

Network Devices

Cisco Devices

Modes:

- > User (basic access)
- # Privileged (run show commands)
- (config)# (config changes)

S1> enable	
S1# configure terminal	
S1(config)# vlan 10	
S1(config-vlan)# name SALES	
S1(config-vlan)# exit	
S1(config)# end	
S1#	
S1# show vlan	
R1# show run	
S1# show ip interface brief	
S1# show interfaces	

- Device configuration such as hostname is stored in running config
- To save, "copy running-config startup-config"

ICMP PDU (Ping Simulation)

PC (Office Admin) > SW (Office SW1) > Printer0

1. Last: (Blank), At: Office-Admin (ICMP)

- Outbound:
 - Layer 3:
 - ICMP echo request
 - Source IP = unspecified, device sets to port's IP
 - Destination IP in same subnet, device sets next hop to destination IP
 - Layer 2:
 - Next hop = unicast, looks it up in ARP table
 - Found in ARP, ARP process sets frame destination accordingly
 - Layer 1:
 - FastEthernet0 sends the Frame

2. Last: Office-Admin, At: Office-SW1 (ICMP)

- Inbound:
 - Layer 1:

- Receives Frame
- Layer 2:
 - Frame source MAC address not in MAC table, adds it
 - (Unicast Frame) look up Destination MAC address in MAC table
- Outbound:
 - Layer 2:
 - Not in table, Floods frame to all ports in VLAN except inbound
 - Layer 1:
 - Ports 1, 2, 3, 4, 5, 6 send Frame

3. Last: Office-SW1, At: Office-R1 (ICMP)

- Inbound:
 - Layer 1:
 - Receives Frame on G0/0/0
 - Layer 2:
 - Subinterface G0/0/0.20 accepts from this VLAN
 - Frame destination MAC does not match receiving port's MAC
 - Drops the Frame

4. Last: Office-SW1, At: Printer0 (ICMP)

- Inbund:
 - Layer 1:
 - Receives Frame on FE0
 - Layer 2:
 - Frame Destination MAC = receiving port's MAC
 - De-capsulate PDU from the Frame
 - Layer 3:
 - Packet Destination IP = Device Destination IP
 - De-capsulate Packet, identifies ICMP, processes it
 - Identifies as Echo request message
- Outbound:
 - Layer 3:
 - ICMP process sends Echo reply
 - Destination IP = same subnet, sets next hop to Destination IP
 - Layer 2:
 - Next hop = unicast, looks it up in ARP table
 - Found in ARP, ARP sets Frame desination MAC to the same
 - Encapsulates PDU into Frame
 - Layer 1:
 - FE0 sends Frame

5. Last: Printer0, At: Office-SW1 (ICMP)

- Inbound:
 - Layer 1:
 - GE1/0/17 Receives Frame
 - Layer 2:
 - Frame source MAC is not in MAC table, adds it
 - Unicast Frame, looks up destination MAC in table
- Outbound:
 - Layer 2:
 - Outgoing port = access port
 - Switch sends the frame out of that port
 - Layer 1:
 - GE1/0/19 sends the Frame

6. Last: Office-SW1, At: Office-Admin (ICMP)

- Inbound:
 - Layer 1: FE0 Receives Frame
 - Layer 2:
 - Frame destination MAC = Receiving port MAC
 - Decapsulates Frame

- Layer 3:
 - Packet destination IP = device IP
 - decapsulates Packet
 - Identifies ICMP Packet
 - ICMP process received Echo reply message

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