

IPTV End 2 End Solution

For: Telecoms, Media & Entertainment, TV Service Operators

Innovative Interactive Features for Your Subscribers

In an era where the viewer decides what to watch and when to watch and the consumers want access to High-Definition content anywhere, anytime and on any device, companies delivering IPTV and OTT software solutions should work together with their customers and partners to develop and deliver solutions that meet the challenges of today's marketplace as well as the challenges of the future.

The media ecosystem and the way users prefer to consume content is changing and converging at a rapid pace, presenting oth great opportunities and challenges to IPTV and OTT providers. Ensuring a positive and engaging user experience is critical to achieve success and reduce subscriber churn.

Putting the user experience at the heart of its business, Qarva is dedicated to the provisioning of high quality, scalable, robust, and cost-effective solutions that will improve the viewer's TV experience and overall quality of service.

Qarva's end-to-end solutions represent a bundle of seamlessly integrated products that are accompanied by a full range of professional services.

Solutions provide all modern means to achieve superior and sustainable customer experience through various delivery channels including Set-top Boxes, Smart TV's, IOS and Android-operated devices and personal computers connected to the network.

Qarva End-to-End Solution benefits

For Operators	For Subscribers
<ul style="list-style-type: none">• High-level of efficiency – low total cost of acquisition and dramatically reduced TCO• Highest performance of Video and Streaming Servers – up to 200 Gbps per 2U server – reduced hardware costs• Long Range OTT Streaming of High Bitrate Live TV - no need of external CDNs• Full support of Ultra HD 4K and H.265 HEVC• Use of industry standard Servers and OS• Quick to deploy and easy to integrate	<ul style="list-style-type: none">• Low latency Live TV channels• Highest Quality of Experience (QoE) and Quality of Service (QoS)• Fastest TV Channel Change Time, 0.2s• Unlimited Time-shifting• Fast Response Times• One-Touch Instant rewind and smooth Time-shifting manipulation in real-time• Multiscreen with unique user experience• Live TV Touch and Slide Rewinding with Film Strip Visualization

FastSwitch

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. Garva 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.

aQua Video Server

aQua Video Server is designed with maximum performance and scalability in mind. Video server is capable to utilize maximum amount of storage space available, RAM and CPU cores in one instance (multiple instances on one server is allowed). In real world cases one aQua Video Server is capable to stream up to 200 Gb/s to up to 50000 clients simultaneously.

aQua Video Server key features are:

- source could be aQua media server, UDP/RTP multicast (with Qarva FCC/PLR support), HLS playlists or HTTP progressive sources
- supports static VOD content
- supports real-time content indexing for Multiformat and Trick Mode streaming
- streams indexed content in Qarva Proprietary or HLS/HTTP progressive format
- supports various content protection, such as DVB-CSA, Verimatrix, PlayReady, Widevine
- supports config file-based management and management from database
- supports client IP black/whitelisting
- supports client content scrambling with static keys
- supports client tokenization
- comprehensive statistic of sever usage (memory, storage, CPU, network, clients, contents)

Features of the aQua Video server are fully dedicated to video content effective and secure archiving and delivery of media information to the STB and other endpoints. Secure delivery of the content is empowered by integration with Google Widevine and Apple FairPlay DRM systems.

Unlimited horizontal scalability allows service providers to easily scale out, reduces expansion costs and conserves space while still allowing room to grow. In addition, aQua uses server hardware in a very efficient manner. The resulting aQua streams are very cost effective and double or triple stream capacity when compared to competitive offerings on the market.

Direct reception of a satellite feed and the ability to digest a Variable Bitrate feed without loss in quality reduces hardware costs by eliminating the necessity for transcoders. This means that one aQua Video Server can do the same amount of work that requires several competing video servers. This results in a low cost per stream making aQua Video Server even more efficient, space saving and cost effective.

Record Live Content Infinitely - Manage your favorite sports and movies in seconds

Qarva aQua technology allows one-touch instant rewind from the live TV without deterioration in quality. Our unique indexing method ensures absolute precision – playback starts from the exact moment when the viewer stops rewinding or resumes paused video.

- ⇒ Catch a Second & Manage Your Time
- ⇒ Play / Pause
- ⇒ One Touch Instant Rewind
- ⇒ Time-Shift (Catch-Up) TV
- ⇒ Bookmarking / Reminders
- ⇒ EPG

PIX – innovative way of Rewinding Live TV

Qarva has developed the ultimate in IP Television trick play; Qarva Pix. This is a unique feature providing “slide rewinding” similar to that seen on smart phones. Using a finger, the viewer can sweep the video content forward or back and stop. The amount of content the scrolling frames represent is user chosen; an hour, a minute, a second. It is a highly accurate and immersive way for the user to choose exactly where they want to be in the content. When a frame is chosen it can be expanded with a hand gesture and re-divided into smaller segments so the user can find what they are looking for down to the second.

The Qarva Pix server, part of the Qarva QoE ecosystem, receives frames from the aQua server and renders them as a linear sequence of 'film frames' that can be manipulated to and from. When the user chooses to stop and returns to the play mode the device is seamlessly returned to the aQua buffered recording or the live stream.

Firmware

Use Any Kind of STB, Qarva Partners with top STB providers/Use your own STB/Use Qarva's FW

Qarva provides full software support of the Set-top-Boxes from Firmware to Video Player. User-friendly and intuitive interface to deliver content to subscribers and easily adaptable to service provider's design requirements. The user interface of the Set-top-Boxes supports lean-back design requirements and gives subscribers access to all the benefits of the Qarva Streaming Solutions.

Middleware

Use Any Kind of Middleware, Qarva Partners with top MW providers/Use your own Middleware/Use Qarva's Start MW

Qarva Middleware is one of the most comprehensive IPTV and OTT service management and publishing solutions on the market today. It is a solid foundation for managing interactive video services. Robust, scalable, and modular architecture makes it possible to adapt to any business requirements of service providers.

Acting as a core element of the system, Qarva Middleware ensures smooth interaction between system modules, centralized management of all the system components and provides a wide range of features from STB and content management to data gathering for marketing analytics and insights.

Qarva Middleware provides the following services:

The robust content management system

- As a part of Live TV service, channels can be organized into packages and sold as services to subscribers.
- Every channel can be assigned a logo, a genre, and other optional parameters
- Centralized management of the content on video servers

Comprehensive monitoring system

- Receiving and storing information from all STB's with predefined intervals.
- Monitoring of overall system operability.
- Integration with external monitoring systems.

Integration with proprietary billing and CRM

- Possibility to manage system components by the commands received from the CRM system, including registration/addition/deactivation of STBs.
- All information about services that should be activated on STB is received from a proprietary CRM system.
- Daily reconciliation with the proprietary billing system to monitor compliance of information stored in two systems and make corrections if necessary.
- Possibility to display account related information upon the subscriber's request. Information about purchased services, personal data, etc. is retrieved from the CRM system and delivered to the STB through the Middleware system.

Interaction with subscribers

- Ability to send private messages to be displayed on UI.
- Free text message – the possibility to send any text, within the allowed length limits, as a message to be displayed on UI.

STB Management

- A roster of devices indicating device type, serial number, and other required parameters.

- Ability to send background tasks to STB/Group of STBs and make an update of a List of Channels without rebooting the device.

EPG – Electronic Program Guide

- Ability to receive EPG from different sources
- Possible sources of the EPG processing are accompanying information received from the satellite, XMLTV files with free distribution terms available on the internet, 3rd party providers

Key Features:

- ⇒ Ultra-Fast Channel Change Time, 0.2 seconds
- ⇒ 200Gbps Streaming Capacity
- ⇒ Packet Loss Recovery Technology
- ⇒ Cost-Effective solution, without need of transcoders
- ⇒ Rewind in Timely Manner – Catch a second of your favorite show
- ⇒ Find the Program in User Friendly Program Guide
- ⇒ Use Video on Demand Catalogue via subscription or transaction model