

## A Proposal for a Smart Internet Television Application

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**Abstract.** There are efforts to develop web applications that receive and display terrestrial broadcasting. Developing mobile applications with which we can watch TV is also a hot research subject. Therefore, this paper proposes a mobile application in which web applications are integrated. Internet TV has no geographical limitations. Mobile devices are getting smaller, more powerful and being carried by most of people all the time. Therefore, we can ubiquitously enjoy TV services with the proposed smart Internet TV application.

**Keywords:** Internet TV, Web application, Mobile application.

### 1 Introduction

Television is a very attractive service to the public. Mobile devices such as tablet or smartphone with broadband network is available anywhere and anytime [1]. This paper reviews related research results in television services and mobile applications and proposes a smart Internet TV application.

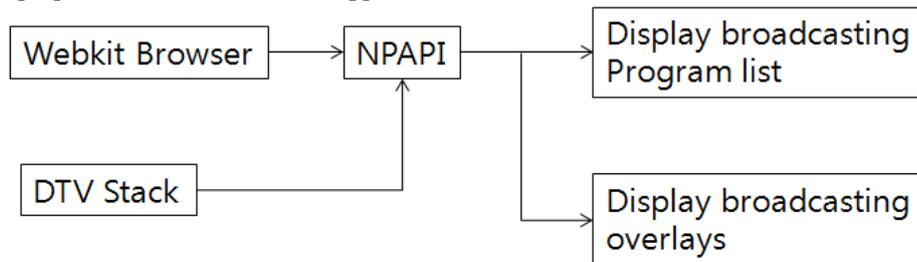


Fig. 1. Receiving terrestrial broadcasting on the web browser [2]

### 2 Related works

Applying the Netscape plug-in application programming interface (NPAPI) to use native broadcasting stack functions, the authors of [2] introduced a method of controlling basic functions of smart TV on web browser and propose personal home screen based on HTML5. Using the method, we can display the list of terrestrial

broadcasting programs in the web browser and the selected channel is displayed on the web browser also as shown in Fig. 1.

The authors [3] developed a mobile IPTV system consisting of the following components:

- 1) Device: PC, tablets, smartphones and smart TVs
- 2) Browser: An application used for connecting to the Internet.
- 3) Streaming Server: They used Flash Media Server (FMS).
- 4) Encoder: They used Adobe Media Live Encoder
- 5) Protocol: This system supports RTMP and HTTP Live streaming
- 6) Player: They support Flash Player and HTML 5 Video.

The authors of [4] introduced Linked Data and ConnectME. Linked Data identifies things by an URI, resolves those URIs to metadata information about those things, and links between those URIs so that machines can browse concepts like humans browse Web pages. ConnectME hypervideo player plays out audiovisual content with other material from the Web which is related to it utilizing Linked Data. The main steps in the workflow of ConnectME hypervideo player are shown in the left side of Fig. 2: identifying objects in video, annotating them with (Linked Data) concepts, and linking video objects to Web content making use of this annotation.

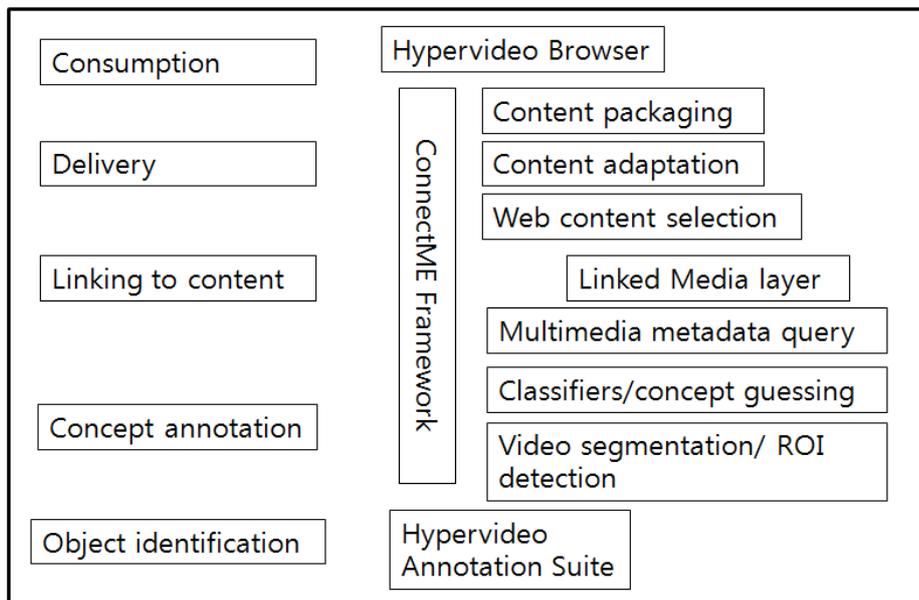


Fig. 2. The workflow of ConnectME [4]

The authors of [1] developed a live streaming applications on a mobile Android platform. The Internet live video streaming system comprises of three major parts as shown in Fig. 3. In tvOne part, Broadcast Capture equipped with FMLE (Flash Media

Live Encoder) captures the digital broadcast of the source, encodes captured signals, and sends encoded data to the streaming media.

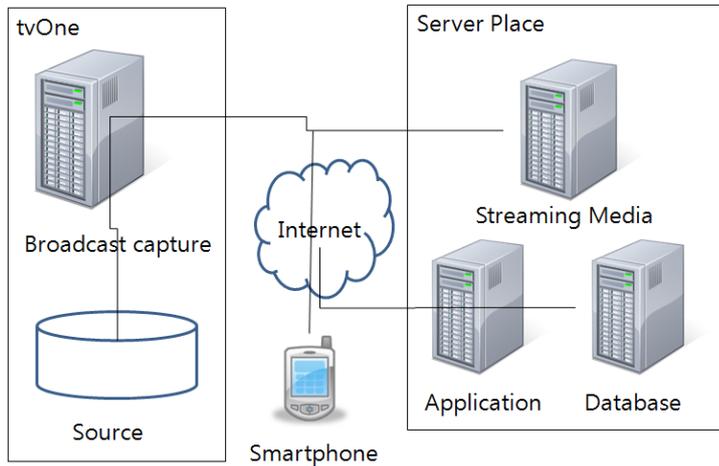


Fig. 3. The architecture of the Live Video Streaming System [1]

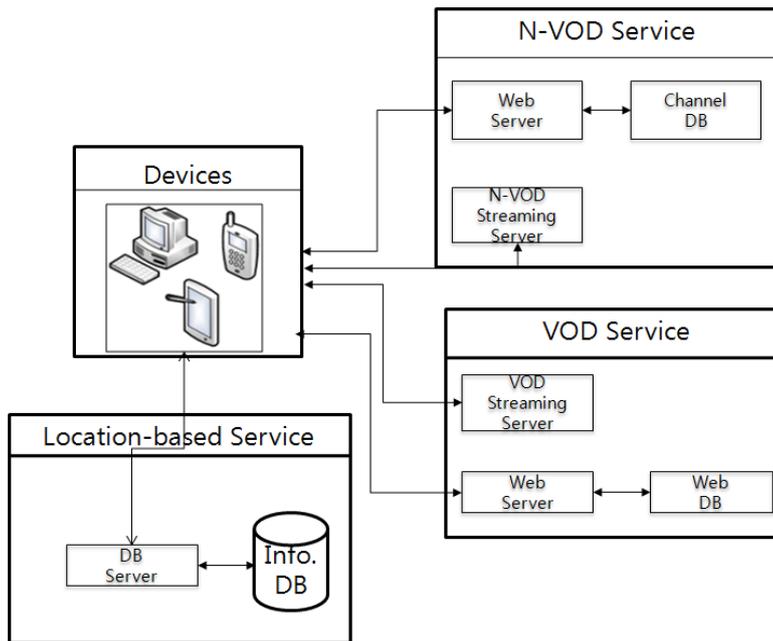


Fig. 4. A conceptual view of the proposed system.

They use Wowza Media Server 3 for the media streaming server of their video streaming system. The Database provides a viewable schedule on the smartphone.

Application transmits the schedule. Smartphone receives data from the Application and Streaming Media.

### 3 The Proposed System

Considering related works, we propose an Internet TV system as shown in Fig. 4. This system is hybrid in that a web application is integrated in the mobile application. The services provided by the system include N-VOD service, VOD service and location-based service. N-VOD service is similar to TV broadcasting in that the server streams out videos in the predetermined schedule. Therefore, N-VOD has to provide electronic program guide (EPG) as terrestrial TV broadcasting systems do. N-VOD also provides many channels.

### 4 Conclusions

This paper introduced our design of an IPTV platform. This system is open in that any authorized users can upload their content and any authorized application developers can use and circulate content stored in the system. We expect our system will make a great contribution to content industry by boosting circulation of content.

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