

IPTV2.0 Demonstration Test-bed in Daegu

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Abstract— this paper handles features of the test-bed in detail including conceptual pictures. Also, the per-phase test-bed construction is described in terms of goal and action item. The utilization of the IPTV2.0 demonstration test-bed throughout the entire process from project planning to service launching and the expected effectiveness are suggested. Specifically, some media services show what kinds of applied services can be developed by utilizing the IPTV2.0 demonstration test-bed.

Keywords—IPTV, Test-bed, Demonstration, Mobile IPTV, N-Screen, Rich Data

I. INTRODUCTION

While a broadcasting telecommunication converged industry makes a huge market overwhelming conventional key industries such as semiconductor, appliance, mobile phone, and so on, a test-bed or infrastructure is not enough to support the development of relevant products and to verify performance of domestic next-generation media broadcasting telecommunication devices. This is the motivation of the IPTV2.0 demonstration test-bed construction project in which the core technologies of the IPTV2.0 concept and various applied media service based on them are installed.

To meet the market demands as specified above, we are performing next-generation media based IT converged commercialization support project. This paper explains the test-bed, the applied service, the utilization and the effectiveness relevant to the IPTV2.0 technology in the project. The rest of this paper is organized as follows: Section II and III describe the IPTV2.0 demonstration test-bed and media service based on the test-bed, respectively. Section IV explains the utilization and the expected effectiveness.

II. IPTV2.0 DEMONSTRATION TEST-BED

This chapter explains the project overview and handles features of the test-bed in detail including conceptual pictures. Also, the per-phase test-bed construction is described in terms of goal and action item.

The project aims to construct the IPTV2.0 test-bed. The additional objectives are the technology and service demonstration in the IAAF World Championships Daegu 2011 and the global market expansion support of the next-generation media based converged technologies.

The IPTV2.0 demonstration test-bed specified in Figure 1 makes features of QoS guaranteed mobility management,

adaptive media transmission and network/video quality analysis.

The QoS guaranteed mobility management enables mobile terminals to seamlessly make a handover over the heterogeneous access networks without degradation of network quality. For this, the test-bed includes elements not only for handover management and location management, but also for network resource management.

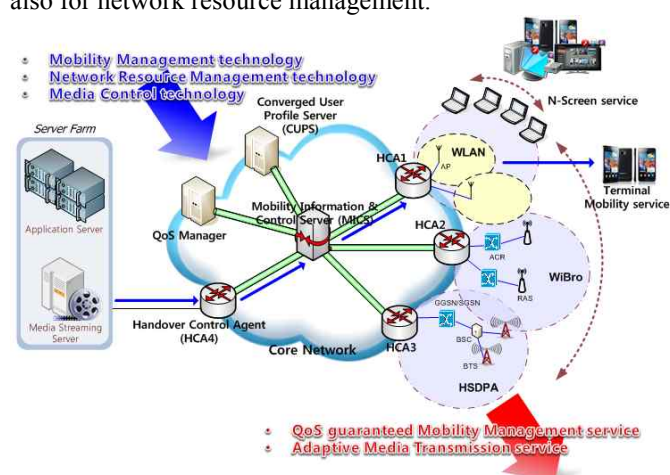


Figure 1. IPTV2.0 demonstration test-bed

The adaptive media transmission technology supports media service optimized for the terminal resource such as the available bandwidth, screen resolution, etc. For this, the test-bed includes mobility information server to manage the connected access networks, and converged user profile server to manage profiles for user and device.

Furthermore, the test-bed provides the network/video quality measurement and analysis technology to analyze the quality of the service on the test-bed. For this, the test-bed includes elements for the network/video quality measurement and analysis.

The project consists of a 3-phase test-bed construction. The first phase includes the IPTV2.0 demonstration test-bed design, the applied service system development and the service scenario development. The second phase includes the IPTV2.0 test-bed construction and the applied service demonstration in the IAAF World Championships Daegu 2011. In the final phase, we enhance the test-bed and additionally install the network and video quality analyzers.

III. MEDIA SERVICE BASED ON TEST-BED

Diverse kinds of services can be developed or applied over the IPTV2.0 demonstration test-bed. As a service based on test-bed, mobile IPTV service and Personal Broadcasting Service (PBS) over heterogeneous access network, media N-screen service, contents matching rich data service are introduced.

The mobility management technology can be revitalized by improving the legacy service and its user experience based on the technology. As the typical service utilizing different mobility types, mobile IPTV and PBS provide seamless service for subscribers moving over heterogeneous access networks based on mobility managed test-bed. Specifically, the mobility management is a critical technology for the PBS to satisfy users' desires to participate in the social network anytime and anywhere.

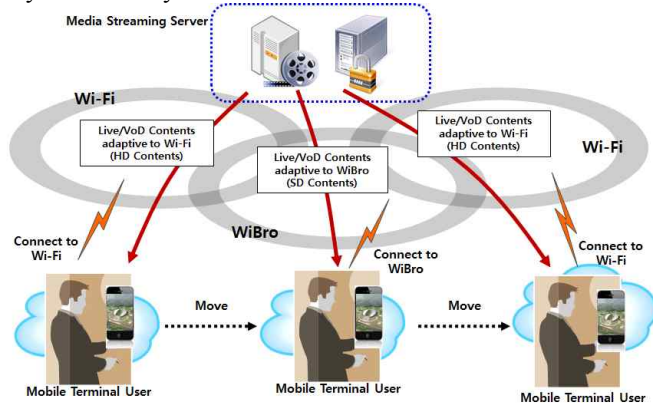


Figure 2. Mobile IPTV service

Figure 2 describes conceptual mobile IPTV service. In this service, the subscribers can take seamless media service moving over heterogeneous access networks. Also, they receive HD contents when their terminal connects to the WiFi network with a high bandwidth. When it connects to the WiBro network with relatively small bandwidth, they receive SD contents.

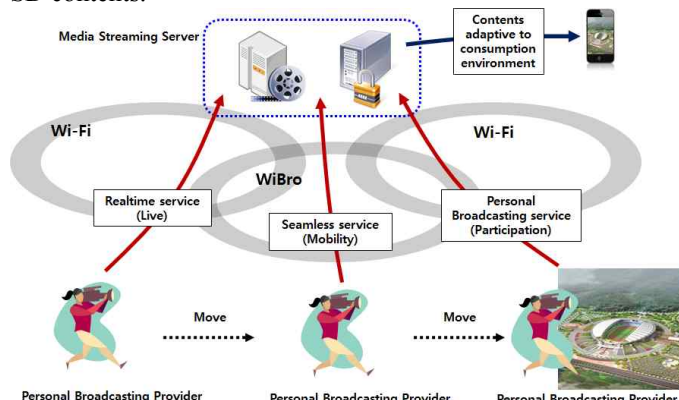


Figure 3. PBS service

Figure 3 describes conceptual personal broadcasting service. In this service, the subscribers can create contents using the camera built in their smart terminal and provide them.

One of features in IPTV service is that users are able to enjoy any contents whenever they want. The feature can be realized by applying a variant of mobility, N-Screen, moving contents among screens. Media N-Screen service provides media transmission adaptive to terminal environment.

Figure 4 describes conceptual N-Screen service. In this service, the subscribers can share media contents among their own terminals such as smart terminal, notebook, television, and so on. Also, it is possible to utilize the adaptive media transmission technology depending on the type of the connected access network like in the mobile IPTV service.



Figure 4. N-Screen service

As a representative convergence service of IPTV, content matching rich data service can be developed and provided over the test-bed.

Figure 5 describes conceptual contents matching rich data service. Watching the media contents in this service, the subscribers can access contents matching rich data by using keywords relevant to the contents. For example, when the subscribers are watching the 100m final, they can search records in the preliminary rounds, the world record, etc.

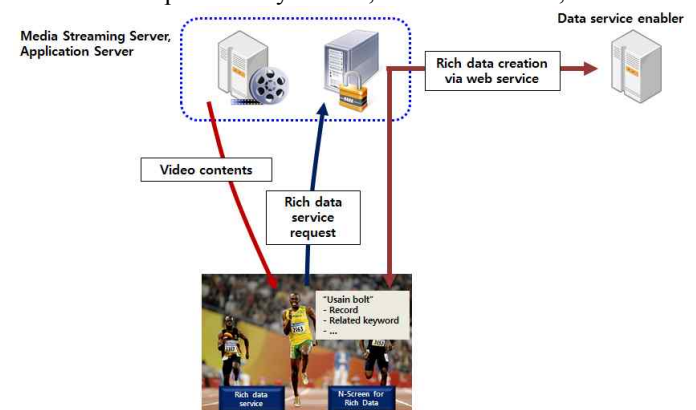


Figure 5. Contents matching rich data service

IV. THE UTILIZATION AND THE EXPECTED EFFECTIVENESS

The IPTV2.0 demonstration test-bed can be utilized throughout the entire process for verification and validation of core technologies, testing, business model generation, marketing, service launching, upgrade, etc. The specific utilization is as follows.

- Demonstration test-bed for new market expansion support
- Reference site for verification and validation
- Infrastructure for commercialization of new technologies and technological innovation
- Integrated certification for throughout the entire process of service/product development
- Acceleration of technical cooperation and joint research between small businesses

The IPTV2.0 demonstration test-bed is expected to produce some effectiveness. Firstly, the following is the effectiveness in technical perspective.

- Strengthening and improving the technical competitiveness in small firms by securing a test-bed and infrastructure relevant to a broadcasting telecommunication converged industry
- Promotion in converged media industry by providing companies with various service development and commercialization environment, so that they enter into the market in time
- Concretization of a promising future business model without worrying about technology leakage by utilizing a domestic test-bed

Secondly, the following is the effectiveness in economic perspective.

- Regional revitalization as a national and global hub for converged media industry
- Effects of import substitution by utilizing a domestic test-bed

- Leading key technologies and the global market
- Discovering new growth engines and expanding the employment in the new media industry

V. CONCLUSIONS

As one of NGN's main features, the QoS guaranteed mobility managed network is needed to support the moving subscribers. As a breakthrough for a stagnant industry, the market requires the revitalization of diverse converged services. In order to meet the requirements, ETRI has been constructing the IPTV2.0 demonstration test-bed. In this paper, we describe core technologies of IPTV2.0 concept and applied services as well as the utilization of the test-bed and the expected effectiveness of it.

ACKNOWLEDGMENT

This work was supported by the MKE(The Ministry of Knowledge Economy), Korea, under Next Generation Media based IT Convergence Device Commercialization Support program supervised by the NIPA(National IT Industry Promotion Agency) (NIPA-2011-B1100-1101-0017)

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