Use case and considerations for social media TV services

A Position Paper for W3C Web on TV Workshop

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Background

TV services are still growing from typical media service to new emerging TV services, and in accordance with the diversity relevant standard technologies are required to support the new emerging services. However, global standardization bodies, or forums, already provide relevant specifications for TV service, such as ITU-T, HbbTV, MPEG, CEA, DNLA, etc. As well, W3C is also progressing Web & TV IG for the development of TV services. Therefore, W3C need to seek and focus on developing TV service standards from spirit of the Web.

Contrary to the typical media TV service, one of current TV service features is related with user's convenience, especially on personalization and socialization. While some legal issues exist to resolve for these kinds of services, it is now becoming one of crucial TV services. Many features of TV services are previously reviewed on W3C 1st and 2nd workshop and are progressing in Web & TV IG. But, in accordance to technical paradigm shift, some additional issues need review to find requirements for further standardization activity on Web & TV IG. So, we would like to comment about necessity of guideline of generic high-level Web & TV service requirements in the W3C, for there are already tremendous open media and open service channels on the web, it is necessary to provide TV service how to integrate with these kinds of open media.

Therefore, several important issues can be raised for the guideline or best practices of the Web & TV services. We can consider generic requirements, for example, UI issue, platform, web-based service discovery and content delivery, etc. And UI perspective, more convenient control mechanism can provide to convenient TV access, such as speech, motion control, etc. For platform related issues, web application store can provide open web APIs to support installation of web applications. And in content aspect, content delivery such as content streaming protocol over HTTP, content protection and content guide metadata need to consider for emerging TV service.

And mainly, the paper will focus on the social media TV services, the reference architecture, requirements in standards, use case and relevant activities.

Architecture and requirements of social media TV services

Generally, two features are existed in TV applications, concurrently. Sometimes they want to lean back, just a consumer. The other is lean forward; personalized and communicated TV service, which has a content produced by a subscriber himself. In detail, the lean forward is producing a program with social networking; the members are adding a scene description, his reputation and sharing an experience tip. Those information is very interested because the members are also consumer and it is depends on his interest. The produced information can be shared in commonly, it is a social media for TV, completely, and it is also required to qualify. The quality problem is a role of service provider or social media producer.

Social media TV services are broadcasting social media through the TV network such as Internet, Cable, Terrestrial and Satellite network. However it has two separated steps; media generation and media consumption. In the viewpoint of lean forward, the active participants or subscribers generate a social media, which are associated broadcasting contents. Exactly it is a metadata for TV contents.

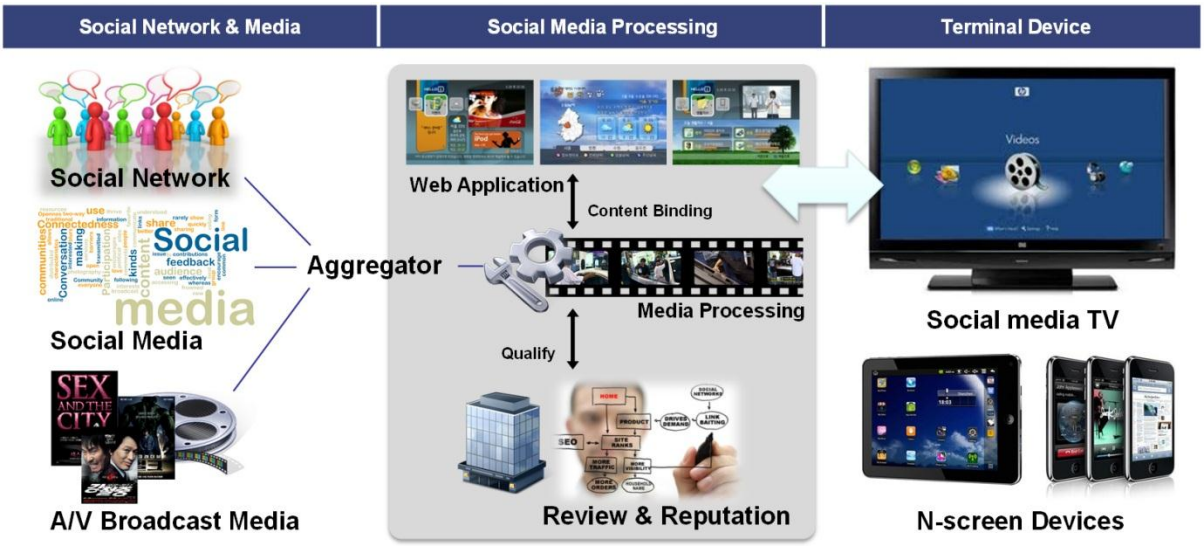

Figure 1: Architecture for social media TV services

Figure 1 shows the scenario of social media TV service. It is divided into three categories; social networking, media processing and terminal device. Social networking make a connection between TV channel subscribers or same interested members. They share personal knowledge or tip to help an understanding the TV contents. For example, A Fan of leading actors can share actors profile such as born, education, affiliation and talents. Sometimes peoples want to share an emotional act with his friends or same aged group. The media processing part is cutting and mixing of contents, which is social media, audio, video and web application. And also this includes review and reputation system for enhancing the quality of social media.

In terminal device, the subscriber, lean back subscribers, just are consuming social media contents with associated A/V contents, the social media has a form of text, figure, movie and links for more information. Sometimes, the add-on social media contents are shared between N-screen devices. Those devices are assistant tools to edit a social networking and consume social media with separated screen (view).

In the figure, we had three components to support a social media TV; aggregator, web application and review & reputation system. The aggregator is collecting contents based on object scene and metadata of A/V Broadcast Media. Usually, it uses a semantic keyword for searching the social networking. The web application is a tool for the representation of social contents. If we use a smart phone, then the web application re-arranges the social media into a small screen. Web application with device API, can access the device function such as geo-location sensor and finger print recognition. The reputation system gives guidance for the characteristics of social media channels, which is separated with A/V streaming but the contents are strongly coupled.

Social media TV is one of most important service in the Web and TV service area, and we states that additional requirements are necessary to support a social media generation in W3C Web & TV IG, which may include issues such as identity, privacy, federation and so on.

And, below is summarized on social standardization requirements around relevant SDOs.

For social identity standard issues; this topic is already implemented in ISO/IEC JTC1, ITU-T IdM [7], OpenID [8] and OAuth [9]. However the social networking and media requires globally unique scheme for data sharing between various social network services.

For interoperability standard issues; interoperability in social networking is a way to share social networking features in the 3rd party application and services. One of famous open technology is OpenSocial [10], which is developed to make a common application programming interfaces (APIs) for web-based social network applications.

For service federation standard issues; individual social activities are distributed in several services. If somebody wants to share contents, there are no ways to collaborate. Hence we need to study on the third party playground to share a common emotion and common data regardless of any service subscription. Currently, federated social web issues are discussed in W3C Federated Social Web [11] and OMA mobile social networking [12].

Use case and W3C's relevant activities for social media TV services

Several standard technologies are necessary for the service social media TV services. And, many technologies are already progressing in W3C DAP activities, such as contact API, HTML media capture API, network API, privacy, etc. So, social media TV services can be implemented with these kinds of W3C standard APIs. Despite of W3C's supporting APIs, other functionalities are also required for social TV services including identification management, media streaming protocols and open API's to connect third party's applications such as Google map's API.

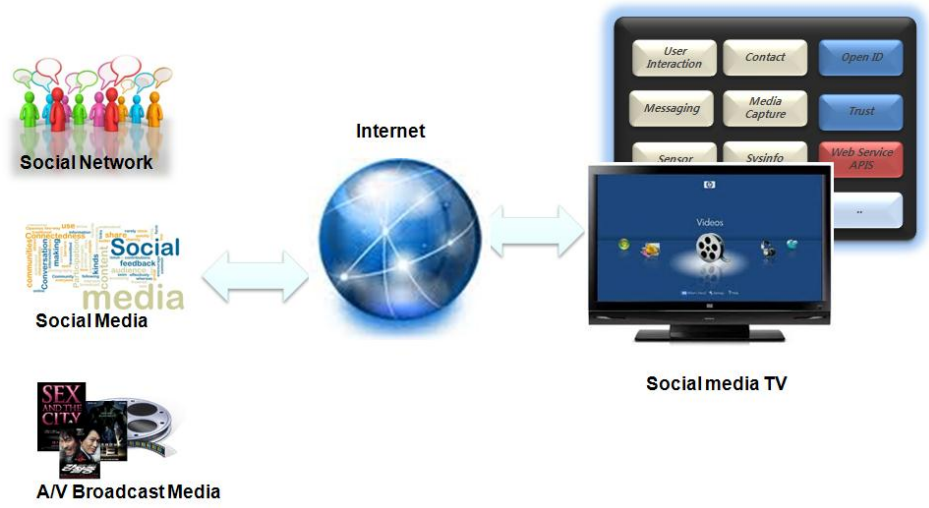

Figure 2: Use case of social media TV service

In figure2, social media TV terminal is loaded social relevant modules, based on W3C standards or other SDOs, and it connects with social media service on server side through internet. As well, it also is possible to support mash-up service with Google map open API.

Table 1, Brief description of relevant APIs for social media TV

APIs	Class	Description(W3C, other SDOs)
Contact	ContactManager	Contact management
Messaging	MessagingManager Email MMS SMS	Messaging Transmission and search(SMS, MMS, Email) (*) Optional
Sensor	SensorManager GeoLocation	Sensors Information retrieval and monitoring (Acceleration, Orientation, Geo)
System Information	SysInfoManager	Device hardware information monitoring (CPU, Memory, Storage, Battery, Wifi, Cellular, Device, Display, OS, etc)
Task	TaskManager	Task management
User Interaction	UIManager	User Interaction (Beep, vibration, etc)
Media Capture	DeviceCapture	Accessing device's camera, microphone.
OpenID	-	Authorization.
Transport	DASH Protocol	Transport Streaming over HTTP.

Open APIs	Aggregator	For third party's social applications

In summary, we think that W3C need to consider further standard issues in Web & TV IG along with current W3C standards, which enables to support social media TV services.

In aspect of social networking;

- ✓ For social identity standard issues
- ✓ For interoperability standard issues
- ✓ For service federation standard issues

Also, for the best practice or guideline in aspect of generic high-level Web & TV service, including below issues;

- ✓ For UI standard issues
- ✓ For platform issues
- ✓ For web-based service discovery issues
- ✓ For content delivery standard issues

Acknowledgements

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