



# 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)

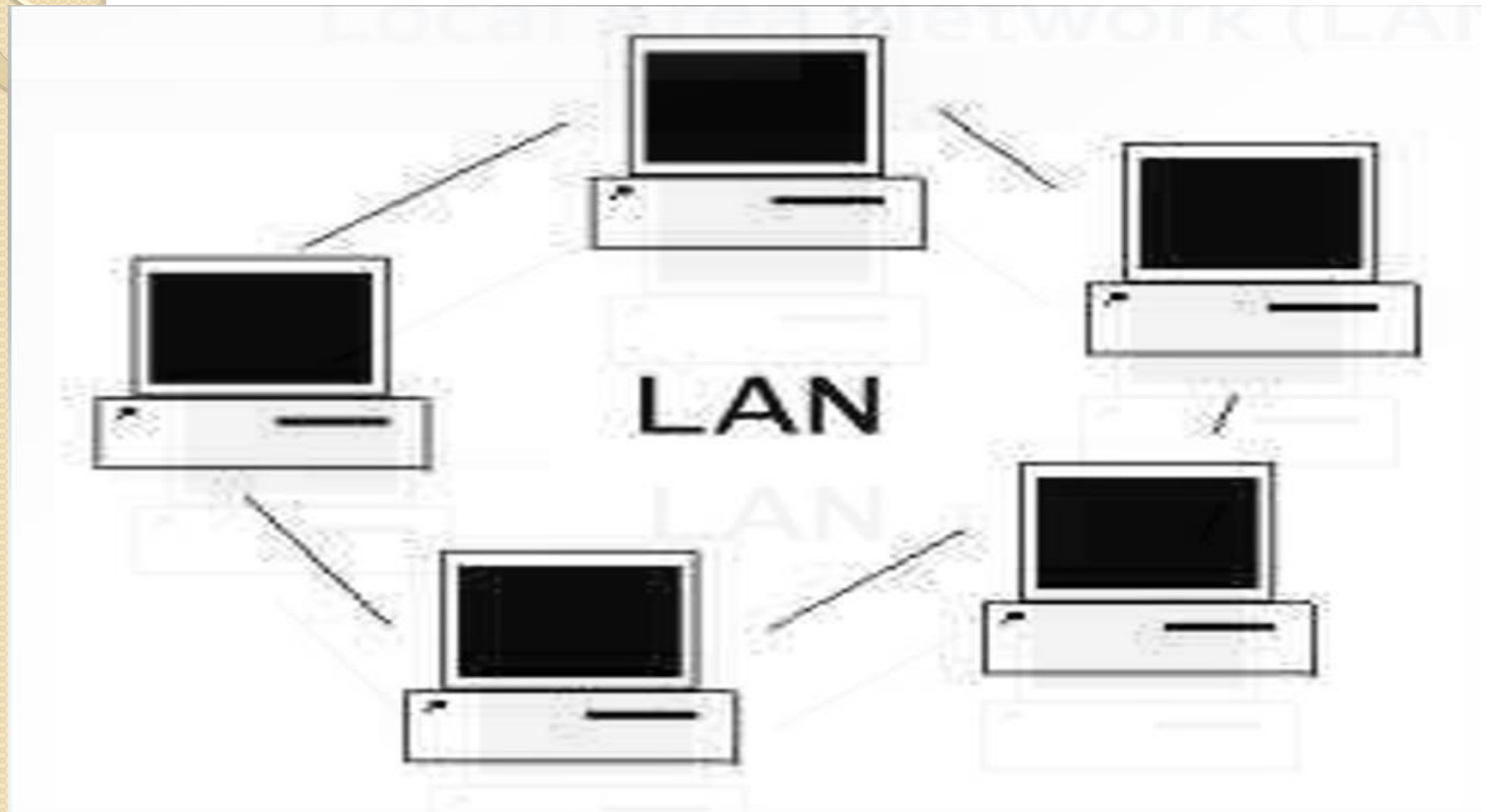
# Local Area Network (LAN)

- 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
  - 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)



# Metropolitan Area Network (MAN)

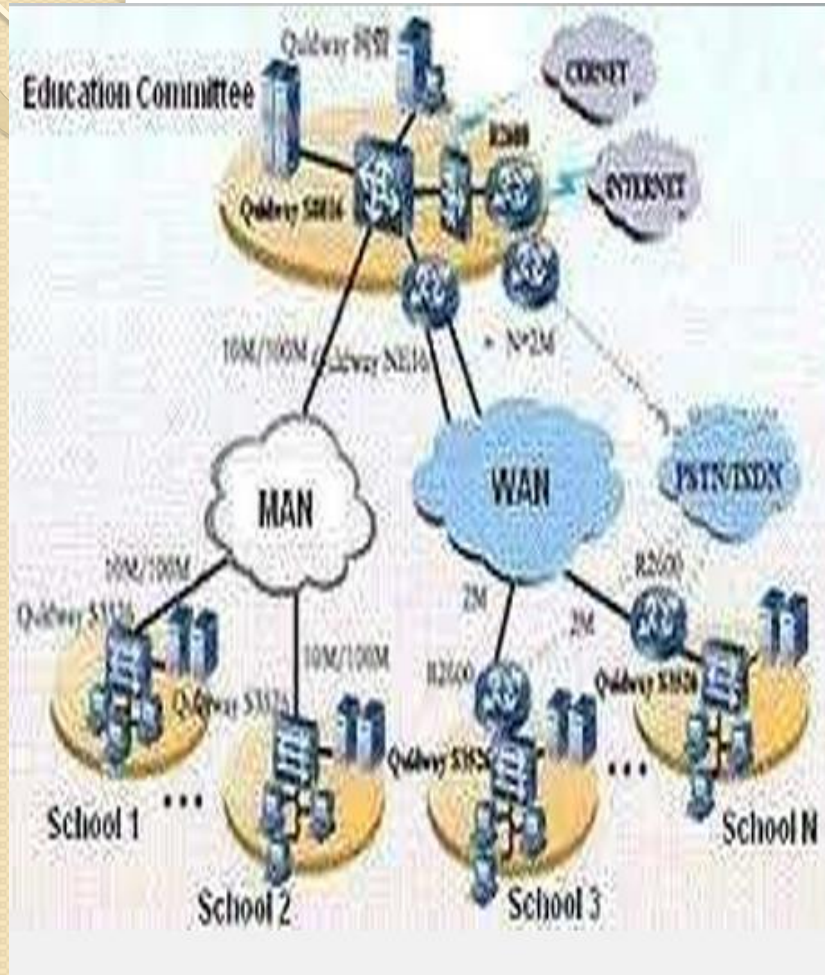
- A metropolitan area network (MAN) is a large computer network that usually spans a city or a large campus.
- A MAN is optimized for a larger geographical area than a LAN, ranging from several blocks of buildings to entire cities.
- A MAN might be owned and operated by a single organization, but it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

# Metropolitan Area Network (MAN)

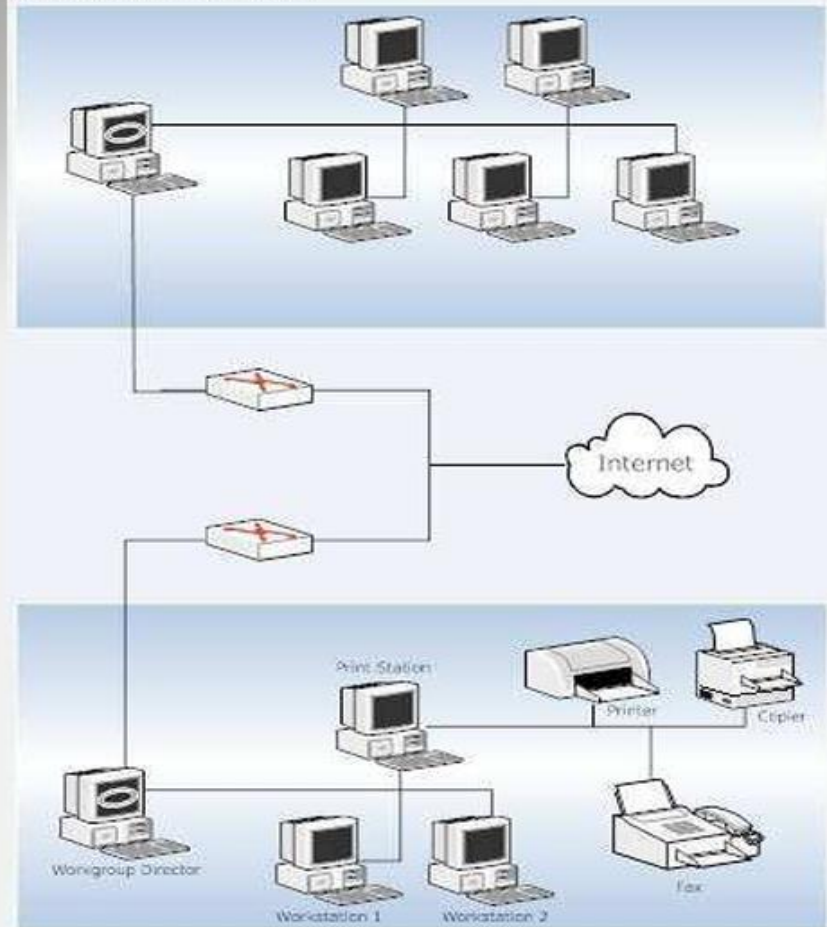
- A MAN often acts as a high speed network to allow sharing of regional resources.
- A MAN typically covers an area of between 5 and 50 km diameter.
- **Examples of MAN:** Telephone company network that provides a high speed DSL to customers and cable TV network.



# Metropolitan Area Network (MAN)



General WAN Diagram



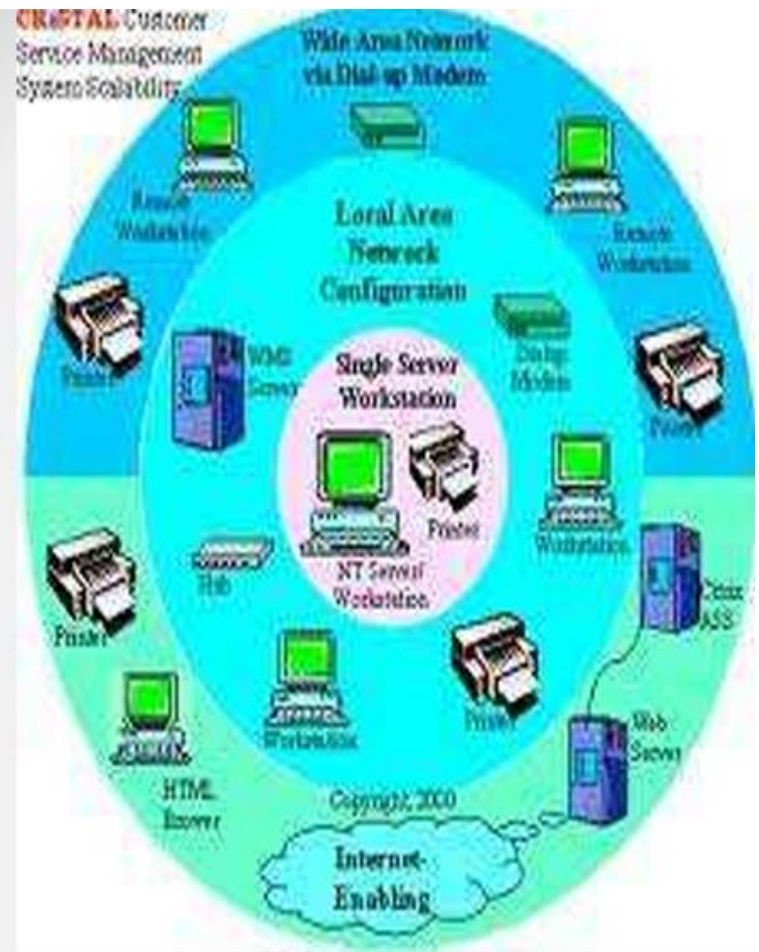
# Wide Area Network (WAN)

- 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)





# Difference Between LAN, WAN and MAN

LAN	MAN	WAN
1. Local Area Network.	1. Metropolitan Area Network.	1. Wide area network.
2. A communication network linking a number of stations in same local area. Range is 1 to 10 km.	2. This network shares the characteristics of packet broadcasting networks. Range is 100 kms.	2. A communication network distinguished from a local area network. Range is beyond 100 km.
3. Uses guided media.	3. Uses guided as well as unguided media.	3. Uses unguided media.
4. A high speed. i. g. 100kbps to 100mbps.	4. Optimize for a large geographical area than LAN.	4. Long distance communication which, may or may not be provided by public packet network.
5. Cheaper.	5. Costly.	5. Expensive.
6. NIC, switch and hub.	6. Media and Router.	6. Microwave, radio and infrared lesar.
7. Attached resource computer network(ARCNT, Token ring)	7. Fame relay and asynchronous transfer mode(ATM).	7. ATM, FDDI, SMDS.

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