DASH & CMAF: The Standard Update

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MPEG DASH Update

International Organization for Standardization

MPEG-DASH 1st Edition 23009-1:2012

- Events
- Asset Identifier

2nd Edition 23009-1:2014

AMD1
- Server-client NTP sync
- Extended profiles

AMD2
- SRD
- URL param insertion
- Role extensions

AMD3
- AuthN/AuthZ
- NTP anchor
- External MPD link
- Period continuity
- Generalized HTTP header extensions & queries

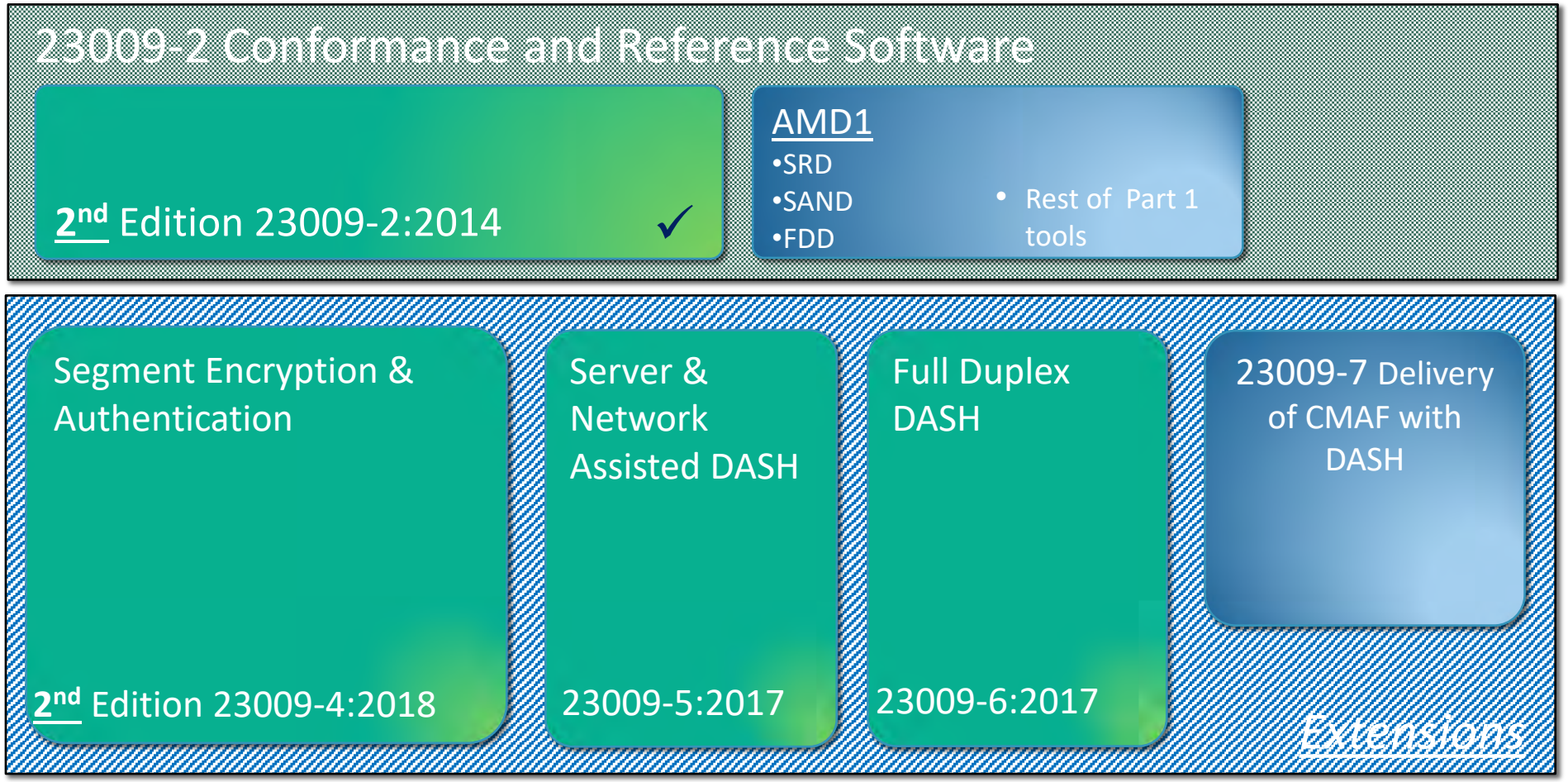
AMD4
- Flexible segment & Broadcast TV profile
- MPD chaining
- MPD fallback
- Preselections
- Data URLs in MPD
- Labels
- Switching x adaptation sets

3rd Edition 23009-1:2018 ✓

AMD5
- Device information
- Missing segment signaling & marking
- New values for Role & media type classification
- Flexible IOP signaling
- Explicit Early available Period
- Content capture time
- Quality equivalence & popular content signaling

TuC
- Usage of HEVC tile tracks in DASH
- Content annotation & client selection
- Signaling for quality control
- Popular content
- Segment for Forensic watermarking
- Mixed MPD
- MPD Playlist
- Event timing model
- MPD patching update

MPEG DASH Update

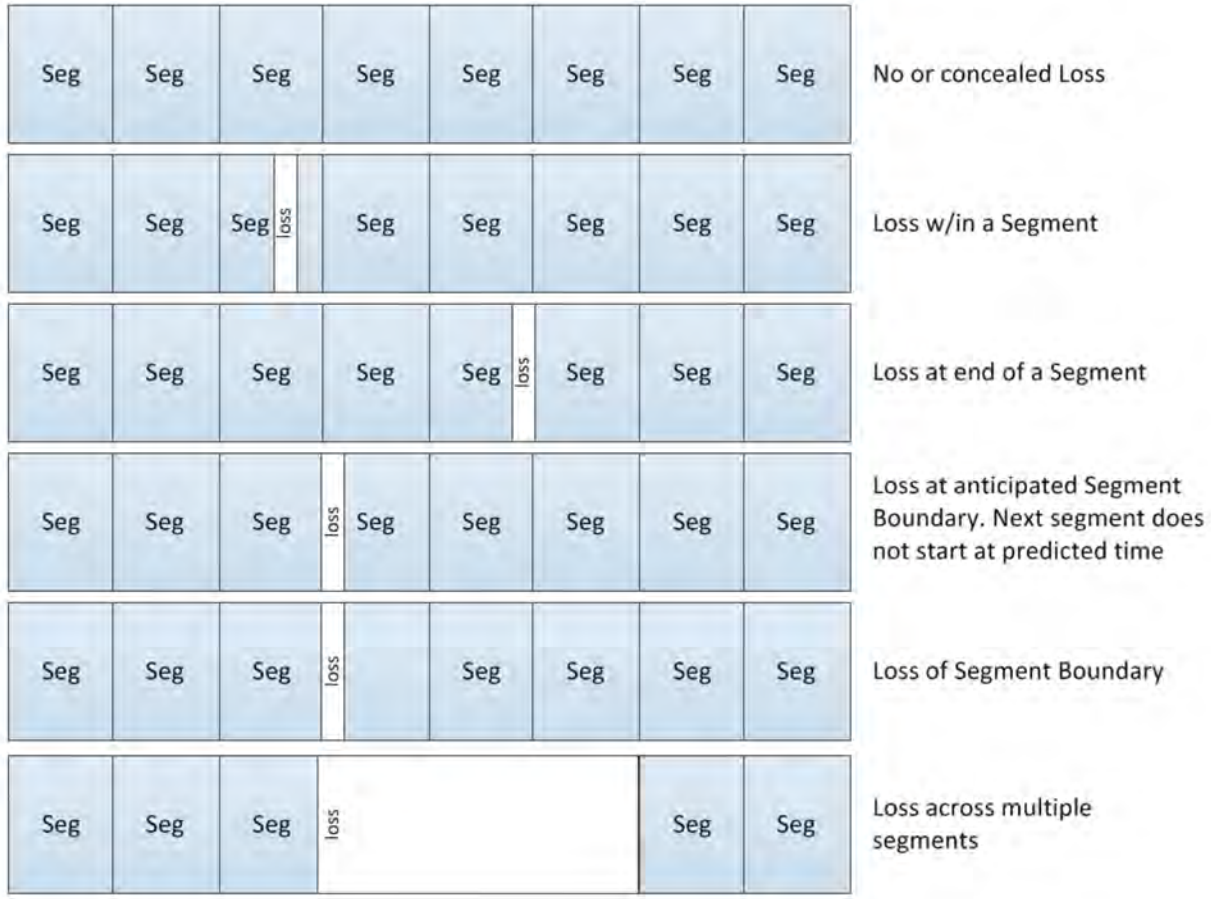


DASH AMD5 tools: Missing Segments

- Signaling the missing segments at MPD:

Element or Attribute Name			Use
MissingSegments			
	MS		1 .. N
		@t	M
		@d	O

- Additional major brand for segments: ‘miss’.



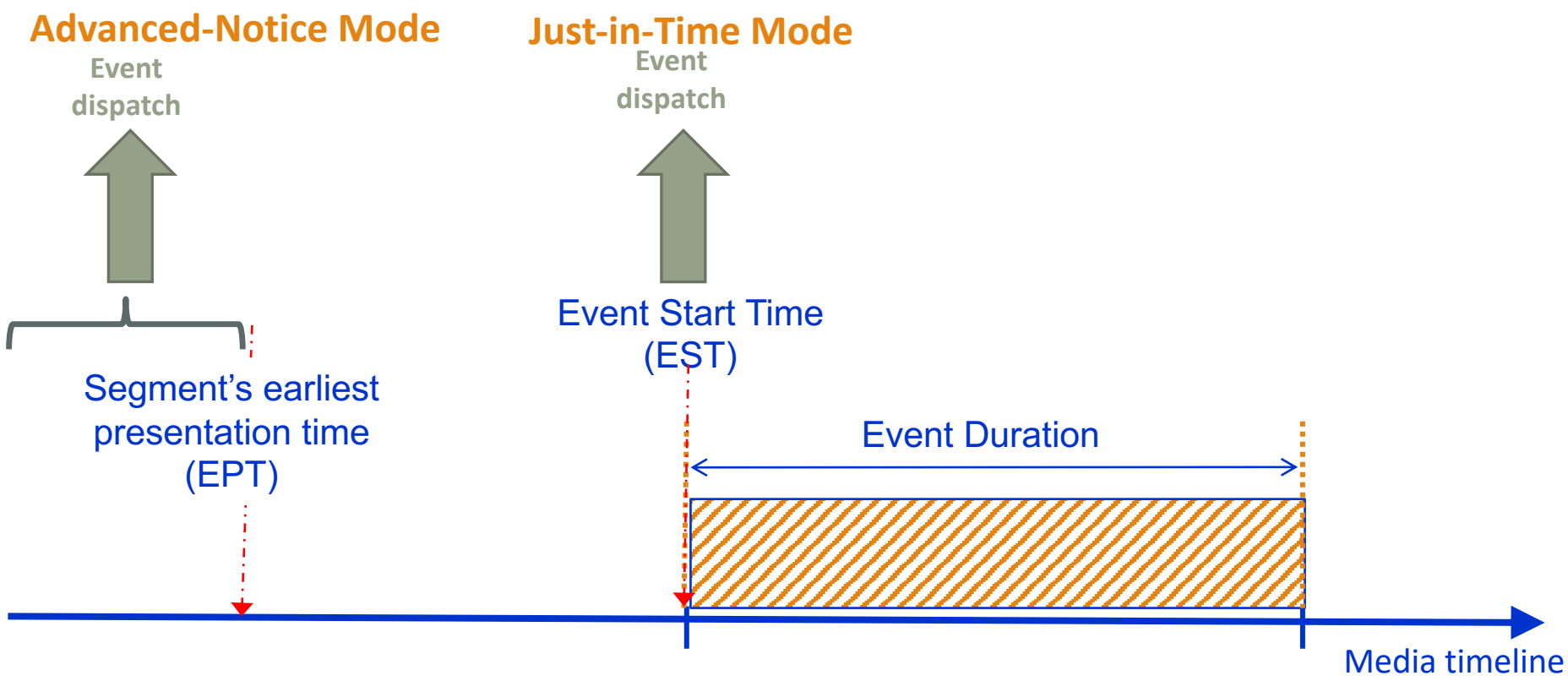
DASH AMD5 – Capture time

- To signal the capture time of the video frames in UTC
  - Provides a reference time for the application to sync the decoded video with other app events or data streams
- Use of ‘prtf’ box in ISOBMFF for capture the time
- A descriptor in MPD to signal:
  - The capture time of the first frame
  - The existence of ‘prtf’ in stream conveying the capture time

DASH AMD5- Flexible IOP signaling

- To enable signaling the content characteristic in a dynamic MPD:
  - What codecs, encryption modes, DRM, DASH features may show up in the MPD updates that are not present in the current MPD
  - A method to signal the required client's capabilities to play the content.
- Current tools under consideration:
  - Expressive IOP: an expression statement that describe the required features: DASH, codec, encryption & DRM, metadata, and how they are combined with each other
    - Early Available Periods: provides a list of period, listing all possible feature periods, without their actual resources

DASH TuC: Application Event Timing Model



CMAF Update

International Organization for Standardization

Common media application format (CMAF)

- CMAF data and timing model
- File format constraints
- Chunk, Fragment, Segment, Track constraints
- Media profiles (video, audio, subtitle)
- Common encryption modes
- Media presentation profiles

23000-19:2018 ✓

AMD1

- Scalable HEVC media profile
- MPEG-H audio profile

✓

AMD2

- xHE-AAC media profile
- IMSC1.1 media profiles
- Supplemental data brands
  - CEA-608/708 SEI

2nd Edition 23000-19:201x

TuC

- Sequencing & slicing CMAF presentation
- Random access vs Switching addressable objects
- New media profiles

Exploration

- Multistream support

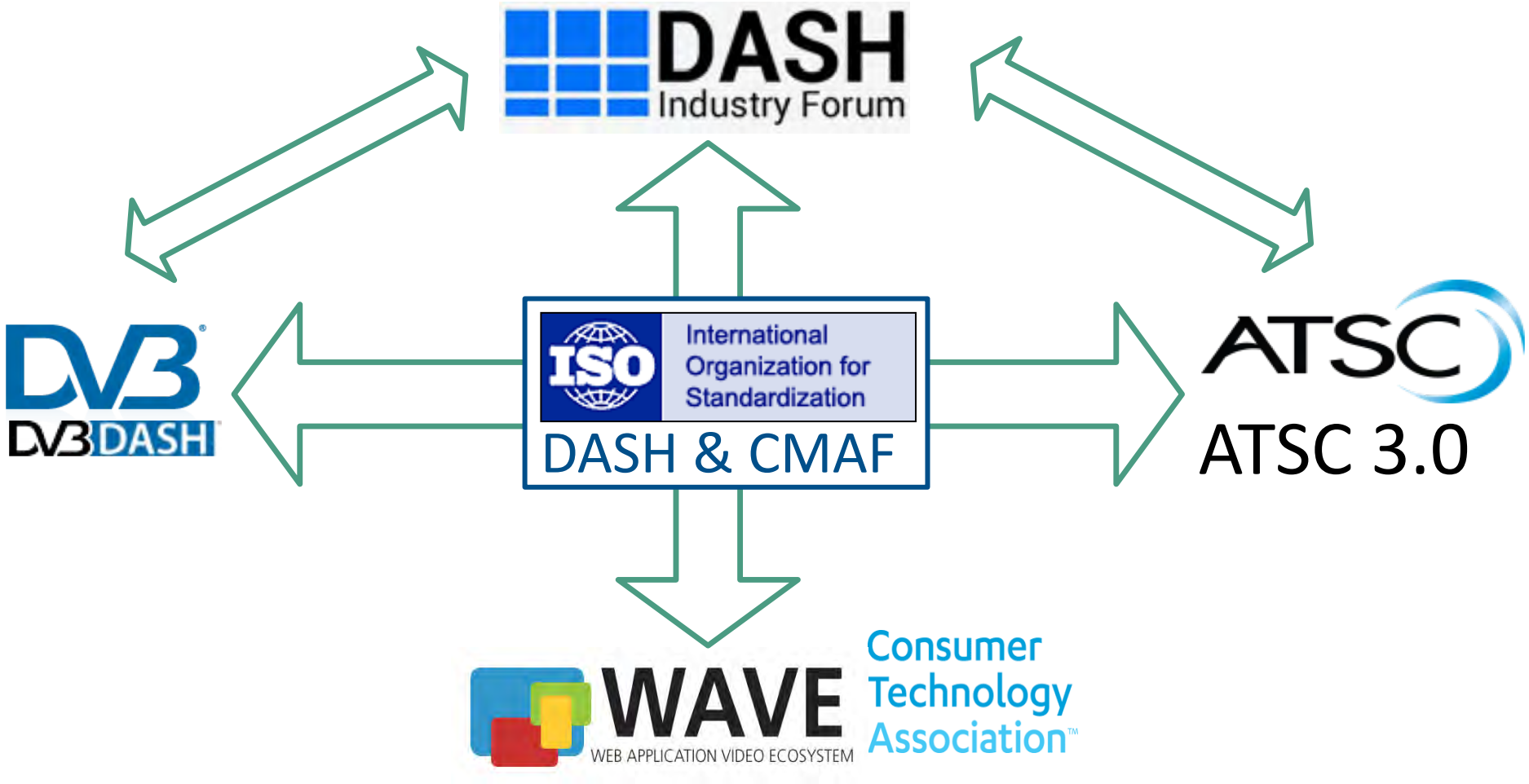
CMAF Update: AMD2 media profiles

Media Profile	Audio Codec	Audio Profile	Audio Level	Metadata Codec	Metadata Profile	Metadata Level	Channel Configurations	Max Sampling Rate	File Brand
xHE-AAC	MPEG-D USAC	Extended High Efficiency AAC (xHE-AAC)	49	MPEG-D DRC	Loudness Control or Dynamic Range Control	1 or higher	Allowed values for channelConfigurationIndex as defined in ISO/IEC 23003-3:2012 are 1, 2, 3, 4, 5, 6, 9, 10	48 kHz	'cxha'

Media profile	Notes	File brand
IMSC1.1 text	IMSC1 text profile	'im2t'
IMSC1.1 image	IMSC1 image profile	'im2i'

Supplemental Data	Format	Notes	Target CMAF Tracks	File brand
CTA Captions	CTA-608 and CTA-708 Specified in 11.4	Caption data is embedded in SEI messages in video track; multiple closed caption streams may be present.	Video Media Profiles, including AVC and HEVC.	'ccea'
	NOTE The 'ccea'compatibility brand can be included in addition to a video CMAF media profile compatibility brand to indicate the presence of captions embedded in the video elementary stream.			

Conclusion


DASH
Industry Forum
DVB
DVB DASH
ISO
International
Organization for
Standardization
DASH & CMAF
ATSC
ATSC 3.0
WAVE
WEB APPLICATION VIDEO ECOSYSTEM
Consumer
Technology
Association™

Thank you!

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