

# **HbbTV Symposium**

## Non-realtime Content Delivery Via Broadcast

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## **Company Background**

- high tech tv
- Technology and solution provider for Connected TV
- End to End Digital TV Product Line
  - Head End Play Out Servers
  - STB turnkey Software product
    - Based on HTML5 and HbbTV
- HbbTV Expert
  - 2014 CSI-IBC award for best HbbTV technology and products



#### Best HbbTV Technology





### Non-realtime Content Delivery via Broadcast



- HbbTV 2.0 integrates a File Delivery Protocol (FDP):
  - Files are delivered in packets over broadcast
  - Files are stored in Receiver's local storage
- This protocol brings Non Linear Content delivery via Broadcast to HbbTV 2.0 applications
  - Referred as Push VOD for the non real time delivery of video content

#### The workflow is :

- Broadcast schedules for the video (or other files) are provided through an HbbTV application
- Metadata are managed through an HbbTV application in the receiver
- Patch Up mechanism to obtain loss packets (over broadcast or broadband)
- Possibility of additional Forward Error Correction (FEC)
- Compatible with DRM

# Push VOD

## All VOD types

- Transactional VOD
- S-VOD services
- Advertisement financed VOD
- Catch-up services



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Markets with limited Broadband access
 Africa...

## Optimizes Broadband Cost/Quality

## **Enhanced Content**

- Ultra HD contents are pushed and stored on receiver
- Red Button Application allows user to swap from Broadcast content to same content in UHD
   Swap can be done automatically



Roland Garros – France Télévisions



# **Targeted Advertising**



# Requires real-time switch between the main broadcast feed and alternative video source

Easier to implement with FDP than Broadband



#### Broadcast Delivery as Broadband extension



- Push Technology is not only about Pushing video content.
- It is about providing on demand services using a limited bandwidth return channel (3G/4G or satellite return) by caching locally the most viewed content (« edge CDN »).
- The same HbbTV broadband OTT applications can therefore be made available to viewers with limited bandwidth.
- Example: Offering a Replay service on tablets in areas with limited bandwidth



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# **FDP** Operational choices

# high tech ty

#### Tuner

Single versus Multiple versus Dedicated

#### Broadcast bandwidth

- Blast versus Drop Feed
- Single mux versus Multiple muxes
- Repeat cycles

### Storage

Capacity

#### Services

Operator versus Broadcasters

# FDP: Bandwidth requirements

- A 500GB hard disk connected to a single tuner HbbTV STB with a bandwidth of 4 Mbs can offer :
  - 100 Movies (1/3 HD)
  - 160 Series Episodes (1/5 HD)
  - 320 education programs of 15mn (SD)
  - 14 hours of replay services (SD)
  - 25% renewal per week

## A 32GB USB key (8€) can offer 12 HD movies with 4 new per week on a bandwidth of only 0.4 Mbs

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- HTTV has deployed Push VOD solutions since 2010 in South Africa (Multichoice) enjoying impressive usage
- Together with our partner Quadrille we are deploying PushVOD on HbbTV 1.5 based STB in Africa
  - Ivory Coast, Senegal and Mauritius
- We are now working on HbbTV 2.0 Push VOD through the AdicTV French research project





- French research project
  - Partnership between: Enensys, HTTV, Quadrille, TDF, Telecom ParisTech, IETR
- Improve DTT offer by the Addition of Dynamics Content TV (AdicTV) via Broadcast
  - Before the transmitter using the DVB-T2 SFN (Single Frequency Network) Multi-PLP (Physical Layer Pipe)feature
  - In the receiver using HbbTV 2.0 Push VOD
- Content could specific to user location or profile
- Implementation on DVB-T2, HEVC, UltraHD receiver
  2015-2016





- Regional or local advertising
- Switch from a National service to a Regional one
- Insertion of a national, regional or local alert message
- Enrichment of a linear service
  - HD to UltraHD
- Targeted advertising

AdicTV Architecture







# Thank you !

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