Chapter 4.10
Using Mobile Devices for Electronic Commerce

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INTRODUCTION

Electronic commerce is becoming the most used mechanism for non-traditional commerce. However, several popular delivery services are still accessed via telephone, which enables commerce anytime, anywhere. Such telephony-based services have several problems: they do not offer a more detailed description of available products; users may ask the attendant to repeat the description of a certain product, directly affecting the time of product selling; the number of concurrently attended clients is limited to the number of attendants; and the product list must also be continuously updated, by adding or removing products, but the user cannot be automatically informed about that.

Mobile devices offer a sophisticated interface that allows better user interaction by means of lists, menus, multimedia features such as images, and much more. A user can indefinitely explore product categories very fast. It is possible to offer a more detailed description of products, with visual elements such as pictures or even videos. Besides, the number of concurrent accesses depends only on the number of connections supported by the server.

In this article, we describe an architecture for mobile commerce which allows the use of mobile devices for electronic commerce. The architecture enables the development of applications to be executed on a mobile device, which lists selling products having their own textual descriptions and pictures. We discuss architectural modules and the implementation of an application for

selling fast food called Mobile Menu. We begin with the main background concepts related to our proposed architecture.

BACKGROUND

Electronic commerce has attracted significant attention in the last few years (Varsghney & Vetter, 2002). The continuously increasing number of users of mobile devices, such as mobile phones and personal digital assistants (PDAs), and advances in wireless network technology provide an ideal scenario for offering personalized services to mobile users and give place to the rapid development of mobile electronic commerce (MEC) (Tsalgatidou, Veijalainen, & Pitoura, 2000).

The way MEC operates is partially different from Internet e-commerce due to special characteristics and constrains of mobile terminals and wireless networks. The context, situation, and circumstances under which people use their mobile devices are also different (Tsalgatidou et al., 2000).

Wireless and mobile networks are increasing in exponential rate in terms of capabilities of mobile devices and user acceptance (Varsghney & Vetter, 2002). Today, more than 1 billion cell phones and other mobile devices are in use worldwide. MEC also has more advantages than traditional e-commerce applications: location-awareness, adaptivity, ubiquity, personalization, and broadcasting (Tsalgatidou et al., 2000). Applications for mobile devices are also easier to use, because the user interface of such devices is very intuitive.

Mobile devices have less resources than desktop and mainframes computers: limited memory, disk capacity, and computational power. The user interface of such devices also has some constrains: for example, small screens and small multi-functional keypads (Tsalgatidou et al., 2000). These constrains restrict the variety of applications for mobile devices and must be taken into account when designing new systems for such platforms.

Applications that demand a considerable quantity of system resources are harder to develop for mobile devices. For example, applications that need a large database to constantly perform queries and update the data are very difficult to develop for mobile devices, because the limited memory of devices does not support a database

Figure 1. Mobile menu architecture
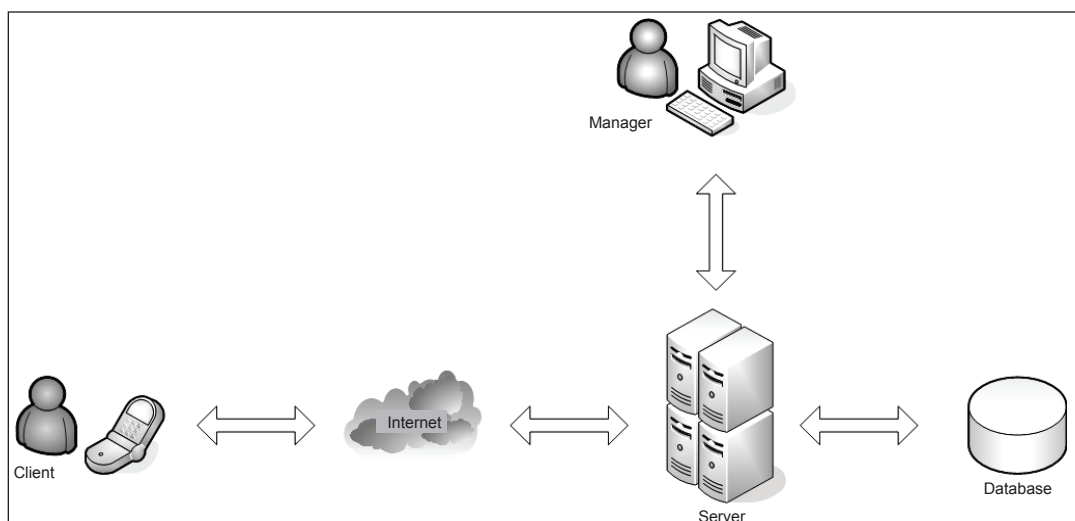
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