LAB-03

Create the following scenario in eNSP with the mentioned IP addresses. Please note the MAC address may vary system to system, mention your MAC addresses. Ping PC3 from PC1 and explain how the ARP table would be maintained and what would be the role of PC2 in this process. Also explain the difference between the static and dynamic ARP entries.

Ping PC3 from PC1 and ARP Table Maintenance

When **PC1 (192.168.1.1)** pings **PC3 (192.168.1.3)**, the following process occurs:

1. **PC1 Checks ARP Table:**
   - PC1 first checks its ARP table to see if it already has the MAC address of PC3.
   - If it doesn't, it sends an **ARP Request** as a broadcast (`FF:FF:FF:FF:FF:FF`) to all devices in the network.
2. **ARP Request and Response:**
   - The ARP request is received by **PC2** and **PC3**.
   - **PC2 ignores the request** because it is not the target.
   - **PC3 (192.168.1.3)** recognizes the request and responds with an **ARP Reply**, sending its MAC address (`54-89-98-56-6B-D9`) directly to PC1.
3. **Updating ARP Table:**
   - Upon receiving the ARP Reply, PC1 updates its **ARP table** by mapping PC3's **IP address to its MAC address**.
   - Now, PC1 can send the **ICMP Echo Request (ping request)** directly to PC3's MAC address.
4. **ICMP Response:**
   - PC3 processes the ICMP Echo Request and responds with an **ICMP Echo Reply** back to PC1.

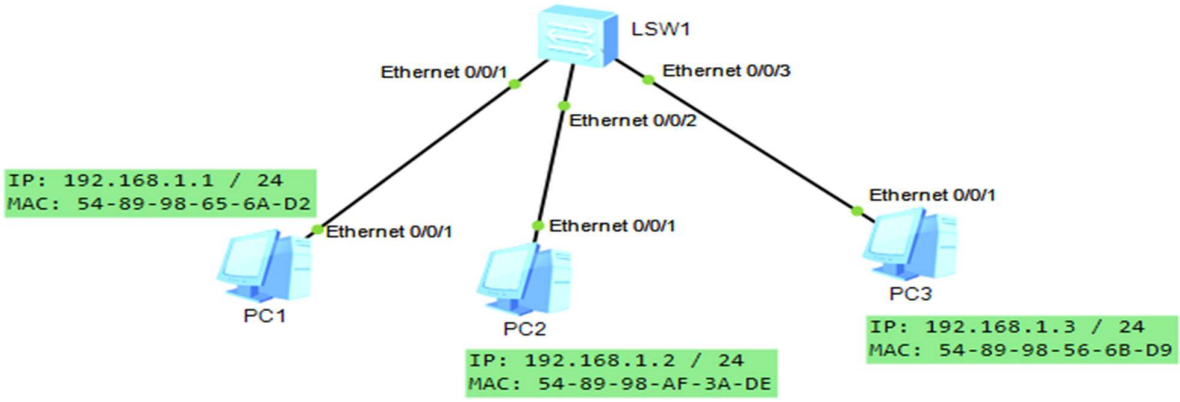
Role of PC2 in This Process

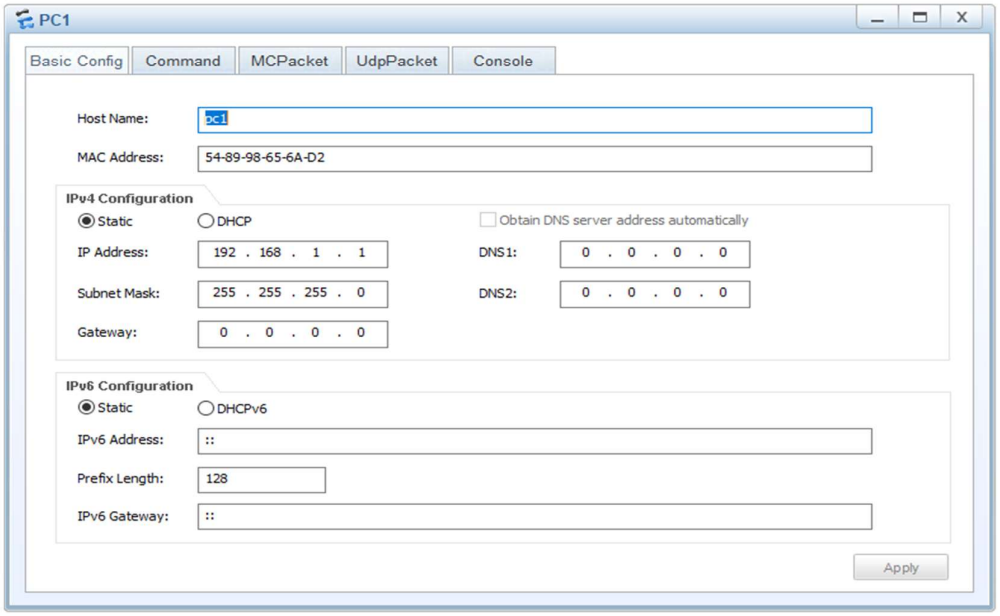
PC2 does not play any active role in the ARP resolution process. It only receives the ARP Request broadcast but does not respond since the request is for PC3's IP address. However, if PC2 had recently communicated with PC3, it might already have PC3's MAC address in its ARP table.

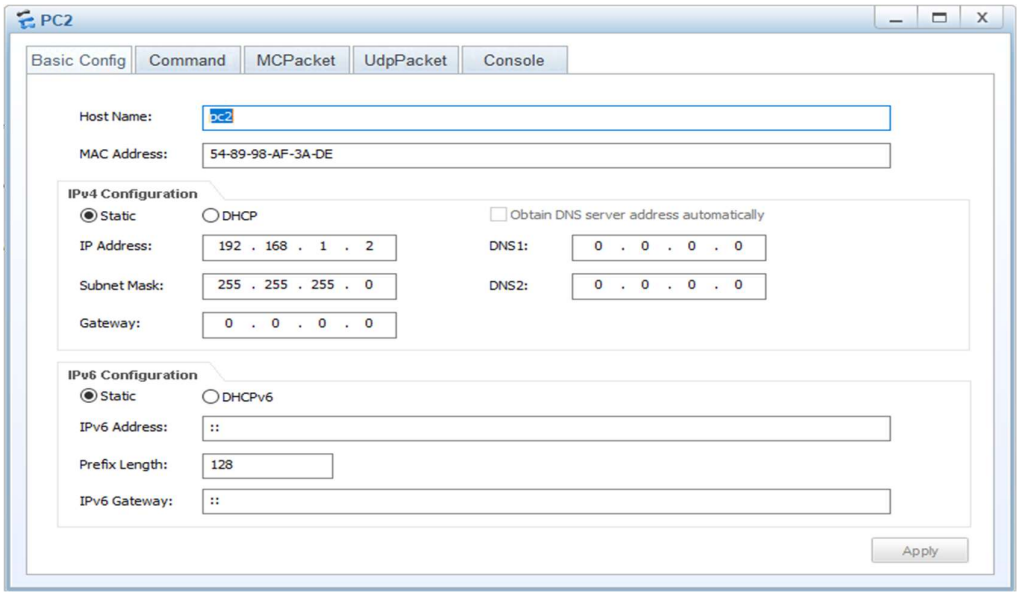
Difference between Static and Dynamic ARP entries

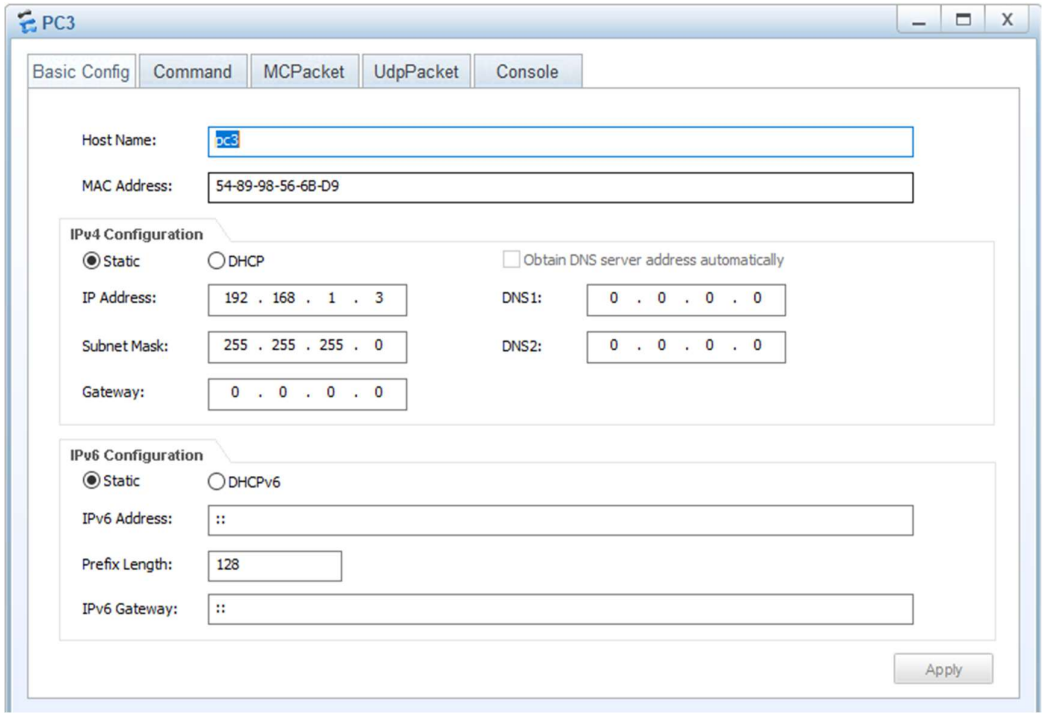
	Static ARP	Dynamic ARP
Definition	Manually assigned ARP entries where an IP is permanently mapped to a MAC address.	Entries learned automatically through ARP requests and responses.
Usage	Used for security and preventing ARP spoofing.	Used for regular communication.
Persistence	Stays in the ARP table until manually removed or the system reboots.	Removed after a timeout period if not in use.

eNSP Simulation:









Ping PC3 from PC1