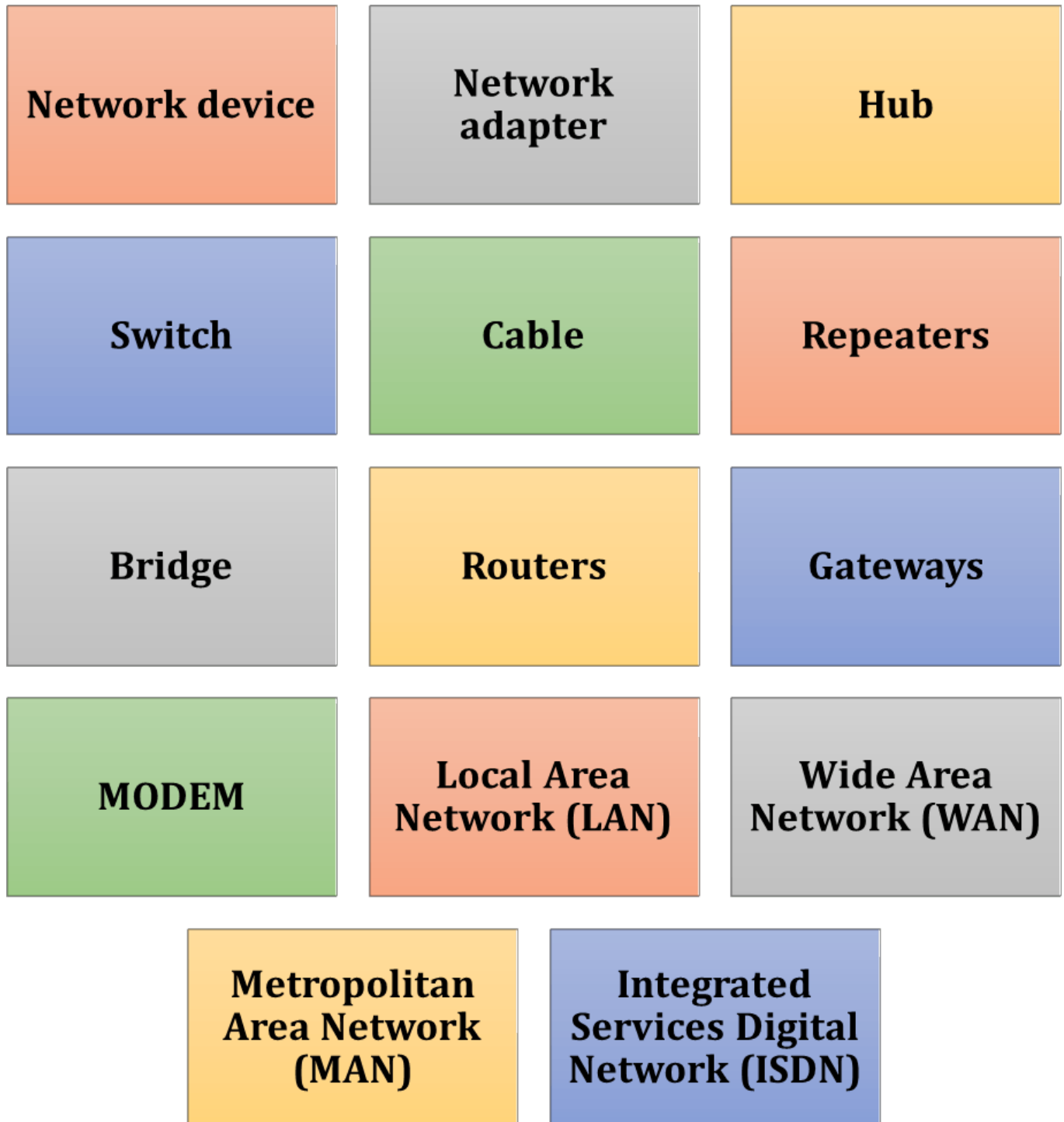


Network Devices and Types of network-LAN, WAN, MAN, ISDN for Competitive Exams

Network devices:



Types of Networking Devices

Network adapter is a device that enables a computer to connect with other computer/network using MAC Address

Hub is a device that splits a network connection into multiple computers

Switch is a telecommunication device grouped as one of computer network components

Cable is one way of transmission media which can transmit communication signals.

Repeaters is used to regenerate or replicate signals that are weakened or distorted by transmission over long distances

Bridge is used to connect two LANs with the same standard but using different types of cables

Routers is used to join multiple computer networks together via either wired or wireless connections.

Gateways is a key stopping point for data on its way to or from other networks.

MODEM – Modulator-demodulator. Electronic device that allows computers to communicate over telephone wires or cable- TV cable.

Local Area Network (LAN) – a computer network that links devices within a building or group of adjacent Ex – Star LAN, Ring LAN, Bus LAN

Wide Area Network (WAN) – a computer network in which the computers connected may be far apart.

Metropolitan Area Network (MAN) – A metropolitan area network (MAN) is a network that interconnects users with computer resources in a geographic area or region larger than that covered by even a LAN but smaller than the area covered by WAN.

Ex- Public Networks Public Switched Telephone Networks (PSTN) Public Service Digital Network (PSDN)

Integrated Services Digital Network (ISDN) is a set of communication standards for simultaneous digital transmission of voice, video, data

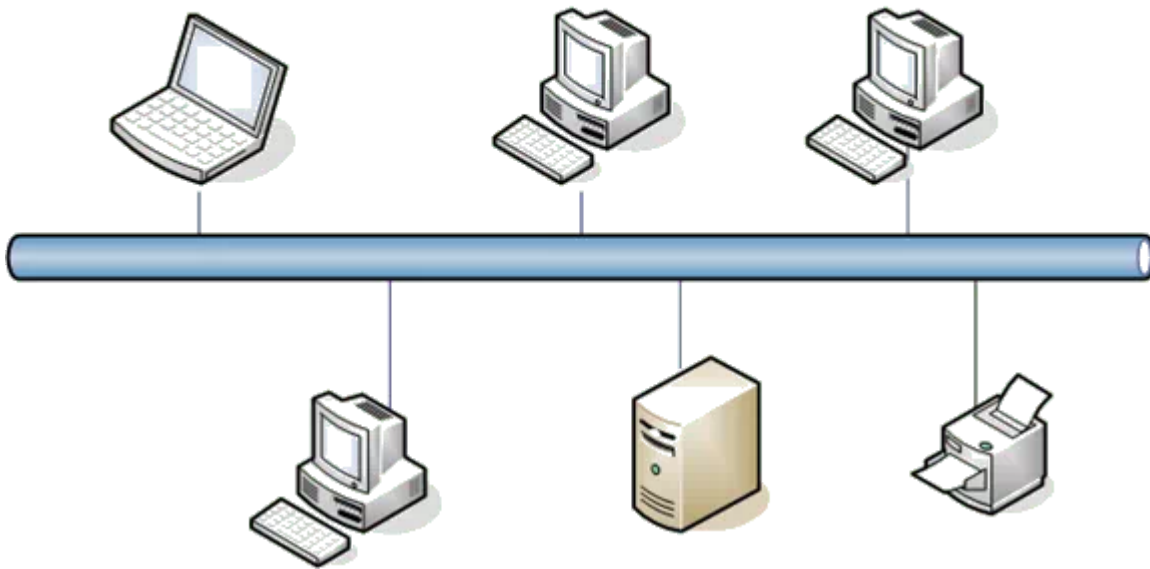
Types of Network Topology

Network topology is the schematic description of a network arrangement, connecting various nodes (sender and receiver) through lines of connection.

Bus

- A bus network is a network topology in which nodes are connected in a daisy chain by a linear sequence of buses.
- The bus can only transmit data in one direction, and if any network segment is severed, all network transmission ceases.

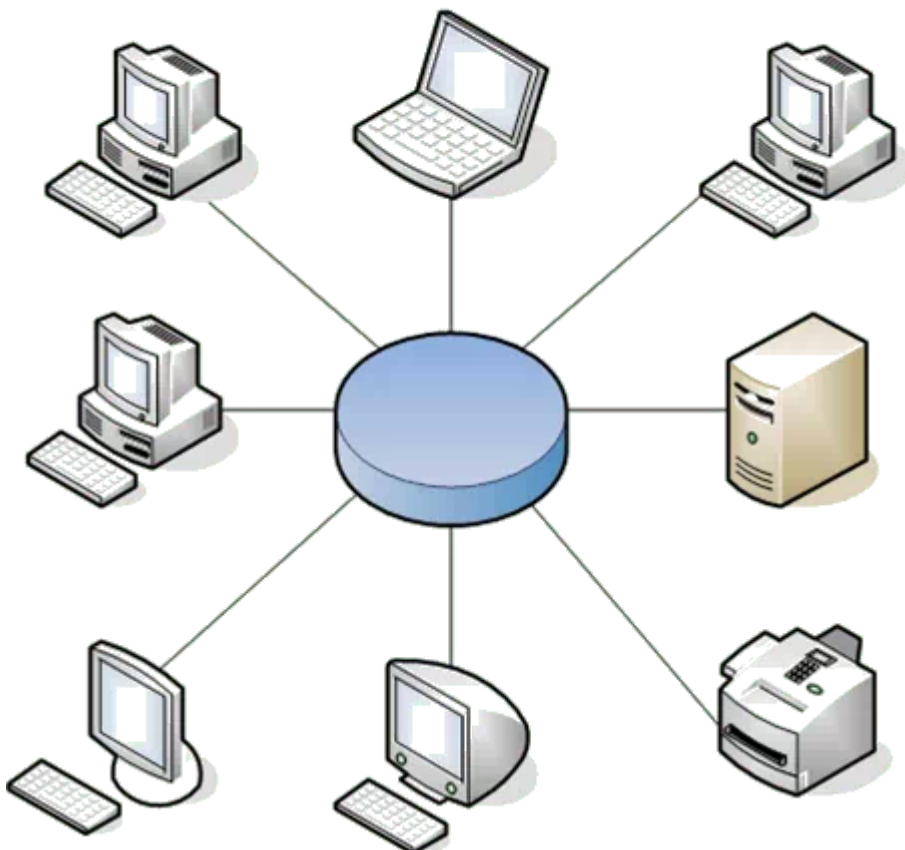
BUS Topology



Bus Topology

Ring - A ring network is a network topology in which each node connects to exactly two other nodes, forming a single continuous pathway for signals through each node - a ring. Data travels from node to node, with each node along the way handling every packet.

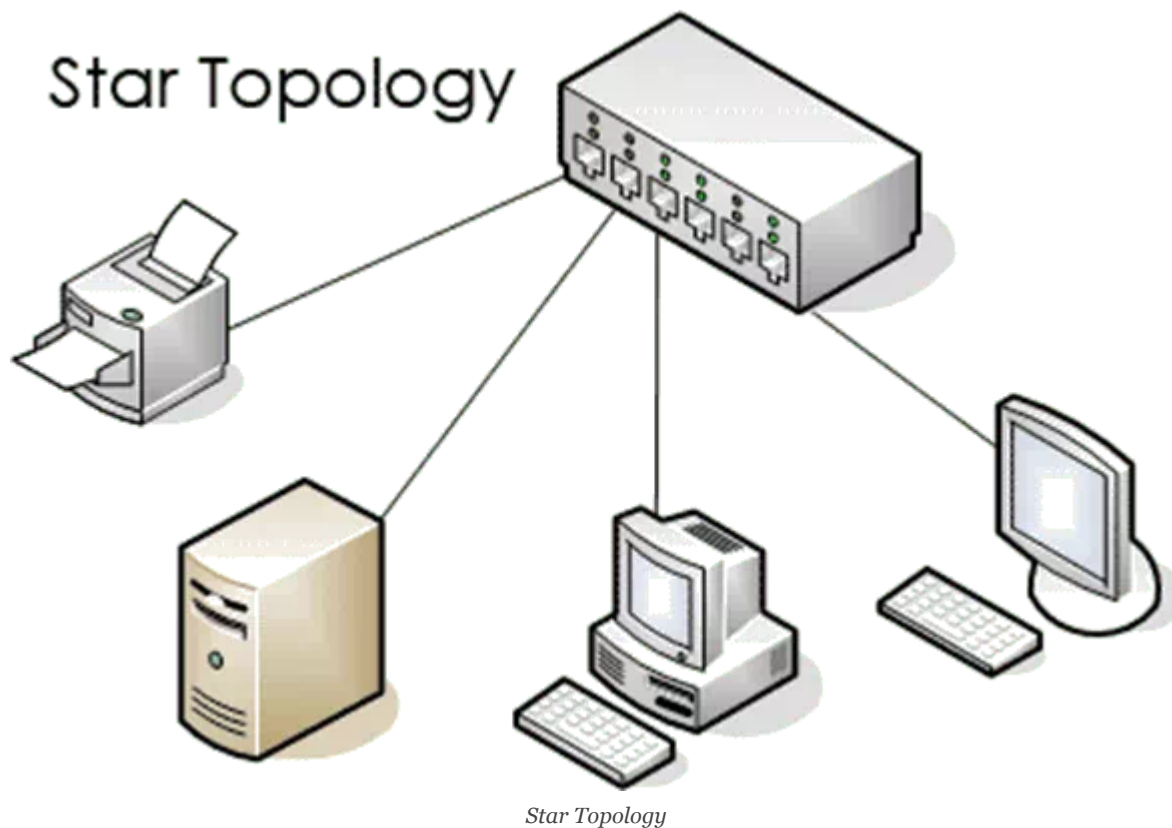
RING Topology



Ring Topology

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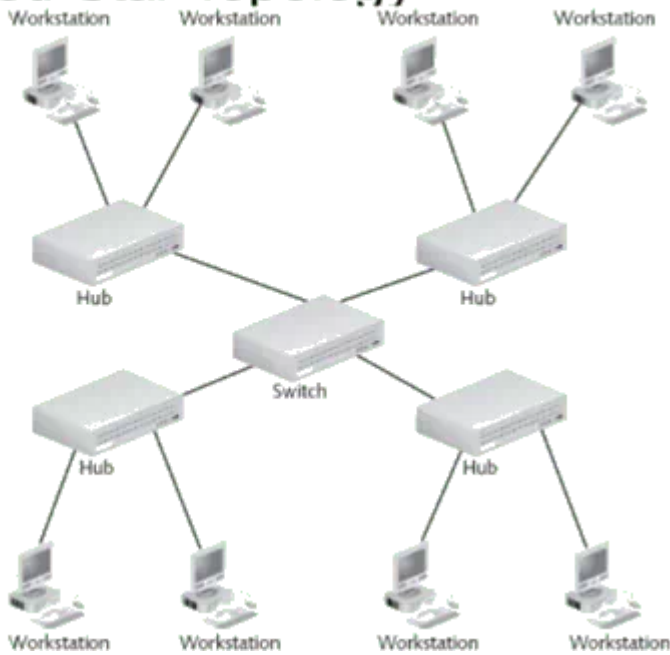
Star - In local area networks with a star topology, each network host is connected to a central hub with a point-to-point connection. So it can be said that every computer is indirectly connected to every other node with the help of the hub'



Extended Star

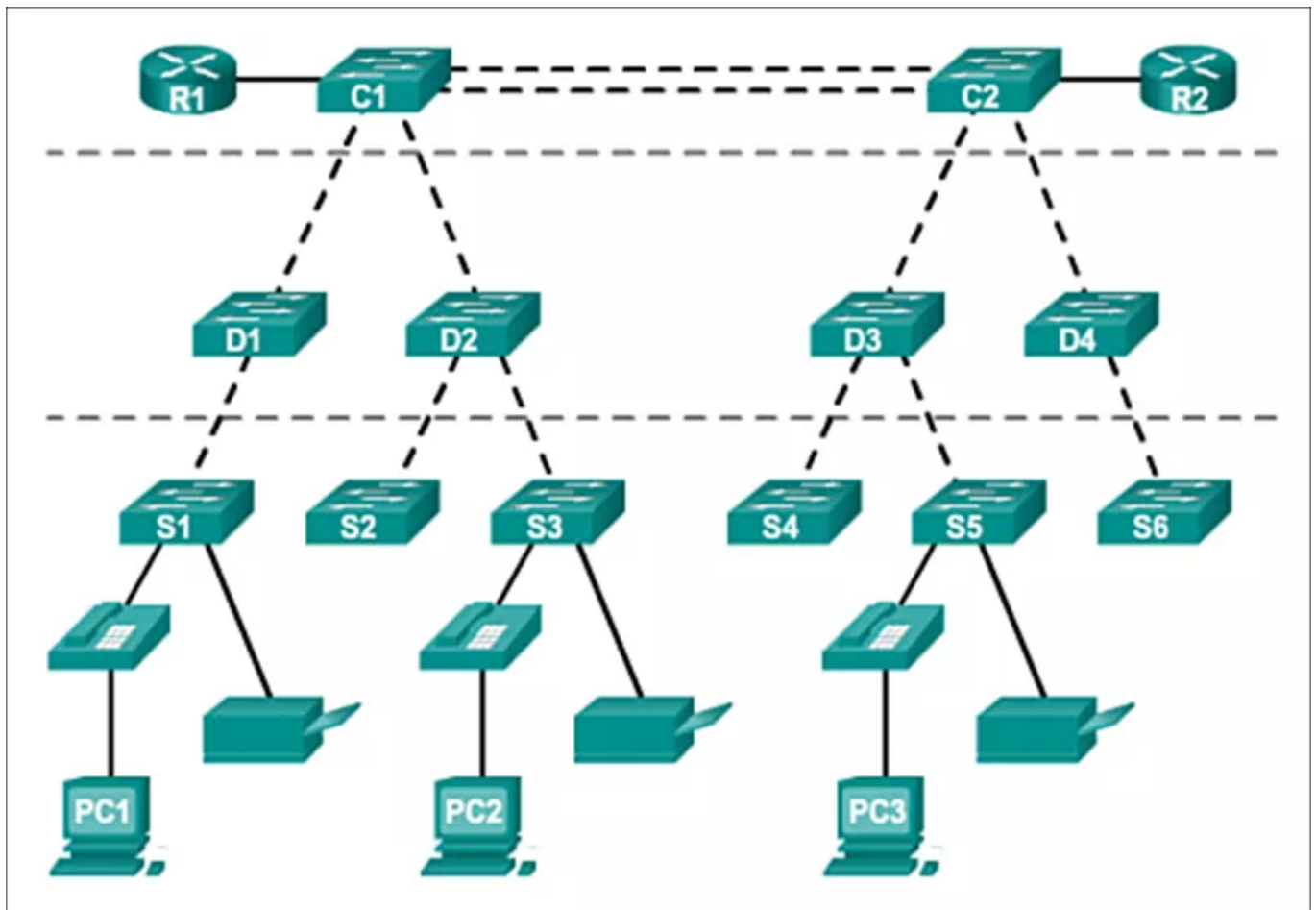
A type of network topology in which a network that is based upon the physical star topology has one or more repeaters between the central node and the peripheral or 'spoke' nodes, the repeaters being used to extend the maximum transmission distance of the point-to-point links between the central node and the peripheral nodes beyond that which is supported by the transmitter power of the central node or beyond that which is supported by the standard upon which the physical layer of the physical star network is based.

Extended Star Topology



Extended Star Topology

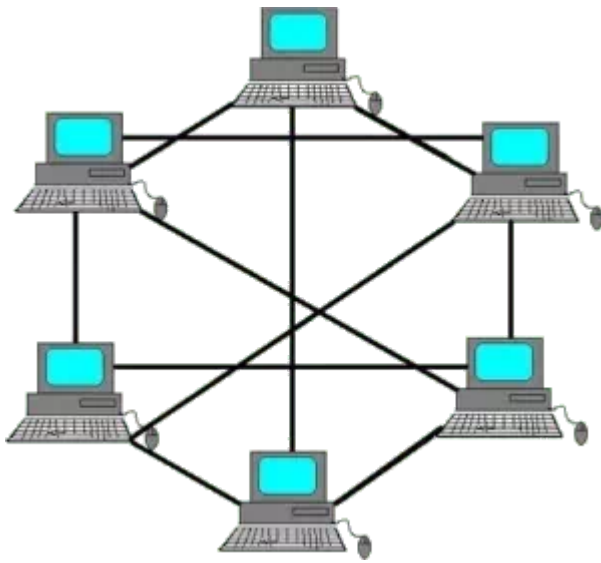
Hierarchical – The network model expands upon the hierarchical structure, allowing many-to-many relationships in a tree-like structure that allows multiple parents. It was most popular before being replaced by the relational model, and is defined by the CODASYL specification



Hierarchical Topology

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Mesh - The value of fully meshed networks is proportional to the exponent of the number of subscribers, assuming that communicating groups of any two endpoints, up to and including all the endpoints, is approximated by **Reed's Law**.

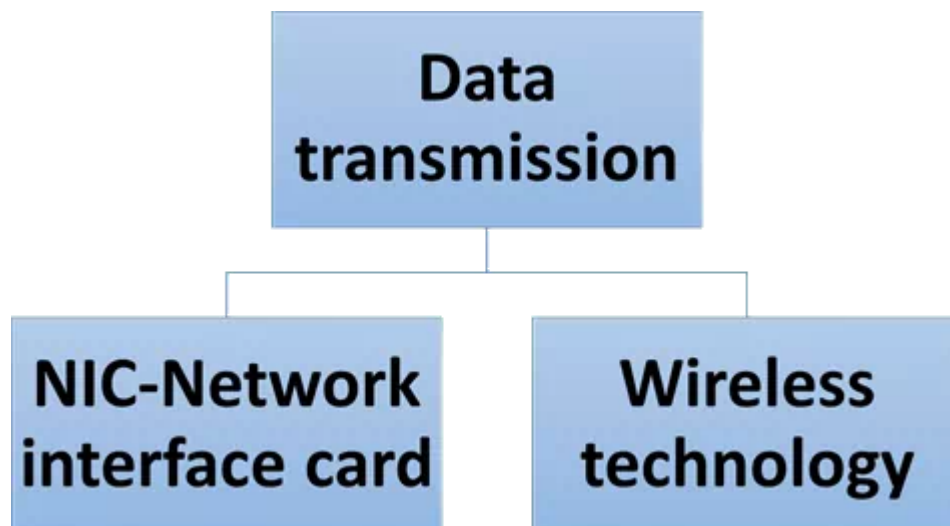


Mesh Topology

Data transmission

NIC-Network interface card - a network interface card (NIC) is a computer circuit board or card that is installed in a computer so that it can be connected to a network.

Wireless technology - Wireless communications is a type of data, a wireless signal through wireless communication technologies and device.



Data Transmission

Network Related Terms

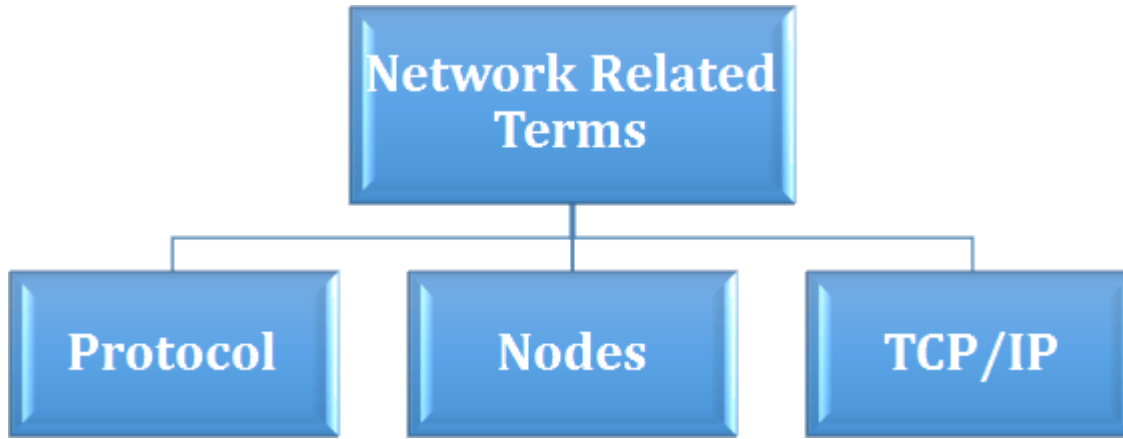


Image of Network Related Terms

Protocol - It is set of rules and standards which is used by computers to exchange data or information with each other across a network.

Nodes - It is a connect point where either data transmission ends or redistribution of data starts.

TCP/IP (Transmission Control Protocol/Internet Protocol) – basic communication language or protocol of the Internet.

IPV4 - 32 bits numeric address

IPV6 - 128 bits hexadecimal address