ITU-T Workshop on Bridging the Standardization Gap and Interactive Training Session
(Cyberjaya, Malaysia, 29 June – 1 July 2010)

Digital TV Middleware Platform Technology

MTSFB : Multimedia Terminal Working Group

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Benefits From Digitalization

- Digital Dividend/More Services.
- Better Video & Audio Quality.
- Multi Language Support (Subtitles/Audio)
- Meta Data (EPG etc)
- etc

Interactive Applications
History

In the Analogue age we had very low bit rate data embedded in the Analogue signal.

This gave birth to Teletext which was “interactive” to a certain extent.
Technology Migration

Teletext Replacement

MHEG
Teletext

Connected & HD

MHEG
DBook V6

MHP
BML

W3C

MHEG
Dbbook V7

HbbTV

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Consumer Expectation

Content originally Designed for PC

Content is being repurposed

Content will Need to be repurposed + TV Specific Content

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Future Applications

- **Personal**
  - E-Mail, Tweeter, Facebook

- **Information/Passing Time**

- **Linked Information**
  - Information Linked to content being viewed.

- **Over the Top Video**
  - You Tube, Catch Up TV (BBC iPlayer, Bplayer etc).

PC/Mobile

On TV?

On TV!

On TV!
Video

Social
- You Tube etc.
- More and more are now in HD
- Suitable for Large screens.

Main Applications
- Catch Up TV
- VOD
Linked

- Real Time triggered Information
  - Links during Programme Trailers (including booking).
  - Links during Advertisements.
  - Links during Shows/Movies.
- Sell on Content delivered via IP.
Information

- Not All types of Content.
- Expectation is content which is simple, quick to absorb with rich presentation.
- Needs to be repurposed for the TV.
  - Simpler Input Method (no Mouse/Keyboard).
  - Text Display/Layout.
What Technology is Needed?

Some key elements
- Presentation Engine.
- Procedural (Declarative) Method.
- Streaming Technology.
- Video/Audio Codecs.

Key Consideration
- Cost.
- Efficiency.
- Open/Knowledge Base.
- Need for DRM (?)
Example Hbb TV
Inter Operatibility

Same Content can be displayed on both the CE Device & Browser

http://itv.mit-xperts.com/
Streaming Technology

Two key Technologies

- RTSP/RTP – Developed especially for Streaming.
- Recent Trend towards HTTP streaming especially for unmanaged Networks.
- Introduction of Adaptive Streaming methods with HTTP is also driving this.
Plug Ins

Plug Ins are popular on the PC for creating rich content.
- Flash, Silverlight, etc.

Is this really needed for CE Devices?
- Example Flash is not on Apple CE Devices.

HTML5 a suitable replacement?
**Video Codec**

- Debates currently going on for inclusion into HTML5.
- Some Video Formats
  - Ogg
  - H.264
  - VP8
- For CE Devices it is clear, that the same video codec should be used for both broadcast & IP Content.
  - Reduce re-encoding requirement by broadcasters.
HTML5

- W3C based, currently being specified. Will become de-facto standard for PC based browsers.
- CE Devices will also embed a HTML5 browser?
- Needs CE based extensions for Broadcast environment.
1. MULTIMEDIA TERMINAL WORKING GROUP (MMT WG)
2. INTERNET PROTOCOL VERSION 6 (IPv6 WG)
3. IMT WORKING GROUP (IMT WG)
4. MULTIMEDIA NETWORK INFRASTRUCTURE WORKING GROUP (MNI WG)
5. FIXED NETWORK INFRASTRUCTURE WORKING GROUP (FNI WG)
6. RADIOCOMMUNICATIONS NETWORK INFRA. (EXTERNAL) [RNI (Ex) WG]
7. RADIOCOMMUNICATIONS NETWORK INFRA. (INTERNAL) [RNI (In) WG]
8. OCCUPATIONAL SAFETY & HEALTH WORKING GROUP (OSH WG)
9. WIRELESS TERMINAL WORKING GROUP (WT WG)
10. SATELLITE ROADCASTING WORKING GROUP (SB WG)
11. GREEN ICT WORKING GROUP (GICT WG)
12. FIXED TERMINAL WORKING GROUP (FT WG)
13. NEXT GENERATION NETWORK WORKING GROUP (NGN WG)
14. HIGH ALTITUDE PLATFORMS WORKING GROUP (HAPS WG)
15. DIGITAL TERRESTRIAL TV BROADCASTING WORKING GROUP (DTTB WG)
16. WIRELESS INDUSTRY EMISSION WORKING GROUP (WIE WG)
17. POWER LINE COMMUNICATIONS WORKING GROUP (PLC WG)
18. DIGITAL RADIO BROADCAST WORKING GROUP (DRB WG)
19. BROADCASTING NETWORK INFRASTRUCTURE WORKING GROUP (BNI WG)
MTSFB
Multimedia Terminal Working Group (MMT WG)

- MMT WG Leaders:
  - Chairman : Tn. Hj. Jaafar Hj Mohamad Abu Bakar (TM)
  - Vice Chairman: Dr Rohmad Fakeh (RTM)
  - Secretary: Cik Razaini Mohd Razali (SIRIM)

- There are 73 members in the MMT WG comprises local and international representatives

- The deliverables are to revise the Technical Specification For Digital Terrestrial Television Receiver & to develop related recommendations pertaining Digital Terrestrial Television implementation
Thank You

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