Campus Networking Cheat Sheet

Sending IP packets:

Destination inside the subnet

1. Sender ARP's for destination's MAC Address or uses cached address
2. Sender sends:
    a. Frame Source: Sender MAC Address
    b. Frame Destination: Destination MAC Address
    c. Packet Source: Sender IP Address
    d. Packet Destination: Destination IP Address

Destination outside the subnet

1. Sender sends:
    a. Frame Source: Sender MAC Address
    b. Frame Destination: **Default Gateway MAC Address**
    c. Packet Source: Sender IP Address
    d. Packet Destination: **End Destination IP Address**

Router Decision Making

Routers route based on **most specific match**.

Example Routing Table:

0.0.0.0/0	Gig0/0
172.20.0.0/16	Gig0/1
172.20.0.0/24	Gig0/2
172.20.1.0/24	Gig0/3
172.20.1.128/25	Gig0/4

Example packet destinations:

1. 172.20.1.155
    a. This destination matches 4 of the subnets in the routing table.
        i. 0.0.0.0/0
        ii. 172.20.0.0/16
        iii. 172.20.1.0/24
        iv. 172.20.1.128/25
    b. However, the most specific match is 172.20.1.128. So, the router sends the packet out on Gig 0/4.

2. 192.168.0.17
    a. This destination matches 1 of the subnets in the routing table.
        i. 0.0.0.0/0
    b. 0.0.0.0/0 is the most specific match. So, the router sends the packet out on Gig 0/0.