The OpApp independent specification
Introducing the speakers

Teun van der Veen & Raj Patel

Team lead TNO Media Networks
- Leading TNO’s OpApp initiative
- Connecting people and knowledge

CEO Yotta Media Labs
- Building OpApps
- Reimagining the global TV landscape
The OpApp specification

AGENDA

Part 1
Teun van der Veen
The Benefit of OpApps

Part 2
Raj Patel
Technical aspects

Part 3
Teun and Raj
Q&A
PART 1 – The Benefit of OpApps

Teun van der Veen
The Benefit of OpApps

• The challenge
• The opportunity
• The basic principles & benefits
• OpApps in HbbTV
• Industry adoption
Samsung to add direct HD+ access to TV sets
The changing landscape of TV

- Viewing behaviour is changing: OTT, more screens, less linear
- Penetration of connected TVs approaching 100% in a few years
- Operators moving into apps

Mike Fries, LGI in NRC 28 Sept 2018

The OTT service will initially be available through iOS and Android apps, through Chromecast and the web browser. Further operating systems will follow, including Smart TV apps.

TDC launched a new app for its YouSee TV service on LG TVs.
Challenges for TV operators

• Trends:
  – More OTT and streaming
  – Video anytime, anywhere
  – Consumers want easy access

• Challenges for horizontal and vertical TV operators:
  – How to deliver a uniform branded experience on any device?
    • Directly to the TV set (regardless of brand and model)
    • On a wide a variety of devices (STB, streaming devices, phones)
  – How to provide easy access to content?

HbbTV Operator Applications is designed to turn these challenges into opportunities
OpApp basic principles

• Allows for uniform user interface across different devices
• Compatible with regular HbbTV apps
• Two variants available:

<table>
<thead>
<tr>
<th>OpApp variant</th>
<th>Targeted devices</th>
<th>Main behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Privileged</td>
<td>Consumer owned devices</td>
<td>Behaves as an operator-controlled environment temporarily taking control over the device</td>
</tr>
<tr>
<td>Operator-specific</td>
<td>Operator owned devices (mostly STB)</td>
<td>Behaves as device UI</td>
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</tbody>
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OpApp as a virtual STB

- A way to give consumers access to live channels and on demand – directly on their Connected TV
- Virtual HDMI behaviour/ App-as-a-source
- Control via TV remote
  - For instance P+/P- keys
- Comes back in OpApp after TV off - on

A branded TV experience– without the STB
OpApps harmonisation of UI
OpApp key features

• Input source (TV use case)
• Access to remote control keys
• Several discovery methods (pre-install, broadcast signalling, discovery over broadband)
• Branded install flow
• Security and privacy by design

➡️ See part 2 for the technical details
Benefits

Consumers:
• Freedom of choice
• Easy sign-on and access to content
• Less boxes and cables, one remote

TV manufacturers:
• New business models with operators
• Joint marketing opportunities
• Reducing complexity dealing with many TV operators

TV operators:
• Uniform branded experience on all devices
• Reduction of capex
• New business models

HbbTV/ Broadcasters
• Strengthening HbbTV ecosystem
• Opening up new markets
• Coexistence with regular HbbTV apps
OpApp allows new business opportunities

- Penetration of multiscreen or OTT to SmartTVs.
- Promo TV service (even accessible by competitor’s subs.)
- Multi-room IPTV (where STB is less practical)
- Direct benefit from TV innovations (4K/8K, HDR)
- Reward for attracting new subs
- And more…
Status in HbbTV

- HbbTV spec published
- 300 Test cases acquired to be added to HbbTV test suite
- Review of tests currently underway and expected to be finished soon
- Potential next steps:
  - Update of the current spec
  - Including further standardisation
Industry starting to adopt

Commercial deployment:

- **tivùon!**
- **HD +**

(Technical) PoCs:

- **tivùsat**
- **kpn**
- **T**

(+ possibly others)

**2017**
- Dec 2017: Specification published

**2018**
- March 2018: 1st PoC results
- Nov 2018: 1st public demo on TV
- Sep 2018: First commercial deployment (STB)

**2019**
- Feb/March 2019: First commercial deployment (TV)
Part 2- OpApp technical aspects

• Content:
  – Controlling UI elements
  – User experience
    • Input source (TV use case)
    • Keys
  – Discovery methods (pre-install, broadcast signalling, discovery over broadband)
  – Security and privacy
  – Recommended bilateral agreement topics
Discovery Methods

• Pre-installed → OpApp package is pre-installed
  
• Broadcast Signalling

  SI: dns:opapp.operator.com

  REC: SRV _hbbtv-ait._tcp.opapp.operator.com
  → service = 1 10 443 opapp.server.com.

  REC: https://opapp.server.com:443/opapp.aitx
  → https://opapp.cdn.com/opapp.pkg

  REC: https://opapp.cdn.com/opapp.pkg
  → Decrypts opapp.pkg
  → Verifies signature
  → Unzip the package

• Discovery of Broadband

  SI: hbbtvopapps.org
OpApp Install

- T&Cs
- Opt Ins/outs
- Signups
- Operator PIN
- CA Activations
Which UI Elements? SI Banner

- OK
- Ch Up/Ch Down
- Direct LCN Entry
- HbbTV Channel Change (w/o silent
Which UI Elements? Guide

- EPG Button
- Native menu
Which UI Elements? Others

- Home Menu
- In Country Pin
- CA Messages
- Editorial Recommendations
Security & Privacy

• OpApp is securely delivered to the terminal
• Secrets & Tokens can be incorporated into package
• OpApp uses DoNotTrack
• OpApp generates Device UUID for Analytics
The Hard Stuff

- EIT_{pf} & EIT_{Scheduled} Metadata Handling
- Non Connected Mode
- Updating process
  - DSMCC updating
- Parental Control Handling
- Video Player

- CA / DRM Handling
- 3^{rd} Party Application Lifecycle Management
- Proprietary API Handling
- Timeshift / Recording
  - Limited HbbTV Test Assertions
Bilateral Agreement Considerations

- Entry points from the existing UI
- What sections of the OpApp are you offering
- Managing existing parental control
- Messages & PVR Controls
Conclusion

- The dawn of the TV apps era
- HbbTV OpApps designed to rise to the challenge
- HbbTV creating the right conditions for growing ecosystem
- Industry starting to adopt HbbTV OpApps

➢ OpApps: the time is now