Computer Networking

Basics

Contents

Here's what you'll find in this.

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What is a Computer Network?

Communication between two or more network Interfaces.

Components of Computer Network

1. Two or more computers/Devices
2. Cables as links between the computers
3. A network interfacing card(NIC) on each
4. computer
5. Switches
6. Routers
7. Software called operating system(OS)

OSI Model

- People around the world uses computer network to communicate with each other.
- For worldwide data communication, systems must be developed which are compatible to communicate with each other.
- There should be standard communication methods & devices.
- ISO (International Organization of Standardization) has developed this standard.

OSI Model

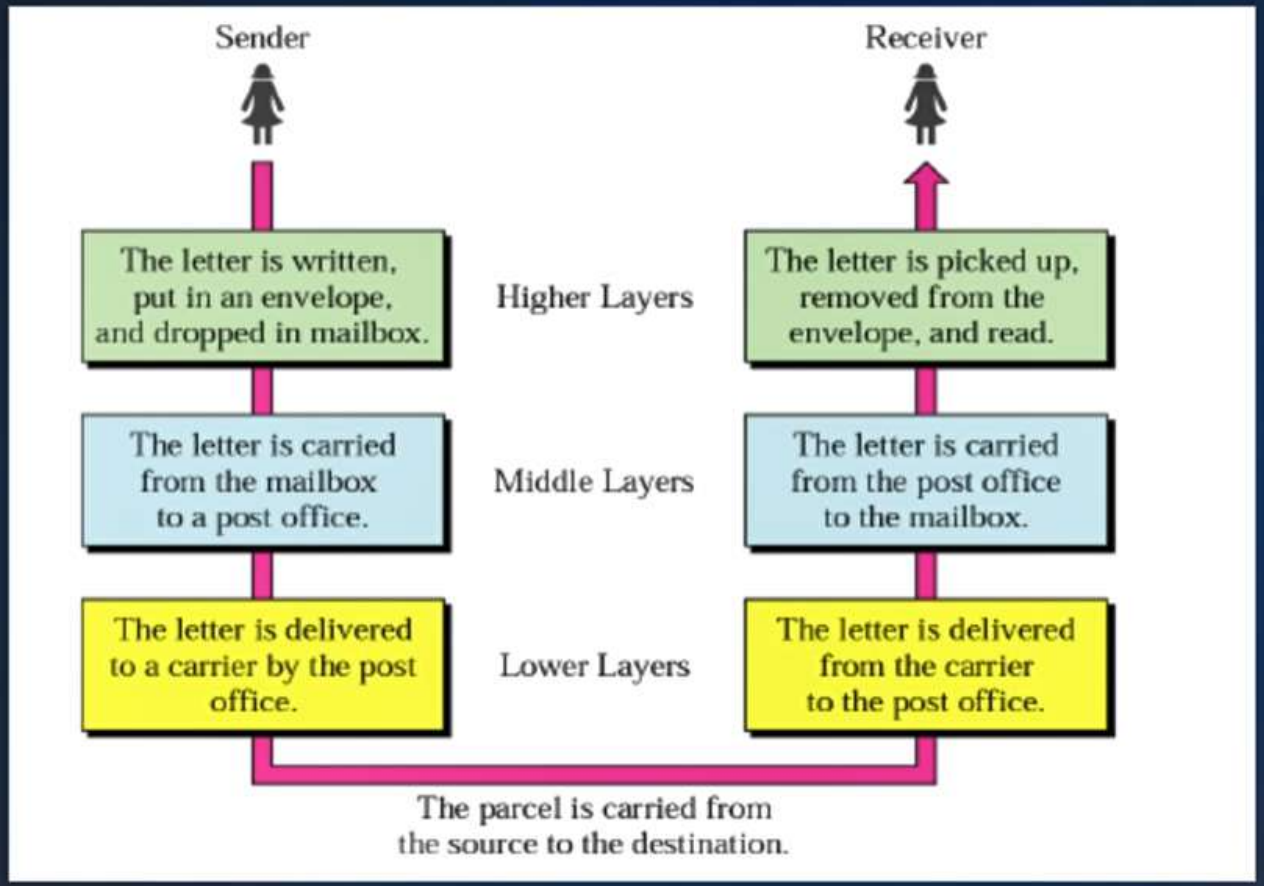
- This communication model is called as **Open System Interconnection (OSI).**
- ISO-OSI model is a seven layer architecture developed in 1984.

OSI Model

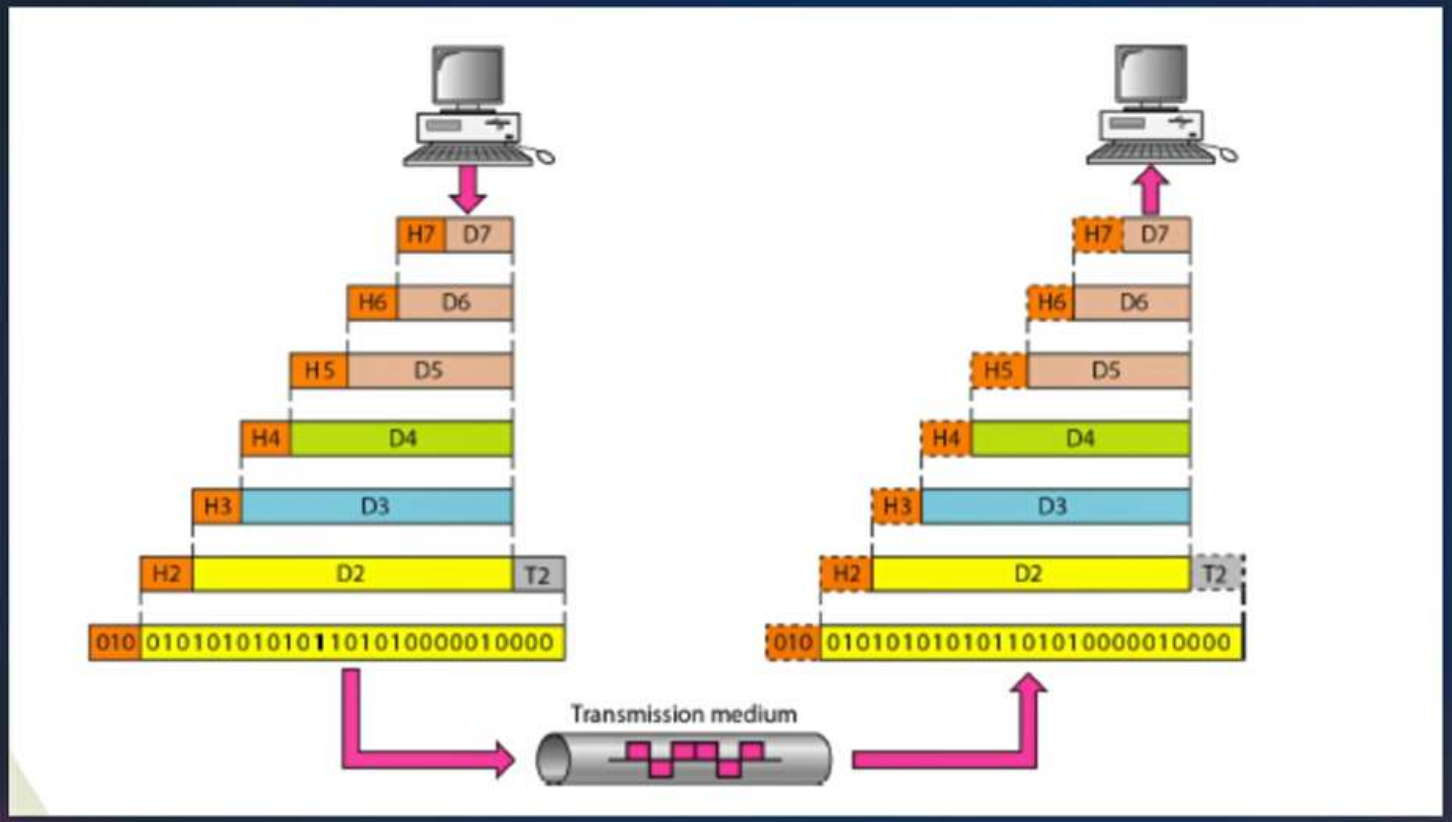
- The basic elements of a layered model are
  - services
  - protocols
  - and interfaces.

1. A service is a set of actions that a layer offers to another (higher) layer.
2. A Protocol is a set of rules that a layer uses to exchange information.
3. A Interface is communication between the layers.

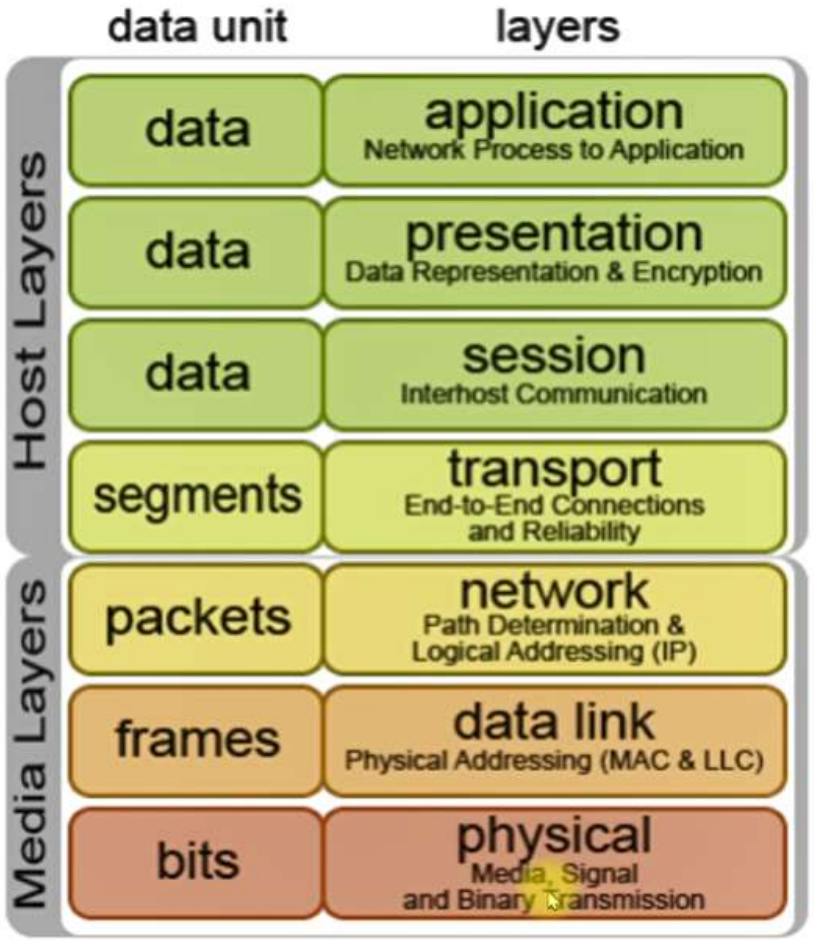
Sending - Receiving Letters



Sending - Receiving Data

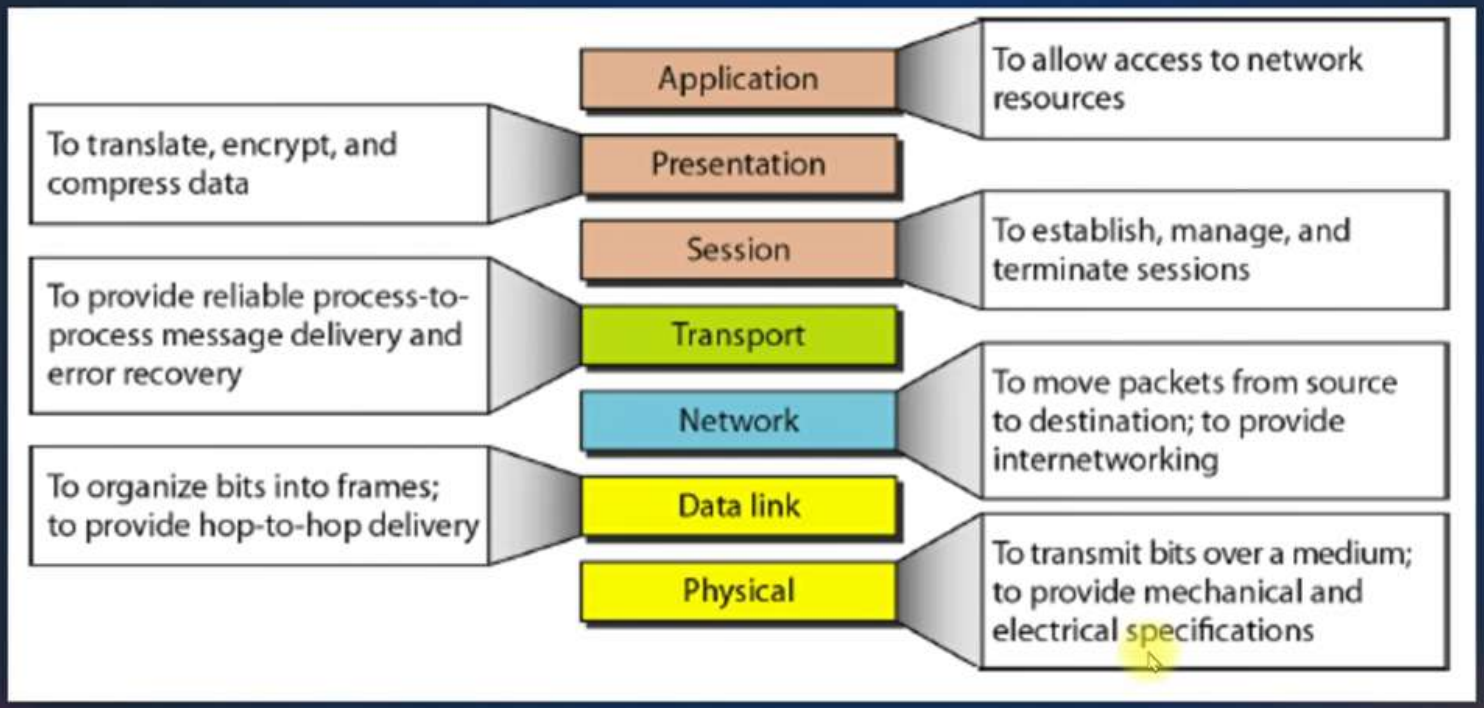


OSI Model



OSI Model	DoD Model	protocols		devices/apps
layer 5, 6, 7	application	dns, dhcp, ntp, snmp, https, ftp, ssh, telnet, http, pop3... others		web server, mail server, browser, mail client...
layer 4	host-to-host	tcp	udp	gateway
layer 3	internet	ip, icmp, igmp		router, firewall layer 3 switch
layer 2	network access	arp (mac), rarp		bridge layer 2 switch
layer 1		ethernet, token ring		hub

Summary of Layers

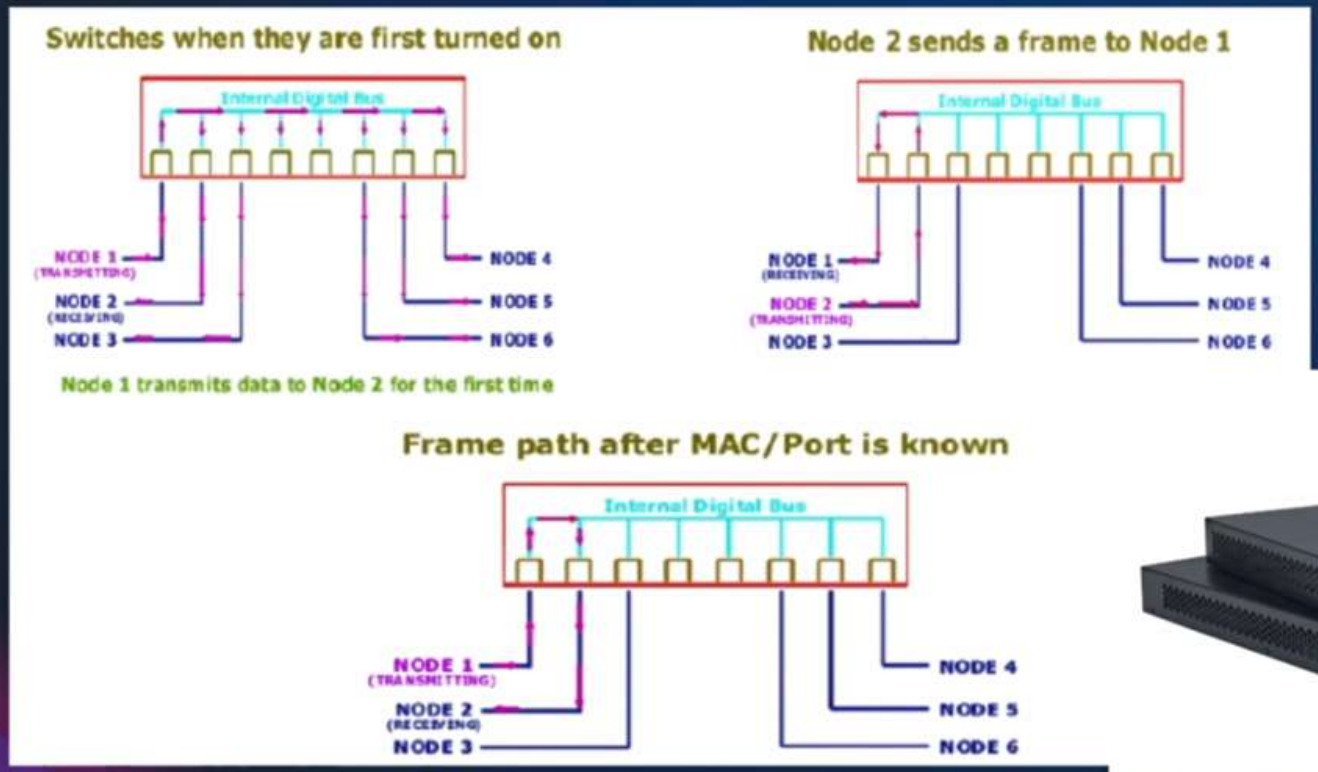


Classification of network By Geography

- LAN
  - Local area Network
- WAN
  - Wide Area Network
- MAN
  - Metropolitan area network
- CAN
  - Campus Area Network
- PAN
  - Personal Area Network

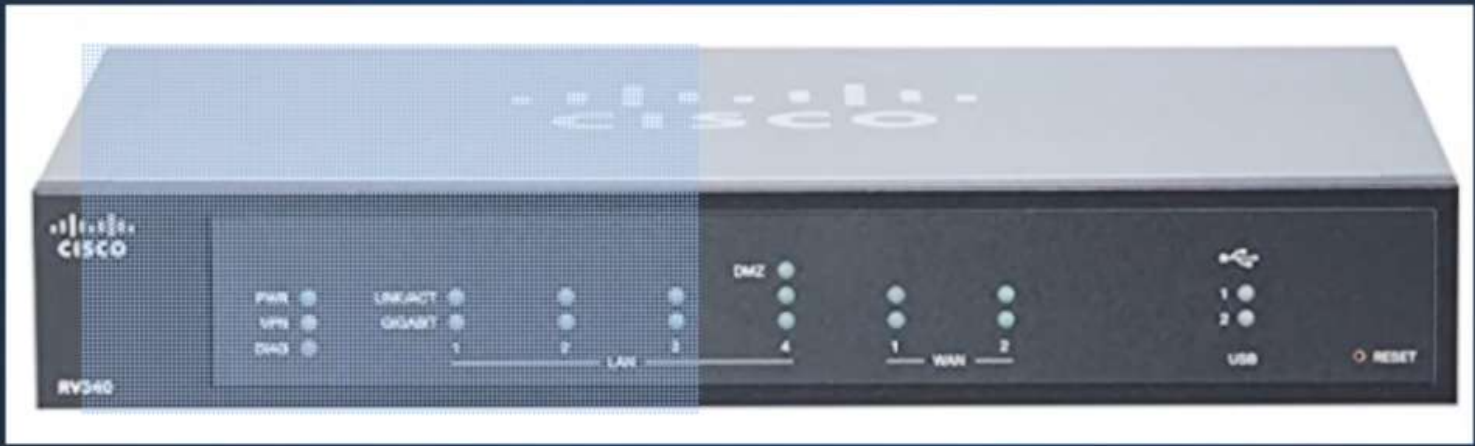
Switches

Switches facilitate the sharing of resources by connecting together all the devices, including computers, printers, and servers, in a small business network



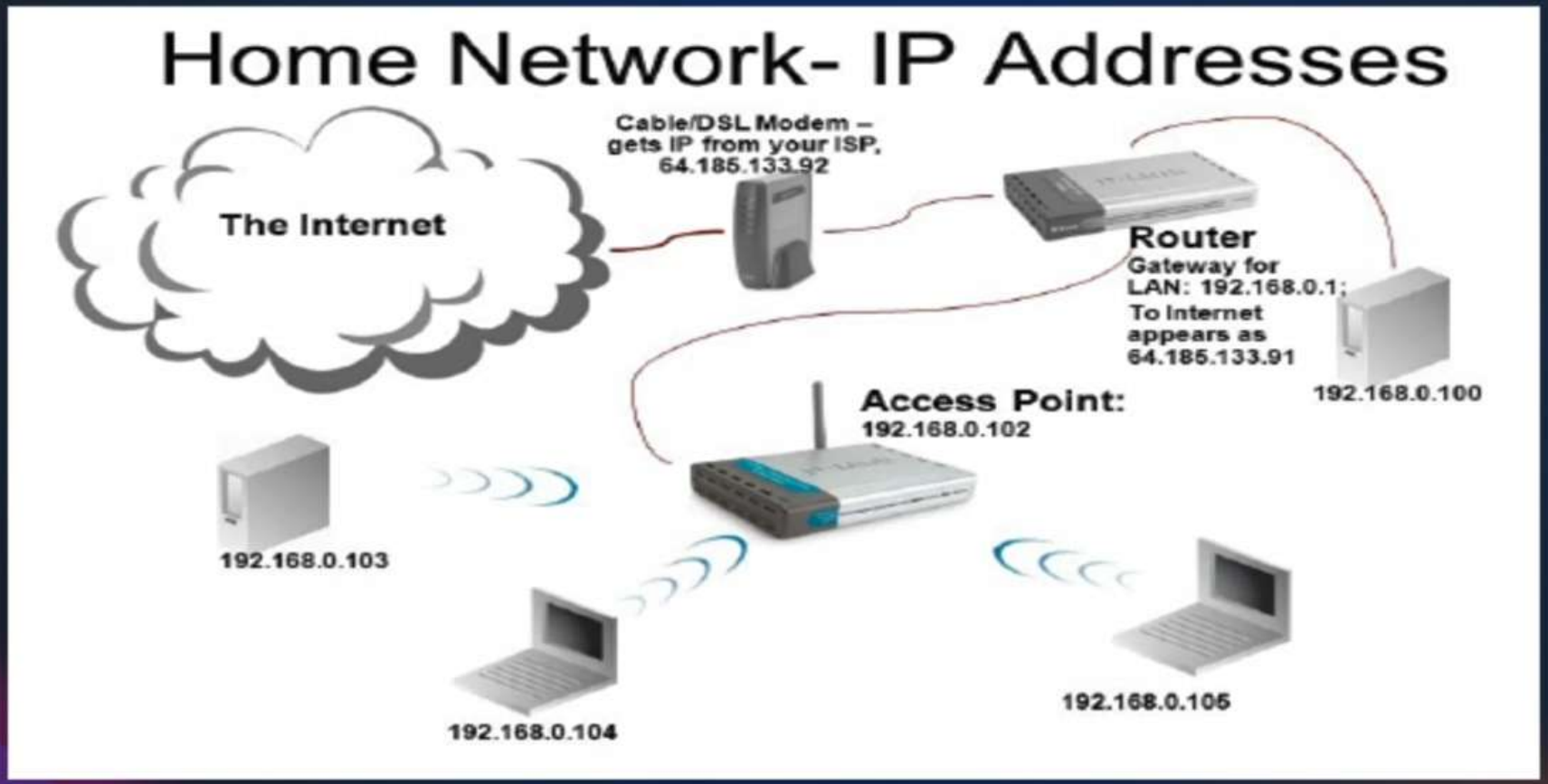
ROUTERS

A router receives and sends data on computer networks. Routers are sometimes confused with network hubs, modems, or network switches. However, routers can combine Multiple Networks together.

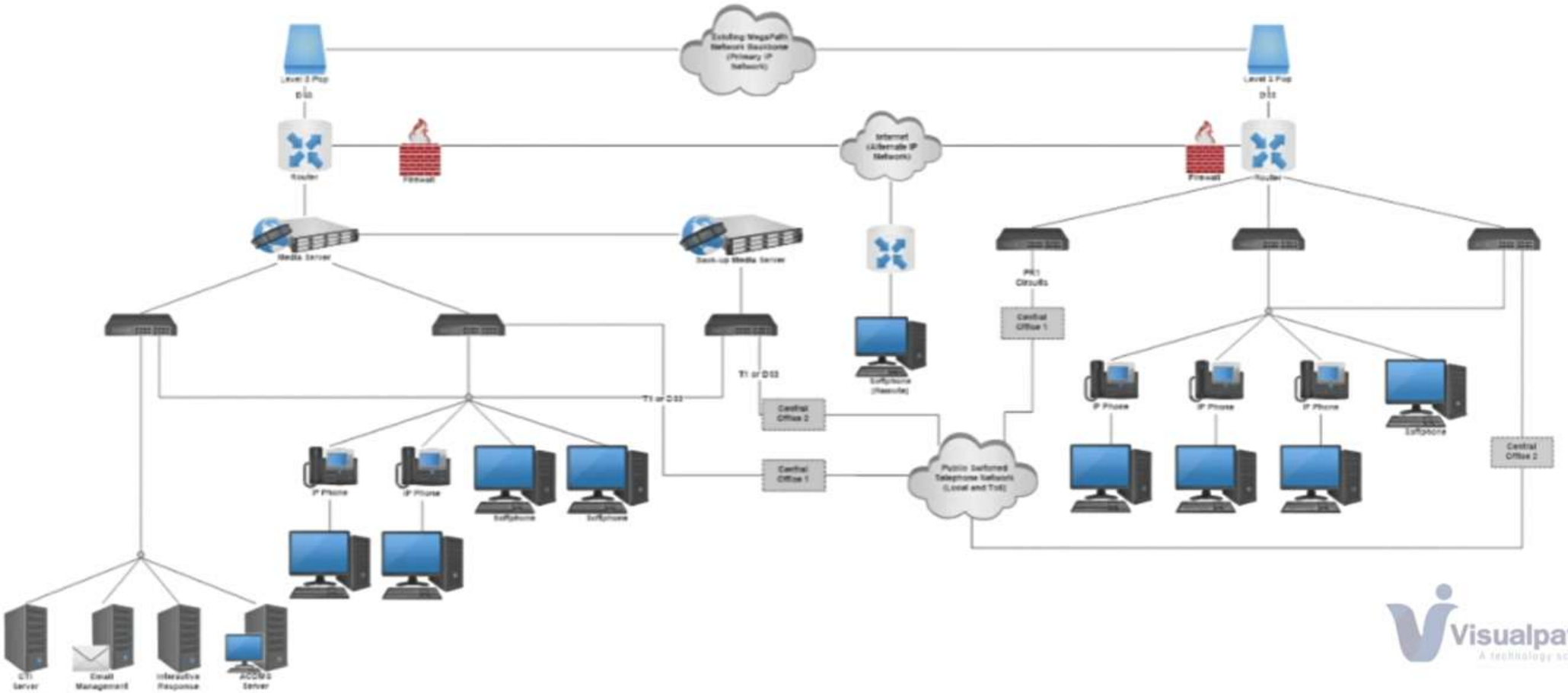


Home Network

Home Network

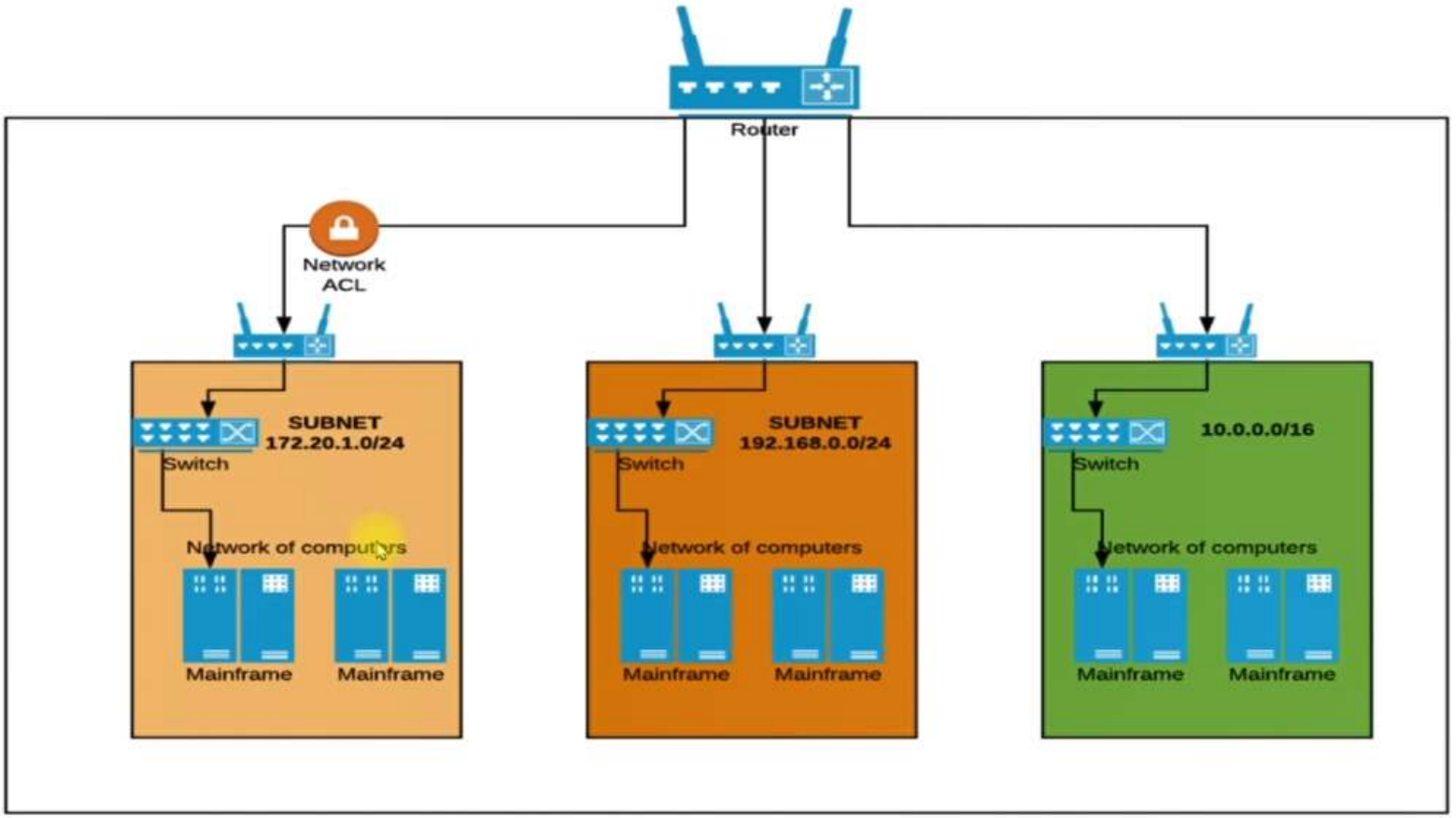


Network Diagram: Telecommunications Network Architecture



Corporate Datacenter

AMAZON VPC



IPv4 Address