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computer network

is a telecommunications of two or more computer systems linked together to exchange data and share resources. connections (network links) between nodes are by using cable media or wireless media. The best-known computer network is the Internet. Networks are often labeled by the geographic distance they span

The purpose of network:

- reducing hardware costs
- fostering teamwork and collaboration
- Easy access and sharing of information
- Sharing of files and network resources
- networks (e-commerce, IP telephony, Video on Demand, Electronic mail)
- Centralized Management
- fostering of Corporate Structure
- Ability to use network software

How the computer network works

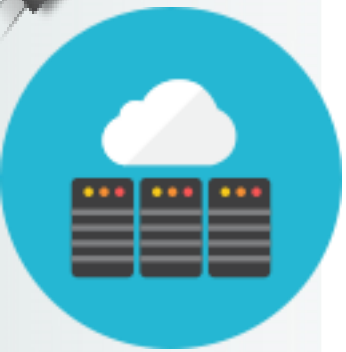
Any device connected to a network is called node. Each node has a unique address, assigned by the software in use, Data link connection identifier (DLCI), or media access control (MAC) address.

Depending on the format of the network, the DLCI, MAC address can be used to identify the node.

Communication devices include computers, modems, router, switches, hubs, wireless access points, and network interfacecards. These device transform data from analog to digital signals and back again.

A **network interface card (NIC)** is a printed circuit board that provides network communication and Without the NIC the computer can not connect to any network

.Also called a network adapter.



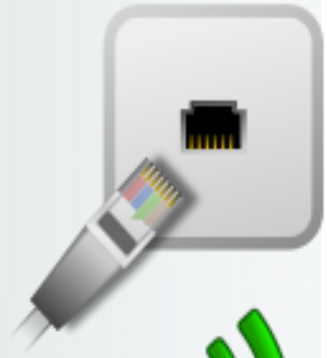
In addition to your data passing through a NIC card or wireles s adapter it has also passed through such :

the router: is a more complex device, that is used to connect two or more networks. Routers also have the capability to inspect the source and determine the best path to its destination.

- Routers are used to connect networks together
- Route packets of data from one network to another
- Router chooses best path to final destination
- Cisco became the standard of routers because of their high-quality router products

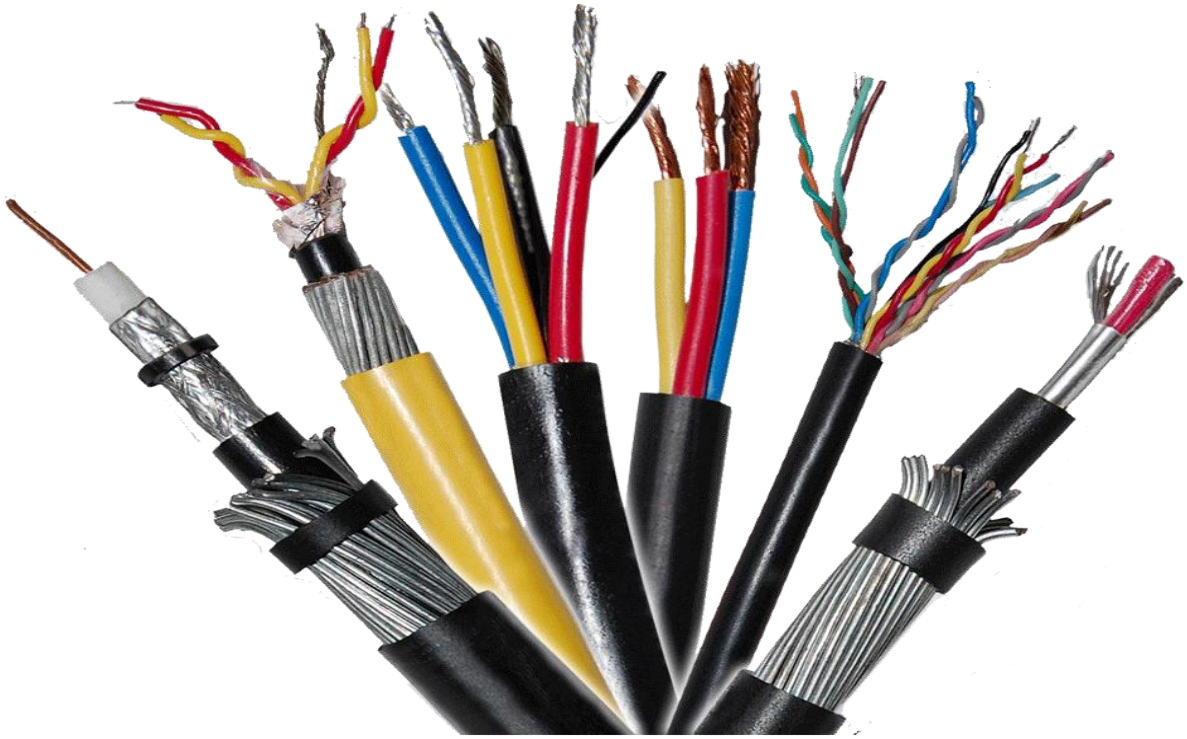
hub : simple, inexpensive device that joins multiple computers together in a single network but does not manage the traffic between the connections, which usually results in frequent collisions Which lead to network malfunction and destruction.
Hubs vary in their number of available ports

Switches are more intelligent than hubs:
the switch contains software that inspects the source and target of a data package and deliver it to that destination.
a switch condenses bandwidth. Switches and hubs only move data between nodes within a single network.

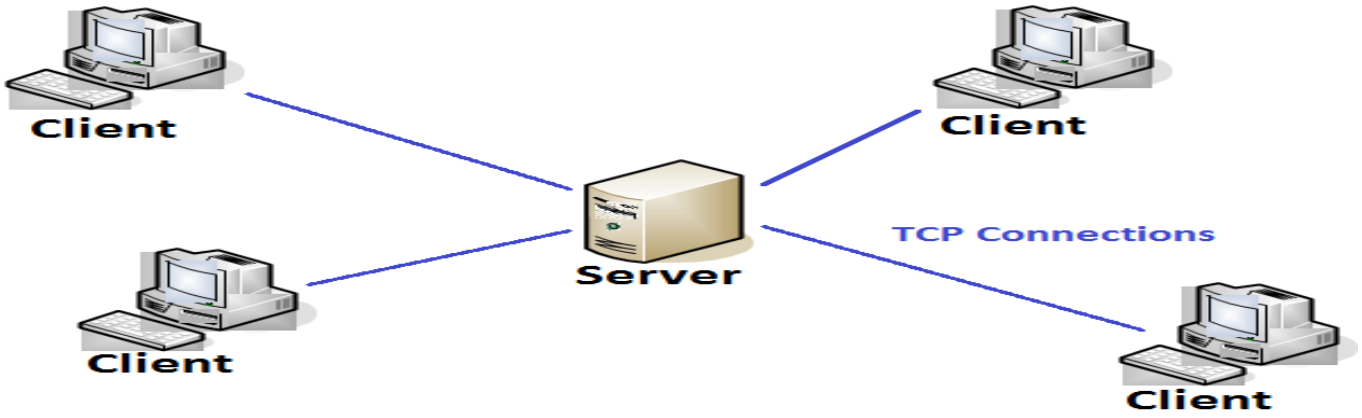


Media: It could be a fiber-optic cable. Media might not even be a cable, as is the case with wireless networks.

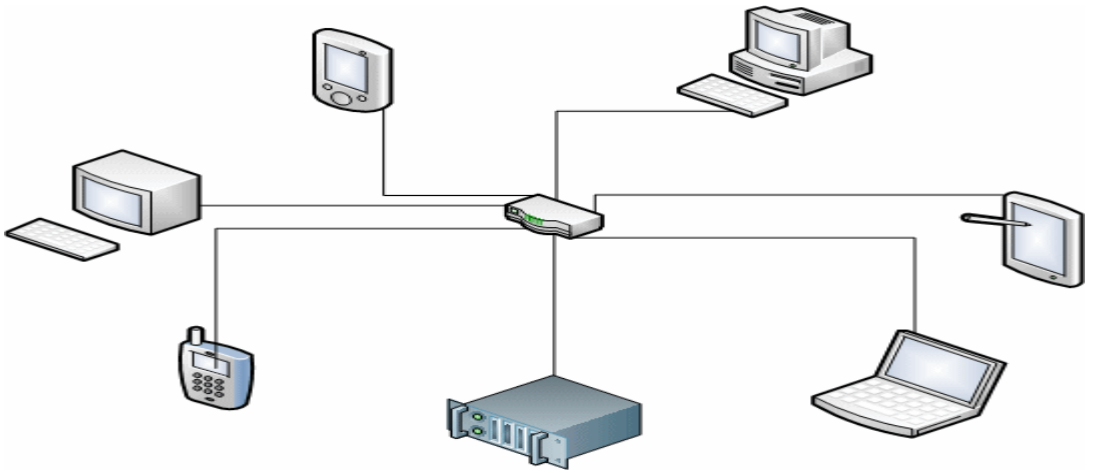
For example, although fiber-optic cabling is more expensive than twisted-pair cabling, it can typically carry traffic over longer distances and has a greater bandwidth capacity (that is, the capacity to carry a higher data rate).



Servers : serves up resources to a network that accepts and responds to requests made by a client. Such as
e-mail access as provided by an e-mail server, web pages as provided by a web server, or files available on a file server.



Client: The term client defines the device an end user uses to access a network.

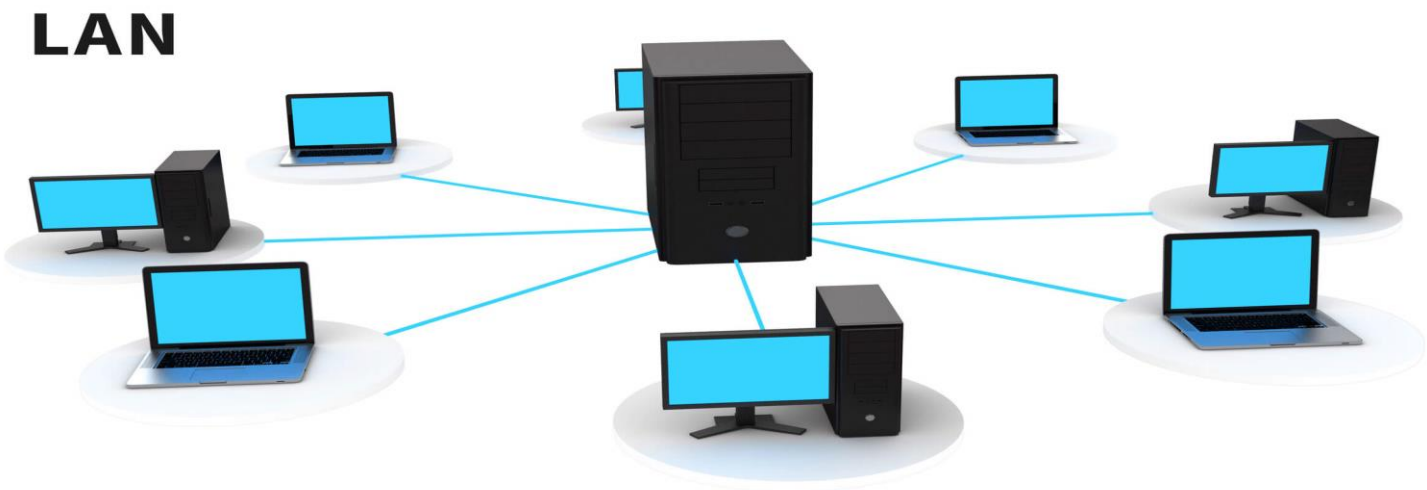


Type of networks

the local area network (LAN) uses cables, radio waves to link computers or peripherals within a small geographic area, such as a home ,office , building , school , or airport. LANs are typically owned and managed by one.

Wireless LAN signals have an effective inside range of between 125 and 300 feet but can be shorter if the building construction interferes with the signal.

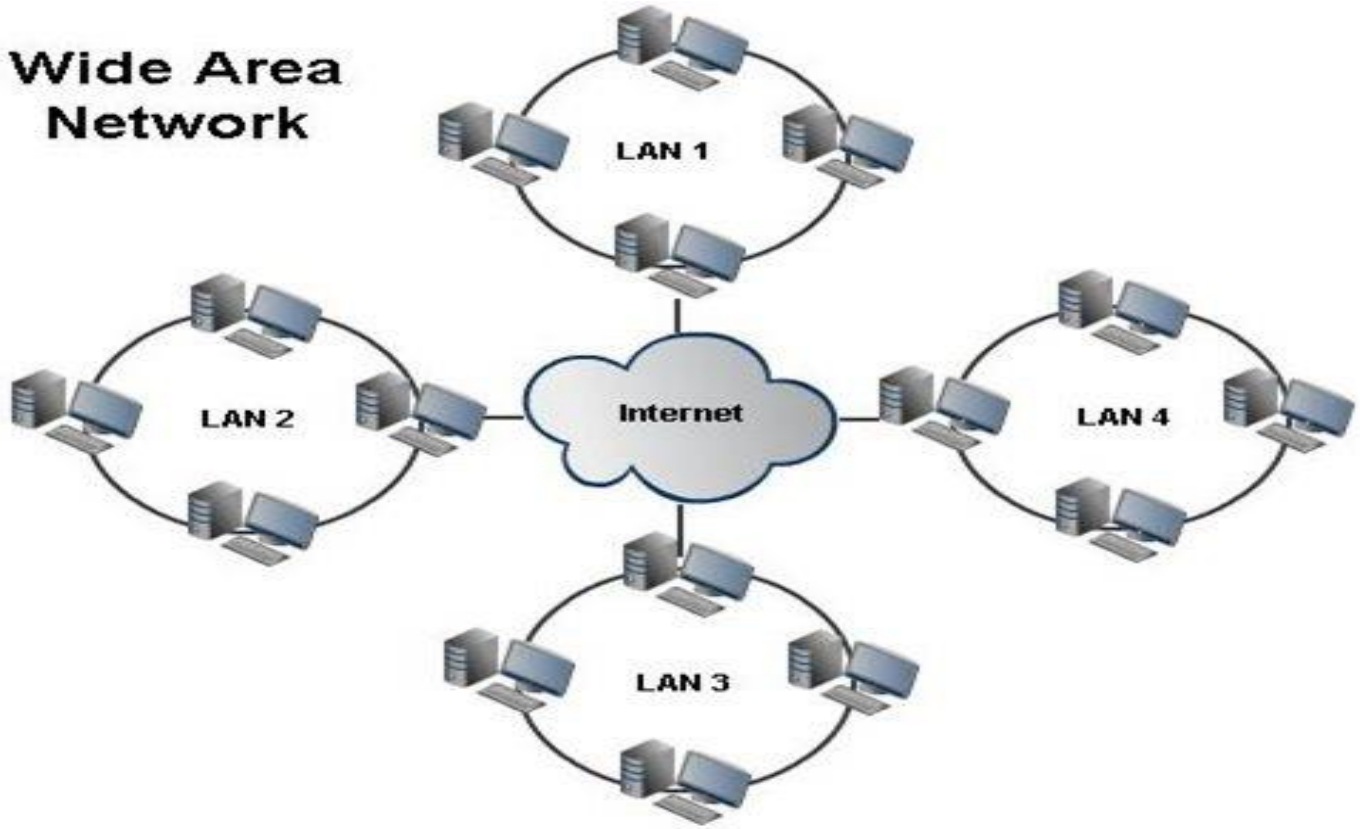
- It characterized by high data speeds (up to 10Gbps) .

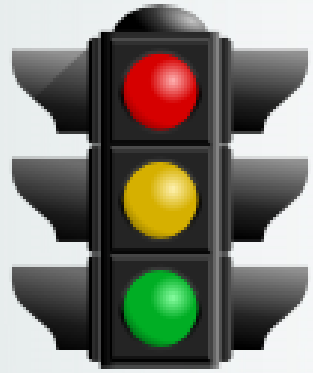


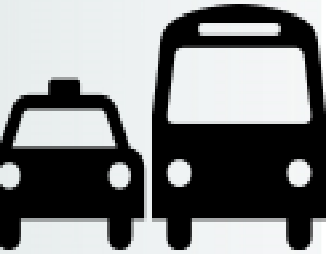
the wide area network (WAN):

uses to link computers separated by even thousands of miles. AWAN is a geographically dispersed collection of LANs.

The Internet is the largest WAN it connects millions of LANs all over the globe. it has a collective ownership or management, like the Internet..







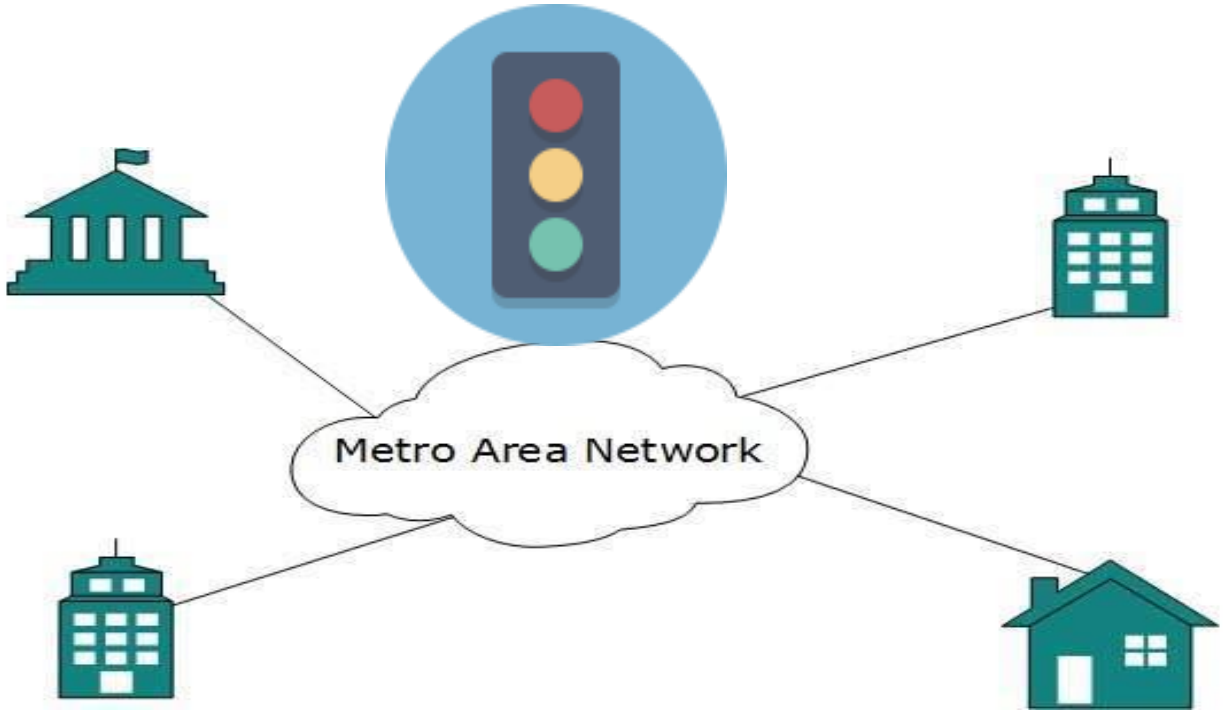
The metropolitan area network (MAN):

It is a group of LANs

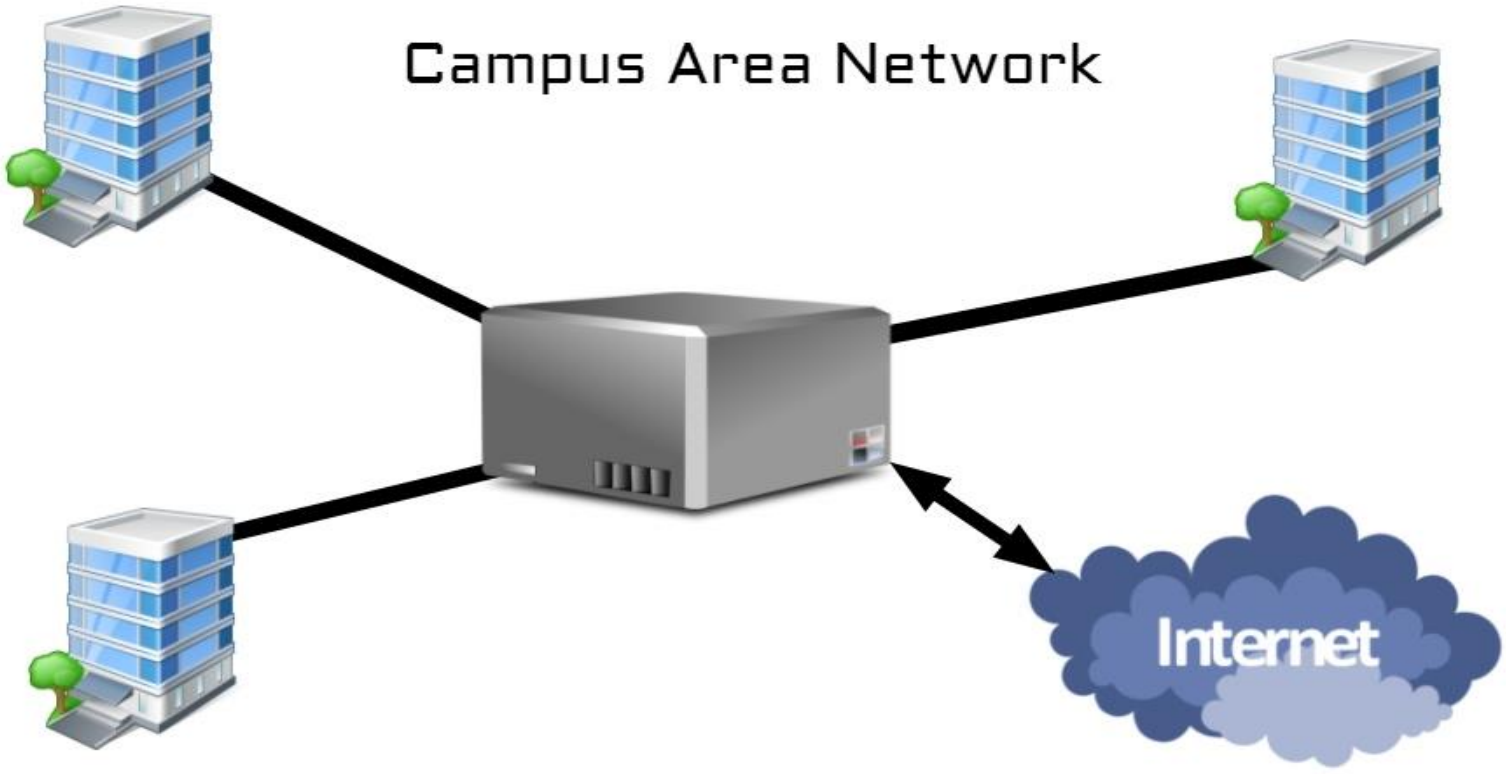
is designed for a city or town. It is usually larger than a LAN but smaller than a WAN.

the MAN is owned by a single government or organization. examples of a MAN used to support a site like traffic conditions.

- It characterized by very high data speeds (up to 1Gbps)
- The Man distance about 100KM



campus area network (CAN) includes several LANs that are housed in various locations on a college or business campus. Usually smaller than a WAN.



One of the more recent classifications is that of a **personal are network PAN:** This is a network created among an individual's own personal devices, usually within a range of 32 feet.

This modem then provides both wired and wireless connections for multiple devices. The network is typically managed from a single computer but can be accessed from any device

References

Catherine Laberta, July 29, 2013 computer are your future chapter 7

Thank you !