

TPVISION

Extending HbbTV to Support IPTV

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Introduction

- Disclaimer
 - This is a presentation on behalf of TP Vision
 - Although the presenter has a number of roles in HbbTV, this is ****not**** a presentation on behalf of HbbTV
- HbbTV paradigm
 - Focus on immediate term market needs
 - Don't attempt to solve everyone's problems in the first go
 - Define a single, buildable, testable set of technologies
 - Build on existing work, avoid inventing new things
 - Aim to avoid fragmentation

What Do We Mean By “Support IPTV”?

- Different people have very different expectations of what would be included in “supporting IPTV”
 - The simplest is just delivery of ‘broadcast’ TV via IP like DVB C/C2/S/S2/T/T2
 - To others, “Support IPTV” is everything you’d find in an IPTV set-top box
 - Of course there will be many variations between these two extremes
- There may be more than one right answer ...



Delivery of Broadcast TV via IPTV Network

- As well as multicast IP and content protection, deployed IPTV systems have support for
 - Faster channel change (FCC)
 - Recovery from network errors via Forward Error Correction (FEC) or Re-transmission (RET)
 - Standards based solutions for these seem not yet to have met with market acceptance
- For these 3, possible solutions include;
 - DVB CI+ “CICAM player mode” with it in the CAM
 - Standards based solution integrated in the TV
 - Proprietary solution integrated in the TV
 - Omit the feature



How can IPTV Operators Deploy Apps to HbbTV Receivers?

- At setup, the TV must discover the operator app
 - OIPF includes some options, DVB CI+ others
 - Lots of choices here, picking one or two would be needed
- How do broadcaster HbbTV apps and operator apps co-exist?
 - How long before receivers can run broadcaster apps and IPTV operator apps at the same time?
 - How does co-existence work before then?
- How does the user switch to the operator app from something else?
 - Can the operator app prompt the user when they're watching something else?



More on IPTV Operator Apps

- How much of the manufacturer UI do IPTV operator apps duplicate, replace or merge with?
 - The banner shown when the user changes channel?
 - UI for Timeshift and PVR, ..
 -
- OIPF have APIs for a number of these
 - Designed for operator owned STBs and not for TV sets
- Both a user-experience issue & a business issue
 - Not obvious what the “right” answer is
 - Some more experience may be needed to see what works in the real world



Remote Management and Diagnosis

- IPTV operator management of TV sets has been the subject of much heated debate
- OIPF includes 1 ½ solutions
 - Broadband Forum TR-069 and TR-135
 - APIs to enable apps to query packet loss , decoder error
- Agreement needed on minimum requirements



Delivery of On-Demand Content via IPTV

- In IPTV, operators typically use RTP and one (or more) of very many different flavours of RTSP
 - Some operators have multiple flavours in their system and translators to convert between them
- In HbbTV on-demand content is done via HTTP streaming or MPEG-DASH
 - RTSP was an option in the original HbbTV spec based on a flavour formerly used with Apple Quicktime
- No clean solution for this



Some Possibilities

- Broadcast TV delivery
 - Support for MPEG-2 transport stream via IP multicast
 - Fast channel change, error correction and re-transmission via CI+ CICAM player mode (if supported)
 - Content protection via CI+ (if supported)
 - IPTV channels added to TV channel list by app
- Apps
 - Short term solution
 - Same as cable / satellite / terrestrial network operator apps today
 - Medium term solution - improve HbbTV for operators of all types
 - Terminals to run 2 HbbTV apps at the same time
 - 1 from a broadcaster and 1 from an operator



Conclusions

- Between DVB and OIPF, most of what's needed to extend HbbTV to support IPTV already exists
- Some of the key challenges will be
 - Limiting the diversity to “a single, buildable, testable set of technologies”
 - Keeping it simple enough that TV manufacturers are comfortable that the cost would be justified by likely benefits
 - Reconciling IPTV operator expectations with what's realistic for retail TV sets made for a European or global market
 - Reconciling time to market with the set of features

