and maintain an up-to-date hardware and software inventory for up to 20 devices in a network.

## Key Features

CiscoWorks for Windows provides the following features when used in conjunction with WhatsUp Gold from Ipswitch (included in the CiscoWorks for Windows package):

- Automatic discovery process for networked devices
- Management of network hardware, printers, servers, and workstations
- Customizable monitoring of services such as FTP and HTTP
- Access to extensive data on port status, bandwidth utilization, traffic statistics, protocol information, and other network performance statistics
- Flexible graphing capabilities for quickly recording and analyzing historical data that can be exported to files
- Management Information Base (MIB) compiler and browser for managing third-party SNMP devices
- Tools to simplify device configuration and management for Cisco routers, switches, and access servers

- Threshold management features that can be set for many performance variables to generate an alarm or event notification
- Flexible event notification, including voice, paging, and e-mail notification of user-defined events

### CiscoWorks for Windows Components

CiscoWorks for Windows includes the following tools:

- WhatsUp Gold from Ipswitch, Inc.—Provides network discovery, mapping, monitoring, and alarm tracking
- CiscoView—Provides back- and front-panel displays; dynamic, color-coded graphical displays simplify device-status monitoring, device-specific component diagnostics, and application launching
- Threshold Manager—Enhances the ability to set thresholds on Cisco RMON-enabled devices, reducing management overhead and improving troubleshooting capabilities
- StackMaker—Allows users to combine multiple Cisco devices of specific types into a single stack and visually manage them in a single window
- Show Commands—Displays detailed router system and protocol information without requiring the user to remember complex Cisco IOS Software command-line languages or syntax

### Specifications

Feature	CiscoWorks for Windows
Hardware Requirements	266 MHz Pentium-based IBM PC or compatible computer 128-MB RAM total 1 GB free hard drive space
Software Requirements	Windows 98, Windows NT 4.0, or Windows 2000 Netscape 4.61, 4.7, 4.76 or Internet Explorer 5.0, 5.1, 5.5

### Selected Part Numbers and Ordering Information

#### CiscoWorks for Windows

CWW-6.1-WIN	CiscoWorks for Windows 6.1
CWW-6.1-WIN-UP	Upgrade to CWW 6.1 for Windows from CWW 5.0
CWW-6.1-WIN-MR	Maintenance Release: Requires existing CWW 6.0 -June 02

### For More Information

See the CiscoWorks for Windows Web site: <http://www.cisco.com/go/cwwin>

## CiscoWorks Routed WAN Management Solution

The RWAN solution addresses the needs of managing WANs by improving the accuracy, efficiency, and effectiveness of your network administrators and operations staff while increasing the overall availability of your network through proactive planning, deployment, and troubleshooting tools. The CiscoWorks Routed WAN Management Solution provides increased visibility into network behavior, assists in quickly troubleshooting performance bottlenecks, and provides comprehensive tools to easily administer new software and configuration changes for optimizing bandwidth and utilization across expensive and critical links in the network.

## When to Sell

### Sell This Product

#### Routed WAN Management Solution

### When a Customer Needs These Features

- Optimize router performance by automatically streamlining access control lists, and applying policy-based changes via templates
- Understand the responsiveness of WAN connections to determine where bottlenecks are; provides real-time analysis of end-to-end hop delays
- Increase network performance by monitoring traffic of protocols, applications, and interface characteristics
- A watchdog system to monitor WAN characteristics
- An accurate inventory baseline; including memory, slots, software versions, and boot ROMs needed to make decisions
- Automate the process of updating device software and configuration
- Graphically displays a devices operational status with tools to monitor its activity or change its configurations
- Support for secure browser communications and downloads from CiscoView, RME and ACLM via Secure Socket Layer (SSL) or Secure Shell (SSH) protocol

## Key Features

- **Access Control List Manager**—Provides a wizard and policy template-based approach to simplifying the setup, management, and optimization of Cisco IOS Software-based IP and Internetwork Packet Exchange (IPX) traffic filtering and device access control
- **Internetwork Performance Monitor**—Used to diagnose latency, identify network bottlenecks, and analyze response times
- **Resource Manager Essentials**—Provides the tools needed to manage Cisco devices. It includes inventory and device change management, network configuration and software image management, network availability, and syslog analysis
- **CiscoView**—Provides back- and front-panel displays; dynamic, color-coded graphical displays simplify device-status monitoring, device-specific component diagnostics, and application launching
- **CiscoWorks Server**—Provides the common management desktop services and security across the CiscoWorks family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
- Support for secure browser communications with CiscoView and RME sessions via Secure Socket Layer (SSL) and Secure Shell (SSH) protocol

## Specifications

Feature	Routed WAN Management Solution Requirements
Server	Hardware: Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server) or IBM PC compatible with 550-MHz or higher Pentium III processor running (Dual processor system required for hosting multiple management solutions) Software: Solaris 2.8 or Microsoft Windows 2000 Advanced Server (with Terminal Services turned off), Server or Professional Edition with Service Pack 3
Client	Hardware: IBM PC-compatible computer with 300-MHz or higher Pentium processor or Sun Ultra 10; HP9000 Series or IBM RS/6000 running Windows XP Professional with Service Pack 1; Windows 2000 Professional with Service Pack 2 or 3; Windows Server with Server Pack 2 or 3 Software: Solaris 2.7, 2.8, HP-UX 11.0, AIX 4.3.3 Web Browser support for Windows 2000/XP: Netscape 4.78 or 4.79 or Internet Explorer 6.0 with Service Pack 1; Solaris support for Netscape 4.76 only
Supported Devices	Most Cisco IOS Software routers, access servers, and switches
Supported Cisco IOS Software Versions	Generally supports Cisco IOS Software Versions 10.3 and above; Catalyst Supervisor code 2.1 and above Note: Some CiscoWorks applications require specific versions of IOS and CAT these releases in order to operate; please see the specific application documentation and release notes for more information.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Routed WAN Management Solution

CWRW-1.3-K9	Routed WAN Management Solution 1.3 for Windows and Solaris platforms; includes Access Control List Manager 1.5, Internetwork Performance Monitor 2.5, Resource Manager Essentials 3.5, Common Services 2.2 with CiscoView 5.5
CWRW-1.3-P1-K9	Cross Bundle Discount RWAN 1.3 for Windows and Solaris platforms; available to customers who have previously purchased LMS 1.X or LMS 2.X and want to add RWAN
CWRW-1.3-MR-K9	Maintenance kit for customers that purchased RWAN 1.X and now want new device support and code upgrades; kit includes support for Windows and Solaris platforms; includes updates to all components

1. This is only a small subset of all parts available via URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

### For More Information

See the Routed WAN Management Solution Web site: <http://www.cisco.com/go/rwan>

## CiscoWorks LAN Management Solution

The CiscoWorks LAN Management Solution consists of operationally focused tools. These tools include fault management, scalable topology views, sophisticated configuration, Layer 2/3 path analysis, voice-supported path trace, traffic monitoring, end-station tracking, workflow application server management, and device troubleshooting capabilities. CiscoWorks LMS combines applications and tools for configuring, monitoring, and troubleshooting the campus network.

### When to Sell

#### Sell This Product

#### LAN Management Solution

#### When a Customer Needs These Features

- A set of tools for managing Cisco's award winning Catalyst switches
- Time saving user tracking and path trace analysis tools with support of IP phones
- Automated process of inventorying network devices, updating device software, and managing configuration to reduce the time and errors involved in network updates
- Browser-accessible, graphical tool for configuring and monitoring Cisco device components and operational status
- VLAN, ATM, or LANE service management tools
- RMON traffic monitoring and analysis capability
- Active fault monitoring of Cisco devices

### Key Features

- **Campus Manager**—Web-based applications designed for managing Layer 2 device and connectivity discovery, workflow application server discovery and management, detailed topology views, virtual LAN/LAN Emulation (VLAN/LANE) and ATM configuration, end-station tracking, Layer2/3 path analysis tools, and IP phone user and path information
- **Device Fault Manager**—Provides real-time fault analysis for Cisco devices, automatically includes Cisco devices into its monitoring environment and applies a Cisco "Best Practices" fault rule to each device
- **nGenius Real Time Monitor**—Web-enabled multiuser traffic management tool set that provides access to network-wide, real-time RMON information for monitoring, troubleshooting, and maintaining network availability
- **Resource Manager Essentials**—Provides the tools needed to manage Cisco devices. It includes inventory and device change management, network configuration and software image management, network availability, and syslog analysis
- **CiscoView**—Provides back- and front-panel displays; dynamic, color-coded graphical displays simplify device-status monitoring, device-specific component diagnostics, and application launching

- CiscoWorks Server—Provides the common management desktop services and security across the CiscoWorks Family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
- Support for secure browser communications with CiscoView and RME sessions via Secure Socket Layer (SSL) and Secure Shell (SSH) protocol

## Specifications

Feature	Description
Server	Hardware: Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server) or IBM PC compatible with 550-MHz or higher Pentium III processor running: (Dual processor system required for hosting multiple management solutions) Software: Solaris 2.8; Microsoft Windows 2000 Advanced Server (with Terminal Services turned off), Server or Professional Edition with Service Pack 3
Client	Hardware: IBM PC-compatible computer with 300-MHz or higher Pentium processor; Sun Ultra 10, HP9000 Series; IBM RS/6000 running Software: Windows XP Professional with Service Pack 1, Windows 2000 Professional with Service Pack 2 or 3, Windows Server with Server Pack 2 or 3; Solaris 2.7, 2.8; HP-UX 11.0; AIX 4.3.3 Web Browser support for Windows 2000/XP: Netscape 4.78 or 4.79 or Internet Explorer 6.0 with Service Pack 1; Solaris support for Netscape 4.76 only
Supported Cisco Devices	Most Cisco IOS Software routers, access servers, hubs, and switches
Supported Cisco IOS Software Versions <sup>1</sup>	Generally supports: Cisco IOS Software Versions 10.3 and higher; Catalyst Supervisor code 2.1 through 4.1

1. Some CiscoWorks applications require certain versions of IOS and CAT these releases in order to operate, please see the specific application documentation and release notes for more information

## Selected Part Numbers and Ordering Information<sup>1</sup>

### LAN Management Solution

CWLMS-2.2-K9	LAN Management Solution 2.2 for Windows and Solaris; includes Campus Manager 3.3, Device Fault Manager 1.2, Resource Manager Essentials 3.5, nGenius Real Time Monitor 1.4 with Service Pack 6, Common Services 2.2 with CiscoView 5.5
CWLMS-2.2-P1-K9	Cross Bundle Discount LMS 2.2 for Windows and Solaris platforms; available to customers who have previously purchased RWAN 1.X and want to add LMS

### LAN Management Solution Upgrades

CWLMS-2.2-UP-K9	Upgrade kit for LMS 1.X customers wanting to upgrade to LMS 2.2; kit includes support for both Windows and Solaris platforms; primary value of this kit is to provide DFM to LMS 1.X customers
CWLMS-MAY03-MR-K9	Maintenance kit for customers that purchased LMS 2.X and want new device support and code updates; kit includes support for both Windows and Solaris platforms; includes updates to all LMS 2.X components. Customers with LMS 1.X will not be able to install DFM 1.2 (use PN# CWLMS-2.2-UP-K9 to purchase the LMS 2.2 upgrade with DFM)

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the LAN Management Solution Web site: <http://www.cisco.com/go/lms>

## CiscoWorks VPN/Security Management Solution

CiscoWorks VPN/Security Management Solution (VMS), an integral part of the SAFE Blueprint for network security, combines Web-based tools for configuring, monitoring, and troubleshooting enterprise virtual private networks (VPNs), firewalls, and network and host-based intrusion detection systems (IDS). It offers the ability to monitor remote access links, and IPSec based site to site VPN links. VMS is a Web-based solution that provides a "dashboard" view of critical VPN resources and their performance, VPN hardware and configuration and troubleshooting reports.

## When to Sell

### Sell This Product

CiscoWorks  
VPN/Security  
Management Solution

### When a Customer Needs These Features

- Complete management of a SAFE infrastructure environment
- Configuring and monitoring VPN, PIX, IOS routers, and IDS devices.
- Monitoring large remote access, and site-to-site hub and spoke VPNs from a single management console and focus on problem areas and performance.

## Key Features

- **Management and Monitoring Centers**—Supplies the latest in management functionality and multifaceted scalability by offering features such as a consistent user experience, auto update, command and control workflow, and role-based access control. The management and monitoring centers include Management Center for Firewalls, Management Center for IDS Sensors, Management Center for Cisco Security Agents, Management Center for VPN Routers, and Monitoring Center for Security
- **VPN Monitor**—Allows network administrators to collect, store, and view information on IPSec VPN connections for remote-access or site-to-site VPN terminations. Multiple devices can be viewed from an easy-to-use dashboard that is configured using a Web browser
- **Cisco IDS Host Sensor Console**—Provides real-time analysis and reaction to network hacking attempts by identifying an attack and preventing access to critical server resources before any unauthorized transactions occur
- **Resource Manager Essentials (RME)**—Provides the tools needed to manage Cisco devices. It includes inventory and device change management, network configuration and software image management, network availability, and syslog analysis
- **CiscoWorks Server**—Provides the common management desktop services and security across the CiscoWorks family of solutions. It also provides the foundation for integrating with other Cisco and third-party applications
- Support for secure browser communications with CiscoView and RME sessions via Secure Socket Layer (SSL) and Secure Shell (SSH) protocol

## Specifications

Feature	CiscoWorks VPN/Security Management Solution
Server	Hardware: IBM PC-compatible computer with 1-GHz or faster Pentium processor; Sun UltraSPARC 60 MP with 440-MHz or faster processor; Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server) Software: Windows 2000 Professional, Server, and Advanced Server (Service Pack 3); Sun Solaris 2.8
Server	Hardware: IBM PC-compatible computer with 300-MHz or faster Pentium; Solaris SPARCstation or Sun Ultra 10 Software: Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP SP1 with Microsoft VM; Solaris 2.8 Browser: Internet Explorer 6.0 Service Pack 1, on Windows operating systems; Netscape Navigator 4.79, on Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP; Netscape Navigator 4.76 on Solaris 2.8



## Selected Part Numbers and Ordering Information

### CiscoWorks VPN/Security Management Solution

CWVMS-2.2-UR-K9	CiscoWorks VMS 2.2 Windows (unrestricted device usage; 1 server installation license); Includes: Management Center for Firewalls 1.1, for IDS Sensors 1.2, for Cisco Security Agents 4.0, and for VPN Routers 1.1, CiscoWorks Auto Update Server 1.1, CiscoWorks Monitoring Center for Security 1.2, CiscoWorks VPN Monitor 1.2, RME 3.5, and Common Services 2.2 <sup>1</sup>
CWVMS-2.2-WINR-K9	CiscoWorks VMS 2.2 Windows (20-device restricted usage; 1 server installation license); Includes: Management Center for Firewalls 1.1, for IDS Sensors 1.2, for Cisco Security Agents 4.0, and for VPN Routers 1.1, CiscoWorks Auto Update Server 1.1, CiscoWorks Monitoring Center for Security 1.2, CiscoWorks VPN Monitor 1.2, RME 3.5, and Common Services 2.2
CWVMS-2.2-WUPGR-K9	Upgrade from CSPM 2.x (unrestricted license), CiscoWorks VMS 1.X or 2.X (restricted licenses) to CiscoWorks VMS 2.2 for Windows and Solaris (unrestricted license) <sup>1</sup>
CWVMS-2.2-UPGUR-K9	Upgrade from CSPM 2.X (restricted license) or CiscoWorks VMS 1.X (restricted license) to CiscoWorks VMS 2.2 for (20-device restricted license) <sup>1</sup>
CWVMS-2.2-UR-MR-K9	Minor update kit for existing VMS 2.X Windows and Solaris (unrestricted license) <sup>1</sup>
CWVMS-2.2-R-MR-K9	Minor update kit for existing VMS 2.X Windows Only (20-device restricted license) <sup>1</sup>

1. Contains Windows-only versions of Management Center for Firewalls 1.1, for IDS Sensors 1.2, for Cisco Security Agents 4.0 and for VPN Routers 1.1, CiscoWorks Auto Update Server 1.1, and CiscoWorks Monitoring Center for Security 1.2

### For More Information

See the CiscoWorks VPN/Security Management Solution Web site:

<http://www.cisco.com/go/vms>

## CiscoWorks Security Information Management Solution and CiscoWorks Security Information Management Solution Engine

The CiscoWorks Security Information Management Solution (SIMS) is a solution for effectively gathering and analyzing the overwhelming amount of security event data that companies receive through growing numbers of multi-vendor security devices and systems installed throughout their network. SIMS is based on technology from netForensics and incorporates powerful features to help companies better manage their growing security infrastructure and effectively monitor millions of event messages, without additional staff.

CiscoWorks SIMS 3.1 also introduces a new, hardware-based solution engine option that provides the same features and functions as the CiscoWorks SIMS 3.1 software on a dedicated appliance. The CiscoWorks SIMS 3.1 Solution Engine requires minimal setup and installation.

The hardware based solution engine provides regional scalability for customers with small to medium deployments and the software only solution provides global scalability for larger deployments.

### When to Sell

#### Sell This Product

**CiscoWorks Security Information Management Solution**

#### When a Customer Needs These Features

- Security monitor with advanced visualization for quickly detecting known and unknown threats
- Perform risk assessments and analysis to determine overall vulnerability of enterprise network assets
- Manage and correlate events from SAFE and multi-vendor security environments

## Key Features

- Complete event monitoring for SAFE and all multivendor security environments
- Advanced visualization for fast and intuitive security monitoring
- Integrated risk assessment to understand the overall vulnerability of any particular asset within the enterprise
- Comprehensive reporting and forensics for all levels of security operations
- Productivity gains and cost reduction
- Flexible deployment options of either software only or network appliance with SIMS pre-installed on a Cisco 1160 Solutions Engine

## Specifications

Feature <sup>1</sup>	CiscoWorks Security Information Management Solution (Open Server)
Server	Hardware: Linux: Dual Intel Pentium IV with 1.5 GHz (Server Class) with 4 GB RAM and 18 GB available disk space for full install; Solaris: Dual UltraSPARC-III with 444 MHz (Server Class) with 4 GB RAM and 18 GB available disk space for full install Software: Linux: Red Hat Linux, Solaris: 2.8
Client	Hardware: IBM PC-compatible computer with 300-MHz or faster Pentium; Solaris SPARCstation or Sun Ultra 10 Software: Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP SP1 with Microsoft VM; Solaris 2.8 Browser: Internet Explorer 6.0 Service Pack 1, on Windows operating systems; Netscape Navigator 4.79, on Windows 2000 Server or Professional Edition with Service Pack 3, or Windows XP; Netscape Navigator 4.76 on Solaris 2.8

1. For complete Server and Client Hardware and Software requirements, please refer to the Product Literature or Installation documentation for specific details and requirements; Information on the CiscoWorks Security Information Management Solution Engine can be found in the Product Literature

## Selected Part Numbers and Ordering Information<sup>1</sup>

### CiscoWorks Security Information Management Solution (Open Server)

CWSIME-1160-K9	Security Information Management Solution Engine 3.1; includes the Cisco 1160 hardware platform and Security Information Management Solution software version 3.1
CWSIM-3.1-SS-K9	Security Information Management Solution 3.1 Starter Kit for Solaris; restricted license for monitoring 30 devices; License covers installation of 1 master engine, 1 distributed engine server and 1 database server. Includes release CDs for all software and documentation. Web enabled license activation required upon receipt
CWSIM-3.1-SL-K9	Security Information Management Solution 3.1 Starter Kit for Linux; restricted license for monitoring 30 devices; License covers installation of 1 master engine, 1 distributed engine server and 1 database server. Includes release CDs for all software and documentation. Web enabled license activation required upon receipt
CWSIM-3.1-DS-K9	Additional database server license for existing SIM 3.1 installations running Solaris. Web enabled license activation required upon receipt
CWSIM-3.1-DL-K9	Additional database server license for existing SIM 3.1 installations running Linux. Web enabled license activation required upon receipt
CWSIM-3.1-EN-K9	Distributed Engine add-on license for SIM 3.1 installations running Solaris or Linux. Web enabled license activation required upon receipt
CWSIM-3.1-ADD20-K9	Additional 20 agent add-on license for existing SIM 3.1 installations running Solaris or Linux. Web enabled license activation required upon receipt

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

## For More Information

See the CiscoWorks Security Information Management Solution Web site:  
<http://www.cisco.com/go/sims>

## CiscoWorks Network Connectivity Monitor

The CiscoWorks Network Connectivity Monitor (NCM) is a sophisticated analysis tool that can leverage the fault expertise in CiscoWorks Device Fault Manager (DFM) and/or CiscoWorks IP Telephony Environment Monitor (ITEM) to pinpoint connectivity problems in real time and identify their impact on the network. NCM has connectivity intelligence built in so users are not required to determine rules, polling parameters, or valid threshold values. NCM connectivity intelligence can also be forwarded to other multi-device, multi-vendor event management systems installed in the network. NCM will automatically analyze a range of service-affecting network connectivity problems and as the network grows and changes, NCM will detect these changes in Cisco devices and adjust its analysis accordingly thereby keeping network downtime to a minimum.

### When to Sell

#### Sell This Product

**CiscoWorks Network Connectivity Monitor**

#### When a Customer Needs These Features

- Eliminate time-consuming manual event analysis and ensure corrective action can begin early before significant network service problems arise
- Faster problem isolation to prevent downtime and provide continuous availability of networked business applications
- Easy to install right out-of-the-box with embedded knowledge of Cisco devices integrated into the tool so the need for costly and time-consuming development of custom rules and their implementation is not needed and saves valuable time

### Key Features

- Automated network connectivity and impact analysis for networks with Cisco products and technologies
- Consolidation and integration of CiscoWorks NCM, DFM, and/or ITEM fault and operational health analysis
- Focus on users taking corrective action
- Integration with user's present mode of operations, including multivendor Manager of Managers such as HP OpenView, Tivoli NetView, Cisco Info Center, and SMARTS InCharge
- Regular incremental device support for new Cisco devices

### Specifications

Feature <sup>1</sup>	CiscoWorks Network Connectivity Monitor
Server	Hardware: IBM PC-compatible computer with Pentium III at 1-GHz or faster processor, 2 GB RAM and 300 MB available disk space; Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server with dual 900-MHz processors, 2 GB RAM and 300 MB available disk space Software: Windows 2000 Server and Advanced Server; Sun Solaris 2.7 or 2.8
Client	Hardware: IBM PC-compatible computer with Pentium III 700-MHz or faster Pentium, 256 MB RAM and 100 MB available disk space; Solaris SunBlade 100 with 256 MB RAM and 100 MB available disk space Software: Windows 2000; Solaris 2.7 or 2.8

1. For complete Server and Client Hardware and Software requirements, please refer to the Product Literature or Installation documentation for specific details and requirements

## Selected Part Numbers and Ordering Information<sup>1</sup>

### CiscoWorks Network Connectivity Monitor

CWNCM-1.0-P1	Limited Promotion Includes NCM software and 100 devices support license and support for 1 console (expires November 2003)
CWNCM-1.0-P2	Limited Promotion Includes NCM software and 100 devices support license and support for 4 console (expires November 2003)
CWNCM-1.0	Includes NCM software and 100 devices support license and support for 1 console
CWNCM-1.0-50-LIC	Additional 50 device support license for Network Connectivity Monitor
CWNCM-1.0-100-LIC	Additional 100 device support license for Network Connectivity Monitor
CWNCM-1.0-500-LIC	Additional 500 device support license for Network Connectivity Monitor
CWNCM-1.0-1000-LIC	Additional 1,000 device support license for Network Connectivity Monitor

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

### For More Information

See the CiscoWorks Network Connectivity Monitor Web site:  
<http://www.cisco.com/go/ncm>

## CiscoWorks Manager IP Telephony Environment Monitor

CiscoWorks IP Telephony Monitor (ITEM) is a suite of applications and tools that facilitate effective management of Cisco-based IP telephony implementations. ITEM is designed to manage AVVID and IOS-based telephony environments with specialized tools and processes appropriate to both large and small installations. ITEM consists of a product bundle as well as several optional components that can be downloaded from the Cisco Systems, Inc. website. CiscoWorks ITEM provides information and tools in three areas to instill high confidence that Cisco-based IP telephony environments are performing as expected.

CiscoWorks ITEM provides several tools that enable Operations and Help-desk personnel respond to customer issues and to maintain surveillance on the introduction and movement of IP telephones in their environment. These optional tools increase the awareness and accountability for telephony resources and can play an important role in enterprise security programs yet are simple to install and use.

CiscoWorks ITEM also provides tools for Operations and Administrative personnel to monitor and manage telephony resources requiring financial expenditures. These tools, part of an ongoing program to capture and record capacity management data, can be used in conjunction with HP OpenView Performance Insight: Cisco IP Telephony Statistics Report Pack to produce meaningful utilization and capacity reports.

### When to Sell

#### Sell This Product

CiscoWorks IP Telephony Environment Monitor

#### When a Customer Needs These Features

- Network managers who need to effectively manage their converged networks while maintaining high confidence that their IP telephony environments are performing as expected
- Network Managers who need to use synthetic traffic (replicating key forms of network activity associated with VoIP and IP telephony) to enable around-the-clock monitoring of key voice elements in the network

### Key Features

The IP Telephony Monitor (ITM) is the primary application of the ITEM bundle. ITM tracks the health of IP telephony environments by proactively monitoring Cisco voice elements in the network to alert operations personnel to potential problems and to help minimize IP telephony service downtime. It supports the health monitoring of AVVID

Cisco CallManager, Cisco AVVID IP telephony applications and platforms, IOS Telephony-based hardware, the gateways and gatekeepers, and in-line power switches. Main features of ITM are:

- Problem-focused fault analysis
- Synthetic traffic generation and monitoring
- Real-time Alerts and Activities Display
- Integration with CiscoWorks desktop
- Integration with enterprise management systems
- Support for Layer 2 and Layer 3 network devices
- Support of AVVID and IOS-based IP telephony applications and services
- Incremental device support

## Optional Drop-In Modules

### Fault History Manager

Fault History is an optional drop-in module (downloadable from Cisco.com Software Center) that provides a web-based tool to access historical fault and alert data from a database. The user has several filtering options that can facilitate the search for specific information.

### IP Phone Information Utility

The IP Phone Information Utility is an optional drop-in module (downloadable from Cisco.com Software Center) that provides a web-based tool to show detailed information about individual IP telephone. The operator can access the IP phone information by using its extension number, IP address, and/or MAC address. This utility bases its information on the devices created in VHM.

### IP Phone Help Desk Utility

The IP Phone Help Desk Utility is an optional applet (downloadable from Cisco.com Software Center) that provides a MS Windows 2000 desktop tool to show summary information about individual IP telephone. The help desk operator can access the IP phone information by using its extension number (or can configure the application to search by IP or MAC addresses). This utility requires a connection to an ITEM server running VHM with the IP Phone Information Utility installed.

### Gateway Statistics Utility

When available, the Gateway Statistics Utility is an optional drop-in module (downloadable from Cisco.com Software Center) that provides a web-based tool to collect performance and behavior statistics about CCM-controlled IP telephony gateways. This statistical information can be subsequently exported for processing by reporting packages for capacity planning and trending information.

## Specifications

Feature	CiscoWorks IP Telephony Environment Manager
Server	Hardware: IBM PC-compatible with 1 GHz or higher Pentium IV processor; UNIX (If DFM is on Unix platform; Sun UltraSPARCIII (Sun Blade 1000 Workstation or Sun Fire 280R Workgroup Server); (Dual processor system required for hosting multiple management solutions) Software: Windows 2000 Server or Professional Edition with Service Pack 2; Solaris 2.8
Client	Hardware: IBM PC-compatible computer with 300 MHz or higher Pentium processor; Windows NT 4 (Workstation & Server) with Service Pack 6a, Win 98 or Windows 2000 Professional & Server with Service Pack 2 Browser: Windows 98/NT/2000: Netscape v4.77, 4.78, 4.79; Windows 98/NT/2000: Internet Explorer v5.5 with Service Pack 2, 6.0

## Selected Part Numbers and Ordering Information

### CiscoWorks IP Telephony Environment Monitor

CWITEM-2.0-WIN-K9	CiscoWorks IP Telephony Environment Monitor 2.0 (Windows) for new customer installations; includes IP Telephony Monitor (ITM); this suite is intended for enterprise customers
CWITEM-2.0-ADD-K9	CiscoWorks IP Telephony Environment Monitor 2.0 (Windows) Add-On Kit for existing LMS 2.X customers; includes IP Telephony Monitor (ITM); this suite is intended for enterprise customers
CWITEM-2.0-UP-K9	Upgrade kit for existing IP Telephony Environment Monitor customers; includes IP Telephony Monitor (ITM). This suite is intended for the Enterprise customers
CWITEM-2.0-MV-K9	CiscoWorks IP Telephony Environment Monitor Multi-View 2.0 (Windows) for new customer installations; includes IP Telephony Monitor (ITM) Multi-View; this suite is intended for service provider customers

## For More Information

See the CiscoWorks IP Telephony Environment Monitor Web site at:  
<http://www.cisco.com/go/cwvoip>

## CiscoWorks Voice Manager for Voice Gateways

CiscoWorks Voice Manager for Voice Gateways (CVM) is a client-server, web-based voice management and reporting solution. The application provides enhanced capabilities to configure and provision voice ports, and create and modify dial plans on voice-enabled Cisco routers for voice over IP (VoIP), voice over Frame Relay (VoFR), and voice over ATM (VoATM) network deployments.

## When to Sell

### Sell This Product

CiscoWorks IP Telephony Environment Monitor

### When a Customer Needs These Features

- Network managers who need to maintain a distributed network architecture for increased scalability
- Network Managers who need to manage multiple customer networks from one common server

## Key Features

- Web interface management of voice ports and dial plan generation and management—Create and manage local dial plans and VoIP, VoFR, and VoATM network dial plans
- Report generation—Enhance graphical reporting capabilities with the software provided by an alliance with Telemate.Net (Windows NT), a leading developer of enterprise information management tools; optional capabilities for enhanced reports, custom report creation, and multiple data source record collection exists.
- Optional capabilities to provide reporting on other data sources such as private branch exchanges (PBXs) and selected firewalls
- CiscoView—CiscoView is a web-based graphical device-management technology and is the standard for managing Cisco devices, and providing back and front panel displays. Features include: Real-time monitoring of key information relating to

device performance, traffic, and usage, with metrics such as utilization percentage, frames transmitted and received, errors, and a variety of other device-specific indicators

## Specifications

Feature	CiscoWorks Voice Manager for Voice Gateways
<b>Server Hardware Requirements</b>	256 MB of memory; 8-GB available hard disk space CPU running at 450 MHz (for Windows NT) Sun Sparc/Ultra @333 MHz (for Solaris)
<b>Server Software Requirements</b>	Windows NT 4.0 with Service Pack 5 CiscoWorks CD One 4th Edition for Windows NT
<b>Client Hardware Requirements</b>	64 MB of memory CPU running at 300 MHz
<b>Client Software Requirements</b>	Windows 95 running Netscape 4.04 or Internet Explorer 4.01 and 64 MB of virtual memory Windows NT running Netscape 4.04 or Internet Explorer 4.01 and 64 MB of virtual memory Solaris running Netscape 4.04 with Telnet and Java enabled and 64 MB of virtual memory

## Selected Part Numbers and Ordering Information<sup>1</sup>

### CiscoWorks Voice Manager for Voice Gateways 2.1 9

CWVM-2.1	Voice Manager 2.1 for Windows & Solaris; includes Voice Manager 2.1 and CD One 4th Edition (CiscoView 5.3 and the October 2001 Java patch update)
CWVM-2.1-UPG	Upgrade kit for CWVM 1.X customers wanting to upgrade to CVM 2.1; kit includes support for both Windows and Solaris platforms
CWVM-2.1-UPT	Minor updates to CWVM 2.1 for Windows and Solaris from CWVM 2.X; update includes support for both Windows and Solaris platforms

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Voice Manager for Voice Gateways Web site at:  
<http://www.cisco.com/go/cw2kvm>

## CiscoWorks QoS Policy Manager

QoS Policy Manager allows you to centrally define and administer IOS and CAT parameters needed for differentiating network traffic. This ensures high availability and predictable performance for business-critical which rely on advanced voice and video services. Cisco QoS Policy Manager (QPM) 3.1 is a key enabler of end-to-end QoS for converged networks. It delivers differentiated services across network infrastructures with converged voice, video, and data applications, simply by taking advantage of Cisco IOS and Catalyst OS Software with built-in QoS mechanisms in LAN and WAN switching and routing equipment.

## When to Sell

### Sell This Product

#### Cisco QoS Policy Manager

### When a Customer Needs These Features

- End-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams
- Rules-based policies that combine static and dynamic port applications and host system traffic filters
- QoS Policy Manager's services, including congestion management & avoidance, and traffic-shaping
- Efficiently translate policies to specific QoS config commands, ensuring consistency across domains
- Validate policies prior to deploying them quickly and reliably to LAN and WAN policy domains
- Generate Web-based reports on QoS policies deployed in the network

## Key Features

- Measure traffic throughput for top applications and service classes plus troubleshoot problems with real-time and historical QoS feedback
- Centrally define roles and permissions and take advantage of Cisco Secure Access Control Server (ACS) to control privileges for policy view, modification and deployment for different device groups
- Partition network into administrative and deployment domains and use policy libraries for global QoS configuration. Modify, scale and monitor IOS AutoQoS voice policies on routers
- Use the secure, Web-based graphical user interface (GUI) for accurate end-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams
- Setup wizard intelligently determines QoS policies and properties at each network point that requires IP telephony QoS configuration based on Cisco AVVID design recommendations
- Achieve business-driven service levels across the enterprise network by configuring traffic classification and allowing QoS policy enforcement through Cisco devices
- An integral part of Cisco content networking, QPM 3.1 delivers the appropriate service levels to business-critical applications by supporting the extension of IP packet classification to include application signature, Web URLs, and negotiated ports
- Enables congestion management, congestion avoidance, and bandwidth control by selectively activating QoS mechanisms on intelligently grouped LAN and WAN interfaces and providing support for external application programming interfaces (APIs) to trigger event-based policy distribution
- Extend security by defining access control policies to permit or deny transport of packets into or out of device interfaces
- Expose QoS policy conflicts, uploads existing device configurations, presents command-line interface (CLI) syntax that corresponds to policies, allows previewing configuration changes before deployment, supports incremental access control list (ACL) updates, defines ACL ranges, and restores or applies a previous version of a policy database and backup to a remote server
- Supports device inventory import from CiscoWorks Resource Manager Essentials shortens configuration time for devices targeted for policy enforcement and QoS monitoring
- Web-based reporting enables a user to quickly view and analyze QoS policy management

## Specifications

Feature	Cisco QoS Policy Manager
Server	Hardware: IBM PC-compatible computer with Pentium IV, 1-GHz or faster processor Software: Windows 2000 Professional or Server with Service Pack 2
Client	Hardware: IBM PC-compatible computer with Pentium II 300-MHz or faster Software: Windows 2000 Professional or Server with Service Pack 2; Windows NT 4.0 Workstation or Server with Service Pack 5 or higher Browser: Internet Explorer 5.5 or above



## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco QoS Policy Manager

CWQPM-3.1-WINUR-K9

QoS Policy Mgr 3.1 for Windows (unrestricted device usage; 1 server installation license)

CWQPM-3.1-WINR-K9

QoS Policy Mgr 3.1 for Windows (20-device restricted usage; 1 server installation license)

CWQPM-3.1-URUP-K9

Upgrade to QPM 3.1 for Windows from QPM 1.x, 2.x or 3.0 to QPM 3.1 (unrestricted device usage; 1 server installation license)

CWQPM-3.1-URC-K9

Conversion of a QPM 3.1 20-device restricted usage license to unrestricted device usage license

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

### For More Information

See the Cisco QoS Policy Manager Web site: <http://www.cisco.com/go/qpm>

## Cisco Ethernet Subscriber Solution Engine

The Cisco Ethernet Subscriber Solution Engine (ESSE) is a hardware-based management system for metro access networks that use the Cisco ONT 1000 Gigabit Ethernet Series Optical Network Terminator. The Cisco ESSE enables complete remote management and troubleshooting of the customer demarcation point for Ethernet over fiber. Remote management and diagnostics reduce operating expenses and increase profitability by eliminating the need for unnecessary visits to the customer premises. The Cisco ESSE runs on the Cisco 1105, which is one rack unit (1RU) high, enabling you to conveniently deploy the Cisco ESSE on the same rack with the rest of your Cisco metro Ethernet network aggregation equipment.

The Cisco ESSE automatically discovers all Cisco ONT 1000 Gigabit Ethernet Series devices in the metro access network, applies the designated configuration, and instantly begins collecting statistics and management information.

### When to Sell

#### Sell This Product

Cisco Ethernet  
Subscriber Solution  
Engine

#### When a Customer Needs These Features

The Cisco Ethernet Subscriber Solution Engine is ideal for service providers seeking to:

- Reduce operating expenses by implementing metro access networks with Ethernet over fiber
- Reduce customer onsite visits, which are time-consuming and expensive
- Perform complete remote configuration and troubleshooting of the Cisco ONT 1000 Gigabit Ethernet Series

### Key Features

- Enables service providers to perform remote control of inventory, configuration, statistics, fault management, and troubleshooting on the Cisco ONT 1000 Gigabit Ethernet Series
- Full Layer 1 and Layer 2 remote configuration and monitoring of Optical Network Terminators
- Access to all Ethernet port registers and statistics on the Cisco ONT 1000 Gigabit Ethernet Series
- Easy identification of ONTs with searchable, user-defined properties such as customer name, VLAN ID, and street address

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Ethernet Subscriber Solution Engine

CESSE-1105-K9

Cisco Ethernet Subscriber Solution Engine; Includes the Cisco 1105 hardware platform and Ethernet Subscriber management software, version 1.1

1. This is only a small subset of all parts available via URL listed under "For More Information". Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

### For More Information

See the Cisco Ethernet Subscriber Solution Engine Web site:

<http://www.cisco.com/go/esse>

## CiscoWorks Wireless LAN Solution Engine

The CiscoWorks WLSE is a specialized, daily operational solution that allows customers to manage the entire Cisco Aironet WLAN infrastructure. It offers powerful, centralized template-based configuration with user-defined device groups to efficiently configure large numbers of access points and bridges. The CiscoWorks WLSE provides centralized firmware updates to facilitate firmware changes throughout the WLAN. It monitors Access Control Server (ACS) authentication servers, supports both Cisco Extensible Authentication Protocol (LEAP) and generic RADIUS servers, and further enhances security management by detecting misconfigurations on access points and bridges. The CiscoWorks WLSE proactively monitors WLAN infrastructures and generates notifications for unavailability and performance degradation. The CiscoWorks WLSE aids in capacity planning by identifying the most used access points, and accelerates troubleshooting by generating client association reports.

### When to Sell

#### Sell This Product

CiscoWorks Wireless LAN Solution Engine

#### When a Customer Needs These Features

The CiscoWorks WLSE is ideal for enterprise customers:

- Implementing large-scale Cisco Aironet WLAN infrastructures
- Template-based configuration tool which can include a large number of uniform policies for Cisco access points and bridges
- Access point and bridge mis-configuration alerts to minimize security vulnerabilities
- Proactive fault and performance monitoring of Cisco access points, bridges, LEAP authentication server, and switches connected to the access points

### Key Features

- Management of thousands of local and remote devices—Supports automated mass configuration changes, security policy enforcement, monitoring of security settings on wireless devices and active fault monitoring with alerts and dynamic, customer-defined grouping
- Support for all Cisco Aironet Series access points—Supports the full line of Cisco Aironet Series access points including the Cisco Aironet 1200, 1100, 350 and 340 Series access points running VxWorks and Cisco IOS Software
- Cisco IOS Software Release 12.2(11)JA support—Cisco IOS Software release 12.2(11)JA, a component of the Cisco Structured Wireless-Aware Network, provides support for Wi-Fi Protected Access (WPA) and Wireless Domain Services (WDS) including fast secure roaming and IEEE 802.1X local authentication services

- Cisco Aironet Conversion Tool for Cisco IOS Software support—Includes an expanded release of the new Cisco Aironet Conversion Tool for Cisco IOS Software which facilitates the conversion of Cisco Aironet 1200 Series access point VxWorks operating system configuration files to Cisco IOS Software configuration files
- Monitoring Authentication Server Performance—Monitors the authentication response time for Protected Extensible Authentication Protocol (PEAP) and Cisco LEAP from the Cisco Secure Access Control Server (ACS) extensible authentication protocol (EAP) service.
- Archiving Device Configurations—Stores the previous four configuration versions of each managed access point and wireless bridge, and allows users to search and view these configurations.
- Data Export Capability via XML API—Device inventory data, fault information, management reports and network polling statistics may now be exported via an XML interface.

## Selected Part Numbers and Ordering Information<sup>1</sup>

### CiscoWorks Wireless LAN Solution Engine

CWWLSE-1130-K9

Wireless LAN Solution Engine 2.0: includes the Cisco 1130 hardware platform and wireless LAN management software version 2.0

CWWLSE-2.0-SWUP-K9

Software only upgrade kit for Wireless LAN Solution Engine 1.x customers wanting to upgrade their Cisco 1130 hardware to Wireless LAN management software version 2.0

## For More Information

See the CiscoWorks Wireless LAN Solution Engine Web site:

<http://www.cisco.com/go/wlse>

## CiscoWorks Hosting Solution Engine

CiscoWorks Hosting Solution Engine is a network management appliance that monitors, activates, and configures a variety of e-business services in Cisco powered data centers. It provides up-to-date fault and performance information about the network infrastructure and Layer 4-7 network services.

HSE automatically discovers the entire data center infrastructure and instantly begins collecting statistics and management information, providing a current snapshot of the managed environment. HSE provides up-to-date information for operational staff to easily pinpoint the source of a problem. HSE itself is a manageable Cisco device with a full Cisco Discovery Protocol implementation and supports Cisco MIB II.

## When to Sell

### Sell This Product

CiscoWorks Hosting Solution Engine

### When a Customer Needs These Features

- Ideal for enterprise and service providers with e-business data center facilities
- Granular user access model to partition network resources for Layer 4-7 services and switch ports, and authorize user group access to individual application services
- Robust Layer 4-7 service configuration and service activation of server load balancing devices, including virtual servers, real servers, and content owners and rules

## Key Features

- Granular user access to partition network resources for Layer 4-7 services as well as switch ports; authorize user group access to individual application services
- Robust Layer 4-7 service configuration and service activation of content switches
- Monitoring and reporting of SSL Proxy services on Cisco Catalyst 6000 Series with SSL Service Modules and Cisco Content Services Switch

- Flexible fault and performance monitoring of Cisco routers, switches, Cisco PIX® Firewalls, Cisco Content Engines, Cisco Content Switches and L4-7 services
- HTML-based, secure graphic user interface with easy customer view/report personalization and historical data reporting
- Upper layer NMS/OSS integration with SYSLOG, trap, email notifications and historical data XML export

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco 1105 Hosting Solution Engine

CWHSE1105-1.5-K9

CiscoWorks Hosting Solution Engine; includes 1105 hardware platform with software version 1.5; can be configured for international power cords

1. Some parts have restricted access or are not available through distribution channels. Resellers: For latest part number and pricing info, see the *Distribution Product Reference Guide* at: <http://www.cisco.com/dprg> (limited country availability).

## For More Information

See the 1105 Hosting Solution Engine Web site: <http://www.cisco.com/go/1105hse>

## Cisco Catalyst 6500 Series Network Analysis Module 1 and 2(with NAM software version 2.2)

The Cisco Network Analysis Module (NAM) 1 and 2, second generation high performance network analysis modules for the Cisco Catalyst 6500 Series provides network monitoring instrumentation and web-browser based traffic analysis for Catalyst based AVVID environments. The NAM enables network managers to gain application-level visibility into network traffic with the ultimate goal of improving performance, reducing failures, and maximizing returns on network investment. The new NAMs are available in two hardware versions, NAM-1 and NAM-2, to meet diverse network analysis needs in a scalable switching environment running up to gigabit speeds. The NAMs come with an embedded, Web-based traffic analyzer, which provides full scale remote monitoring and troubleshooting capabilities that are accessible through a Web browser.

### When to Sell

#### Sell This Product

Catalyst 6500 Series  
Network Analysis  
Module 1 and 2 (with  
NAM software version  
2.2)

#### When a Customer Needs These Features

- Needs Application-Level visibility built into the network
- Provides network managers visibility into all layers of network traffic
- Monitoring in a scalable switching environment that supports traffic monitoring in a scalable switching environment
- Offers investment protection by interfacing with both the bus and the crossbar switching fabric-based architectures in the Cisco Catalyst 6500 Series

## Key Features

- Provides application-level Remote Monitoring (RMON) functions based on RMON2 and other advanced Management Information Bases (MIBs)
- Collects statistics on both data and VoIP streams flowing through the host switch using the Switch Port Analyzer (SPAN) and NetFlow Data Export features of the Cisco Catalyst 6500 Series
- Collects data from remote switches using the remote SPAN (RSPAN) feature of the Cisco Catalyst 6500 and 4000 Series switches
- Easy to deploy and use at LAN aggregation where they can see most of the traffic, at service points where performance is critical and at important access points where quick troubleshooting is required
- Application monitoring can be done using RMON, RMON2, and several extended RMON MIBs, which can detect the applications on the network and provide detailed information about how these applications utilize the bandwidth, which hosts access those applications, and which client/server pairs generate the most traffic
- Performance management provides valuable information about the delays in server responses to client requests

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco Catalyst 6500 Series Network Analysis Module 1 and 2(with NAM software version 2.2)

WS-SVC-NAM-1	Catalyst 6500 Series Network Analysis Module 1. To order the NAM individually, please use the spare part number of WS-SVC-NAM-1=
WS-SVC-NAM-2	Catalyst 6500 Series Network Analysis Module 2. To order the NAM individually, please use the spare part number of WS-SVC-NAM-2=

1. Some parts have restricted access or are not available through distribution channels.

## For More Information

See the Cisco NAM Web site: <http://www.cisco.com/go/6000nam>



# CHAPTER 10

## Storage Networking

### Storage Networking at a Glance

Product	Features	Page
Cisco SN 5400 Series Storage Router	<p>Enables direct access to storage systems anywhere on an IP network. Enables SCSI over IP 10-2 (iSCSI): the first storage implementation based on IP standards.</p> <ul style="list-style-type: none"> <li>• Migrates DAS (Direct Attached Storage) environments to SAN (Storage Area Networks) for small / medium businesses and enterprise workgroups. This is a full function Fibre Channel switch that adds iSCSI, providing very low price per port networked storage configurations.</li> </ul>	
Cisco MDS 9000 Family of Multilayer Intelligent Directors and Fabric Switches	<ul style="list-style-type: none"> <li>• Industry-leading port densities across the Cisco MDS 9000 Family</li> <li>• Intelligent network services including VSANs, Port, Channels, embedded diagnostics and advanced security</li> <li>• Embedded Fabric Manager, open API and integration with CiscoWorks RME and other 3rd party SAN management platforms</li> <li>• Multiprotocol support including Fibre Channel, FCIP and iSCSI. (Cisco MDS 9500 Directors and Cisco MDS 9216)</li> <li>• Open platform for hosting 3rd party storage applications (Cisco MDS 9500 Directors and Cisco MDS 9216)</li> <li>• High availability director with non-disruptive software upgrades, stateful processor restart/failover and redundancy of all major components</li> </ul>	10-3
Additional Storage Networking Solutions	<ul style="list-style-type: none"> <li>• Cisco MDS 9000 Port Analyzer Adapter encapsulates Fibre Channel frames into Ethernet packets for low cost Ethernet based storage/SCSI protocol analysis</li> <li>• Cisco CWDM Extended Distance Solution offers up to 8 auto-sensing 2/1 Gbps Fibre Channel or 1 Gbps Ethernet streams across each fiber run.</li> <li>• Cisco 7200 FCIP Port Adapter for long distance SAN connectivity over an IP network infrastructure</li> <li>• Cisco ONS 15530/15540/15454 are DWDM platforms that provide transport across dark fibre for business continuance applications</li> </ul>	10-7

## Cisco SN 5428-2 Series Storage Router



The multilayer Cisco SN 5428-2 allows small and medium-sized businesses (SMBs) and enterprise workgroups to migrate servers from a direct-attached-storage (DAS) to a storage-area-network (SAN) environment, enabling highly effective consolidation and utilization of storage assets with existing staff. The Cisco SN 5428-2 (Figure 1) provides extensive security capabilities that are critical for controlling access to valuable storage resources and company information. Protecting businesses' most critical asset-information-the Cisco SN 5428-2 allows you to access storage across local-, metropolitan-, and wide-area IP networks (LANs, MANs, and WANs) using Fibre Channel over IP (FCIP) or Internet Small Computer Systems Interface (iSCSI) protocols.

### When to Sell

#### Sell This Product

##### Cisco SN 5428-2

#### When a Customer Needs These Features

- When a customer is moving from a DAS (Direct Attached Storage) environment to a SAN (Storage Area Network) and they do not already have a Fibre Channel switch, the SN 5428 provides a Fibre Channel switch and iSCSI ports to deliver a one system solution.
- When the customer wants only a full function Fibre Channel switch, the SN 5428 is a very cost effective, low latency switch that will perfectly fit a Fibre Channel only implementation
- When the customer has block level applications and wants to maintain block level access to shared storage combined with IP/Ethernet for a substantial reduction in attachment costs.
- When the customer wants to run a business continuance application involving replication or data sources across geographically dispersed sites. By providing both iSCSI and FCIP functionality, the Cisco SN 5428-2 delivers the tools necessary for data replication across an IP environment and sharing of SAN-based devices such as Tape Libraries and Disk arrays.

### Key Features

- Provides levels of security and access control beyond what is currently available in traditional storage area networks by including layer 2 and layer 3 protection to resist against unauthorized access to your storage resources
- Uses the TCP/IP protocol suite for storage networking which protects your existing investment in storage and networking infrastructure
- Fully integrates existing management and configuration tools
- Based on industry standards, maximizes your investment and enables you to reduce total cost of ownership for the increasing storage demands on your network
- Uniquely provides standard IP networking capabilities to storage environments
- Designed for high-availability providing continuous access to critical data; Extensive security features to protect valuable storage resources; and, Full breadth of iSCSI drivers

### Competitive Products

- |                                  |                                   |
|----------------------------------|-----------------------------------|
| • Nishan                         | • FalconStor                      |
| • McData: Fibre Channel Switches | • Brocade: Fibre Channel switches |
| • Ologic: Fibre Channel Switches |                                   |

## Selected Part Numbers and Ordering Information<sup>1</sup>

### Cisco SN 5428 Storage Router

SN5428-2 The SN 5428 provides two Gigabit Ethernet ports, supporting iSCSI, for connection to standard IP networks and eight Fibre Channel fabric switch ports.

### Cisco SN 5428 Drivers & Firmware

SN5428-2-FW3XFK9 Cisco SN 5428-2 Firmware: 3.0.x minimum with FCIP)

SN-ISCSI-DRV= Cisco iSCSI drivers that support the Cisco SN 5428 2.2.x firmware: Windows NT, Windows 2000, Linux, Solaris, HP/UX, AIX

### Cisco SN 5428 SFP: Small Form Factor Pluggables

DS-SFP-FCGE-SW= SFP for Fibre Channel/GE Multi-mode fiber with LC connector

### Cisco SN 5420 Series Packaged SMARTnet Maintenance 8x5xNBD

CON-SNT-PKG10 Cisco SN 5428-2 Packaged SMARTnet 8x5xNBDCategory 10

## For More Information

See the Cisco SN5428 Series Storage Router Web sites:

<http://www.cisco.com/en/US/partner/products/hw/ps4159/ps2160/index.html>

## Cisco MDS 9000 Family of Multilayer Intelligent Directors and Fabric Switches



Consisting of the Cisco MDS 9500 Series of Multilayer Directors, the Cisco MDS 9216 Multilayer Fabric Switch, and the Cisco MDS 9100 Series of fixed configuration fabric switches, the Cisco MDS 9000 Family provides a full line of products to meet requirements for storage networks of all sizes and architectures. The Cisco MDS 9000 Family delivers intelligent network services such as virtual storage-area networks (VSANs), comprehensive security, advanced traffic management, sophisticated diagnostics, and unified SAN management. In addition, the Cisco MDS 9500 Series and the Cisco MDS 9216 Multilayer Fabric Switch provide multiprotocol and multitransport integration and an open platform for embedding intelligent storage services such as network-based virtualization. With its multilayer approach to network and storage intelligence, the Cisco MDS 9000 Family ushers in a new era in storage networking.

## When to Sell

### Sell This Product

### When a Customer Needs These Features

#### Cisco MDS 9500 Series of Multilayer Intelligent Directors

- Maximum port densities—Up to 224 Fibre Channel ports in a single 9-slot chassis
- High availability—non-disruptive software upgrades, stateful processor restart/failover and redundancy of all major components
- High performance—1.44 Terabit/sec backplane to provide 10Gbps future readiness
- Multiprotocol support—integration of Fibre Channel, FCIP, and iSCSI in single platform
- Hosting of 3rd party intelligent storage applications (network-based virtualization, volume management, data replication, snapshot)
- Modularity and flexibility for future growth

#### Cisco MDS 9216 Multilayer Intelligent Modular Fabric Switch

- Moderate port densities - Up to 48 Fibre Channel ports in a single 2-slot chassis
- Multiprotocol support - integration of Fibre Channel, FCIP, and iSCSI in single platform
- Hosting of 3rd party intelligent storage applications (network-based virtualization, volume management, data replication, snapshot)
- Modularity and flexibility for future growth

#### Cisco MDS 9100 Series of Multilayer Intelligent Fixed Configuration Fabric Switches

- Low port densities—20 ports for Cisco MDS 9120; 40 ports for Cisco MDS 9140
- 1RU for space-constrained environments
- Fibre Channel-only connectivity
- Entry-level SAN with price per port more important than future modularity/flexibility



## Key Features

- **Controllable:** Manageable—provides embedded Fabric Manager, open API and integration with CiscoWorks RME and 3rd party SAN and network management platforms; Serviceable—delivers embedded diagnostics (Fibre Channel ping, traceroute and protocol analyzer) and “Call Home”; Upgradeable—offers investment protection with multiple module options, all interchangeable across MDS 9500 series and MDS 9216;
- **Resilient:** High availability—Cisco MDS 9500 Directors provides nondisruptive software upgrades, stateful process failover and hot swappable components; Secure—supports VSANs, hardware-enforced zoning, role-based access control, FC-SP, SNMPv3, RADIUS and access control lists
- **Extensible:** Multiprotocol—integrates Fibre Channel, iSCSI, and FCIP in one system (Cisco MDS 9500 Series and Cisco MDS 9216); Flexible—introduces Virtual SANs (VSANs) for consolidation of isolated SAN islands on a single physical fabric; Scalable—offers 16 to 224 Fibre Channel ports; supports throughput up to 32Gbps in a single Port Channel ISL; High performance—Cisco MDS 9500 Directors supply 1.44 Terabits/sec of internal throughput ensuring readiness for future 10 Gbps integration; Open—Cisco MDS 9500 Directors and Cisco MDS 9216 provide open platform for hosting 3rd party storage applications, such as virtualization

## Specifications

Feature	Cisco MDS 9509 Director	Cisco MDS 9506 Director	Cisco MDS 9216 Fabric Switch	Cisco MDS 9100 Fabric Switches
<b>Modular Slots</b>	9 slots: 2 for Dual Sups, 7 for connectivity	6 slots: 2 for Dual Sups, 4 for connectivity	2 slots: 1 fixed configuration 16 Fibre Channel ports: 1 optional slot	1-port autosensing <sup>1</sup> None
<b>Maximum Number of Ports per Switch</b>	224 Fibre Channel ports	128 Fibre Channel ports	48 Fibre Channel ports	MDS 9120/9140: 20 and 40 Fibre Channel ports, respectively
<b>Multiprotocol/Multitransport</b>	Yes: Fibre Channel, FCIP, iSCSI, IP-FC and planned FICON (rel 1.3)	Yes: Fibre Channel, FCIP, iSCSI, IP-FC and planned FICON (rel 1.3)	Yes: Fibre Channel, FCIP, iSCSI, and IP-FC	No: Fibre Channel only
<b>High Availability:</b>	Non-disruptive software, upgrades and stateful failover, Stateful process re-startability, Stateless process re-startability, System health monitor, Hot swap optics, Hot swap power supplies, Hot swap fan, Hot swap port cards	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director
<b>Intelligent Network Services: VSANs, PortChannels, Diagnostics, Security, Traffic Mgmt, QoS</b>	Yes	Yes	Yes	Yes
<b>Platform for Hosting 3rd party intelligent storage applications (virtualization, volume mgmt, data replication)</b>	Yes	Yes	Yes	No
<b>Embedded Fabric Management, open API, integration with CiscoWorks, 3rd party SAN and network mgmt platforms</b>	Yes	Yes	Yes	Yes
<b>Dimensions (HxWxD)</b>	24.5 x 17.25 x 18.4 in.	12.25 x 17.37 x 21.75 in	5.25 x 17.32 x 22.66 in	1.75 x 17.2 x 23.1 in

<b>Max Buffer Credits per port</b>	255 per port in the 16 port line card; 12 per port in the 32 port line card	Same as MDS 9509 Director	255 per port in the 16 port line card and in the fixed module; 12 per port in the 32 port line card	255 per port (target-optimized ports); 12 per port (host-optimized ports)
<b>Port Channel</b>	Up to 16 ports per Port Channel across switching modules	Up to 16 ports per Port Channel across switching modules	Up to 16 ports per Port Channel across switching modules	Up to 7 ports (Cisco MDS 9120); up to 15 ports (Cisco MDS 9140)
<b>Optical Support</b>	CWDM, DWDM	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director
<b>HW enforced Zoning Support</b>	N_Port WWN, F_Port WWN, N_Port FCID, Port Broadcast			
<b>Default, LUN, Read Only</b>	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director	
<b>Security</b>	Role-based access control, VSAN-based access control, Port security, RADIUS, TACACS, SNMPv3, FC-SP, SSH, SFTP	Same as MDS 9509 Director	Same as MDS 9509 Director	Same as MDS 9509 Director

## Selected Part Numbers and Ordering Information<sup>1</sup>

### MDS 9500 Base Configuration

DS-C9506	MDS 9506 Chassis
DS-C9506=	MDS 9506 Chassis, Spare
DS-C9509	MDS 9509 Chassis
DS-C9509=	MDS 9509 Chassis, Spare
DS-X9530-SF1-K9	MDS 9500 Supervisor/Fabric 1
DS-X9530-SF1-K9=	MDS 9500 Supervisor/Fabric 1, Spare

### MDS 9000 Modules

DS-X9016	MDS 9000 16-port 1 / 2 Gbps FC Module
DS-X9016=	MDS 9000 16-port 1 / 2 Gbps FC Module, Spare
DS-X9032	MDS 9000 32-port 1 / 2 Gbps FC Module
DS-X9032=	MDS 9000 32-port 1 / 2 Gbps FC Module, Spare
DS-X9032-SMV	MDS 9000 Advanced Services Module for Veritas
DS-X9032-SMV=	MDS 9000 Advanced Services Module for Veritas, Spare
DS-X9308-SMIP	MDS 9000 8-port 1GE IP Storage Services Module
DS-X9308-SMIP=	MDS 9000 8-port 1GE IP Storage Services Module, Spare
DS-SFP-FC-2G-SW	2 Gbps Fibre Channel-SW SFP, LC
DS-SFP-FC-2G-SW=	2 Gbps Fibre Channel-SW SFP, LC, Spare
DS-SFP-FC-2G-LW	2 Gbps Fibre Channel-LW SFP, LC
DS-SFP-FC-2G-LW=	2 Gbps Fibre Channel-LW SFP, LC, Spare
DS-SFP-FCGE-SW	1 Gbps Ethernet and 2 Gbps Fibre Channel-SW SFP, LC
DS-SFP-FCGE-SW=	1 Gbps Ethernet and 2 Gbps Fibre Channel-SW SFP, LC, Spare
DS-SFP-FCGE-LW	1 Gbps Ethernet and 2 Gbps Fibre Channel-LW SFP, LC
DS-SFP-FCGE-LW=	1 Gbps Ethernet and 2 Gbps Fibre Channel-LW SFP, LC, Spare

### MDS Power Supplies

DS-CAC-2500W	2500W AC Power Supply
DS-CAC-2500W=	2500W AC Power Supply, Spare

### Power Cord Options

CAB-2500W-US1	Power Cord, 250VAC 20A, Straight C19, NEMA 6-20 Plug, US
CAB-2500W-US2	Power Cord, 250VAC 20A, Straight C19, NEMA L6-20 Plug, US
CAB-2500W-EU	Power Cord, 250VAC 16A, Straight C19, CEE 7/7 Plug, EU
CAB-2500W-INT	Power Cord, 250VAC 20A, Straight C19, IEC 309 Plug, INTL
CAB-2500W-SW	Power Cord, 250VAC 16A, Straight C19, 23G Plug, SWITZ
CAB-2500W-SA	Power Cord, 250VAC 16A, Straight C19, South Africa
DS-CDC-2500W	2500W DC Power Supply
DS-CDC-2500W=	2500W DC Power Supply, Spare
DS-CAC-4000W-US	4000Watt AC Power Supply for US (cable attached)
DS-CAC-4000W-US=	4000Watt AC Power Supply for US (cable attached), spare
DS-CAC-4000W-INT	4000Watt AC Power Supply International (cable attached)
DS-CAC-4000W-INT=	4000Watt AC Power Supply International (cable attached), spare
DS-CAC-1900W	1900W AC Power Supply
DS-CAC-1900W=	1900W AC Power Supply, Spare

**Power Cord Options**

CAB-1900W-US1	Power Cord, 250VAC 20A, Right Angle C19, NEMA 6-20 Plug, US
CAB-1900W-US2	Power Cord, 250Vac 20A, Right Angle C19, NEMA L6-20 Plug, US
CAB-1900W-EU	Power Cord, 250VAC 16A, Right Angle C19, CEE 7/7 Plug, EU
CAB-1900W-INT	Power Cord, 250Vac 20A, Right Angle C19, IEC 309 Plug, INTL
DS-CDC-1900W	1900W DC Power Supply
DS-CDC-1900W=	1900W DC Power Supply, Spare

**MDS 9500 Memory Options**

MEM-MDS-FLD512M	MDS 9500 Sup Compact Flash Disk, 512MB
MEM-MDS-FLD512M=	MDS 9500 Sup Compact Flash Disk, 512MB, Spare

**MDS 9200 Base Configuration**

DS-C9216-K9	MDS 9216 16-port 2Gbps FC + 1-slot Modular Switch
DS-CAC-845W	845W AC Power Supply
DS-CAC-845W=	845W AC Power Supply, Spare

**Power Cord Options**

CAB-7KAC	AC Power Cord (North America)
CAB-7KACA	AC Power Cord (Australia)
CAB-7KACE	AC Power Cord (Europe)
CAB-7KACI	AC Power Cord (Italy)
CAB-7KACU	AC Power Cord (UK)
CAB-7KACR	AC Power Cord (Argentina)
CAB-7KACSW	AC Power Cord, 250VAC 10A, Straight C15, MP232 Plug, SWITZ
CAB-7KACSA	AC Power Cord (South Africa)

**MDS 9100 Base Configuration**

DS-C9140-K9	MDS 9140 40-Port Fibre Channel Fabric Switch
DS-C9120-K9	MDS 9120 20-Port Fibre Channel Fabric Switch
DS-CAC-300W	300W AC Power Supply
DS-CAC-300W=	300W AC Power Supply, Spare

**MDS Software**

M95S1EK9-1.0.4	MDS 9500 Supervisor/Fabric-I, Enterprise SW, Release 1.0.4
M92EK9-1.0.4	MDS 9216 Supervisor/Fabric-I, Enterprise SW, Release 1.0.4
M95S1EK9-1.0.5	MDS 9500 Supervisor/Fabric-I, Enterprise SW, Release 1.0.5
M92EK9-1.0.5	MDS 9216 Supervisor/Fabric-I, Enterprise SW, Release 1.0.5
M95S1EK9-1.1.1	MDS 9500 Supervisor/Fabric-I, Enterprise SW, Release 1.1.1
M92EK9-1.1.1	MDS 9216 Supervisor/Fabric-I, Enterprise SW, Release 1.1.1
M95S1K9-1.1.2	MDS 9500 Supervisor/Fabric-I, Enterprise SW, Release 1.1.2
M92S1K9-1.1.2	MDS 9216 Supervisor/Fabric-I, Enterprise SW, Release 1.1.2
M95S1K9-1.2.1	MDS 9500 Supervisor/Fabric-I, Enterprise SW, Release 1.2.1
M92S1K9-1.2.1	MDS 9216 Supervisor/Fabric-I, Enterprise SW, Release 1.2.1
M91S1K9-1.2.1	MDS 9100 Supervisor/Fabric-I, Enterprise SW, Release 1.2.1
M95S1K9-1.2.2	MDS 9500 Supervisor/Fabric-I, Enterprise SW, Release 1.2.2
M92S1K9-1.2.2	MDS 9216 Supervisor/Fabric-I, Enterprise SW, Release 1.2.2
M91S1K9-1.2.2	MDS 9100 Supervisor/Fabric-I, Enterprise SW, Release 1.2.2

**MDS licensed features**

M9500EXT1K9	FCIP license for 1 IP Storage module in MDS9500
M9500EXT1K9=	FCIP license for 1 IP Storage module in MDS9500, spare
M9200EXT1K9	FCIP license for 1 IP Storage module in MDS9200
M9200EXT1K9=	FCIP license for 1 IP Storage module in MDS9200, spare
M9500ENT1K9	MDS 9500 Enterprise Package license for 1 MDS 9500 switch
M9500ENT1K9=	MDS 9500 Enterprise Package license for 1 MDS 9500 switch, spare
M9200ENT1K9	MDS 9200 Enterprise Package license for 1 MDS 9200 switch
M9200ENT1K9=	MDS 9200 Enterprise Package license for 1 MDS 9200 switch, spare
M9100ENT1K9	MDS 9100 Enterprise Package license for 1 MDS 9100 switch
M9100ENT1K9=	MDS 9100 Enterprise Package license for 1 MDS 9100 switch, spare

**Adapters**

DS-PAA	MDS 9000 Port Analyzer Adapter
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**Power Cord Options**

CAB-2WIRE-ARG	Power Cord, 250VAC 2.5A, C7 coupler, Argentina
CAB-2WIRE-AUS	Power Cord, 250VAC 2.5A, C7 coupler, BS 1363 plug, Australia
CAB-2WIRE-EU	Power Cord, 250VAC 2.5A, C7 coupler, EN 50075 plug, EU
CAB-2WIRE-US	Power Cord, 125VAC 3A, C7 coupler, NEMA 1-15P plug, US
CAB-2WIRE-UK	Power Cord, 250VAC 2.5A, C7 coupler, AS 3112 plug, UK
CAB-2WIRE-KOR	Power Cord, 250VAC 2.5A, C7 coupler, Korea

**Fiber Optic Cables**

CAB-MM-LCLC-1M	Fiber Optic Cable, Multimode, LC/LC, 1 Meter
CAB-MM-LCLC-5M	Fiber Optic Cable, Multimode, LC/LC, 5 Meter
CAB-MM-LCLC-25M	Fiber Optic Cable, Multimode, LC/LC, 25 Meter
CAB-CP-SCLC-8IN	Fiber Optic Cable, Coupler, SC/LC, 8 Inch
CAB-CP-LCSC-2M	Fiber Optic Cable, Coupler, LC/SC, 2 Meter

**CWDM Solution**

CWDM-SFP-1470=	1470 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1490=	1490 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1510=	1510 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1530=	1530 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1550=	1550 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1570=	1570 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1590=	1590 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-SFP-1610=	1610 NM CWDM Gigabit Ethernet and 2 Gbps FC SFP
CWDM-MUX-4=	4 Wavelength Add/Drop MUX for CWDM-CHASSIS-2=
CWDM-MUX-8=	8 Wavelength Mux/Demux Plug in Module for CWDM-CHASSIS-2=
CWDM-CHASSIS-2=	2 Slot Chassis for CWDM Mux Plug in Modules
CAB-SM-LCSC-1M	Fiber Optic Cable, Single mode, LC/SC, 1 Meter
CAB-SM-LCSC-5M	Fiber Optic Cable, Single mode, LC/SC, 5 Meter

**For More Information**

See the Cisco MDS 9000 Family at Web site: <http://www.cisco.com/go/storage>

**Additional Storage Networking Solutions****Cisco MDS 9000 Port Analyzer Adapter—Reducing Time to Problem Resolution**

The Cisco MDS 9000 Port Analyzer Adapter enables effective, low-cost analysis of Fibre Channel traffic anywhere in the network at any time, simplifying debug of network problems and reducing time to problem resolution. The device is a “plug-and-play” accessory for the Cisco MDS 9000 Family that enables simple, transparent analysis of Fibre Channel traffic in a switched fabric, eliminating the need for expensive standalone protocol analyzers.

**Cisco MDS 9000 Optical Modules—Optimizing SAN Interconnect**

The Cisco MDS 9000 Family optical interface modules offer a broad range of SAN connectivity solutions for both local and extended reach. Small Form-Factor Pluggable (SFP) modules for the Cisco MDS 9000 are available in either short-wave or long-wave options supporting Fibre Channel and Gigabit Ethernet connections over distances of up to 500 meters and 10 kilometers, respectively. Cisco Coarse Wavelength-Division Multiplexing (CWDM) products provide cost-effective, multiprotocol, extended-distance connectivity by optimizing the use of the existing optical infrastructure.



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