

HbbTV Update

W3C TPAC 2018

Media & Entertainment Interest Group



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BBC | Research & Development



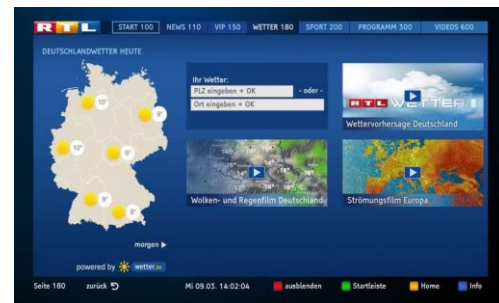
Agenda

- HbbTV use cases and basic features
- Deployments
- New features in HbbTV 2.0.2
- Dynamic content substitution
- Operator applications

Note: This presentation is a BBC perspective, I'm not representing HbbTV

HbbTV use cases

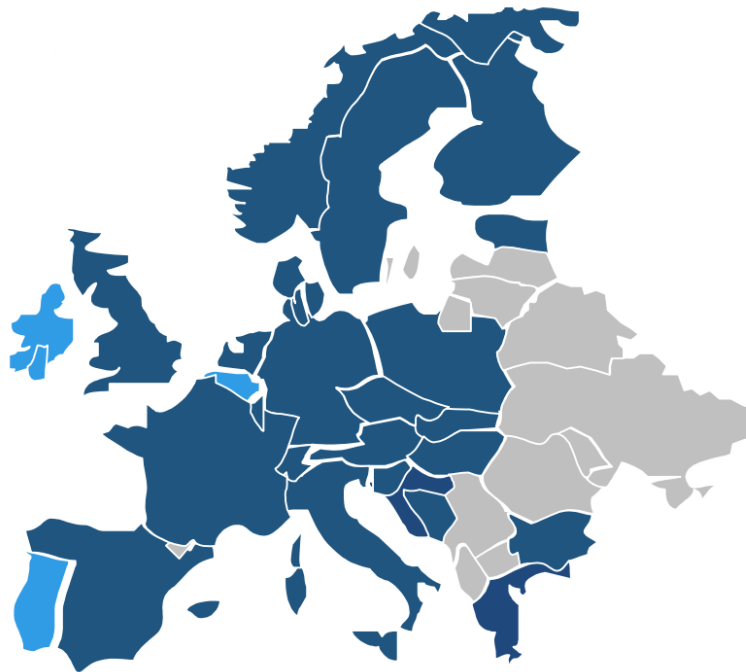
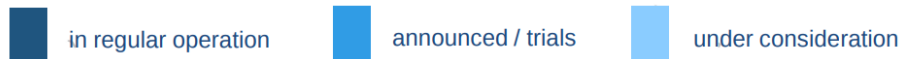
- Broadcaster delivered EPGs
- Application portals
- VOD applications (Pay VOD, free catch-up)
- Advanced “Teletext” and rich information services
- Enhanced information (quizzes, sports stats)
- T-commerce / shopping – linked to video content
- Linked companion screen applications



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



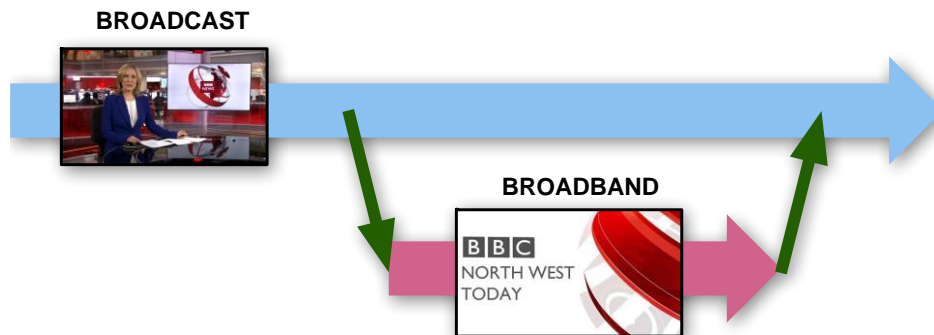
What was added in HbbTV 2.0.2?

- High Dynamic Range (HDR) video – both PQ10 and HLG
- High Frame Rate (HFR) video – e.g., 100Hz or 120Hz
- Next Generation Audio (NGA) – both AC-4 and MPEG-H audio
- HbbTV doesn't require any of these:
Up to national, broadcaster or operator specs to require them
- Also, fixes for bugs in HbbTV 2.0.1 found in development of apps, TVs, STBs and test cases

Relationship to upcoming Web standards

- HbbTV 2.0.2 added a means to access information about display characteristics, e.g., support for HDR:
 - Review for overlap with W3C Media Capabilities API
- A future HbbTV revision is likely to add Media Source Extensions
- (BBC perspective) The Web Media API spec is of interest, identifying what's stable and should be required for TV devices. Could be referenced from a future HbbTV?

Dynamic Content Substitution



IP insertion into broadcast

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

- BBC showed dynamic content substitution at IBC 2018 – [Blog post](#)
- Use cases include personalisation of programme content and targeted advertising
- May result in Media Source Extensions being referenced from HbbTV for the first time

Operator Applications

- An Operator Application (OpApp) is an HbbTV Application that provides access to live channels and on-demand functionality from an Operator and can substitute the STB
- OpApp Specification has been published as an extension to the HbbTV Core Specification – ETSI TS 103 606 V1.1.1 (2018-05)

Operator applications – Use cases

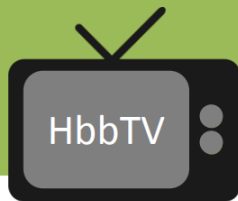
STANDARD

- No spec work required
- Example: **RED** starts Broadcaster App, **GREEN** Operator environment



PRIVILEGED

- Runs directly on a TV, replaces TV-UI partially with a branded Operator experience
- Like another „Source“
- Assumes bilateral agreement Operator / TV manufacturer



OPERATOR-SPECIFIC

- Intended for white-label STBs
- Replaces all of the STB-UI by an Operator UI
- Assumes bilateral agreement Operator / TV manufacturer



Operator applications – Status

The diagram illustrates the status of HbbTV operator applications across three categories:

- STANDARD (in operation):** This category, shown on a light brown background, includes logos for freeview+plus™, tivùon!, freesat, DELTA verbindt, and fransat. At the bottom, there is a television icon labeled 'HbbTV' and a small black button labeled 'HbbTV'.
- PRIVILEGED (PoC):** This category, shown on a green background, includes logos for T-Mobile, kpn, and tivùon!. At the bottom, there is a television icon labeled 'HbbTV' and a small black button labeled 'HbbTV'.
- OPERATOR-SPECIFIC:** This category, shown on an orange background, includes the tivùon! logo with an asterisk. At the bottom, there is a small black button labeled 'HbbTV'. A note at the bottom left of this panel reads: '* Plan: in operation end 2018'.

Operator Applications – Web standards

- OpApps in the background need a way to send time-critical messages to the user, e.g:
 - Reminders set in an EPG for events which are imminent
 - Previously booked live pay-per-view events that are about to start
 - A subscription about to expire that would impact content currently being presented to the user
 - An imminent recording that will fail without user intervention
- Uses Web Notifications – <https://www.w3.org/TR/notifications/>

For more information

- HbbTV Operator Applications – [Presentation](#)
- HbbTV 2.0.2 – [Specification](#)
- HbbTV 2.0.2 Explained – [Presentation](#)
- Operator Apps – [Specification](#)
- Operator Apps Explained – [Presentation](#)
- Website - <https://www.hbbtv.org>

Thank you

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