Chapter XIII

Managing E-business:
Security Issues and Solutions

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INTRODUCTION

What would you do if I told you that I could read your mind? Given that I am not a psychic, but a Web site administrator, you would probably not believe me. There are organizations that maintain databases of almost every consumer in the United States and even the world. One organization claims to have a database that encompasses 90% of all US consumers. Once an organization was given the name of a man and was told he lived in the US. In less than 48 hours they found where he worked, where he lived, who he was married to, how many times he was married, the contents of his financial portfolio, what credit cards he had, and what he bought at grocery stores. Amazingly, this information was obtained legally from various Web sites. The fact that you use a computer at home does not ensure your anonymity. You are being tracked in more ways than you could possibly think. As you surf the Net, facts are compiled about you. These pieces of information can range from the places or sites you visit and how long you stayed there to where you come from. These issues concerning trust, security, and privacy in cyberspace must be addressed in the near future and are critical to the growth of electronic business (Siau & Whitaere, 2001; Keen et al., 2000; Turban et al., 2000; Fingar et al., 2000; Kaufman et al., 1995; Ford & Baum, 1997).

THE WILD, WILD WORLD OF THE INTERNET

The Internet originated with the creation of ARPANET in the late 1960s by the US Department of Defense (Comer, 1999). Originally, governments, scientists, and educators used this network to exchange information and data (Comer, 2000). The original Internet started in 1969 as a network of a few remote computers and has grown to over 40 million computers today. The reasons for the rapid expansion of the Internet are the various technological advances in personal computers, telecommunications, and economies of scale in the computer world.

Where We Have Come From and Where We Are Going

In the last five years, business has taken the Net from a research-oriented tool, where professors and scientists shared information, to a tool used by vast numbers of people with different interests all staking a piece of the (Net) action for their own. The Internet is a unique entity because no organization or person has total control or ownership of the it (Siau, 1999; Siau & Whitacre, 2001). The no-ownership structure, coupled with the open architecture of the Internet, has resulted in the emergence of privacy and security issues. Many organizations and people, each expressing concerns and seeing a need for a safe and reliable Internet as a platform for commerce, have initiated a movement to develop information security to protect their interests. This presents an apparent conflict since companies are just as interested in sharing data, information and knowledge as they are concerned with protecting what they possess. This situation has resulted in ad-hoc security schemes addressing the issues of privacy, security, trust, integrity, authentication, access control, and non-repudiation. As the number of new users connecting to the Internet increases at an almost exponential pace, it is natural that organizations implement user tracking systems. This has in turn exposed security holes, weaknesses, and privacy issues and has turned the focus from Internet content to issues of privacy and anonymity.

As the Internet continues to grow and expand, the telecommunications infrastructure “legacy system,” consisting of a morass of cable, fiber optics, DSL (digital subscriber line), ADSL (analog digital subscriber line), HDSL (High-bit-rate digital subscriber line), switches, modems, hubs, and routers, fades to the background while new technologies such as wireless digital networks and other technologies emerge as the Internet of the future. The Internet has become more a way of life than any other technology as a result of the developing infrastructure and expanding connectivity. Businesses, organizations and individuals are conducting all facets of business in a
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