



Chapter 19

Mobile Agents, Mobile Computing and Mobile Users in Global E- Commerce

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Mobile agents may reside in a host or client computer, and can also roam other computers, networks or the Internet to execute their tasks. In this chapter, we will examine the implications of mobility in three aspects: mobile code, mobile hardware and mobile users. The impact of mobility on electronic commerce in the areas of security issues; export controls, legal jurisdiction, taxation and international issues is also analyzed. Mobile agent technologies and mobile computers will play an important role in the new cyberspace economy, however many issues need to be addressed before the technology can be fully implemented.

INTRODUCTION

The Internet is now the main communication platform in the new digital society. Internet communications are efficient and low cost. The Internet and electronic commerce activities involve multinational sourcing of information, and both have helped stimulate the flow of information across international borders in recent years. The architecture of the Internet is based on the principle of geographic indeterminacy. The mobile agent model seems to provide one of the most suitable technologies for distributed systems in order to integrate the Internet in a syner-

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getic way (Corradi et al., 1998). Mobile agents may reside in a host or client computer, and can also roam other computers, networks or the Internet to execute their tasks. In this chapter, we will examine the implications of mobility in three aspects: mobile code, mobile hardware and mobile users. The impact of mobility on electronic commerce in the areas of security issues; export controls, legal jurisdiction, taxation and international issues is also analyzed.

THE MOBILITY CONCEPT

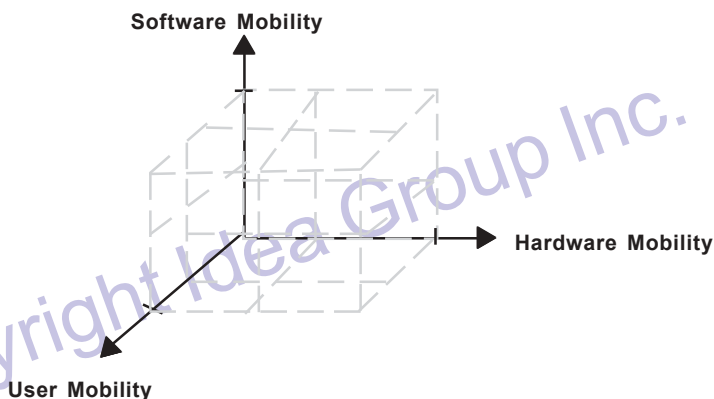
Tolksdorf (1999) applies the notion of mobility to different classes of entities in information systems. He distinguishes passive versus mobile information, active versus mobile agents, and the concept of mobile human users. We can distinguish between three categories of mobility: hardware mobility, software mobility and user mobility.

Mobile hardware: Mobile computing provides the ability to connect to the Internet and have access to a variety of resources while away from the home base. Examples of computers that are often disconnected from the network are: mobile computers, laptops, personal digital assistants, and modem-connected computers.

Mobile users: In this highly computerized era, users are highly mobile and relatively more transient. Hence, there is a need to manage the infrastructure so that remote users can access needed resources in order to accomplish their jobs (Murch and Johnson 1999).

Telecommuting is becoming more widespread as a growing percentage of employees are working from home. This convenience is made possible by using dial-up lines and telecommunication links. Both mobile networking and mobile agents facilitate another work modality that can be called "mobile working." Mobile working has grown significantly thanks to the widespread adoption of laptop computers and mobile phones, especially among salespeople (Australia 2000).

Mobile software: Mobile agent technology introduces the notion of moving



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