

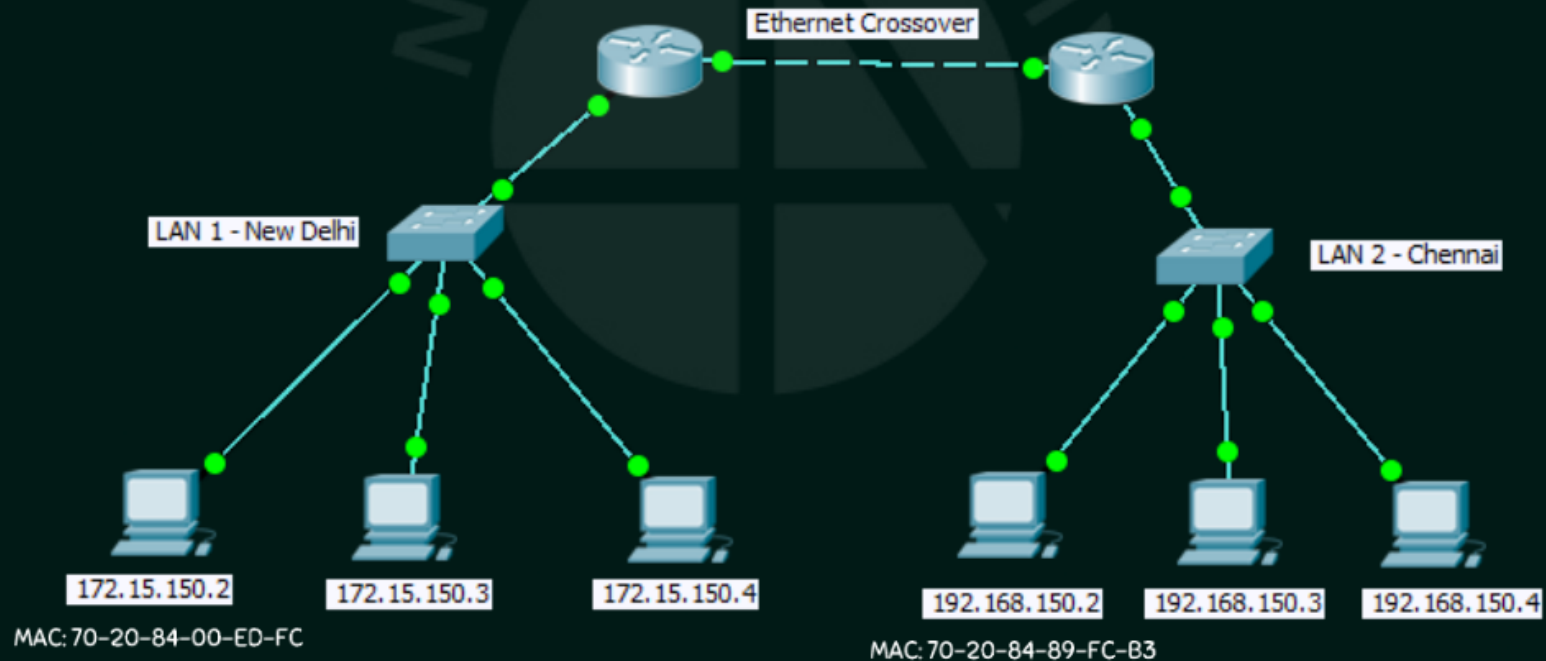
OUTCOMES

Upon the completion of this session, the learner will be able to

- ★ Understand the basics of IP addressing.
- ★ Know how to see the IP address in real device.
- ★ Identify valid and invalid IP addresses.

IP ADDRESS

Every node in the computer network is identified with the help of IP address.



IP ADDRESS (IPV4)

- ★ Every node in the computer network is identified with the help of IP address.
- ★ Logical address.
- ★ Can change based on the location of the device.
- ★ Assigned by manually or dynamically.
- ★ Represented in decimal and it has 4 octets (x.x.x.x).
- ★ 0.0.0.0 to 255.255.255.255 (32 bits).

ACTIVITY TIME

Identify the valid and invalid IP addresses in the following set and place the options in the appropriate columns.

- a. 24.25.26.8
- b. 10.3.156.256
- c. 0.0.0.0
- d. 255.255.255.255
- e. 100.2.6.345.456
- f. 16.2e.45.67

Valid IP Addresses	Invalid IP Addresses
a, c, d	b, e, f

OUTCOMES

Upon the completion of this session, the learner will be able to

- ★ Understand the basics of MAC addressing.
- ★ Understand the difference between IP address and MAC Address.
- ★ See the MAC address in real devices.

MAC ADDRESS

MAC stands for Media Access Control.

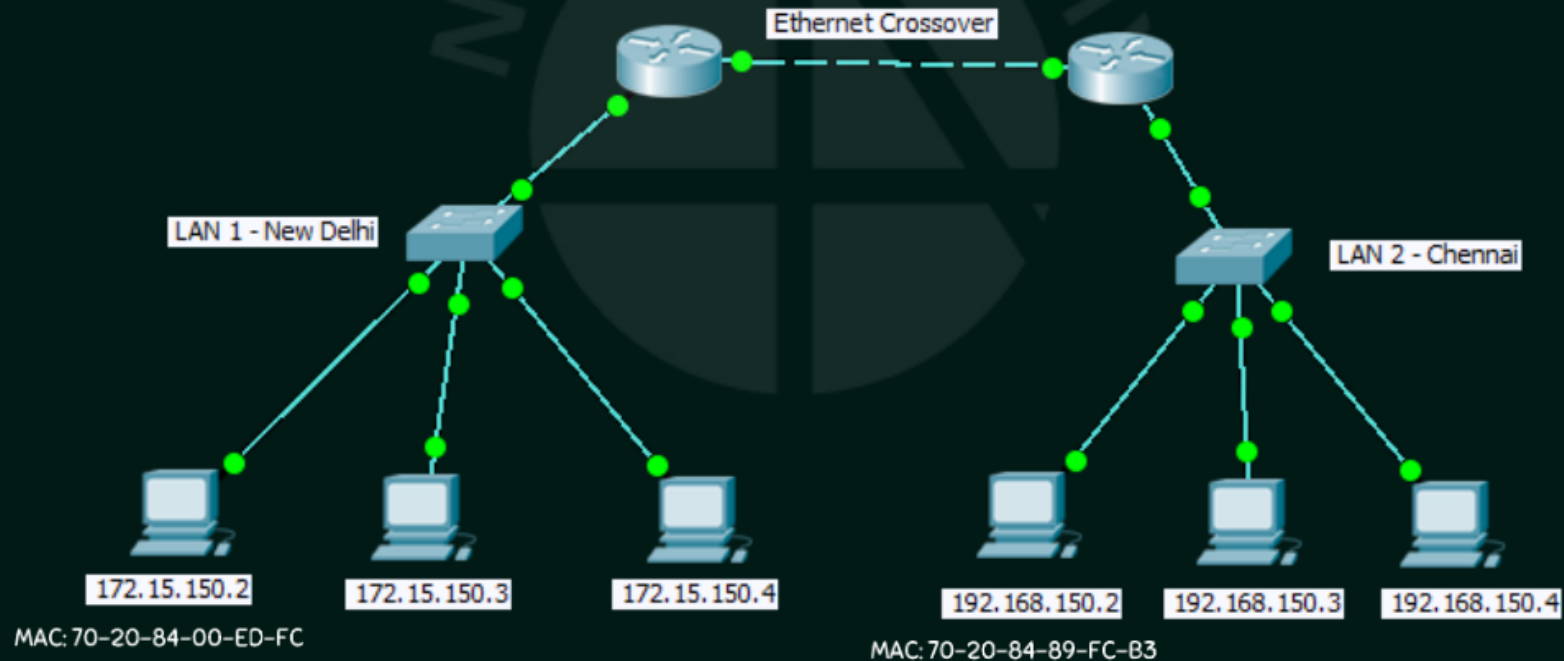
Every node in the LAN is identified with the help of MAC address.

IP Address = Location of a person.

MAC Address = Name of the person.

MAC ADDRESS

- ★ Every node in the LAN is identified with the help of MAC address.

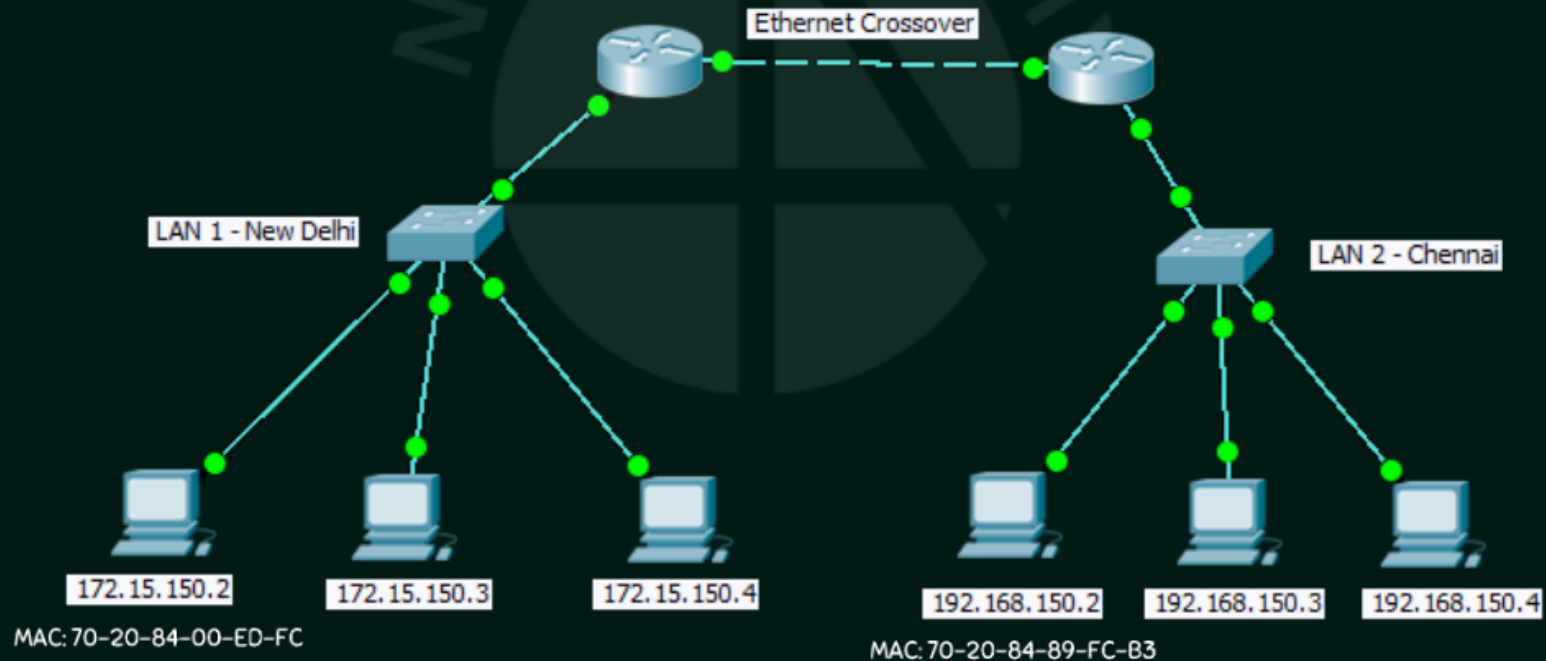


MAC ADDRESS

- ★ Every node in the LAN is identified with the help of MAC address.
- ★ Physical address or Hardware Address.
- ★ Unique.
- ★ Cannot be changed.
- ★ Assigned by the manufacturer.
- ★ Represented in hexadecimal.
- ★ Example: 70-20-84-00-ED-FC (48 bits).
- ★ Separator: hyphen(-), period(.), and colon(:).

MAC ADDRESS

- ★ Every node in the LAN is identified with the help of MAC address.



IP ADDRESS Vs MAC ADDRESS

IP Address	MAC Address
Needed for communication.	Needed for communication.
32 bits.	48 bits.
Represented in Decimal.	Represented in hexadecimal.
Router needs IP Address to forward data.	Switch needs MAC address to forward data
Example: 10.10.23.56	Example: 70-20-84-00-ED-FC

OUTCOMES

Upon the completion of this session, the learner will be able to

- ★ Understand the basics of Port addressing (Port number).
- ★ Know three key points to ponder.
- ★ See port number in real devices.

ANALOGY



ANALOGY



DERIVATIONS FROM ANALOGY

Reaching our city = Reaching our network. (IP Address)

Reaching our Apartment = Reaching the host. (MAC Address)

Reaching the right person = Reaching the right process. (Port Address)

PORT ADDRESS OR PORT NUMBER

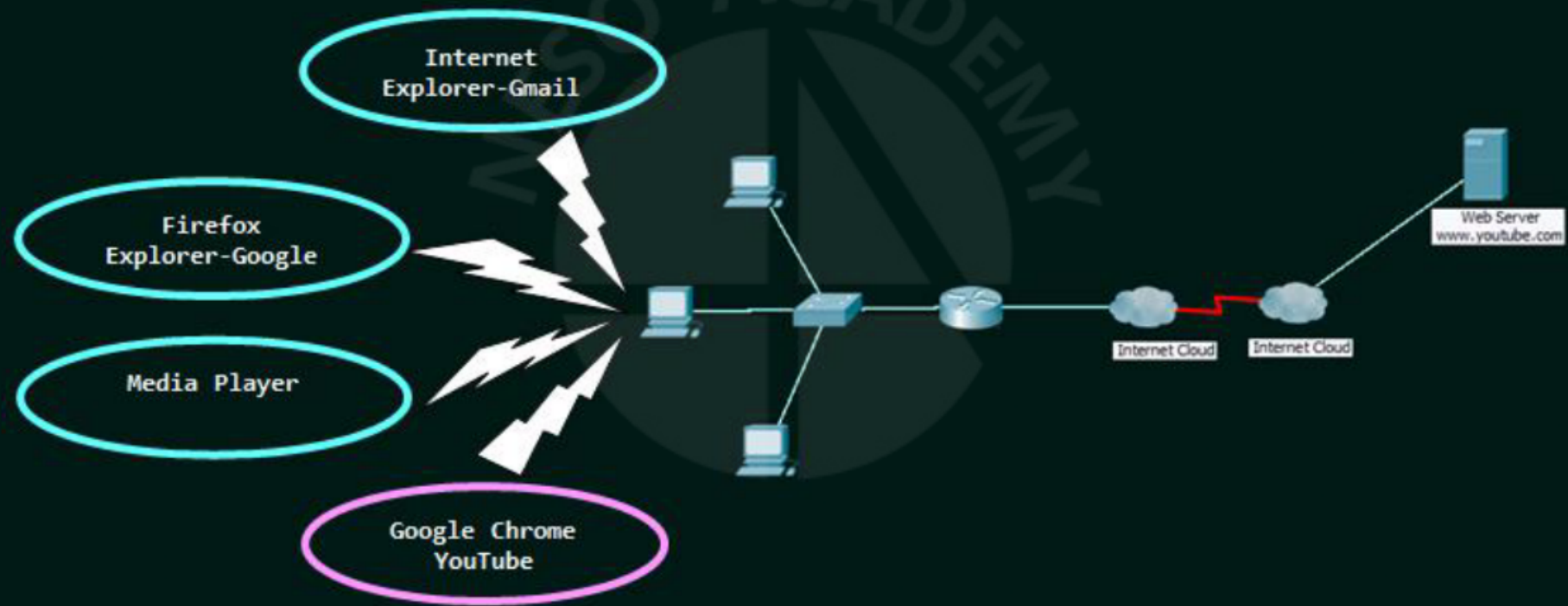
- ★ In a node, many processes will be running.
- ★ Data which are sent/received must reach the right process.
- ★ Every process in a node is uniquely identified using port numbers.
- ★ Port = Communication endpoint.
- ★ Fixed port numbers and dynamic port numbers (0 – 65535)

Example:

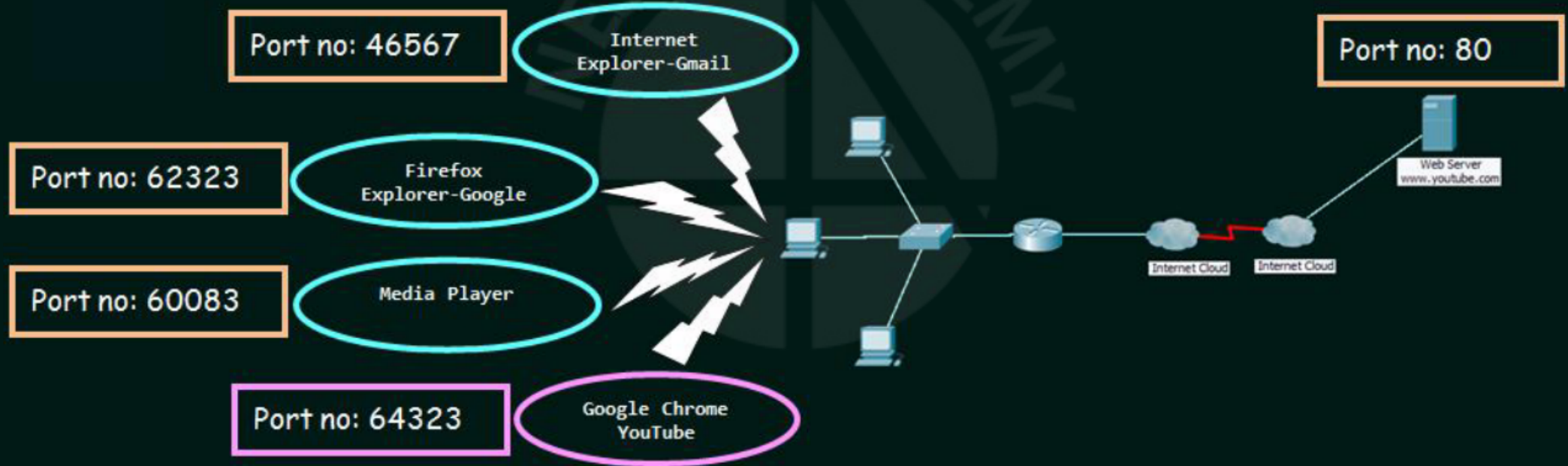
Fixed port numbers : 25, 80 etc.,

OS assigned dynamic port numbers : 62414.

PORT ADDRESS OR PORT NUMBERS



PORT ADDRESS OR PORT NUMBERS



3 KEY POINTS TO PONDER

Before sending the data, any node must

- ★ Attach source IP address and destination IP address.
- ★ Attach source MAC address and destination MAC address.
- ★ Attach source port number and destination port number.