WEEK 8

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

OBSERVATION:

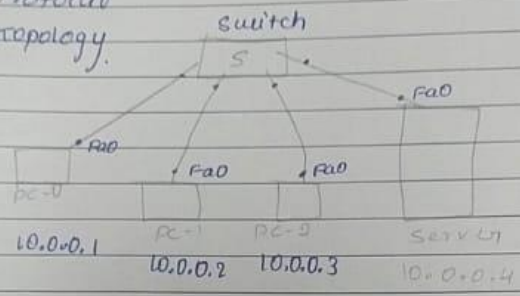
DATE:

~~Ex~~

Experiment

Aim:- To construct simple LAL and understand the concept and operation of Address Resolution Protocal

Topology



Procedure :-

Create a topology of 3 PC's and server

IP address assigned to all, connect them through switch.

use the inspect tool to click on a PC to see the ARP table.

~~Command~~ type command in CLI for the same : arp-a. Initially ARP Table is empty

Also in CLI of switch the command - show mac address-table can be given on transaction see how the switch learns from transactions and build address table

Use the capture button in the simulation pa to go step by step so that the changes in AR can be clearly noted

Result :-

go to pc04 desktop - command Promt and type
Ang 10.0.0.4

Replay from 10.0.0.4 byte=32 time=5ms TTL=128
Replay from 10.0.0.4 byte=32 time=1ms TTL=128
Replay from 10.0.0.4 : byte=32 time=0ms TTL=128
Replay from 10.0.0.4 : byte=32 time=0ms TTL=128

Ping statistic for 10.0.0.4
Packet : sent=4, Received=4, Lost=0 (0% loss)
Approximate round trip time in milli-seconds
Minimum=0ms, maximum=5ms Average=1ms

- PC> ~~ping~~ arp -a

Internet Address	Physical Address	Type
10.0.0.2	000b.bid5.1563	dynamic
10.0.0.3	0090.21b1.7e22	dynamic
10.0.0.4	00d0.7cc4.eb03	dynamic

-> go to switch CLI & type
Switch > show mac address-table

Mac Address Table

Vlan	mac Address	Type	Ports
1	00d0.7cc4.eb03	Dynamic	Fa3/1
1	000b.bid5.1563	Dynamic	Fa1/1
1	0090.21b1.7e22	Dynamic	Fa2/1
1	00d0.9758.70c6	Dynamic	Fa0/1

ARP table for PC0

IP Address	Hardware Address	Interface
10.0.0.2	000B.BED5.1563	FastEthernet
10.0.0.3	0090.21B1.7E22	FastEthernet
10.0.0.4	0009.7CC4.EB03	FastEthernet

ARP table for PC1

IP address	hardware Address	Interface
10.0.0.1	0000.9578.20E6	FastEthernet
10.0.0.3	0090.21B1.7E22	FastEthernet
10.0.0.4	0009.7CC4.EB03	FastEthernet

ARP table for PC2

IP address	hardware Address	Interface
10.0.0.1	0000.9578.20E6	FastEthernet
10.0.0.2	000B.BED5.1563	FastEthernet
10.0.0.4	0009.7CC4.EB03	FastEthernet

ARP table for Server0

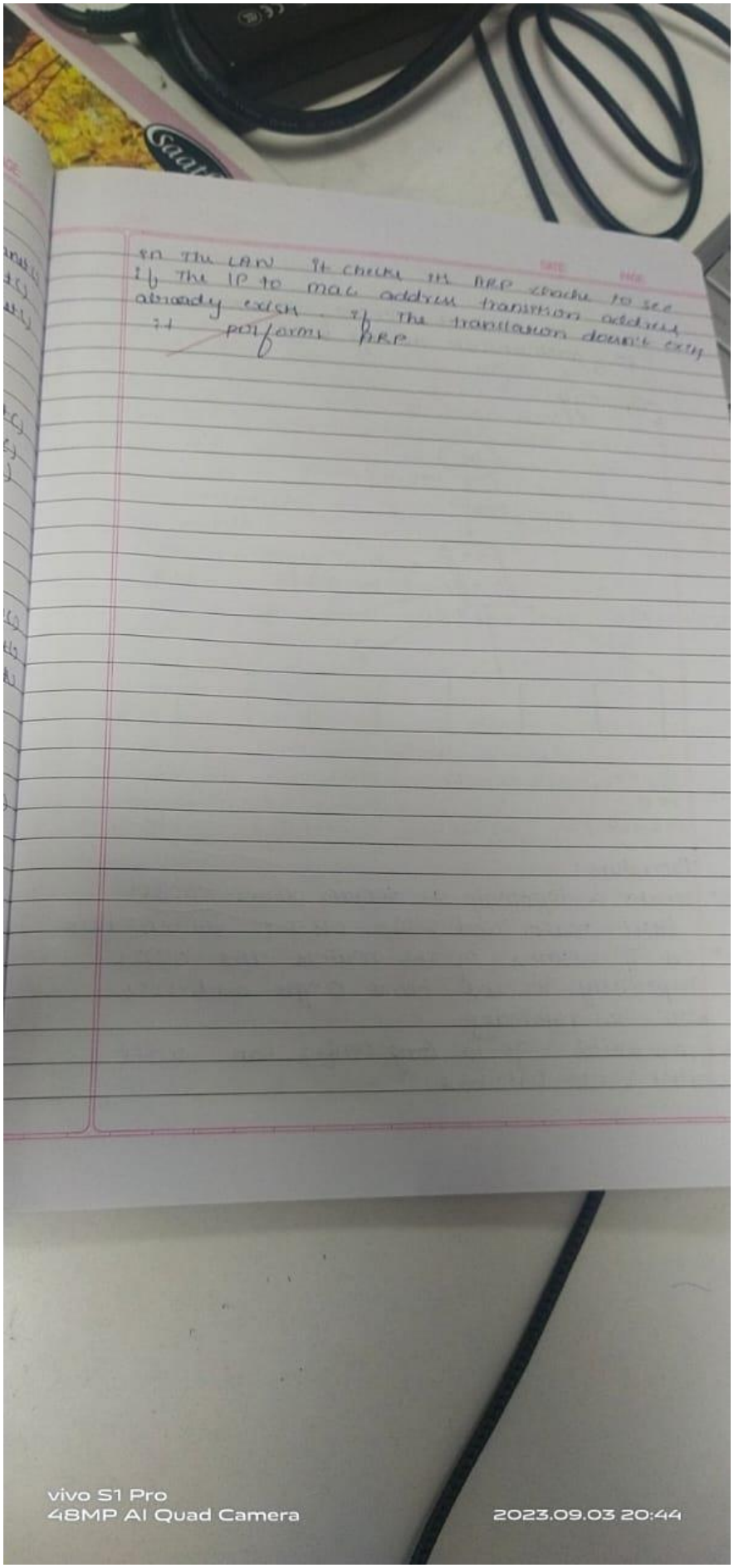
IP address	hardware Address	Interface
10.0.0.1	0000.9578.20E6	FastEthernet
10.0.0.2	000B.BED5.1563	FastEthernet
10.0.0.3	0090.21B1.7E22	FastEthernet

observation

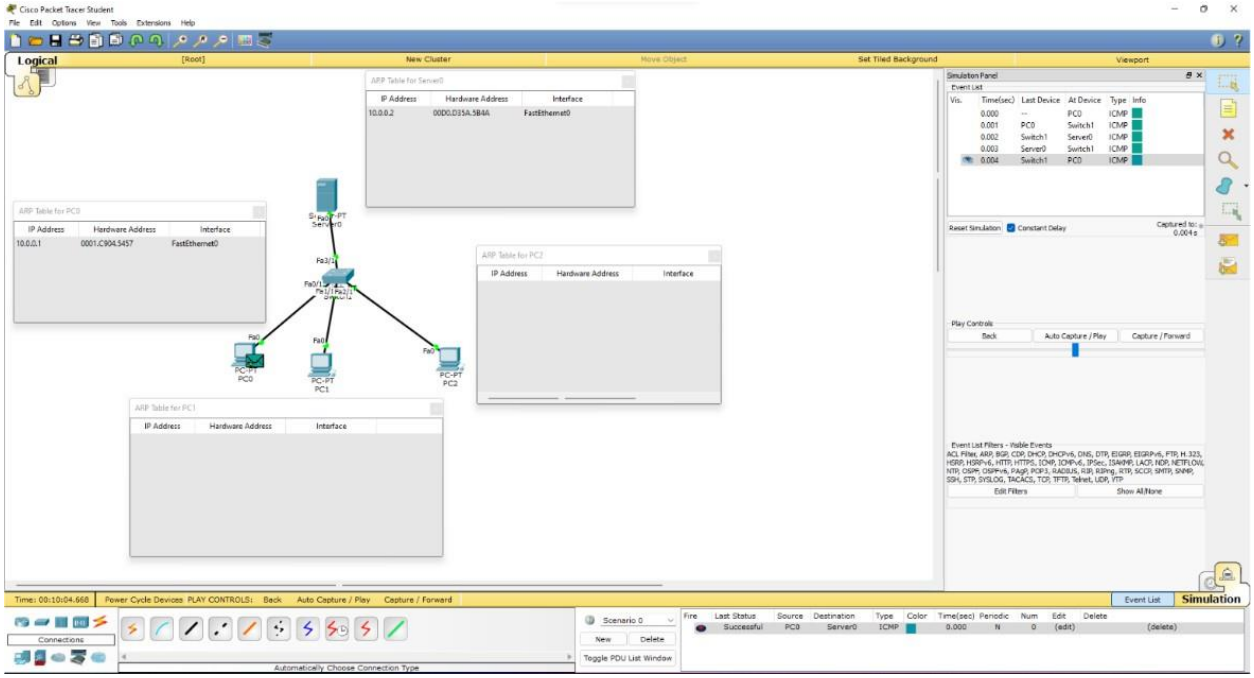
When we Ping PC and server the address of server is known to PC & vise versa

When we Ping b/w other two PC's simultaneously the address of each other are known

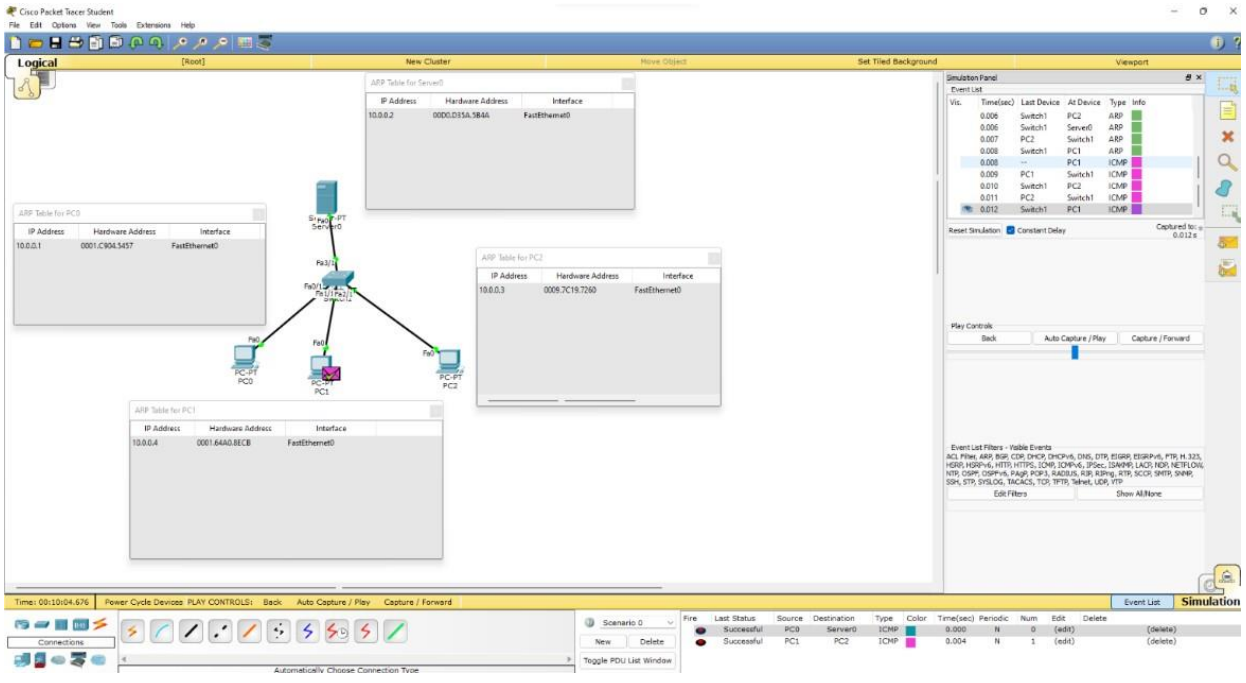
Every time a host requests a mac address in order to send a packet to another host

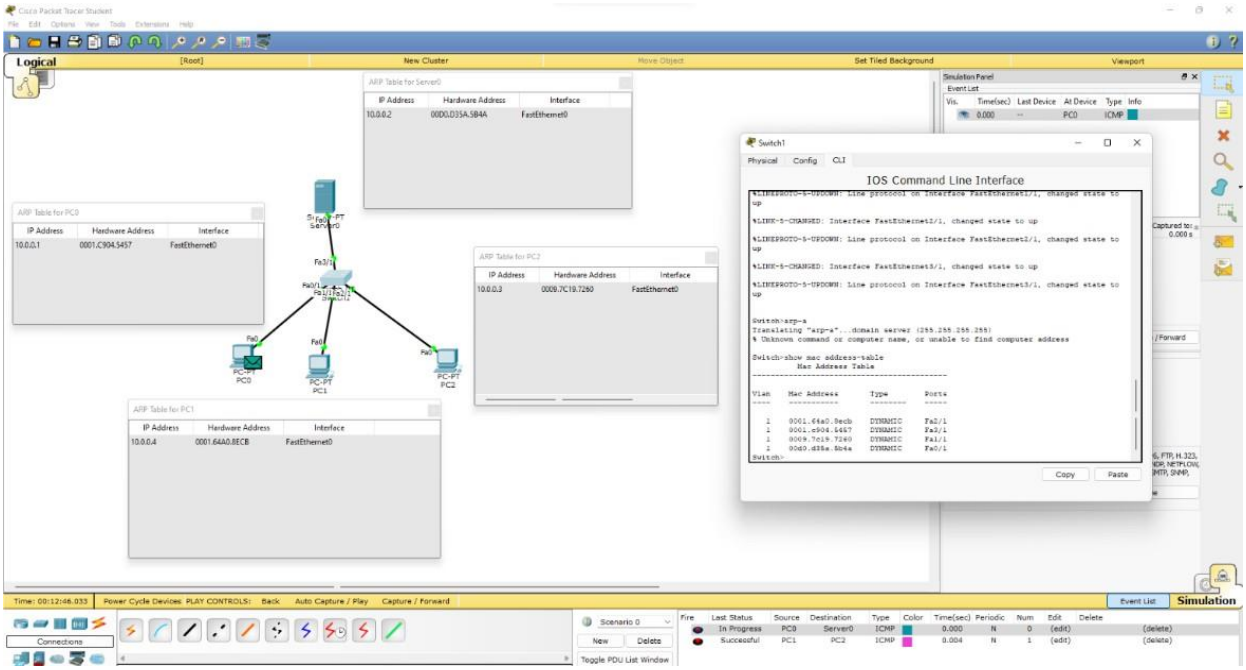

on the LAN it checks its ARP cache to see
if the IP to mac address translation address
already exist. If the translation doesn't exist
it performs ARP
vivo S1 Pro
48MP AI Quad Camera
2023.09.03 20:44

TOPOLOGY:



OUTPUT:




Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
ARP Table for Server0
IP Address Hardware Address Interface
10.0.0.2 00D0.D35A.5B4A FastEthernet0
ARP Table for PC0
IP Address Hardware Address Interface
10.0.0.1 0001.C904.5457 FastEthernet0
ARP Table for PC2
IP Address Hardware Address Interface
10.0.0.3 0009.7C19.7260 FastEthernet0
ARP Table for PC1
IP Address Hardware Address Interface
10.0.0.4 0001.64A0.8ECB FastEthernet0
Switch1
Physical Config CLI
IOS Command Line Interface
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet2/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet2/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet3/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet3/1, changed state to up
Switch>arp -a
Translating "arp-a"...domain server (255.255.255.255)
% Unknown command or computer name, or unable to find computer address
Switch>show mac address-table
Mac Address Table
Vlan Mac Address Type Ports
1 0001.64a0.8ecb DYNAMIC Fa2/1
1 0001.c904.5457 DYNAMIC Fa3/1
1 0009.7c19.7260 DYNAMIC Fa1/1
1 00d0.d35a.5b4a DYNAMIC Fa0/1
Switch>
Copy
Paste
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device Type Info
0.000 -- PC0 ICMP
Time: 00:12:46.033
Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture / Forward
Event List
Simulation
Connections
Scenario 0
New
Delete
Toggle PDU List Window
Fire Last Status Source Destination Type Color Time(sec) Periodic Num Edit Delete
In Progress PC0 Server0 ICMP 0.000 N 0 (edit) (delete)
Successful PC1 PC2 ICMP 0.004 N 1 (edit) (delete)