

Market Trend of TVoDSL in Telecommunication Market

HyunSoon Shin, HyunMoon Shin
 Electronics and Telecommunications Research Institute
 161 Gajeong-dong, Yuseong-gu, Daejeon, 305-350 Korea

Abstract— The main issue you have to confront when you want to send TV over IP is quality vs. bandwidth. Also 'Always-on connection' means that it keeps an active state as long as a computer has been on. Under this situation, This paper introduces TVoDSL market trend, new service that expect in profit telecommunication operators through composing user environment that can connect to network conveniently by using the terminal that xDSL and TV that 'always-on' application are possible.

Keywords — TVoDSL, always-on.

1. Introduction

'Always-on connection' means that it keeps an active state as long as a computer has been on. One of the substantial embodiment for always-on services is that connects immediately by on-demand way to web or other internet service in home. TVoDSL is called the interactive TV (i-TV), a service that interactively use the internet advertisement, game, T-banking, information, T-shopping, promotion, database etc..

The advantages of doing this are many. For example there is an existing infrastructure that can be used. Also from a user point of view there are some advantages for example multiple audio tracks can be sent to different countries, you can watch several channels at the same time and several other interactive services will be available. The disadvantages are that there are copyright problems and that the technology has not yet been tested on a nationwide scale.

The main issue you have to confront when you want to send TV over IP is quality vs. bandwidth. Assuming you want the same quality as on ordinary TV systems you would need a bandwidth of 2000 Mbps to transmit your program uncompressed, so naturally it needs to be compressed. It is also important to use the bandwidth you have in a good way. With ordinary TV everyone receives the same signal from some big mast somewhere. With IP there are packets being transmitted and with today's common transfer technology every packet has one receiver, it would be nice not to have to send a packet to each receiver.

Having identified these two problems we have divided this essay into two major parts: transfer technology and compression.

Although most people are thinking of PC as only alternative about e-mail or internet search etc., internet on TV is also

possible. As it is possible to use internet on TV, various additional service development is available, it is expected that additional sale extension on network and may rise by next generation killer application.

This paper introduces TVoDSL market trend, new service that expect in profit telecommunication operators through composing user environment that can connect to network conveniently by using the terminal that xDSL and TV that 'always-on' application are possible.

2. The Business and Technology Trend

If we examine about TVoDSL's market possibility, because the services on TVoDSL increase and equipment price (bandwidth, hardware device, set-top box, contents server, software, other equipments) fall continuously, market competitive power security is available. Video compression skill is improving in reflex class and control ability also improved for consumers' communication medium. Also, Set-Top box through this as well as mortification Internet and all-in-one of TV extent of convergence service offer situation that is widening be. Usually, most difference of TV and PC is accessibility, whereas accessibility of TV is excellent for the other, but although watch program that want on time given, PC mortification internet connection to contents that want that accessibility drops than TV anytime strong point that connection is possible have. Therefore, through TV, TVoDSL's value added service that can provide fusion service of telecommunication and broadcast is same as following.

- Video on Demand(VOD), Pay Per View(PPV)(VOD): the change of consumers' broadcasting utilization pattern by real time usage
- Personal VCR: Device for save of consumers' individual preference contents
- Character support service: It is possible to offer the broadcasting guidance, broadcasting contents summary explanation etc..
- Looking and listening limitation: Control program available looking and listening under parent's agreement
- It is possible to use e-mail, chatting, instant message, live discussion on TV
- Caller ID on TV: Dispatch of a sender of telephone that is made in TV screen function

- Function of convenience of individual schedule supervision, telephone book, calendar etc.
- Home album storage : Changing from picture album on PC center to TV center
- Real time order at the same time advertisement on TV
- Personal media station: Contents manufacturing based on personalized TV

A. Business Trend

Internet connection was embodied at TV because available i-TV service uses analog Set-Top box in analog broadcasting period or had been offered through PC through current TV, and moreover, regular i-TV service is forecasted to spread meeting digital TV broadcasting age. Service market is magnified as main service providers and new service providers in quantity field enter to i-TV service market according to fusion trend of telecommunication and broadcast. Hereafter digital TV purchaser number increases worldwide, and i-TV service subscriber's number is expected to increase greatly according to this. One hundred and seventy-eight million, eight hundred thousand household over European digital TV City Hall number of household two hundred and twenty-one million, seven hundred thousand, 80% of them forecasted i-TV service to be offered in 2005 according to Strategy Analytics relationship estimate. According to Jupiter Communications' estimate, diffusions, ten billion dollar market creation is expected thirty million generation in i-TV 2003 that increase in the United States America. By advertisement media i-TV is expected to be lain in the rival relation with internet in 3 years.

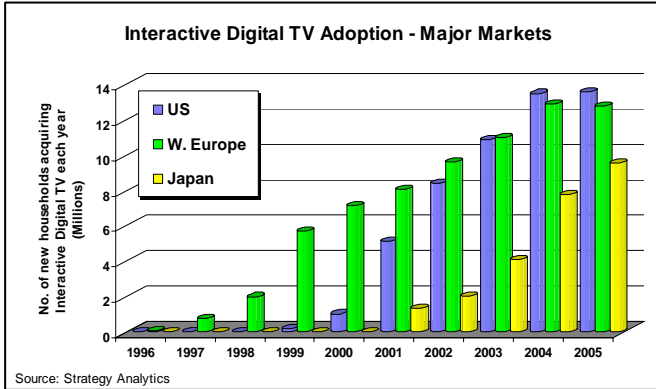


Table 1. The Market Size for Each Countries

● **Korean Trend**

It is situation that digital cable broadcasting establishes standard usage in 2000 and is situation that rush in broadcasting that see from 2002, and begins broadcasting that digital satellite broadcasting also sees in 2001 latter half of the year after 2000 businessman good government. Is going to rush in broadcasting that see ground welsh onion broadcasting hereafter that come in experimental broadcast from September, 2000. By each broadcasting type rushes in digital broadcasting all, internal interactive service mayor is expect to grow gradually. Moreover,

fact that ADSL, cable modem etc.. high speed internet subscriber longevity is early in saturation state is construed to a element.

- July, 2000 after TV development for data broadcasting of iPCTV (intelligent PC TV) inputing total twenty-six billion, four hundred million wons from 1997 to national policy assignment trial performance
- Data broadcasting standard in case of ground welsh onion ATSC-DASE, satellite DVB-MHP select, and current OCAP of cable is becoming leader
- SBS start the main digital broadcasting on October 24, 2001, and KBS start the main broadcasting on November 5
- Korea digital satellite broadcasting company (SkyLife) select Alticast as data broadcasting service company
- Tender or planning about reflex electrification, satellite multicasting, Home Viewer, VoIP service etc. through TV

■ **Korean Services Trend**

● **United Kingdom**

BSkyB that the Britain is satellite broadcasting businessman offered digital broadcasting service, 'Sky digital' service that is bi-directional service from October, 1998. Later competition between digital broadcasting businessman is spread hard until current, a digital broadcast receiver is offered into free of charge to subscriber as the result and is situation that can use both direction service beside digital broadcasting program City Hall if consumer pays equipment cost of construction and every month program television subscription fee. BBC of ground welsh onion class, ITV Digital and BSkyB of satellite class, cable class' CWC etc. is securing seat by leading data broadcasting service businessman current. Through this, is providing service about information service, VOD, PPV, game, e-mail, internet connection, T-commerce etc. mainly. Service provider's main income circle bears and system rental fee of company, outlay for advertisement, sales commission etc. occupy mainly.

● **USA**

Service offer means that both direction services is new is noted by income won naturally. Speak consumer who enjoy web surfing simultaneously as watching TV as 'Telewebber', the number increased to twenty-seven million people in 1999 in eight million people in 1998 in the United States America recently, appeared by arriving to forty-four million people according to Dataquest of February, 2000's postpositional word. Specially, my high-capacity that about 70% of generation has joined to CATV, and connects this directly with home, that move

that utilize to high speed broadband information communication infra and provide a various network service to home is appearing. According to this, cable service providers are in plan to load bi-directional service function to STB that receive CATV. i-TV's growth is analyzing to owe in high interest about new business model of each service providers such as VOD, consumers' increased demand about interactive service and cable such as T-commerce, DBS (Digital Broadcast Satellite), digital broadcasting. Frost & in hereafter 2006 if follow to Sullivan United States America interactive service subscriber number nineteen million, five hundred thousand people, service market scale to end up for five billion, three hundred million dollars forecast .

● **Japan**

Japan is propeling "RENA Project" that integrate all communication and broadcasting service to network in aspect that QoS and Security about internet before direction are secured. Finally, it is situation that network's last terminal is developing skill that inflect PC or TV and partly commercial service is announced current.

B. Technology Trend

● **Broadcasting System**

i-TV is instant service that is passed to relevant viewer by program as soon as program that viewer is required that selecting requires program passed to own at that moment that viewer is looking at screen to viewer who could only just watch program decided according to schedule decided in broadcasting station one-sidely. i-TV does impossibility with existent broadcasting system itself, and must relate to be inseverable with network that can carry data by bi-direction. Limit of that do to compose bulky quantity of receiver that problem receives TV broadcasting first and to network to compose these system is point that exist. Communication system etc.. that use telephone or PC recognizes and uses that restriction is in user number that simultaneously can use, but communication through TV and case of broadcasting are different. It is exist that must be able to receive program that want anytime if connect entire membership on TV do. Expense that is geometry progression enemy in infra network construction to support popular terminal (TV) in network last month that a computer and only technology of communications are combined is cost. So, must grope operation way to integration system that a computer, communication, and broadcasting get put together.

[Table 1] Comparison between i-TV and analog TV

	i-TV	Regular TV
Transmission	bidirectional	unidirectional
Experience	interactive, full user	linear
Content	multimedia/broadcast	broadcast

Usage	active/interactive	passive
User	profiled	anonymous

● **Element Technology**

■ **Manufacturing system**

Make link relation between media integrating data manufactured already by each mono media as a tool that manufacture contents offered in multimedia service, and compose flowing of data from service scenario viewpoint and make browsing to viewer terminal. OpenTV that supply application environment so that can manufacture easily application of conversation form, Media Highway of France Kanal plus company is offering a suitable mastication tool together in own environment.

■ **Video server**

Do function that store video data in compressed form, and transmit video by request. Video server must offer function of acceptance TC (admission control), request transaction (request handling), data search (data retrieval), guarantee style stream TC (guaranteed stream transmission), stream encryption (stream encryption), VCR function support etc.

■ **Transmission system**

Wire structure such as HFC (Hybrid Fiber Coaxial), FTTC (Fiber To The Curb), and FTTH (Fiber To The Home) that last month uses and composes satellite, ground welsh onion, VDT (Video Dial Tone) way that come LMDS/MMDS and apply digital subscriber return boat (xDSL) skill on case and general telephone line that construct to radio together, coax or fiber-optic cable according to medium that use has possibility.

■ **Uplink channel**

The voice channel that use user's request information age channel and exchange each kind control information when receive data. Problem that is going to use some medium for uplink channel is influenced according to transmission system that is composing most last month.

■ **Navigation system**

Supply menu that can select to viewer and do function that viewer does specific application or information contents so that select directly, and this part is most important in viewer viewpoint.

■ **Set-top box**

That is compressed for transfer efficiency of video signal is general, therefore need device of some basis function unlike existent TV need restoration of video signal and create video control signal to watch video signal transmission through monitor. Call device for video service as set-top box with this, correspond to subscriber terminal equipment for video service. All afoot projects (SOMMIT, DAM) are following DAVIC system that use ATM net by last month in current Europe. All two set-top

box is selecting MHEG-5 engine and SOMMIT set-top box is operated with Java virtual machine specially.

3. The Key Issues

By development of technology and deepening of competition among operators important duty of internet connection service approximately widen but price also is dropping fast. It is looked to face in income circle creation limit soon by simple internet connection. They must provide various services through net that integrate Internet as well as streamline for income circle creation and cross-fertilization of radio network, communication, broadcasting network and is integrated. Because payment intention about service which customer can feel directly use than simplicity connection service is high, success possibility of income circle creation through various services is high. Also, the access about service that easily always wants to provide services that maximize the direction of customer's payment should be possible. Must solve following issues for this. They must efficiently manage network resources at level that can stably offer TV service. They can compete with contents of satellite broadcasting and cable broadcasting, and compete with various free contents of internet and paid service is available superior contents' security. Institution problem business licence system, it is data broadcasting advertisement regulation, electronic commerce on TV in public channel have problem of prohibition, contents regulation, duty re-transmission etc. It is development of suitable terminal and diffusion in i-TV service.

4. The Business and Technology Strategic Direction of Operators

We must unfold for direction that can invent TVoDSL service is telegraph operator trade's old fledgling and synergy impact for 'Always on' service offer. Also, must greaten customer's rice cake's gender by integration charging system establishment, and must provide service of customer center by book mark function about main looking and listening service, Interactive Program Guide (IPG) etc., and must guarantee reasonable utilization fare by selective contents good government and this. And must utilize advertisement, service etc. because done customer's utilization pattern DB Tuesday. Central that make user accommodate broadband services with TVoDSL is expected by convenience and contents. Because convenience of them is direction relation in everyday life and time management, general web utilization (telephone number retrieval, driving direction, shopping price comparison etc.) coincides often with telephone utilization. This can solve by 'Always-on' connection. Must change groove media service of existent wire communication businessman's PC center to TV center and secure base of service consumer floor extension.

5. Conclusion and Suggestion

The wired telephone operator trades exist in market hereafter, the various wealth for communication service of 'Always on' concept is situation that development that profit model

development is continuous is necessary. Telephone operator trades must utilize old infra maximum and ready synergy effect creation plan through another thing business (home network, fixed-mobile convergence service etc.) and link in this situation. Internet use must develop possible TV UI (User Interface), and is easy for these by box to users who TV is vision falling apart than PC, and need convenient internet development. Also, must ready security for distinction and relation thesis plan with broadcasting company with Cable TV businessman back, and technological examination for old network practical use is required. Analysis about old PC and analysis in user interface viewpoint between TV and consumer's willingness to pay need to be gone ahead.

REFERENCES

- [1] BROADBAND-bringing home the bits : National Academy Press
- [2] Interactive TV : ETRI
- [3] Birth of Broadband ITU Internet Reports : International Telecommunication Union
- [4] "The Public Ethernet Business Model: Many Services, One Network" : Egbert-Jan Sol