14 Mobile Commerce and Wireless E-Business Applications

S. Song
IBM China Research Laboratory

14.1 Introduction

From the historical perspective, commerce, and the way people do business have always been affected by the progress in communications and computations and vice versa. The desire of ancient merchants, to reach more and varied customers, motivated them to undertake difficult and hazardous journeys across deserts, oceans, and mountains. This desire resulted in heavy investments in infrastructure and thus the progress in transportation and communication industries.

The continuing interplay of commercial success and communication technology is going to push new means of interaction for rich content and on multiple communication media. In recent times, there has been a dramatic increase in the use of powerful mobile devices. These mobile devices, ranging from pagers to mobile phones, wireless PDAs, and wireless laptops, are changing the way people interact at work, on the road, and at home. The sophistication of the mobile devices and wireless technologies has advanced to the stage of mass-market usage and acceptance. Just as we saw a surge in e-business by PC browser clients, we are now experiencing a similar phenomenon in mobile commerce and wireless e-business applications by users of these more advanced mobile devices.

Mobile computing, also known as pervasive computing, provides a series of technologies that enable people to communicate in various new ways and accomplish personal and professional tasks using this new class of portable, intelligent, wireless mobile devices. These mobile devices give people access to information at any time and any place. Although some countries have invested more in wireless technologies than others, diverse technologies and systems are implemented in different parts of the world. The capability and number of users in all countries of the world are growing at a tremendous rate.

Wherever you live, mobile computing will, in the very near future, become a prominent means of accessing information on the Internet. Just as the PC browser client market matured from accessing the Internet simply for browsing and gathering information to full-blown e-business and e-commerce, the same is happening for mobile devices.
14.2 Mobile Commerce

14.2.1 What is Mobile Commerce?

Depending on the goals of the user and tools used in the operating, the term *mobile commerce* (or *m-commerce*) can vary widely in meaning. Generally defined, m-commerce refers to the use of mobile devices to partially or completely perform a transaction electronically from a commerce service provider for the exchange of goods or services for monetary consideration. Simply put, m-commerce is defined as any type of transaction of an economic value having at least at one end a mobile terminal via a mobile telecommunications network.

Under this definition, m-commerce represents a subset of all e-commerce transactions, both in the business-to-consumer and business-to-business area. There is a variety of m-commerce scenarios that have different implications for a classical e-commerce infrastructure.

E-commerce (or *electronic commerce*) is a general term for any type of business, or commercial transaction, that involves the transfer of information across the Internet. This covers a range of different types of businesses, from consumer-based retail sites like Amazon.com, auction and music sites like eBay or MP3.com, respectively, to business exchanges trading goods or services between corporations. E-commerce has expanded rapidly over the past 5 years and this growth is forecast to continue or even accelerate. It is likely that in the future the boundaries between “conventional” and “electronic” commerce will become increasingly blurred as more and more businesses move parts of their operation onto the Internet.

M-commerce on wireless Internet is growing explosively. It combines two highly explosive technologies, Internet and wireless communications. M-commerce enables you to do business with your customer at any time and any place without any geographical constraint theoretically.

Unlike e-commerce, m-commerce has four unique characteristics:

1. *Convenience and accessibility*. In an m-commerce world, people are not constrained by time and place.
2. *Diversity*. Web browser assisted with email is the most common e-commerce model. There are various methods to do m-commerce because of the diversity of mobile devices and wireless network services.
3. *Personalization*. Where the PC is often shared across multiple users, mobile devices are typically operated by and configured for a single user.
4. *Limitation*. Because of the device capability, connection reliability and security problems, today’s m-commerce is mostly used in B2C and for small- and low-value items.