



This scenario provides a clear example of how Ethernet switching operates at the Layer 2 level, handling frames before they reach the Layer 3 packet stage.

If **PC1** wants to ping **PC3**, the following events occur in sequence:

1. **ICMP Echo Request Initialization:**
 - PC1 initiates an ICMP echo request to PC3, intending to send a ping.
2. **ARP Request from PC1:**
 - Since PC1 doesn't yet know PC3's MAC address, it sends an ARP request to resolve PC3's IP address. This ARP request is a broadcast, meaning it will go to all devices on the same network segment.
 - The ARP request reaches **PC2**; however, PC2 is not the target and therefore drops the frame.
3. **Switch Forwarding the ARP Request:**
 - The switch then forwards PC1's ARP request to other connected devices, including **PC4** and **PC3**.
 - **PC4** is not the intended recipient and drops the frame, while **PC3** recognizes its own IP address in the request and responds.
4. **ARP Reply from PC3:**
 - PC3 replies with an ARP response, a direct unicast message containing its MAC address, sent specifically to PC1.
 - The switch receives this ARP reply and updates its MAC address table with the location of PC3's MAC address, ensuring efficient forwarding in the future.
5. **ICMP Echo Request and Reply:**
 - With PC3's MAC address now known, PC1 sends the ICMP echo request as a unicast frame directly to PC3.
 - PC3 receives this request and responds with an ICMP echo reply, which the switch forwards directly to PC1 using its MAC address table.

To Show mac-address table the command is `#show mac address-table` / Clear: `#Clear mac address-table`. They are kept for 5 minutes then are cleared automatically.