Adopting HTML5 for Television: Next Steps

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W3C, HTML5 and Web&TV
Setting the context

Web&TV Activity in W3C
Workshops, Interest Group, Task Forces

Next Steps
HTTP adaptive streaming, captioning, social TV, content protection, profiling/testing…
Part 1:
W3C, HTML5 and Web&TV
W3C: Shaping the Web of the future

- **Web Standards**
  (X)HTML, CSS, XML, SVG, PNG, XSLT, WCAG, RDF, ...

- **Consortium**
  330 members, from industry and research

- **World-wide**
  Offices in many countries, including Brazil, China, India, Morocco, South Africa, ...

- **One Web!**
  Founded and directed by inventor of the Web, Tim Berners-Lee

- **Global participation**
  32,000 people subscribed to mailing lists, 1,500+ participants in 60+ Groups
HTML5

HTML5 is one big specification developed by the W3C HTML Working Group:

- Audio and Video on the Web
- Rich Web applications
- Canvas
- new APIs
- ...

HTML5 is more than that. What we usually mean is:

- A long list of specs (incl. CSS and various APIs), more than 100!
- The next Open Web Platform
- The Web on the move
Convergence goes into both directions:

- **Web on TV**
  Web content and applications rendered on a TV

- **TV on the Web**
  TV content and experience in Web browsers
Part 2:
Web&TV Activity in W3C
144 participants from various industries
(broadcasters, telecom companies, content provider, device vendors, publishers, software vendors, SDOs)

First discussions on use cases and requirements for Web on TV

First topics of interest identified
(TV APIs, Richer user experience, content rights, TV as broadcasting service, accessibility)

**Web and TV Interest Group** proposed in W3C to continue discussions and refine needs.
Second Web & TV Workshop — February 2011, Berlin

- 114 participants from various industries
  (broadcasters, telecom companies, cable operators, researchers, content provider, device vendors, publishers, software vendors, SDOs, governments)
- Official launch of Web and TV Interest Group
- Initial inputs for Web and TV Interest Group:
  - Home networking scenarios (second-screen, device/service discovery)
  - Adaptive streaming over HTTP
  - Use of metadata
  - Accessibility
  - Profiling / Testing
  - Extensions to HTML5 `<video>` element
Home Networking Task Force

- 21 participants (Aalto University, BBC, CableLabs, Cisco, Comcast, Ericsson, France Telecom, Intel, LG, NCSR Demokritos, Nokia, Opera, ParisTech, Samsung, Sony, SonyEricsson, Toshiba)
- 18 use cases and 23 requirements discussed and refined
- Use cases include service discovery, 3-box model, *hybrid content*, service migration
- Priorities set for requirements

Most requirements in scope of the **W3C Device APIs Working Group**
26 participants
(AT&T, BBC, CableLabs, Comcast, CWI, Ericsson, France Telecom, Fraunhofer, Ghent University, Intel, LG, Microsoft, Netflix, Nokia, Opera, ParisTech, Samsung, Sony, SonyEricsson, Toshiba)

Discussing use cases and requirements to have more control over the video pipeline

Topics include:

- Quality of Service API
- Integration of Adaptive Streaming over HTTP
- Content Protection
- Parental control
- Continuous Streaming
- Exposing audio/application data in the media resource

**Ongoing discussions.** Requirements document done by end of 2011.
140 participants from various industries, specific focus on content providers

Main Web browser vendors represented

Identify further needs (captioning, social TV, Web application packaging).

More links between Web community and TV community.

Check Web and TV IG report, about to be published.
Part 3: Next Steps
Adaptive Streaming over HTTP

- **MPEG DASH** pointed out as good candidate
- Licensing conditions still need to be clarified
- An API that exposes metrics to a Web application to control QoS?
- An API to feed streams to a `<video>` tag on the fly to control the adaptive algorithm?

Under discussion within the **Media Pipeline Task Force**.
The `<video>` tag features a good JavaScript API, well-thought accessibility features, default controls, synchronization primitives…

… but enables direct access to the video!

Many competitive DRM systems, no clear standard

General agreement that browser vendors do not need to support DRM systems

An API to hook into functionalities of the platform (OS, hardware)?

Thorough analysis of needs and possibilities still required

Under discussion within the Media Pipeline Task Force.
Web Application Packaging

- Application Stores will flourish on TV
- Need to agree on common packaging format
- Different solutions co-exist (proprietary, HTML5 Application Cache, Widgets)

W3C Workshop on the future of Offline Web Applications
5 November 2011, Redwood City, CA, USA
http://www.w3.org/2011/web-app-ws/
Profiling / Testing

- Stable specifications required for certification purpose
- Interoperability crucial to ship products
- No stable test suite for HTML5 specifications as of today
- Profiling usually not a good long-term solution

**Generic testing activity** about to be created in W3C.
Possible new **Profiling Task Force**.
Synchronized Metadata / Captioning

Different use cases fall under this topic:

- Subtitles, closed captioning support (legal requirement)
- Audio descriptions and translations
- Synchronization of ads with videos
- Other metadata mix

Next steps:

- Under discussion within the Media Pipeline Task Force
- Captioning Community Group?
- Standardization work on WebVTT

Generic testing activity about to be created in W3C
Social TV

- Different use cases: content selection and sharing, communication while peer while watching a program
- Integration with social networks?
- Standardization needs?

Under discussion within the Web and TV Interest Group. Discussions may lead to the creation of a Social TV Task Force.
Convergence between Web and TV requires involvement of *many* actors.

W3C workshops and Web and TV Interest Group to foster discussions.

First outcome: standardization work started on a **device/service discovery API**.

Feedback to HTML Working Group provided through last call comments.

Next priorities around **control of the media pipeline**: adaptive streaming, content protection, metadata tracks support.
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