

# Introduction to Computer Network with Security

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## ABSTRACT

In this paper I have tried to introduce about different types of networking by using computer networks with some issues and some new trends. This review paper will high light the main concepts of computer networks with some security trends. My main aim is to define the different types of networking devices.

**Keywords** :— Introduction of computer networks, Issues, Architecture, Network Security attacks.

## I. INTRODUCTION

There is growing demand in networked systems, with the consumers even more dependent in internet connectivity. However communication devices vary with their functionality, mobility and resource constraints, while networks vary with their architecture. Networking is the plumbing of computing. Almost all areas of computing are network based. Such as distributed computing, distributed database and distributed storage. Computer networks are a system of interconnected computers for sharing digital information by networks. The concept of networks was began in 1962 when a server at the Massachusetts Institute of Technology was connected to a server in Santa Monica, California. The computer networks and data networks are both telecommunication networks which allows computer to exchange their data from one system to another by using different networks or by using different network devices. Data in computer networks are exchange or send by network links (by using nodes). These nodes were establishing a connection between the nodes by using either cable media or wireless media.

That's why the computer network technology is developing rapidly and the development of internet technology is more quickly enhanced. In this, the network security is the main issues of computing because many types of attacks are increased day by day. Protecting computer and network security are the main issues and critical issues. In network security malicious nodes have creating a large problem. Network security is starts with the authorization, commonly known as Username and Password. Network security is consists of the provisions and the policies which are adopted by the network administrator. The main aim of network administrator is to prevent the data or network from the unauthorized access, modification in a system, misuse or denial of a computer network. In computer networks the

communication between the two systems will also we protect or will uses the privacy policy by using encryption keys.

## II. CHARACTERISTICS OF COMPUTER NETWORKS

There are different type of advantages of computer networks which are as follows:-

- We can play CD music from one computer while sitting on another computer.
- We may have a computer that doesn't have a DVD or BluRay player. In that case we can place a movie disc on a computer.
- If we may have a computer with a CD/DVD/BD writer or backup system but the other computer doesn't have it. Then in that case we can burn discs or make backups on computer.
- We can connect a printer (or a scanner) to one computer and let other computers of the network printers to that printer.
- We can place a disc with pictures on one computer and let other computers access those pictures.
- We can create files and store them in one computer then access to those files from the computers connected to it.
- Authorized users may access information stored on other computers on networks. It may allow users to sharing files, data and other important types of data.
- People can communicate efficiently and easily via email, instant messaging, chat rooms, telephones, videos telephone calls and video conferencing.

- Users may access and use resource provide by devices on the network such as printing a document.
- It may interface with other technologies.

### **III. ISSUES IN COMPUTER NETWORKS**

The top three issues affecting large computer networks. In IT security personnel and network support staff tasked with managing large networks are routinely at odds with identifying and solving the most common problems a large networks poses. These three issues are described as:-

#### **A. Performance Degradation**

Performance Degradation refers to issues involving loss of speed and data integrity due to poor transmission. While every network is prone to performance issues, large networks are especially susceptible due to the additional distance, endpoints and additional equipment at midpoints. Solutions for performance degradation are not terribly difficult. The first step is to purchase a best quality of computer networking hardware. Therefore all network performance is only as good as the components of which is composed.

#### **B. Host Identification**

Proper configuration is also essential to maintaining proper host identification. Just as the post office cannot deliver messages without some form of addressing, neither can computer networking hardware. While small networks can easily be configured with manual addressing, this becomes completely impractical in large networks. Top performance and proper host identification are hardly beneficial on a network that has been breached by hackers.

#### **C. Security Issues**

Network security issues involve maintaining network integrity, preventing authorized users from infiltrating the system (viewing/stealing sensitive data, passwords,etc) and protecting the network denial of services attacks. These issues are greatly magnified as networks increases in size. Large networks are more susceptible to attack because they offer more vulnerable points at which intruders an gain access. More users more passwords and more hardware mean more places a hacker can try to get it.

### **IV. NETWORK ARCHITECTURE**

Network architecture describes the allocation of tasks between computers in a network. Learn about the most common type of network architecture peer-to-peer and client server architecture. However network architecture refers to how computers are organized in a system and how tasks aare allocated between these computers. These two are widely used network architecture:-

#### **a) Peer-to-Peer Architecture**

In Peer-to-Peer networks, the tasks are allocated among all members of the network. There is no real hierarchy among the computers and all of them are considered to be equal. This is also refered to as a distributed architecture without hierarchy. A peer-to-peer network does not use a central computer server that controls the network activity.

Peer-to-Peer is mostly used for file sharing. Where file sharing will work with one computer user makes some of the files on the hard disk drive available for sharing information on these files is made available to the rest of the users so they can decide if they want to download one or more other files. A peer-to-peer network is robust in the sense that if one or several of the individual computers stop working.

#### **b) Client /Server Architecture**

In a client/server network, a number of network clients or workstations request resources or services from the network. One or more network servers manage and provide these resources and services. The clients are computers which are depends on server for data and software. Network servers are also referred to as computer servers, simply servers. Sometimes a server is described in terms of the specific service it provides, such as email server, print server or storage server. Some servers, however, can provide all these services.

Clients are hardware devices which provide end users with access to data and services on the server. We can use these devices more and less independently.

### **CONCLUSIONS**

The security measures is the main problem in computer networks or in networking. Network security starts with the authorization, commonly with the username and passwords. Computer network security is a complicated issue, involving many aspects of computer technology, network management, network usage and maintenance. It is a long way to go to ensure the normal operation of large scale network system and

communication and maintain substantial network. This paper concludes a proper description of network security and computer networks.

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## REFERENCES

- [1] Sumit Ahlawat, Anshul Anand “*An Introduction to Computer Networking*”, 2014 International Journal of Computer Science and Information Technology Research, ISSN 2348-120X(Online), Vol.2, Issue 2, pp: (373-377) month: April-June:2014.
- [2] Mukund R.Joshi, Renuka Avinash Kakad “*Network Security with Cryptography*”, 2015 International Journal of Computer Science and Mobile Computing, ISSN320-088X , Vol.4, Issue1, January 2015.
- [3] Mohan V Pawar, Anuradha J, “*Network Security and Types Of Attack in Network*” ,Internal Conference on Intelligent Computing, Communication and Convergence, Bhuvneshwar (ICCC-2015).
- [4] Amandeep Kumar, Harmandeep Singh, “*Network Security: A Literature Survey*”, International Journal of Emerging Research in Management and Technology, ISSN: 2278-9359 (Vol-3 Issue-10).
- [5] Jie Shan, “*Analysis and Research of Computer Network Security*”, Journal of Chemical and Pharmaceutical Research,2014,6(7):874-877 ISSN:0975-7384 CODEN(USA):JCPRC5
- [6] Jie Shan, “*Analysis and Research of Computer Network Security*”, Journal of Chemical and Pharmaceutical Research,2014,6(7):874-877 ISSN:0975-7384 CODEN(USA):JCPRC5