

VIRTUAL TELEMATICS SERVICE PROVIDER SYSTEM

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ABSTRACT ... Telematics, one of the so-called New Growth Engine of IT839, is a leading IT service where wireless internet service represented by information and mobility is extended to the area of transportation. To provide telematics service, Telematics service provider have to connect with various Contents Provider or Service Provide server - for example - LBSS(Location Based Service Server), ASPS(Application Service Provider Server), TELICS(TElematics Information Center Server), GMS(Geo-mobility Server), WTPS(World Telematics Protocol Server) and MAUS(Map Air Update Server). Presently, It is nearly impossible or very difficult for the company that are manufacturing and testing telematics device to develop and test telematics solution without connecting Telematics Service Provider, Service Provider, Contents Provider. And, it is very difficult to connect in TSP, CP, SP having the product to be developed. In this paper, we proposed virtual telematics service provider. The proposed Virtual Telematics Service Provider is to provide telematics services and functionalities by integrating telematics servers into TSP gateway virtually.

In other words, VTSP is performs with the role of TSP, CP, SP. And the VTSP support integration of telematics servers, interfacing and monitoring between terminal and the integrated servers.

KEY WORDS: Telematics, TSP

1. INTRODUCTION

Telematics, one of the so-called New Growth Engine of IT839, is a leading IT service where wireless internet service represented by information and mobility is extended to the area of transportation.

The telematics industry is a giant convergence-type industry, which links with not only automobiles and IT industries, but also almost all sectors, including wireless communication networks and system, terminals, contents, security, SI, insurance, financing, transportation, logistics and distribution. The telematics service forms a value chain linking contents providers (CP), telematics service providers (TSP), mobile communication providers, manufacturers of communication terminals, makers of finished automobiles, and customers. Among them, in general, makers of finished automobiles and mobile communication providers become center of the value chain and create business alliances with other businessmen, playing a role as TSP.(Korea IT Times Dec.2005)

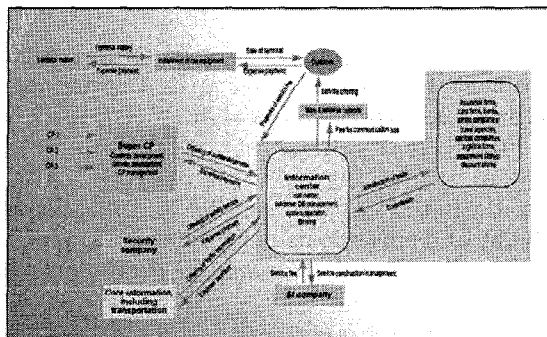


Figure 1. The Value-Chain of Telematics

Necessity of constructing the telematics testbed arose in order to test and validation of related standards and technologies with fast development and growth of technologies and products in telematics industries which involve various value chains such as IT, automobile, services etc.

In particular, common test facilities for testing interoperability of different types of development results from service providers for national level, communication companies, terminal manufacturers etc are required. Also, test tools for validating the developing telematics products and services are required whether they are being implemented accordingly with the domestic and international standards or not.

In this paper, VTSP supporting the test of interoperability and quality for element technologies comprising the telematics services have been developed. VTSP is performs with the role of TSP, CP, SP. And the VTSP support integration of telematics servers, interfacing and monitoring between terminal and the integrated servers.

The outline of the paper is as follows. In section 2, related work is introduced. The Virtual Telematics Provider System is defined in section 3 and section 4. Finally, we discuss the result and further research.

2. REALTED WORK

2.1 ASPS : Application Service Provider Server

An ASPS is development of Telematics Service Provision Technology that Enables Telematics Users to Transfer Software Application Whenever the user want. It helps on-demand service streaming and execution technology for Telematics. It is development of Telematics ASP Management System Transferring

Service Software for Telematics Users and ASP Agent System Installing and Executing the Service Software. And there are development of Server-Based Multimedia Navigation System for ASP.

So ASPs is applied to Telematics Service Subscription System for Efficient Service Providing on Wireless Network

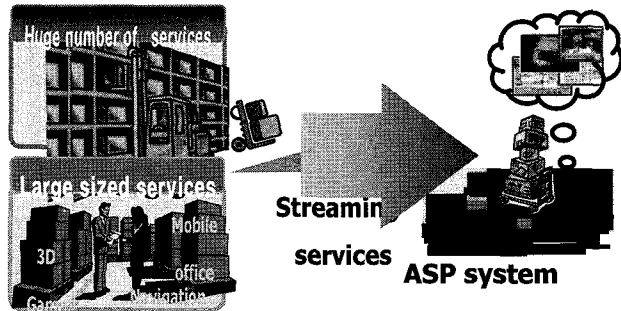


Figure 2. ASP System

2.2 WTPS : World Telematics Protocol Server

An WTP is application-level protocol specification between telematics client and service center. It represents message sequences and encoding specification to provide telematics services and provides specification in binary & XML format and support bearers like SMS, TCP/IP and HTTP for better efficiencies

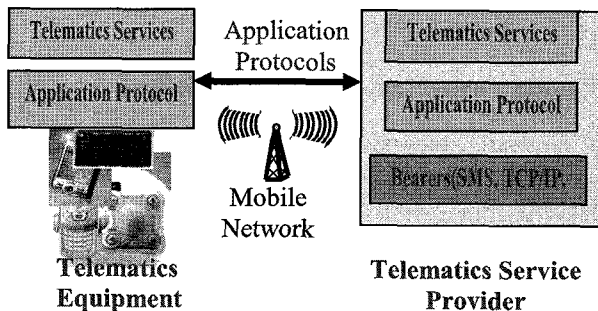
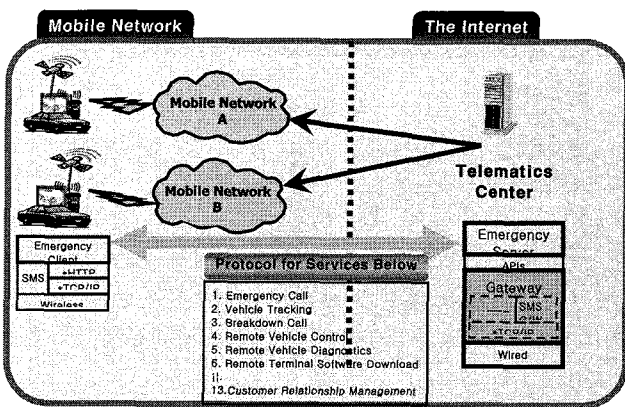


Figure 3. WTPS System

2.3 LBSS : Location Based Service Server

The LBSS is developed for the support of mutual applicable between carrier's network and portable telephone, contents application system. It is also LIF standard Interfacing system developed for guarantee 100% compatibility to 2G and 3G network, LBSS operating and management technology developed for effective service providing, service provider is enable to develop location based service easily.

LBSS providing various kinds of location based services using their location information.

2.4 GMS : Geo-Mobility Server

The OpenGIS Implementation Specification defines OpenGIS Location Services (OpenLS): Core Services which consists of the composite set of basic services comprising the OpenLS Platform. GMS is developed by OpenGIS Specification. It is consist of Location Utility Service, Directory Service, Presentation Service, Route Determination Service etc. GMS helps reduce the skills needed to develop location-based solutions.

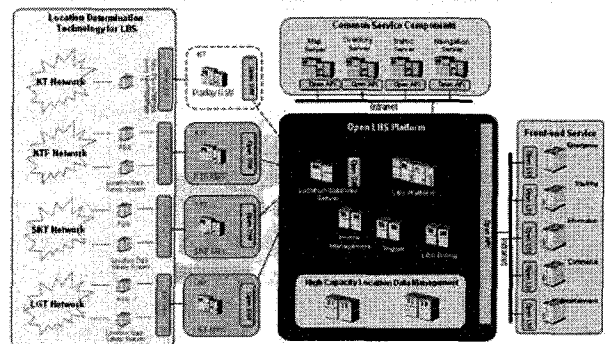


Figure 4. LBSS and GMS System

2.5 TELICS : TELEMatics Information Center Server

TELIC merged private traffic information providers such as SK, ROTIS and Realtecom to build a telematics information center. Through the TELIC to build a system to combine and distribute traffic information to the country, we established a system to effectively manage traffic information, which was dispersed through the National Police Agency and the Ministry of Construction and Transportation

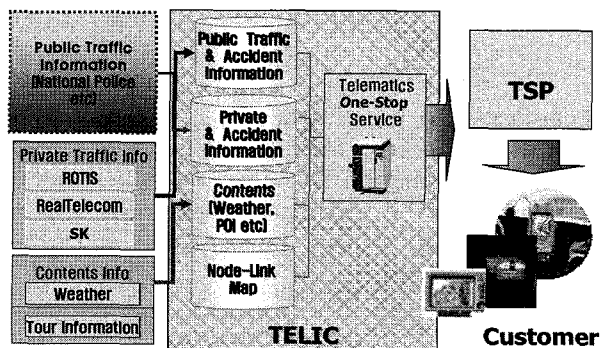


Figure 5. TELIC System

3. ARCHITECTURE

The VTSP is simulating Telematics Service Provider having connection with various Contents Provider or Service Provide server. So VTSP is able to be connected with LBSS, TELICS, ASPs, GMS and WTPS. Moreover, the VTSP is having the function of the LBSS, TELICS, ASPs, GMS and WTPS are virtually performed.

Virtual TSP System Configuration is like following figure 6.

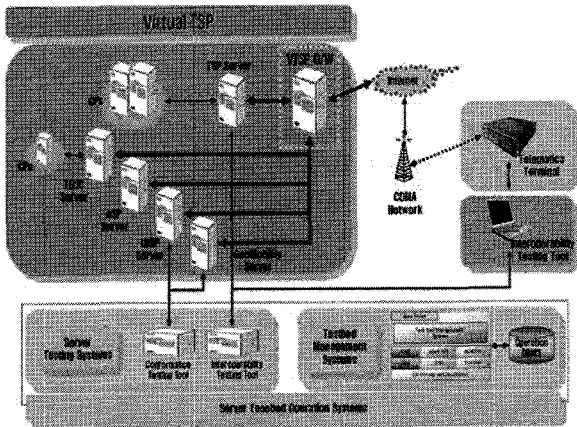


Figure 6. Virtual TSP System Configuration

In Figure 7, it is shown virtual TSP internal Operation Flow and architecture. VTSP is consist of server information manager module, service server connection check module, connect container execution module, gateway processing module, real-time process log/view module and statue analysis & reporting module. Connect Container Execution Module is connect to service provider or contents provider, it virtually performs.

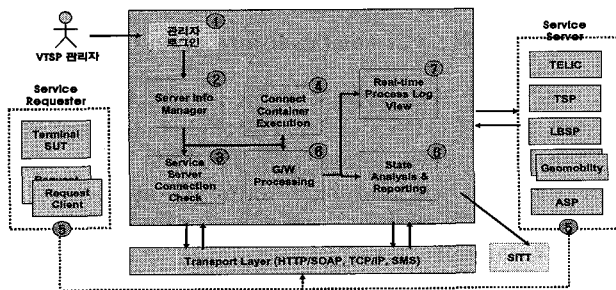


Figure 7. Virtual TSP Operation flow

4. VTSP SYSTEM

In this paper, we introduce development of virtual TSP system. It is TSP server for telematics server validation, and relay monitoring for CP server and interconnected test support. And it has capable of various solution development bases through various future application platform interconnections

4.1 Provision of Telematics Services

VTSP provide the functionality of the integrated server to client terminal transparently. That is, the same operation as the thing connected to LBSS, ASPs, TELICS, WTPS and GMS is performed. Figure 8 shows the main screen of VTSP.

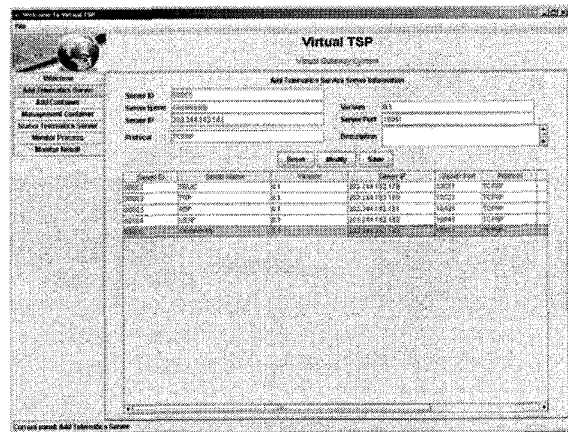


Figure 8. Server integration and management

4.2 Operating VTSP System

VTSP integrate the new types of server into the VTSP Gateway flexibly. And it control and manage the VTSP daemons easily. Following figure 9 is screen shot about VTSP operation.

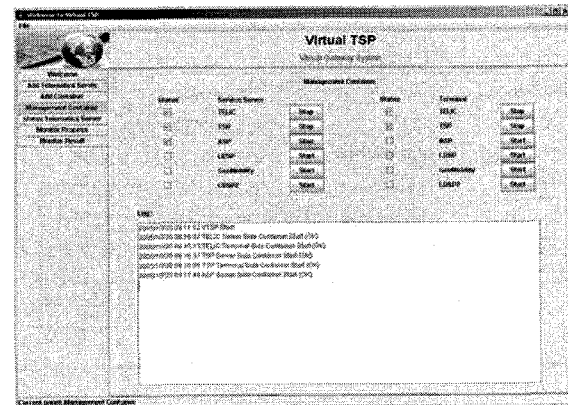


Figure 9. VTSP operating

4.3 Real-time Monitoring of VTSP System

It monitors the state of connected servers (LBSS, ASPs, TELICS, WTPS, GMS and ETC) and VTSP daemons visually. Monitoring screen shot is figure 10. Figure 11 shows monitoring result.

6. REFERENCE

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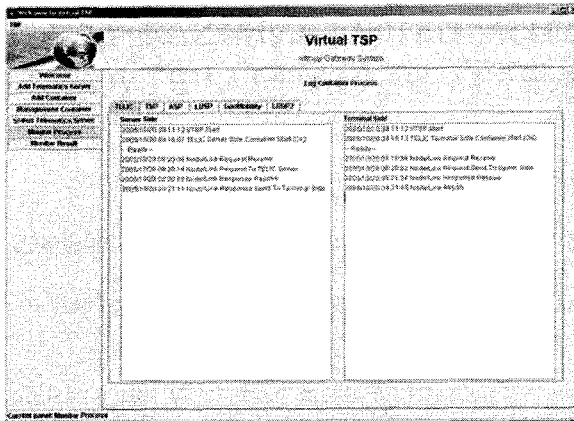


Figure 10. VTSP monitoring

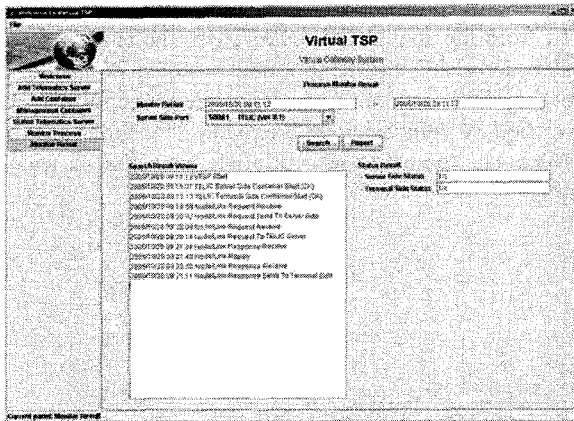


Figure 11. Monitoring Result

5. CONCLUSION

In telematics service area, many service components can be composed to make a service in flexible. Each component must be worked in showing expected operation. Also, each component is interoperable to other component using some defined protocol.

To provide telematics service, Telematics service provider have to connect with various Contents Provider or Service Provide server - for example – LBSS, ASPS, TELICS, GMS and WTPS. Presently, it is very difficult for the company that are manufacturing and testing telematics device to develop and test telematics solution without connecting Telematics Service Provider, Service Provider, and Contents Provider. And, it is very difficult to connect in TSP, CP, SP having the product to be developed. In this paper, we proposed virtual telematics service provider. VTSP is performs with the role of TSP, CP, SP. And the VTSP support integration of telematics servers, interfacing and monitoring between terminal and the integrated servers.

In the future, we will support MAUS (Map Air Update Server) which is telematics service provider.