**-Open system:   
A system which is connected to the network and is ready for communication.**

**Closed system:   
A system which is not connected to the network and can’t be communicated with.**

**Computer Network:   
An interconnection of multiple devices, also known as hosts, that are connected using multiple paths for the purpose of sending/receiving data or media.**

**Network Topology:   
The layout arrangement of the different devices in a network. Common examples include: Bus, Star, Mesh, Ring, and Daisy chain.**

**UNIQUE IDENTIFIERS OF NETWORK (MAC Address , Port)**

**Host name:**

**Each device in the network is associated with a unique device name known as Hostname.**

**Port:   
A port can be referred to as a logical channel through which data can be sent/received to an application.**

|  |  |
| --- | --- |
| Port Types | Range |
| Well known Ports | 0 – 1023 |
| Registered Ports | 1024 – 49151 |
| Ephemeral Ports | 49152 – 65535 |

**Socket:   
The unique combination of IP address and Port number together are termed as Socket.**

**IP address definition**

An IP address is a unique address that identifies a device on the internet or a local network. IP stands for "Internet Protocol," which is the set of rules governing the format of data sent via the internet or local network.

An IP address is a string of numbers separated by periods. IP addresses are expressed as a set of four numbers. Each number in the set can range from 0 to 255. So, the full IP addressing range goes from 0.0.0.0 to 255.255.255.255.

**Types of IP addresses**

**Consumer IP addresses**

**Private IP addresses**

**Public IP addresses**

**Shared IP addresses**

**Dedicated IP addresses**

Range of ip:

|  |  |  |
| --- | --- | --- |
| **Class** | **Range** | **Network Address** |
| A | **0-127** | **xxx** |
| B | 128-191 | xxx . xxx |
| C | 192-223 | xxx . xxx . xxx |

[Switches](https://www.cisco.com/c/en/us/solutions/small-business/networking/switches.html)

Switches are the foundation of most business networks. A switch acts as a controller, connecting computers, printers, and servers to a network in a building or a campus.

[Routers](https://www.cisco.com/c/en/us/solutions/small-business/networking/routers.html)

Routers connect multiple networks together. They also connect computers on those networks to the Internet. Routers enable all networked computers to share a single Internet connection, which saves money.

[Access Points](https://www.cisco.com/c/en/us/solutions/small-business/networking/wireless.html)

An access point\* allows devices to connect to the wireless network without cables. A wireless network makes it easy to bring new devices online and provides flexible support to mobile workers.

A computer network can be categorized by their size. A **computer network** is mainly of **four types**:



* LAN(Local Area Network) : Local Area Network is a group of computers connected to each other in a small area such as building, office.(twisted pair, coaxial cable, etc.)
* PAN(Personal Area Network) : Personal Area Network is a network arranged within an individual person, typically within a range of 10 meters.( Wired & Wireless Personal Area Network

)

* MAN(Metropolitan Area Network) : A metropolitan area network is a network that covers a larger geographic area by interconnecting a different LAN to form a larger network.
* WAN(Wide Area Network) : A Wide Area Network is a network that extends over a large geographical area such as states or countries.