**1.Hub,Switch,Router:**

**Hub:**

**All network devices connected together**

**It has multiple Ports.**

**It allows data packets to multiple ports .This leads to security concern.**

**Unnecessary traffic on the network and wastage of bandwidth.**

**Switch:**

**It also has multiple Ports which accepts Ethernet connection from multiple devices.**

**It is intelligent.**

**It store physical address of every device in the table.**

**When data packets sent to particular computer switch will look for matching ports and addresses and send to correct destination or port.**

**But-----to exchange data outside their own network a device needs to read IP address.So there comes Router.**

**Router:**

**Routes or forward data from one network to other based on IP address.**

**If data packet belong to its own network it allows or else it send to other devices.**

**DNS:**

**It resolves domain name to IP address**

**Computers are familiar with numbers than names.**

**But humans cannot memorize numbers so there comes domain names.**

**First domain name is searched in web browser it it cant find in cache memory it sents request to resolver server**

**If it still cant find then sent to Root server**

**If still cant find sends to TLD(top level domain)**

**At last sends to name server where it has every domain name in it.**

**IP address 2 parts:**

**IPv4:**

**It is of 32 bit.**

**This would be sufficient for future generation they taught while developing but it can only generate 4 billion unique address which is not sufficient.**

**IPV6:**

**It can generate 340 undecillion addresses.**

**But this cannot be read by machine so it needs to be converted to binary using 8 bit and it is hexadecimal 128 bit .**