WAVE Overview

Part 2: WAVE HATF / Web Media API CG Specs

Presentation to the W3C Media and Entertainment Interest Group

July 2, 2018

Mark Vickers, Comcast
Co-Chair, W3C Media & Entertainment IG
Co-Chair, WAVE HTML5 API TF (HATF)
Co-Chair, W3C Web Media API CG

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Agenda

- CTA Web Application Video Ecosystem (WAVE)
- WAVE HATF / Web Media API CG Specs
  - Web Media API Snapshot 2017
  - Web Media Application Developer Guidelines
  - Web Media User Agent Integration
- Discussion

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CTA Web Application Video Ecosystem (WAVE)

An industry effort to address web media encoding, playback and platform issues utilizing global standards.

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WAVE Membership (as of April 2018)

Adobe Systems
AGP
Akamai
Amazon.com
Apple
AT&T
AwoX
BAMTech Media
BBC Research & Dev.
BitRouter
Brazilian Soc. of TV Eng.
Brightcove
Cable Television Labs
castLabs
CBS Interactive
Charter Communications
Cisco Systems
Comcast Cable
Cox Communications
Discovery Communications
Disney/ABC/ESPN
Dolby Laboratories
Ericsson
Eurofins Digital Testing
Facebook
Fraunhofer
Google
Home Box Office (HBO)
Huawei Device Co.
Intel Corporation
JR Consulting
JW Player
LG Electronics
Martin Freeman Consulting
Microsoft Corporation
MPAA
Motion Picture Laboratories
Mux
Nagravision
Nathan Zerbe LLC
Nat'l Assoc. of Broadcasters
Netflix
Nevelex Corporation
Opera Software
P Thomsen Consulting
Qualcomm Incorporated
RK Entertainment Technology Consulting
Samsung Electronics
Showtime Networks
Sky
Solekai Systems
Sony Electronics
SpireSpark International
Starz
Streaming Video Alliance
TBT
Toshiba
TP Vision
Turner Broadcasting System
UltraViolet / DECE
Verance Corporation
Verimatrix
Verizon
Viacom
Vizio
WJR Consulting
World Wide Web Consortium
WWE
Xperi/DTS

*Steering Committee members in **bold***

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WAVE - Web Application Video Ecosystem

- WAVE addresses global media interop issues by defining interop points based on global standards, targeting desktop and embedded browsers – laptops, phones, tables, smart TVs, media sticks and set-top boxes.
- Encoding issues are being worked on by the Content Specification Task Force, published in the WAVE content specification, based on profiles of the new ISO IEC CMAF specification.
- Playback issues are being worked on by the Device Playback Capabilities Task Force, in the upcoming Device Playback Capabilities specification.
- Platform issues are being addressed by the HTML5 API Task Force, in the published Web Media API Snapshot spec, as well as the upcoming Web Media Application Developers Guidelines and the Web Media Porting specification.

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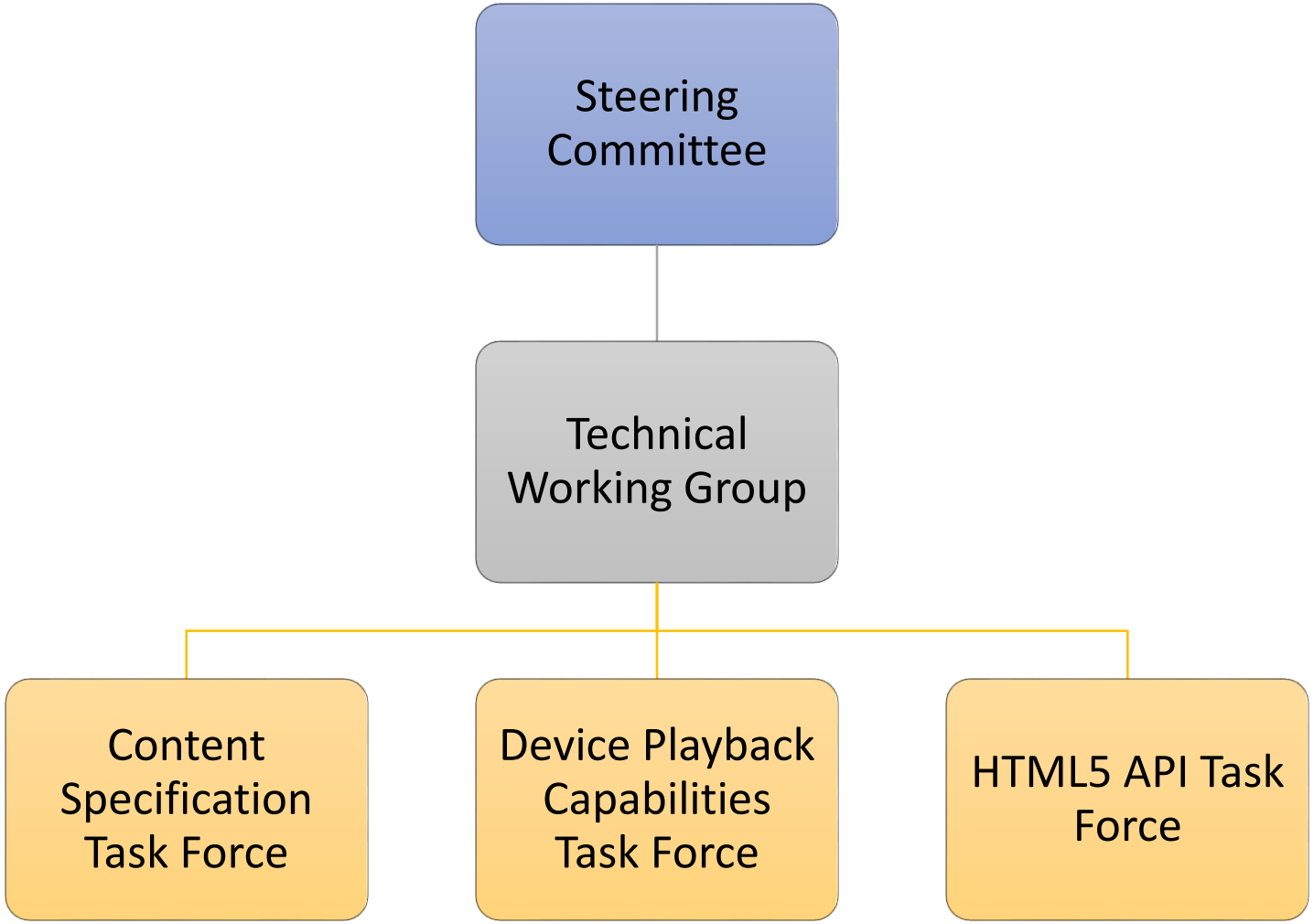
WAVE Organization



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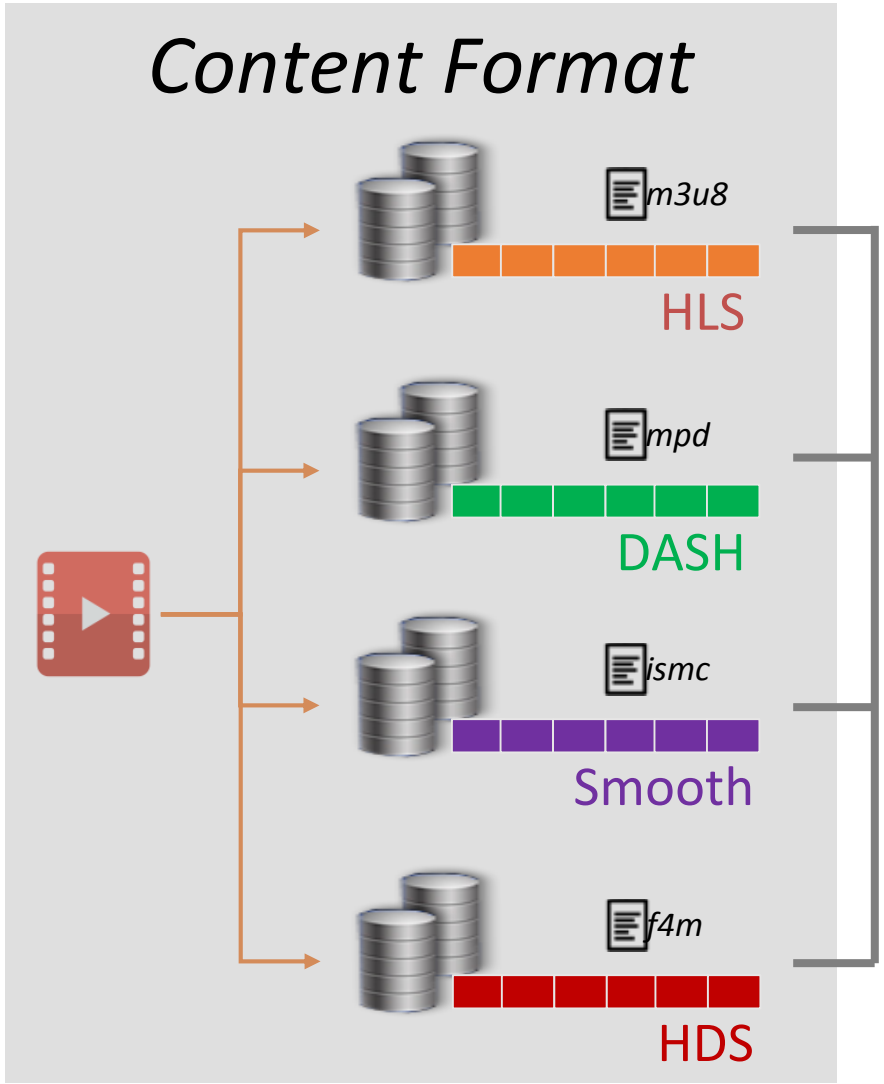
Web Media Encoding, Playback and Platform Issues



Each “asset” copied to multiple media formats

- different video codecs
- different audio codecs
- Regional frame rates

Cost to content creators and distributors

Inefficiencies in content delivery networks (CDNs)

Storage costs

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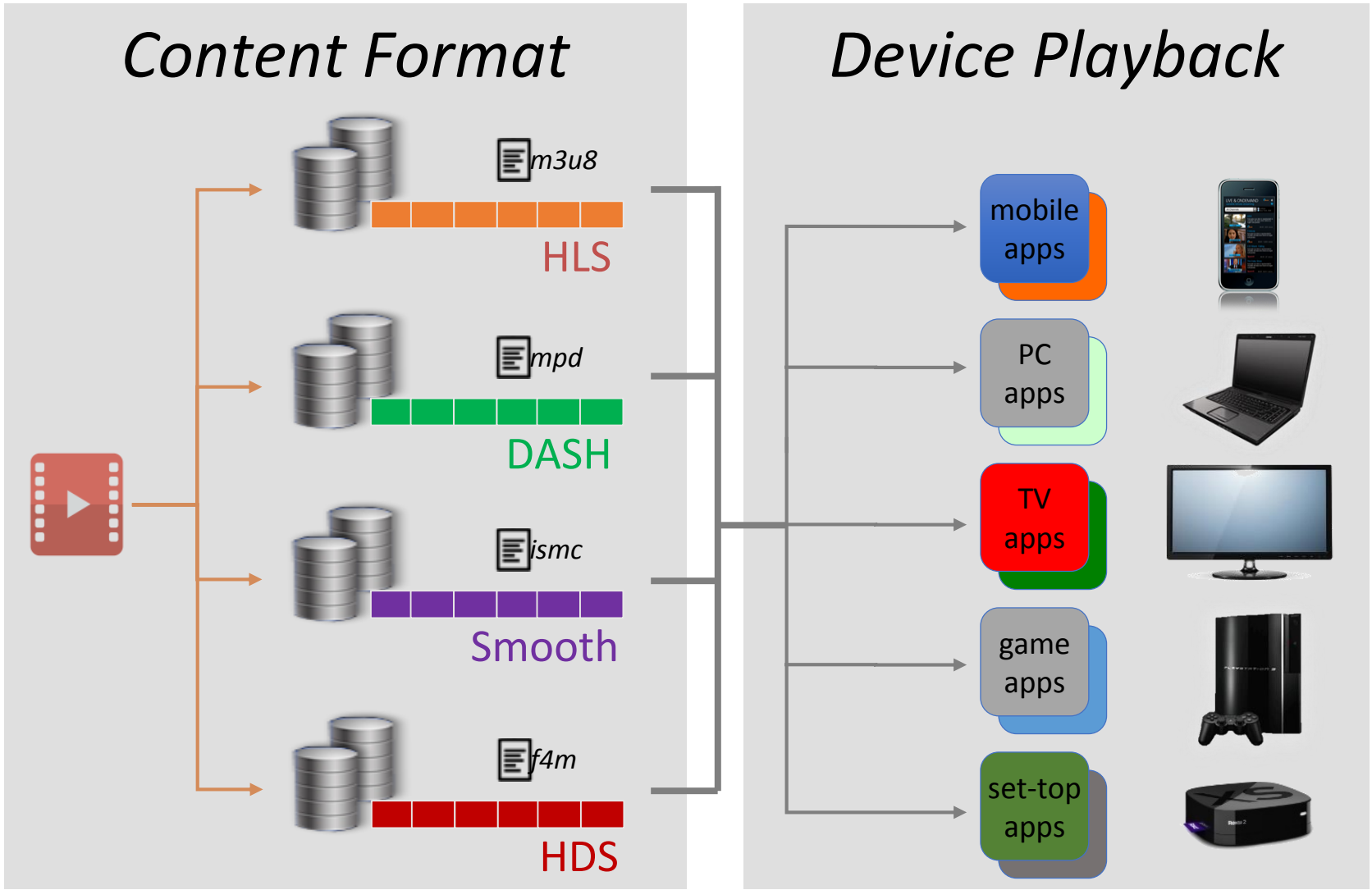
Web Media Encoding, Playback and Platform Issues



- Switching bitrate glitches
- Codec incompatibility
- Scaling display issues
- Partial profile support
- Long-term playback instability
- Audio discontinuities
- Request protocol deficiencies
- Memory problems
- CPU weakness
- Variable HDR support
- Unknown capabilities
- Ad splicing problems

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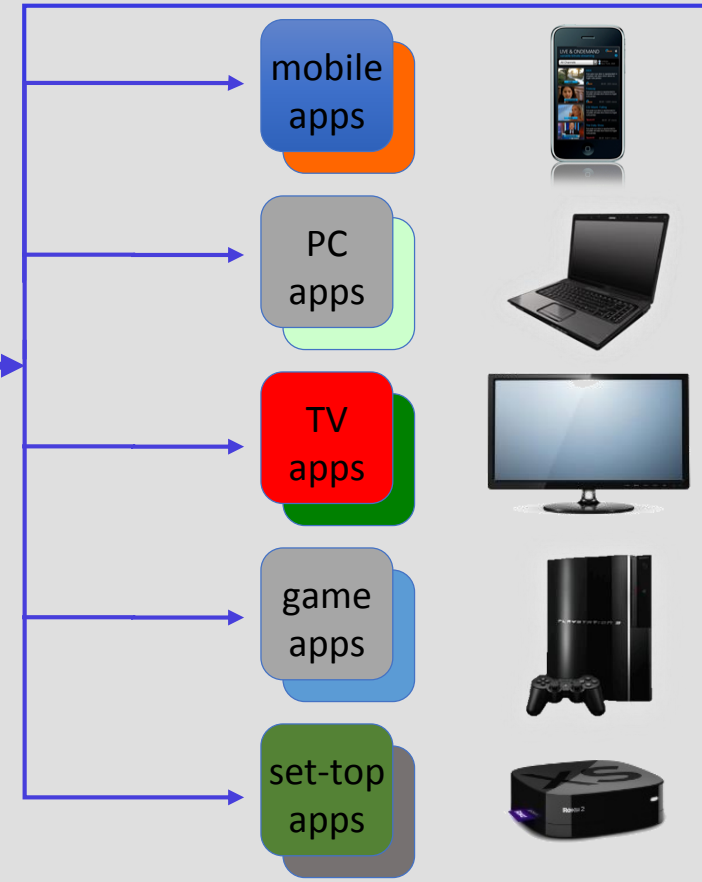
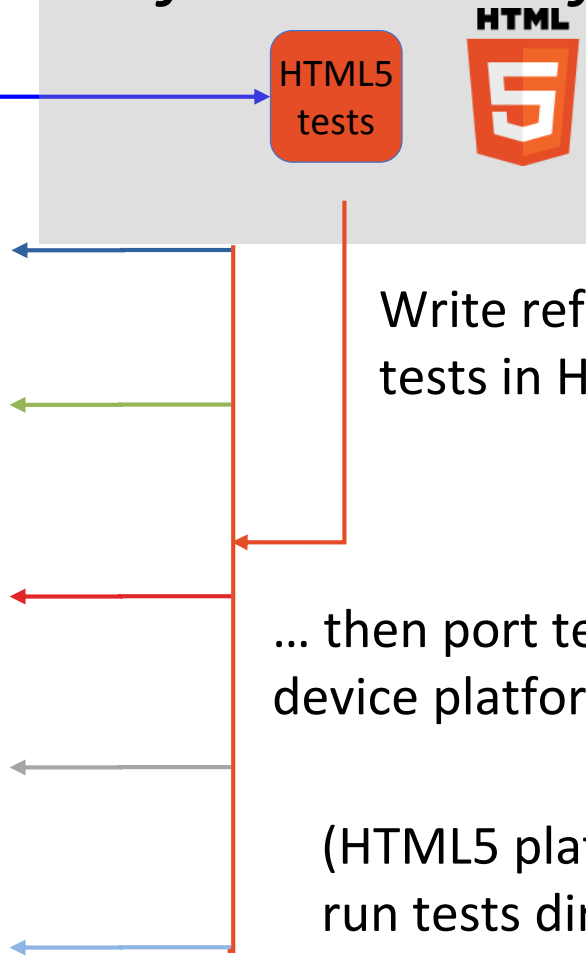
Web Media Encoding, Playback and Platform Issues

One Content Format...

...but multiple devices

Reference Platform





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HTM5 API Task Force: Work Plan

Web Media API Community Group:

w3.org/community/webmediaapi/

1. **Annual Web Media API spec**

   define baseline web APIs to support media web apps.

2. **Guidelines for media web app developers**
3. **Guidelines for device makers**
4. **Identify gaps in current web APIs**

   work with W3C Working Groups to update web standards.

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Web Media API Snapshot 2017

W3C Community Group Final Report

Web Media API Snapshot 2017

Final Community Group Report 20 December 2017

Latest editor's draft:
https://w3c.github.io/webmediaapi/

Editors:
David Evans, British Broadcasting Corporation
Mark Vickers, Comcast

Participate:
GitHub w3c/webmediaapi
File a bug
Commit history

Abstract

This specification lists the Web APIs to support media web apps that are supported across all four of the most widely used user agent code bases at the time of publication. This specification should be updated at least annually to keep pace with the evolving Web platform. We encourage manufacturers to develop products that support the APIs in the most recent version of Web Media API Snapshot. This specification is comprised of references to existing specifications in W3C and other specification groups. The target devices will include any device that runs a modern HTML user agent, including televisions, game machines, set-top boxes, mobile devices and personal computers.

The goal of this Web Media API Community Group specification is to transition to the W3C Recommendation Track for standards development.

First annual API Snapshot published 20 December 2017:https://www.w3.org/2017/12/webmediaapi.html

- Lists key APIs supported in 2017 in all major HTML code bases.
- CTA-W3C agreement to co-publish this spec.
- Plan to propose Community Group spec as a W3C standards track spec
- CTA WAVE issued RFP to create a test suite for all listed APIs based on W3C API tests.
- Test suite will enable manufacturers to test that their HTML support is up-to-date!

WAVE WEB APPLICATION VIDEO ECOSYSTEM

WAVE Current & Future Publications

PUBLISHED

- “Web Media API Snapshot 2017”, Final Community Group Report 20 December 2017, https://www.w3.org/2017/12/webmediaapi.html
- “Web Application Video Ecosystem – Content Specification”, April 2018, https://members.cta.tech/ctaWAVE

PENDING

- “Event Messages in WAVE” (white paper)
- “Web Application Video Ecosystem (WAVE) Device Playback Capabilities”
- “Web Media Application Developer Guidelines”
- “Web Media Porting Specification”

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Discussion