Chapter 84
Mobile Agents in E–Commerce

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INTRODUCTION

A **mobile agent** is a composition of computer program, data, and execution state, which is able to move from one computer to another autonomously and continue its execution on the destination computer. Mobile agents provide a new programming paradigm for building agile distributed systems. The ability to travel allows a **mobile agent system** to move computation to data source systems. This decentralized approach improves network efficiency since the processing is performed locally. For example, in an **e-commerce** application shown in Figure 1, mobile agents are used to search and purchase products. Once the *Buyer Server* receives a buyer's purchase request, it generates a mobile agent and sends it to the *Information Server* to search retailers who sell the product. Having a list of retailers, the *Buyer Server* dispatches a mobile

agent visiting these retailers. The mobile agent negotiates with retailers' local seller agents and reports the offers to the *Buyer Server*. The *Buyer Server* evaluates all the offers, and sends a purchase mobile agent to the best offer retailer to make the final purchase.

Some advantages which **mobile agents** possess over conventional computing paradigms are follows.

- Reduce network traffic and overcome network latency. Mobile agents can move to remote computers that contain objects with which the mobile agents want to interact, and take the advantage of being at the same host.
- Work in heterogeneous network hosts if a run-time support environment is installed on these hosts.
- Tolerant to network failures and support disconnected operation. Mobile agents are able