Chapter 9
Client Server System for E-Services Access in Business Environment

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ABSTRACT
E-services is a term which generally means the provisioning of services via the Internet. The prefix “e” stands for electronic. E-services access is a good opportunity for business developing and offer increased financial benefits for various economic agents. By the support of the Internet, the products or services can be efficiently offered to a large number of clients. Besides, the mobile communications networks give to the clients the advantage to access the informational services from anywhere and anytime. This will facilitate an increasing convergence of technological and financial interests of mobile operators, client server software developers, mobile terminals producers and e-content providers, along with a high level of integration of IT&C resources. This is a good basis and a challenging opportunity for value added services developing, in order to be delivered through the mobile communications networks. Client server architectures with mobile users are suitable for e-services providing, using mobile communications networks. Such a system is presented in this chapter, suitable for business environment access using mobile applications installed on Smartphones and PDAs (Personal Digital Assistants).

INTRODUCTION
Data transmission through mobile networks became very attractive for many business agents, in the purpose of promoting and offering electronic services to their clients. This chapter presents a client server architecture, which offers to the mobile users the possibility of GPRS (General Packet Radio Service), UMTS, 3G, or WLAN (Wireless Local Area Networks) access to electronic services, through mobile data terminals like Smartphones and PDAs. As a representative example for a business environment service, a stock market transactions electronic service, based on client server architecture, was developed and presented. The functionality of the system can be
extended for a larger number of applications: e-commerce, e-banking, e-health, e-learning, location based services, e-government, etc.

An informational service is a software application that can be accessed by the users, through the Internet or mobile communication networks, which gives to the client the mobility advantage. The 3G networks offer significant channel bandwidth for increasing data traffic. In the lastyears a spectacular evolution of the communication technologies took place, which offered to the mobile communications operators the possibility to implement high performance networks and services.

UMTS (Universal Mobile Telecommunication System) was established by interconnecting the 2G local networks in a functional universal system, based on roaming concept. In Europe and Japan, for example, the UMTS standard will be implemented through 3G networks. This evolution to UMTS starts with the great number of GSM users in the world, then passes through GPRS (2,5G) and EDGE (2,75G). The 3G standard IMT2000 was created by the International Telecommunication Union to join all the networks in the world with the general roaming functionality. The main wide area 3G standards that accomplish this target are: W-CDMA, CDMA2000, and TD-SCDMA.

E-business cover online transactions, but also extends to all Internet based interactions with business partners, suppliers and consumers; monitoring and exchanging information, auction surplus inventory, collaborative product design. The term e-commerce refers to online transactions, buying or selling goods and/or services over the Internet.

Potential e-business benefits include:

- improved accuracy, quality and time, required for updating and delivering information on products and/or services;
- access of customers to catalogues and prices, 24 hours x 7 days;
- improved access, speed and immediacy of customer ordering;
- enhanced market, industry or competitor intelligence, acquired through information gathering and research activities;
- new distribution channels via the electronic delivery of some products and services, for example product design collaboration, publications, software, translation services, banking, etc.
- expansion of customer base and growth in export opportunities;
- reduces routine administrative tasks, (invoices and order records), freeing staff to focus on more strategic activities.

SYSTEM ARCHITECTURE AND TECHNOLOGY

Hardware Architecture

System’s hardware architecture is presented in the (Figure 1), consisting of the server and mobile clients terminals. The general block scheme of the client server system is adapted for data transmissions, using various mobile channels. The server hardware structure basically consists of an IBM PC compatible computer, Core2Quad, 2,8 GHz, Windows XP Professional operating system with an Internet/Intranet cabled IP connection. The laptop can be connected at the Internet using modems, through CSD, GPRS, 3G and CDMA channels. The connection between the laptop and modems can be made by USB, serial cable or Bluetooth channels.

The system’s mobile terminals are SE P990i Smartphone, with Symbian v. 9.1 operating system [Liming, S, D.], and QTEK 2020i PDA, with Windows Mobile 2003 operating system respectively. The GSM/GPRS, 3G and WLAN – Wi-Fi channels are used for TCP/IP data transmissions. Also other types of Smartphnes, PDA’s or Java enabled phones, can be used [Douglas, B].

Sony Ericsson P990i mobile terminal has two important modules:
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