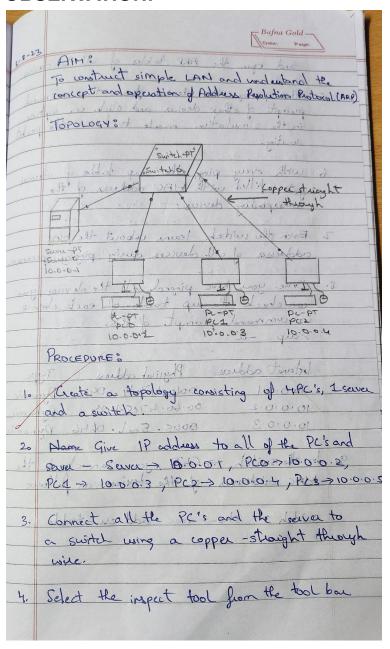# EXPERIMENT 9

AIM:

To construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP)
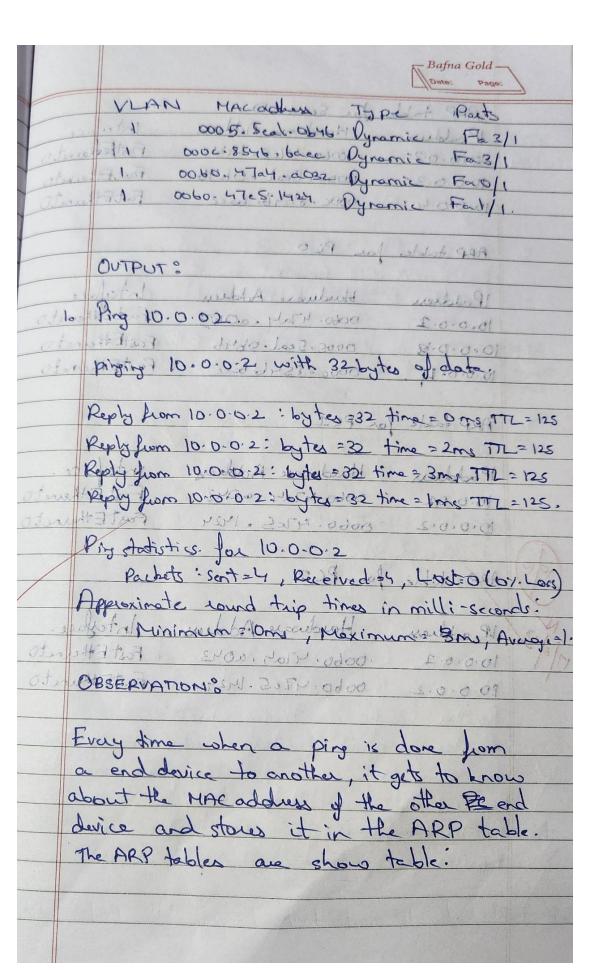
OBSERVATION:

and open the ARP tables of all the devices.

(iii) 5. Then, ping that devices from this command prompt of other devices and click on capture in the simulation mode to know the packet routing.

6. With every ping, the arp tables of devices get filled with MAC address of the corresponding devices.

7. Even the switch learns about the MAC addresses of all devices during pinging processes.

8. Once you have pinged all the devices, you can check the arp table of each device in command prompt of PCs.
   > arp -a

Internet address	Physical address	Type
10.0.0.1	0060.47a4.aD43	Dynamic
10.0.0.2	00.60.47c5.1424	Dynamic
10.0.0.3	0005.5ea1.0646	Dynamic

9. In the switch → CLI, you can check the MAC addresses of the devices as follows

   Switch # show mac address-table.

VLAN	MAC address	Type	Ports
1	0005.5cab.0b46	Dynamic	Fa 3/1
1	000c.8546.baee	Dynamic	Fa 3/1
1	0060.47a4.a032	Dynamic	Fa 0/1
1	0060.47c5.1424	Dynamic	Fa 1/1

OUTPUT:

Ping 10.0.0.2

pinging 10.0.0.2 with 32 bytes of data;

Reply from 10.0.0.2 : bytes =32 time = 0 ms TTL = 125
Reply from 10.0.0.2 : bytes =32 time = 2ms TTL = 125
Reply from 10.0.0.2 : bytes =32 time = 3ms TTL = 125
Reply from 10.0.0.2 : bytes =32 time = 1ms TTL = 125.

Ping statistics for 10.0.0.2
   Packets : Sent =4, Received =4, Lost= 0 (0% Loss)
Approximate round trip times in milli-seconds:
   Minimum = 0ms, Maximum = 3ms, Average = 1.

OBSERVATION:

Every time when a ping is done from
a end device to another, it gets to know
about the MAC address of the other end
device and stores it in the ARP table.
The ARP tables are show table:

ARP table for Server 0

IP address	Hardware Address	Interface
10.0.0.2	0060.47e5.1424	FastEthernet0
10.0.0.3	0005.5eal.0b46	FastEthernet0
10.0.0.4	000c.8546.6acc	FastEthernet0

ARP table for PC0

IP address	Hardware Address	Interface
10.0.0.1	0060.47a4.a043	FastEthernet0
10.0.0.3	0005.5eal.0b46	FastEthernet0
10.0.0.4	000c.8546.6acc	FastEthernet0

ARP table for PC1

IP address	Hardware Address	Interface
10.0.0.1	0060.47a4.a043	FastEthernet0
10.0.0.2	0060.47e5.1424	FastEthernet0

ARP table for PC2

IP address	Hardware Address	Interface
10.0.0.1	0060.47a4.a043	FastEthernet0
10.0.0.2	0060.47e5.1424	FastEthernet0

Result:

Server0

Physical　Config　Services　**Desktop**　Custom Interface

Command Prompt ☒

```
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128
Reply from 10.0.0.3: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms

SERVER>10.0.0.4
Invalid Command.

SERVER>ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:

Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128
Reply from 10.0.0.4: bytes=32 time=0ms TTL=128

Ping statistics for 10.0.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

SERVER>arp -a
  Internet Address      Physical Address      Type
  10.0.0.2              000b.be99.d829        dynamic
  10.0.0.3              0003.e4e0.80e5        dynamic
  10.0.0.4              0007.ec98.34e8        dynamic

SERVER>
```