

Accessibility for connected TVs & Standards

Results of the HBB4ALL Project

TC 100 AGS Meeting, Vienna, 24/05/2015

Andreas Tai, IRT



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About me

- IRT: Coordination of subtitle topic
- Co-Chair EBU Subtitles in XML
- Standard Participation: EBU, W3C, DVB, HbbTV



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The HBB4ALL Consortium



2 Academic Institutions	  
4 Public Broadcasters	   
2 Research Institutes	  
4 SMEs	   
  <p>www.hbb4all.eu</p>	



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Current Status

- Conclude pilot operations
- Analyse results
- Publish reports (Nov 2016)



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HBB4ALL Accessibility Services

- **Subtitles**
- **Alternative Audio tracks**
- **Sign Language**

Subtitles

- Customizable HbbTV Subtitles (VoD)
- EBU-TT-D for VoD and Live content
- Automatic Multilingual Live Subtitles

Customizable HbbTV Subtitles in VoD portals



- On-air in:
 - Germany
 - Spain
 - Switzerland
- Customization options:
 - font, position ...



Automatic subtitles, EBU-TT-D

Automatic Subtitles



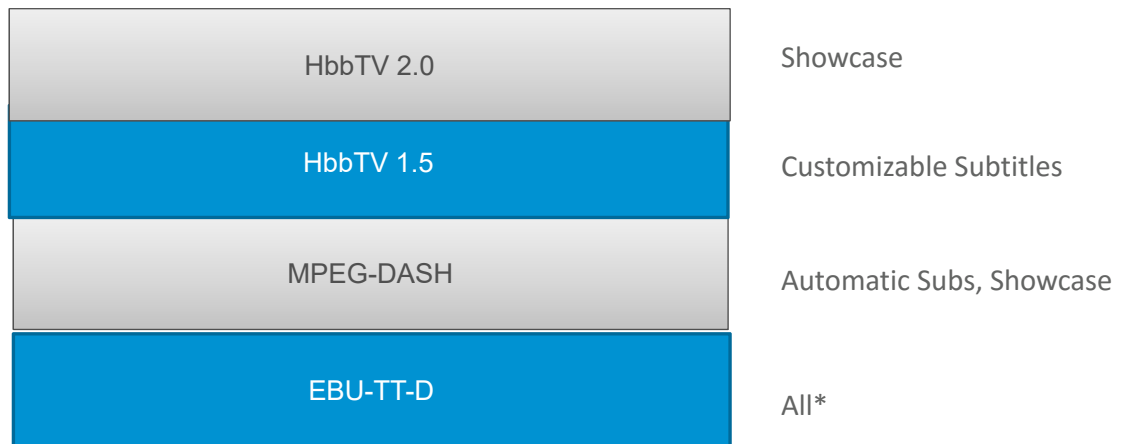
Multi-platform Subtitles



EBU-TT-D Showcase



Technology Stack (Subtitles)



Blue = In Operation

* SwissTXT: TTML similar to EBU-TT-D

Required Standard Implementations (Subtitles)

- Native TTML Support
 - EBU-TT-D or compliant TTML profile
 - Harmonisation of subtitle formats
- MPEG DASH Support
 - With EBU-TT-D (or compliant TTML profile)
 - Live Stream with Subtitles

Alternative Audio Tracks

- Clean Audio tracks
- Audio description for catch-up TV (HbbTV)
- Additional languages (OST)

HBB4ALL Audio Services

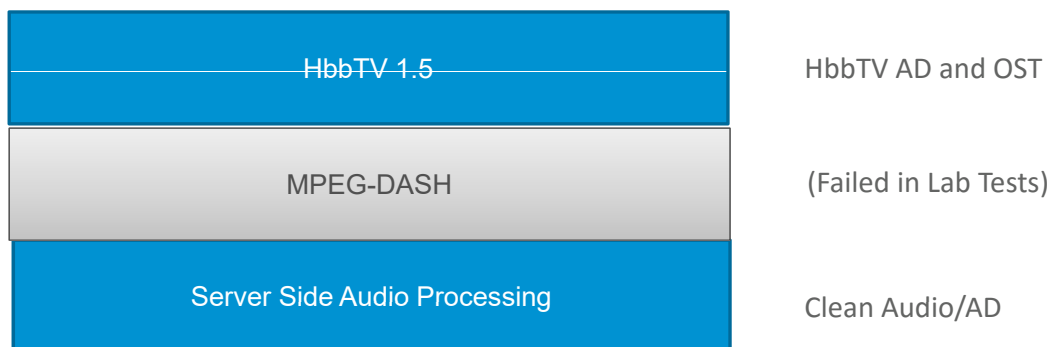
- Automatic creation of Clean Audio
 - Enhanced dialogue intelligibility
 - Lab implementation finalized
 - Server Side
- Audio Description HbbTV services
 - In operation
 - HTTP Progressive Download
 - Second video asset with AD



Experience: Standards meet reality

- Intent: Use of MPEG DASH because ...
 - One asset with multiple audio adaptation sets
 - Seamless switching between audio tracks
 - Mandatory as of HbbTV 1.5
- Reality: MPEG DASH testing results (CCMA & IRT)
 - For multiple audio case several HbbTV1.5 TV sets..
 - do NOT support playback (live case)
 - do NOT support audio switching (live + vod case)

Technology Stack (Multiple Audio)



Required Standard Implementations (Audio)

- MPEG DASH (HbbTV 1.5)
 - User experience: Seamless Switching
 - Support production side provision
- Multistream synchronisation (HbbTV 2.0)
 - Synchronise „Internet Audiostream“ with Broadcast
- Object based Audio (Upcoming)
 - Flexible options for Audio Access Services

Signing

- Customised sign language services
- Sign language avatar

Customizable signing application HbbTV



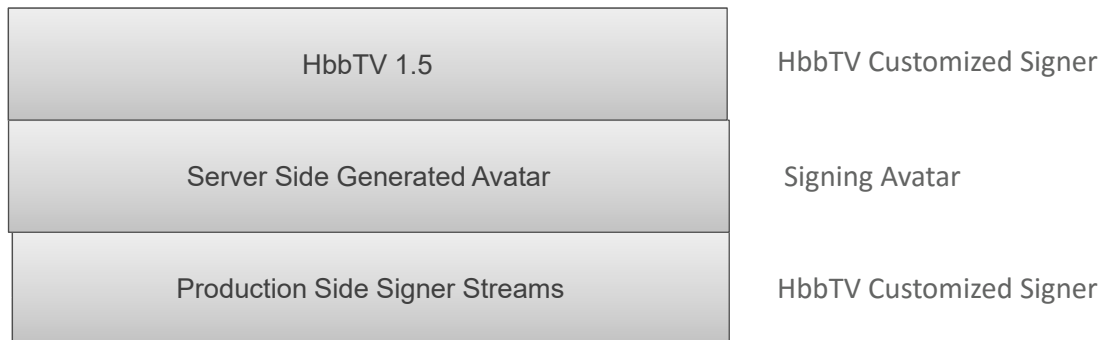
- Choice of position and size
- "all in one" due to receiver features
- „On-air“ Trial with 30 Users

Avatar signing application



- Lab implementation with weather forecast
- Server side text-to-sign language translation

Technology Stack (Signing)



Required Standard Implementations (Signing)

- Two (synchronised) video decoders
 - Closed sign language service
 - More signing services for prime time content
 - Prerequisite for Customizable Signing
 - Limit costs & resources at production side
 - Meet requests from associations

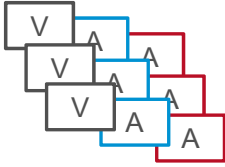
Required Standard Implementations (Signing)

- Also optional features in standards ...
 - Should be implemented
 - Second Video Stream is optional in HbbTV 2.0
 - Should be activated
 - Second Video decoder available but not activated for HbbTV?

Essential Features

- To be implemented
- To be referenced
- To be made mandatory

MPEG DASH



Audiotracks
 Signing
 Subtitles

Multi Stream Sync



Audiotracks
 Signing
 Subtitles

2 Video Decoder



Signing

TTML



Subtitles



Thanks for your attention!

Experts in audio-visual media

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