BROADCAST ID

Broadcast Id :

* A broadcast ID, most commonly known as a broadcast address, is a special network address that sends a message to all devices on a specific local network.
* This one-to-many communication saves resources because the sender doesn't need to know the individual addresses of each recipient.

How broadcast IDs are used

* Network discovery: Devices use broadcast messages to find other systems on the network.
* Address resolution: The ARP protocol uses broadcasts to discover the MAC address of a device on the local network before sending data.
* Configuration updates: Network administrators can use broadcast messages to push configuration changes to all devices on a network.
* Protocol communication: Some routing protocols, like RIP, use broadcasts to exchange routing information.

IPv4 broadcast addresses :

Pv4 uses two main types of broadcast addresses.

1. Directed broadcast address

* A directed broadcast sends a message to all devices on a specific, remote network segment. Routers will forward packets sent to a directed broadcast address.
* Example: For the network 192.168.1.0 with subnet mask 255.255.255.0, the directed broadcast address is 192.168.1.255. Any packet sent to this address from outside the network will be received by all devices on that network.

2. Limited broadcast address

* A limited broadcast sends a message to every device on the local network segment. Packets addressed this way are never forwarded across a router. This is used for functions like DHCP requests, where a device needs to communicate with a server on its immediate network.
* Example: The IP address 255.255.255.255 is the limited broadcast address.