FastSwitch

For: Telecom Operators, IPTV Service Providers, System Integrators, Hardware Manufacturers

- ⇒ **Fastest Channel Change Time, 0.2 seconds**
- ⇒ **Packet Loss Recovery Technology**

An innovative software-only solution for Fast Channel Switching bundled with Packet Loss Recovery. Provides channel switch time which is the best on the market and very effective packets loss recovery technology over poor IP networks. Qarva FCC consists of a server-side application and FCC Agent running on every STB as a part of Player.

Fastest Channel Change Time ever, down to 0.2 seconds

Channel surfing is still a major aspect of the television viewing experience. Whether strolling through the EPG or channel hopping to find something to watch, a Fast Channel Change time is a major factor in viewer satisfaction. Usually, IPTV services without acceleration have a Zap (Channel Switching) Time of 2 – 5 seconds, but 2 or more seconds is perceived by viewers as a disaster.
Our solution accelerates channel change time by about 10-fold. Fast Channel Change allows consumers to interact with their IPTV service “instantly” and meets the viewer demand for high-speed interactivity.

Packet Loss Recovery Technology for Multicast Network

One challenge faced by all providers is the simple fact that networks are imperfect and packet loss will occur because of these imperfections. These imperfections translate to the viewer as blocking and freezing of the programs they are viewing. These problems severely affect the interactive viewing experience and directly affect churn ratios. Packet Loss Recovery solves this problem by discovering packet loss and restoring missing packets, thus eliminating freezing and blocking. This has an immediate impact on QoE and a very positive effect on the perceived QoS.

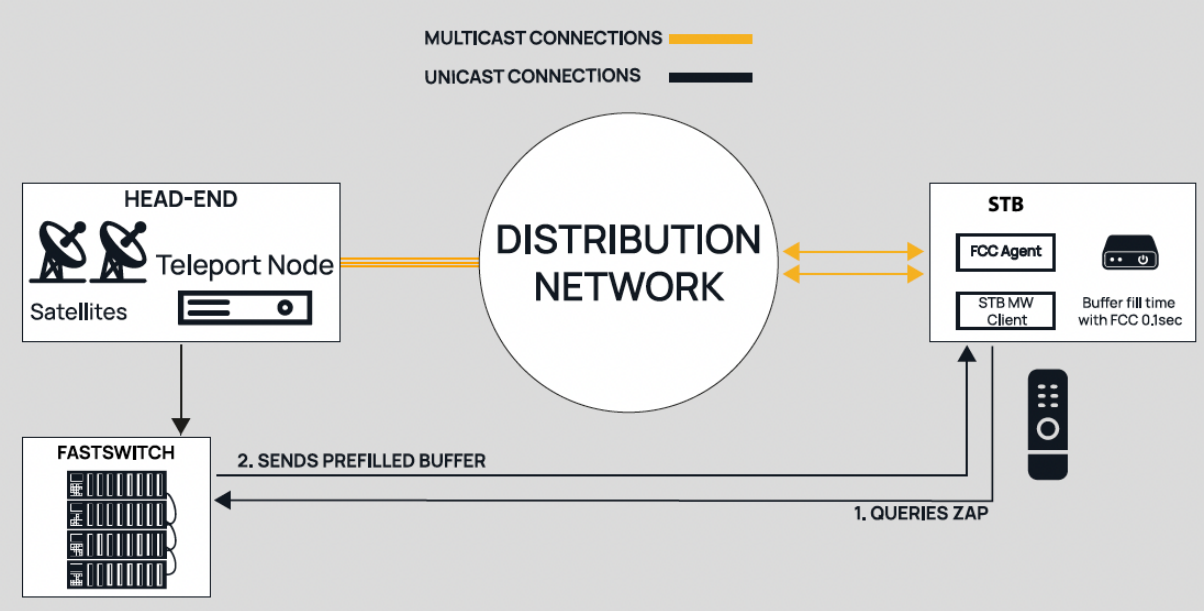
Smooth Transition

The client has an option to switch to the TCP unicast mode when the multicast stream reception is lost. The transition is done smoothly at the exact transition point in Transport Stream. When the multicast stream reception is restored, client will switch back to the multicast stream smoothly.

Key Features:

0.2 seconds channel change time for IPTV and DVB Systems
300 000 concurrent clients per regular server
2 000 channels per regular server
Packet Loss Recovery - Recovery of lost and/or damaged UDP Packets

How Does It Work?



Once the analogue TV signals enter the system, they are transformed into multicast streams and distributed through the system components via Multicast Switches. Besides the live streaming of the content, it is delivered to video servers for providing access in time-shift mode and to RTP Retransmission Server aka Fast Switch Server which stores last X minutes (usually, size of the buffer varies between 10 and 30 seconds) streamed from each TV channel.
Each STB in the network has Fasts switch Client Library integrated with Player software or Local Agent which interacts with server and streams received packets for the player locally.
In case of IPTV - Once the STB is switched Fast Switch Client library/Local Agent establishes unicast connection with Fast Switch server and keeps it idle until the channel switching event is initiated by client or, packet loss is detected by the Fast Switch Client library/Local Agent itself. In such case, connection is activated and used to retrieve buffered packets.
RTP Retransmission Server recognizes IDR frames (key-frames) in MPEG2 TS stream and marks those packets. When client starts data prefetch it receives data starting from the packet that starts key-frame and client's video player will decode and display the first frame as soon as possible.