

CN

Lecture Notes

May 6, 2025

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Chapter 1

Intro

1.1 Intro

1.1.1 Addresses

- Ip Addresses (32/128 bit)
- MAC Address (48 bit)
- port Address (16 bit)

1.1.2 Ip Address

it is a logical Address used to identify a device over a network
there are two versions of IP

- IPv4 32 bit
- IPv6 128 bit

there are two types of IP

- public Ip used for communication within a lan network
these ips are assigned by IANA (internet assigned number authority)
there are three class of private ip that can be assigned
class A : 10.0.0.0 to 10.255.255.255
class B : 172.16.0.0 to 172.31.255.255

class C : 192.168.0.0 to 192.168.255.255

- private ip
assigned by ISP

1.1.3 NAT network address translator

used to convert between public to private ip while packet is coming inside the network and vice versa

1.1.4 Representation of ip

- decimal/ dotted decimal
ip is represented by decimal numbers eg: 11.5.3.7
- binary representation
ip is represented in the form of zeros and ones
eg: 00011100.01101101.00011101.01010100

1.1.5 ip and ports

the ip is composed of network address/network id and host Address

Classes of ip

depending on the range of first octet the ip is divided into following Classes

- class A [0-127] (1 octet nid, 3 octet hid)
- class B [128-191] (2 octet nid, 2 octet hid)
- class C [192-223] (3 octet nid, 1 octet hid)
- class D [224-239] multicasting
- class E [240-255] reserved for future use

in binary representation first few bits will decide class

- 0- class A

- 10 - class B
- 110 - class C

1.1.6 default mask

set all the host bit of a class to obtain default mask

- class A : 255.0.0.0
- class B : 255.255.0.0
- class C : 255.255.255.0

1.1.7 casting

sending packets over network

Unicasting : sending packet from one host to another

Broadcasting : sending packets from one host to multiple host