Enabling Successful OTT Deployment in HbbTV

Andy Hickman
CEO, Eurofins Digital Testing
• What are the key differences of an OTT HbbTV app compared to other HbbTV apps?
• How and why does this make an OTT app harder?
  • Choices
  • Problems and challenges
• What advice do the trail-blazers have?
What do I mean by OTT?

I’m using OTT in the sense of:

**Video delivered via IP over the unmanaged internet**

- This could be any HbbTV app that offers video over IP:
  - catch-up or restart
  - transactional, subscription or free VOD
  - live services

- Could be:
  - deployed by a broadcaster, an operator or some other service provider
  - signalled via broadcast, in a TV portal or initiated on another device via whatever means
  - adaptive (DASH) or non-adaptive, live or on-demand, with or without DRM
How does an OTT app differ from other types of HbbTV apps?

- Handling/displaying IP video (obviously!)
- Might need DRM
- Might need ad-insertion
- Might want live content
- Might need subtitles
<table>
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<th>Choices and questions</th>
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<tbody>
<tr>
<td>• Handling/displaying IP video</td>
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<tr>
<td>• What video format to use – MP4 or DASH?</td>
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<td>• Which DASH flavour? (What vintage TVs you want to support)</td>
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<td>• Which video server/vendor to use?</td>
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<td>• Might need DRM</td>
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<tr>
<td>• Choice of DRM: PlayReady vs Marlin vs Irdeto vs Nagra PRM vs ...</td>
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<td>• What are your other OTT services using?</td>
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<tr>
<td>• Might need ad-insertion</td>
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<td>• Client-side vs server-side ad-insertion?</td>
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<td>• Personalised or the same for all users?</td>
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<td>• Prevent skipping?</td>
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<tr>
<td>• Might want live content</td>
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<tr>
<td>• Use Live profile?</td>
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<tr>
<td>• Is changing quickly between live streams important?</td>
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<tr>
<td>• Might need subtitles</td>
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<tr>
<td>• Are there regulatory requirements?</td>
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<td>• Can your application and receiver render subtitles out of band?</td>
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Receiver interoperability is a challenge
- Subtle differences with format support between devices
- ‘Examples of problems we’ve encountered are issues with switching between the broadcast signal and the HbbTV app’

Basic DASH playback works well
- ‘We didn’t really see any problems with basic, on demand, no-DRM DASH playback – it seemed to work straight away on most new TVs’
- ‘Getting DASH in the clear going was pretty straightforward. Most of the issues were on the broadcast side, usually due to DASH being “out of spec”; but were OK once put back in-spec’

The app is a small part of the work. Most the work is in the back end and all the media management

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Problems / challenges: DRM

- DRM ‘caused manufacturers a lot of headaches’
  - Timing issues getting licenses leading to delay in playback
  - ‘Caused problems with one or two manufacturers’
    - ‘A couple of interpretation issues early on with the DRM integration – all fixed now’
    - ‘New manufacturers coming to market now get going with DRM without too many issues’
- One vendor has used a DRM solution and CA solution from the same provider – allowing secure and easy entitlement for both broadcast and OTT content

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Problems / challenges: ad-insertion

- HbbTV 1.5
  - ‘Feels clunky from a user’s point of view. Pauses between ads. Some receivers have issues coming out of an ad break’
  - MP4 for the ads, DASH for the main content
  - ‘It’s all client side problems. Looked at server-side, but wasn’t viable when platform was launched. Use server-side ad-insertion or use HbbTV 2.0’

- HbbTV 2.0
  - ‘Ad insertion was the biggest problem’
  - Real apps use the multi-video object in more complex ways than the test cases which tend to be simple/idealised
  - Can get strange artefacts between adverts
  - ‘No one is using DASH for the advert content itself’
  - One respondent, not yet using ad-content, successfully trialled an HbbTV OTT player with VAST function

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Most HbbTV OTT apps are still on-demand

It’s generally agreed that using Live DASH is more problematic and has greater interoperability challenges

It’s hard to get low zapping time between OTT live TV streams

‘Live TV via IP is a true challenge related to zapping and an uncontrolled zoo of HbbTV receivers’

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Problems / challenges: subtitles

- No feedback from respondents – too early!
- Can only do in HbbTV 1.5 via out-of-band subtitles being rendered via the application
  - Hard to get timing accurate
  - Can overload the JavaScript engine on lower end devices
- HbbTV 2.0 adds EBU TTML subtitles (in band and out-of-band) with appropriate timing information for accurate display synchronisation
  - Should make OTT subtitles much easier moving forward

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Lessons Learnt (1)

• You have to test the app itself on many receivers:
  • ‘You must test the OTT app on each new receiver launched. We ended up doing a lot more app testing than we originally expected. We realised we’d need to automate’
  • ‘Bugs are often unique to a specific model, so when you are deploying a HbbTV app, the practical reality is that you always need to test on all the devices it will run on’

• Deploy the receivers and apps at the same time:
  • ‘If you deploy the receivers without any “real apps” deployed, and try to put the apps on them later, you’ll have a nightmare’

• Use vendors who have done it before:
  • ‘Have it built by a specialist who has experience in developing and deploying multi-platform/brand HbbTV’
Lessons Learnt (2)

• Live DASH is hard:
  • ‘Live TV via IP is a true challenge related to zapping times’
  • ‘We don’t do Live DASH yet, but we plan to eventually’

• The interoperability challenges are mainly on the client side:
  • ‘The bad news is mediocre implementations in the devices forcing us to test many devices. Therefore we have a certification for boxes with our label including special HbbTV test cases’
  • ‘Try to use common application software across all your different broadcasters – e.g. a common video player core across all the apps. 80% of the issues are around video playback, so a common player makes life a lot easier. If you can get the commercial aspects to work there is a major advantage to this approach’

• But don’t under-estimate the back office aspects of media management
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Thank You!

Eurofins Digital Testing UK
Castlemead,
Lower Castle Street,
Bristol BS1 3AG,
United Kingdom.
+44 1179 896 100

Eurofins Digital Testing HK
Unit 609, 6F, Lakeside One,
8 Science Park West Avenue,
Phase 2, Hong Kong Science Park,
Shatin. Hong Kong.
+852 3426 9695

Eurofins Digital Testing Belgium
Wetenschapspark 7
B-3590 Diepenbeek
Belgium
Tel: +32 11 303 600

Questions?

www.eurofins-digitaltesting.com
digitaltesting@eurofins.com
@eurofinsdigitaltesting
/company/eurofins digital testing