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Computer Network

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Abstract: *Computer networks it's a system that interconnects with computers for our purpose of sharing digital data and information. This topic that a network began in 1962. When a server or network at the Massachusetts Institute of Technology was interconnected with a server in Santa Monica, California. Since, that the time the proliferation of system and the computer networks are increased their significant. It is most significant to challenges their networks it attacks on their resources caused by inadequate network security. In these research paper, this paper we highlight and overview concept of computer networks.*

I. INTRODUCTION

A computer network (CN) is a telecommunications its network allows computer to exchange data. In computer network, computing devices passing the data to each other along the data connections. The network links between the nodes are establish to using cable media or wireless media. The best-known computer network is called Internet. Its originates the devices route and terminate the data are network nodes. Node its include host, for personal computer and phones servers are networking hardware. One device can exchange the information with another device. They have direct connections between two devices. Computer network support applications to access world wide web, application use such as servers, printers, and fax machines and use of email, instant messaging applications or etc. CN is totally different from physical media used to transfer the signals the computing network it organizing the communication protocol for network traffic, network size, topology and organizational intent

II. HISTORY

Computing network makes the devices talk to purpose of communication but it nothing new. Such as telephony, telephone and telegraph are included more difficult devices, network to internet another is PC. In earlier 1960s the single system are physically shared makes the data and information is more complicated. The impractical researcher to develop the "connect" with the computer their sharing resource are more costly. Than only the computer network was born.

The new communication protocol is also called packet switching. The number of application is more secure for their voice transmission, its available for military channels. It provides basic knowledge about for communication technologies. The computing network provides basic ARPANET; it is modern Internet (ARPA-Advanced Research Project Agency). It allows not only sharing their data (ARPA) Submitted their project on June 3, 1968. It approved after some weeks later.

In 1977, PC it based on LAN (Local Area Network) were spread, and its variant are developed it include MAN and WAN for Metropolitan Area Network and Wide Area Network, it's using to communicate and sharing the data.

III. PROPERTIES OF COMPUTER NETWORK

A. Facilliate Communications

Network used to user to communicate costly and easy share to use email, messaging chat, video telephone calls or etc. Limits of files can shared and types of information's, User can access data and information they are stored on computer network.

B. Facilitates Interpersonal Communications

User can communicate costly and easy share to email, messaging and passing the information on video telephone or etc.

C. Allows Sharing Of Files, Data And Other Type Of Information

User to access the data and information they are store in other device or computer, it provide to access the information on stored device of many network.

D. Allows Sharing Of Network And Computing Resource

People can use the resources and provide network devices. Such as printing a document on shared network printers. Distributed computer using the computing resource across their network

E. May Be Insecure

Computer network use computer hackers to developing computer viruses or worm on system, it connects on network and prevent to access the network on their service

F. May Interfere With Other Technologies

Power line communicates strongly with distributes and their form of radio communication .

IV. PROTOCOLS IN NETWORKING

Protocols used on network		
Names of protocols	Importance	What it does
ethernet, SLIP, PPP, Token Ring, ARCnet	Essential	Allows messages to be packaged and sent between physical locations.
IP,ICMP	Essential	Manages movement of messages and reports errors.
ARP	Essential	Communicates between layers to allow one layer to get information to support another layer
TCP,UDP	Critical	Controls the management of service between computers.

A. Ethernet

The most widely used protocol is Ethernet.Ethernet uses a method called CSMA/CD(Carrier Sense Multiple Access/ Collision Detection).Before sending anything through the network each computer listen to the cable.Computer will transmit if the network is clear.The computer have to wait and try again when some other node have already transmitted on the cable.Two computers attempt to transmit at the same instant.

B. Fast Ethernet

Fast ethernet allows an increased speed of transmission,it has developed new standard that supports 100Mbps.

C. Local Talk

Local Talk is a network protocol that was developed by Apple Computer incorporated for Macintosh computer.Local Talk uses a method called CSMA/CA(Carrier Sense Multiple Access with Collision Avoidance)which is similar to CSMA/CD.To connect a series of computers through the serial port Local Talk adapters and special twisted pair cable are used.

D. Token Ring

Token Ring protocol was developed in the mid of 1980s by IBM.Computers are connected so that signal travel around the network from one computer to another in logical ring.Single electronic token moves around the ring from one computer to another.

E. FDDI

Fiber Distributed Data Interface is used to interconnect two or more local area networks over large distances.It uses a dual ring physical topology.The method used by FDDI involves token passing.

F. Gigabit Ethernet

The latest development in the Ethernet standard is a protocol that has a transmission speed of 1 Gbps.Gigabit Ethernet is used as backbone on a network at present.In future it will be used for workstation and server connection.

V. APPLICATION

A. Mobile Telephones

The most important application of wireless technology is cwellular phones,also known as Mobile Phones which was used by more than 4.6 billion people worldwide aa of the end of 2010.

B. Wireless Data Communication

WiFi (Wireless Fidelity) is the popular wireless local area network connections to be portable computing devices. It is based on one of the 802.11 standards (802.11 a, b, g, n) developed by the IEEE. That is why WiFi has become the de facto standard for access in private homes. Cellular data service provides coverage range of about 10-15 minutes from the nearest cell site. Speed of 3G networks such as WCDMA, CDMA 2000 is very much higher when compared with earlier technologies (GSM, CDMA and GPRS).

Mobile satellite communication are used for transportation, aviation, maritime military use and areas where other wireless connections are unavailable especially in large rural areas and remote locations.

Wireless Sensor Networks (WSN) are Wireless ad hoc networks that are responsible for sensing noise, interface and activities in data collection networks. The process of detection relevant quantities, monitoring and collecting data, formulating meaningful user displays and performing decision making functions can be done through Wireless Sensor Networks.

C. Wireless Energy Transfer

Wireless Energy Transfer is a process in which power source radiates electrical energy to an electrical load which has not a power source which is built-in and interconnecting wires are also not used. Two methods for energy transfer through wireless. One method is using far field which includes beam power/laser, another method is using nearby field induction. The two methods use magnetic fields and electromagnetism.

D. Wireless Medical Technologies

New applications like Mobile Body Area Networks (MBAN) the ability to observe blood pressure, heart rate, oxygen level and body temperature, everything with wireless applications. The MBAN sends low powered signals which are wireless to those devices which receives and provide it to the nursing stations. These technologies assist the purposeful and non purposeful danger of contamination or disjoint that appear from stranger association.

VI. NETWORK SECURITY

Usability, reliability, integrity, and safety of your network and data these activities are protected by Network security. Network security protect us from entering different variety of threads. Many of the Network security threads are spread over the Network. The most commonly used Networks are:

- A. Viruses, worms, and Trojan horses
- B. Spyware and adware
- C. Zero-day attacks, also called zero-hour attacks
- D. Hacker attacks
- E. Denial of service attacks
- F. Data interception and theft
- G. Identity theft.

We need multi layers of Network security. If one layer fails the other will work. Network security is achieved through hardware and software. The system must be continuously updated and manage to protect us from appearing threads. A Network security consists of many components. Presently all components work together which minimize maintenances and improve the security protection. Components include in Network security:

- 1) Anti-virus and anti-spyware
- 2) To block unauthorized access to your network Firewall is used
- 3) To identify fast-spreading threats Intrusion Prevention System (IPS) is used
- 4) To provide secure remote access Virtual Private Network (VPN) is used

VII. CONCLUSION

Effectively in all areas the concept of old network is basically created. The way of playing working and communication of humans are changed by computer network and protocols. The changes in our lives are happened unexpectedly. For our future, the digital networking is further empowering. Current technology of digital Networking's are not cutting edge. Protocols and standards are created at the birth or digital networking age for over thirty years.



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