

HbbTV Update

W3C TPAC 2017

Media & Entertainment Interest Group
meeting

Date of Presentation: 6th November 2017

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BBC | Research & Development



Agenda

- HbbTV use cases and features
- Deployments
- New features in HbbTV 2.0 and 2.0.1
- Companion screens and synchronisation
- Use of W3C specifications

Important: Not representing HbbTV

HbbTV use cases

- Broadcaster delivered EPGs
- Application portals
- VOD applications (Pay VOD, free catch-up)
- Advanced “Teletext” and rich information services
- Enhanced information (quizzes, sports stats)
- T-commerce / shopping – linked to video content
- Linked companion screen applications



Basic features

- Web browser to run HTML Web applications
- Remote control key handling
- Media playback capabilities covering broadcast and IP
- Broadcast signalling to launch applications
- TV-specific APIs to access channel / EPG info, broadcast video, TV settings etc.
- Access to DSM-CC broadcast carousel

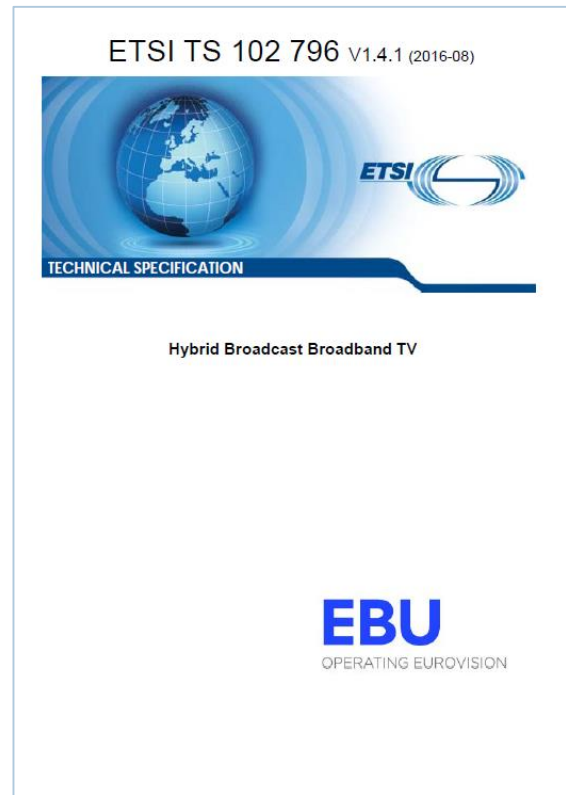
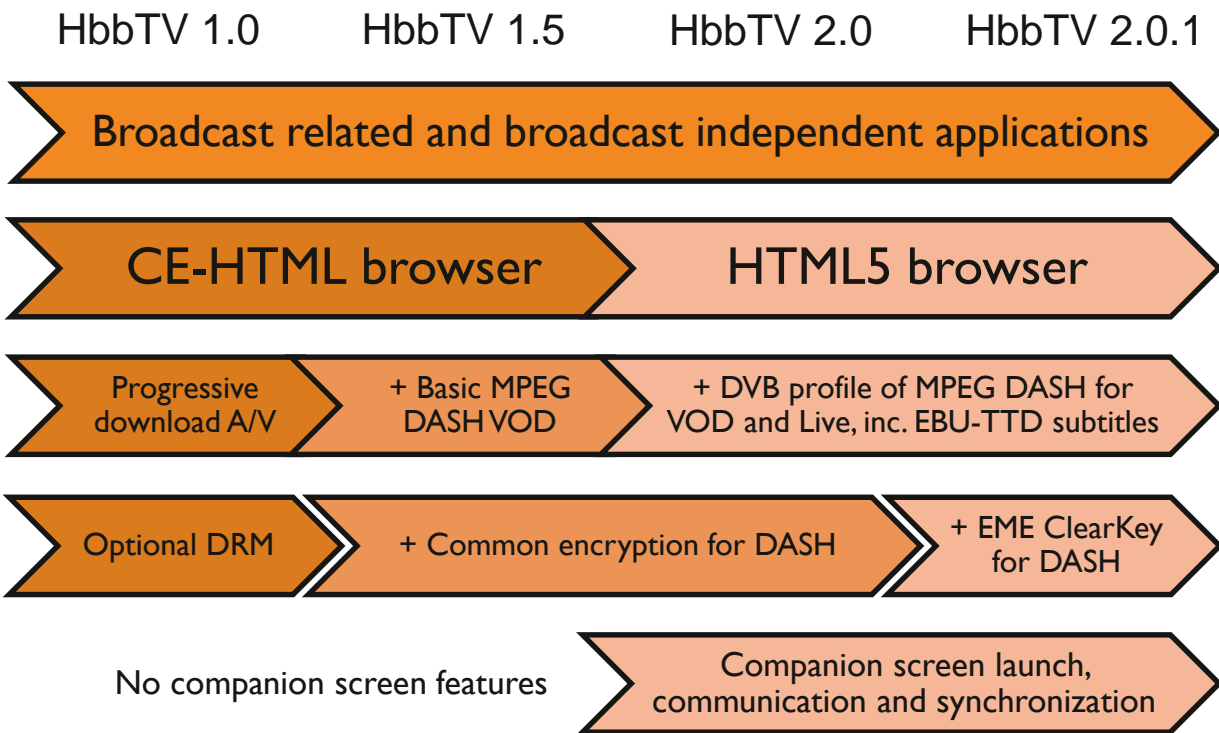
HbbTV deployments worldwide

- 43 million devices
- 300 applications
- In regular operation in 32 countries:

Austria, Australia, Bosnia and Herzegovina, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Italy, Luxembourg, Madagascar, Malaysia, Mauritius, Namibia, Netherlands, New Zealand, Norway, Poland, Saudi Arabia, Senegal, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, United Kingdom

(from www.hbbtv.org)

Evolution of features



What was added in HbbTV 2.0?

- HTML5 and associated technologies
- Enhanced A/V codec support and MPEG DASH profile
 - HEVC video, including UHD support (conditional on broadcast support)
 - Advert insertion into VoD content (near-seamless playlisting of VoD content)
 - Subtitles for broadband delivered content (EBU-TT-D)
- Non-real-time content delivery via broadcast and caching of object carousels
- DRM in a CAM
- Updated TLS profile for HTTPS
- Companion screen support
- Application and content synchronisation and multi-stream synchronisation

What was added in HbbTV 2.0.1?

- Features to fill gaps compared to usage of MHEG-5 in UK and MHP in Italy
 - High resolution graphics
 - WebAudio support for application sound effects, accessibility etc.
 - ‘Quiet’ channel changing
 - Encrypted Media Extensions with ClearKey decryption
- Security improvements
- Privacy improvements

Companion Screen & Media Synchronisation Features in HbbTV 2.0

Companion screen features

- Companion discovers TV
- Companion launches HbbTV app

- TV discovers companion
- TV launches companion app

- “App to App” communication

Media Synchronisation features

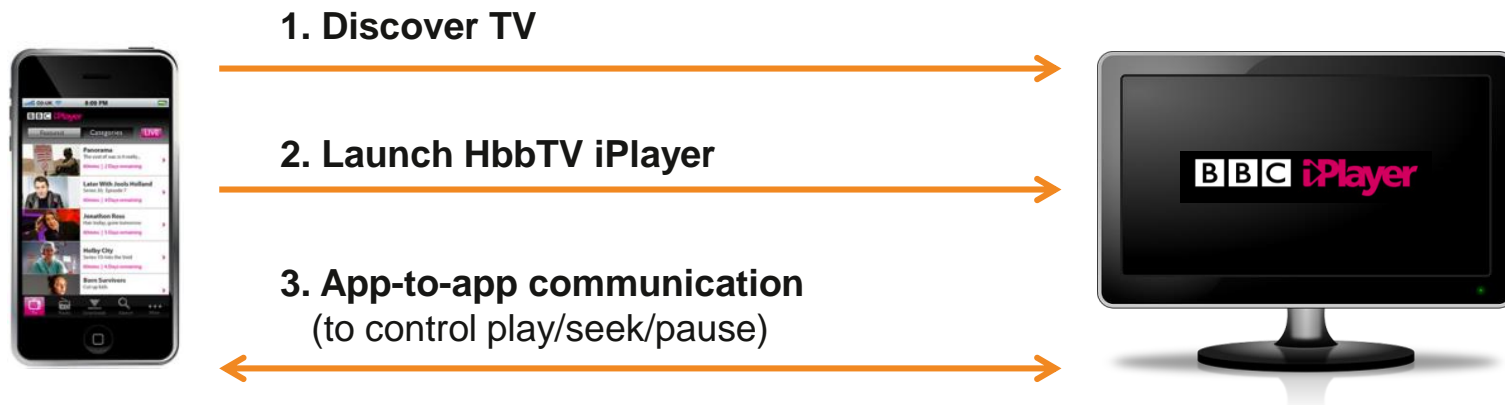
- Application sync – HbbTV apps synchronise to content (broadcast & IP)
- Inter-device sync – Companion apps synchronise to TV content (broadcast & IP)
- Multi-stream sync – Replace broadcast audio or subtitles with IP content

Companion screens

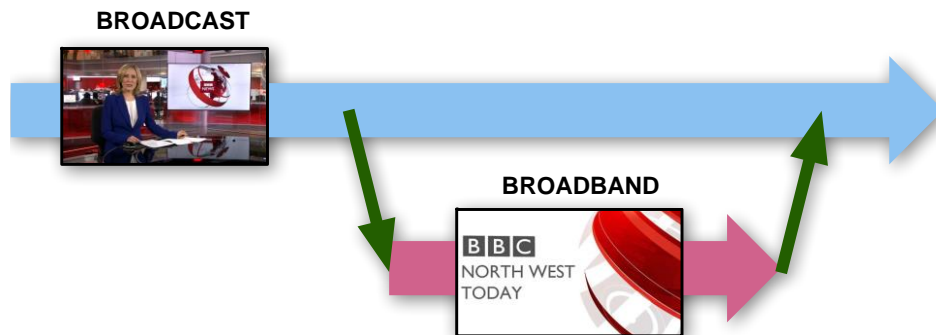
Casting

User browses programmes on iPlayer mobile app and chooses to “cast” it to watch it on the TV.

The user controls play/pause/seek from the iPlayer mobile app.



Stream synchronisation

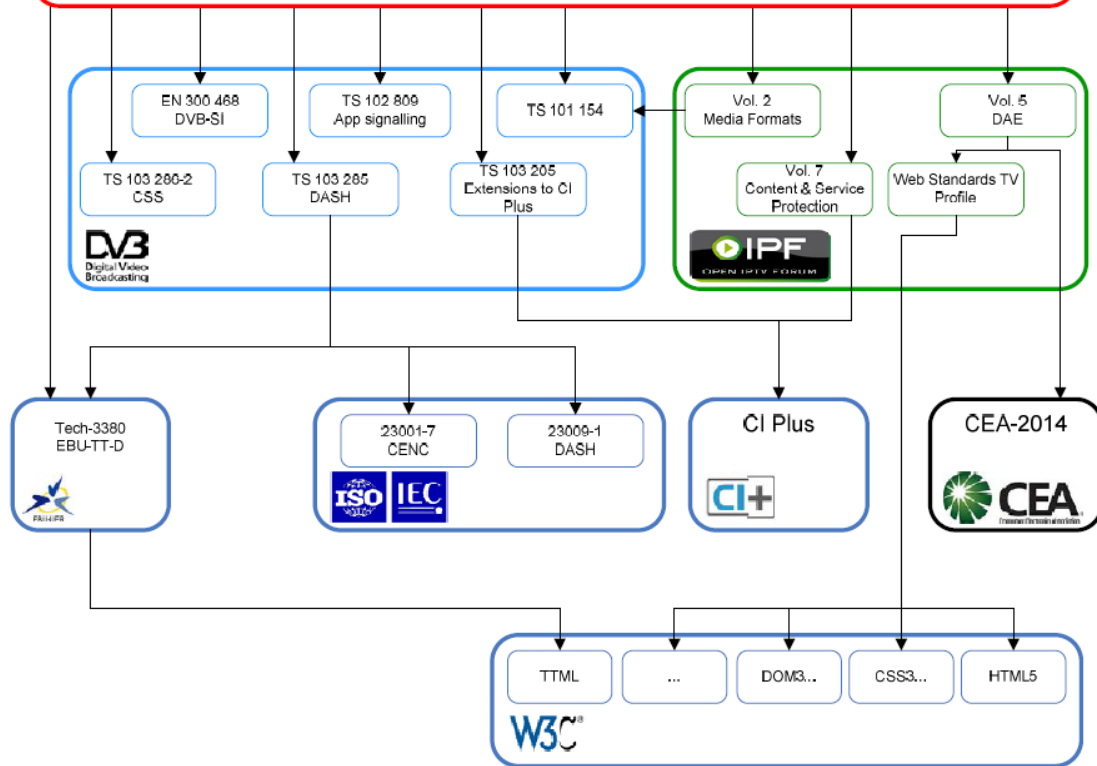


IP insertion into broadcast

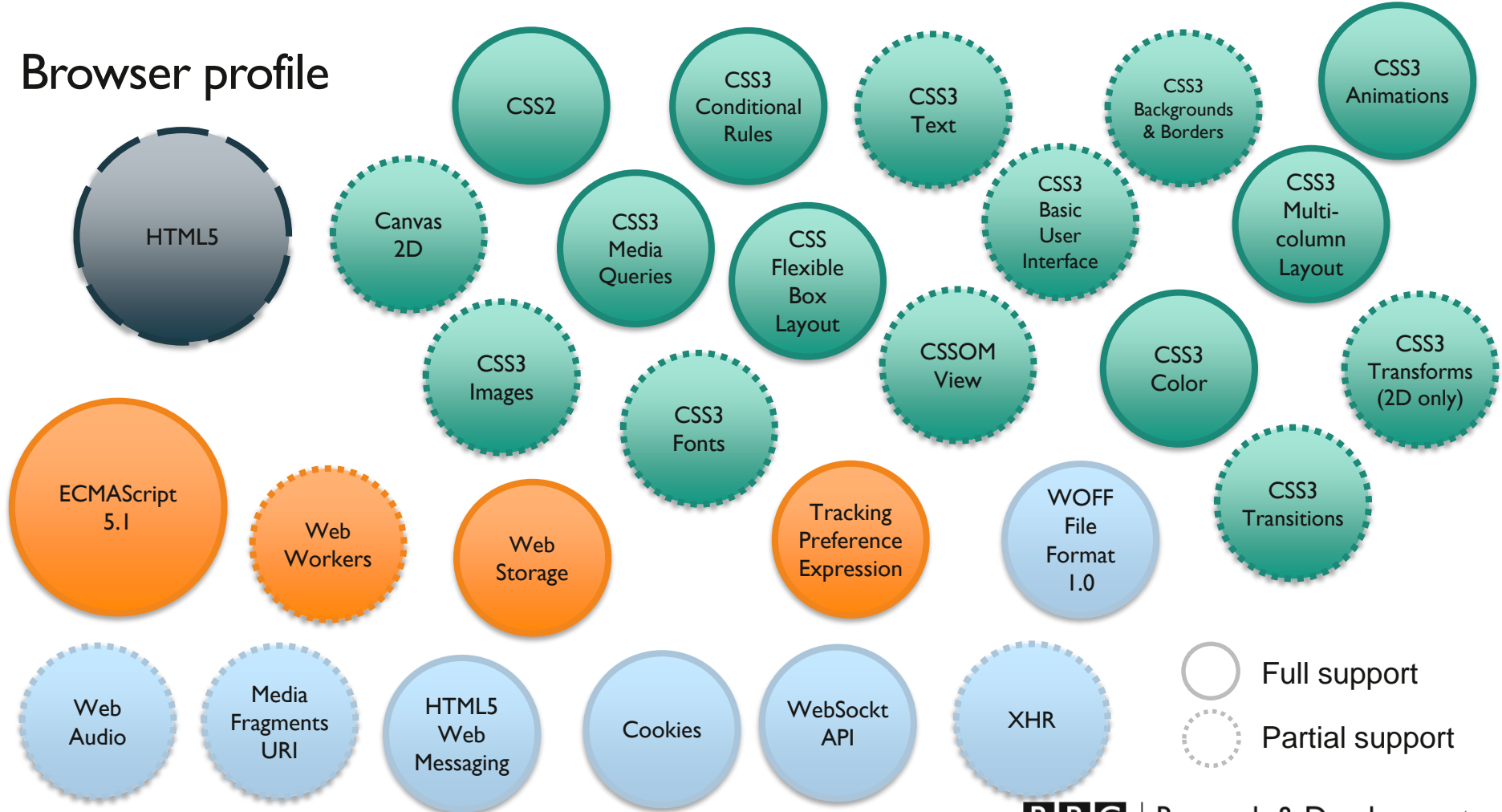
HbbTV app monitors a timeline embedded in the broadcast and switches to IP content at pre-defined points.

*Localised content (e.g. local news on broadcast HD)
Personalised content (e.g. personalisation of trailers)*

HbbTV Specification (TS 102 796 v1.4.1)



Browser profile



What's missing?

- ECMAScript 6
- Media Source Extensions
- DOM 3 key events
- WebGL
- 3D transforms
- SVG images
- Content security policy

Thank you

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