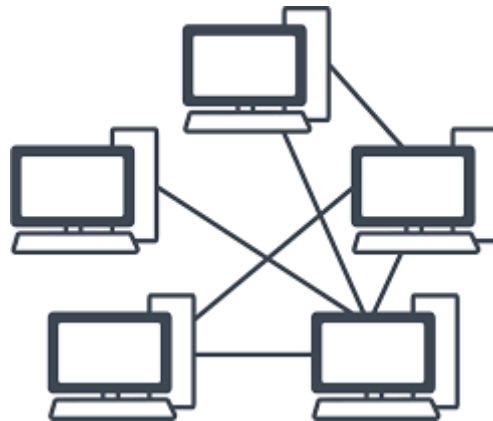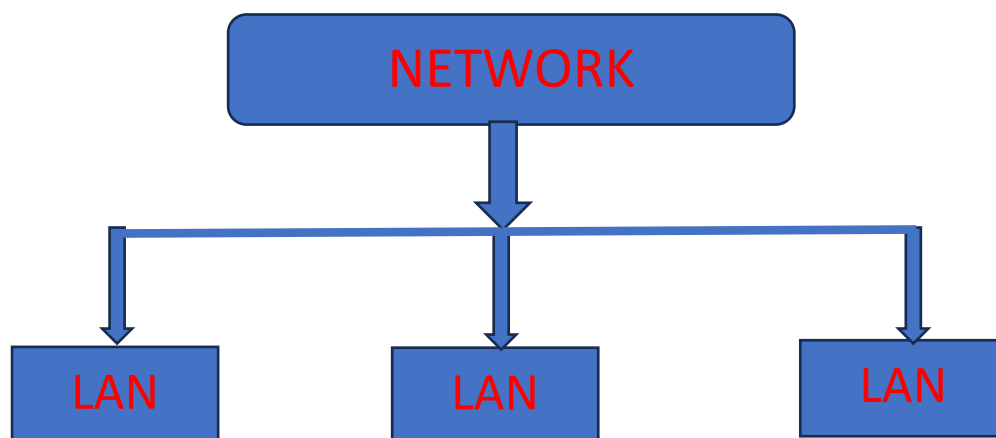A computer network is a group of computers linked to each other that enables the computer to communicate with another computer and share their resources, data, and applications.


A computer network can be categorized by their size. **A** computer network **is mainly of** Three types**:**

1. Local Area Network(LAN)
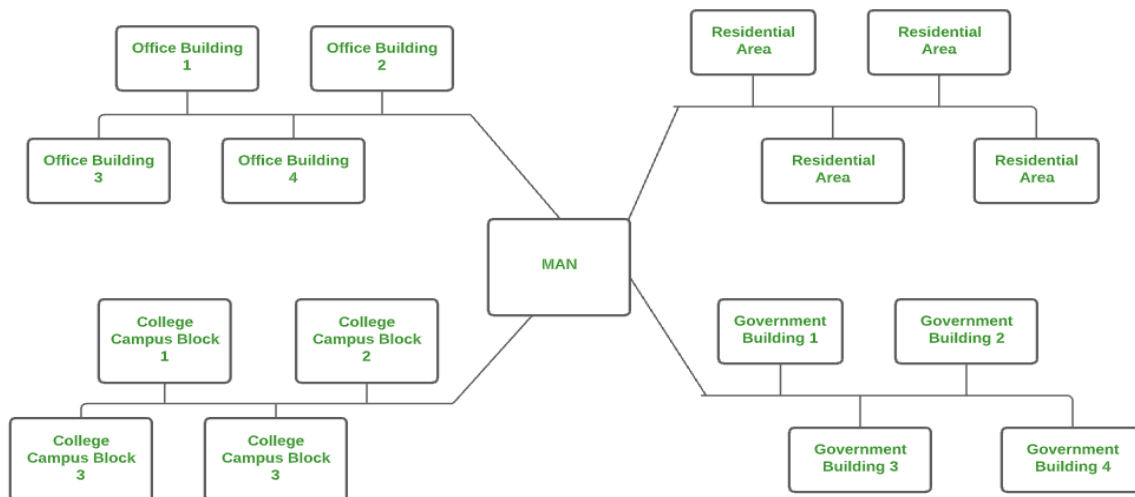2. Metropolitan Area Network(MAN)
3. Wide Area Network(WAN)

LAN(Local Area Network)

- o Local Area Network is a group of computers connected to each other in a small area such as building, office.
- o LAN is used for connecting two or more personal computers through a communication medium such as twisted pair, coaxial cable, etc.
- o It is less costly as it is built with inexpensive hardware such as hubs, network adapters, and ethernet cables.
- o The data is transferred at an extremely faster rate in Local Area Network.
- o Local Area Network provides higher security.
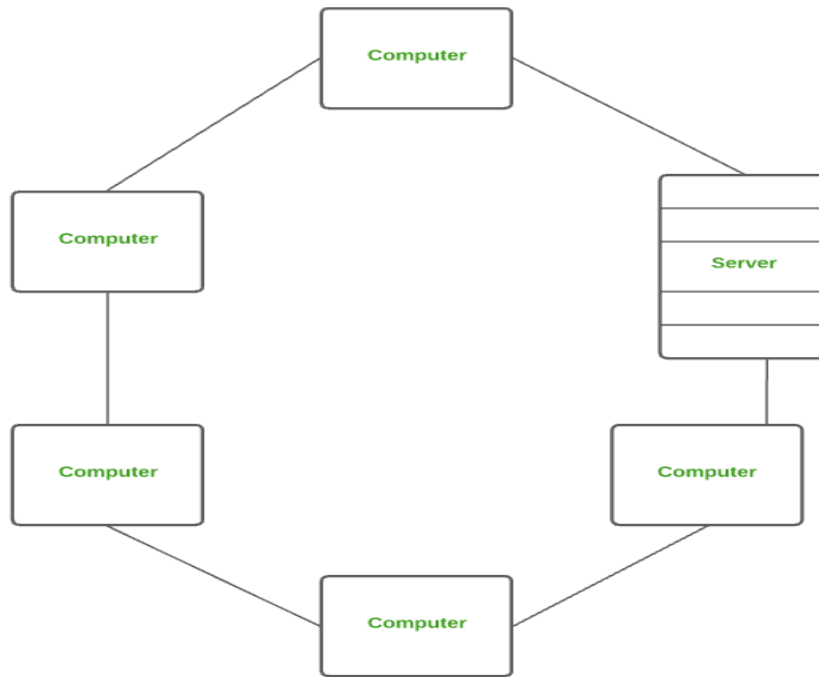
MAN(Metropolitan Area Network)

o A metropolitan area network is a network that covers a larger geographic area by interconnecting a different LAN to form a larger network.

o Government agencies use MAN to connect to the citizens and private industries.

o In MAN, various LANs are connected to each other through a telephone exchange line.

o The most widely used protocols in MAN are RS-232, Frame Relay, ATM, ISDN, OC-3, ADSL, etc.

o It has a higher range than Local Area Network(LAN).

Office Building 1   Office Building 2   Residential Area   Residential Area

Office Building 3   Office Building 4   Residential Area   Residential Area

MAN

College Campus Block 1   College Campus Block 2   Government Building 1   Government Building 2

College Campus Block 3   College Campus Block 3   Government Building 3   Government Building 4

WAN(Wide Area Network)

- o A Wide Area Network is a network that extends over a large geographical area such as states or countries.

- o A Wide Area Network is quite bigger network than the LAN.

- o A Wide Area Network is not limited to a single location, but it spans over a large geographical area through a telephone line, fibre optic cable or satellite links.

- o The internet is one of the biggest WAN in the world.

- o A Wide Area Network is widely used in the field of Business, government, and education.

Examples Of Wide Area Network:

- o **Mobile Broadband:** A 4G network is widely used across a region or country.

- o **Last mile:** A telecom company is used to provide the internet services to the customers in hundreds of cities by connecting their home with fiber.

- o **Private network:** A bank provides a private network that connects the 44 offices. This network is made by using the telephone leased line provided by the telecom company.
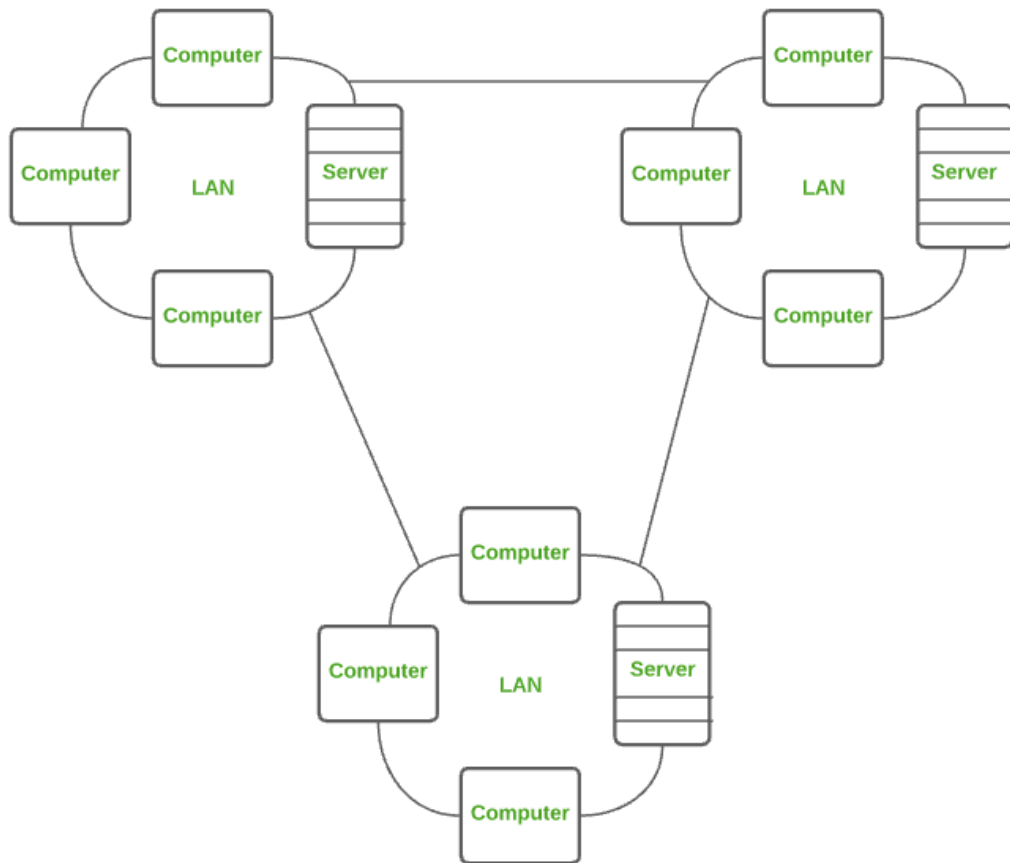
Parameters	LAN	MAN	WAN
Full Name	Local Area Network	Metropolitan Area Network	Wide Area Network
Technology	Ethernet & Wifi	FDDI, CDDi. ATM	Leased Line, Dial-Up
Range	Upto 2km	5-50 km	Above 50 km
Transmission Speed	Very High	Average	Low
Ownership	Private	Private or Public	Private or Public
Maintenance	Easy	Difficult	Very Difficult
Cost	Low	High	Very High

Internetwork:

- An internetwork is defined as two or more computer network LANs or WAN or computer network segments are connected using devices, and they are configured by a local addressing scheme. This process is known as internetworking.

- An interconnection between public, private, commercial, industrial, or government computer networks can also be defined as internetworking.

- An internetworking uses the internet protocol.

- The reference model used for internetworking is Open System Interconnection(OSI).

Types Of Internetwork:

1. **Extranet:** An extranet is a communication network based on the internet protocol such as Transmission Control protocol and internet protocol. It is used for information sharing. The access to the extranet is restricted to only those users who have login credentials. An extranet is the lowest level of internetworking. It can be categorized as MAN, WAN or other computer networks. An extranet cannot have a single LAN, atleast it must have one connection to the external network.

2. **Intranet:** An intranet is a private network based on the internet protocol such as Transmission Control protocol and internet protocol. An intranet belongs to an organization which is only accessible by the organization's employee or members. The main aim of the intranet is to share the information and resources among the organization employees. An intranet provides the facility to work in groups and for teleconferences.

Other Types of Computer Networks
1. Wireless Local Area Network (WLAN)
2. Storage Area Network (SAN)
3. System-Area Network (SAN)
4. Passive Optical Local Area Network (POLAN)
5. Enterprise Private Network (EPN)
6. Virtual Private Network (VPN)
7. Home Area Network (HAN)