Ellie Parobek
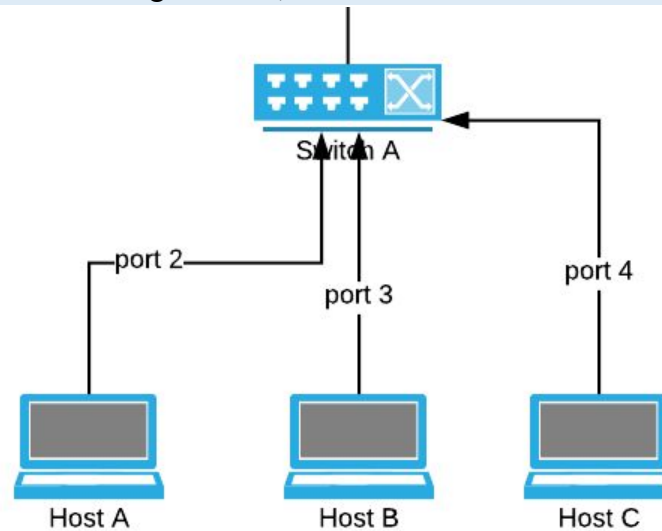**Switching and Source Address Table Exercise**

Exercise 1: Consider the following network, labeled Small LAN:

Small LAN

1. When Host A pings Host B, what are the four messages that are sent (in order)? Fill in the following table to reflect each of the four messages.

Message #	Source Mac	Destination Mac	Unicast/ Multicast/ Broadcast	Message & Purpose Ex. ICMP Echo Req – testing request	Nodes that can see this message
1	A	unknown/all	broadcast	ARP request-to learn MAC address	all nodes
2	B	A	unicast	ARP response-send IP & MAC address	A, B
3	A	B	unicast	frame- sends packet to B	A, B
4	B	A	unicast	packet recieved	A, B

2. After the first message is sent, what does the SAT look like on Switch A?

| Switch Port	Mac Address	Explanation
2	A	message sent by A

Switch A

3. After the second message is sent, what does the SAT look like on Switch A?

Switch Port	Mac Address	Explanation
2, 3	A, B	message sent by B

Switch A

4. What would cause Host C's MAC address to be entered into the SAT on Switch A?
    If host C had the MAC address A was looking for and sent a response or host C sent its own ping / broadcast.

Exercise 2: Now let's consider a slightly larger network, labeled Interconnect LANs:

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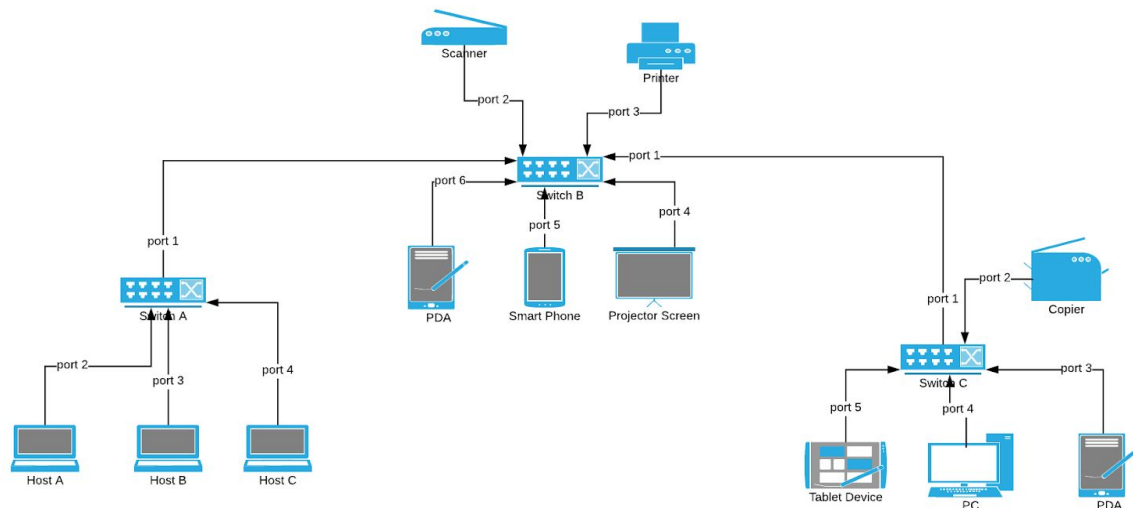
Interconnected LANs

5. Consider that all tables (ARP and SATs) are empty on all devices. Again, when Host A pings Host B, what are the four messages that are sent (in order)? Fill in the following table to reflect each of the four messages.

Message #	Source Mac	Destination Mac	Unicast/ Multicast/ Broadcast	Message & Purpose Ex. ARP request – discovering MAC address	Nodes that can see this message
1	A	unknown/all	broadcast	ARP request- to learn MAC address	all nodes including switches & their nodes
2	B	A	unicast	ARP response- send IP & MAC address	A, B
3	A	B	unicast	frame- send packet to B	A, B
4	B	A	unicast	packet received	A, B

6. After the first message is sent, what does the SAT look like on Switch A?

Switch Port	Mac Address	Explanation
2	A	message sent by A

Switch A

7. After the second message is sent, what does the SAT look like on Switch A?

Switch Port	Mac Address	Explanation
2, 3	A, B	message sent by B

Switch A

8. After the first message is sent, what does the SAT look like on Switch B?

Switch Port	Mac Address	Explanation
7	A	broadcast sent by A

Switch B

9. After the second message is sent, what does the SAT look like on Switch B?

Switch Port	Mac Address	Explanation
7	A	doesn't receive 2nd msg

Switch B

10. After the first message is sent, what does the SAT look like on Switch C?

Switch Port	Mac Address	Explanation
1	A	broadcast sent by A

Switch C

11. After the second message is sent, what does the SAT look like on Switch C?

Switch Port	Mac Address	Explanation
1	A	doesn't receive 2nd msg

Switch C

12. What would cause Host C's MAC address to be entered into the SAT on Switch A?
    If host C had the MAC address A was looking for and sent a response or host C sent its own ping / broadcast.

13. What would cause Host C's MAC address to be entered into the SAT on Switch B?
    Host C sending a ping / broadcast or responding to any of the nodes on switch B.