Multicast ABR to Keep Cable IP Video Streams Flowing

EXECUTIVE SUMMARY

As cable seeks to take greater advantage of broadband video, it faces a sizeable challenge. Not only does cable have to keep pace with the soaring consumption of video on tablets, smartphones, smart TVs, laptops and game players, but it eventually needs to migrate its linear television channels to Internet protocol (IP) delivery processes and formats.

Cable's digital video services were built upon quadrature amplitude modulation (QAM) technology that is enormously successful in delivering hundreds of linear channels, HDTV and video on demand (VoD) to set-top boxes (STBs). Cable's increasing broadband capabilities give providers the opportunity to deliver all video content, including VoD, linear and over the top (OTT), using IP, with the promise of greater efficiency and lower cost.

Recently the industry has been focusing on ways to use adaptive bit rate (ABR) and marry it with multicast delivery of linear channels. IP multicast is efficient because providers do not have to provide duplicate copies of video for viewing by many viewers. Adaptive streaming, based on hypertext transfer protocol (HTTP) and established by major computer companies, offers network resiliency. The overall aim of multicast ABR (M-ABR) is to maintain quality of service (QoS) across IP-based video services, avoid latency as viewers change channels and optimize performance throughout video delivery.

ABR is one part of industry efforts to create a smarter network that runs more efficiently, optimizes performance and ensures a high quality of experience. Big data analytics and predictive modeling are being applied to better anticipate when and where video content needs to travel.

Multicast ABR promises to be of particular benefit to Comcast, which is out front in migrating to all-IP delivery and conducting trials of M-ABR. Several major MSOs, including Charter Communications (via its Time Warner Cable acquisition), Cablevision Systems (now under Altice USA) and Cox Communications, implemented switched digital video (SDV) architecture, which buys them more time to use a mix of QAM, multicast and unicast delivery.

The exploration and debate over the right balance of M-ABR, unicast and QAM will continue for some time. MSOs may arrive at different answers depending on their architectures and
other factors. The sharing of information and trial results that occurred at INTX 2016 was a positive step toward helping all players to develop their best delivery options.

Whatever path providers take, the most important factor is that cable delivers a high-quality video viewing experience. When it comes to subscription television, cable cannot afford to deliver TV channels that display the same types of video issues that often plague online video. The stakes will grow higher as 4K UHD, HDR or other video innovations gain wider distribution.

In addition to cable's all-IP migration, M-ABR ties into other important trends in the industry. Cable providers are embracing the concept of the smart network, infused by big data to manage traffic, optimize performance and support quality of experience. It's another sign of cable seeking to shake off its legacy past and take advantage of leading-edge technologies.

**Multicast ABR to Keep Cable IP Video Streams Flowing** explores multicast ABR for cable, including its benefits, implementation, supporting technologies and key challenges. Included is a Supplier Comparison chart of technology companies that support M-ABR and provide products and solutions for IP video delivery by U.S. cable service providers and content providers.

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The following excerpt, a schematic by CableLabs, shows a simplified version of an M-ABR system. In this model, multicast video is transported to a gateway and then delivered via unicast to individual IP STBs and connected devices, or what some in cable refer to as a COAM (pronounced co-am): customer owned and managed device.

**Excerpt: Cable Multicast ABR Delivery Overview**

![Excerpt: Cable Multicast ABR Delivery Overview](image)

*Source: CableLabs*

**Multicast ABR to Keep Cable IP Video Streams Flowing** is published in PDF format.