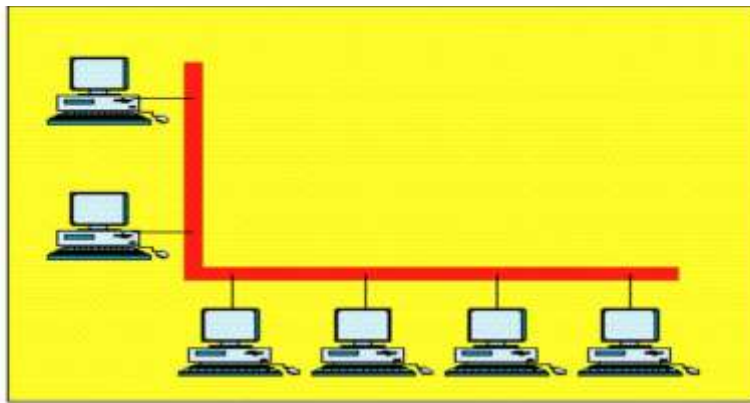


Network classification:

1-A local area network (LAN)

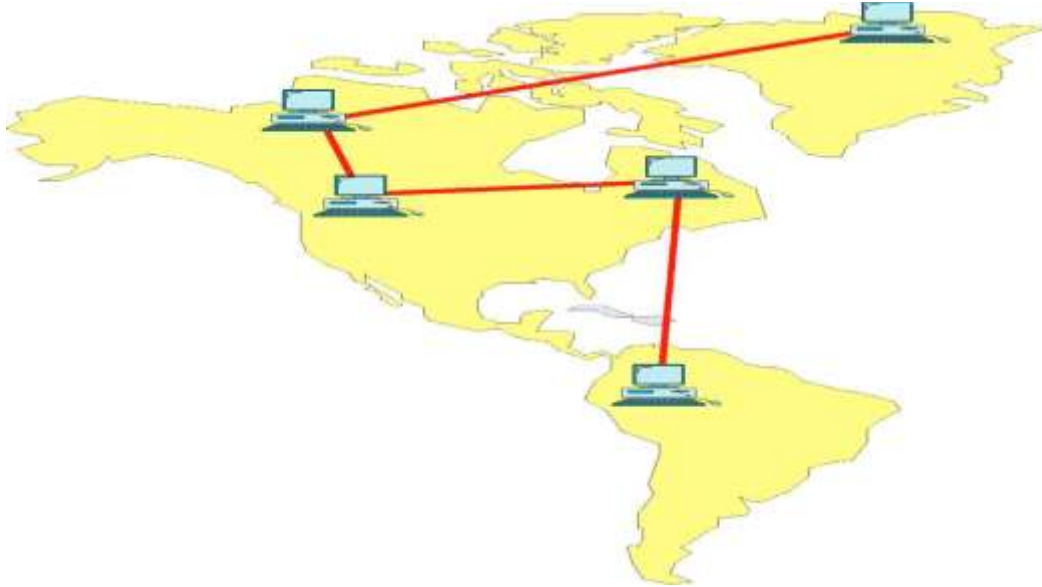
LAN is usually privately owned and links the devices in a single office, building, or campus, a LAN can be as simple as two PCs and a printer in someone's home office



Single building LAN

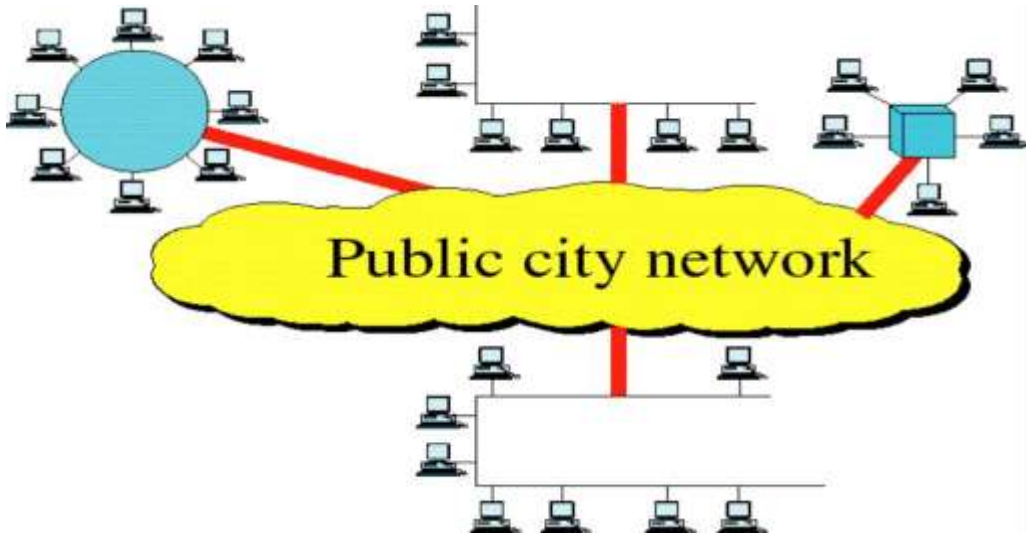
2- Wide Area Network (WAN)

A wide area network (WAN) provides long-distance transmission of data, image, audio, and video information over large geographic areas that may comprise a country, a continent, or even the whole world.

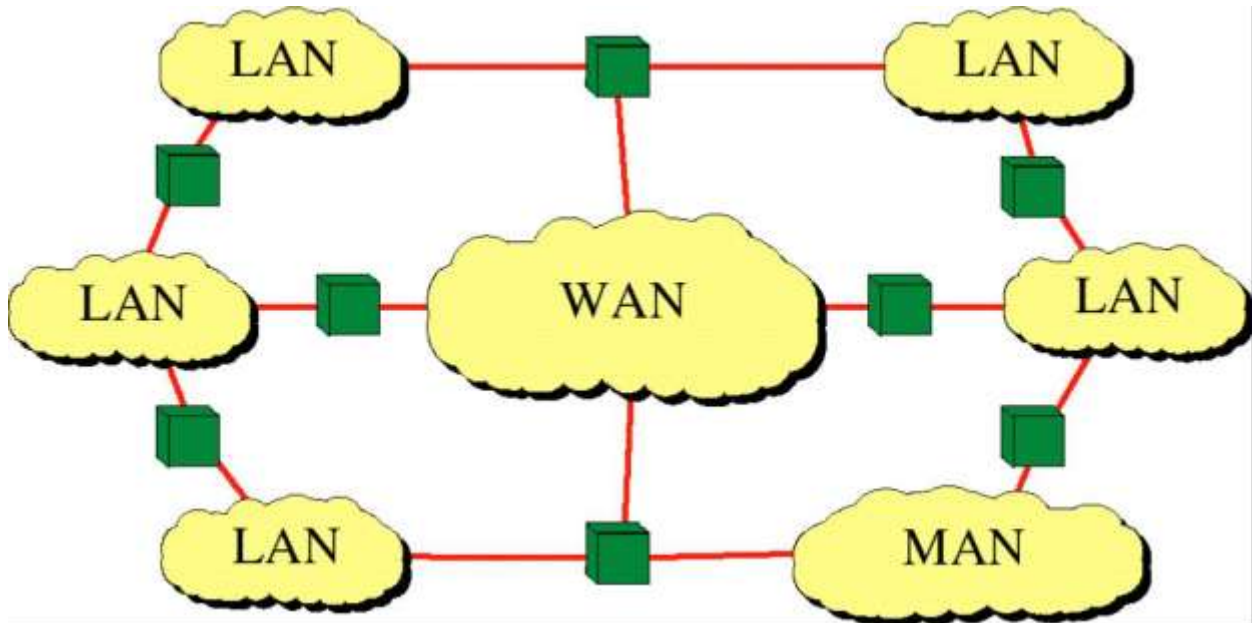


3-Metropolitan Area Networks (MAN)

A metropolitan area network (MAN) is a network with a size between a LAN and a WAN. It normally covers the area inside a town or a city. A good example of a MAN is the part of the telephone company network that can provide a high-speed DSL line to the customer.

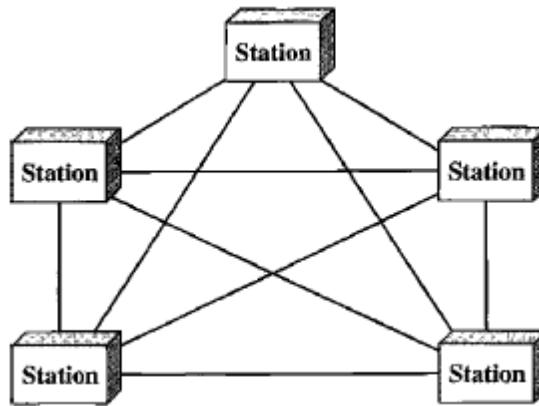


Internet

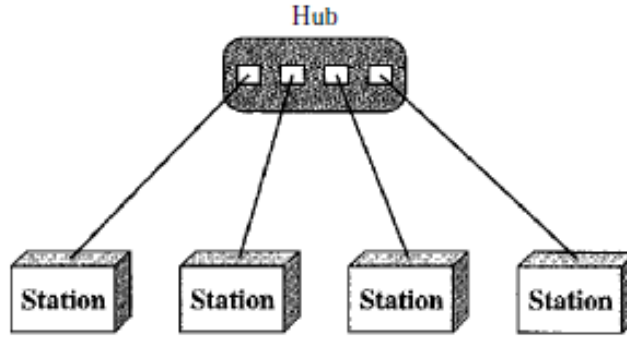


Network topology:

1- Mesh: in a mesh topology, every device has a dedicated point-to-point link to every other device. The term *dedicated* means that the link carries traffic only between the two devices it connects.

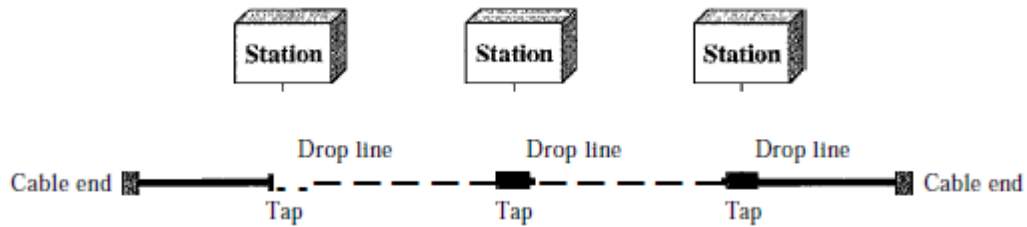


2- Star Topology: in a star topology, each device has a dedicated point-to-point link only to a central controller, usually called a hub. If one device wants to send data to another, it sends the data to the controller, which then relays the data to the other connected device.



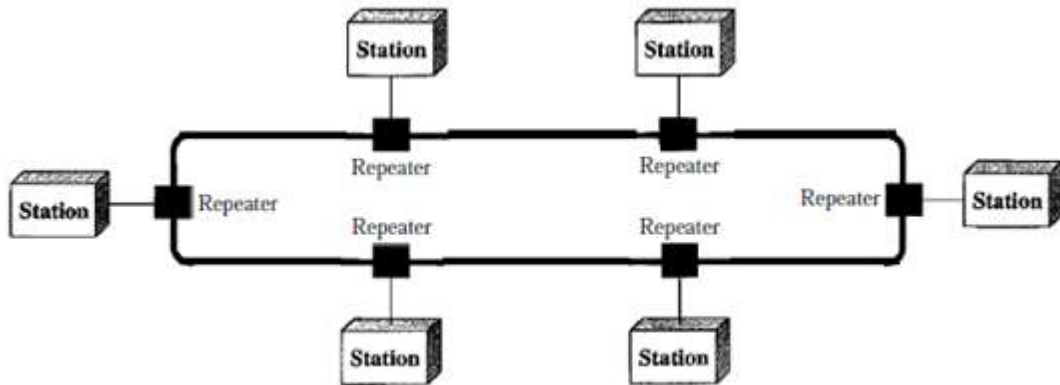
3- Bus Topology: A bus topology, on the other hand, is multipoint.

One long cable acts as a **backbone** to link all the devices in a network, Nodes are connected to the bus cable by drop lines and taps.



4- Ring Topology: in a ring topology, each device has a dedicated point-to-point connection with only the two devices on either side of it. A signal is passed along the ring in one direction, from device to device, until it reaches its destination. Each device in the ring

incorporates a repeater. When a device receives a signal intended for another device, its repeater regenerates the bits and passes them along.



Hybrid Topology :

A network can be hybrid. For example, we can have a main star topology with each branch connecting several stations in a bus topology as shown in Figure:

