



DVB-C

Digital Video Broadcasting - Cable
System Implementation

**DVB-C:
Anevia Vialive XL
Harmonic NSG**



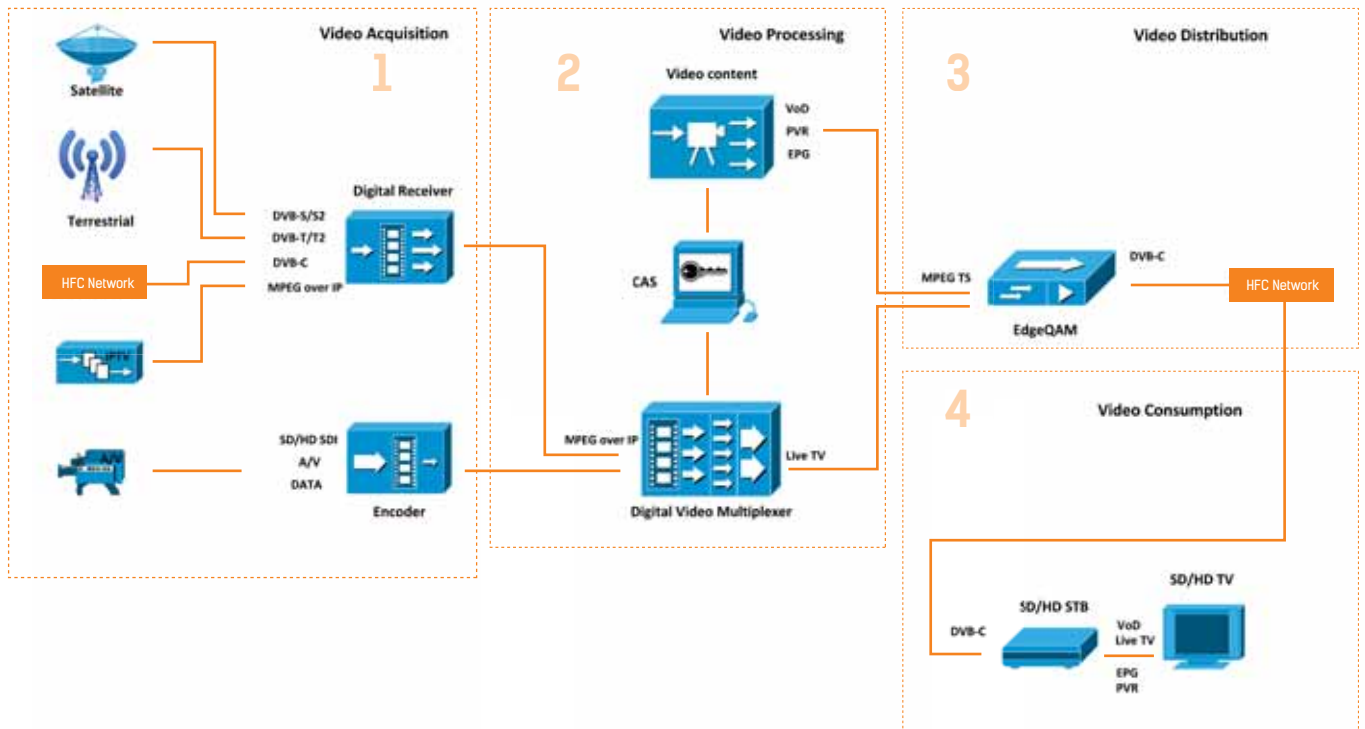
About Us

A modern internet system has to support the transmission of all types of information and services between provider and subscribers, while the transmission of various video contents via internet (IPTV) represents one of the key elements of Next Generation Networks (NGN). Today, it is hard to imagine a delivery of any content to subscribers without the interactivity between them and provider, so we do expect IPTV to become the dominant standard.

In order to make a system IPTV-ready, it is – before anything else – necessary to digitize video signal that is distributed to subscribers, i.e. to create a system for reception, processing and transmission of video contents to end users. Digitalization of video contents in HFC networks is done in accordance with DVB-C standard, where the video signal is transmitted by using MPEG-2 or MPEG-4 method and QAM modulation scheme with channel coding. The base of DVB-C standard is broadcasting system which is going to be transformed into multicasting one in the nearby future. Multicasting system, together with internet protocol (IP) is the key to implementation of IPTV solution.

Network Manager has designed and implemented many DVB-C systems, according to needs and demands of our clients – cable operators. Our solutions are based on equipment made by globally recognized manufacturers such as Cisco Systems, Anevia, WISI, Viaccess, Conax and others, which guarantee high level of quality of multimedia networks.

DVB-C system



Conceptual model of DVB-C system consists of 4 segments:

1. Video Acquisition

A segment for reception of video contents (DVB-T/T2, DVB-S/S2, DVB-C, IP, etc)

2. Video Processing

A segment for processing of video contents (MUX, CAS, Transcoding, Splicing, Transrating, Encoding, etc)

3. Video Distribution

A segment for distribution of video contents to end users (QAM modulator)

4. Video Consumption

A segment for reception and using video contents at the subscriber's side (STB, Home Gateway, etc).



DVB-C system

Basic element of Video Acquisition are receivers of video contents which – depending on type of reception – can be:

satellite (DVB-S/S2),
terrestrial (DVB-T/T2),
cable (DVB-C) and
IP (MPEG-over-IP).

The purpose of the device is to receive and decode (DVB-CI) corresponding type of input signal and converts it into ASI MPEG2/4 (DVB-C) or MPEG-over-IP output signal (IPTV).

Video Processing segment is dedicated to sort out all input signals and arrange them according to predefined channel schedule into Transport Stream, after which Conditional Access System (CAS) performs access control of users to certain or all video contents.

Next step is taken over by Video Distribution segment, where the signal is submitted to frequency modulation by DVB-C modulator (QAM64 or QAM256 modulation) and inserted into channel frequency carrier. After that, all frequency carriers are placed in RF spectrum which is broadcast through HFC network to each subscriber.

Set Top Box (STB) is the key element of Video Consumption segment and it allows subscribers to receive video contents, while their access to some parts or entire content is regulated by Conditional Access System.

Anevia Vialive XL gateway

Vialive XL Gateway manufactured by Anevia is a device that consolidates two elements of DVB system – Video Acquisition and Video Processing (without CAS). It is a modular device with 2 power supplies, 5 GE ports, 10 processor slots and 40 ports for RF or CAM modules (80 RF receivers and/or CAM modules). This makes Anevia Vialive XL Gateway the device with highest capacity in its class in the world.



Each RF module is a card with 2 ASI ports. There are card for receiving satellite (DVB-S/S2), terrestrial (DVB-T/T2) and cable or terrestrial (DVB-C/T) signals. Module for decoding input signals (DVB-CI) is a card in which smartcard (CAM) is placed, supporting all major CA systems (Conax, Viaccess, Irdeto, NDS, Nagravision, Mediaguard, etc). One separate processor unit is installed for every 4 RF/CI module (up to 10 processors per chassis), enabling high level of availability due to the fact that in case of one single processor unit failure, only 4 RF/CI cards cease to work, while all other work unhindered. All receivers support various SD/HD video codecs (MPEG-2/MPEG-4 H.264, MP3, AAC, AC3, etc), MPTS pass through, SPTS and MPTS streaming.

VialiveXL Gateway serves as a multiplexer, too (Video Processing function). It places selected channels into Transport Stream (TS) in accordance with MPEG-TS – over – UDS/IP Protocol, after which transports Multicast/Unicast IP traffic over GE ports to the segment dedicated to Video Distribution. GE ports are used for connecting with CAS, too.



Harmonic NSG

Harmonic EdgeQAM series of devices (NSG) is our preferred solution for Video Distribution within HFC networks (DVB-C). All devices have almost identical software capabilities and availability, with redundant power supply. However, their difference is in capacity – number of QAM channels, so there are models with max. 16 channels (NSG-9116), 54 (NSG9K-3G), 108 (NSG9K-6G) and 486 QAM channels (NSG9K-40G), Annex A.

NSG series also possesses ability to perform PID filtration, multiplexing and coding and can be used for various services and purposes, including Video-on-Demand (VoD), Switched Digital Video (SDV), Digital Video Broadcasting (DVB-C) and Modular CMTS (M-CMTS).





STB

When we talk about the segment of reception and using of video contents at the user's premises, we offer STBs with different capabilities (SD/HD; FTA/CA; IPTV-ready; PVR; Hybrid; Android OS), etc.

Among manufacturers of STBs we offer, we would like to point out our cooperation with leading global STB vendor – JiuZhou (Digital Telemedia), which has several lines of products in its portfolio:

SD STB with CAS

(MPEG-2, embeded CAS, EPG)

HD STB FTA

(MPEG-2, MPEG-4 H.264,USB PVR, EPG)

HD STB with CAS and PVR

(MPEG-2, MPEG-4 H.264, PVR, embeded CAS, EPG)

HD IP Hybrid Box

(MPEG-4 H.264, embeded CAS, USB PVR, IPTV, Android OS)

Hybrid HD STBs allow full reception and decoding of both DVB-C/T/S broadcast and uni/multicast (IPTV) traffic, which makes it the most flexible device because it supports both DVB-C and IPTV environment, which significantly reduces investments into STB as it will not have to be replaced once the operator switches from DVB-C to IPTV.



Network Manager d.o.o.

Svetog Save 64
26 000 Pančevo
+381 (0) 13 33 52 34
office@networkmanager.rs

Miše Stupara 26
78 000 Banja Luka
+387 (0) 70 31 06 71
office@networkmanager.ba

www.networkmanager.rs

