Middleware, Applications, and Content Platforms for IPTV

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Introduction

- Middleware, Application and Content Platforms (MACPf) are important and integral part of IPTV services because they provide the viewer with what is essential to IPTV, the viewing experience.
What is MACPf

- the platform for middleware, applications, content formats that facilitates effective and interoperable use of an IPTV system for presenting and interacting with IPTV services.

- This typically includes:
  1. Content Presentation and Execution Engines
  2. Content Navigation Applications such as EPG
  3. Metadata and Content Discovery Mechanisms
  4. Audio and Video coding
What is Middleware?

- is systems software that resides between the applications and the underlying operating systems, network protocol stacks, and hardware.

- provides a common reusable accessibility for functionality and patterns that formerly were placed directly in applications, but in actuality are application independent and need not be developed separately for each new applications.
(Multimedia) Application

- An application which involves the presentation of multimedia information to the user. (ITU-T, T.174 (96), 3.1.12)

- A Multimedia Application is an application that requests the handling of two or more representation media (information types) simultaneously, which constitute a common information space. Examples are cooperative document editing, long distance meetings, remote surveillance, medical document remote analysis and tele-training. [0055] (ITU-T, F.700 (00), 1.2.6; F.701 (00), I.3)
Metadata

- Descriptive data associated with a content asset package or file.
- May vary in depth from merely identifying the content package title or information to populate an EPG to providing a complete index of different scenes in a movie or providing business rules detailing how the content package may be displayed, copied, or sold.
- Separate uses for metadata have originated from the studios, distribution networks (Cable, Satellite), down to the CPE (STBs, PVRs).

(ITU-T, J.98 (03), 3.1)
Some Use Cases

- Program and Content Guides (EPG, ECG, Interactive Program Guides, Advanced Content Guide)
- Personalized TV
- PVR-based enhanced viewing (Time-shifting, Digest, high-light viewing, etc.)
- Integration of Web content and TV Content
- Coordination with other IP services
- Emergency Alert Service
- Enhanced Services
Some Standards from DTV worlds

- **MHP**: defined by DVB for terrestrial, cable, and satellite environments; Java based
- **DTV Application Software Environment (DASE)**: defined by ATSC for North American terrestrial transmission.
- **OpenCable Application Platform (OCAP)**: defined by CableLabs for North American cable transmission. Java based
- **Advanced Common Application Platform (ACAP)**: defined by ATSC for the harmonization between OCAP and DASE standards.
- **STD-B23/STD-B24**: defined by the Association of Radio Industries and Businesses (ARIB) for Japanese digital television receivers. XML and browser-based
Some Standards from IP World

- HTML (XHTML, CHTML, ...)
- DOM
- CSS
- HTTP
- JavaScript, ECMAScript
- XML
- XSL
- AJAX
Ideal

- [Standards] defines a software layer (middleware) that allows programming content and applications to run on a so-called common receiver.

- Interactive and enhanced applications need access to common receiver features in a platform-independent manner.

- This environment provides enhanced and interactive content creators the specifications necessary to ensure that their applications and data will run uniformly on all brands and models of receivers.

- Manufacturers will thus be able to choose hardware platforms and operating systems for receivers, but provide the commonality necessary to support applications made by many content creators. [Quoted from ATSC DASE]
Challenges

- How to harmonize all the different standards and technologies already in the market
- How to give the competitive edge in the market
- How to provide best user experience
- How to present solicit and attract viewers
- How to ensure evolution to even more attractive services
Importance of Metadata

- Metadata is important as the “glue” between applications
- Different applications can take in the same metadata and present in various ways
- Different applications can take in various metadata (in the same format) to present in different ways
- Metadata is a good, if not the best, way to attract the viewer, and to discover services
- Metadata can bridge between different platforms, different content formats
Key Issues

- Interoperability is of utmost importance
- Extensibility should be taken into account
Future Directions

- Agreement on the simplest scenarios
- Definition of Common Interface
- Mechanism of how to declare, discover, and to adapt to different platforms
- Mechanism to ensure possible and future extensions and modifications
- Interoperability and affinity with other aspects of IPTV
Thank you very much for your attention!