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(AFFILIATED TO SAURASTRA UNIVERSITY)

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UNIT-1

Introduction to Computer Network And it's Applications

- Computer Network
- Type of Computer Network
- Different Terminologies used in Computer Network

  Internet, ISP (Internet Service Provider), Intranet, VSAT (very small aperture terminal), URL, Portal, Domain Name Server, World Wide Web (WWW), Search Engine, Remote Login, Telnet, Email, E-Commerce, E-Business, E-Governance, Mobile Commerce
- Website Basics

  (WebPages; Hyper Text Transfer Protocol, File Transfer Protocol, Domain Names; URL; Protocol Address; Website[Static, Dynamic, Responsive etc], Web browser, Web Servers; Web Hosting

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Theme.

- In this unit we will learn that what is computer network, why we need computer network what its types uses are, how can we create network based on our want or desire or requirement.
- We also learn how with use of network 2 devices communicate. We will also come across some basic terms of network that are useful in digital world & how data is transmitted from one device to another device.
- In this unit we will also learn about some protocols of data communication with parts of website name where our websites stored & how we access website from server & how satellite network communication devices work through indoor & outdoor unit.

Justification.

- This unit justifies that in introduction to internet we will be learning about the meaning and all the essentials of computer network.

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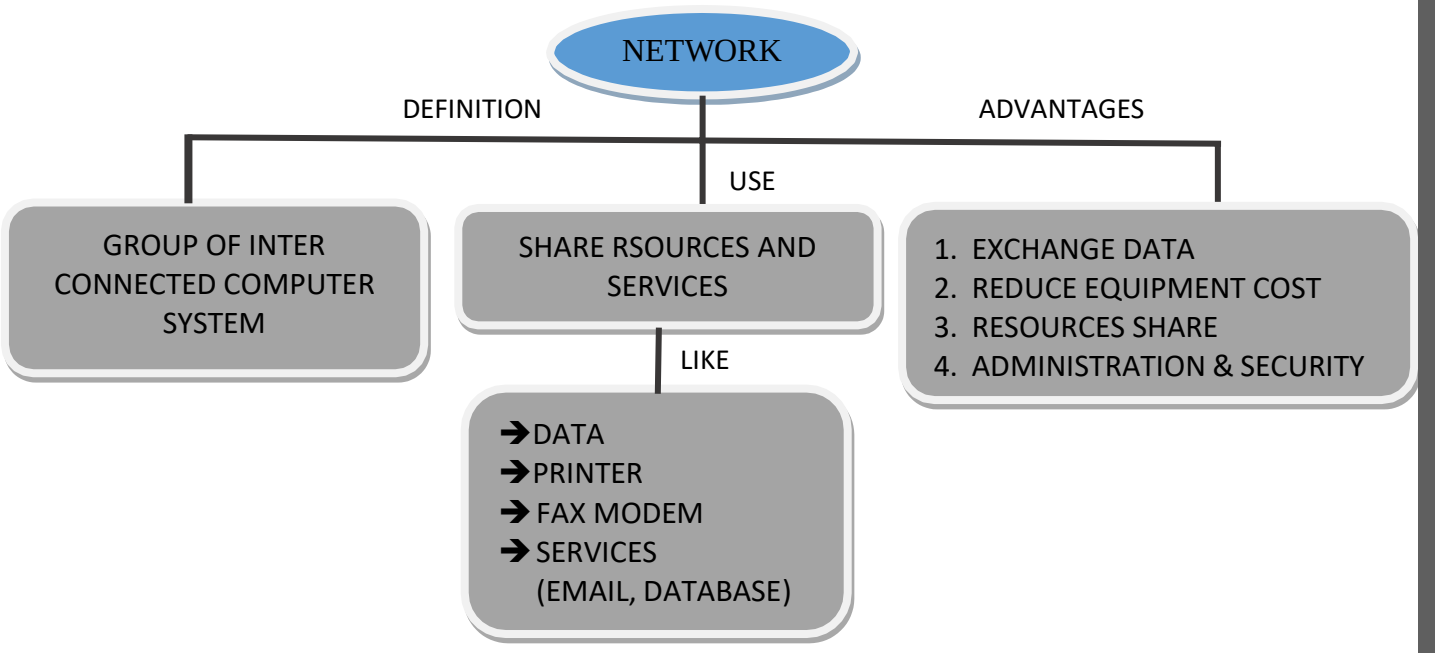
COMPUTER NETWORK

In this topic we learn what is computer network? , use of computer network and its advantages

Computer network = Group of interconnected computers
Use = to share resources
Resources = data, printer, fax modem,

- Network is a **group of computers connected to each other**.
- Using network we can **share resources and services**.
- The shared resource can be **data, a printer, a fax modem, or a service such as a database or an email system**.
- The individual systems must be connected through a pathway (called the transmission medium) that is used to transmit the resource or service between the computers.
- All systems in the network must follow a set of common communication rules for data transmission.
- These set of **common rules for data communication** are known as **protocols**.



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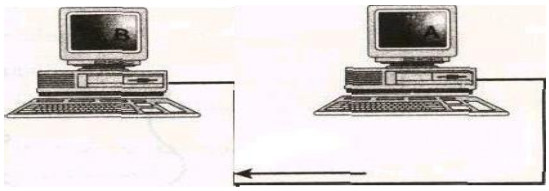

Advantages of Networking:

- The goal of computer networking is not simply to exchange data but to understand and use data received from other entities on the network.
- It **reduces equipment costs**.
- Networking is to **provide different services** like… **filing services, printing services** etc…
- Enabling centralized administration and security of the resources within the system.
- Supporting network applications such as electronic mail and database services

1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	NETWORK IS A GROUP OF…	INTERCONECTED COMPUTER SYSTEM
2	USING NETWORK WE CAN SHARE…	RESOURCES & SEVICES
3	WHAT KIND OF RESOURCES CAN BE SHARE…	DATA, PRINTER, DATABASE
4	COMMON RULES FOR DATA COMMUNICATION IS KNOWN AS..	PROTOCOL
5	GOAL OF COMPUTER NETWORK IS NOT EXCHANGE DATA. (TRUE OR FALSE)	TRUE
6	NETWORK IS USED FOR CENTRALIZED ADMINISRATION? (TRUE OR FALSE)	TRUE

⌫ **TYPES OF COMPUTER NETWORK.**

In this topic we learn types of computer networks and its work.

Based on geographical area we can divide network.

4 types of Computer network

1. PAN – (PERSONAL AREA NETWORK)
2. LAN – (LOCAL AREA NETWORK)
3. MAN – (METROPOLITAN AREA NETWORK)
4. WAN – (WIDE AREA NETWORK)

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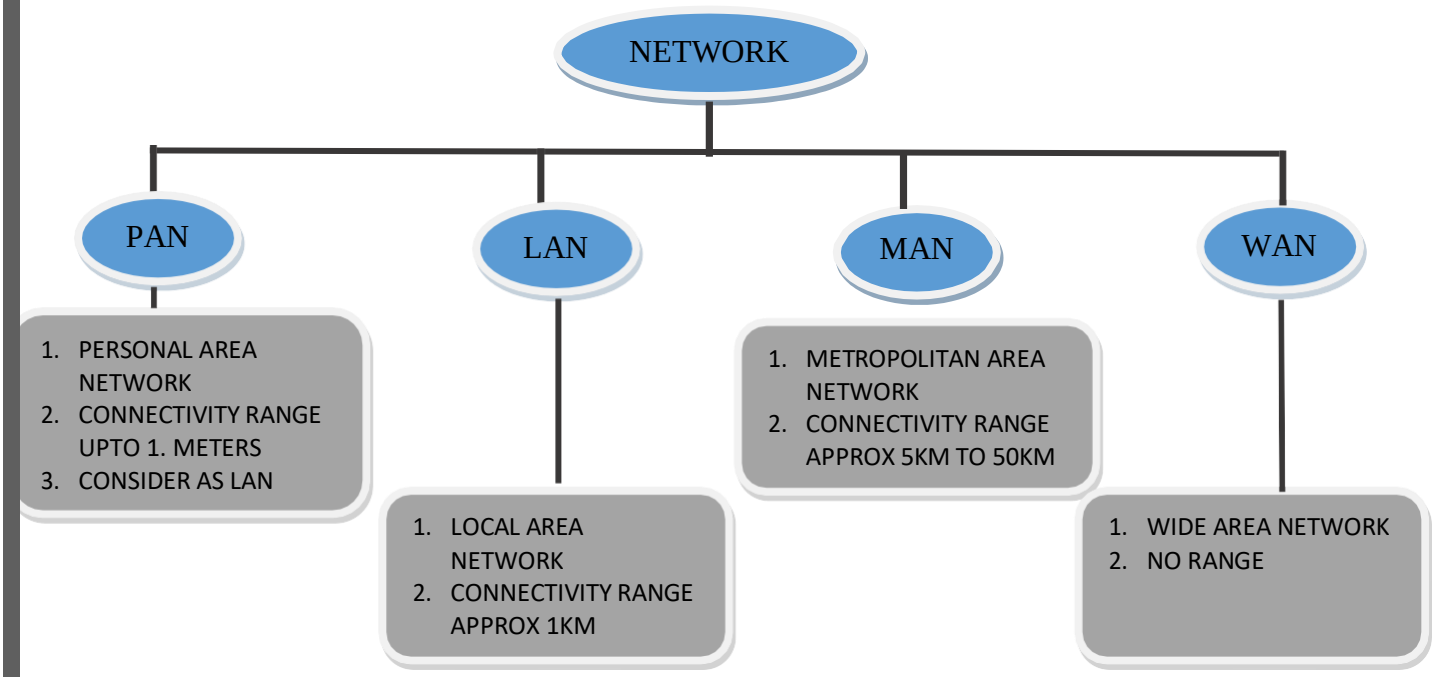
Networks come in different shapes and sizes. According to **geographical size network** basically classify in following three types.

1) **PAN – Personal Area Network**
2) **LAN – Local Area Networks**
3) **MAN - Metropolitan Area Networks**
4) **WAN – Wide Area Networks**



a. Local Area Networks (LANs)

- A **Local Area Network (LAN**) is a group of computers and network communication devices interconnected within a **geographically limited area, such as a building or a campus.**
- LANs are characterized by the following:
  a. They **transfer data at high speeds** (higher bandwidth).
  b. They exist in a **limited geographical area.**
  c. LANs are designed to allow resources to be shared between personal computers or workstations.

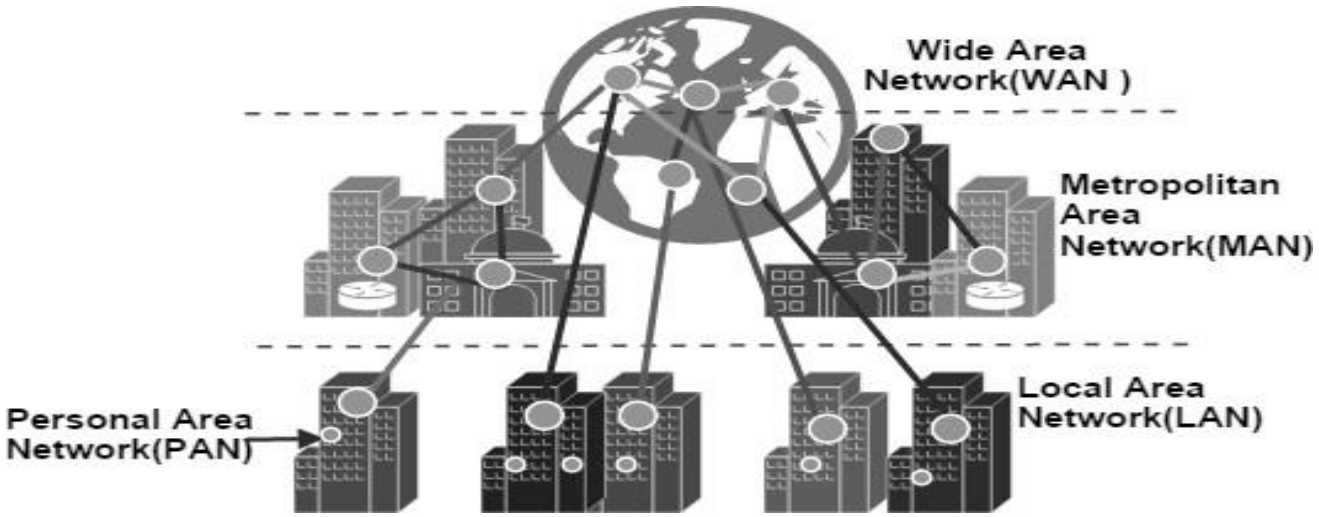
b. Metropolitan Area Networks (MANs)

- MAN is a connected network that spans the **geographic boundaries of a city.**
- By **interconnecting smaller networks** within a large geographic area, information is easily disseminated throughout the network.
- Local libraries and government agencies often use a MAN to connect to citizens and private industries.

- Examples of MAN are **Cable TV network, Cable through Internet service.**

c. Wide Area Networks (WANs)

- A **Wide Area Network (WAN)** provides **long-distance transmission of data, voice, image and video information over large geographical areas** that may comprise a country or whole world.
- WANs are characterized by the following:
  a. They exist in an **unlimited geographical area**.
  b. They usually **interconnect multiple LANs**.
  c. They often **transfer data at lower speeds** (lower bandwidth).
  d. Connectivity and resources, especially the transmission media, usually are managed by a third-party carrier such as a telephone or cable company.



1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	HOW MANY TYPES OF NETWORK ARE THARE?	3
2	LIST OUT TYPES OF NETWORK.	LAN,WAN,MAN
3	FULL FORM OF LAN_____	LOCAL AREA NETWORK
4	FULL FORM OF WAN_____	WIDE AREA NETWORK
5	FULL FORM OF MAN_____	METROPOLITAN AREA NETWORK
6	GEOGRAPHICAL AREA OF LAN IS_____	BUILDING OR CAMPUS
7	GEOGRAPHICAL AREA OF MAN IS_____	CITY TO CITY
8	GEOGRAPHICAL AREA OF WAN IS_____	WORLD WIDE
9	BEST EXAMPLE OF WAN IS_____	WORLD WIDE WEB (WWW)

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⌫ NETWORK TOPOLOGY

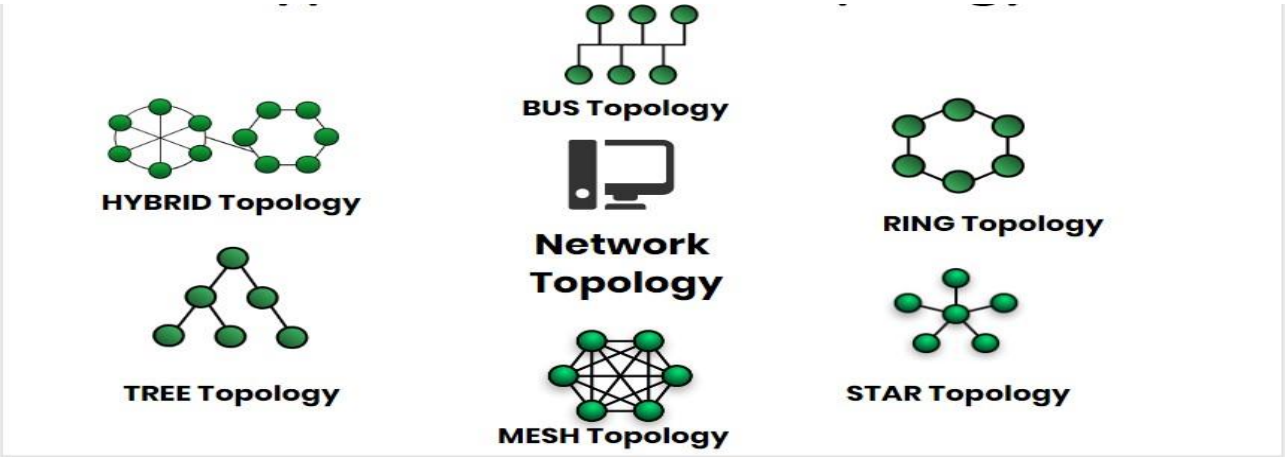
In this topic we learn about physical design of the network, based on our need we can select our network topology

Network Topology = Way in which computers and devices are connected

6 types of Network Topology
1. Bus Topology
2. Ring Topology
3. Star Topology
4. Tree Topology
5. Mesh Topology
6. Hybrid Topology

Based on our requirements we can design our network with the help of any of the topology.

- The network topology defines the **way in which computers, printers, and other devices are connected**.
- A network topology describes the **layout of the wire and devices** as well as the **paths used by data transmissions.**



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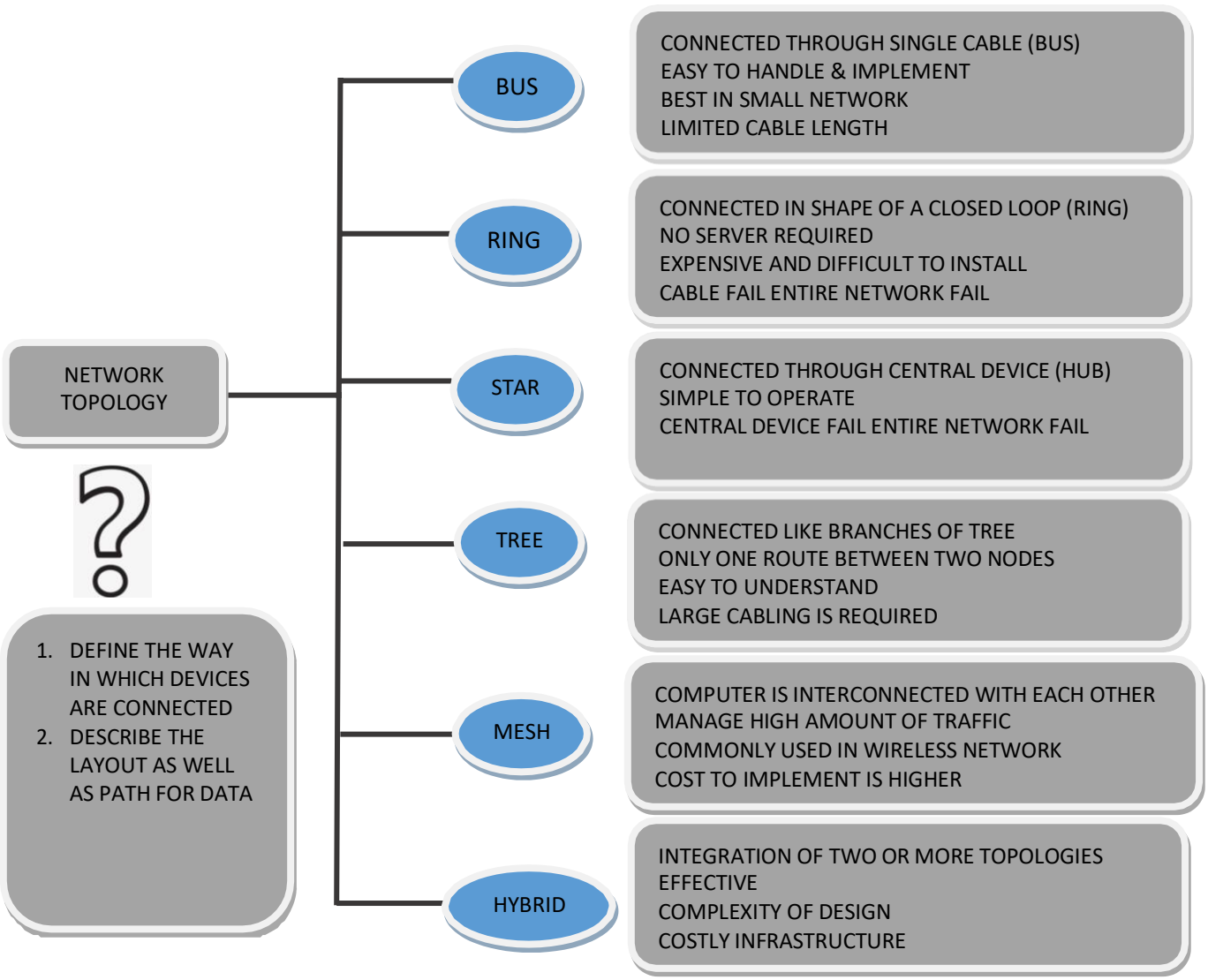

1. Bus Topology:

- All devices are **connected to a central cable**, called the **bus or backbone**.
- Bus networks are relatively **inexpensive and easy to install** for small networks.
- Ethernet systems use a bus topology. In Simple way we can say us (All devices **share a common wire to transmit and receive data** through using an arbitration method.)
- Commonly referred to as a linear bus, all the devices on a bus topology are connected by one single cable.

Advantages:

- It is easy to handle and implement.
- It is best suited for small networks

Disadvantages:

- The cable length is limited. This limits the number of stations that can be connected.
- This network topology can perform well only for a limited number of nodes.

2. Ring topology:

- All devices are **connected to one another in the shape of a closed loop**, so that each device is connected directly to two other devices, one on either side of it.
- Ring topologies are **relatively expensive and difficult to install**, but they offer high bandwidth and can span large distances.
- A ring is created to which each device attaches. A special signal, called a token travels around the ring letting it know that it is that device's turn to transmit.

Advantages:

- The data being transmitted between two nodes passes through all the intermediate nodes. A central server is not required for the management of this topology.

Disadvantages:

- The failure of a single node of the network can cause the entire network to fail.
- The movement or changes made to network nodes affects the performance of the entire network

3. Star topology:

- In star topology each device in the network is **connected to a central device called hub**.
- Unlike Mesh topology, **star topology doesn't allow direct communication between devices**, a **device must have to communicate through hub**.
- If one device wants to send data to other device, it has to first send the data to hub and then the hub transmit that data to the designated device.

Advantages:

- Less expensive because each device only need one I/O port and needs to be connected with hub with one link.
- Easier to install.
- Less amount of cables required

Disadvantages:

- If hub goes down everything goes down, none of the devices can work without hub.
- Hub requires more resources and regular maintenance

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4. **Tree topology:**
   - Tree topologies **have a root node**, and all other nodes are connected which form a hierarchy. So it is also known as hierarchical topology.
   - Ideal if workstations are located in groups.
   - Used in **Wide Area Network**.
   - A tree topology **includes multiple star topologies**, which involve a variety of single nodes connected to a central node.

Advantages:
- Failure of one node never affects the rest of the network.
- Node expansion is fast and easy.
- Detection of error is an easy process

Disadvantages:
- It is heavily cabled topology
- If more nodes are added, then its maintenance is difficult

5. **Mesh Topology :**
   - The mesh topology connects **all devices (nodes) to each other** for redundancy and fault tolerance.
   - It is **used in WANs to interconnect LANs** and for mission critical networks like those used by banks and financial institutions.
   - Implementing the mesh topology is **expensive and difficult**.

Advantage:
- The arrangement of the network nodes is such that it is possible to transmit data from one node to many other nodes at the same time.

Disadvantage:
- The arrangement wherein every network node is connected to every other node of the network, many of the connections serve no major purpose.
- This leads to the redundancy of many of the network connections.

6. **Hybrid Topology :**
   - Hybrid topology is an **integration of two or more different topologies** to form a resultant topology which has many advantages (as well as disadvantages) of all the constituent basic topologies rather than having characteristics of one specific topology.
   - This **combination of topologies is done according to the requirements of the organization**.
   - For example, if there is a ring topology in one office department while a bus topology in another department, connecting these two will result in Hybrid topology.
   - Star – Ring and Star – Bus networks are most common examples of hybrid network.

1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	WHAT IS NETWORK TOPOLOGY?	ARANGEMENT OF NETORK
2	LIST OUT TYPES OFTOPOLOGY.	BUS, RING, STAR, TREE, MESH, HYBRID
3	BUS TOPOLOGY IS ALSO CALLED_____	LINEAR BUS TOPOLOGY
4	IS BUS TOPLOGY TRANSFER DATA IN ONE DIRECTION? (YES OR NO)	YES
5	IN RIING TOPOLOGY LAST NODE IS CONNECTED TO…	FIRST NODE
6	TROUBLESHOOTING IS DIFICULT IN RING TOPOLOGY. (TRUE OR FALSE)	TRUE
7	FALURE OF ONE COMPUTER DISTURB THE NETWORK IN RING TOPOLOGY. (TRUE OR FALSE)	TRUE
8	IN STAR TOPOLOGY EVERY NODE IS CONNECT TO….	CENTRAL DEVICE (HUB)
9	IS BUS TOPOLOGY USED IN LARGE NETWORK?	NO
10	BUS TOPOLOGY IS SLOWER THAN_____	RING TOPOLOGY
11	HUB ACT AS_____IN STAR TOPOLOGY	REPEATER FOR DATA FLOW
12	PERFOMANCE OF STAR TOPOLOG IS_____	FAST WITH LOW NETWORK TRAFFIC
13	TROUBLESHOOTING IN STAR TOPOLOGY IS_____	EASY
14	IF HUB FAIL IN STAR TOPOLOGY THEN_____	ENTIRE NETWORK FAIL
15	LIST OUT TYPES OF MESH TOPOLOGY.	1. PARTIAL MASH 2. FULL MASH
16	IN MESH TOPOLOGY EACH CONNECTED CAN CARRY ITS OWN DATA LOAD. (TRUE OR FALSE)	TRUE
17	CABLING COST OF MESH TOPOLOGY IS_____	HIGH
18	TREE TPOLOGY IS ALSO CALLED_____	HIRARCHICAL TOPOLOGY
19	TREE TOPOLOGY IS USED IN_____	WWW (WIDE AREA NETWORK)
20	ERROR DETECTION IS EASY IN TREE TOPOLOGY.(TRUE OR FALSE)	TRUE
21	WHAT IS HYBRID TOPOLOGY?	COMBINATION OF TWO OR MORE TOPOLOGY

⌫ OSI REFERENCE MODEL

In this topic we learn how one device communicate with another device through network.

⌫ OSI = Open System Interconnection
⌫ Describe how two devices communicate through network.
⌫ Approved by ISO in 1984
⌫ Total 7 layers (7 layers filtering of data)
- Application , presentation, session, transport, network, data link, physical

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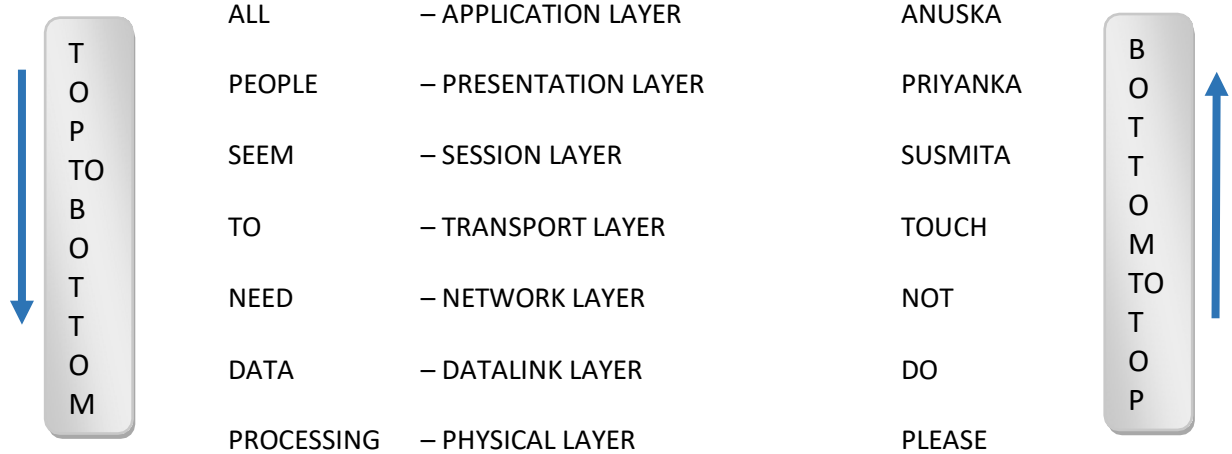
- **International standard organization** (ISO) established a committee in **1977** to develop architecture for **computer communication**.
- **Open Systems Interconnection (OSI)** reference model is the result of this effort.
- In **1984**, the **Open Systems Interconnection (OSI) reference model was approved as an international standard for communications architecture.**
- Term "open" denotes the ability to connect any two systems which conform to the reference model and associated standards.
- The OSI model is now **considered the primary Architectural model** for inter-computer communications.
- The OSI model **describes how information or data makes its way from application programs (such as spreadsheets) through a network medium** (such as wire) to another application programs located on another network.
- The OSI reference model divides the problem of moving information between computers over a network medium into **SEVEN smaller and more manageable problems**.
- This separation into smaller more manageable functions is known as layering.

PROVIDE 7 LAYERS TO PERFORM NETWORD TASK

TRICK TO REMEMBER SEVEN LAYERS OF OSI



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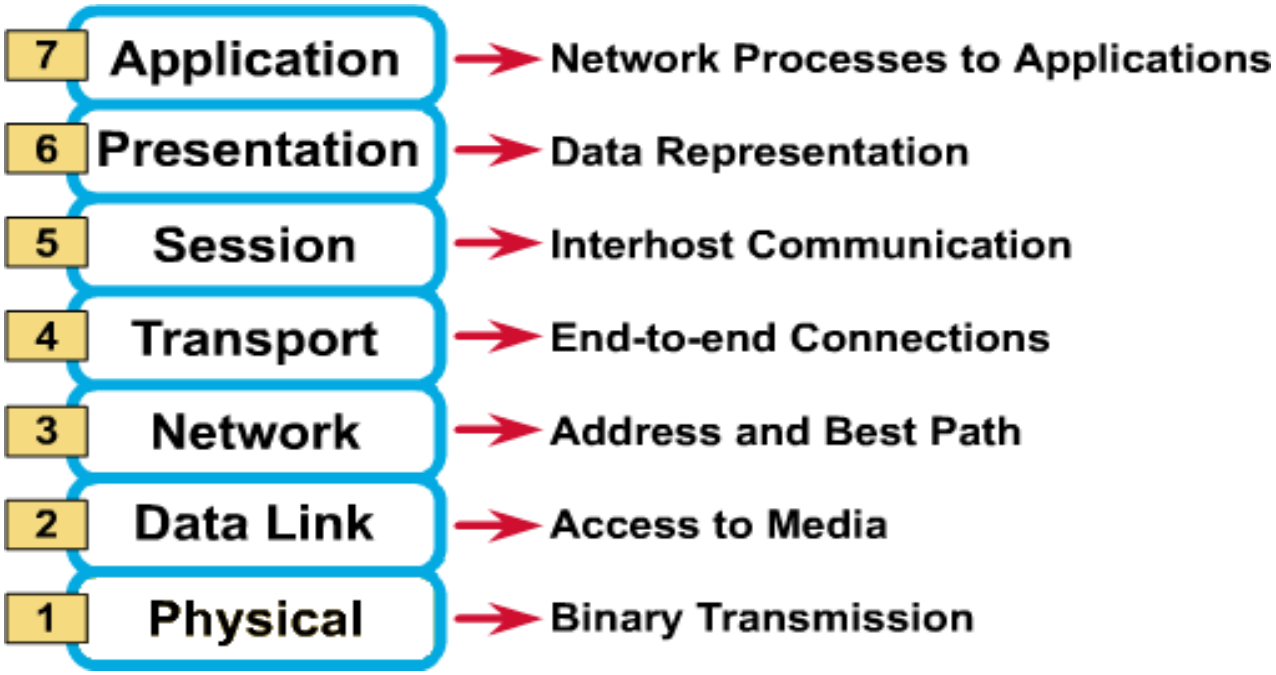

1. **Physical Layer:**
   - Provides **physical interface for transmission of information**.
   - Defines rules by which **bits are passed from one system to another on a physical** communication medium.
   - Covers all - mechanical, electrical, functional and procedural - aspects for physical communication.
   - Such characteristics as voltage levels, timing of voltage changes, physical data rates, maximum transmission distances, physical connectors, and other similar attributes are defined by physical layer specifications.

2. **Data Link Layer :**
   - Data link layer **attempts to provide reliable communication** over the physical layer interface.
   - Breaks the **outgoing data into frames and reassemble the received frames**.
   - Create and detect frame boundaries.
   - **Handle errors** by implementing an acknowledgement and retransmission scheme.
   - **Implement flow control**.
   - Supports **points-to-point** as well as **broadcast communication**.

3. **Network Layer :**
   - Implements **routing of frames (packets) through the network**.
   - Defines the most **optimum path the packet should take from the source to the destination**

- Defines logical addressing so that any endpoint can be identified.
- Facilitates interconnection between heterogeneous networks (Internetworking).

4. **Transport Layer :**
   - Purpose of this layer is to **provide a reliable mechanism for the exchange of data** between two processes in different computers.
   - Ensures that the data units are **delivered error free**.
   - Ensures that data units are **delivered in sequence**.
   - Ensures that there is **no loss or duplication of data** units.
   - Provides **connectionless or connection** oriented service.

5. **Session Layer :**
   - Session layer provides mechanism for **controlling the dialogue between to the end systems**. It defines **how to start, control and end conversations** (called sessions) between applications.
   - This layer requests for a **logical connection to be established on an end-user's request**.
   - Any necessary log-on or password validation is also handled by this layer.
   - Session layer is also **responsible for terminating the connection**.

6. **Presentation Layer :**
   - Presentation layer defines the format in which the **data is to be exchanged between the two communicating entities**.
   - Also handles data compression and data encryption (cryptography).

7. **Application Layer :**
   - Application layer **interacts with application programs** and is the **highest level of OSI** model.
   - Application layer contains management functions to support distributed applications.
   - Examples of application layer are applications such **as file transfer, electronic mail, remote login etc.**

1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	FULL FORM OF OSI_____	OPEN SYSTEM INTERCONNECTION
2	FULL FORM OF ISO_____	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
3	OSI WAS APPROVED IN_____	1984
4	WHAT IS THE USE OF OSI MODEL?	ARCHITECTURE FOR COMPUTER COMMUNICATION
5	HOW MANY LAYERS ARE THERE IN OSI?	7
6	LIST OUT ALL LAYERS IN OSI	1. APPLICATION 2. PRESENTATION

		3. SESSION 4. TRANSPORT 5. NETWORK 6. DATALINK 7. PHYSICAL
7	WHICH LAYER IS KNOWN AS HEART OF OSI?	TRANSPORT LAYER
8	FUNCTION OF APPLICATION LAYER_____	NETWORK PROCESS TO APPLICATION
9	FUNCTION OF PRESENATION LAYER_____	DATA REPRESENTATION
10	FUNCTION OF SESION LAYER_____	INTER-HOST COMMUNICATION
11	FUNCTION OF TRANSPORT LAYER_____	END - TO – END CONNECTION
12	FUNCTION OF NETWORK LAYER_____	PATH DETERMINATION & IP
13	FUNCTION OF DATA LINK LAYER_____	PHYSICAL ADDRESSING
14	FUNCTION OF PHYSICAL LAYER_____	BINARY TRANSMISSION

⌫ **TCP/IP**

In this topic we learn about basic network protocols which are used in network for data transmission.

Protocols = set of rules
2 basic network protocols
1. TCP = Transmission Control Protocol
2. IP = Internet Protocol

TCP controls network transmission
IP means address of your devices on network.

- TCP/IP model, designed and **developed by Department of Defense (DoD) in 1960s** and is based on standard protocols.
- It stands for **Transmission Control Protocol/Internet Protocol**.
- The TCP/IP model is a concise version of the OSI model. It **contains four layers**, unlike seven layers in the OSI model. The layers are:
    1. **Process/Application Layer**
    2. **Host-to-Host/Transport Layer**
    3. **Internet Layer**
    4. **Network Access/Link Layer**

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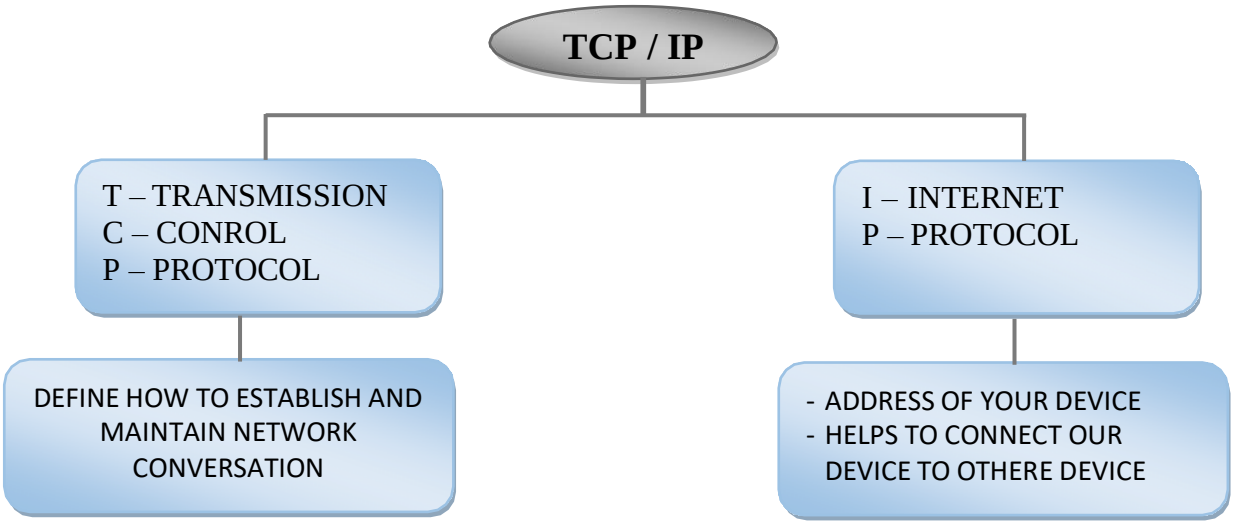

- TCP/IP, or the Transmission Control Protocol/Internet Protocol, is a suite of communication protocols used to interconnect network devices on the internet.
- TCP/IP can also be used as a communications protocol in a private computer network (an intranet or an extranet).
- Three of the most common TCP/IP protocols
  - **HTTP**
  - **HTTPS**
  - **FTP**

➢ Different layers of TCP/IP

1. **Network Access Layer** - This layer is concerned with building packets.

2. **Internet Layer** - This layer uses IP (Internet Protocol) to describe how packets are to be delivered.

3. **Transport Layer** - This layer utilizes UDP (User Datagram Protocol) and TCP (Transmission Control Protocol) to ensure the proper transmission of data.

4. **Application Layer** - This layer deals with application network processes. These processes include FTP (File Transfer Protocol), HTTP (Hypertext Transfer Protocol), and SMTP (Simple Mail Transfer Protocol).

1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	FULL FORM OF TCP_____	TRANSMISSION CONTROL PROTOCOL
2	FULL FORM OF IP_____	INTERNET PROTOCOL
3	LIST OUT PROTOCOLS USED IN TCP/IP	1 – HTTP

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		2 – HTTPS 3 – FTP
4	FULL FORM OF HTTP_____	HYPER TEXT TRANSFER PROTOCOL
5	FULL FORM OF HTTPS_____	HYPER TEXT TRANSFER PROTOCOL SECURE
6	FULL FORM OF FTP_____	FILE TRANSFER PROTOCOL

⌫ **INTERNET TERMINOLOGY (EACH 1 MARK)**

Basic internet terminologies to help you get familiar with the digital world.

With the help of these terminologies we can understand basic concepts of the internet.

1. **Bandwidth** - The **capacity of an electronic line**, such as a communications network or computer channel, to transmit bits per second (bps).

2. **Bitmap** - A representation, consisting of rows and **columns of dots, of a graphics image in computer memory**. The value of each dot (whether it is filled in or not) is stored in one or more bits of data. For simple **monochrome images**, **one bit is sufficient to represent each dot**, but for colors and shades of gray, each dot requires more than one bit of data.

3. **Bits and bytes** -

Bit stands for binary digit: 0 or 1

A byte is made up of 8 bits

It takes 1 byte to store one ASCII character ASCII stands for the American Standard Code for Information Interchange

The combination of bits (which makes up one byte) below represents the letters below

A 0100 0001
B 0100 0010
C 0100 0011

K stands for kilo and = 1024 (2 to the tenth power)
M stands for mega. A MB, megabyte is about a million bytes (1024x1024)
G stands for giga. A GB, gigabyte is about a billion bytes (1024x1024x1024)
T stands for tera. A TB, terabyte is about a trillion!
RAM is usually measured in MB
Hard disk spaces is usually measured in gigabytes

4. **Bookmark** - a way of **storing your favorite sites on the Internet**. Browsers like Netscape or Internet Explorer let you to categorize your bookmarks into folders.

5. **Browser** - A **software program that allows users to access the Internet**.

6. **CGI (Common Gateway Interface script)** - a **specification for transferring information between a Web server and a CGI program**, designed to receive and return data. The script can **use a variety of languages such as C, Perl, Java, or Visual Basic**. Many html pages that contain forms use a cgi program to process the data submitted by users/clients.

7. **Cookie** - **Information (in this case URLs, Web addresses) created by a Web server and stored on a user's computer**. This information lets Web sites the user visits to keep of a user's browsing pattterns and preferences. People can set up their browsers to accept or not accept cookies.

8. **Digit** - A **single character in a numbering system**. In decimal, digits are 0 through 9. In binary, **digits are 0 and 1**. The os and 1s equate to "on and off functions. Digitization allows for perfect copying. When text, music, voice and video are in digitized, they can be electronically manipulated, preserved and regenerated without degradation of quality at high speed. Each copy of a computer file is exactly the same as the original.

9. **Domain Name** - A **method of identifying computer addresses**. Your e-mail address has a domain address. If you have an "edu" at the end of your e-mail address that means your account is affiliated with an educational institution. A "com" extension means you have a business account. A government account has a .gov suffix.

10. **.gif** - **(graphic interchange format)** the usual **format for a graphic** that is not a photo. Animated gif files are embedded with coding that creates movement when the graphic is activated.

11. Home page - Generally the **first page retrieved when accessing a Web site**. Usually a "home" page acts as the starting point for a user to access information on the site. The "home" page usually has some type of table of contents for the rest of the site information or other materials. When creating Web pages, the **"home" page has the filename "index.html," which is the default name. The "index" page automatically opens up as the "home" page.**

12. **Hyperlink** - Text, images, graphics that, when **clicked with a mouse** (or activated by keystrokes) will **connect the user to a new Web site**. The link is usually obvious, such as underlined text or a "button" of some type, but not always.

13. **Internet** - A **global network** of thousands of computer networks linked by data lines and wireless systems.

14. **URL** - A **universal resource locator** (a computer address) that identifies the location and type of resource on the Web. **A URL generally starts with "http/https."**

15. **Vector** - A line in **computer graphics** designated by its end points (x-y or x-y-z coordinates). A **vector layer does not use pixels** for storing image information. Instead, it **stores a vector object** as a set of properties that describe its attributes, dimensions, and position in the image. Each time an image is opened, these properties are used as instructions for drawing the objects. Because the objects are independent elements, you can move them without affecting the rest of the image.

16. **Instant Messaging (IM)** - a **text-based computer conference over the Internet** between two or more people who must be online at the same time. When you send an IM the receiver is instantly notified that she/he has a message.

17. **IP Address** - (**Internet Protocol**) The **number or name of the computer** from which you send and receive information on the Internet.

18. **Modem** - A **device that connects your computer to the Internet**, when you are not connected via a LAN (local area network, such as at work or on a campus.) Most people connect to a modem when using a home computer. The **modem translates computer signals to analog signals** which are sent via phone lines. The telephone "speaks" to the computer/server which provides your Internet access.

19. **Newsgroup** - An **Internet "site" centered on a specific topic or course**. Some newsreader software can "thread" discussion so there can be various topics centered on a central theme. An advantage over e-mail is that the messages are archived and don't reside in your e-mail account, taking up your memory, unless you set up a "sent mail" or "carbon copy" option. The messages can often be threaded according to a particular discussion.

1 WORD QUESTION - ANSWER

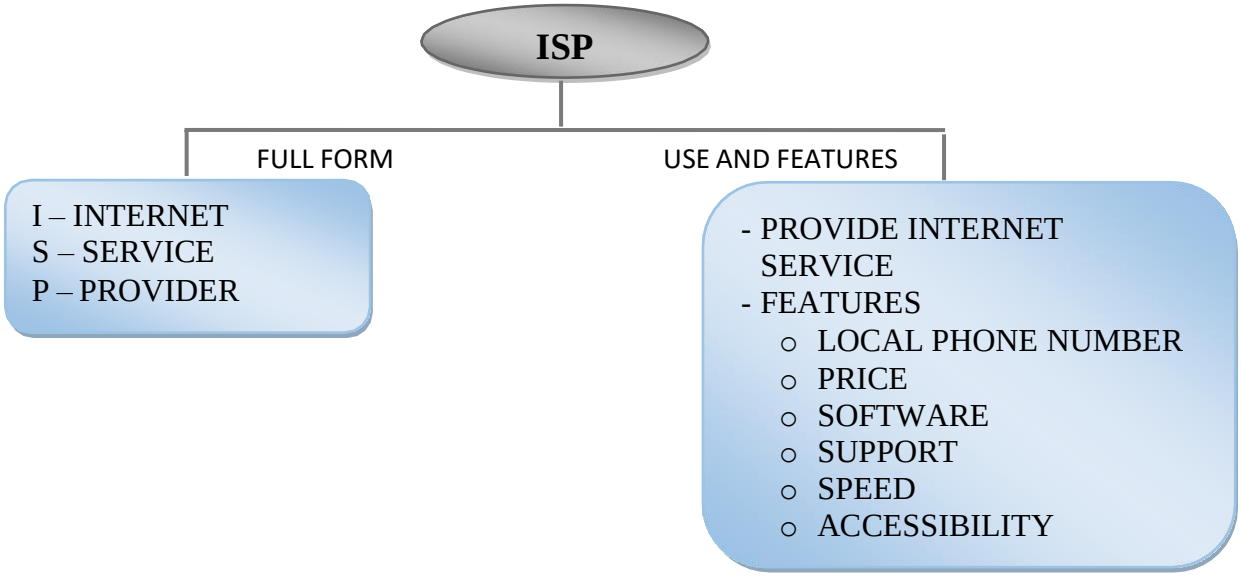
SR. NO	QUESTION	ANSWER
1	WHAT IS BANDWIDTH?	CAPACITY OF AN ELECTRONIC LINE
2	WHAT IS BITMAP?	IMAGE TYPE(COMBINATION OF ROW AND COLUMNS_
3	WHAT IS BIT?	BINARY DIGIT
4	8 BIT = _____	1 BYTE
5	FULL FORM OF CGI_____	COMMON GATWAY INTERFACE
6	WHAT IS DOMAIN NAME?	METHOD TO IDENTIFY COMPUTER ADDRESS
7	FULL FORM OF GIF_____	GRAPHIC INTERCHANGE FORMAT
8	WHAT IS HOME PAGE?	FIRST PAGE OF WEBSITE

⌫ ISP

In this topic we learn about ISP, the person or company provide internet service to us.

ISP = Internet Service Provider
Main work to provide internet service to us.
For Ex.: speedOnline , Speed-o-Bit , GTPL , You Broadband etc..
Based on our requirements we can purchase internet plans from ISPs

- ISP: ISP is An **Internet Service Provider (ISP)** is an organization that **provides dial-in Internet accounts**, usually PPP, CSLIP or SLIP accounts, and also, sometimes Unix shell accounts
- Choosing an ISP: We should consider following features before choosing any ISP.



➢ **Features of ISP:**

- **Local phone number:** Most of ISPs have many phone numbers that your computer can call to connect to the Internet.
- **Price**: ISPs generally charge for the hours or speed they provide. So, you can select your ISP by calculating your usage or speed required.
- **Software**: Some ISPs provide a CD-ROM or diskette with software that you can use to connect to and use the Internet.

- **Support**: You never know when you're going to have a problem, so your ISP's technical support phone number (and e-mail help desk) should be open 24 hours a day, 7 days a week.

- **Speed**: Some ISPs have local access numbers that work with 28.8 Kbps, 33.6 Kbps, and 56 Kbps modems.

- **Accessibility**: If the ISP's access numbers are frequently busy, you can waste a lot of time redialing until you connect.

1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	FULL FORM OF ISP_____	INTERNET SERVICE PROVIDER
2	WHAT DOES ISP DO?	PROVIDE INTERNET SERVICE

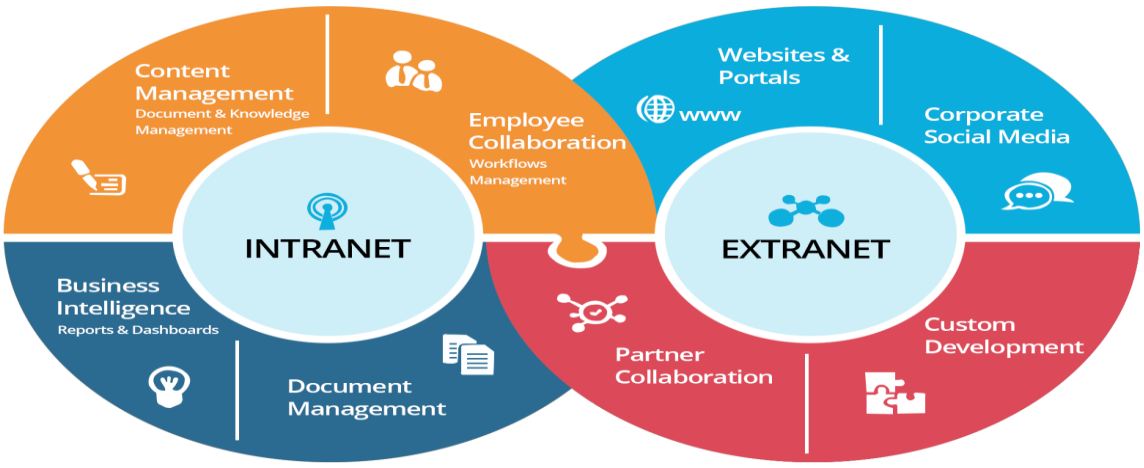
⌫ **INTRANET & EXTRANET**

In this topic we learn about INTRA & EXTRA net, PRIVATE INTERNET.

IntraNet : A private network, designed to help employees to connect, communicate and perform their roles.

ExtraNet : An IntraNet that also provides controlled access to authorized persons

USE OF INTRANET AND EXTRANET



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1. **INTRANET**:
   - An intranet is a **private network** that **allows employees and staff in an enterprise to securely share knowledge and information** easily within the company or organization.
   - Information, tools, directories, and services available on a company's intranet are typically unavailable to the general public.
   - The prefix "**intra" implies that an intranet** is designed for internal communications only. Intranets are usually restricted to specific local area networks (LANs) or wide area networks (WANs).

   FEATURES OF INTRANET:
   1. Improved internal communication.
   2. Efficient project management and workflow systems.
   3. Centralized information that connects members.

2. **EXTRANET**:
   - An extranet is a **private network** that powers internet technology and public telecommunication system to **share part of a business's information or operations over a secure system with suppliers, vendors, partners, customers, or other businesses.**
   - An extranet is often considered part of a company's intranet that is extended to authorized users outside of the organization.

   FEATURES OF INTRANET:
   1. Streamlines repetitive business processes.
   2. Increases customer satisfaction.
   3. Highly secure when properly designed

1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	INTRANET MEANS_____	PRIVATE INTERNET
2	EXTRANET MEANS_____	INTRANET WITH CONTROL
3	EXTRANET IS USED TO EXCHANGE LARGE VOLUME OF DATA . (TRUE OR FALSE)	TRUE
4	EXTRANET IS USED FOR JOINT TRANING PROGRAM? (TRUE OR FALSE)	TRUE
5	INTRANET IS EXPENSIVE? (TRUE OR FALSE)	TRUE

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⌫ VSAT

In this topic we learn about how our device connect with satellite and receive signals.

VSAT = Very Small Aperture Terminal
VSAT is small satellite dish (DISH TV @ our Home)
Send and receive signals from satellite

- VSAT (**Very Small Aperture Terminal**) is a **satellite communications system** that serves home and business users.
- A VSAT end **user needs a box that interfaces between the user's computer and an outside antenna with a transceiver**.

VSAT

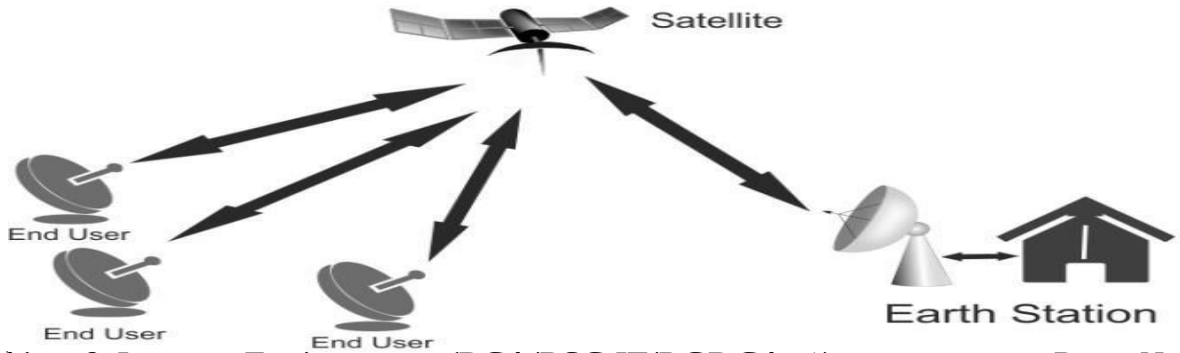
FULL FORM

V – VERY
S – SMALL
A – APERTURE
T – TERMINAL

USE

- SMALL SATELLITE DISH
- CAPABLE TO SENDING AND RECEIVING SATELLITE SIGNALS
- COMES WITH 2 UNIT (INDOOR & OUTDOOR)

- The **transceiver receives or sends a signal** to a satellite transponder in the sky. The satellite sends and receives signals from an earth station computer that acts as a hub for the system.
- Each end user is **interconnected with the hub station via the satellite** in a star topology.
- VSAT **handles data, voice, and video signals.**



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1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	FULL FORM OF VSAT _____	VERY SMALL APERTURE TERMINAL
2	WHAT IS THE USE OF VSAT?	RECEIVE & TRANSMIT REAL-TIME DATA
3	ONE OF THE LARGEST VSAT NETWORK IS_____	NSE (NATIONAL STOCK EXCHANGE)
4	HOW MANY UNITS AVALABLE IS VSAT?	2
5	LIST OUT UNITS AVALABLE IS VSAT?	INDOOR UNIT OUTDOOR UNIT

⌫ **URL**

In this topic we learn about unique website address and part of website address

URL = UNIFORM RESOURCE LOCATOR
Created by: Tim Berners Lee (father of internet / developer of HTML)
URL = address or resource on the internet
Unique URL for every resources.

- A URL **identifies a particular Internet resource**; for example, a web page, a gopher server, a library catalog, and image or a file.
- URLs **represent a standardized or unique addressing scheme** for the Internet resources, and help users to locate these resources by indicating exactly where they are.
- **Every resource available via the WWW has a unique URL.**

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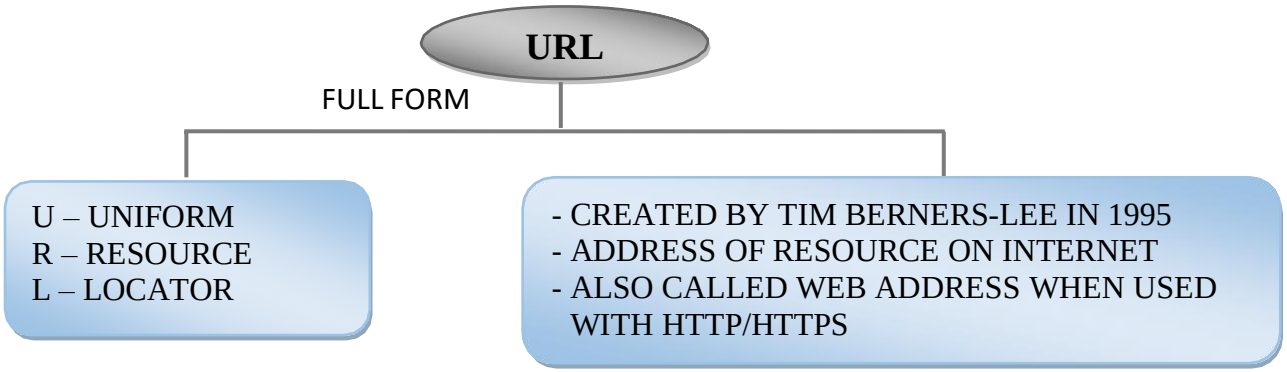

- Every URL contains the following information:
  - The scheme name or protocol.
  - A colon, two slashes.
  - A host, normally called a domain name but sometimes as a literal IP address.
  - A colon followed by a port number.
  - Full path of the resource.

- for example **http://www.shreehnsgroupofcolleges.org/full-form**
  The above URL contains:
  - **protocol**: http
  - **host or domain**: www.shreehnshuklagroupofcolleges.org
  - **Path of the resource**: /full-form

1 WORD QUESTION - ANSWER

SR. NO	QUESTION	ANSWER
1	FULL FORM OF URL _____	UNIFORM RESOURCE LOCATOR
2	WHAT IS USE OF URL?	ADDRESS OF A RESOURCE ON THE INTRENET
3	HOW MANY PROTOCOLS INCLUDE IN URL?	3
4	LIST OUT PROTOCOLS USED IN URL	HTTP,HTTPS,FTP
5	GIVE ONE EXAMPLE OF URL.	HTTP://WWW.HNSHUKLAGROUPOFCOLLEGES.ORG

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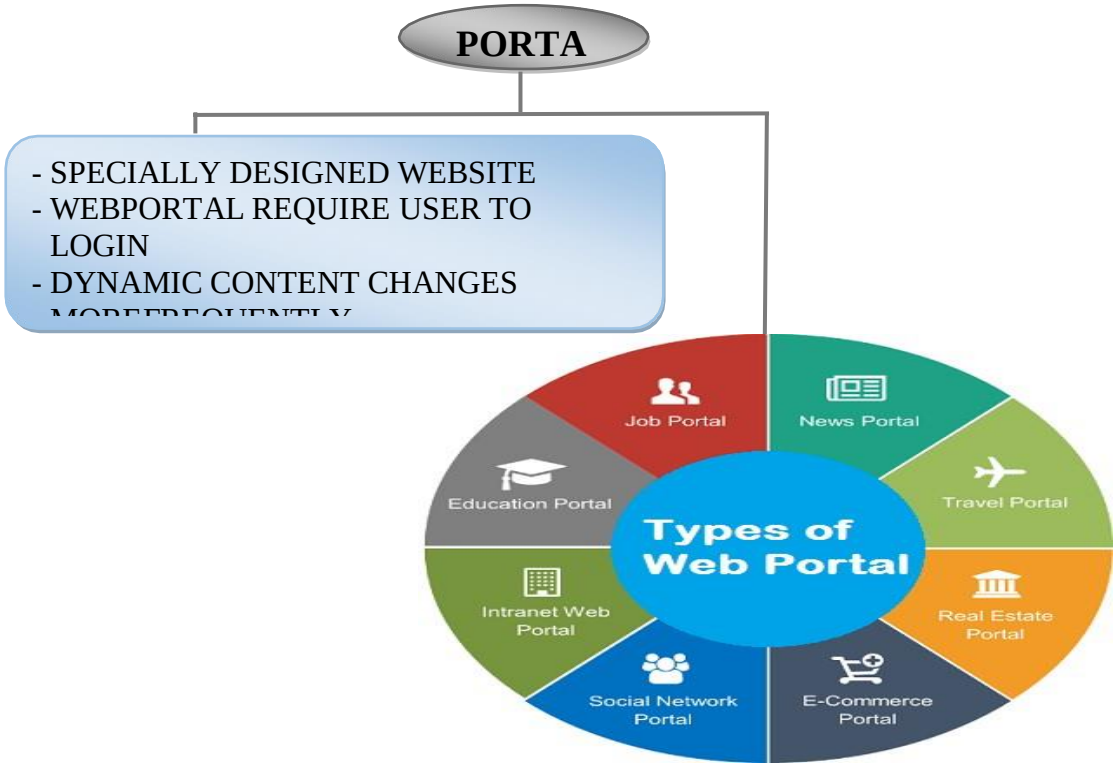
⌫ PORTAL

In simple word portal means gateway of the WWW.

Portal means one type of website.
Website based on particular topic for example.

- ⌫ Job portal display information based on JOBS.
- ⌫ Educational portal display educational information only
- ⌫ One type of dynamic website(Content change frequently)

- Portal is a term, generally synonymous with **gateway, for a World Wide Web site** that is or proposes to be a major starting site for users when they get connected to the Web or that users tend to visit as an anchor site.
- There are **general portals and specialized**. Some major **general portals include Yahoo, Excite, Netscape, Lycos, CNET, Microsoft Network, and America On line's AOL.com**.



- A number of large access providers offer portals to the Web for their own users.
- Typical services offered by portal sites include a directory of Web sites, a facility to search for other sites, news, weather information, e-mail, stock quotes, phone and map information, and sometimes a community forum.

1 WORD QUESTION - ANSWER

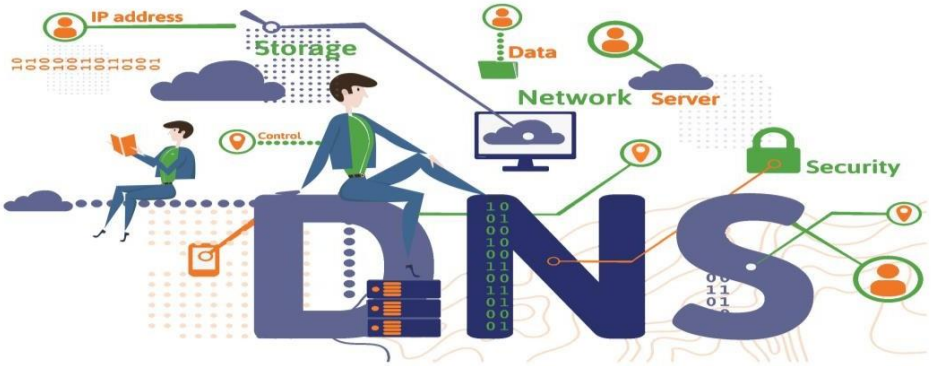
SR. NO	QUESTION	ANSWER
1	WHAT IS PORTAL?	PORTAL = GATEWAY
2	TYPE OF PORTAL INCLUDE…	1) GENERAL PROTAL 2) SPECIALIZED PROTAL
3	LIST OUT OF GENERAL PORTAL.	YAHOO, NETSCHPS, CNET
4	LIST OUT SEPCIALIZED PORTAL	GARDEN.COM,

⌫ **DNS**

In this topic we learn about how our website store in the server and how we can access it.

DNS = Domain Name Server / System
DNS = phone book of internet
Translate Domain Name (website name) into IP address and based on that IP we can access website

- The **Domain Name System** (DNS) is the **phonebook of the Internet**.
- Humans **access information online through domain names**, like nytimes.com or espn.com.
- Web browsers interact through Internet Protocol (IP) addresses. DNS translates domain names to IP addresses so browsers can load Internet resources.
- Each device connected to the Internet has a unique IP address which other machines use to find the device.



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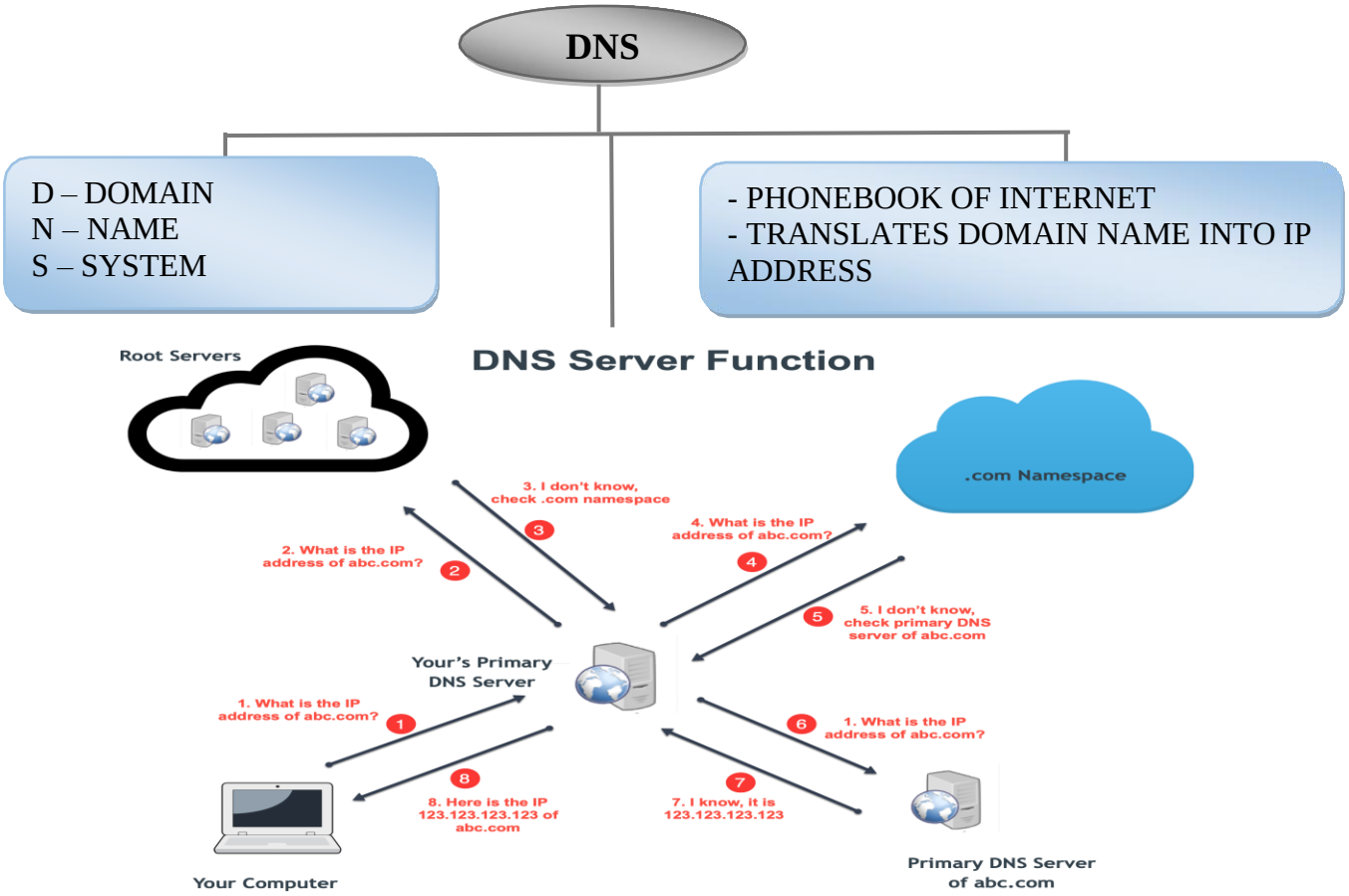

How Does It Work

- **Name servers store DNS records** which are the actual file that says "this domain" maps to "this IP address".
- They are actually distributed all around the world. These **nameservers are called the root name servers** and instead of storing every domain ever, they **store the locations of the TLD (top level domains).**
- TLD's are the two or three character like .com that end a domain name. Each **TLD has their own set of name servers** that store the information that says who is authoritative for storing the DNS records for that domain.
- The authoritative name server is typically the DNS provider or the DNS registrar (like GoDaddy that offers both DNS registration and hosting). And here we can find the DNS record that maps example.com to the IP address 127.66.122.88.

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