the security of the networks

A paper on Computer Network Security

CSUS CPE 138

Xavier Howell

# Abstract

Network security has always been of the most importance sense the dawn of time. It doesn’t take a genius to understand the importance of being able to communicate in privacy. In its simplest form this can be seen as a whisper to tell a secret to a friend. The construction for the bases of this idea can be viewed from way back, even before electricity was created. You can imagine a tribe using smoke signals for communication. If they were to do this in times of war it would give away their position and if deciphered even important information as to what they may do. The same goes for the first electric telegraph, to a telephone, and eventually the inevitable creation of the World Wide Web.

paper aims to give incite on the creation of the internet, how it branched out to form a vast network if differentiation parts, and a sneak peak into how its security is implemented into keeping everyone safe.

# Introduction

The creation Network Security started after the obvious creation of the network itself. The “network” and or the internet started when a couple of scientist decided to try and bridge communication between multiple computers. The primary use was for governmental use but later became the public access we know today. Essential during the Cold War the Soviet Union launch the Sputnik. The first of its kind low orbiting space satellite that could spy on people inside their homes. It didn’t actual do that or much of anything but it marked a advanced in the space age and gave idea to the USA to be able to use satellites to send compunctions incase if we ended up blowing too much of the earth up during a war. Thus the Advanced Research Projects Agency Network or ARPANET for short was created. This network later become “THE INTERNET” as we know today.

With all the advancements made there was still one problem. When you’re trying to get things done in a timely matter communication is key. A standard communications protocol need to be created to transfer information among the networks. And that’s exactly what they did, literally the created TCP. Transfer Control Protocol was created, as well as IP, the genius name for the protocol associated with the Internet (Internet Protocol). The creating of these protocols simply allowed for different types of computers to talk to each other on different types of networks.

Let’s now skip ahead a little, with the network established and the protocols created let’s get in the bread and butter of the paper. “Network security consists of the policies, processes and practices adopted to prevent, detect and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources.[1][2] Network security involves the authorization of access to data in a network, which is controlled by the network administrator.” (Wiki) The practice of making secure networks is called cryptography. The purpose is to make sure the sender and receiver can communicate with integrity. Meaning the data is not viewed or modified by a 3rd party and only authenticated participants participate in the transaction. The basic practice of this is done with encryption.

Encryption is a way of scrambling the data. For example, substitution cipher replaces letters of the alphabet with other letters. Making the letter T equal to A, O equal to B, and M equal to C. Meaning the name TOM is now written as ABC. The scheme or encryption key would then be shared with the receiver. You could imagine the endless amounts of techniques that could be used. DES and AES became standard encryption techniques. DES was not all the secure and could be hacked in days, it later evolved to triple DES, which encrypts three times with three different keys. AES is now the most common use.

# Conclusion

In conclusion Network Security is made up of multiple parts and numerous variations of application. Again its main purpose is to provide end to end protection to keep unwanted eyes from viewing data and insuring the intended data is received by the user. Each stage of the network has its form of protection, from a local device like a PC and its firewall. To your WIFI router connecting you to the global web. And even enterprise and mobile networks. The most well known form of protection is encryption. Its comprised of scrambling data with an assortment of arrhythmic algorithms and providing keys to decipher them.