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

Teun van der Veen

The Benefit of OpApps

- The challenge
- The opportunity
- The basic principles & benefits
- OpApps in HbbTV
- Industry adoption

NEWS

Broadband TV News

Independent. Since 2003

Samsung to add direct HD+ access to TV sets
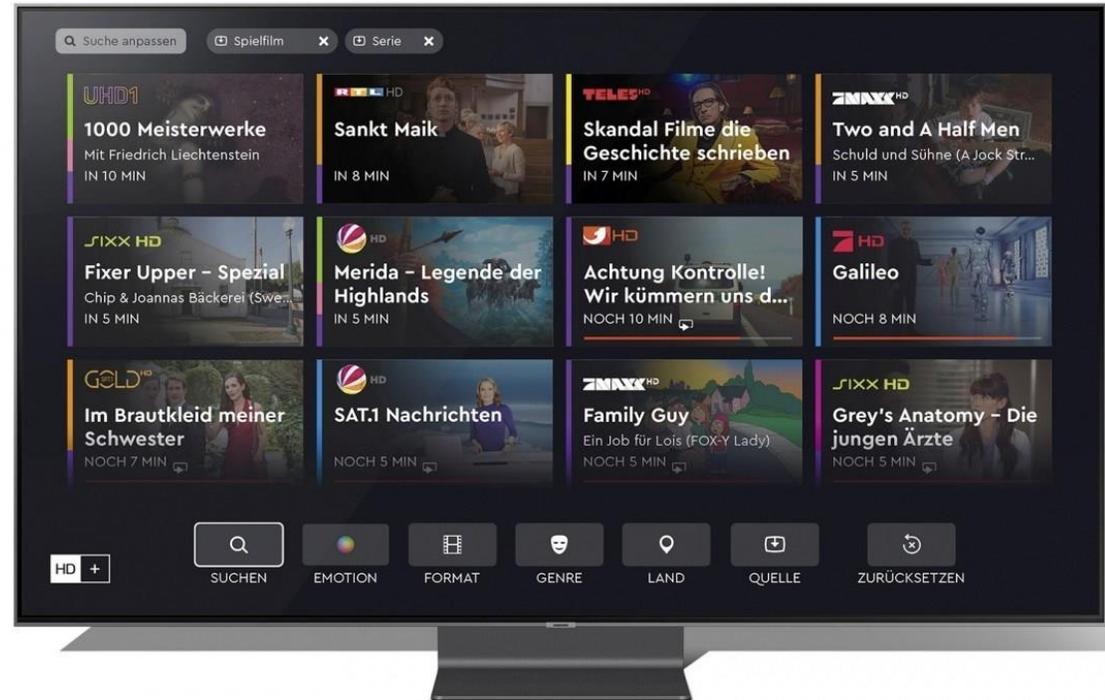
The changing landscape of TV

- Viewing behaviour is changing: OTT, more screens, less linear

- Penetration of connected TVs approaching 100% in a few years

- Operators moving into apps

Liberty Global

"..ultimately a STB will not be required anymore to receive our services."
Mike Fries, LGI in NRC 28 Sept 2018

TDC, Denmark

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

Deutsche Telekom

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 (broadband TV news)

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:

OpApp variant	Targeted devices	Main behaviour
Privileged	Consumer owned devices Retail STB & connected TVs	Behaves as an operator-controlled environment temporarily taking control over the device
Operator-specific	Operator owned devices (mostly STB)	Behaves as device UI

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
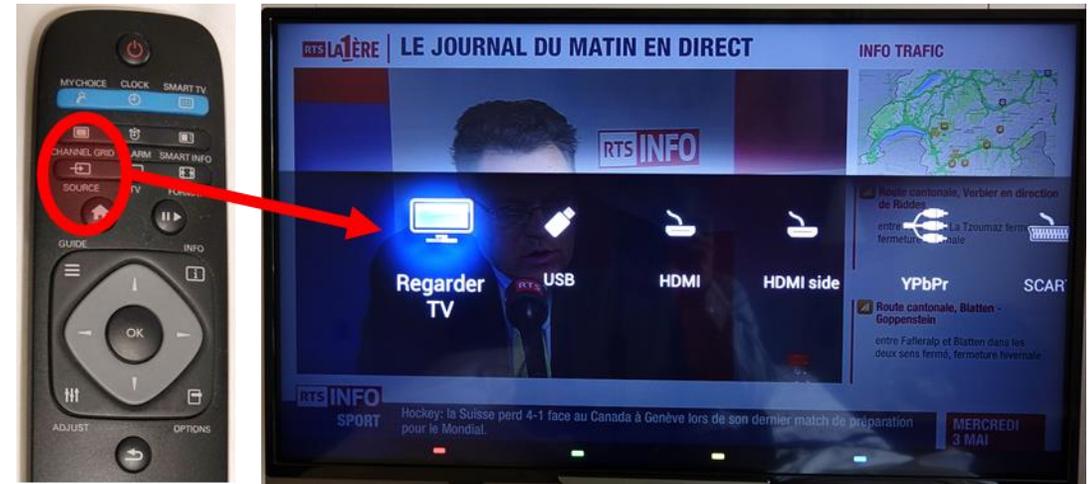
A branded TV experience– without the STB
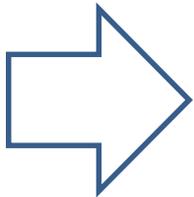
OpApp key features

- 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.

Multi- room IPTV (where STB is less practical)

Reward for attracting new subs

Promo TV service (even accessible by competitor's subs.)

Direct benefit from TV innovations (4K/8K, HDR)

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
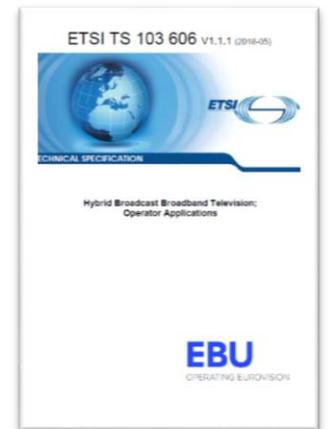
Industry starting to adopt

Commercial deployment:

tivùon!   HD +

(Technical) PoCs:

tivùsat

kpn   ·T··

(+ possibly others)

2017   2018   2019

Dec 2017
Specification
published   today

March 2018
1st PoC
results

Nov 2018
1st public
demo on TV

Feb/March 2019
First commercial
deployment (TV)

Sep 2018
First commercial
deployment (STB)
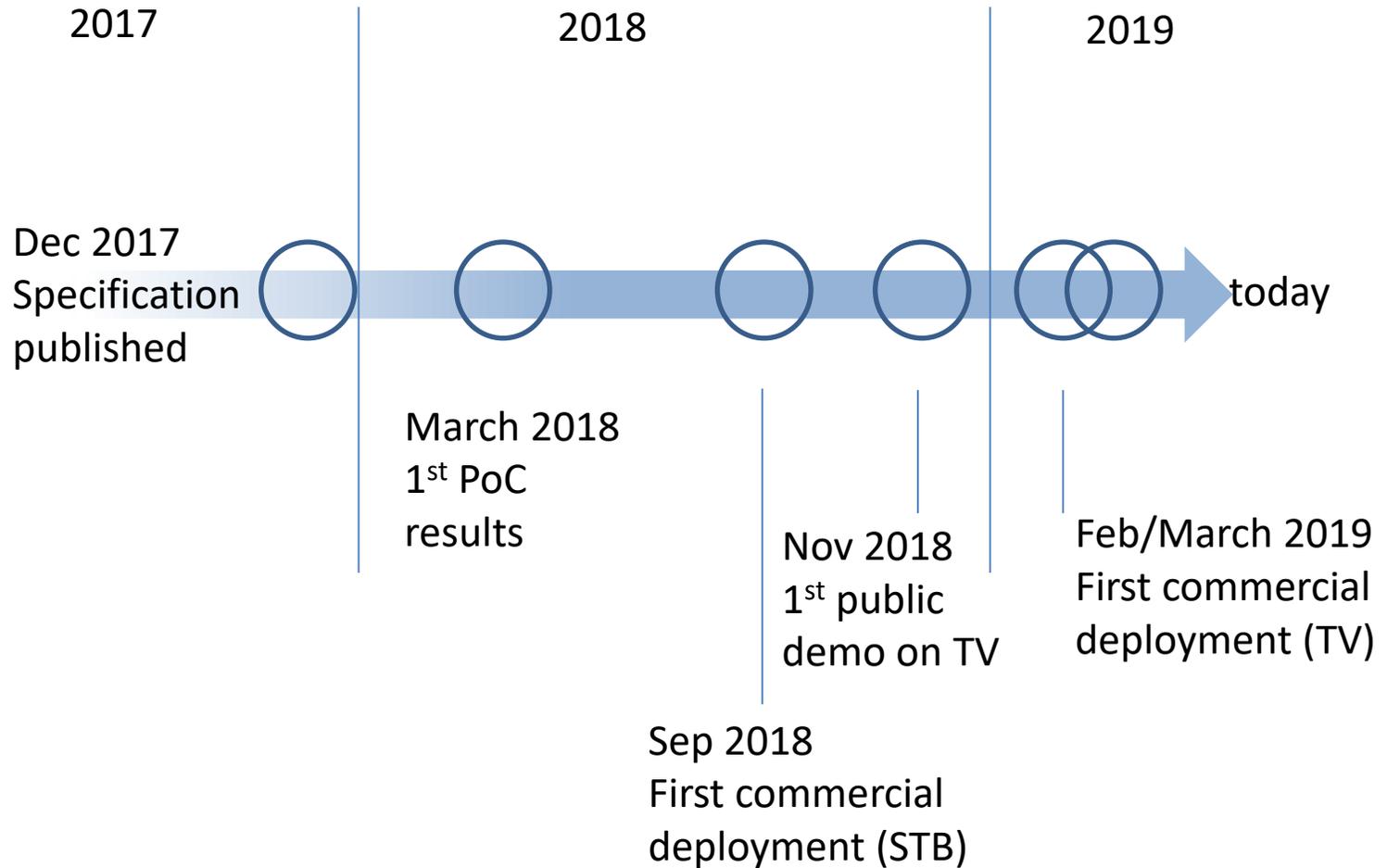
- ## Content:
  - – Controlling UI elements
  - – User experience
    - • Input source (TV use case)
    - • Keys
  - – Discovery methods (pre-install, broadcast signalling, discovery over broadband)
  - – Security and privacy
  - – Recommended bilateral agreement topics

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

- hbbtv-package://appid.orgid/index.html?lloc=fti&sloc=install
- T&Cs
- Opt Ins/outs
- Signups
- Operator PIN
- CA Activations

- OK

- Ch Up/Ch Down

- Direct LCN Entry

- HbbTV Channel Change (w/o silent

Which UI Elements? Guide

- EPG Button

- Native menu
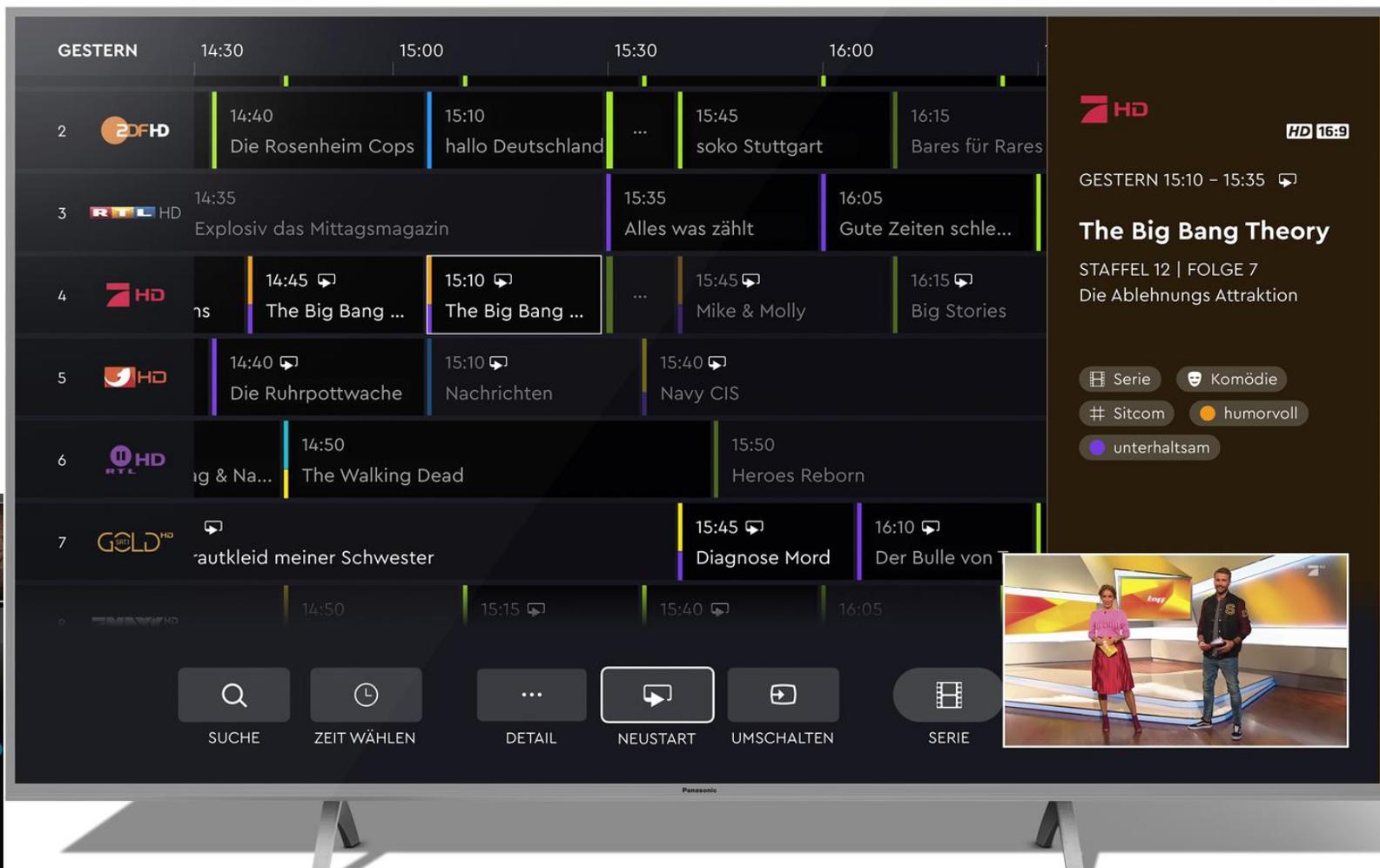
Which UI Elements? Others

- Home Menu

- In Country Pin

- CA Messages

- Editorial Recommendations
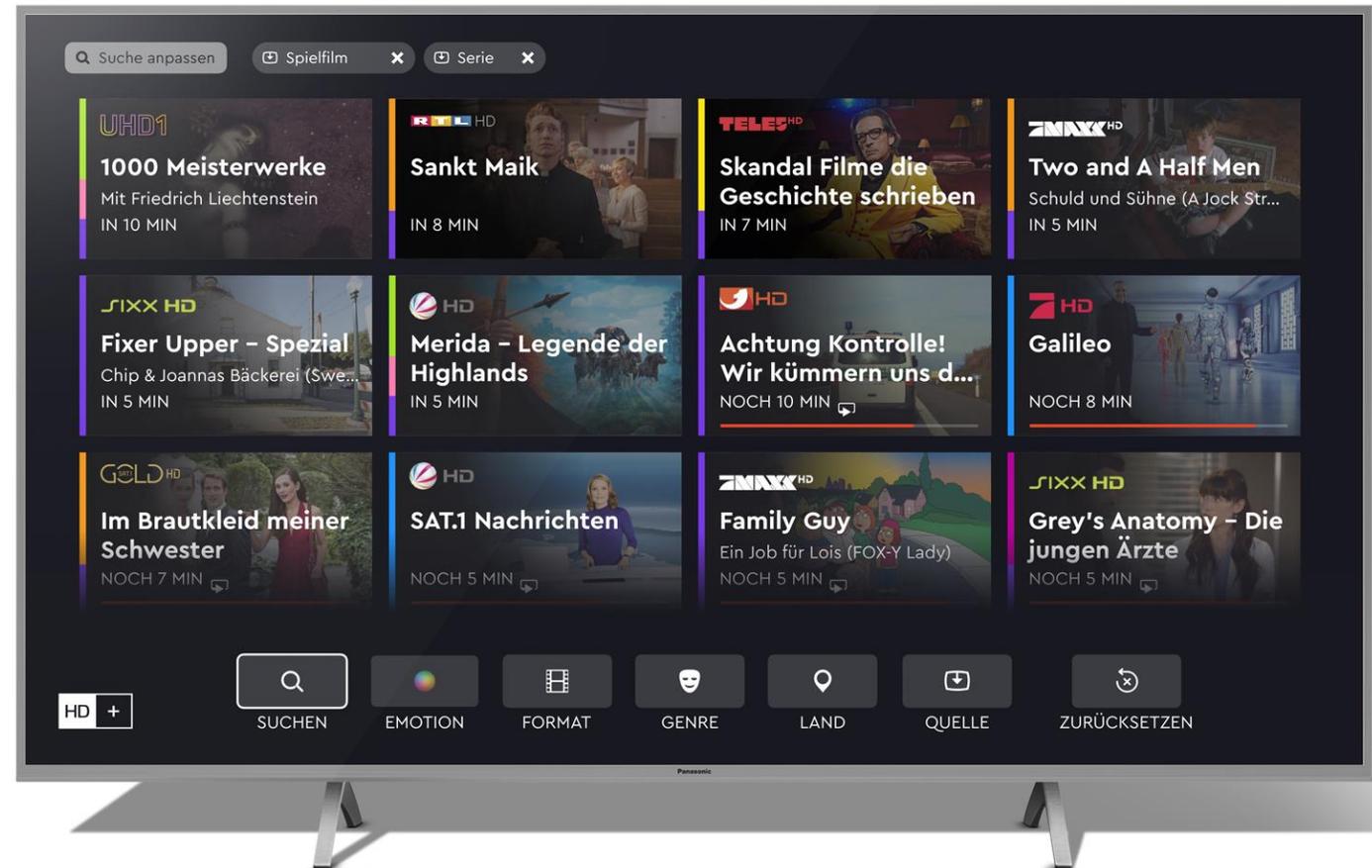
- OpApp is securely delivered to the terminal
- Secrets & Tokens can be incorporated into package
- OpApp uses DoNotTrack
- OpApp generates Device UUID for Analytics

The Hard Stuff

- EIT$_{pf}$ & EIT$_{Scheduled}$ Metadata Handing

- Non Connected Mode

- Updating process
  - DSMCC updating

- Parental Control Handling

- Video Player

- CA / DRM Handling

- 3rd 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