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INTRODUCTION:

Hello fellow,

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We all know how important a computer is in our everyday lives, and today I'm going to talk about the various components and mechanisms that complete the computer system. I'm going to talk about the different types of network connections that we use in our everyday lives. I can show you what hardware and software modules are used for personal computers and network devices. Finally, I will show you how network models are used in daily life.

You may move forward to know more about networking.

A. Explain the need for various styles and models of computer networks:

In order share resources such as printers and CDs, exchange files or allow electronic communications, the network consists of two or more linked computers. Network computers can be linked via wires, telecommunication networks, radio signals, satellites or infrared light beams.

The number of computers can be defined as a network. The computer network consists mainly of five types:

LAN (Local Area Network): A Local Area Network (LAN) is a computer network that connects computers, like a home, to a small region.

WLAN (Wireless implementation of Local Area Network): Wireless LAN (WLAN) is a wireless computer network that connects multiple devices within a small region, such as a home, school, classroom, campus or office building, using wireless networking to form a local area network (LAN).

SAN (Storage Area Network): A Storage Area Network (SAN) is a dedicated high-speed network or subnetwork that links several servers to shared storage repositories.

PAN (Personal Area Network): The Personal Area Network (PAN) is a computer network built on the workspace of an entity for the connectivity of electronic devices.

MAM (Metropolitan Area Network): The Metropolitan Area Network (MAN) is a computer network connecting users in a geographical area with computer resources of the size of a metropolitan area.

INTRANET: Intranet is a private network that can only be accessed by authorized users. Touch, for example, email, would be chat, and blogs. When Nestle had a number of food processing plants in Scandinavia, this was a great real-world example of where the intranet allowed the business to communicate. Every day, their central support system had to deal with a number of problems.

EXTRANET: Extranet is a managed private network that provides access to suppliers associates and vendors or to an approved community of customers. , For example, it is also known as a confidential network that uses internet technology and a public telecommunications system to share part of the company's information or operations with associates, suppliers customers or other companies via a secure system.

INTERNET: The Internet is a global broadband network linking computer systems across the globe. Such examples include: The Web, a list of billions of web pages that can be accessed through a web browser. Email is the most common online way of sending and receiving messages. Social media: websites and apps that allow comments, images, and videos to be shared by people.

CLOUD: Cloud Computing is a system of infrastructure and software that enables access over the internet to shared storage networks, servers and applications. For example, cloud is the provision of various Internet resources, including servers, databases, applications, data storage and networking.

Network models:

Peer to peer: A peer-to-peer (P2P) network is created when two or more Devices are linked and share information/resources without using a separate server device. The P2P network can be an ad hoc connection, a few computers linked to transfer files via the Universal Serial Bus.

Client/ Server: Computer networks that use a dedicated computer (server) to store, manage/provide services and track user access are client-server networks. The server is the focal point on the network where the client is called by the other computers that attach to the system that links to the server.

Thin Client: A thin client is a simple (low-performance) device for computer networking that has been designed to create a remote link to server-based computing. The server did most of the work, including launching software programs, conducting calculations, and storing data.

A computer network is made up of a variety of modules. Together these components help to transfer data from one device to another and make seamless connections between two different devices. In this guide, I'm going to explore the key components of a computer network.

I will address the primary components of a computer network in this guide.

A network component is of 2 types:

1. Hardware Component.

Computer hardware refers to the physical components of a computer and associated equipment. Motherboards, hard disks, and RAM provide internal hardware products. The internal hardware components of a computer are also referred to as parts, while peripherals are typically considered external hardware devices.

Hardware components consists of various elements.

i). End user device: An end-user computer is a technological term relating to the IT hardware used by your staff or generally by people in general at work, off-hours, for recreation and some other reason. Any of them are PCs, smart phones, laptops, clients, servers, etc.

ii). Connectivity devices: Hardware equipment used to connect printers, fax machines, computers and other electronic devices to the network is called network devices. These devices transfer data quickly, securely and precisely on the same or different networks. Examples are:

1. Switch: The device that connects on a computer network that ties several computers together. Multiple data cables are inserted into a switch to allow communication between different networked devices. Switches can also be employed on higher levels of the OSI architecture, such as the network layer and beyond.

2. Hub: A hub is a physical layer networking system that is used to link several devices to a network. They are usually used to link computers to the LAN. There are several ports in the hub. A device that wants to be linked to the network is connected to one of these ports.
3. Router: The router receives and sends data to the computer network. Routers can be confused for network modems, hubs or network switches. Routers can however, combine the roles of these components and connect to them in order to boost Internet connectivity or help create business networks.

iii). Connection media: Network media refers to communication networks used to interlink nodes on a computer network. Typical examples of network media include copper twisted pair cables, copper coaxial

cables and optical fiber cables used in wired networks, and radio waves used in mobile data transmission networks. Examples include LAN cable, optical fiber, coaxial cable etc.

Network Interface Card [NIC]:

The Network Interface Card (NIC) is a hardware component without which a computer cannot be linked to a network. It's a circuit board mounted on a device that provides a stable network link to the computer. It is also referred to as a controller for a network interface, a network adapter or a LAN adapter.

Software Components:

Computer network modules are the major components required to upgrade the software. A number of main network components are NIC, switch, cable, hub, firewall, and modem. Based on the location of network that we need to include certain network elements can also be omitted.

I. Network system software:
    Network software is a series of resources that lets computers exchange knowledge with each other or enables users to share computer programs.

II. Network Applications:
    A network application is any application that runs on a presenter that provides communication to another application running on another host. For example, network apps can be generated in a lot of formats via databases such as Apple, Microsoft Access, and web-based applications such as Snapchat, Tweets, Dropbox, etc.

C. Analyze the roles of different network components needed to create different network types:

What are the hardware components of your LAN?

- PCs/workstations and servers.
- **Network Interface Card** (NIC)
- Connectors and cable such as BNC connector and coaxial cable, RJ-45 connector and Unshielded Twisted Pair (UTP).
- Hub and more complex network devices such as Modem, Bridge and LAN Switch.

What are the LAN device components?

- NIC Drivers
- Network operating system for servers such as Unix® Netware 4.1 or Windows XP® NT
- Network Operating System for Clients (PCs/workstations), e.g. Novell® Netware 4.1 Client or Microsoft Windows® 1995
- Networking protocol applications, e.g. Hyper v® IPX, Java-script
- Application services, e.g. web browsers, newsletters

What are the MAN hardware components?

- Bridges Towards Access Points. Access points connect multiple clients wirelessly to one another by a network device. ...
- Basic **Ethernet**-to-Wireless **Bridges**. ...
- Workgroup **Bridges**. ...
- Semi directional Antennae. ...
- Highly Directional Antennae. ...
- Effect of Polarization.

What is MAN?

A **metropolitan area network** has a WAN that is developed around a town or a part of a town. It ties all of the city's networks into a single larger network. This network links workers with common resources through multiple agencies.

Examples of a MAN are the part of a telecommunications company network that can provide a high-speed DSL line to the consumer or to the satellite TV network in a region. WAN or Wide Area Network is a computer network that spreads across a broad geographic region, although it may be within the boundaries of a country or state.

What is WAN?

A group of local area networks (LANs) or other networks that link with one another is a wide area network (WAN).

The Internet itself is an example of a wide area network. Such small examples of WANs are a network of cash deposit dispensers; a network of companies with many geographically remote branch offices.

Peer-to-peer:

An IT platform in which two or more computer systems connect together to share data is a peer-to-peer network. This type of network can be set up by physically connecting computers to a linked device or by providing a virtual network. You can also setup devices to be your network clients and servers.

In a way, peer-to - peer networks are the tech world's most egalitarian networks. Each peer is equal to the others, and the rights and responsibilities of each peer are the same as the others. Peers are, at the same time, both clients and servers.

For what peer to peer used?

The primary goal of peer-to-peer networks is to share information and data collaboratively with personal devices, provide basic services or perform specific tasks. P2P is used to share all kinds of computing resources, such as processing power, memory utilization, or disk storage capacity, as mentioned above.

You can open a browser and visit a website where a file can be accessed. Only imagine the case. In this scenario, the website is run as a server, and your computer acts as a client receiving the file. You may equate it to a one-way road: a car that goes from point X (the website) to point Y (your computer) is a file that you download.

In its simplest terms, when two or more PCs are connected and share information without using a different server computer, a peer-to-peer (P2P) network is formed. The P2P network may be an informal connection, with a few computers connecting to transfer data via the Universal Serial Bus.

Client/server:

Computer networks that use a dedicated computer (server) to store, manage/provide services and track user access are client-server networks. The server is the focal point on the network where the client is called by the other computers that attach to the system that links to the server.

The client server network is designed for end-users, called clients, to access resources from a central computer called a server, such as files, songs, video collections, or some other service. The only purpose of a server is to do what its name means-to help its customers! You might have used this setup, and you didn't even know it. Have you ever used the PlayStation Network or played the Xbox Live game? Your Xbox One is a client that contacts the Xbox Live servers when logging in to the network to retrieve gaming tools such as videos, updates and game demos.

A client is a computer that links to and uses the resources of a local computer or server. The following example contrasts a client-side script and a server-side script, and describes how a client computer communicates with an Internet server. Any work performed on the local client is similarly called "client-side".

Thin client:

A thin client is a simple (low-performance) device for computer networking that has been designed to create a remote link to server-based computing. The server did most of the work, including launching software programs, conducting calculations, and storing data.

A thin client is a simple (low-performance) device for computer networking that has been optimized to create a remote link to a server-based computing environment. Most of the work is performed by the server, which may involve launching software programs, measuring, and storing information.

For instance, a browser provides client access to server-hosted apps, data, and processing. An example of a thin client node is a diskless workstation. See also Browser, Client, Client / Server, Fat Client, Network, Server, Dumb Terminal, and Apps.