

WEEK 8

Construct a simple LAN and to understand ARP

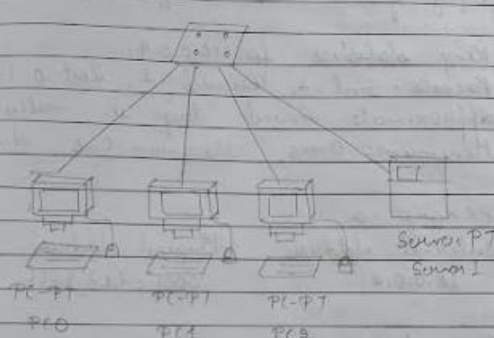
Observation :

318123

Week 8

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

Topology:



PC0
10.0.0.1
00:00:00:00:00:01

PC1
10.0.0.2
00:00:00:00:00:02

PC2
10.0.0.3
00:00:00:00:00:03

Server1
10.0.0.4
00:00:00:00:00:04

Procedure:

- Create a topology of 3 PCs and a server connected to a switch.
- Use inspect tool, click on PC and select ARP Table
- Command in CLI for same is arp-a
- Initially the table is empty.
- In CLI, of switch type show mac address-table
- Use capture button in simulation panel to go to stop by stop so that changes in ARP can be noted.

Output

ping 10.0.0.4

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

Ping statistics for 10.0.0.4:

Packets: Sent=4, Received=4, Lost=0 (0% loss)
Approximate round trip in milliseconds:
Minimum=0ms, Maximum=0ms Average=0ms

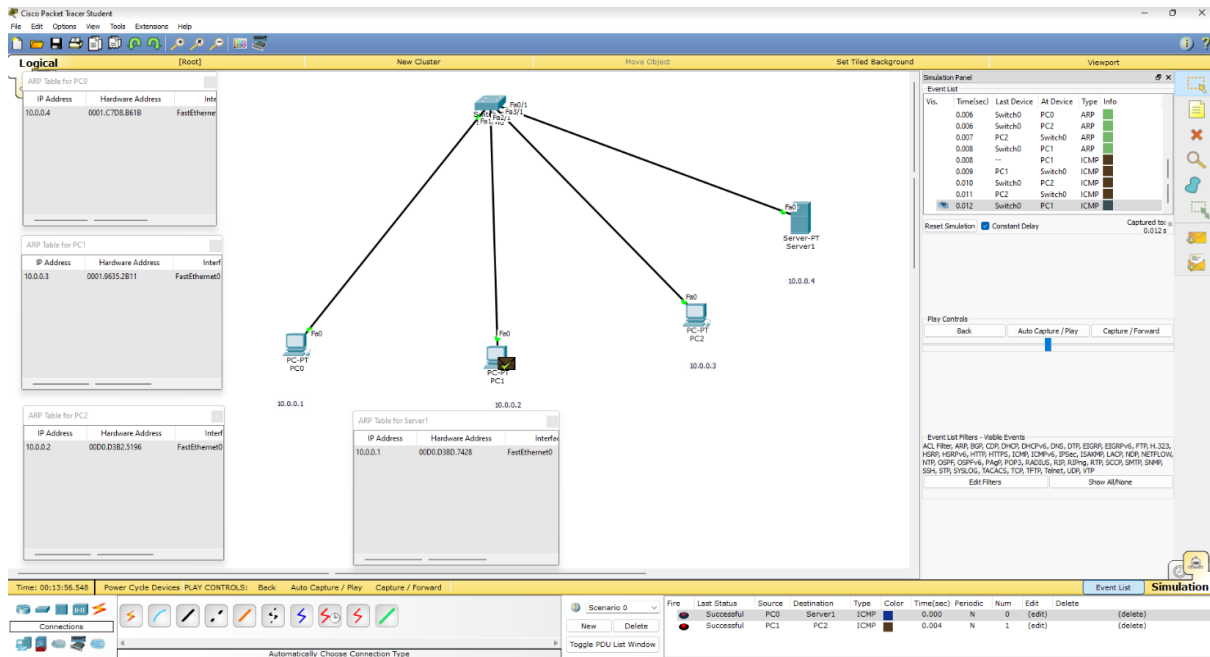
PC>arp -a

Internet Address	Physical Address	Type
10.0.0.4	0001.c7d8.bfb6	dynamic

Observation:

- The table maintains a record of each IP address and corresponding MAC address.
- The address of source is known to PC while pinging.
- Similarly, ping the other 2 PCs, the addresses of 2nd PC gives the ping response.
- Every time a host requests a MAC address, it checks ARP cache to see if IP to MAC address translation exists.

Topology :



Output :

```
PC0
Physical Config Desktop Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
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 milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>arp -a

Internet Address      Physical Address      Type
10.0.0.4              0001.c7d8.b61b       dynamic

PC>
```