Public ip or external IP address – this public ip address of a device will help any device over the internet to connect to this device

Private ip – this is useful when you

All public IPs assigned to Routers of ISPs or Routers connecting to Internet are unique. but private IPs of two hosts can be the same if both are connected to different public networks. So the combination of public and private IP identifies your device uniquely.

DNS: translated Domain Name to IP address

Ex: **Domain**: abc.com, **IP address:** IP address assigned to abc.com: ex: 172.25.46.35

If you type abc.com or 172.25.46.35 you will be routed to website of abc

# Introduction to DCCN:

Links:

[https://www.tutorialspoint.com/data\_communication\_computer\_network/data\_communication\_computer\_network\_overview.htm#](https://www.tutorialspoint.com/data_communication_computer_network/data_communication_computer_network_overview.htm)

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Data communication: transmission of digital data between 2 or more computers

Computer Network or Data Network: a tele communications network that allows data transfer between 2 computers and/or computerized peripherals (such as printer)

### Networking basics:

Router vs hub vs switch:

All the above 3 are used to transfer data, but the mode in which they transfer differs. Router transfers data in form of packets, hub transfers data in form of bits, switch transfers data in form of frames

### Network Engineering:

Network engineering is a complicated task, it involves software, firmware, hardware, chip level engineering and electronic pulses. to ease this task whole network engineering process is divided in to a set of layers, each layer performs a specific task and is independent of the other layer. But as a whole, all network tasks depend on all of these layers .Each layer is dependent on the layer only for the data it receives from one layer or the data that it sends to other layer

### Internet:

* Largest network of network on the earth
* Connects all WAN’s and have connection to LAN’s and home network
* **Uses TCP/IP protocol suite** and uses **IP** as its **addressing protocol**
* **Widely implemented using IPV4 and moving towards IPV6** because of **shortage of remaining addresses in IPV4**
* Enables users to share and access enormous amount of information worldwide using **www, FTP, email services, audio and video streaming.**
* Works on **client-server** model

Diagram

Description automatically generated

* Uses very highspeed backbone of fiber optics.

### Types of Computer networks:

Computer network based on its requirements can fall under below categories:

1. Geographical Span based
2. Interconnectivity based
3. Administration based
4. Architecture based

## Computer Network types:

Generally, networks are distinguished based on Geographical span, distinguished network can be as small as confined to a person devices to as large as the internet itself

Network classification based on geographical range falls in to below categories:

* PAN
* LAN – uses a LAN technology called internet and follows star topology
* MAN
* WAN
* Internetwork (internet)

### LAN technologies:

* Ethernet – widely deployed LAN technology
* Fast Ethernet
* Giga Ethernet
* Virtual LAN or VLAN

# Network Topologies:

An arrangement with which the computers and other devices in the network are connected to each other. A network topology can be a physical topology or a virtual topology, physical and virtual topologies can be in same or different network.

Types of Network Topologies:

* Point to Point topologies
* Bus topology
* Ring topology
* Mesh topology
* Star topology
* Daisy chain
* Hybrid topology
* Tree topology