



## **Chapter XII**

# **Electronic Banking and Information Assurance Issues: Survey and Synthesis**

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## **ABSTRACT**

*Information assurance is a key component in e-banking services. This article investigates the information assurance issues and tenets of e-banking security that would be needed for design, development, and assessment of an adequate electronic security infrastructure. The technology terminology and frameworks presented in the article are with the view to equip the reader with a glimpse of the state-of-art technologies that may help toward learning and better decisions regarding electronic security.*

## **INTRODUCTION**

The Internet has emerged as the dominant medium in enabling banking transactions. Adoption of e-banking has witnessed an unprecedented increase over the last few years. Twenty percent of Internet users now access online

banking services, a total that will reach 33% by 2006, according to the Online Banking Report. By 2010, more than 55 million U.S. households will use online banking and e-payments services, which are tipped as “growth areas.” The popularity of online banking is projected to grow from 22 million households in 2002 to 34 million in 2005, according to Financial Insite, publisher of the Online Banking Report<sup>1</sup> newsletter.

Electronic banking uses computer and electronic technology as a substitute for checks and other paper transactions. E-banking is initiated through devices such as cards or codes to gain access to an account. Many financial institutions use an automated teller machine (ATM) card and a personal identification number (PIN) for this purpose. Others use home banking, which involves installing a thick client on a home PC and using a secure dial-up network to access account information; others allow banking via the Internet. This article will discuss the information assurance issues (Maconachy, Schou, & Ragsdale, 2002) that are associated with e-banking infrastructure. We hope that this chapter will allow information technology (IT) managers to understand information assurance issues in e-banking in a holistic manner, and that it will help them make recommendations and take actions to ensure security of e-banking components.

## INTERNET/WEB BANKING

A customer links to the Internet from his or her PC. The Internet connection is made through a public Web server. When the customer brings up the desired bank's Web page, the customer goes through the front-end interface to the bank's Web server, which, in turn, interfaces with the legacy systems to pull data out at the customer's request. Pulling legacy data is the most difficult part of Web banking. While connection to a direct dial access (DDA) system is fairly straightforward, doing wire transfer transactions or loan applications requires much more sophisticated functionality. A separate e-mail server may be used for customer service requests and other e-mail correspondence. There are also other middleware products that provide security to ensure that the customer's account information is secured, as well as products that convert information into an HTML format. In addition, many of the Internet banking vendors provide consulting services to assist banks with Web site design and overall architecture. Some systems store financial information and records on client PCs but use the Internet connections to transmit information from the bank to the customer's PC. For example, the Internet version of Intuit's *BankNOW* runs off-line at the client and connects to the bank via the Internet only to transmit account and transaction information (Walsh, 1999).

In this section, we discuss some of the key nodal points in Internet banking. The following points are the foundations and principal aspects of e-banking: Web site and service hosting, possibly through providers; application software that

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