Multicast Adaptive Bitrate (MABR)

Optimizing your IP Video Delivery

COMMSCOPE®

Why multicast adaptive streaming?

As current subscribers' need for non-stop video content grows, pay TV providers have turned to Adaptive Bitrate (ABR) streaming to deliver programming over Internet Protocol (IP) networks. Through unicast ABR streaming, providers are able to deliver content to second-screen subscriber devices such as tablets, phones and laptops. But, as more pay TV audiences demand the same ABR streaming for their HD (and, increasingly, 4K TV) screens, operators using an all-IP network strategy have run into major challenges.

By relying solely on unicast adaptive streaming for all devices, providers consume significantly more bandwidth for each incremental video stream being viewed, which can choke the network and cause the video quality to degrade.

CommScope's multicast Adaptive Bitrate (MABR) solution

By deploying our MABR solution, providers can optimize bandwidth usage and minimize exposure to unicast traffic spikes during popular live TV events, as well as minimize the overall impact of moving to IP video over time. Through better management of their streaming, operators can deliver higher bitrate levels (4K, HD, etc.) using existing pay TV subscriber devices without compromising video quality. Best of all, this MABR solution supports optimized video services without needing to modify existing ABR media players or apps.

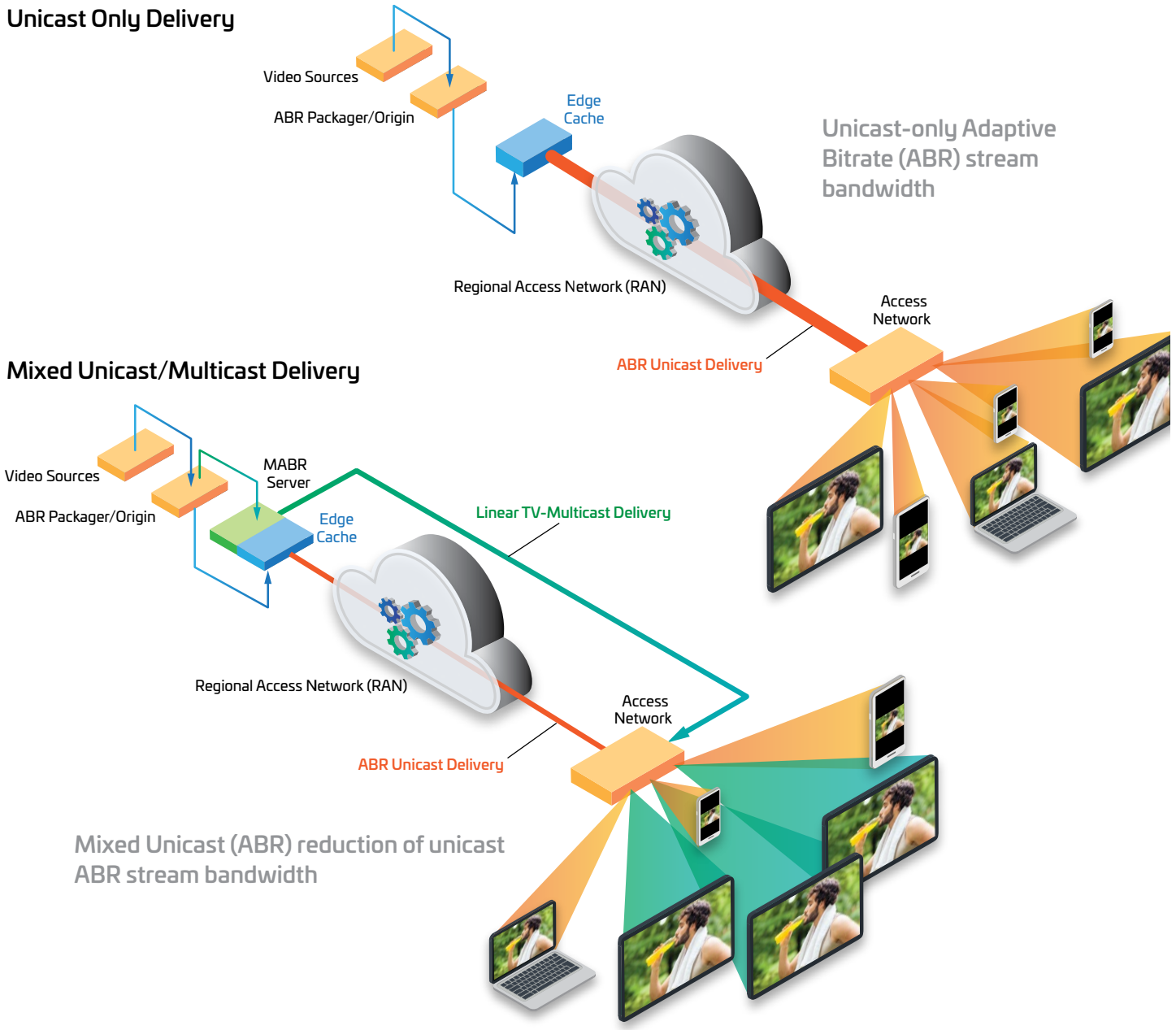
Advantages of MABR solution migration

- Delivers Adaptive Bitrate (ABR) streams using IP Multicast for each stream bitrate level (4K, HD, etc.)
- Enables all pay TV subscriber devices to use ABR streaming in the home—no need to modify ABR media players
- Features a software-based implementation offering flexible deployment options of all solution components

Addressing unicast IP video challenges

Adaptive Bitrate video is significantly more resource-intensive when delivered as unicast. Each video player concurrently consumes one unicast ABR video stream, and therefore, each additional player requires incremental bandwidth from the Pay TV operators' network.

Multicast video networks have been a resource-saving technology for traditional Cable and Telco Pay TV operations for many years. But that benefit could be lost in the mass migration of subscriber devices to unicast-based adaptive streaming.



Key features and benefits

By leveraging multicast Adaptive Bitrate solutions, operators can seamlessly optimize their networks while reducing bandwidth and processing power. Moreover, MABR solutions can support millions of home subscribers without extensive operator network overhaul.

Network optimization

Dramatically reduces bandwidth required for linear/live TV compared to unicast

BENEFIT

Reduces Access Network equipment investment, CDN costs and exposure to peak traffic spikes

High-quality video delivery

Leverages proven multicast technology over managed networks

BENEFIT

Improves video quality and user experience, especially for high resolution video (4K, HD)

Seamless integration

Solution is transparent to end-user device

BENEFIT

No changes required to home devices (STBs, PCs, laptops, tablets, mobile phones)

Scalability

Built for scale with cloud, data center and on-premise options

BENEFIT

Efficiently supports millions of home subscribers

Flexible deployment

Multiple options across the cloud operator network and within the home

BENEFIT

Optimized to fit existing operator network deployments and CPE strategy

Green/sustainability

Reduces processing power needed to deliver scalable video

BENEFIT

Reduces power, cooling, space costs and lessens carbon footprint

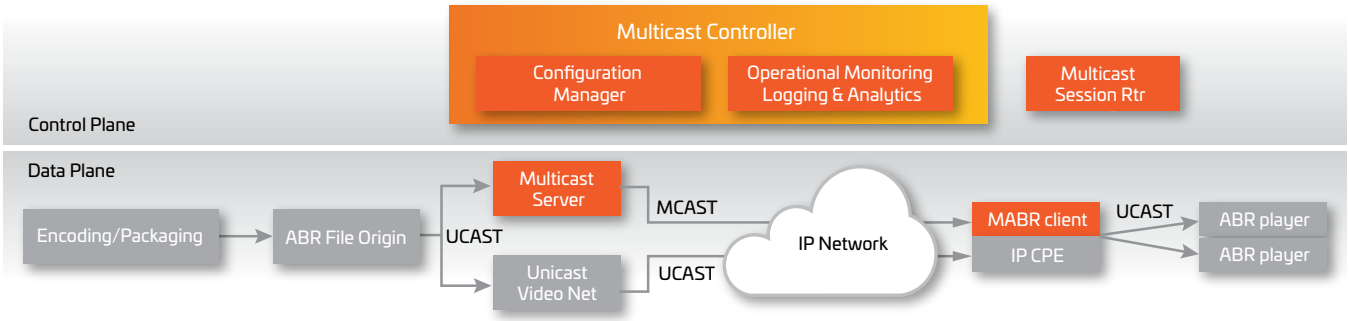
Standards based

The CommScope multicast ABR solution is based on key aspects of both the DVB and CableLabs Multicast ABR standards. Leveraging these standards allows CommScope to support solution components common to both standards while adding key strengths from each. This includes multicast service discovery, HTTPS/proxy cache support, a rich combination of multicast, FEC and unicast content delivery resiliency, along with a dedicated MABR management system offering both schedule-based and dynamic viewership multicast provisioning on a highly scalable platform.

How it works

For an IP video network solution based on adaptive streaming, an ABR transcoding-packaging system publishes content to an ABR origin server. The MABR server pulls this content from an ABR content origin as standard ABR media players would do using HTTP unicast. The MABR server then encapsulates the ABR file in multicast packets and sends the content using a multicast transport.

MABR client applications tuned to that multicast session remove the multicast header and cache the original ABR video files for delivery to media players. These do not need to be modified or support IP multicast as they access the locally cached ABR content on the MABR client using HTTP unicast over the subscriber's home network.



Key components of the MABR solution architecture

Multicast ABR management

The MABR controller manages all configuration and operational aspects of the MABR solution by interfacing with MABR servers, clients and session managers via configuration and telemetry messaging. It allows operators to define which ABR streams should be multicasted, based on either predefined schedules or dynamically based on viewing patterns. Provisioning APIs support integration with operator back office and analytics platforms.

Operational dashboards

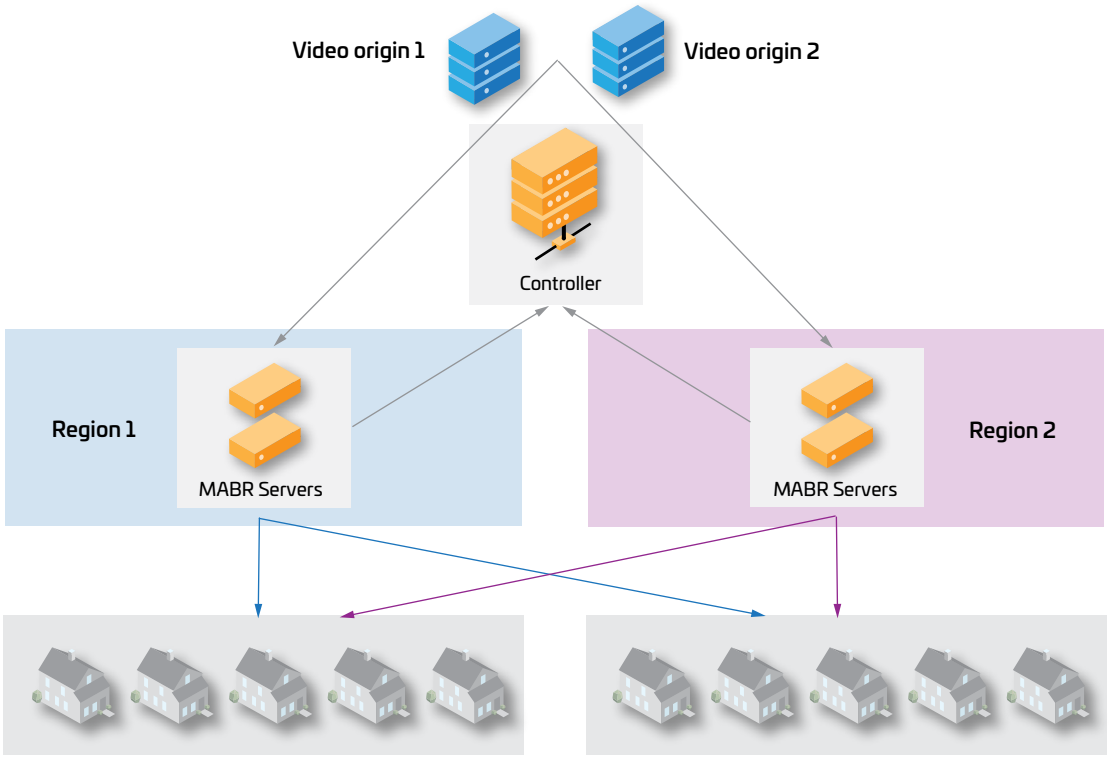
The MABR controller graphical user interface provides statistics on MABR client cache efficiency and more to aid in monitoring content delivery health and performance.

The Quick Range selection allows dashboard filtering options such as timeframe, zones, channels/streams, profiles, devices, and ABR format (HLS, DASH, or both).

Deployment: scalable, flexible, high availability with geo-redundancy

CommScope's MABR solution was designed from the start to support millions of home subscribers. It is built for scalability, based on a combination of cloud-enabled software, flexible operator network and data center deployment options.

The CommScope MABR solution can be deployed as an on-premises solution, or in a hybrid deployment with the MABR controller hosted in a public cloud and the MABR server and MABR client residing on customer infrastructure. Network components are packaged and delivered as containerized services. A container management and orchestration framework is used to manage service lifecycle and provide solution-wide platform management features such as resiliency, high availability and scalability. It also fully supports geo-redundancy with flexible centralized and regional deployment options.



Making the most of your IP video delivery network

AAs operators continue to provide more IP video delivery to primary as well as secondary devices, migrating to MABR offers a number of advantages over standard unicast ABR streaming. IP networks are optimized and more efficient. Less power and bandwidth is required. And video QoS and QoE is improved. In addition, CommScope's MABR is massively scalable and offers a number of flexible deployment options to allow providers to grow when they're ready.

CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement.
We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com

COMMSCOPE®

commscope.com

Visit our website or contact your local CommScope representative for more information.

BR-116560-EN (4/22)