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Introduction to IPv4 for Competitive Exams 2021

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Topics

- Introduction to IPv4
- Address format
- Addressing modes
 - Unicast addressing mode
 - Broadcast addressing mode
 - Multicast addressing mode
- Addressing classes

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Introduction to IPv4

- Internet Protocol Version 4 (IPv4) is the fourth version of the Internet Protocol
- It is used in networks for communication purpose.
- It is a widely used protocol than others
- It is used in LANs like Ethernet.
- IPV4 is a connectionless protocol but provides a logical connection between communicating devices.
- While communication, a unique identity is given to every device that is being communication with other workstation or system for exchange of data.

Introduction to IPv4 Cont

IPv4 uses 32-bit addresses for Ethernet communication in five classes: A, B, C, D and E.

8. Dotted Notation for IPV4

Class	Notation

Class A	0 - 127
Class B	128 - 191
Class C	192 - 223
Class D	224 - 239
Class E	240 - 255
<i>Table of Dotted Notation for IPV4</i>	

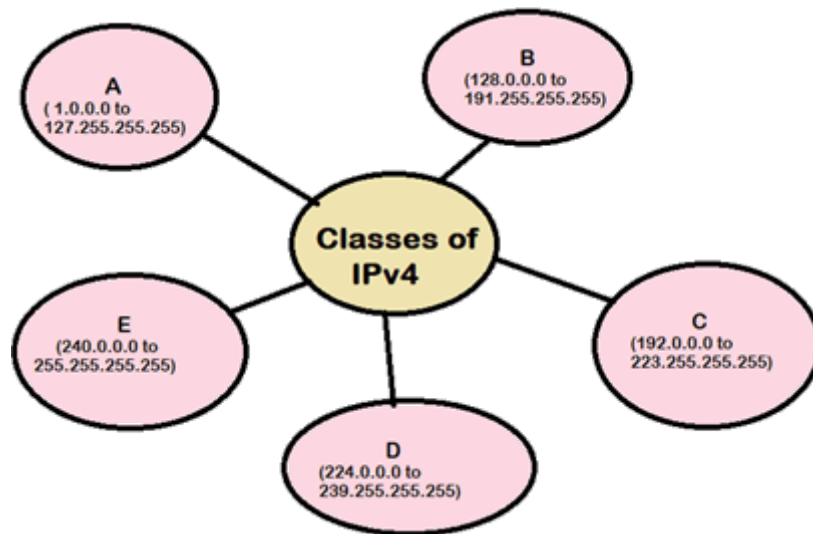
Address Format

- IPv4 address is of 32 bits , divided into four parts separated by a dot (.) .
- Each part is called octet as it contains 8 bit binary number.
- The value in each octet ranges from 0 to 255 decimal, or 00000000 – 11111111 binary.
- Example:

192 . 168 . 4 . 10 (decimal)
11000000.10101000.00000100.00001010 (binary).

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IPv4 Address Classes



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IPv4 Address Classes

1. Class A:

1.0.0.1 to 126.255.255.254

Supports 16 million hosts on each of 127 networks.

2. Class B:

128.1.0.1 to 191.255.255.254

Supports 65,000 hosts on each of 16,000 networks.

3. Class C:

192.0.1.1 to 223.255.254.254

Supports 254 hosts on each of 2 million networks.

4. Class D:

224.0.0.0 to 239.255.255.255

Reserved for multicast groups.**5. Class E:**

240.0.0.0 to 254.255.255.254

Reserved for future use, or research and development purposes.

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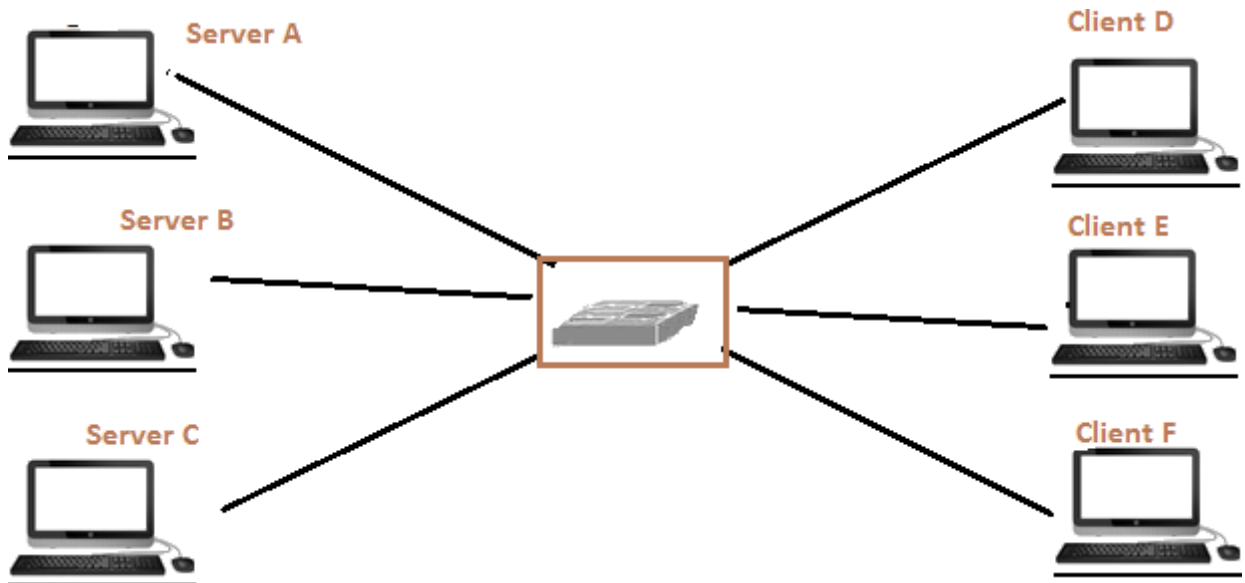
Addressing Modes

- Ipv4 supports 3 types of addressing modes:
- Unicast Addressing mode
- Broadcast Addressing mode

- Multicast Addressing mode

1. Unicast Addressing Mode

- Data is sent to only destination host.



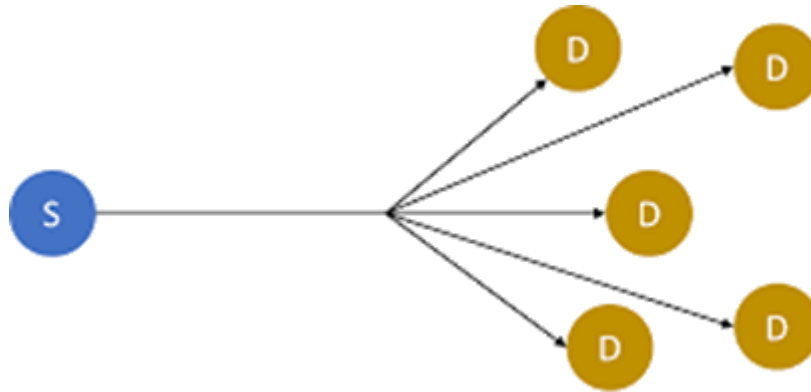
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The Destination address field contains 32 bit address of destination as an unique identification to reach the location.

- Here sender i.e.. client will send the packet to receiver i.e.. target or the target can be the server also. Here then it will represent the client server architecture.

2. Broadcast Addressing Mode

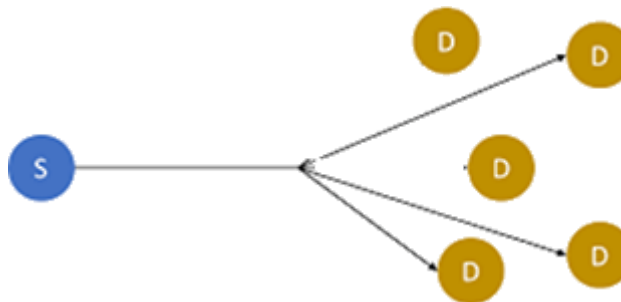
- The packet is sent to all the hosts in a network segment.
- The Destination Address field contains a special broadcast address, i.e.. **255.255.255.255**.
- In this, the client sends a packet, which is received by all the Servers .



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3. Multicast Addressing Mode

- It is a combination of the unicast and broadcast mode.
- In this packet, the Destination Address contains an address which starts with 224. x. x. x and the packet can be received by multiple hosts.



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MCQ

Q1. Which class of IPv4 is used for multicasting purpose?

Options:

A. Class A

B. Class D

C. Class B

D. Class E

Answer: B

Q2. Internet Protocol version 4 (IPv4) delivery mechanism is used by?

Options:

A. IEEE

B. TCP/IP

C. Internet protocols

D. UDP

Answer: B

- We learnt about:

#IntroductiontoIPV4

AddressFormat

AddressClasses

Unicastcommunication

#Broadcastcommunication

#MulticastCommunication

- We learn about other encoding techniques in further videos.

-Mayank

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