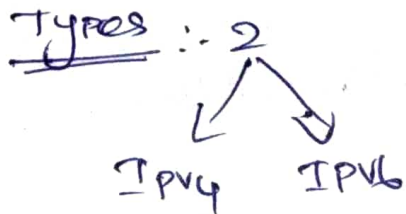
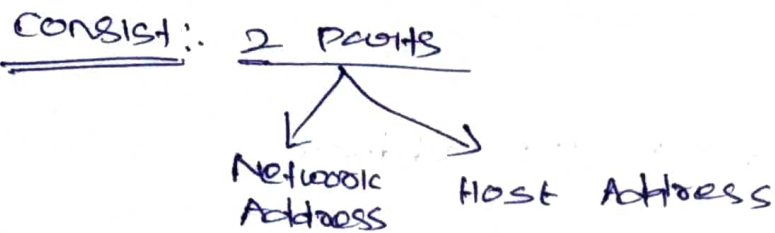


IP Address:

↳ A numeric address

↳ It's an identifier for a computer or device on a network.

↳ Every device has to have an IP address for communication purposes.



IPv4: 32 bit numeric address written as four numbers separated by periods

Ex! 66.94.29.13
 ↓
 Octet

* Numbers range from 0-255

* 4,294,967,296 possible unique addresses.

Computers & networks don't read IP addresses in this standard numeric format.

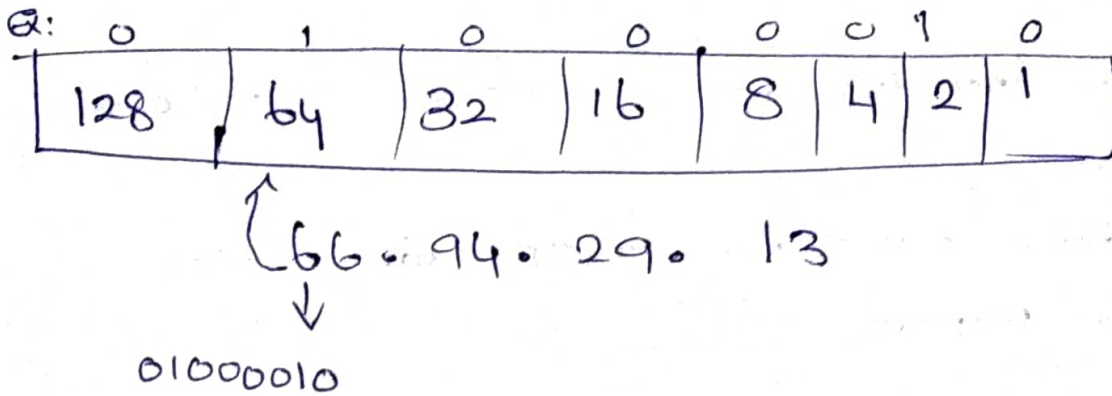
66.94.29.13

* They only understand numbers in a binary format

66 . 94 . 29 . 13

01000010 . 01011110 . 00011101 . 00001101

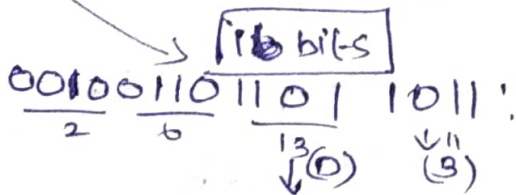
8 bit octet chart



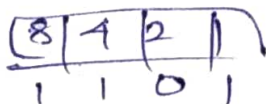
IPv6:

- Next generation of IP address.
- 128 bit hexadecimal address.
- 340 undecillion address. is possible.
- 8 sets of 16 bits
- 128 bit hexadecimal address.

Ex: Hexadecimal



- 10 → A
- 11 → B
- 12 → C
- 13 → D
- 14 → E
- 15 → F



Network Layer in the internet (IPv4 & IPv6)

* IPv4

IPv6

1) 32 bit address

128 bit address

2) It support manual & DHCP address configuration

auto & renumbering address configuration.

3) In IPv4 end to end connection integrity is unachievable

In IPv6 end to end connection integrity is achievable

4) It can generate 4.29×10^9 address space

IPv6 is quite large it can produce 3.4×10^{38} address space

5) Address representation is decimal

Hexadecimal

6) IPv4 consist 4 fields which are separated by dots (.)

IPv6 consists of 8 fields, which are separated by colon (:)

7) EX: .bb.94.29.13

EX: IPv6

2001:0000:3238:DFE1:0063:

0000:0000:FEFB.