Left Neighbor: ———————————— Right Neighbor: ————————————

This is a closed book quiz
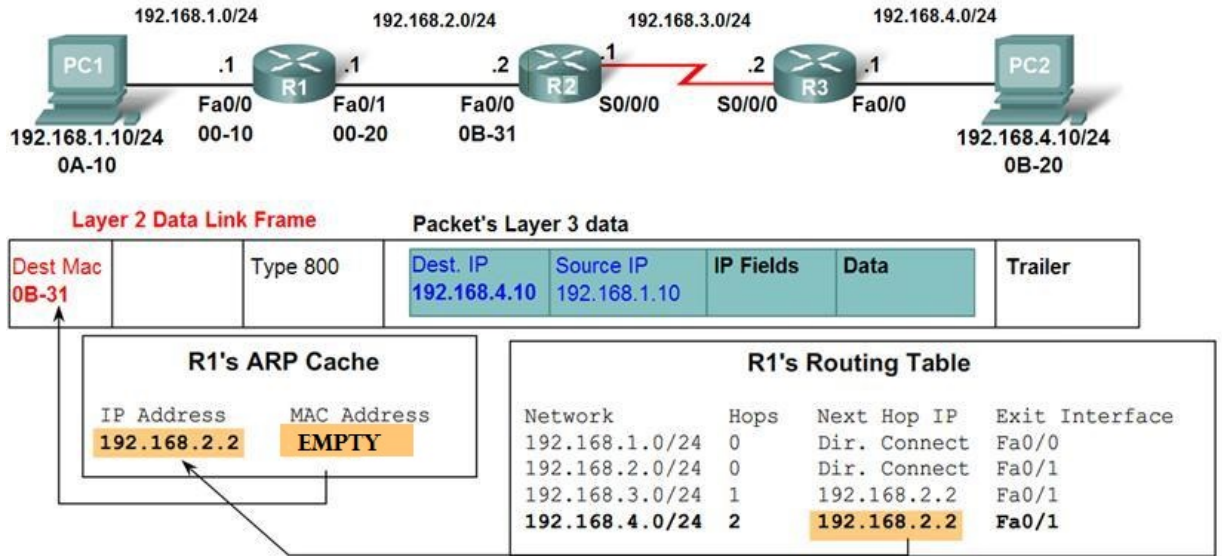
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(10 points) On the opposite side is a familiar picture . Describe the (approximately 8) steps that take place on Router 1 (R1) when it receives an Ethernet frame that originated at PC1 and contains a datagram bound for PC2. To get full credit, you have to correctly use these terms in your steps: *MAC address, IP address, Routing Table, decapsulate, encapsulate, Layer 2, Layer 3, ARP, broadcast.* **BE SUCCINCT!** (TAs: 8 points for right concept, and 2 points for stating it directly and concisely.)

1.R1 receives the package check the destination MAC address (R1 MAC), save the package.

2.R1 decapsulate the layer two package to get the layer 3 package.

3.R1 check the destination IP address (PC2 IP) in layer 3 package, consult its routing table and see the next hop is R2.

4.R1 then check the ARP cache see there is no MAC address matching R2 IP address.

5.R1 broadcast a layer 2 package to request the MAC address of R2.

6.R1 wait and receive the reply from R2 to know the MAC address of R2

7.R1 capsulate the original layer 3 package into a new layer 2 package with the destination MAC address(layer 2 destination address) as R2.

8.R1 send the package.