



The CTA WAVE Project

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Problems in OTT



WAVE

Recognizing these challenges, in Dec 2015 the Consumer Technology Association (CTA) established an open-process, cross-industry engineering effort to identify ***a standards-based solution to audio-video interoperability.***

Web

Application

Video

Ecosystem



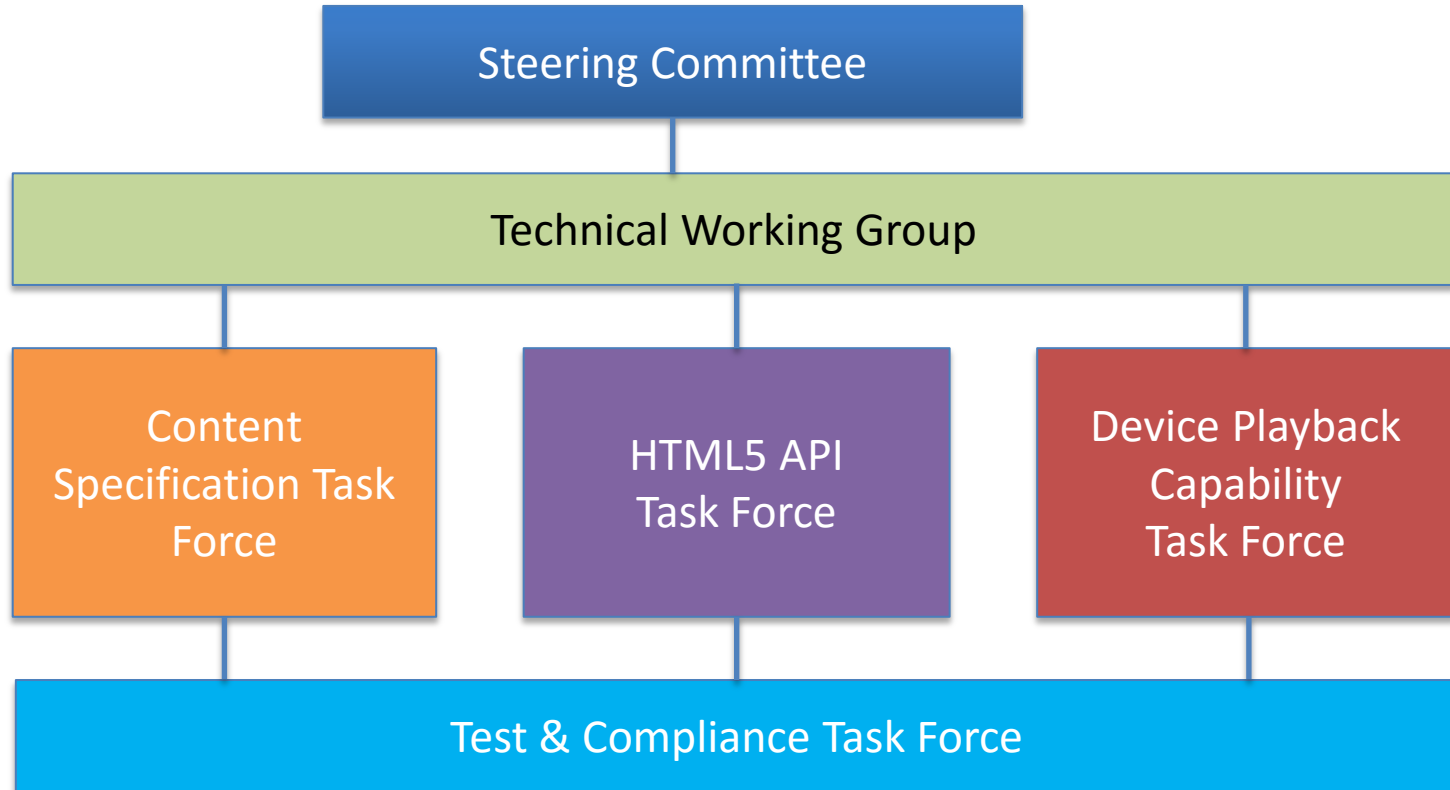
3 important facts about WAVE

- WAVE is global in scope, not just North American. We welcome increased global participation.
- The MPEG Common Media Application Format (CMAF) is the basis for content preparation.
- HTML5 APIs are the basis for the preferred common video application environment.

Members

Adobe, AGP, Akamai, AT&T, BBC, BSkyB, CableLabs, Comcast, Cox, Deutsche Telekom, Discovery, Disney, Dolby, Eurofins Digital Testing, Facebook, Fraunhofer, Global Eagle Entertainment, Google, HBO, Intel, LG, Microsoft, MLB Advanced Media, MovieLabs, Netflix, Opera, Qualcomm, Roku, Samsung, SCTE, Sony, Starz, Toshiba, TP Vision, Verance, Verizon, Viacom International and WWE

Organization



Content Specification Task Force

Problem they are solving:

- How to package and prepare content to play across the broadest number of CE devices.

Solution they are proposing:

- Develop a profile of ISO MPEG CMAF.
- Create a content specification which mandates that profile along with key system elements and other metadata required for compliant playback.
- Work with external groups to define how HLS and DASH should use that profile

Timeline:

- February 1 (CSTF #15) - CSTF draft spec
- April 19 (post-CSTF #20) – Publish CSTF Spec for NAB (22-27 Apr 2017)

Device Capabilities Task Force

Problem they are solving:

- Segmented media is not reliably decoded, decrypted and displayed on many CE devices
- Applications want to use the device capabilities (codecs, decryption engine, etc.) for consistent and high-quality playback of WAVE-based content

Solution they are proposing:

- Develop a specification with normative definitions around the quality of segmented media playback.
- These requirements will be applicable to HTML5 and non-HTML5 devices, but the tests will be developed for the HTML5 devices only.

Timeline:

- Q4 2016: Use case specification with prioritized use cases, issues and functions
- Q2 2017: Requirements specification including expected behavior(s), requirements, potential unit tests, minimum set of streaming/playback requirements

HTML5 API Task Force

Problem they are solving:

- MSE/EME implementations vary widely across devices and browsers.

Solution they are proposing:

- Identify a minimum set of media application APIs specific to the playback of audio-video content. This set will be developed in the newly formed Web Media API Community Group in the W3C. (<https://www.w3.org/community/webmediaapi/>)
- Identify gaps in current W3C APIs.
- Provide minimum, testable requirements and implementation guidance for User Agents and provide web application developer guidance.

Timeline:

- August- Oct 2016 - iterate feature set with community, identify “gaps” in existing W3C Specs, develop guidance for user agent implementation.
- Spring 2017 - Release candidate HTML5 API set.

Test & Conformance Task Force

Problem they are solving:

- How to test content for compliance with the Content, HTML5API and Device playback specs.

Solution they are proposing:

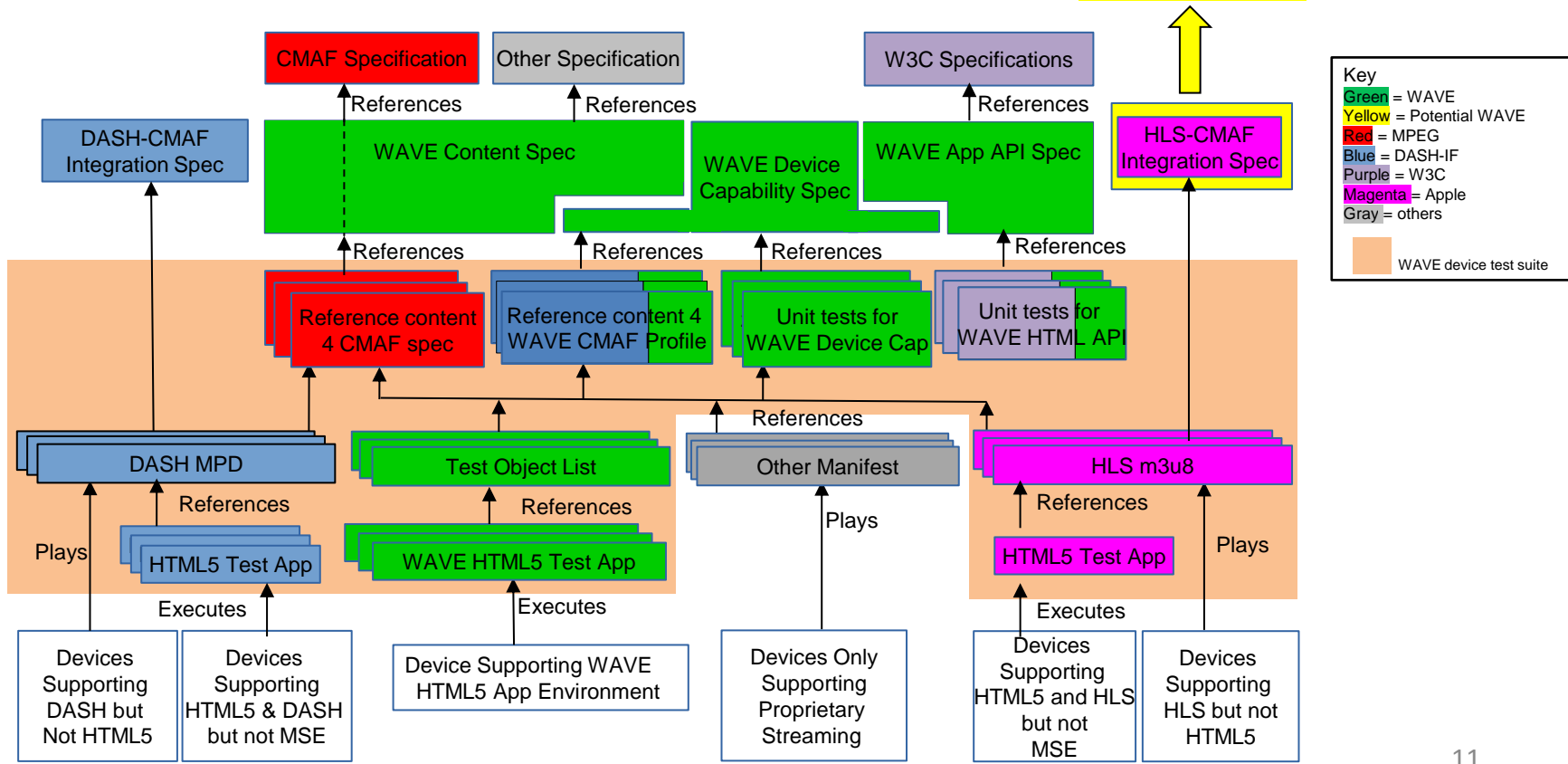
- Defining how testing will be conducted (self-test, 3rd-party; test only and/or certification; etc.);
- Documenting test requirements and test plans from specifications and use-cases; defining test tools/harnesses; cataloguing and evaluating existing test materials for suitability for use in WAVE.
- Providing and maintaining test materials (including streams) as needed.

Timeline:

- F2F@IBC –14th Sept 2016 - Proposed test plan for WAVE, Recommend WAVE test approach to SC.
- CES 2017 – 5th Jan 2017 - Prioritized use cases from other TFs, list of detailed test requirements (assertions) and materials.
- NAB 2017 – 22nd April 2017 - (Sub)set of test material documented and available

Wave Specs and Scope

Note: HLS-CMAF spec may be published by WAVE



Who uses what



Normative



Informative



Unused

	Content Spec	HTML5 API Spec	Device Playback Spec
AV Service Provider			
Content developer			
Application developer			
Device manufacturer			
App Platform developer			
AV Platform developer			

Why is WAVE useful to you?

- **Content providers**
 - It will allow you to package content that will play across all CE devices.
 - It will allow you to build/use one JavaScript player library that will work across a larger number of CE devices.
 - When content plays on a CE device, it will do so more reliably and at higher quality.
 - It will reduce (->eliminate) the need for you to develop and maintain specs that device manufacturers must meet
- **Device manufacturers**
 - It will reduce (->eliminate) the need for technical discussions to get content on your devices.
 - It will reduce the need for you to analyze, implement & certify multiple different content provider specifications

WAVE and HbbTV

- WAVE is addressing a far broader range of devices than HbbTV
 - But really focussing on one particular feature in depth
- WAVE and HbbTV have common goals in improving interop for OTT content presented by HTML5 apps
- WAVE device capabilities spec is relevant to improving HbbTV DASH interop
 - Test cases for that should work with HTML5 video element & native DASH player as used in HbbTV
 - Hopefully can benefit 2018 HbbTV products
- Hopefully in time HbbTV will adopt MSE and more of WAVE's work will be relevant
 - MSE on track to be W3C Recommendation by end 2016

How can you participate?

Join WAVE by emailing

standards@CTA.tech

