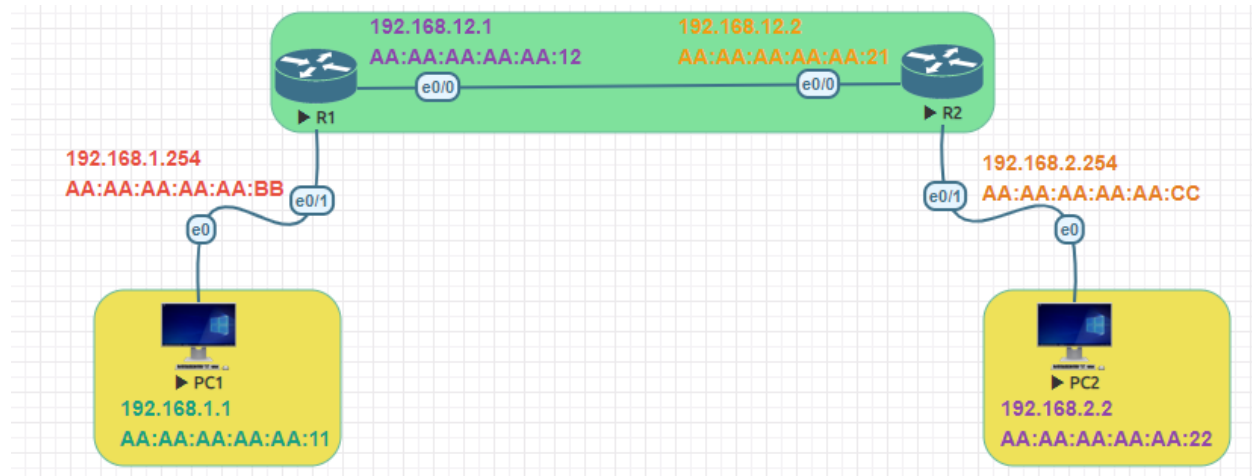


## IP Routing:



### The PC1 host has a Simple Steps to Make.

- o Is the destination on the local subnet.
- o Check ARP table for destination IP address, if empty, send an ARP request.
- o Is the destination on a remote subnet.
- o Check ARP table for default gateway IP address, if empty, send an ARP request.

Source: aaaa:aaaa:a11	Destination: aaaa:aaaa:a11	Source: 192.168.1.1	Destination: 192.168.2.2
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### The Router has to Perform a Number of Tasks:

- o When it receives an Ethernet frame, check if the FCS is correct. If not, drop the frame.
- o Check if the destination address of the frame is:
  - o Destined to our MAC address.
  - o Destined to a broadcast address of the subnet our interface is in.
  - o Destined to a multicast address that we listen to.
- o De-encapsulate the IP packet from the frame, discard the Ethernet frame.
- o Look for a match in the routing table for the destination IP address.
- o Figure out what the Outgoing interface and optionally, the next hop IP address is.
- o Decrease the TTL (Time to Live) field in the IP header, recalculate the header checksum.
- o Encapsulate the IP packet in a new Ethernet frame.
- o Check the ARP table for the destination IP address or next hop IP address.
- o Transmit the frame.

Source: aaaa:aaaa:a12	Destination: aaaa:aaaa:a21	Source: 192.168.1.1	Destination: 192.168.2.2
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