Chapter 4.35 Location-Based Services in the Mobile Communications Industry

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INTRODUCTION

Advances in wireless communications and information technology have made the mobile Web a reality. The mobile Web is the response to the need for anytime, anywhere access to information and services. Many wireless applications have already been deployed and are available to customers via their mobile phones and wirelessly connected PDAs (personal digital assistants). However, developing the "killer" wireless application is still a goal for the industry rather than a reality. One direction for developing such applications points to locationbased services (LBSs). LBSs are services that are enhanced with and depend on information about a mobile station's position. Location information by itself is not the ultimate service, but if location information is combined with content, useful services may be developed. These services offer the capability to users and machines to locate persons, vehicles, machines, and resources, as well as the possibility for users to track their own locations (GSM Association, 2003). The focus of this article is the analysis of the most critical success factors and challenges for LBS.

BACKGROUND

In order to show the domains on which LBS may have an impact, a list with the LBS categories, as defined by the Third-Generation Partnership Project (3GPPP, 2004), is presented in Table 1. Also, based on the information-delivery method, we identify three types of LBS: pull, push, and tracking services (GSM Association, 2003). In the case of a pull service, the user issues a request in order to be automatically positioned and to access the LBS he or she wants. A use-case scenario demonstrating a pull service used broadly in the LBS literature (Poslad, Laamanen, Malaka, Nick, Buckle, & Zipf, 2001; Zipf, 2002) is the following. A tourist roams in a foreign city and wants to receive information about the nearest restaurants to his or her current location. Using a mobile device, the tourist issues an appropriate request (e.g., via SMS [short messaging service] or WAP [wireless application protocol]), and the network locates his or her current position and responds with a list of restaurants located near it. On the contrary, in the case of a push service, the request is issued by the service provider and not the user. A representative example of push services is location-based advertising, which informs users about products of their

| Application Domain | Standardized LBS Types |
|--------------------------------------|--|
| Public-Safety Services | Emergency Services |
| | Emergency Alert Services |
| | |
| Tracking Services | Person Tracking |
| | Fleet Management. |
| | Asset Management |
| Traffic Monitoring | Traffic-Congestion Reporting |
| Enhanced Call Routing | Roadside Assistance |
| - | Routing to Nearest Commercial Enterprise |
| Location-Based Information Services | Traffic and Public Transportation Information City Sightseeing Localized Advertising Mobile Yellow Pages Weather Asset and Service Finding |
| Entertainment and Community Services | Gaming Find Your Friend Dating Chatting Route Finding Where am I? |

Table 1. Standardized LBS types and corresponding application domains

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