What is Intranet?

It is a such types of network that is Private network accessible only to an organisation stop while a wide range of information and services are available. It is used for internal task of organisation. An intranet is also established with the technology for LAN and WAN both.

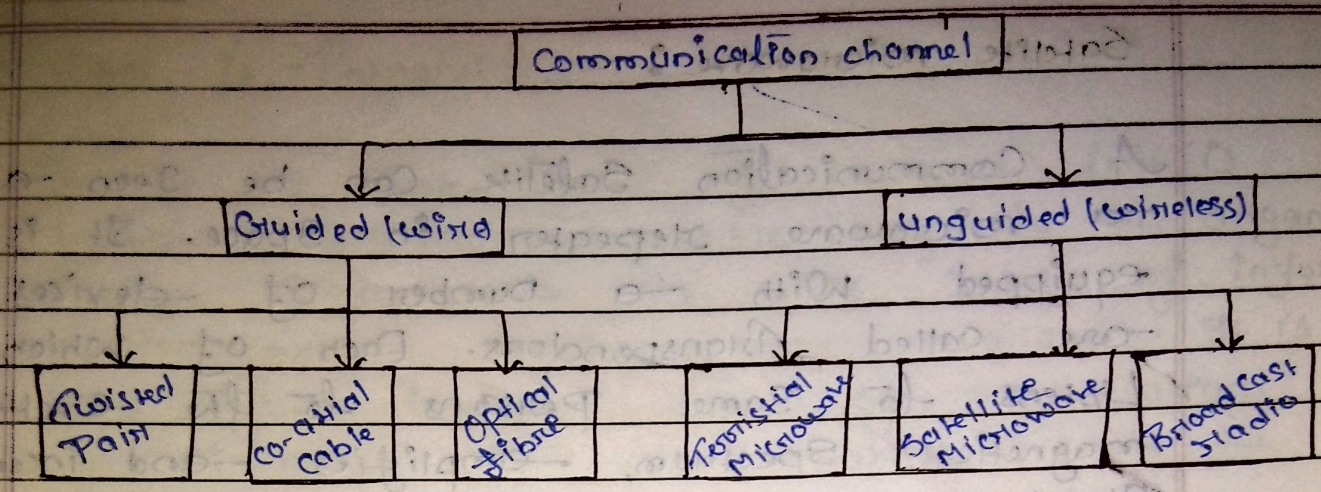
Intranet being used as Coporate culture change platform such as large number of emploies discussing key issue in an intranet application could lead to new ideas in management productivity, Quality and other Coporate issue. In large intranet website traffic is often similar to Public website traffic and can be better understand by using web metrices software to track over all activity.

Satelite microwave :-

A Communication Satelite can be seen as a microwave repeater in space. It is equipped with a number of devices are called transpondors. Each of which listens to same persons to the electro magnetic spectrum, amplifies and incoming signal and rebroadcast. It is another frequency satellites are placed in orbits above the equitor at the hight and speed that enables than to maintain a position above the specific location on the earth surface. The Antina used to receive signals from the satellites can thus be amounted in a fixed position.

Broadcast Radio :-

Broadcast Radio services are available to cover all your needs to after a complete solution for radio all level. Radio broadcasting is transmission by radio waves intented to rich a wide odiums. Stations are linked in a radio network to broadcast a common radio formate. Either in broadcast syndication or sibyl cost. Here, the mean of broadcasting syndication is the listen to broadcast television programms and radio programm by multiple radio and Tv station.



Terrestial microwave :-

Here, information is sent using microwaves from ground based transmission and receiving station. Text, sounds and graphics are converted in to microwaves pulses and transmitted microwave station (AKA) repeater station must be placed every 50 km to receive empliy and then pass the signal along. Transfer information at much higher speed than cabling. It performs point to point communication. It is used in uni cast communication such as cellular, telephone, infrared between one microwave station to another on the earth.

Terrestial microwave system operate in the log giga hertzs range typically at 4-6 giga hertzs and 21-23 giga hertz and costs are highly variable depending on requirements.

Merits of TCP/IP model :-

i) It is a Scalable.
ii) It is Operated independently.
iii) It is client Server architecture.
iv) It Supports a number of routing protocols
v) It can be used to establised a Connection between two Computers.

Demerits of TCP/IP model :-

i) In this the transport layer does not guarantee delivery of Packets.
ii) Replacing Protocol is not easy.
iii) The model cannot be used in any other application.
iv) It has not clearly Seprated its Services interface & Protocols.

Communication channel :-

A Communication channel or Simply channel refers either to a Physical transmission medium such as a wire or to a logical Connection over a multiplex medium such as a radio channel in tele Communications and computer networking.

These are the types of telecommunication :-

FTP:-

It stands for file transfer protocol. It allows file transfer among computer users connected over a network. It is reliable simple and efficient.

SMTP:-

It stands for Simple Mail transport Protocol. It is a Protocol which is used to transport electronic mail between a source and destination directed through a route.

DNS:-

It stands for Domain name Savier. It resolves an IP address in to a textual address for hosts connected over a Network. It allows peer entities to carry conversation. It defines end to end protocol. i.e TCP & UDP

TCP:-

It stands for transmission control Protocol. It is reliable connection oriented Protocol which manage byte stream from source to destination without error and flow control.

UDP:-

It stands for user Datagram Protocol. It is an unreliable connectionless Protocol that do not want TCP., sequencial & flow control

3. Transport layer:-

It is the third layer. In this layer data transmission is performed on parallel path or single path. It performs the function such as multiplexing segmenting or splitting on the data is done by transpot layer. In this layer applications can be read and write. It also add header information to the data. This layer breaks the information in to small units so, that they are handle more efficiently by the ~~market~~ layer network layer. Transport layer also arrange the packets to be sent in sequence.

4 Application Layer:-

It is the fourth layer. In this layer TCP/IP specification described a lot of applications that were at the top of protocol stack such as Telnet, Ftp, SMTP DNS.

Telnet:-

It is a two way communication protocol which allows connecting to a rigot machine and run applications on it.

It has only four layer:-

Application layer
Transport layer
Internet layer
Network access layer

1.) Network Access layer:-

It is the first lowest network layer of the network. This protocol is used to connect to the host so that the packets can be sent over. It carries from host to host and network to network.

2.) Internet layer:-

It is the second layer of the TCP/IP model. Selection of a packet switching network which is best on a connectionless inter network layer. In this layer whole architecture holds together. It helps the packet to travel independently to the destination. IP (Inter Protocol) is used in this layer. It performs different tasks such as delivering IP packets, performing routing, avoiding congestion.

whole message and buffers it until there are resources available to transfer it to the next. If next has small size in comparision to first then divide the message into more than one part.

TCP/IP :→

The mean of TCP/IP is transmission control protocol and internet protocol. It is the network model used in the current internet architecture. It has set of rules which perform every possible communication over a network. These protocols describes the movement of data between the source and destination on the internet. It also offer simple naming and addressing scheme.

It was developed by department of defence's Project research agency (DARPA) as a part of a research Project of network interconnect to connect remote machines.

It supports a flexible architecture and adding more machine to a network was busy. The network was robust and connections remained intact until the resource and destination machine were functioning.

(ii) Virtual Circuit packet Switching :→

Virtual circuit packet switching is normally done at the data link layer. It establish a fixed path between a source and a destination for transferring the packets. It is also called as connection oriented network.

In this circuit switching, for moving source to destination have to go through three phases.

a.) Set-up phase
b.) Data transfer phase.
c.) Connection realise phase.

A logical connection is established when a set-up request to the reciever. After that reciever sends back and acknowledgement to the sender if the reciever agree. All packets of same source and destination travel the same path. The information is delivers to the reciever in the same order as transmitted by the sender.

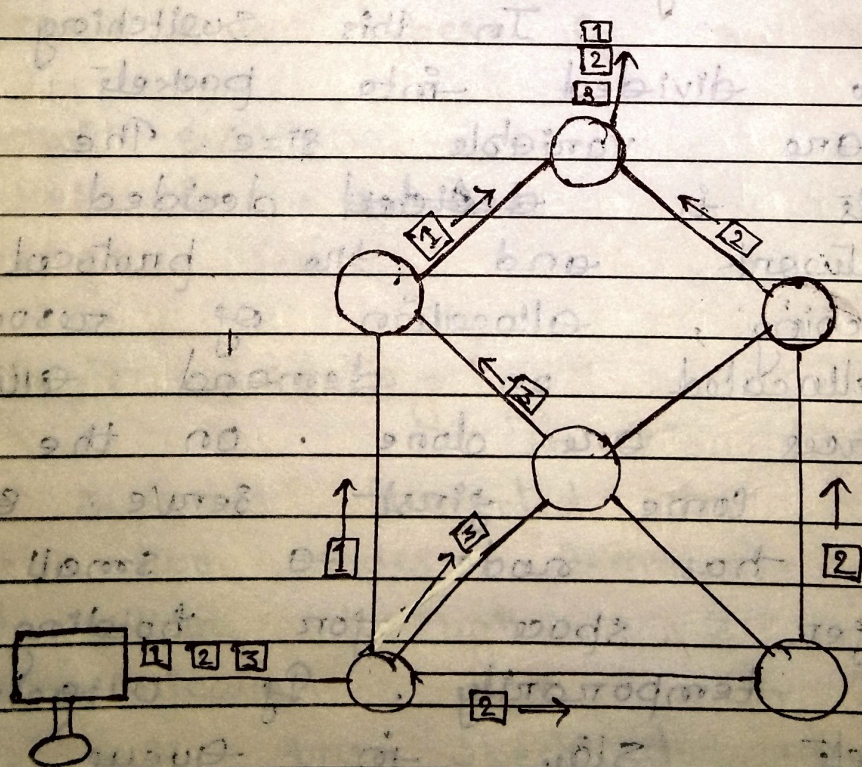
(iii) Message Switching :—

In message switching the whole message is treated as a data unit. It first recieves the

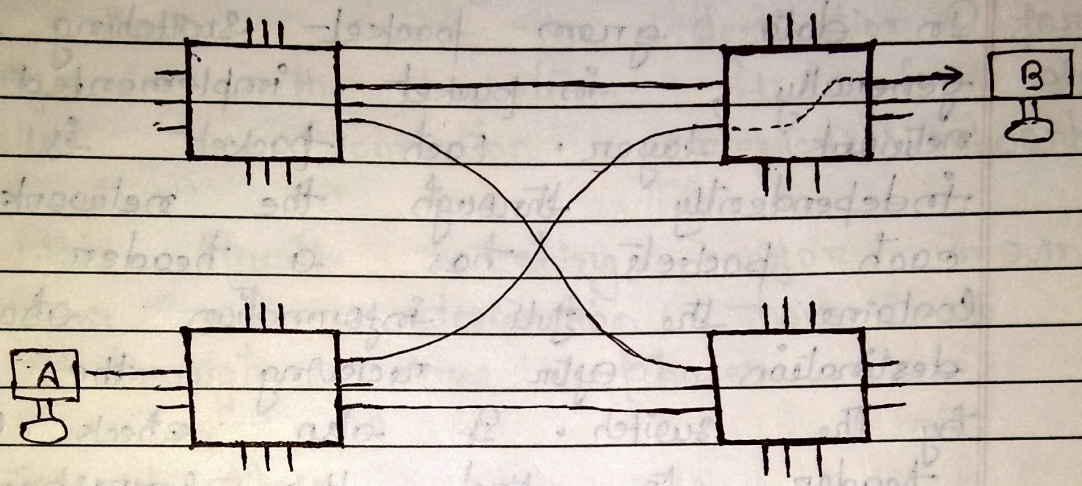
(i) Data gram packet switching.
(ii) Virtual circuit packet switching.

(i) Data gram packet switching :→

In data gram packet switching, generally, in packet implemented in network layer. Each packet is routed independently through the network. Here, each packets has a header that contains the full information about the destination after recieving the packet by the switch. It also check the header to find the corresponding port by which packet should be forwarded.



be used during the communication. In this switching, if connection is establish once then a dedicated path exist between both ends until the connection is terminated.



2.) Packet switching :→

In this switching, message are divided into packets of fixed are variable size. The size of packets is ~~decided~~ decided by the network and the protocol. In this switching, allocation of resources are allocated on demand allocation of resources are done. On the basis of first come first serve. Each switching has node a small amount of buffer space for holding the packets temporarily. If outgoing of the packets stay in queue until the time becomes available.

Packet switching are two method in routing message:-

It is also known as wireless. In this, data is forwarded on behalf of forwarding tables. No previous hand saking is required and ij knowledgement are optional.

b.) Connection Oriented :→

Before switching data to be forwarded to destination There is a need to pre-establish circuit which provides the path between both end points after that data is forwarded on the circuit After transfer is completed circuit can be kept for future use.

These are types of switching mode:-

1.) Circuit switching.
2.) Packet Switching.
3.) Message Switching.

1.) Circuit Switching :→

In this network, set of switches connected by physical links Here, two nodes communicate with each other through a dedicated communication path. In this network, need of pre-specified root from which data will travel and no other data is premitted. Before starting communication, in this network to

A- Synchronous Transmission :→

In A- synchronous transmission data is transmitted character by character at a time. In this mode, data is not saved before sending. Keyboard send the data using A- synchronous Transmission. In this transmission, a special single is send by sender to receiver before sending the message. It is known as short bit.

* **Switching :→** Switching is a process by which we forwarded the packet frame one port to another port or towards the destination. When data comes on a port is called Ingress and data leaves a port or goes out is called Egress. In a communication system, number is switched and nodes are included.

Switching is divided into two major Category :—

a.) Conection less.
b.) Conection Oriented.

a.) **Connection less :—** In this network, data transfered without wire. There are no need of wire for connecting one node to another node.

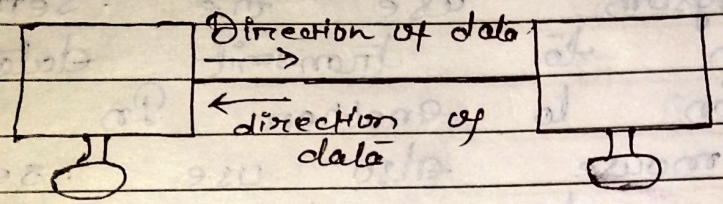
Serial Transmission :→

In this transmission, we transfer the data one by one. A group of bits of data flow in sequential order through single communication line. It is slower than parallel transmission. The telephone line system use the serial transmission to transmit data from one location to another. In computer system, mouse also use serial transmission to send the command signal inside the computer.

Synchronous Transmission :→

In synchronous transmission, data is transmitted block by block or word by word at some time. Each block may contain several bits of data. In this mode, data is saved before sending a large value of data can be transferred at a time. The data transmission is very fast. It is most commonly used by remote communication device required i.e., synchronised clock to schedule the transmission of information. The special communication device or equipment is expensive.

Seperate online for both user. Therefore, both user can send and recieve the data at same time. It means data can be sent in both direction simultaneously.
example of full duplex is telephone network.



There are two types of transmission in full duplex :-

1.) Parallel Transmission.
2.) Serial Transmission.

1.) Parallel Transmission :→ In parallel transmission a group of bits of data flow at the same time (in parallel) through seperate communication line. It is very fast data transmission.

generally inside the computer usually a group of bits of data flow from one component to another at the same time. If a computer use 32 bit internal structure, then 32 bits of data can be transferred from one component of computer to another at same time

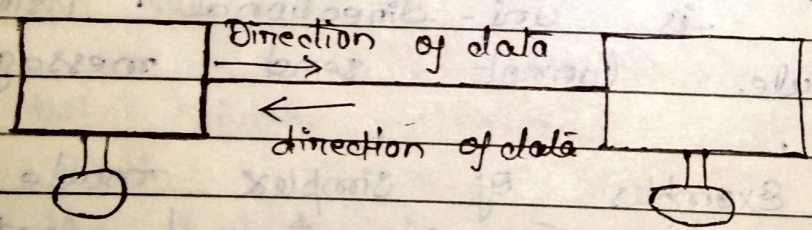
in to one direction such as CPU to monitor. But, Monitor can't send the data of CPU.

(ii) Half Duplex :—

In this mode, data can be sent in to both direction but at a time anyone can send the data because it can provide single path.

Suppose, on a local area network two persons are using network then both can't send the data same time. If one will send to second then second will send the data after recieving. Half duplex transmission a by directional line. Due to this, data can be sent in only one direction at a time.

example of Half duplex is Walkie - talkie



In the above diagram, we are representing that data can be sent in to both direction using single line.

(iii) Full Duplex :→

In full duplex mode, we can send the data into both side. It use the more than one line. It use

(Media)

Data Transmission Mode :→

It is a technique in which data are transferred on the network betn two devices that is known as communication mode.

These modes direct the direction of flow of information.

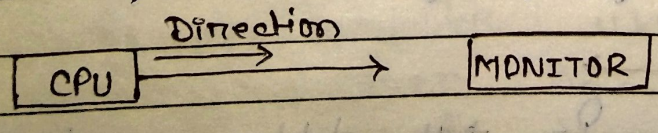
There are three types of transmission mode :—

Transmission mode

- Simplex
- Half Duplex
- Full Duplex

(1) Simplex :— Such types of modes in which data can be sent only in one direction. In this mode communication is uni-directional. Using this mode we cannot send message from reciever.

Examples of simplex mode are loudspeaker, Telivision broad casting, Television and remote control because in this we dont send the message from destination part.



In the above diagram, we are representing that data is only transfer

(6) Data link :→

The layer 2 of OSI Model data packets are encoded and decoded into bits. It furnishes transmission protocol knowledge and management and handles errors in the physical layer flow control and frame synchronization. The data link layer is divided in to two sub-layers that is MAC (Media Access control) layer and the L.L.C (logical link control) layer. The MAC sub-layer controls how a computer on the network gains access to the data and permission of transmit it. The L.L.C. layers controls frame synchronization flow control and error checking. The example of this layer is PPP, FDDI, ATM, IEEE, 802.5, HDLC.

(7) Physical layer :→

OSI Model layer convey the bit stream electrical impulse, light or radio signals through the network at the electricals and mechanical level. In this layer we find the hardware.

<3> Session layer :→

This layer establish manage and terminates connection between application. The session layer set up co-ordinates and terminates conversation, exchanges and dialogues between the applications. Session layer example includes NFS, NetBIOS, Names, RPC, SQL, etc.

<4> Transport layer :→

In this layer, transport transfer of data between end system or host and is responsible of end to end error recovery and follow the control. It also the ensure complete data also transfer example of this layer is SPX, TCP, X, UDP.

<5> Network Layer :→

In this layer, OSI model provides switching and routing technologies. Creating logical paths known as virtual circuits for transmitting data from node to node. Routing and forwarding functions of this layer as well as addressing, inter networking, error handling, congestion control and packet sequencing.
Example of layer 3 is IDP, IP, IPX.

<1> Application Layer :→

This layer is Seventh or last layer of OSI Model. In this layer Communication partners are identified quality of service is identified, user authentication and privacy are considered. This layer provides application services for file transfer, email and other network software services. Telnet and FTP are applications that exist entirely in the application level. Application layer is WWW browsers NFS, SNMP Telnet http, FTP.

[2] Presentation layer :→

This layer provides independence from differences in data representation by translating from application to network format and vice versa. The main task of presentation layer is works to transfer data in to the form that the application layer can accept. This layer formates and encrypt data to be sent across a network providing freedom from compatibility problems. It is sometimes called syntax layer.

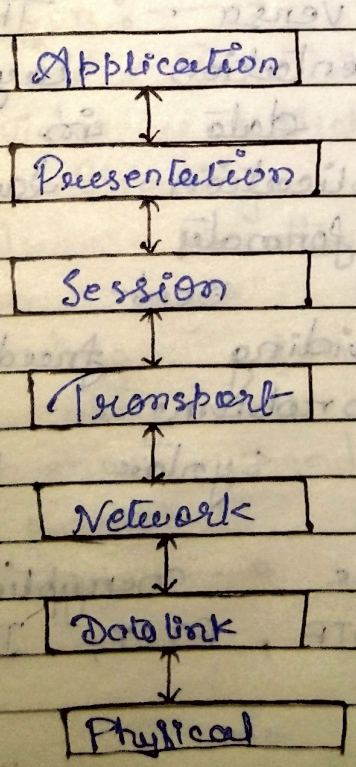
This layer examples include encryption, ASCII, EBCDIC, TIFC, GIF, PICT, JPEG, MPEG, MIDI.

layer perform a well defined function. It is a conceptual model that characterise and standardise the communication function

Feature of OSI Model :→

(i) We can understand new technologies as they are developed.
(ii) We see how hardware and software work together.
(iii) Big picture of communication over network is understandable through this OSI model
(iv) Trouble shooting is easier.
(v) It can be used to compare basic functional relationship on different network

Layer of OSI Model :→



Concelonon.

(iii) Fibre Optic Cable :→

Fibre optic cabling consists of a centre glass cores rounded by the several layers of protective materials. It transmits light rather than electronic signal. It is used for certain environment that contain a large amount of electrical interference. It has also made it the standard for connecting networks between buildings. Fibre optic cable has ability to transmit signals over much longer distance than co-axial and twisted pair. It can carry information at vastly greater speed. therefore, it provides broadens communication posibilities such as video conferencing and interactive services.

OSI Model :→ It stands for open system Interconnection. It is developed by ISO (International Organisation of Standardisation). This Model was developed according to need of users because there are 'n' number of users who use computer network and are located over the world. So, communication system must be developed and ISO introduced the OSI model then, after it can transfer big picture.

The OSI Model has seven layers. Here, each

pair which transfer the any types of data, more than one twisted pair wire pack together. It is classified as Category such as 1, 2, 3, 4, 5, 5E, 6 & 7. Category 5E, 6 and 7 are high-speed cable that can transmit 1 GB/s or more.

Twisted pair Cable

(ii) Co-axial Cable :→

It is used for TV installation. It is more expensive than twisted pair Code but provide high data transmission speed. It has single copper conductor at its centre. A plastic layer provide insulation between the center conductor and a braided metal shield. The metal shield helps to block any outside interference motors, fluorescent lights and other computers. It is highly resistance to signal interference. It can support greater cable length between network devices in comparision to twisted pair.

Although Co-axial Cabling is difficult to instal It is highly resistant to signal interference. It use the connector BNC (Bayonet neill

Multiplexer: → It is a such type of device which selects only one signal from several electrical input signal.

NIC (Network Interface Controller): →

→ each computer in a network has a special expansion card call the network interface card. This card prepares formates and sends data, receivers data and control the flow of data between the computer and the network. It perform the task on physical layer such as on the transmite side the NIC passes frames of data on to the physical layers.

Cable: → Cable perform the important way for transferring the data. The wired network topology special type of cable to connects computer on a network. It use the different types of cable.

(i) Twisted pair wire
(ii) Fibre optic cable
(iii) Co-axial cable.

(i) Twisted pair wire: →

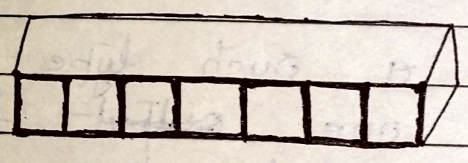
In this wire, we find the different colours of wire with

(iv) Repeater :— It is an electronic device which receives a signal and transmits it at a higher level or higher power.

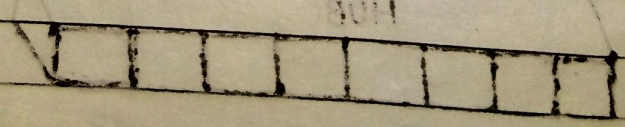
We also use the repeater hub for connecting multiple ethernet devices together and making them act a single network segment. It has multiple input output ports in which a signal introduced at the input of any port appears at the output of every port. A hub works a physical layer (layer-1) of the OST model. Repeater hub also participate in collison, detection, Forwarding a Jam signal to all ports. If it detects a collision hubs are now largely obsolate having replaced by network switch.

Firewall :→ It is a piece of hardware or software put on the network to prevent some communications forbidden by the network policy. A firewall typically establishes a barrier between trusted, secure internal network and another outside network such as the internet that is assumed to be seccure or trusted.

(ii) Switch :→ It is network device like a hub, built in with advance features. It uses physical device address in each incoming messages so, that it can deliver the message to the right destination on port. Like a hub switch does not broadcast the received message to entire network before sending its checks that which message should be to which port or system. It also provides better speed in comparisions to hub. Therefore, it increase the speed of network.



(iii) Routers :— It is one of the important network component which is used for connecting one LAN to another LAN. It provide or forwards data packets between computer networks. Routers performs the traffic directions functions on the internet. Router also route the message. Route is generally, used where one network connect to another either LAN, WAN. Or MAN.



(iv) Flexible.

Disadvantage of Hybrid Topology

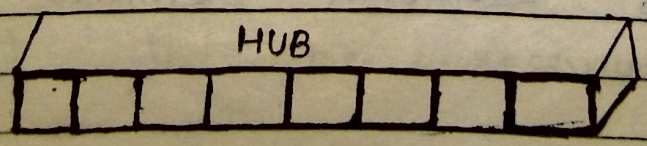
(i) Complex in design.
(ii) Costly to design.

Network Component :→

Here, the mean of network component is such types of devices which are used for creating the network.

These are network devices :—

(i) Hub :→ It is a such type of device in which one ~~output~~ input line and different output line is found. It is used to split a network connection in to multiple computer. It also perform the task like a distribution centre. When a computer requests information from a network or a specific computer, it sends the requests to the hub through a cable. It receives the request and transmit to entire work.

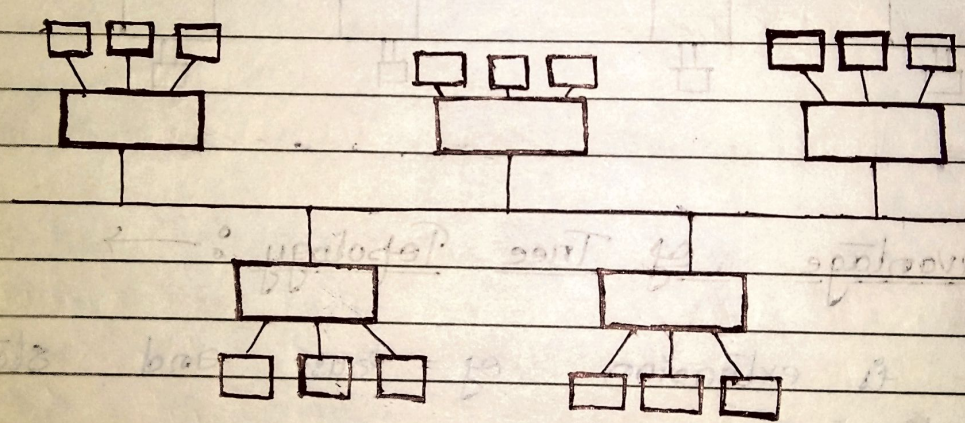


is difficult
(iv) Central hub fails, Network fails.

Hybrid Topology :→

It is a type of topology which has more than one combination of topology. It has mixture of two or more topologies. Such as combination of bus and tree topologies, ring and star topology etc ---

Inherits the advantage and disadvantage of the topologies included.



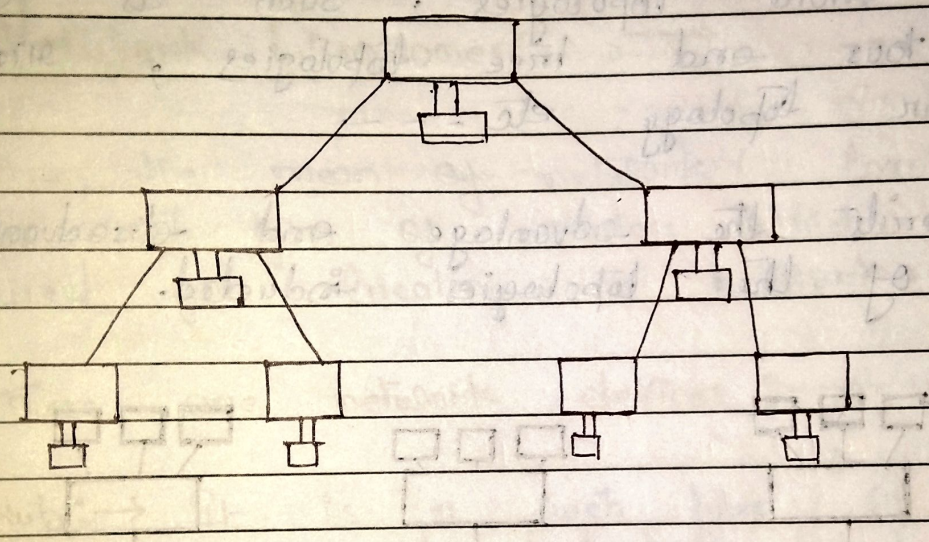
In the above diagram combination of bus topology and tree topology is represented.

Advantage of Hybrid Topology :→

(i) Reliable as error detecting and trouble shoot
(ii) Effective.
(iii) Scalable as size can be increased easily.

Tree Topology :→

It has a root node and from that node different nodes are connected. In a heirarchical design. Therefore, it is also known as Hierarchical topology. In this network, we design different level as tree.



Advantage of Tree Topology :→

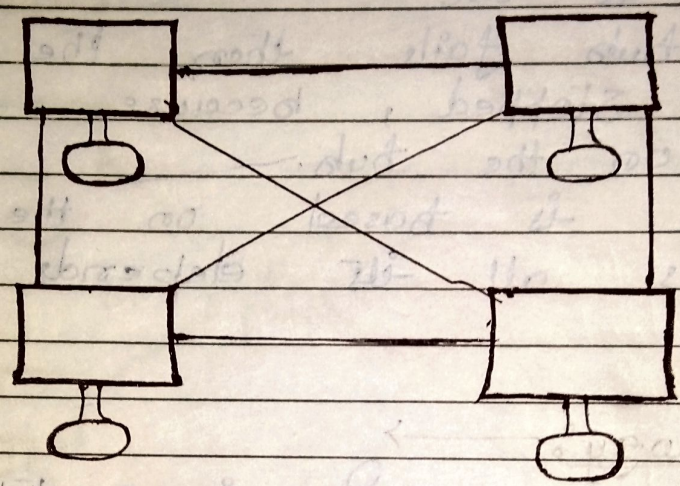
(i) It is extension of bus and star topolies.
(ii) Expansion of nodes are possible and easy.
(iii) It is easily managed and maintain. Error detection is easily done.

Disadvantages of Tree Topology :→

(i) It used heavily cable.
(ii) It is costly
(iii) If more nodes are added maintainance

b) Mesh Topology Flooding :-

In this technology, some data is transmitted to all the network nodes. The network is robust and its very unlikely to lose the data.



Advantage of Mesh Topology :-

(i) Each connection can carry its own data load.
(ii) Fault is diagnosed easily.
(iii) It provides security and privacy.
(iv) It is a robust network.

Disadvantages of Mesh topology :-

(i) Cabling cost is more.
(ii) Installation and configuration is difficult.
(iii) Bulk wiring is required.

has field.

(vi) Rest of the node can work smoothly.

Disadvantage of Star Topology :—

(i) Cost of installation is high.

(ii) Expensive to use

(iii) If the hub fails then the whole net-work is stopped, because all nodes depends on the hub.

(iv) Performance is based on the hub. i.e., it depends all its depends all its capacity.

4.) Mesh Topology :—

It is a type of topology where it is a point to point connection to other nodes or devices. In this each node is connected with other directly. Here, we use two techniques to transmit data over the mesh topology. They are :—

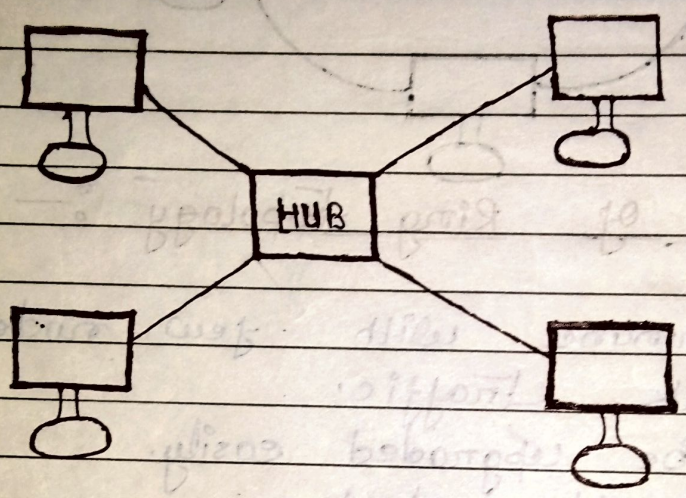
(a) Routing (b) Flooding

a) Mesh Topology Routing :—

In this technology, nodes have a routing logic. It means it direct the data to reach the destination using the shortest distance. It has also information about the broken links and it avoids those nodes

3) Star Topology :→

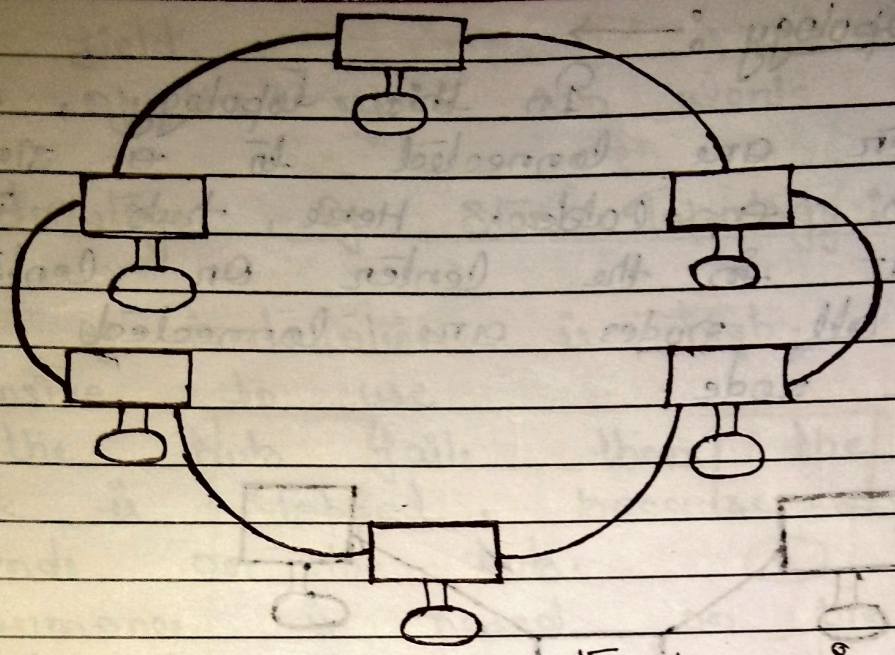
In this topology, all the computer are connected to a single hub through a cable. Here, hub is present in the center or central node and all nodes are connected to the central node.



Here, each node has direct connection with hub and hub acts as a repeater for data flow. Here, we can used twisted pair, optical fibre or co-axial cable.

Advantage of Star Topology

(i) Fast performance with few nodes and low network traffic.
(ii) Hub can be upgraded easily.
(iii) Easy to trouble shoot
(iv) Easy to set-up and modify.
(v) Only that node is effected which



Advantage of Ring topology :-

(i) Fast performance with few nodes and low network traffic.
(ii) Hub can be upgraded easily.
(iii) Easy to trouble shoot.
(iv) Easy to setup and modify.
(v) Only that node is effective which has failed rest of the nodes can work smoothly.

Disadvantage of ring topology :-

(i) Cost of installation is high
(ii) expensive to use.
(iii) If hub is failed then the whole network is stopped because all the nodes depends on the hub.

Disadvantage Of Bus Topology :—

(i) If main cable fails then whole network fails.

(ii) If network traffic is heavy, or nodes are more then performing of the network decreases.

(iii) Cable has limited length.

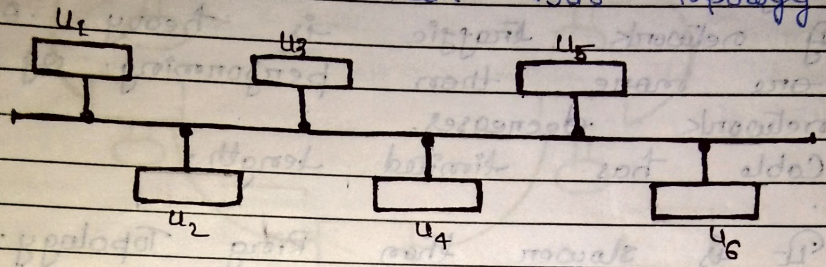
(iv) It is slower than Ring Topology.

2.) Ring Topology :—

It is a type of topology in which through one wire different nodes are connected in a circular way. In this topology, last one is connected to the first in topology. Each devices have two neighbours data is transferred in a sequencial manner that is bit by bit.

The transmission is undirectional but we can make it by directional having to connections between each network node and it is called "double ring topology". In double ring topology two rings network are found and data flow is in opposite direction in them if one ring fails then second ring act as backup.

Here, one cable moves from start to end and in linear way computers are connected with wire. It is also known as Linear Bus Topology



In the above figure different users are connected through single line. In this structure, if any one system is not working properly then others users can perform the task but main devices is not working properly then no any system will perform the task.

Advantage of Bus topology :-

(i) It is cost effective.
(ii) It requires less cable in compare to other network topology.
(iii) Used in small networks.
(iv) Easy to expand joining two cables together.
(v) We can easily understand this network
(vi) If any one system is not working then other will be work properly.

Army, spying.

E.P.N.:→ It stands for Enterprise Private network. It is a type of networks which are built for business purpose that want to security connect with its various location to share computer resources.

TOPOLOGY:→ The systematic arrangement of networks are known as Topology. which connect various nodes (sender or receiver) through lines of connection. Topology provides the description for network.

When many system are connected to each other.

There are different types of Topology :—

(i) Bus Topology
(ii) Ring "
(iii) Star "
(iv) Mess "
(v) Tree "
(vi) Hybrid "

1.) Bus Topology :—

Bus topology is a such types of network where device is connected to single cable.

Disadvantages of WAN :—

(i) It needs good firewall to restrict out-sides from entering and distrupting the networks.

(ii) Networks can be expensive slows complicated

(iii) Protection against hacker and viruses at more complexity and expensed.

[5] SAN :→ It stands for storage area network or system area network. It is a type of local area network. It is designed to handle large data trans-fers and bulk storage of digital in-formation. Mainly it support data storage retrival and replication on buisiness network.

[4] PAN :→ It stands for personal area network. It is a such type of network which is designed for personal use. No one can access without authorizat-ion personal users. They typically involved in computer, phone, tablet. etc. It in setup for personal used by users.

V.P.N :→ It stands for virtual private or personal network. This network is used for security purpose which cannot access easily by the hackers. It is used in the

(ii) It is difficult to make the systems to secure from hackers and industrial spying graphical reasons.

[5] WAN :→ It stands for wide area network. It can be private or it can be public based network. It is used for the network that covers large distance. Such as state, a country out of country. It is not easy to design. Our maintain communication medium used by WAN are PSTN or satelite links.

Advantage of WAN :—

(i) Covers a large geo-graphical area so long distance business can connect on the onthe network.

(ii) It shares software and resources with connecting work station.

(iii) On this network, messages can be send very quickly to any one such as pictures, sound etc :—

(iv) On this network, everyone can use the same data. It avoids problems where some user may have older information than users.

Organisation. If centralised data repository is not secured properly by the LAN administrator.

(iv) Covers limited area.

[2] MAN:→ It stands for Metropolitan Area Network. It was developed in 1980. Generally, it is a bigger version of LAN. It is designed to extend over the entire city. It is used for connecting a numbers of LAN in to large network.

Advantage of MAN:—

(i) It is an efficient on communication with high speed carries.

(ii) It provide a good backbone for large network and provides greater access to WAN.

(iii) It use dual bus therefore, transmission of data will be in both direction simultaneously.

Disadvantages of MAN:-

(i) More cable required for a MAN connection from one place to another place.

each client.

(iii) Easy and cheap communication :→ Data and messages can easily be transferred over network computer.

(iv) Centralized data :→ The data of all network users can be saved on the server computer.

(v) Data Security :→ Data is stored on server therefore it will be easy to manage and will be more secure too.

(vi) Internet Sharing :→ Using LAN, we can share a single internet connection among all the LAN users.

Disadvantages of LAN :→

(i) High set-up cost :- For set-up the initi-ally of the LAN cost is high.

(ii) Privacy Violations :- The administration of LAN has rights to check personal data files for each and every LAN users.

(iii) Data Security threat :- Unauthorised user can access important data of an

(i) LAN (ii) MAN (iii) WAN
(iv) PAN (v) SAN

1. LAN :— It Stands for local area network. In this network one system is connected with another in the any room, Campus or building where we can transfer the message. It can be connected with wire or without wire. When LAN is created without wire then it is known as WLAN (wireless local area network).

Area of LAN depends upon its design. It may be small city, a College Campus, a building etc.. for designing the LAN, we use the cable, hub, switch (ethernet).

The main benefit of LAN is all data are stored in centralised way on the server.

Advantage of LAN :→

(i) Resource Sharing :— Here, the mean of resources like printers, Modem, D.V.D. Rom drives and hard disk can be shared with the help of local area network.

(ii) Software Application Sharing :→ It is cheaper to use some software over network instead of purchasing seperate license software for

Standford research institute. The university of California at santa Barbara and the university of UTAH Leonard kleinrock carried out theoretical work to model the performance of packed switched networks.

In 1972, commercial services using x, 25 were deployed and later used as an underlying infra-structure for expending T.C.P/I.P networks.

In 1973, the French Cyclades network was the first to make the host responsible for the reliable delivery of data. In 1976, John Murphy of data point corporation created ARCNET (Attached Resource computer network), a token passing network, first used to share storage devices.

In 1995, the transmission speed capacity for the ethernet increased 10 Megabit/sec to 100 Mega bit/sec.

In 1998, ethernet supported transmission speeds of gegabit. Subsequencely higher speeds of upto 100 gigabit/sec.

Types of Networks:-

Network are divided into different types according to its structure or design:-

union on detailed plane for the reorganisation of the control of the soviet armed force and of the soviet economy on the basis of a network of computing centre.

In 1960, Commercial airline reservation system SABRE (Semi Automatic Business Research environment) went online with two connected main frame then after in 1963, J.C.R. Licklider sent a memorandum to office discussing the concept of the Intergalatic computer network (ICN) A computer intended to allow general communications among computer users.

Then, in 1964 researchers at dartmouth college developed the dartmouth time sharing system for distributed users of large computer system. The same year at Massachusetts institute of technology. A research group supported by general electric and Bell labs used a computer to root and manage telephone collection. In 1965, Western electric introduced the first widely used telephone switch that implemented true computer control.

In 1966, Thomas Marill and Lawrence G Roberts published a paper on an experimental wide area network for computer time sharing.

In 1969, the first four nodes of the Arpanet were connected using 50 kg bit/sec circuit between the university of California at Losangeles

Networking :-

↳ Networking is a medium or way by which we communicate to each other. Here, once system is connected to other system using with wire or without wire or within arrange we can connect within local out of city, out of state, out of country.

Here, computer network or data network is a digital telecommunication network which allows nodes to share resources. Here, nodes may be a particular computer a mobile of a network. It is a group of system of interconnected people or things and arrangement of intersecting horizontal and vertical line. Due to network we can performing different task such as, booking online tickets, we can talk to each other at any places in the world. It is also used in traditional business. It is also used in radar in sonar.

History of Network :-

→ In the 1950 network of computers included the US military radar system that was semi automatic ground environment (SAGE).

Then, after in 1959, Anatolli Lvovovich Kitov proposed to the Central Committee of the Communist party of the Soviet