Chapter 10
Electronic Mail Security

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ABSTRACT

The chapter focuses on the history of the internet system of e-mail; e-mail security; threat to e-mail security, usefulness of e-mail address and country codes, how e-mails can be secured by the individual and electronic mail policy. The future of e-mail security is also described.

INTRODUCTION

Electronic mail (or e-mail or e-mail) is an internet service that allows people who have an e-mail address (accounts) to send and receive electronic letters. E-mails are much like postal letters, except that they are delivered much faster than snail mail when sending over long distances, and are usually free. To send or receive an e-mail, you need a gadget (computer, phone etc) connected to the Internet and an e-mail program (simply called mailer). Several formats exist for e-mail addresses. The most common, called RFC 2822, looks like user@domain.com. E-mail messages are sent mostly by text, and sometimes by HyperText Markup Language (HTML) style (http://simple.wikipedia.org/wiki/E-mail).

In the use of electronic mail, one can type messages and send files as attachments. Messages sent through e-mail may not necessarily have to be read immediately. The receiver can store the message for further use. One message from the e-mail can be sent too many addresses at the same time. E-mail is a component of the internet. It is a system by which persons belonging to a network can use their computers to send and receive messages (Madu & Adeniran, 2005)

According to Lucey (1997), an e-mail is a system in which messages are communicated by electronic means rather than by paper based communication. It allows information to be sent between computers and people on the internet. Tiley (1996) posits that one hundred years ago,

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if you wanted to get a message to a friend in another city or town, you may have done several things. Your first option would be to write it down and have the Pony Express deliver it. You may have given a verbal message to a friend going in that direction or you may have sent a telegram. Obviously, when you have sent a telegram, the office (on both ends) would have to read your note to send or receive it across the wire security was not an available option. We may have come a long way, but today's electronic mail (e-mail) has some of the very same pitfalls. This is so because when you are sending mail in a Cyber, it is possible for other persons to see the content of your mail on the other hand most e-mail today is vulnerable to theft.

Today, we can send very elaborate message with text, sound, pictures, and motion around the world. Although the content may be radically different, the same age-old concern still exists (Tiley, 2006, Roccanti, 2006) Tiley (2006)'s view suggests that though we have come a long way on the metamorphosis of traditional or conventional means of sending mail to the electronic means i.e. (e-mail) of sending mail due to the advent of information and communication technology, there is still uncertainty on the security of mail on the internet.

The objectives of the area to examine the history of the internet system of e-mail; e-mail security; threat to e-mail security, usefulness of e-mail address and country codes, how e-mails can be secured by the individual and electronic mail policy. The future of e-mail security is also described

HISTORY OF E-MAIL

Electronic mail began as a simple messaging scheme in the first time – Compatible Time sharing systems (CTSS) at Massachusetts Institute of Technology (MIT), Dartmouth Time Sharing System (DTSS at Dartmouth) in the 1960s. A message sender would use a very simple interface to place the message in a file accessible by another user. The user could then read the messages directly from the file. It was not until after key elements of the Arpanet were created at Bolt, Beraneck, and Newman (BBN) in 1969 that e-mail messages were sent between computers. This seminal event took place in 1971 following an experiment by Ray Tomlinson in a BBN lab (Raiston, Burke, Nakayoma & Tolani, 2004, Turner & Housley 2008). This simple experiment began an explosion that soon dominated the use of the Arpanet and its successor, the Internet. By 1973, three quarter of all traffic on the Arpanet was e-mail and Ray Tomlinson had gained both fame and notoriety as the inventor of today's standard at sign @-base e-mail address. According to Raiston, Burke, Nakayama and Tolani (2004) "The notoriety was due to early systems such as Tenex which had difficulty with the @" (299 p), other early net works such as UCPnet and Bitnet quickly adopted the system.

One early network was the Advanced Research Projects Agency Network (ARPANET and it is this network that later metamorphosed into the internet. Turner and Housley (2008) quoting ISO (International Organization for standardization) said, "the engineers and computer scientists were motivated to develop e-mail so that they could coordinate amongst one another propriety mail systems were developed mainly to work with a local area network for a university or company"(147 p).

The mid-1980s saw a period of competition between standards from the internet community such as Simple Mail Transfer Protocol (SMTP) and standards developed and backed by the International Organization for standardization (ISO). The best example of such a standard is message landing system (MHS), also known as X400. Plagued by poor implementation, the OSI systems have all but disappeared. Today MHS's legacy is perhaps best found in the influence of its better ideas in current internet standard such