COMPUTER NETWORK

PART - 2

TOPICS COVERED :

Network Hardware

Communication Channels

Wireless Transmission Media
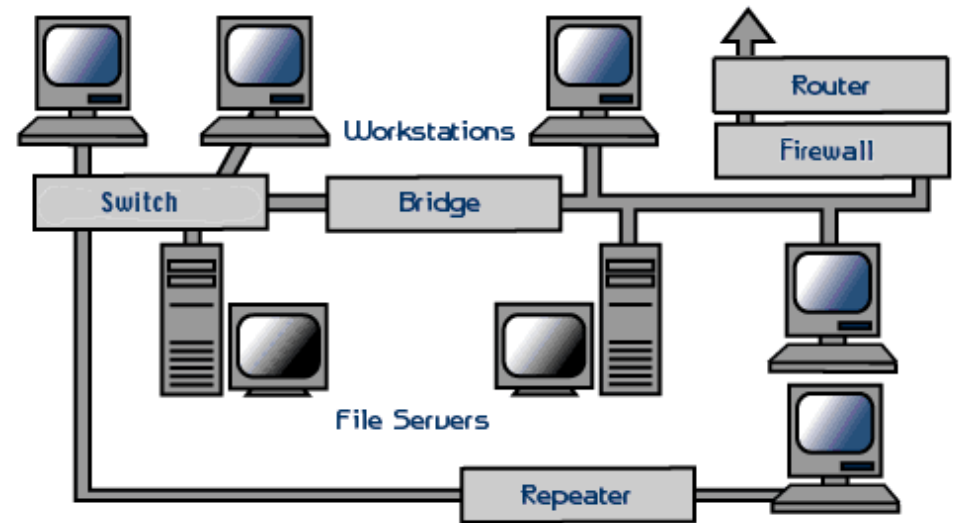
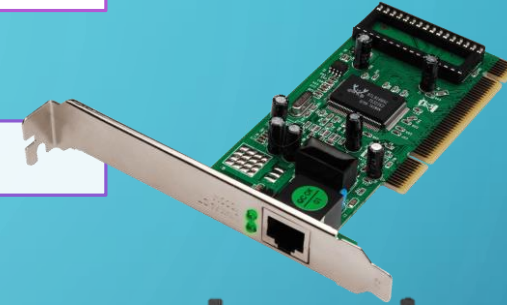Network Architecture

Protocol

NETWORK HARDWARE

❑ It consists of physical devices used on a network.

❑ All network need network hardware to function.

COMPUTERS: The most important job of a network is to link computers together.

NETWORK INTERFACE CARD: It is used to provide network access.

CONNECTER:

Hub: It offers a central location where all cables of a network meet.

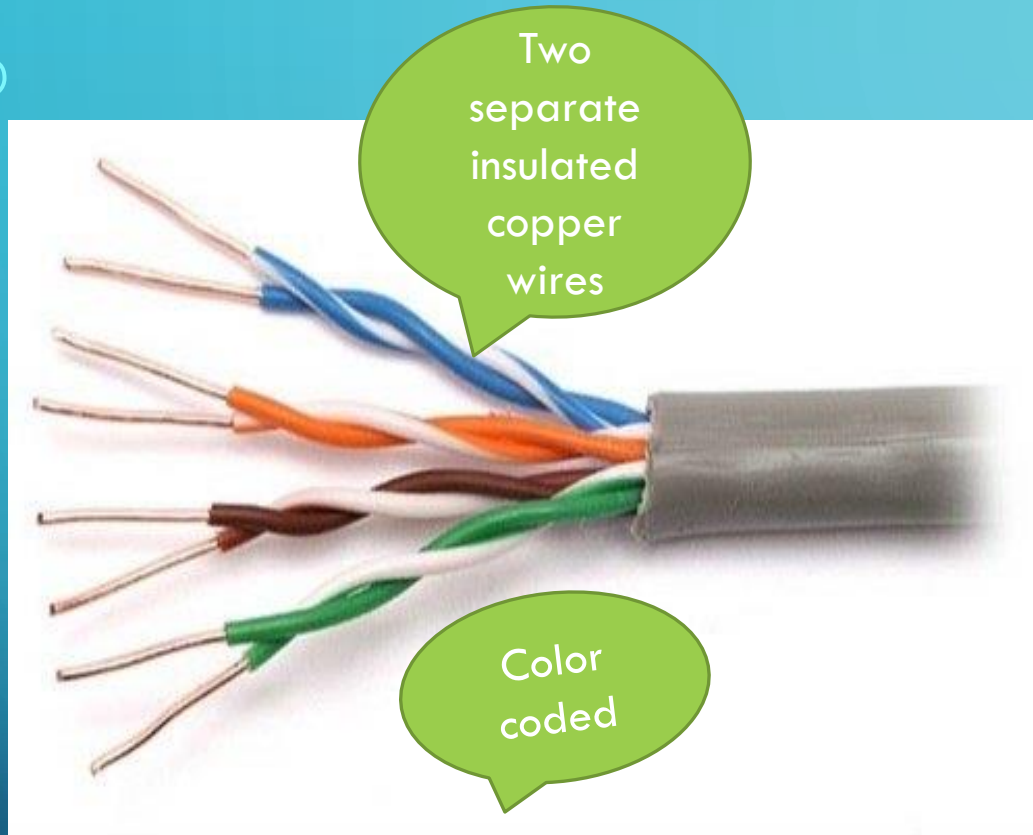Switch: It is a device that provides a central point for cables in a network.

CABLES: A network cable plugs into the NIC at the back of each computer on the network.

RESOURCES: Any part of a computer system or a network such as printer or memory which is allotted to a program.
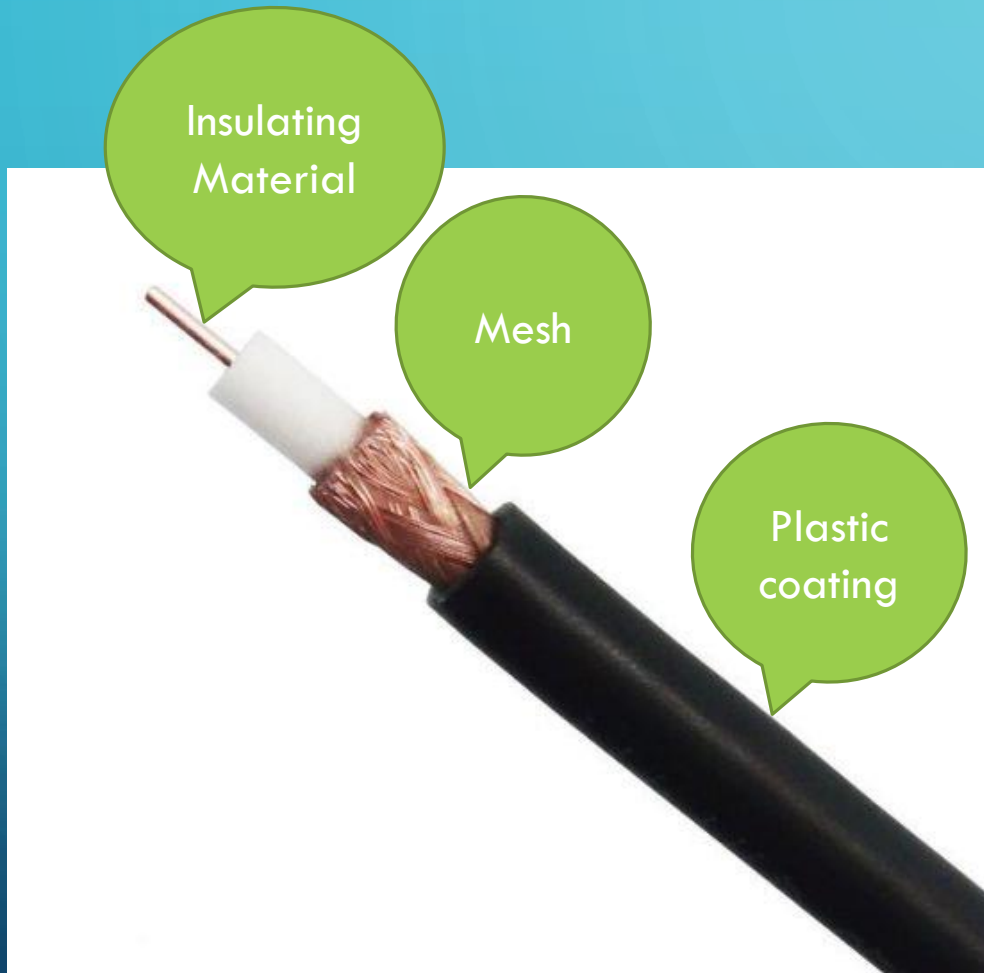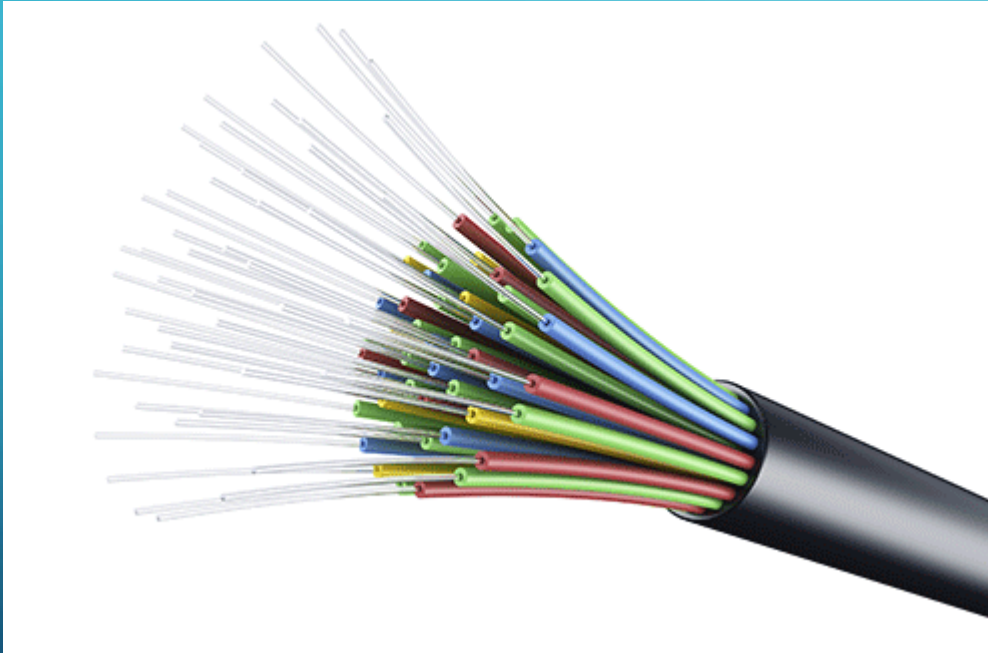
TWISTED-PAIR CABLE

Two separate insulated copper wires

Color coded

- It consists of one or more twisted-pair wire bundled together.

COAXIAL CABLE

Insulating Material

Mesh

Plastic coating

- It consists of a single copper wire surrounded by at least three layers.

FIBRE-OPTIC CABLE

- Its core consists of hundreds of thin strands of glass or plastic that use light to transmit signals.
- Ideal for high traffic networks.
- It is based on the principle of light so the speed is really fast.

INFRARED TRANSMISSION (IR)

- It is a wireless transmission medium that sends signals using **infrared light waves.**
- It uses the same technology as household remote controls

INFRARED TRANSMISSION
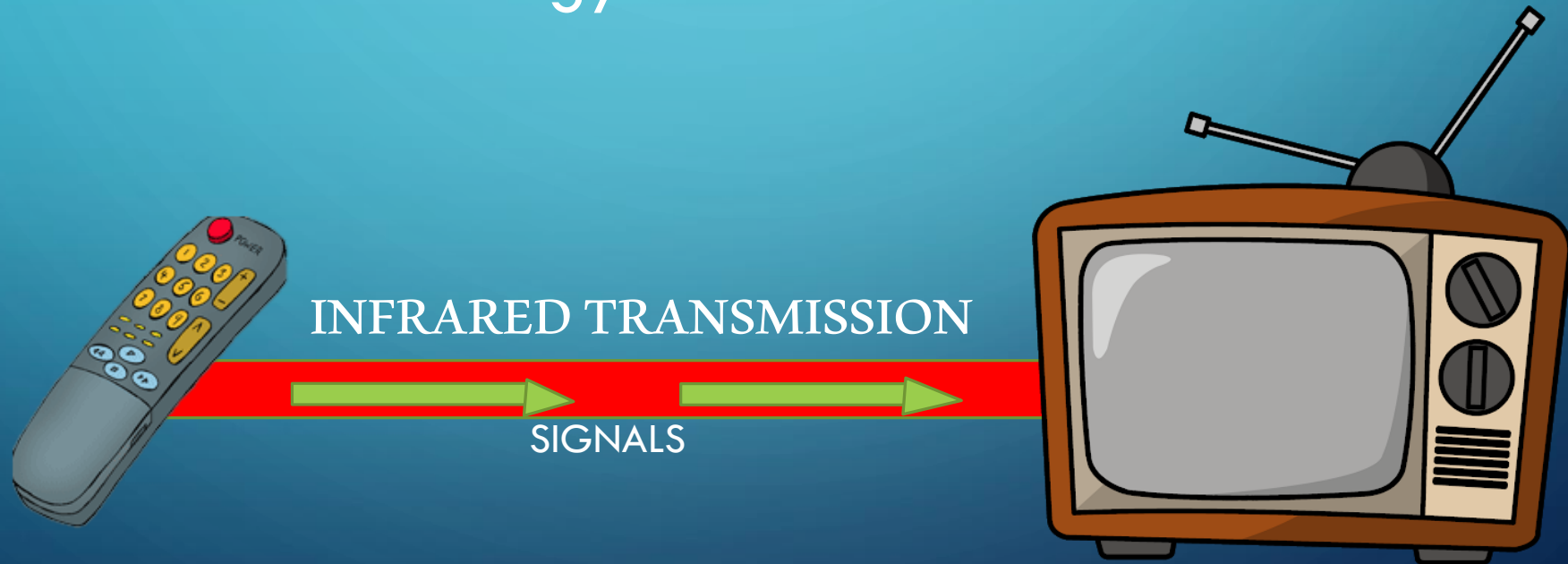
SIGNALS

BROADCAST RADIO TRANSMISSION

Transmitter Antenna

Radio waves

Receiver Antennas
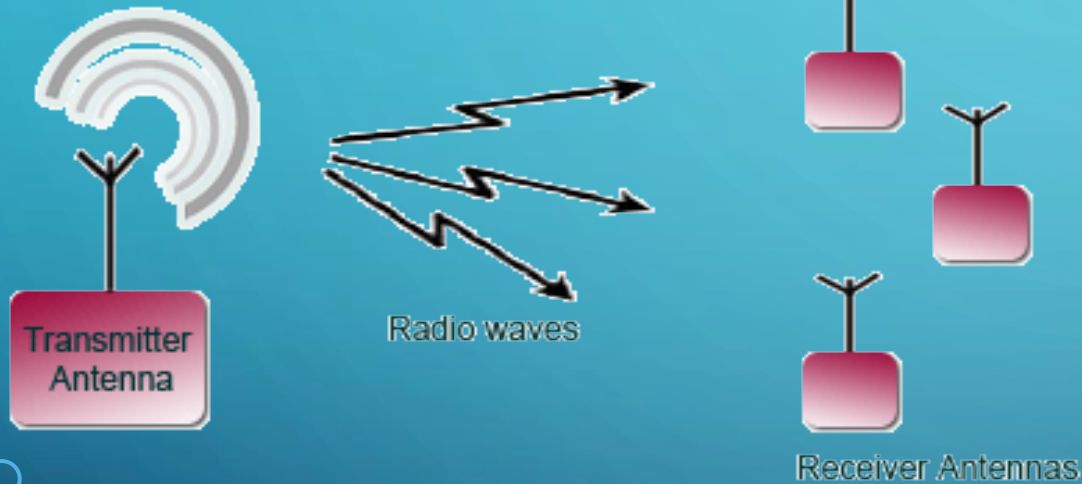
- It is a wireless transmission medium that distributes radio signals trough the air over a large distance such as between cities, regions, countries, etc.
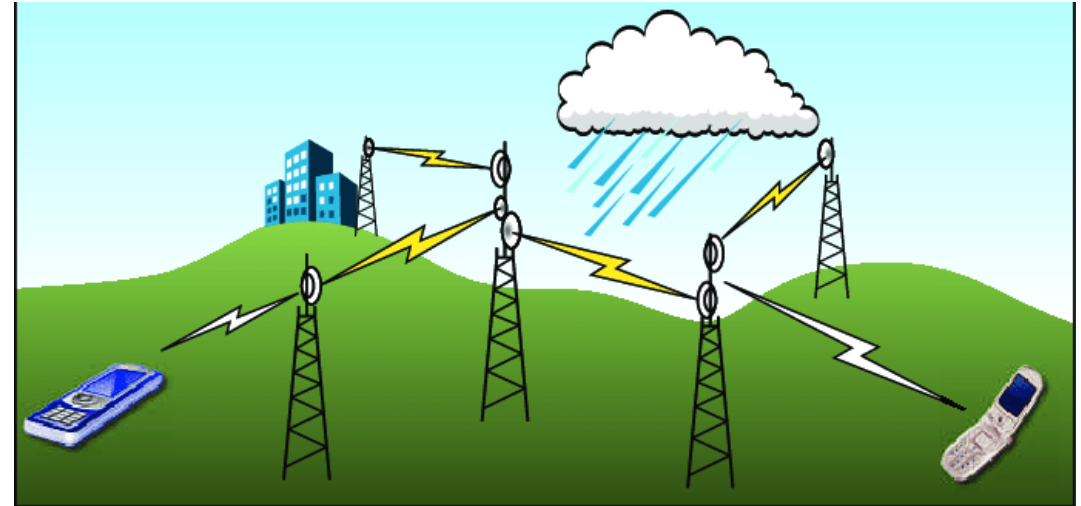
CELLULAR RADIO

- Used for mobile phone connection.
- It is a form of broadcast radio

Advantages of Microwave Radio

- Less affected by natural calamities
- Less prone to accidental damage
- Links across mountains and rivers are more economically feasible
- Single point installation and maintenance
- Single point security
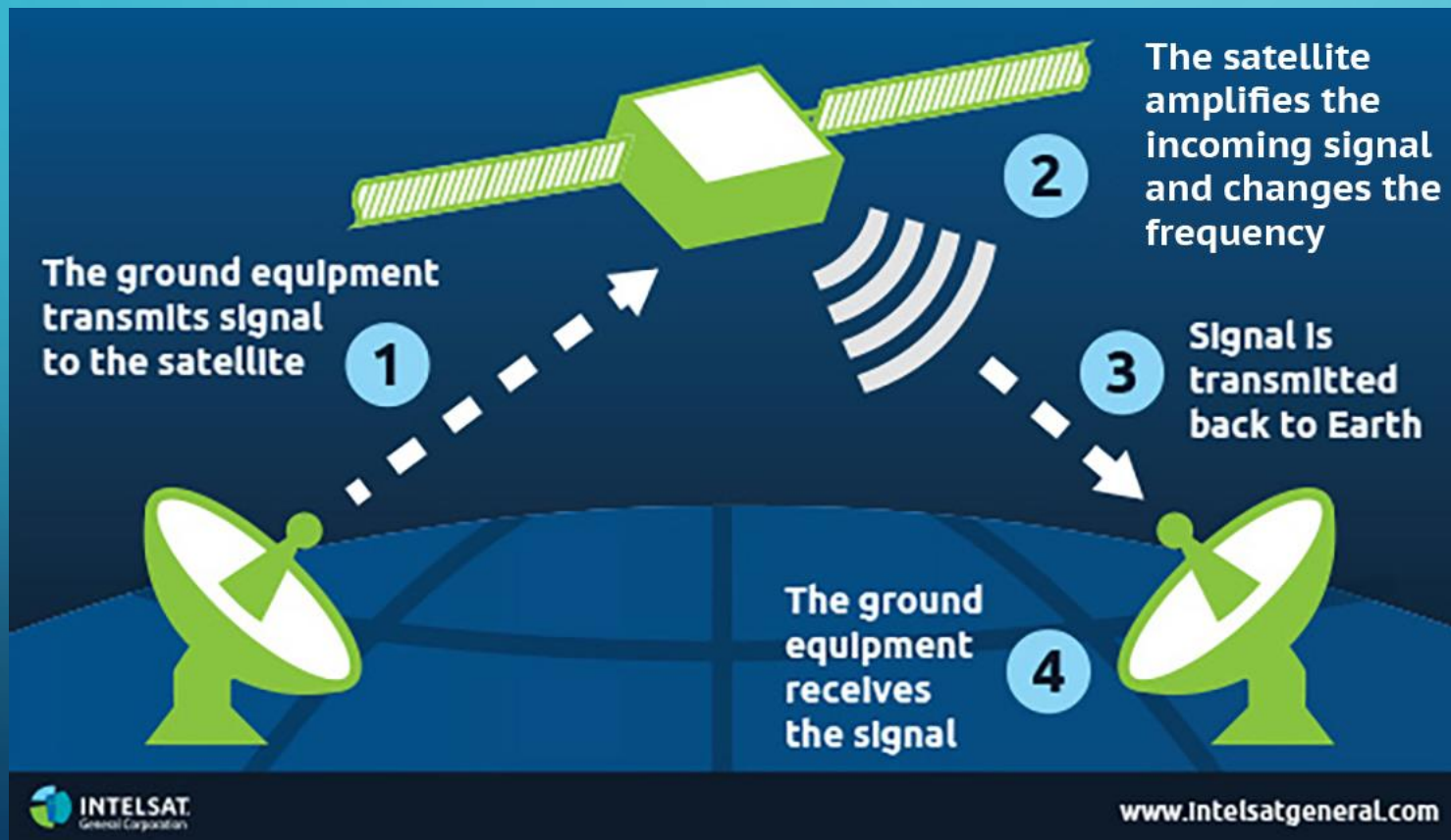- They are quickly deployed

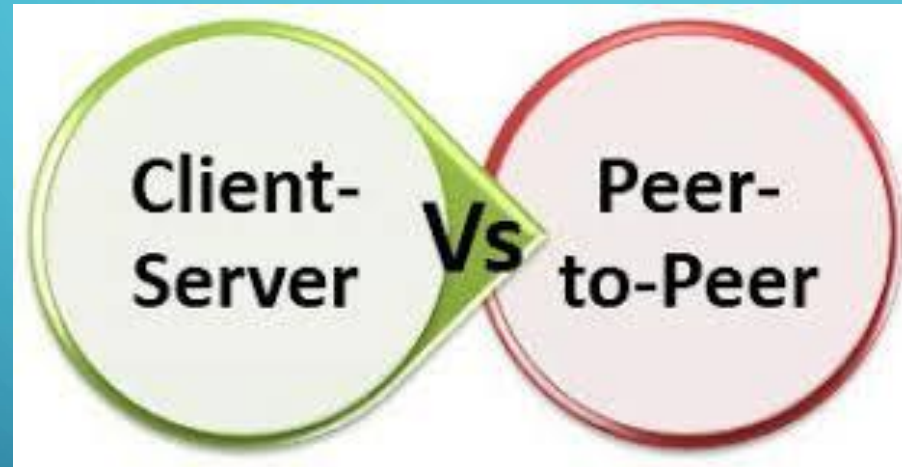# MICROWAVE

WI-FI
WIRELESS FIDELITY

- Uses radio waves.

- Used for Wireless communication.

- Used for High Speed network connections.
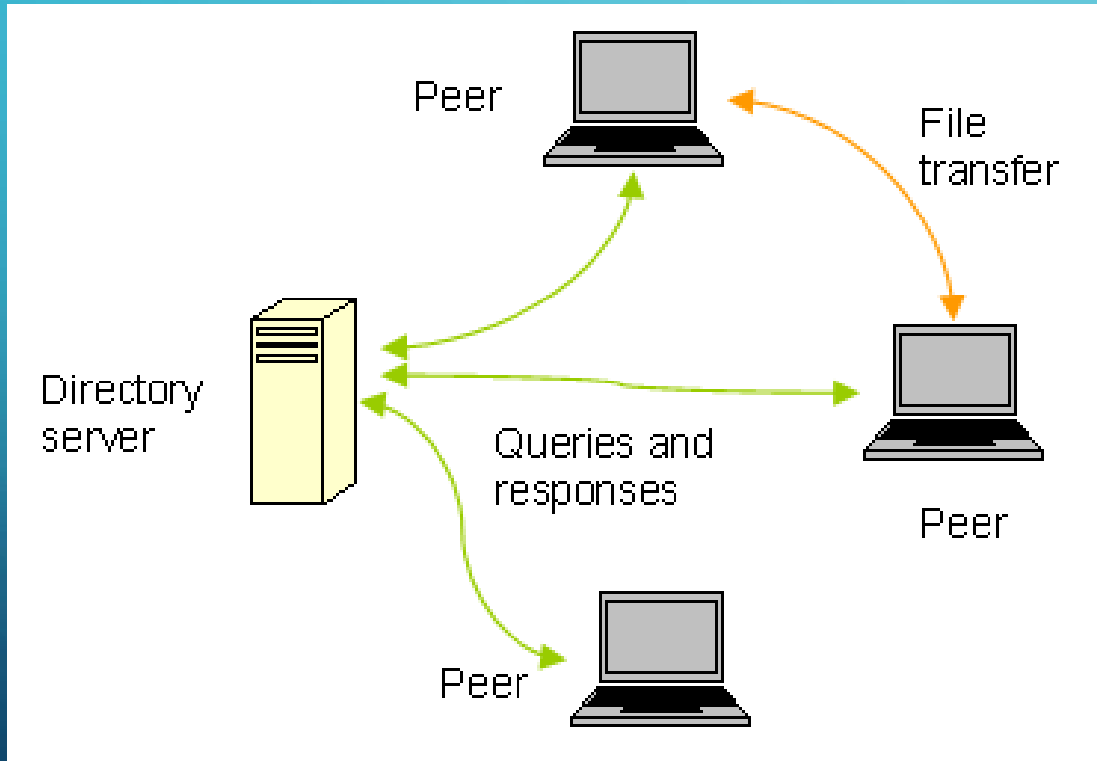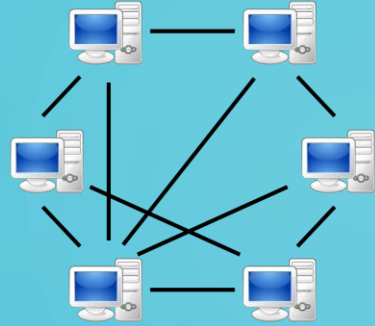
COMMUNICATION SATELLITE

- Used for Television and Radio broadcasts
- Video Conferencing
- GPS
- Weather Forecasting

NETWORK ARCHITECTURE

PEER TO PEER

- Equal Resposiblitilies shared by all computers.
- Computers can share information from each other without contacting server.
- No Server or central managing device.
- Ideal for very small network

- Power machines are Servers
- Servers are like managers that can fulfill service requests.
- Other computers on network are Clients.
- They have limited rights on the network. They require permission of the server to use or share a resource.
- Ideal for management of files, printers, websites, databases where entire access cannot be provided to each client.

CLIENT SERVER ARCHITECTURE
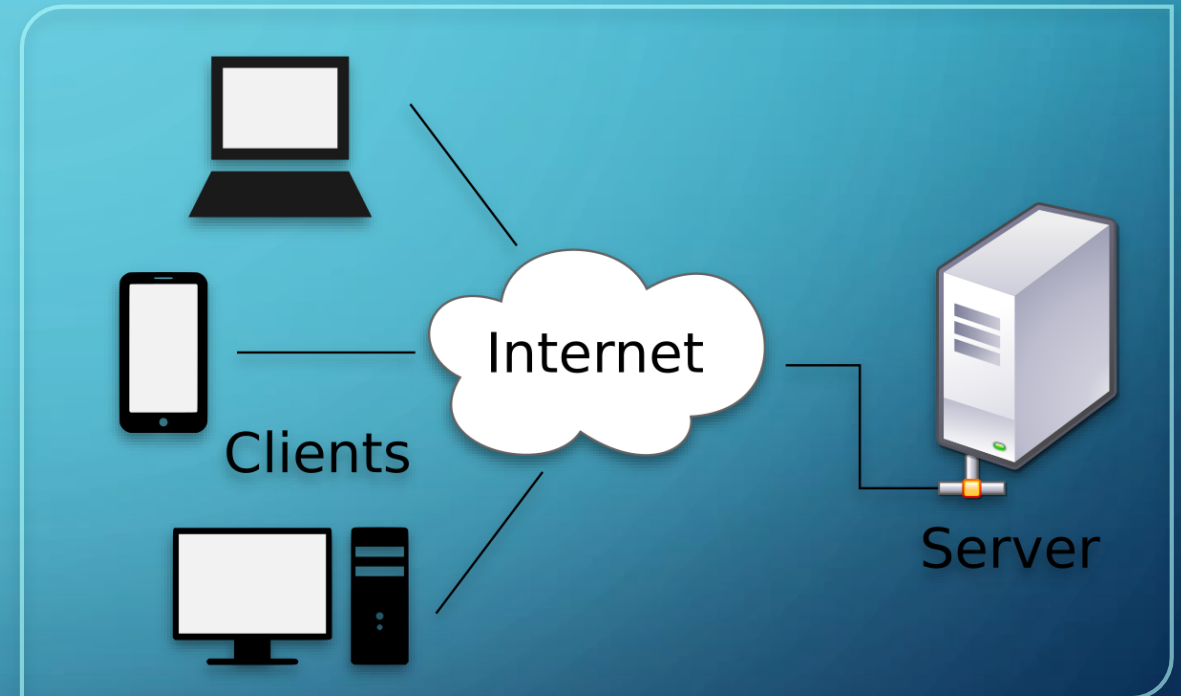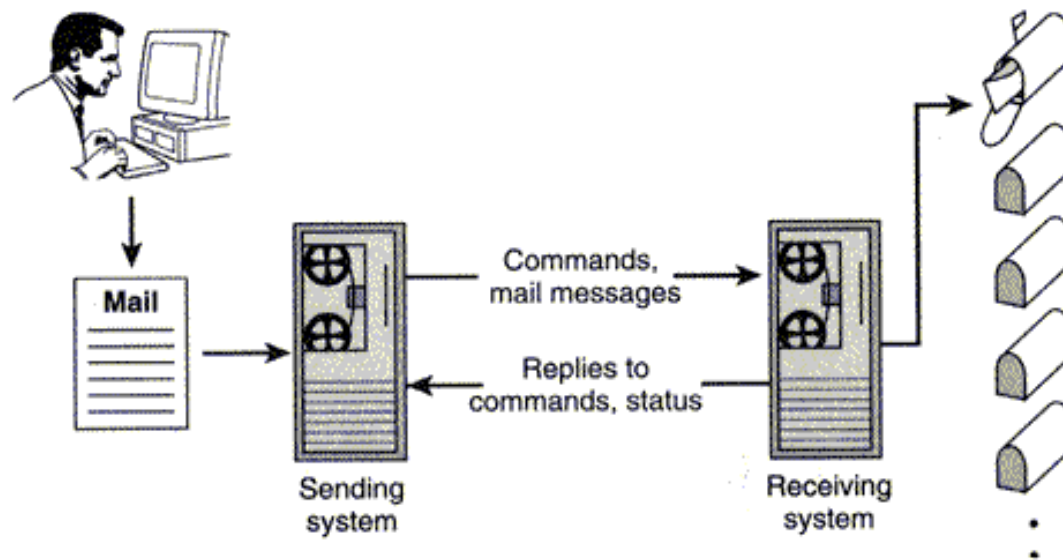
PROTOCOLS

What is Protocol :

Sometimes referred to as an access method, a **protocol** is a standard used to define a method of exchanging data over a computer network such as local area network, Internet, Intranet, etc. Each protocol has its own method of how data is formatted when sent and what to do with it once received, how that data is compressed or how to check for errors in data.
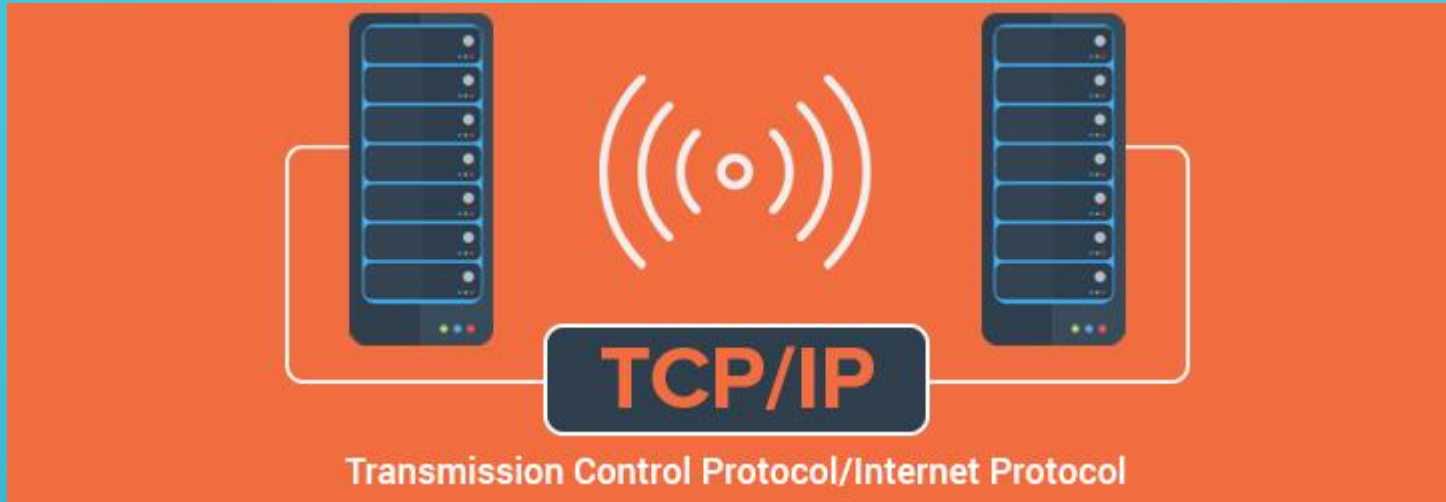
How HTTP works
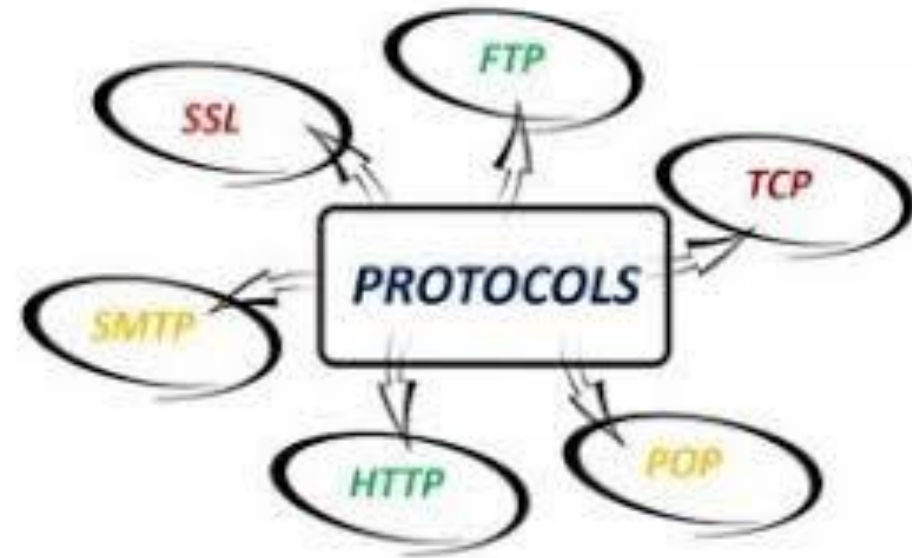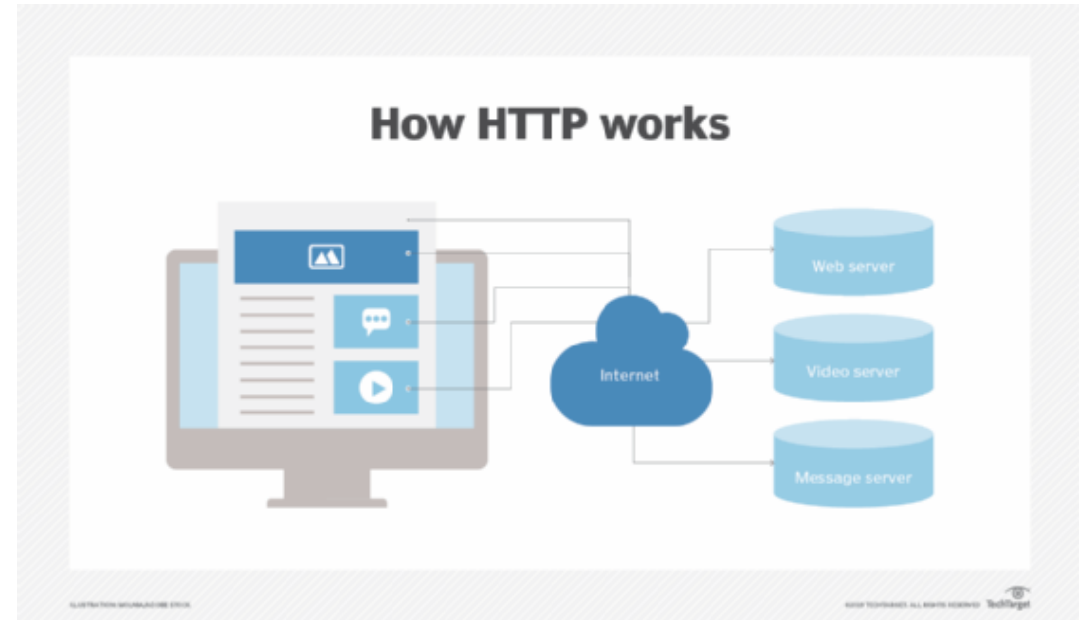
It defines a set of rules how transfer of webpages on the internet place when a demand is made.

FILE TRANSFER PROTOCOL

- Used for Uploading and downloading files from computer to server and vice versa.

TCP/IP
Transmission Control Protocol/Internet Protocol

- TCP divides data into small packets and sends it over the network.

- IP delivers it to correct location by checking its IP address.

- Each packet created by TCP has IP address of the sender and receiver. So it is delivered at the computer from where the request was generated.

EMAIL PROTOCOLS

NAME OF PROTOCOL	USE
POP3 – POST OFFICE PROTOCOL VERSION-3	• USED FOR RECEIVING EMAILS. • STORE EMAIL MESSAGES ON THE MAIL SERVER. • ONCE YOU DOWNLOAD MESSAGE ON YOUR COMPUTER , IT GETS DELETED FROM MAIL SERVER.
IMAP – INTERNET MESSAGE ACCESS PROTOCOL	• STORE EMAIL MESSAGES ON THE MAIL SERVER. • ONCE YOU DOWNLOAD MESSAGE ON YOUR COMPUTER , IT DOESNOT GET DELETED FROM MAIL SERVER. • YOU CAN ACCESS YOUR MAIL ON ANY DEVICE AGAIN
SMTP – SIMPLE MAIL TRANSFER PROTOCOL	• USED FOR SENDING MESSAGES ACROSS THE NETWORK.

THANK YOU