

MPEG-DASH vs. Apple HLS vs. Microsoft Smooth Streaming vs. Adobe HDS - Bitmovin

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Coding

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Support



Blog

Written by: Christopher Mueller March 29th, 2015

HTML5 Player

Stream Adaptive Video

in any Browser on

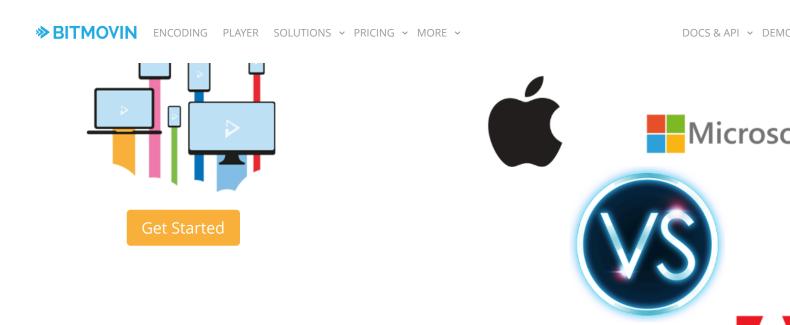
All existing adaptive HTTP streaming technologic such as the proprietary Adobe HTTP Dynamic Streaming (HDS), Apple HTTP Live Streaming (Microsoft Smooth Streaming (MSS), and the or international standardized solution MPEG Dyn Adaptive Streaming over HTTP (MPEG-DASH) if nearly the same principle

All existing adaptive HTTP streaming technologies, such as the proprietary Adobe HTTP D <u>Apple HTTP Live Streaming (HLS)</u>, <u>Microsoft Smooth Streaming (MSS</u>), and the only intern solution <u>MPEG Dynamic Adaptive Streaming over HTTP (MPEG-DASH</u>) follow nearly the sa

The basic idea is to generate multiple versions of the same content (e.g., different bitrates chop these versions into segments (e.g., two seconds).The segments are provided on a w downloaded through HTTP standard compliant GET requests. Typically, the relationship b is described by a manifest, which is provided to the client prior to the streaming session. I different qualities of the media content and the individual segments of each quality with Locators (URLs). This structure provides the binding of the segments to the bitrate (resolu start time, duration of segments). As a consequence each client will first request the man temporal and structural information for the media content and based on that informatio segments that fit best for its requirements.

The adaptation to the bitrate or spatial resolution is done on the client side for each segr

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Adaptive Streaming Feature Compari

MPEGDASH

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The following table shows a feature comparison of the proprietary adaptive streaming ter Dynamic Streaming (HDS), Apple HTTP Live Streaming (HLS), Microsoft Smooth Streaming Dynamic Adaptive Streaming over HTTP (MPEG-DASH) standard. Please note that this cor standard's capabilities, and not reflecting the specific implementation from a certain vence

Feature	Adobe HDS	Apple HLS	Micr Smo
Deployment on Ordinary HTTP Servers		<pre> ick_green_sm2 </pre>	
Official International Standard (e.g.,			

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DOCS & API ~ DEMO FIEXIBLE CONTENT PROTECTION WITH tick_green_sm2 tick_green_sm2 tick_green_sm2 tick_green_sm2 Common Encryption (DRM) Closed Captions / Subtitles tick_green_sm2 tick_green_sm2 tick_green_sm2 tick_green_sm2 Efficent Ad Insertion tick_green_sm2 Fast Channel Switching tick_green_sm2 tick_green_sm2 tick green sm2 Protocol Support's multiple CDNs in tick_green_sm2 parallel HTML5 Support tick_green_sm2 Support in HbbTV (version 1.5) tick_green_sm2 HEVC Ready (UHD/4K) tick green sm2 Agnostic to Video Codecs tick_green_sm2 Agnostic to Audio Codecs tick_green_sm2 ISO Base Media File Format tick_green_sm2 tick_green_sm2 tick_green_sm2 Segments MPEG-2 TS Segments tick_green_sm2 tick_green_sm2 Segment Format Extensions beyond tick_green_sm2 MPEG Support for multiplexed (Audio + tick_green_sm2 tick_green_sm2 tick_green_sm2 Video) Content ick_green_sm2 Support for non-multiplexed tick_green_sm2 tick_green_sm2 (separate Audio, Video) Content

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≫Bľ	TMOVIN ENCODING PLAYER	SOLUTIONS - PRICING - MORE -		DOCS & API ~ DEMO
	Cilent Fallovei		tick_green_sm2	
	Remove and add Quality Levels during Streaming		tick_green_sm2	
	Multiple Video Views		tick_green_sm2	
	Efficient Trick Modes		tick_green_sm2	

Deployment on Standard HTTP Servers

MPEG-DASH and also Apple HLS can be used with ordinary HTTP-Servers such as Apache, Nginx, IIS, etc. Adobe as well as Microsoft are using server side mechanisms that need additional logic on the server.



Official International Standard



MPEG-DASH is an international standard, ratified in 2012 and currently adopted by YouTube, Netflix, etc. Several members of different companies such as Microsoft, Adobe, Apple, Samsung, Akamai, Cisco, Dolby, Ericsson, Harmonic, Qualcomm, Netflix, Intel, bitmovin, InterDigital, etc. have contributed to the standardization. The Apple HLS IETF Internet-Draft *) is driven by one company that is able to change its direction from one day to another. Furthermore, Apple has made no efforts since

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DOCS & API ~ DEMO

Multiple Audio Channels

Switching between multiple audio channels is especially important for multi language content. MPEG-DASH supports this feature as well as Apple HLS and Microsoft Smooth Streaming.

Flexible Content Protection with Common Encryption

MPEG Common Encyrption (CENC) allows content encrypted once to be compatible with multiple DRM systems. This is possible, as nearly every DRM system supports AES as content encryption method and only the license key exchange between the client and the server is different.

Closed Captions / Subtitles

All formats support closed captions or subtitles. Usually they are referenced in the manifest and stored as individual file, e.g., in <u>WebVTT</u> format.

Efficient Ad Insertion

Ad insertion is possible in all formats through chunk substitution. This means that individual chunks of the original video will simply be replaced by chunks that contain advertisements. MPEG-DASH enables through Periods a standardized interface that enables ad insertion in an efficient way. Which means that still ordinary HTTP servers can be used and no additional, proprietary logic is required to redirect requests for specific chunks to chunks that contain the advertisement.

Fast Channel Switching

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Fast channel switching is a feature that is directly related to the chunk size. As smaller chunks allow faster channel change times than bigger chunks. Apple HLS typically uses 10 second chunks and is optimized for that chunk size. Adobe, Microsoft as well as MPEG-DASH are designed to work with 2 and 4 seconds chunks that allow faster channel change. Additionally the overhead of the MP4 format used in MPEG-DASH and Microsoft has significantly lower overhead than the MPEG-2 Transport Stream (MP2TS) format used in Apple HLS. The tradeoff between large and small chunk sizes is that, small chunks sizes enable fast channel switching, reducing startup latency for some systems (some players start the playback only if they have received the first chunk fully), and allow a more flexible adaptation behavior. On the other side small chunk sizes reduce coding efficiency as Group of Pictures (GOP) need to be smaller

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