

MPEG-DASH

Broadcasters face on a daily basis the challenge of distributing large libraries of video to an online audience that uses a multitude of different devices and technologies. MPEG-DASH provides the means to maximize the quality of experience with interoperable broadcast services in this fragmented environment.

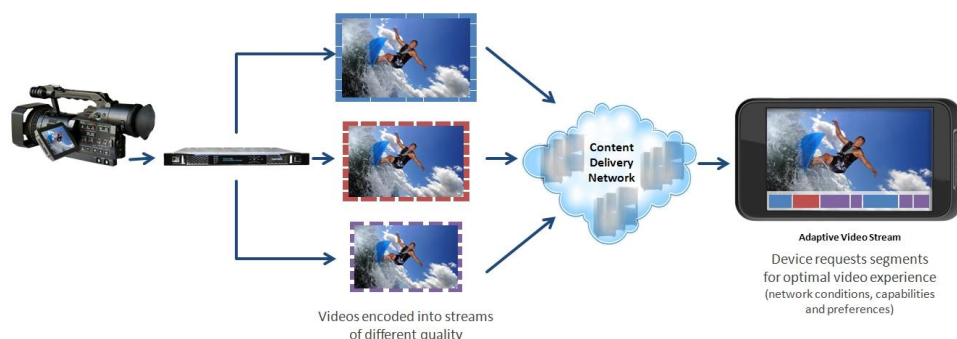
BACKGROUND

Calculated per head of audience, online video delivery is the most expensive distribution method used by broadcasters. However, the number of people accessing live, catch-up and other video-related services online is growing tremendously fast. Standardization of the technology behind online broadcast services is key, in order to keep operational costs under control while meeting the expectations of current and potential users. MPEG-DASH (Dynamic Adaptive Streaming over HTTP) is a streaming format that creates the maximum possible Quality of Experience, unifying different proprietary technologies like Microsoft's Smooth Streaming, Adobe's HTTP Dynamic Streaming and Apple's HLS (HTTP Live Streaming) into a single standard.

THE CHALLENGE FOR BROADCASTERS

Broadcasters must try to reach a maximum number of media users, without compromising the quality of user experience. Up to now a number of different technologies have been needed to stream content to multiple platforms and devices. This has the effect of driving up the costs.

The arrival of MPEG-DASH as a unifying standard enables broadcasters to use a single file format for encoding, to be distributed via standard web caches, and automatic optimization of the QoE (Quality of Experience). It address the various problems that arise when distributing vast amounts of video content to multiple devices connected to best effort networks with fast changing available bandwidths.



Architecture for MPEG-DASH showing adaptive streaming over HTTP with a set-up of a feed, encoding server and a publishing point, which can be a web server or CDN. The video client will request segments of video on the basis of, for example, available bandwidth in the network.

EBU TECHNOLOGY FACT SHEET

WHAT IS THE EBU DOING?

The EBU strives for open, efficient and interoperable broadcast services and strongly supports MPEG-DASH as a means to these goals – we are a contributing member of the DASH Industry Forum. The EBU strategic programme on Broadband Networks provides a focus for Members to share their experiences regarding the online distribution of audiovisual content and work to find improvements.

Three important characteristics of MPEG-DASH help it to directly address the challenges that broadcasters face in online video delivery:

HTTP delivery

By using HTTP as delivery protocol DASH maximizes reach and universal access. Due to the popularity of HTTP delivery most devices support it. A nice side effect for broadcasters is that, unlike special video protocols like RTSP or RTMP, firewalls cannot block HTTP streams easily. Its widespread use also seems to create advantages for the convergence of fixed and mobile networks and, last but not least, it uses the same existing delivery infrastructure for scalable distribution of web content in general. The vast penetration of HTTP web servers, Origins, Edges and Caches can therefore be reused, in contrast with specific video protocols that need a different delivery infrastructure.

Adaptive streaming

MPEG-DASH also optimizes the experience of end users with adaptive streaming. Available bandwidth on the internet as a best effort network is not constant but fluctuates. There is no end-to-end control available as with managed services, with the result that the online audience often is confronted with slow starting video, buffer under-runs or other annoying experiences. With MPEG-DASH the video client can switch between different bitrate video streams automatically and therefore adapt to changing network conditions.

Manageable outbound traffic

The adaptive switching of MPEG-DASH enhances the experience but can also be used by broadcasters to manipulate their outbound traffic. The available streams with different bitrates are published via a manifest file. Simply by deleting, in the file, references to the streams with the highest bandwidth, more concurrent viewers can access the popular live event. Already mentioned is the advantage of standard HTTP caching, which will improve their reach also.

In summary, MPEG-DASH will simplify the online distribution environment of broadcasters while creating a better experience for their audience. As well as participating actively in MPEG's standardization work, the EBU also hosts the administrative office of HbbTV, the new version of which prescribes the Live ISO based profile of MPEG-DASH.



The EBU has been mediating between industry vendors and European broadcasters to initiate proofs-of-concept using MPEG-DASH as a play-out format for online video. During the 2012 London Olympics the EBU initiated the first live public trial, presented by Belgian public broadcaster VRT, who offered their audience the chance to experience the Games on their personal devices via MPEG-DASH.

FIND OUT MORE

EBU Broadband Networks group
Article on MPEG-DASH in EBU tech-*i* Issue 12:

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