

TYPES OF COMPUTER NETWORKS

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What is Network?

- A network consists of two or more computers that are linked in order to share resources (such as printers and CDs), exchange files, or allow electronic communications.
- The computers on a network may be linked through cables, telephone lines, radio waves, satellites, or infrared light beams.

Different Types of Networks

- Depending upon the geographical area covered by a network, it is classified as:
 - Local Area Network (LAN)
 - Metropolitan Area Network (MAN)
 - Wide Area Network (WAN)
 - Personal Area Network (PAN)

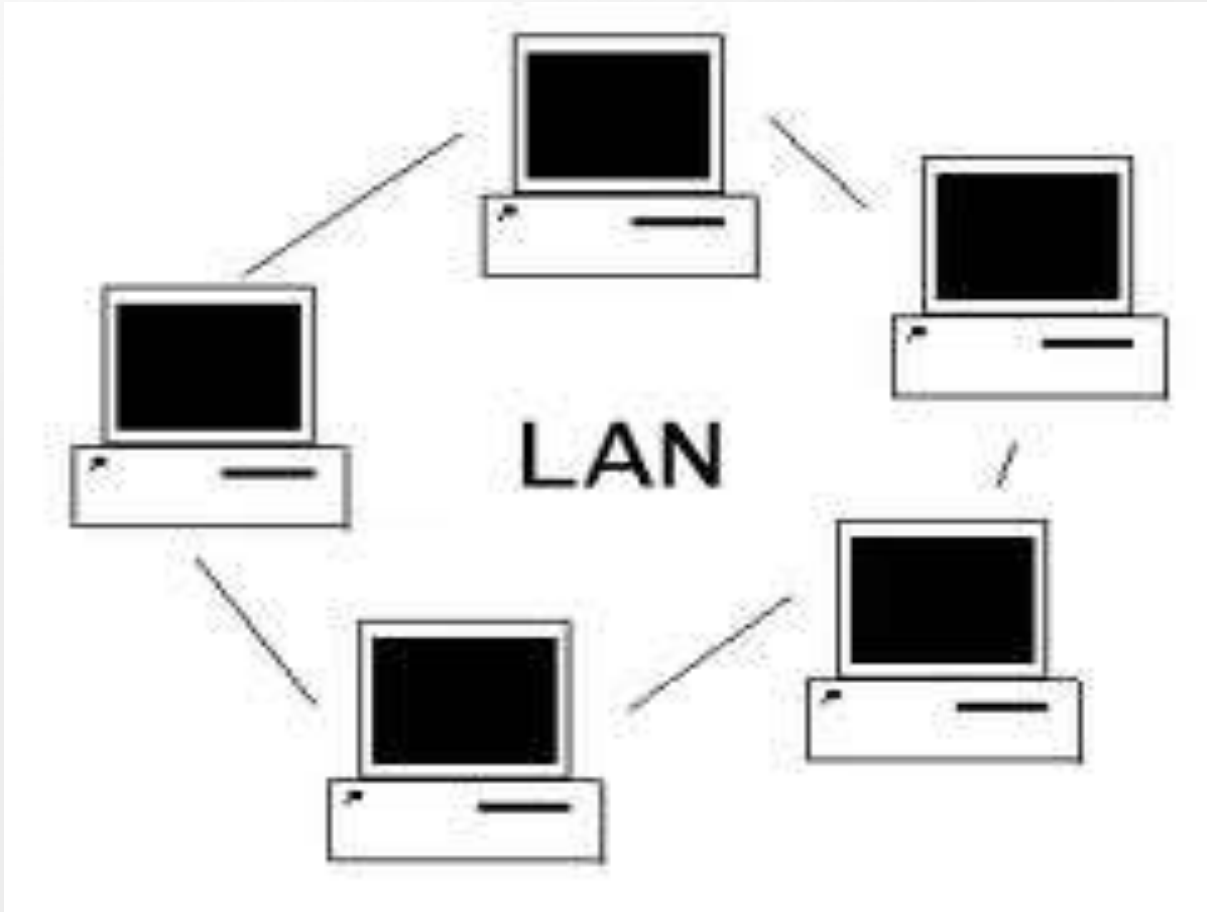
Local Area Network (LAN)

- *A LAN is a network that is used for communicating among computer devices, usually within an office building or home.*
- LAN's enable the sharing of resources such as files or hardware devices that may be needed by multiple users
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- Is limited in size, typically spanning a few hundred meters, and no more than a mile
- Is fast, with speeds from 10 Mbps to 10 Gbps
- Requires little wiring, typically a single cable connecting to each device
- Has lower cost compared to MAN's or WAN's

Local Area Network (LAN)

- LAN's can be either wired or wireless. Twisted pair, coax or fibre optic cable can be used in wired LAN's.
- Every LAN uses a protocol – a set of rules that governs how packets are configured and transmitted.
- Nodes in a LAN are linked together with a certain topology. These topologies include:
 - Bus
 - Ring
 - Star
- LANs are capable of very high transmission rates (100s Mb/s to G b/s).

Local Area Network (LAN)



Advantages of LAN

- Speed
- Cost
- Security
- E-mail
- Resource Sharing

Disadvantages of LAN

- Expensive To Install
- Requires Administrative Time
- File Server May Fail
- Cables May Break

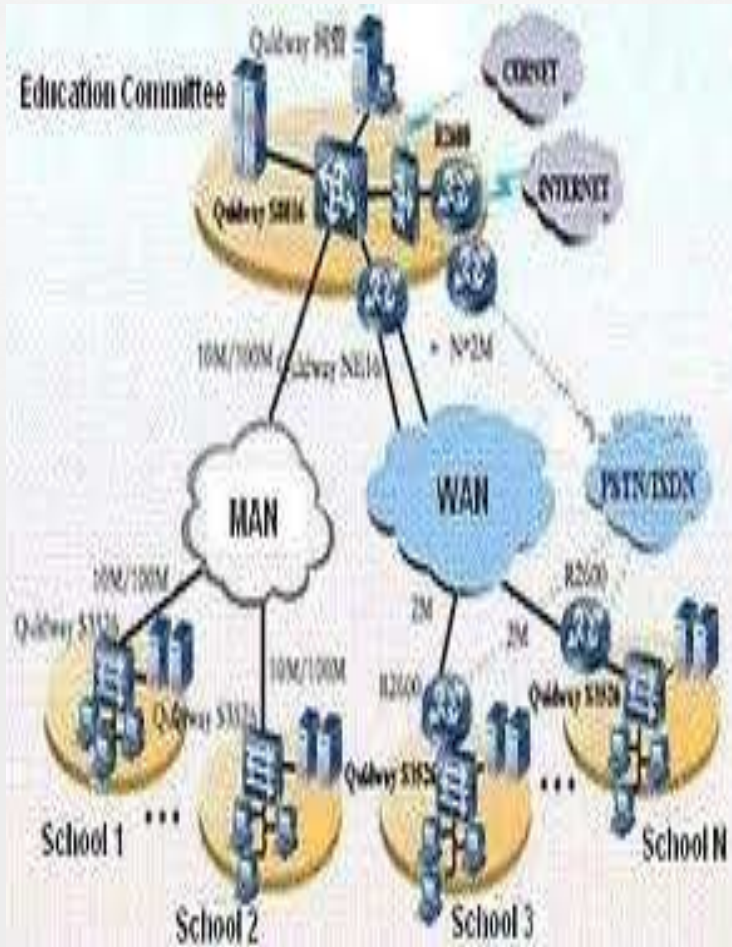
Metropolitan Area Network (MAN)

- A **metropolitan area network (MAN)** is a large computer network that usually spans a city or a large campus.
- A MAN is optimized for a larger geographical area than a LAN, ranging from several blocks of buildings to entire cities.
- A MAN might be owned and operated by a single organization, but it usually will be used by many individuals and organizations.

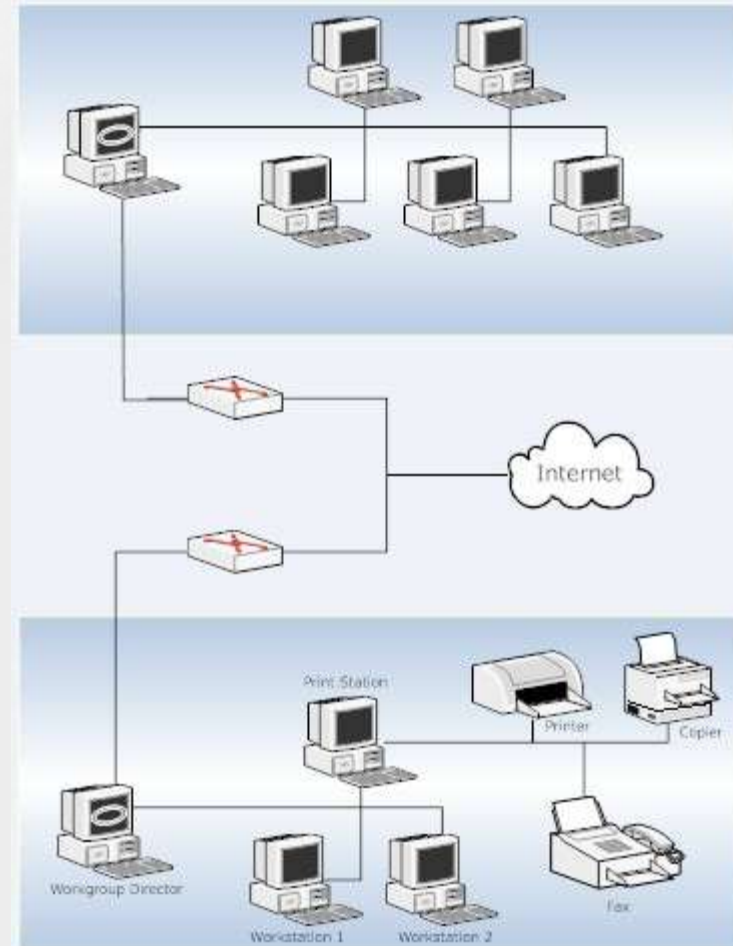
Metropolitan Area Network (MAN)

- A MAN often acts as a high speed network to allow sharing of regional resources.
- A MAN typically covers an area of between 5 and 50 km diameter.
- Examples of MAN: Telephone company network that provides a high speed DSL to customers and cable TV network.

Metropolitan Area Network (MAN)



General WAN Diagram



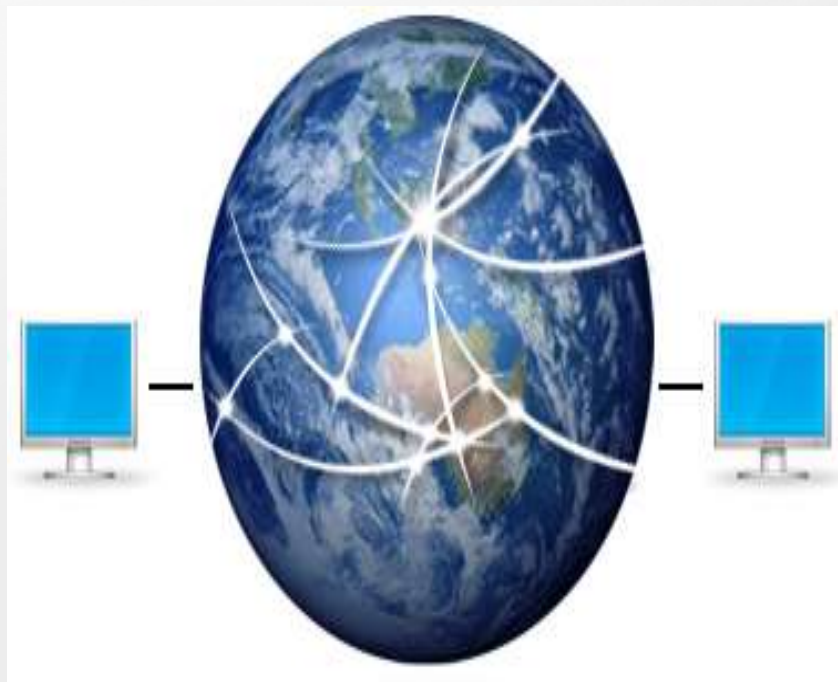
Wide Area Network (WAN)

- WAN covers a large geographic area such as country, continent or even whole of the world.
- A WAN is two or more LANs connected together. The LANs can be many miles apart.
- To cover great distances, WANs may transmit data over leased high-speed phone lines or wireless links such as satellites.

Wide Area Network (WAN)

- Multiple LANs can be connected together using devices such as bridges, routers, or gateways, which enable them to share data.
- The world's most popular WAN is the Internet.

Wide Area Network (WAN)



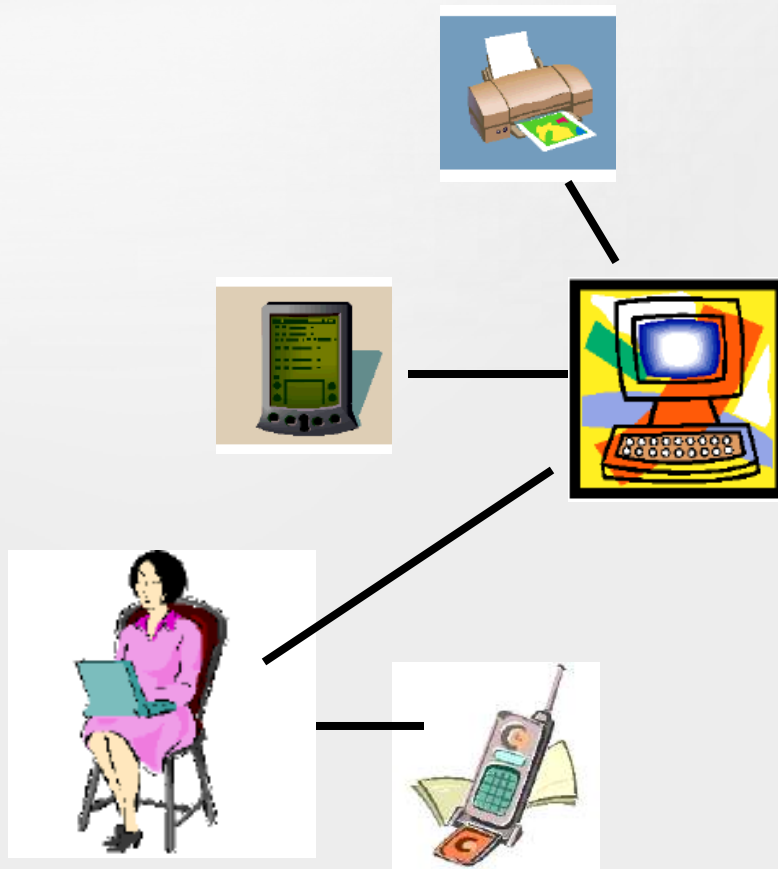
Personal Area Network (PAN)

- A **PAN** is a network that is used for communicating among computers and computer devices (including telephones) in close proximity of around a few meters within a room
- It can be used for communicating between the devices themselves, or for connecting to a larger network such as the internet.
- PAN's can be wired or wireless

Personal Area Network (PAN)

- A **personal area network (PAN)** is a computer network used for communication among computer devices, including telephones and personal digital assistants, in proximity to an individual's body.
- The devices may or may not belong to the person in question. The reach of a PAN is typically a few meters.

Personal Area Network (PAN)



THANKS A LOT