

Name _____ Period _____

Skill 10.01 Exercise 1

- Obtain an IP address from Ms. Pluska
- Obtain a 3x5 card from Ms. Pluska
- When instructed to do so, locate the IP address of another student in the class who you would like to send a message to
- On your 3x5 card create a message. This can be a word, or a picture, anything you want. But it should not take more than 2 minutes to create.
- Cut your message up into 6 to 8 pieces
- On the back of each piece write the IP address of the student who you are sending your message to.
- When instructed to do so, begin passing the pieces of your message around the room. When you pass your pieces you must consider the following rules
 - You can only send one piece at a time
 - You cannot get out of your seat
 - You can only send your message to a person within an arms reach
 - If you receive a piece with your IP address, keep it
 - If you receive a piece that is not your IP address, continue to pass it to another person
- Continue to pass pieces around the room, until all pieces make it to their intended recipient
- Once Ms. Pluska stops the simulation, try to reconstruct the message or image you were sent

Did the pieces of your message come to you in order? Why not?

How did you know how to reconstruct the message or image? (if it was a drawing, the correct order was probably pretty obvious, but what if your message was a word like “dear”, which could also be reconstructed as “read”? How do you know which word the sender intended?)

How might you improve upon the protocol to ensure that you could receive the complete message. For example, what if you knew how many packets you were supposed to receive as they were being delivered – 1 of 8, 3 of 8, 6 of 8, etc. Or, what if you knew who the sender was so you could inform them of what’s missing and needs to be re-sent? Write your protocol below. Your protocol should include as much detail as possible to ensure an entire message could be sent.

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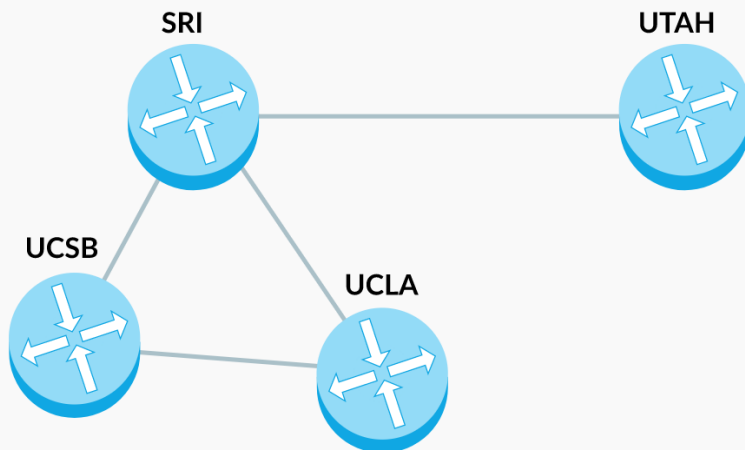
Skill 10.02 Exercise 1

In the Internet Protocol (IP), computers send messages to each other through a network of routers, with each message split up into packets. How do routers determine where a packet needs to go?

- (a) Routers look up the packet ID in a database, and find the destination address in the database.
- (b) Routers look at the IP packet header and use the destination address field.
- (c) Routers ask DNS servers for the final destination of each packet.
- (d) Routers make best guesses based on the content of the packet data.
- (e) Routers wait for subsequent packets that contain the destination address.

Skill 10.03 Exercise 1

The ARPANET was the precursor to the Internet, the network where Internet technology was first tested out. It got started in 1969 with just four computers connected to each other. This is a map of ARPANET in 1969:



How many routes are there between Utah and UCLA?

Skill 10.04 Exercise 1

The 1970 ARPANET was not very fault tolerant. With so few connections between nodes, a failure could easily disrupt the ARPANET. If a computer wanted to send a message from Utah to BBN, which connections definitely needed to stay available?

