RECAP/

IPv4 Unicast, Broadcastm and Multicast

Unicast

**One-to-one communications**

Unicast packet has   
 destination IP address that is a unicast address which goes to a single recipient

Source IP address can only be a unicast address bcs the packet can only originate from a single source

The IPv4 unicast addresses are in the range of 1.1.1.1 to 223.255.255.255

Broadcast

**One-to-all communications**

Broadcast packet has

Destination IP address with all ones (1s) in host partition, or 32 one (1) bits

This packet must be processed by all devices in the same broadcast domain

It may be **directed**

Is sent to all hosts on a specific network

or

**limited**

Is sent to 255.255.255.255

Multicast

Reduces traffic by allowing a host to send a single packet to a selected set of hosts that subscribe to a multicast group

Multicast packet has

Destination IP address that is a multicast group  
 (IPv4 has reserved the 224.0.0.0 to 249.255.255.255 for this)

When an IPv4 host subscribes to a multicast group, the host processes packets addressed to this multicast address, and packets addressed to its uniquely allocated unicast address

Types of IPv4 addresses

Public IPv4

Addresses which are globally routed between ISP routers  
 BUT NOT ALL ADDRESSES CAN BE USED

Private addresses   
 they are blocks of addresses that are used by most organiztions to assign IPv4 addresses to internal hosts

**They are not globally routable   
 before ISP can forward this packet, it must translate the source IPv4 address, which is a private address, to a public IPv4 address using NAT**