Webinar: HbbTV Operator Applications

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HbbTV Operator Apps Webinar Team

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HbbTV Operator App - Technical aspects

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Outline

- **HbbTV operator Application** (by Juha Joki)
  - What is an "OpApp"
  - Why was a spec developed?
  - Features of an OpApp
  - Technical details of Operator Apps

- **CAM Triggered Operator Apps** (by Heinz Bekker)
  - Demonstration
  - Premise

- **Replacement of Set-top Boxes** (by Mika Kanerva)
  - New age of Media

THE NEW GOLDEN AGE OF TELEVISION

Streaming video services, smart TV, mobile and companion devices and other new technologies were supposed to spell doom for traditional broadcasted TV. But instead, they have created a new, better, more available and more personal enriched TV. The best of TV, linear content and Internet together.
They brought the new Golden Age of television

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HbbTV
Operator Application

A Set-Top Box like experience

...without the box!

![sofiadigital - Powering Smart Screens]
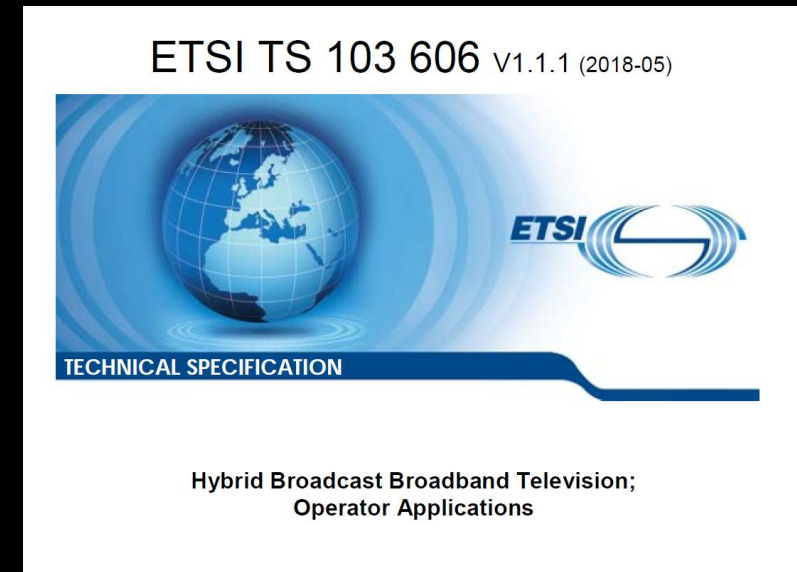
What is an OpApp?

- An application providing STB experience without the hassle of an STB

- Works in Cable, Satellite, Terrestrial and IP environments

- New independent specification made by HbbTV
    - Interoperable
    - Well-tested
    - Co-exists with existing deployments and HbbTV apps

- Based on HbbTV 2.0.1 or later with HTML5, CSS and JavaScript

- Designed to provide user experience elements normally provided by the TV or STB

- Independent from the channel being watched

- Access to channel management and additional Remote Control events

- Always available as an "input" in a TV

Why develop an OpApp spec?

- Ensure compatibility with existing HbbTV ecosystem
  - Apps
  - Specifications
  - Deployments

- Broaden the scope for HbbTV
  - More demand
  - Wider audience
  - New implementers

- Make HbbTV technology applicable for operators as well

- Specification work was driven by satellite and cable operators

- Network agnostic
  - Keeping in mind natural limitations in terrestrial networks about broadcast bandwidth in non-connected environments

ETSI TS 103 606 V1.1.1 (2018-05)

TECHNICAL SPECIFICATION

Hybrid Broadcast Broadband Television;
Operator Applications

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Features supported by the Operator App spec

Same user controls like in a set-top box, including:

- Channel zapping (+/-)

- Volume control (up/down)

- Live TV, both DVB and OTT

- Interactive Program Guide

- Operator defined channel lists

- Mini TV-guide (i.e. overlay)

- Catchup / VOD

- DRM and Adaptive Bitrate Streaming (ABR)

- UHD, HEVC, Next-gen audio, companion screens, etc.

- Control of the broadcaster's HbbTV applications
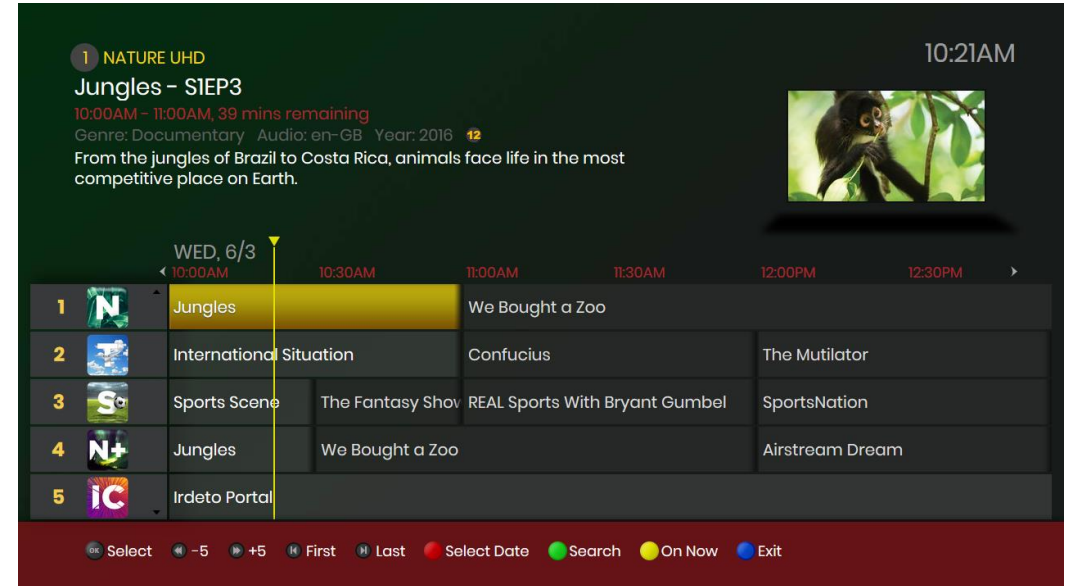
EXISTING OPAPP DEPLOYMENTS:
- Panasonic
- SES-Astra HD+
- Tivu (Italy)
- M7 Group (i.e. HD Austria)

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Types of Operator Application

- Standard
  - "normal" broadcast HbbTV 2.0 apps that may offer alternatives to some UI elements
- **Privileged**
  - **For TV sets and retail STBs**
  - **Replace UI elements of the native interface**
- Operator specific
  - For operator STBs
  - Replace virtually everything in the User Interface
  - Designed to provide HbbTV compatible UI layer for STBs

Starting OpApps

- Decided case by case between manufacturer and operator ("bilateral agreement")

- Can be alongside HDMI/SmartTV/Home Network input choice

- A Key can be assigned for starting the OpApp, like GUIDE

- After standby if OpApp was active when TV was turned off

- One OpApp can launch another from a web server

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Discovery of an OpApp

- OpApp can be launched from
  - Traditional Broadcast AIT
  - Using DNS SRV lookup for XML AIT
    - Standardized domain name
    - Domain name from DVB SI NIT or BAT table
    - Domain name hard-coded in the terminal
  - HTTPS URI lookup for XML AIT
    - Hard-coded in the terminal
    - From CAM
      - CAM also host the complete OpApp in its Auxiliary File System (AFS) for non-connected use
      - "CAM replaces the STB"
  - Operator apps are delivered as signed and encrypted ZIP files

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Installation of an OpApp

1. Decision on which OpApps to install
    1. For privileged OpApps – user choice
    2. For operator-specific OpApps – user chose when they bought the STB

2. Download of encrypted OpApp package – HTTPS or DSMCC

3. Decryption of encrypted OpApp package

4. Authentication of decrypted package

5. Unzip the application ZIP file

Note: Initial secure OpApp can run further OpApps directly from a web server

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OpApp States

- Foreground / overlaid
  - For fullscreen apps
  - Video is scaled smaller than 1/3 x 1/3
  - Ideal for Guide, PVR, VOD

- Transient / overlaid
  - For channel change / info banner types of interaction
  - Will fade out after a timeout

- Background
  - OpApp is not visible, but can receive events

- State is controlled via OpApp APIs

- In Overlaid mode Native UI can draw on top of the OpApp UI

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OpApp has access to:

- User input:
  - Always:
    - Normal HbbTV keys (color buttons, etc.)
    - P+/P-/Info
  - As Agreed with a manufacturer:
    - Guide, Channel List, Menu, Volume, Mute, Subtitle, Audio, etc.
- Channel lists:
  - Broadcast services as installed in the TV and defined by LCN
  - Locally defined channels where information is acquired via web server or carousel
    - These can be DVB or IP/DASH services
  - OpApp can replace the TV channel list when it's running (DVB-I is a great example of this)

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Operators in New Competition

Operators can enter the world of OTT services
without a dedicated STB using the OpApp

Operators

- REACH: Address population who don't want an STB
- EASINESS: Services accessible on smart TVs
- COST: Avoid developing different apps, or a proprietary STB
- MARKETING: Maintain service branding and create new service partnerships

Manufacturers

- COST: Reduce R&D cost by adopting common standards
- REACH: Find new customers, new market segments
- MARKETING: Partnerships for boosting TV sales

Viewers

- EASINESS: To access Operator services without STB, no installation problems
- MORE CONTENT: To have more attractive services like VOD

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HbbTV
Operator Application

Reaching the non-connected user

...anchored to the CAM!

PART 2: HBBTV OPAPPS INCREASED VALUE WITH THE CAM

The value of the CAM with HbbTV OpApp solution

- Discovery and installation managed by CI Plus CAM

- Rich HbbTV experience even in the non-connected case

- Can match the STB look-and-feel perfectly including Dynamic EPG, Banner, CAM Menu

- Tease the customer with the connected offering

- Full control to the operator

- Improved customer onboarding

- Improved customer support reducing time and cost

- Application is updateable via CAS OTA used today

BIGGEST SHORTCOMING OF THE CAM TODAY
The user interface is inconsistent across TV brands/models and the operator has no control over the user experience.
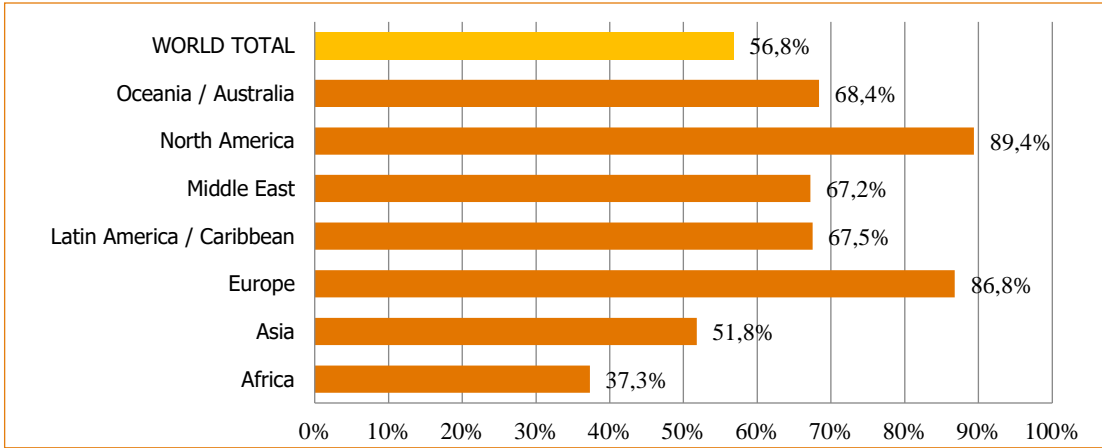
THE FUTURE OF THE CAM

- Anchored to the CAM for application delivery

- CAM is a trusted security anchor with a simplified business model and no hard-link to the TV

- Completely standards base

- TV compatibility with HbbTV OpApp is required resulting in a clear break-point in the technology

- Perfect time for CAM evolution from PCMCIA to USB

- Suitable also in Europe for mass deployment Apr 2021

- Marketable product with much higher perceived value than traditional CAM

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Part 3: New age of Media

Growth of internet penetration – and still growing!

Region	Penetration
WORLD TOTAL	56,8%
Oceania / Australia	68,4%
North America	89,4%
Middle East	67,2%
Latin America / Caribbean	67,5%
Europe	86,8%
Asia	51,8%
Africa	37,3%

Internet World Penetration Rate in march 2019 by Geographic Region

Growth of Smart TV penetration

Smart TV penetration trend

Source: IHS Markit
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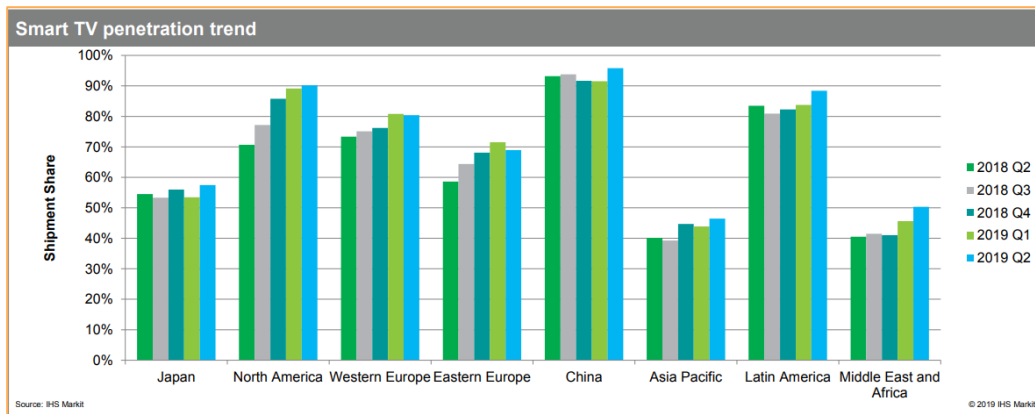
Many OTT services

Many Connected Devices

Towards unlimited OTT services using broadcast links

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4.6.2020   www.sofiadigital.com   17

TV screen is still most popular way to watch TV

Figure 22: Device share and average number of viewing hours per week, with prediction* for 2020

Legend: Tablet, Smartphone, Laptop, Other screen, Desktop screen, TV screen, Total weekly hours
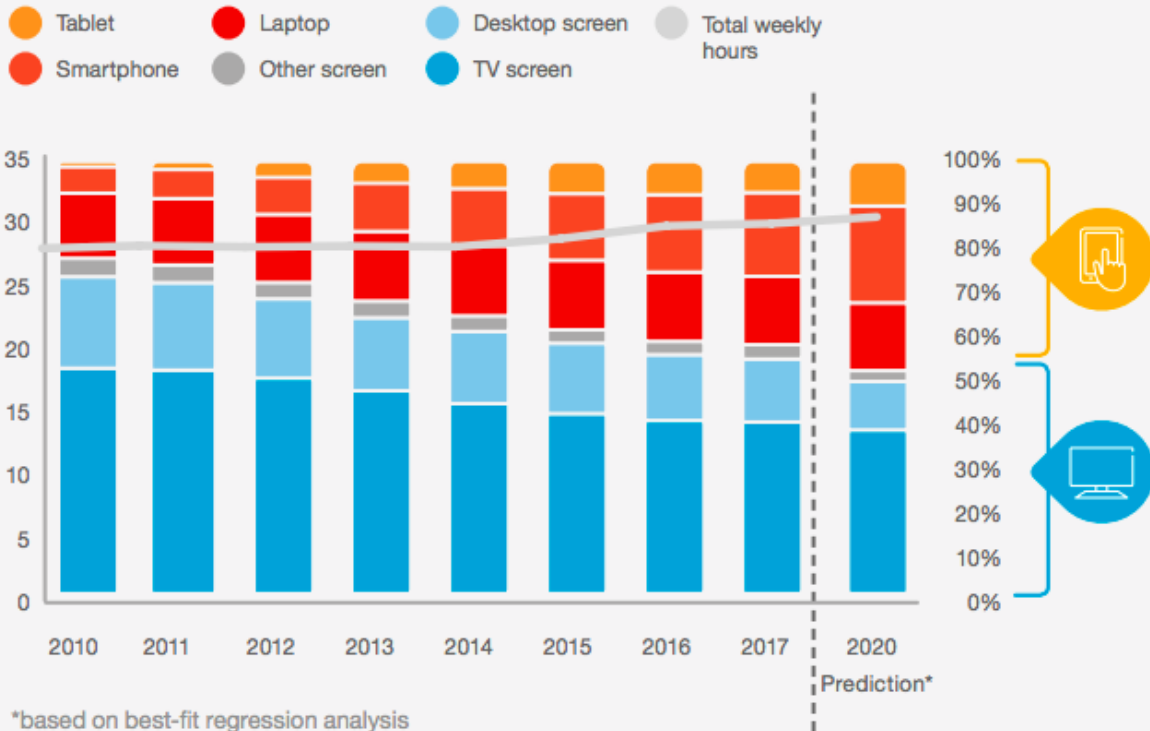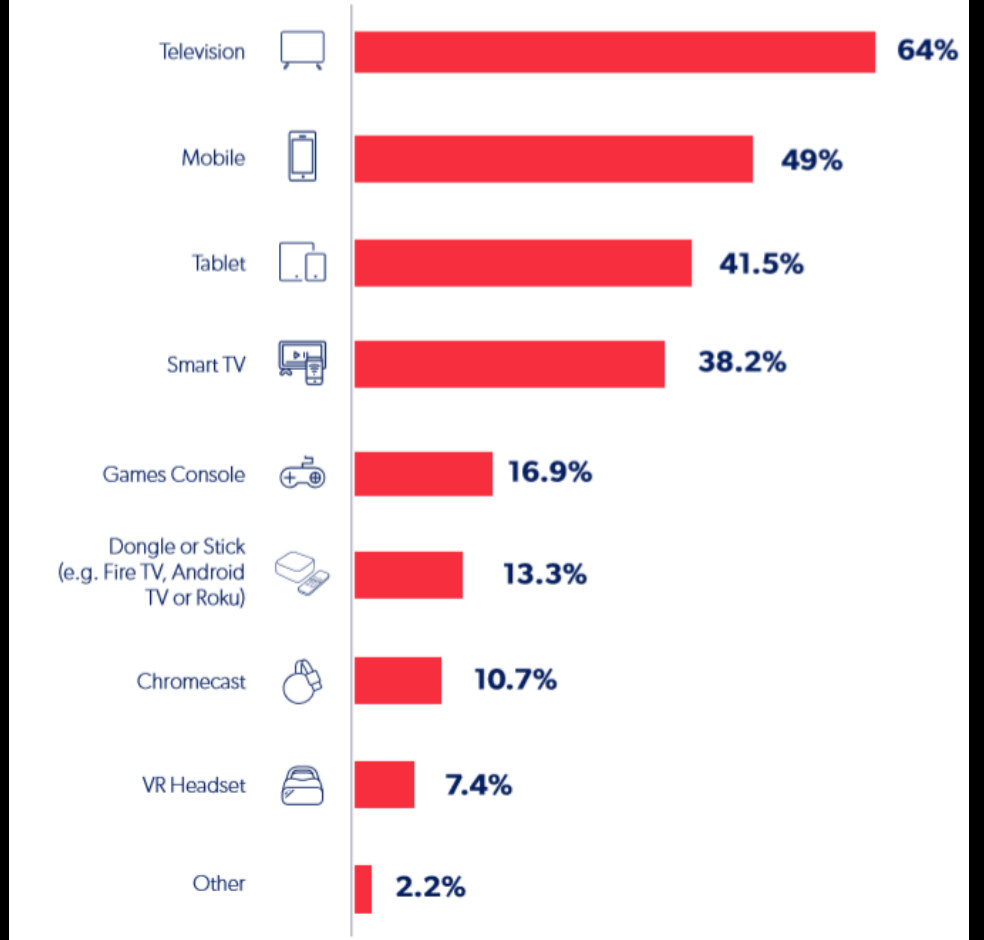
*based on best-fit regression analysis

Source: Ericsson ConsumerLab, TV and Media, 2017

Base: Population aged 16–69 that watches TV/video at least weekly and has broadband at home, in Brazil, Canada, China, Germany, India, Italy, Russia, South Korea, Spain, Sweden, Taiwan, the UK and the US

Primary Devices Used to Consume Sports Content, According to Deltatre 2019 Survey (Top 3 Selected).

Device	Percentage
Television	64%
Mobile	49%
Tablet	41.5%
Smart TV	38.2%
Games Console	16.9%
Dongle or Stick (e.g. Fire TV, Android TV or Roku)	13.3%
Chromecast	10.7%
VR Headset	7.4%
Other	2.2%

…There is no STB in the survey results! Why?

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Watching TV

Watching Set-top box

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