Use case of nomadic TV service among multi-domains

A Position Paper for W3C Web on TV Workshop

Sunghan Kim, Kangchan Lee, Seungyun Lee
Standardization Research Center, ETRI,
161, Kajong-Dong, YuSong-Gu, Daejeon, Republic of Korea
{sh-kim, chan, syl@etri.re.kr }

Abstract

This paper reviewed brief transition of TV services and new challenge from existing TV service domains. We can discuss the different service roles for each TV domains, as well common direction and goals. Recently, new types of TV service are emerging, for example, IPTV from network providers, more competitive portal TV from content providers and advanced TV terminal from TV manufacturers.

Also, we suggest a nomadic TV service scenario between TV domain and mobile domain, which demands several service requirements to provide such kind of nomadic TV service in current vertical TV environments. From this example, we focused on existing relevant standardization requirements from W3C and ITU-T. As well, further requirements are considered for harmonization of current standards.

Background

There are already several vertical TV domains from traditional TV services, e.g. satellite, terrestrial and cable to WebTV by PC. Each traditional TV service domains already has its' own technologies and standards. And recently, new kind of TV service, e.g. IPTV, is appeared on traditional TV service domains. IPTV service maybe becomes a diverging point between traditional TV and new era of TV service in standardization respects.

Figure 1 shows that what kinds of TV providers are related with TV services in before and now. Current TV domains are more competitive than before. As well, several standardization bodies are developing as global standards or local ones, besides ITU-T and MPEG. In this circumstance, W3C is also interesting web relevant standards in TV, this initiation seems look good, but needs to consider web-related supporting technology standards in traditional existing TVs, not to occur more deeper fragmentation gap between traditional standard bodies and W3C.

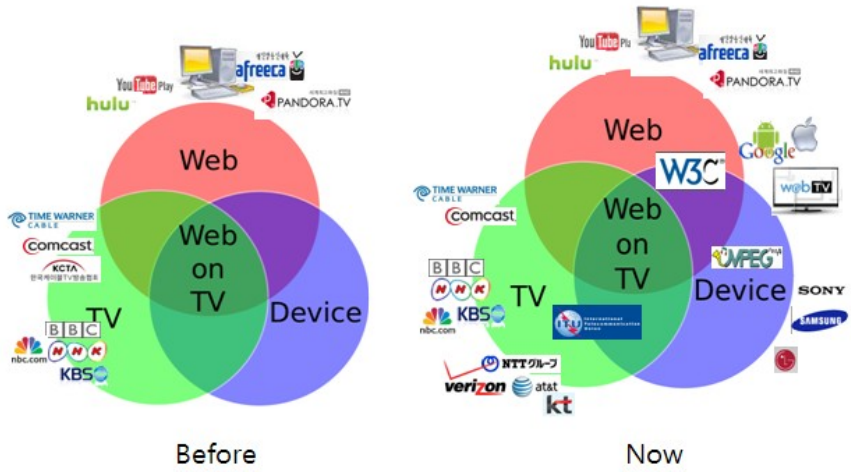

Figure 1: Brief overview for current TV services

Scenario of nomadic TV service between two domains

An example of scenario is explained in figure 2, similar to time-shift TV, but it can catch a glimpse of what web-related standard technologies and other standards are needed to consider, though not new scenario.

Mr. Kim is relaxing and watching television on movie at home. And then, he received an emergent call from office to attend meeting in other city. So, he has to go out for the meeting, after stopping the movie immediately. It takes one hour to move from home to the meeting place. So, he hopes to see the continuous contents while moving on bus with other mobile phone. When he gets on the bus, he opens the mobile phone and connects the service provider for the movie contents, again. And then, he enjoyed and finished watching the video to the end.

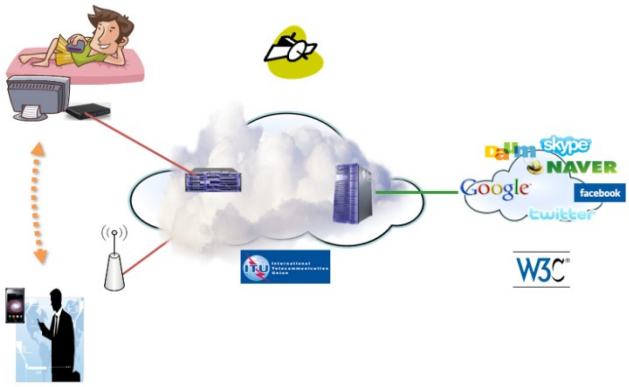

Figure 2: Use case for seamless TV service over two service domains

From the scenario, we listed some primary standardization requirements to consider in development.

- **Terminal** – Several issues are required to consider on UI, application, presentation engine, video, middleware, device management and mobility, etc.

A. UI (User interface) is required for TV interface between user and TV device. W3C is activating on model-based UI XG (Incubator Group), and ITU-T is discussed in IPTV terminal specification but out-of scope.

B. For application, widget application for TV is discussing in ITU-T.

C. For presentation, W3C specifications including HTML5 can be considered, and ITU-T have MAFR (Multimedia Application Framework) series.

D. Web video contents are required to support media codecs in browser and HTTP based video streaming protocols suitable for web application. W3C is discussing on codec issues in HTML5 WG and ITU-T support generic video formats. As well, W3C need to consider on HTTP based streaming protocols for efficient video delivery in web and mobile web environments.

E. Middleware is required to support TV capabilities between application and OS, e.g. WBTM (Web-based Terminal Middleware) in ITU-T.

F. Device management is required to access the device resource from application, for example, many activities in DAP (Device APIs and Policy) WG in W3C and middleware in ITU-T.

G. Mobility is required service mobility as well as network mobility and is discussing in mobile IPTV in ITU-T.

- **Service Provider** – Several issues are required by service provider, herein is listed provisioning issue.

A. Service provisioning is required to select provider between device and service providers. Also, some requirement is necessary between service provider and content provider, too. ITU-T is providing in service provisioning, H.770, and in relevant content provisioning specification.

- **Content Provider** – TV relevant content issues are required to support multimedia contents service, as well in enhanced media service.

A. Multimedia metadata processing is required for several formatted media. Standardization in media annotation (MA WG) in W3C and metadata in ITU-T are relevant.

B. Seamless management is required to control content objects, e.g. object tagging standard.

C. Content or service description language is recommended to describe multiple TV services, WSDL (Web Service Description Language) in W3C can be considered.

D. Content can be adaptable according to the TV device's capability to support optimized contents. DDR (Device Description Repository) in W3C can be considered for such service.

E. User information or ID management is required for TV service, ITU-T is relevant to AM (Audience measurement) and middleware.

Acknowledgements
This research was supported by the ICT Standardization program of MKE(The Ministry of Knowledge Economy).

References
[1] ITU-T IPTV-GSI, http://www.itu.int/ITU-T/gsi/iptv/
[2] W3C, http://www.w3.org
[3] MPEG home page, http://www.mpeg.org/