Chapter 2
Introduction of Vehicular Network Applications

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ABSTRACT

Information and Communication Technology (ICT) is concerned with all the technologies that manage, process, and communicate information. It is also named as telematics, combining two words: telecommunications and informatics, which is widely used in the application of Global Positioning System technology integrated with computers and in the mobile communications technology for automotive navigation systems. Table 2.1 and Table 2.2 respectively list the telemetric applications from user's point of view and the practical applications of vehicular telematics. Four applications of the vehicular network are discussed in this chapter. The first section introduces the vehicular network application services. The second section discusses the vehicular network application management. The third section provides the platform technologies of vehicular network application. Finally, future vehicular network application and deployments are presented in the fourth section.

INTRODUCTION

Service bundle provision systems (Choi et al., 2005; Han et al., 2005) enable users to search, download and install service applications that can be operated on a user terminal in an open telematics environment (shown in Figure 1). The system has incorporated the telematics gateway in the service providers including the wireless optimized TCP, the wireless optimized HTTP, the SMS gateway, the push module and the framework, as illustrated in Figure 1. Such a system has three main components: gateway, framework and world telematics protocol.

- **Gateway:** The gateway allows developers to write a telematics server application that

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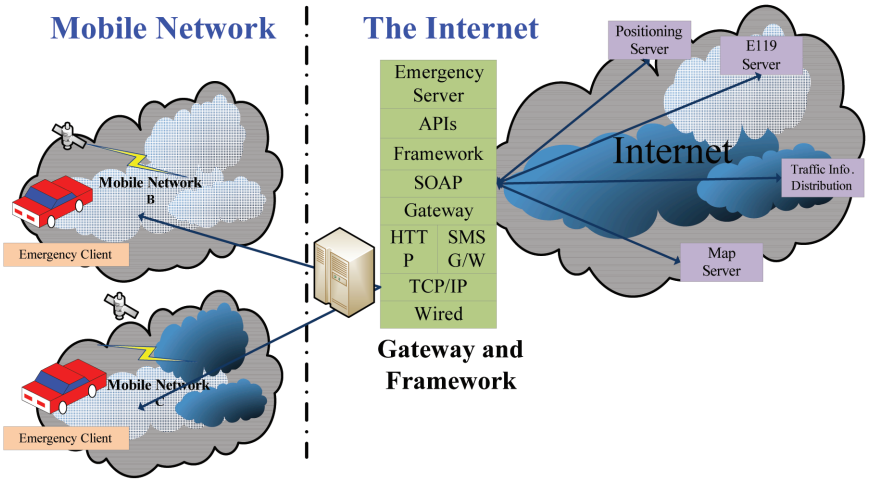
Figure 1. Open telematics service



can be operated irrespective of the gateway of the mobile network.

- **Framework:** The developers can write applications, without knowing about the details of integrating the related servers distributed in networks, by utilizing APIs supported by the framework.
- **World Telematics Protocol (WTP) (WTP1.0 Specification, 2004):** WTP defines a protocol to exchange messages between a telematics terminal in a vehicle and a telematics service center. Telematics service developers and service providers can develop and provide telematics services that do not depend on devices and service carriers. See Tables 1 and 2.

Table 1. Telematics applications from user's point of view

Audio (CD / Radio)	Telephone
Telephone	Navigation
Video	Speech recognition
Short messaging (SMS)	User interface for body electronic

The telematics portal framework (shown in Figure 2) is mainly divided into three components. The first component is a provisioning service part that provides a telematics terminal with telematics service bundles. The second component is a service bundle management module that provides functionality for deploying and managing service bundles. The third component is a repository module that not only supports other two components and stores service bundles and related data, but also allows search and manage service bundles. Additionally, it supports various software providing protocols including JNLP, MIDP and J2EE client provisioning.

Table 2. Practical applications of vehicle telematics

Vehicle tracking	Wireless vehicle safety communications
Trailer tracking	Emergency warning system for vehicles
Cold store freight logistics	Intelligent vehicle technologies
Fleet management	Car clubs
Satellite navigation	Auto insurance
Mobile data and mobile television	