

LAB 8

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

OBSERVATION:

03/8/23 LAB-07 [i]

Aim- To construct simple LAN and understand the concept of and operation of address resolution protocol (ARP).

Topology:-

```
graph TD; Switch[Switch-PT switch] --- PC0[PC-PT PC-0]; Switch --- PC1[PC-PT PC-1]; Switch --- PC2[PC-PT PC-2]; Switch --- Server[Server-PT Server 0];
```

Procedure:-

- * create a topology of 3pc's & a server.
- * Assign IP address to all pc's and server
- * connect them through the switch.
- * use the inspect tool & click on a pc to see ARP table.
- * command in cmd for the same is arp-a
- * Initially ARP table is empty.
- * Also in CLI of switch, the command -show mac address table can be given on any transaction to see how the switch builds from transactions & build the address-table.
- * Use the capture button in the simulation panel to go step by step so that the changes

in ARP can be clearly noted.

ping output

~~ping~~ PC > 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 ms

Min=0ms, Max=0ms Average=0ms

PC > arp -a

Internet address	physical address	Type
10.0.0.4	0060.2f00.324d	dynamic

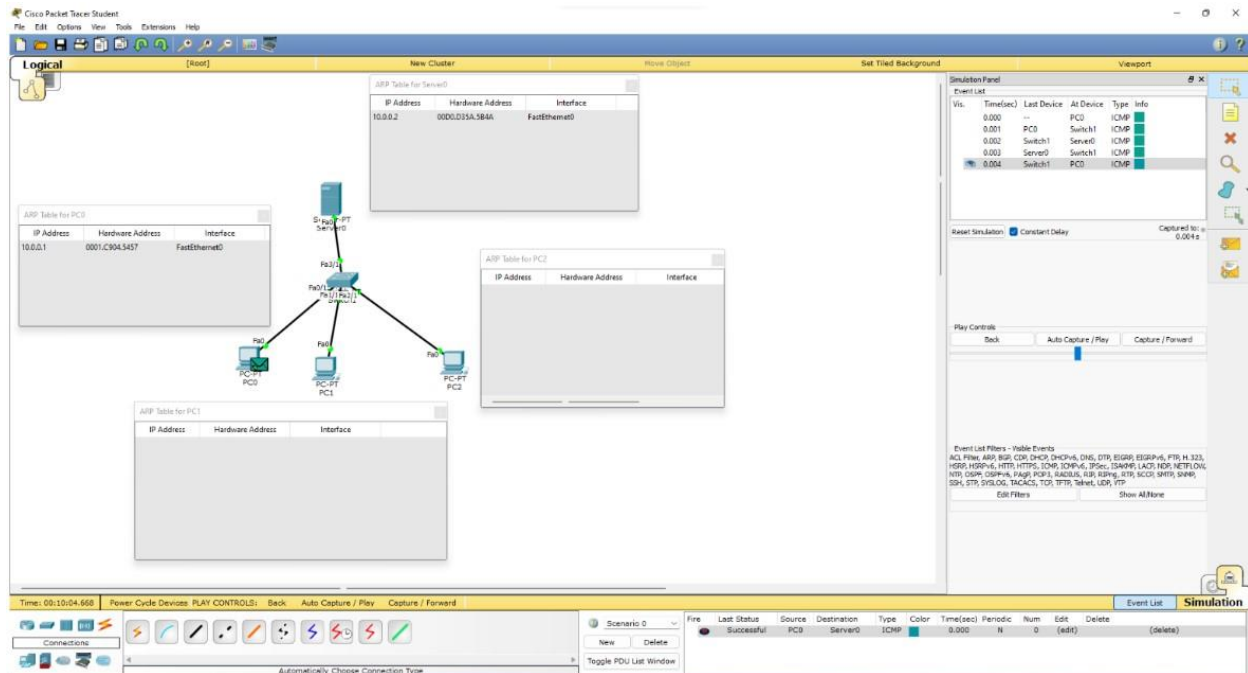
Observation

* When we ping 1 pc and server the address of server is known to pc & vice-versa

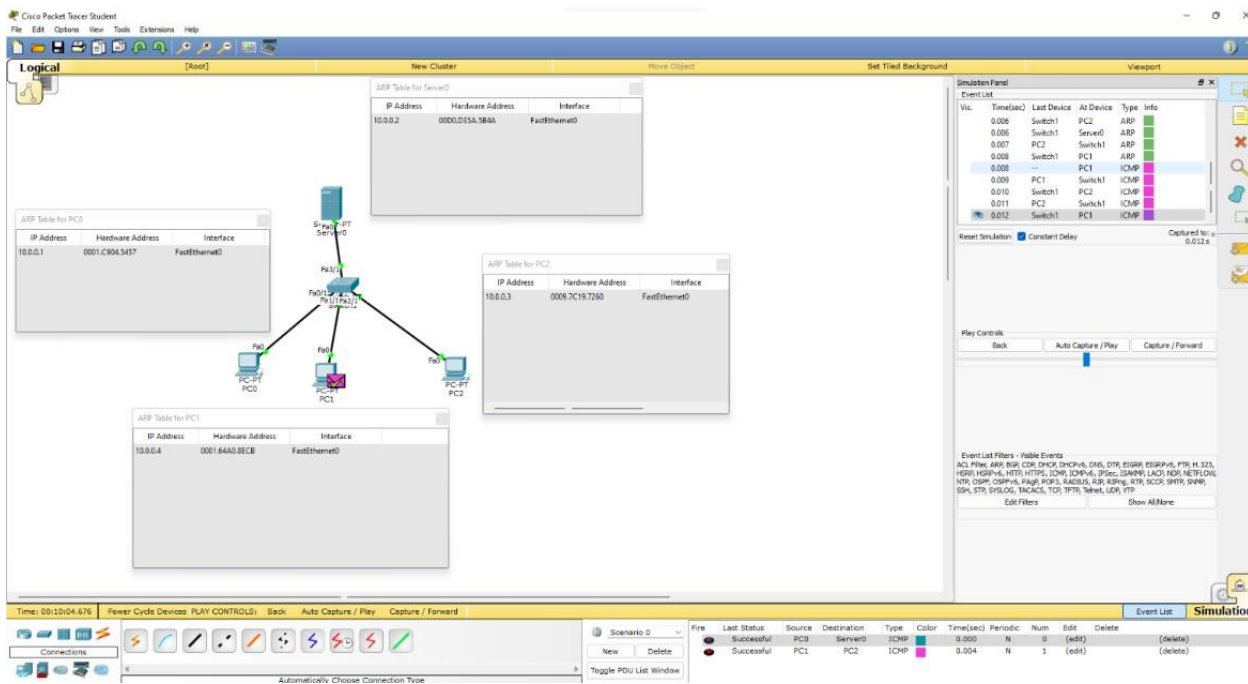
* When we ping between other 1 pc's simultaneously the address of each other are known.

* Every time a host requested a MAC address in order to send a packet to another host in the LAN, it check its ARP cache to see if the IP to mac address transition address already exists. If the transition doesn't exist it performs ARP.

TOPOLOGY:



OUTPUT:



Packet Tracer Simulation Interface

Logical View:

- Switch1 (S3610K9S) connected to PC1, PC2, and PC3.
- PC1: 10.0.0.1, 0001.6A00.BE0B, FastEthernet0/24
- PC2: 10.0.0.2, 0000.D3A5.B4A4, FastEthernet0/24
- PC3: 10.0.0.3, 0000.7C19.7280, FastEthernet0/24

IOS Command Line Interface (Switch1):

```
Switch1>show ip arp
Switch1#show ip arp
Switch1#show mac address-table
Switch1#
```

Simulation Panel:

Time: 00:12:48.033

Power Cycle Devices: PLAY CONTROLS: Back Auto Capture / Play Capture / Forward

Scenario 0

Fire: In Progress, Successful

Source: PC1, Destination: PC2, Type: ICMP, Time: 0.004, Periodic: N, Num: 1

Event List: Simulation