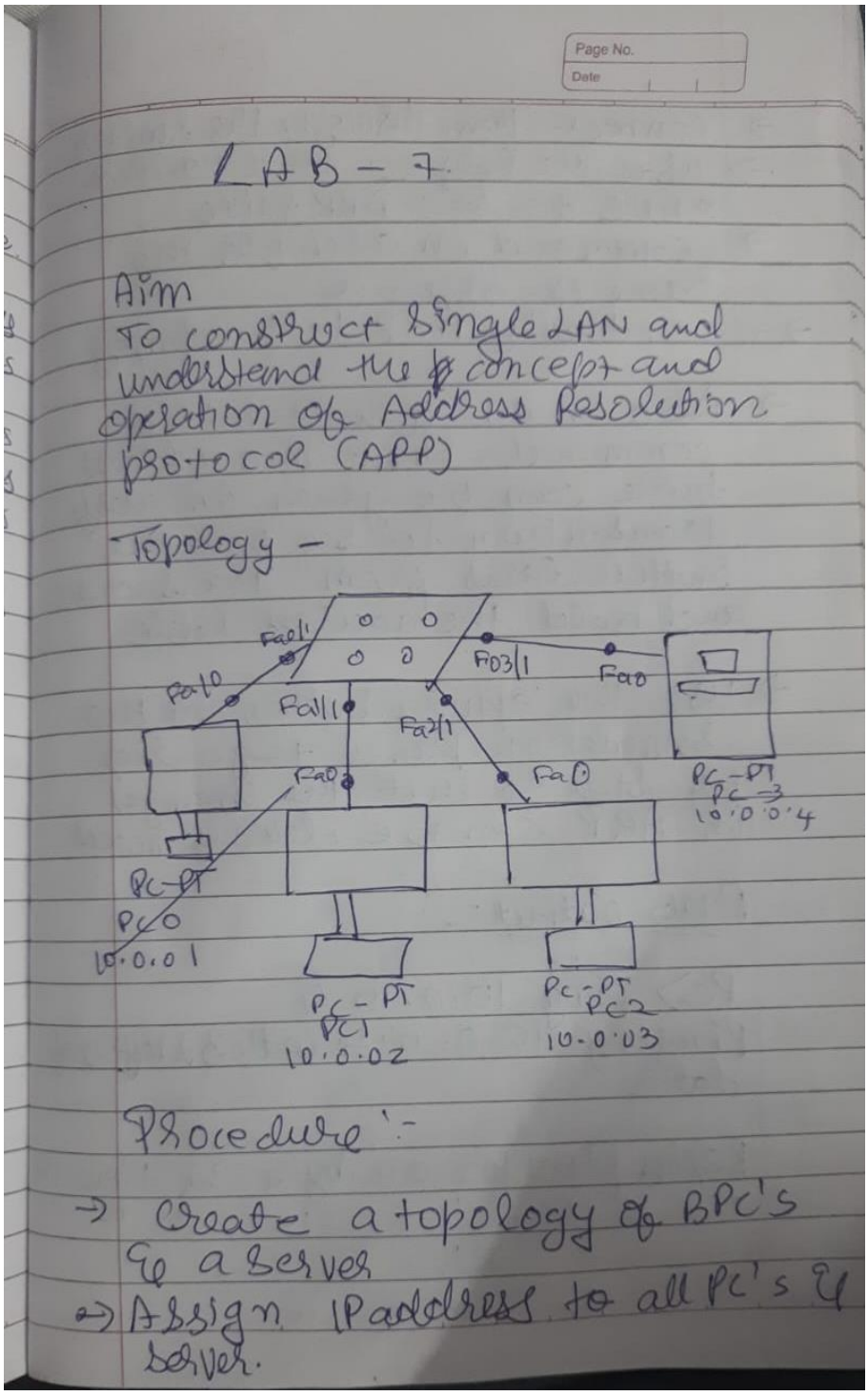
LAB 8

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

OBSERVATION:



→ Connect them through the switch
→ Use the Inspect tool to click on PC to see ARP table
→ command in card for the same is arp - a
→ Initially ARP table is empty

→ Also in a switch the command - show mac address table can be given on every transaction to see how the switch learns from transactions and 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 :-

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 = 0
" " " " "
" " " " "
" " " " "

Page No.
Date

Ping statistics for 10.0.0.4
packets: Sent = 4, Recieved = 4,
Lost = 0 (0% loss), Approximate
round trip time in milliseconds:
Minimum = 0ms, Maximum = 0ms, Average = 0

PC > arp -a

Internet address physical Address Type
10.0.0.4 0-060.2fa0.324d dynamic
NL 19/8/2023

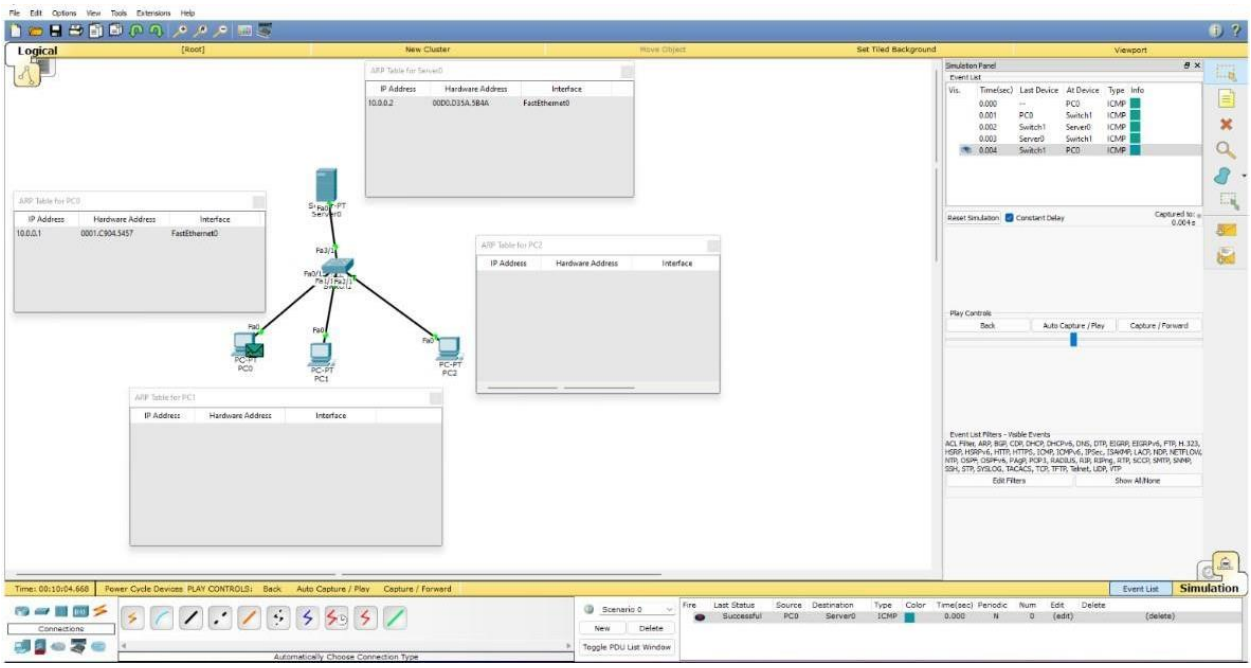
Observation :-

→ When we ping 1 PC and server the address of server is known to PC & vice versa

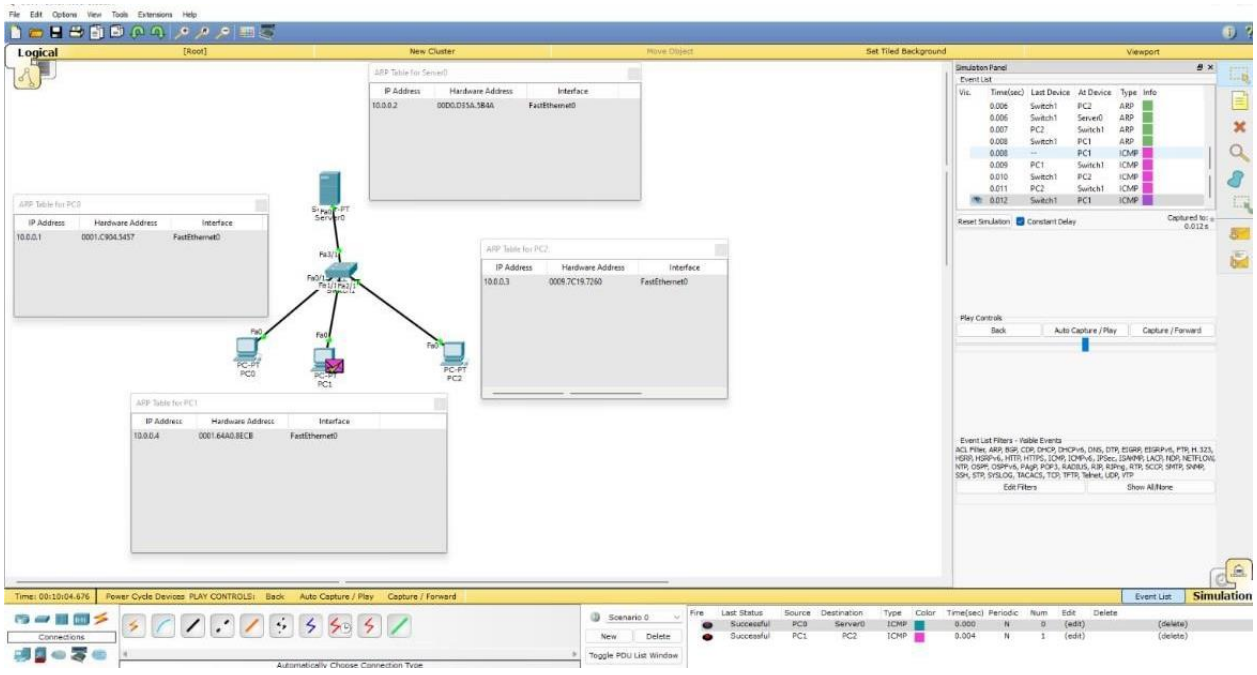
→ When we ping between other two PC's simultaneously the address of each other are known

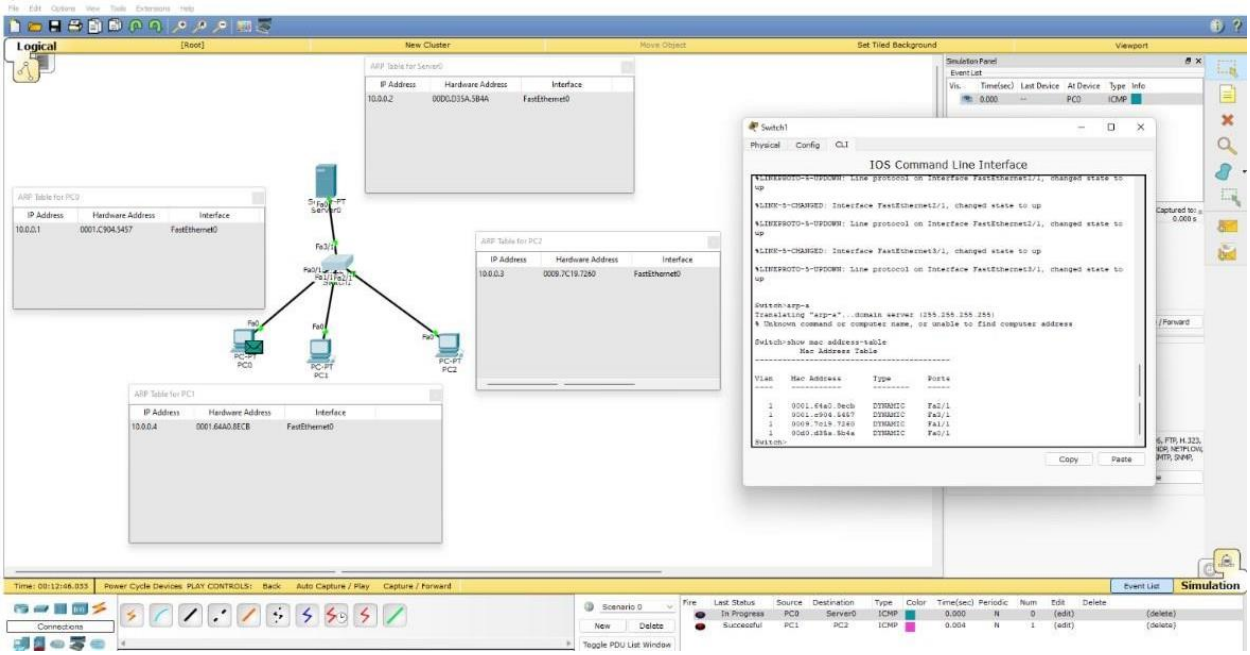
→ Every time a host requests a MAC address in order to send a packet to another host in the LAN, it checks its ARP cache to see if the IP to mac address translation address already exists if the translation doesn't exists it performs ARP.

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: 00:12:06.033
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)