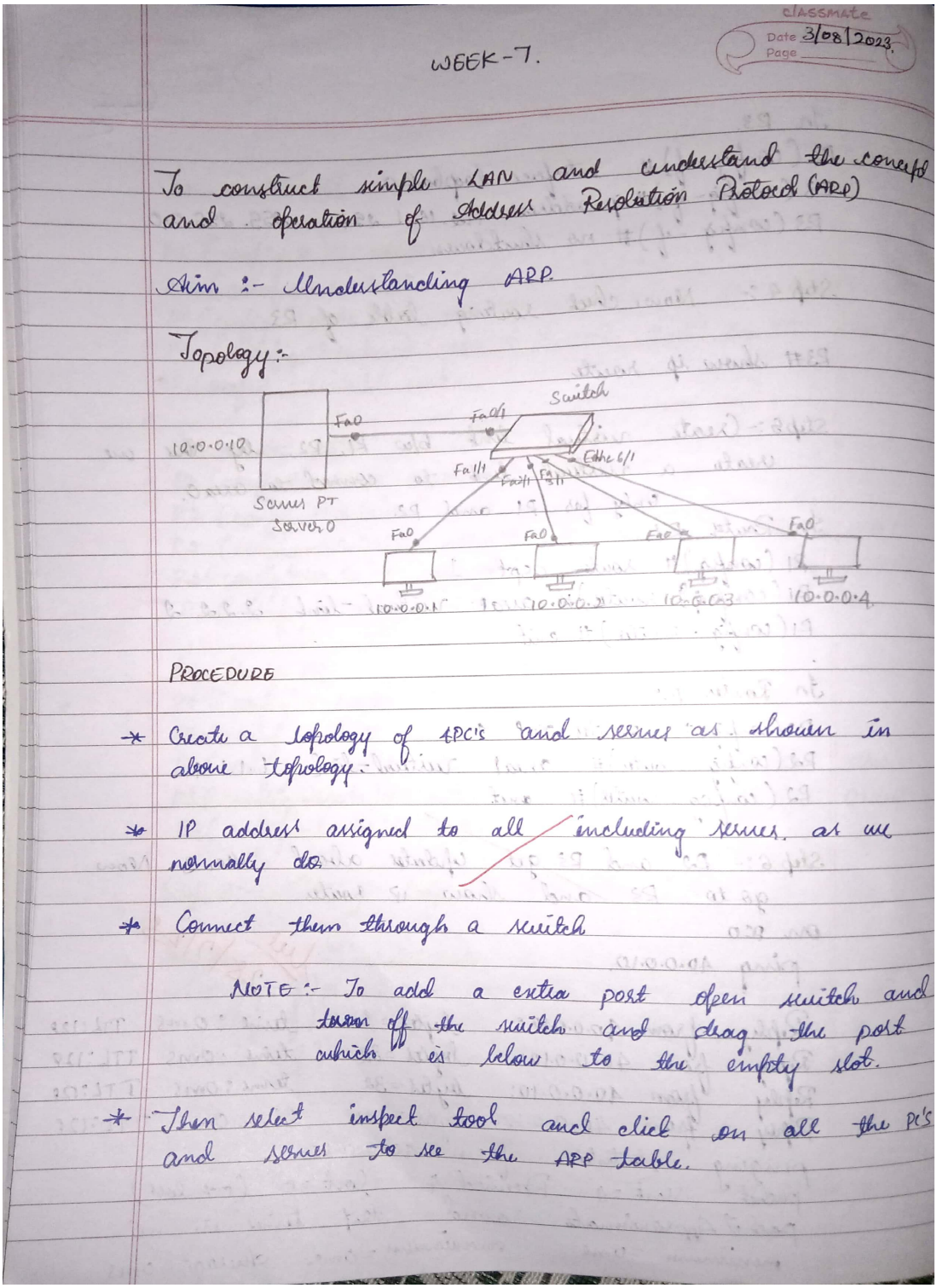
WEEK 8

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

OBSERVATION:



WEEK-7.

Date 3/08/2023

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

Aim :- Understanding ARP

Topology :-

PROCEDURE

* Create a topology of PC's and server as shown in above topology.
* IP address assigned to all including server as we normally do.
* Connect them through a switch

NOTE :- To add a extra port open switch and turn off the switch and drag the port which is below to the empty slot.

* Then select inspect tool and click on all the PC's and server to see the ARP table.

* Then select PC go to command prompt give arp -a.
→ Initially ARP table is empty.

* Also in CLI of 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

* Observe the switch as well as the nodes update the ARP Table as and when a new communication starts.

Ping output:-

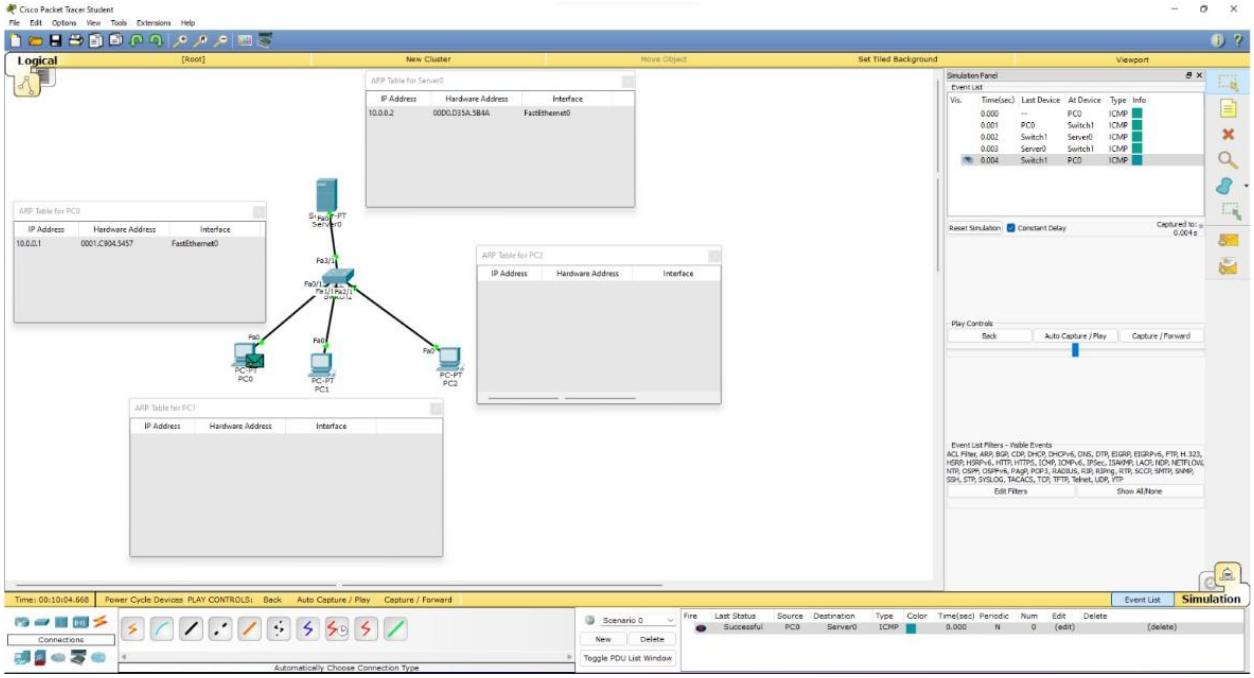
PC> ping 10.0.0.4.

Pinging 10.0.0.4 with 32 bytes of data.
Reply from 10.0.0.4 : bytes=32 time=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

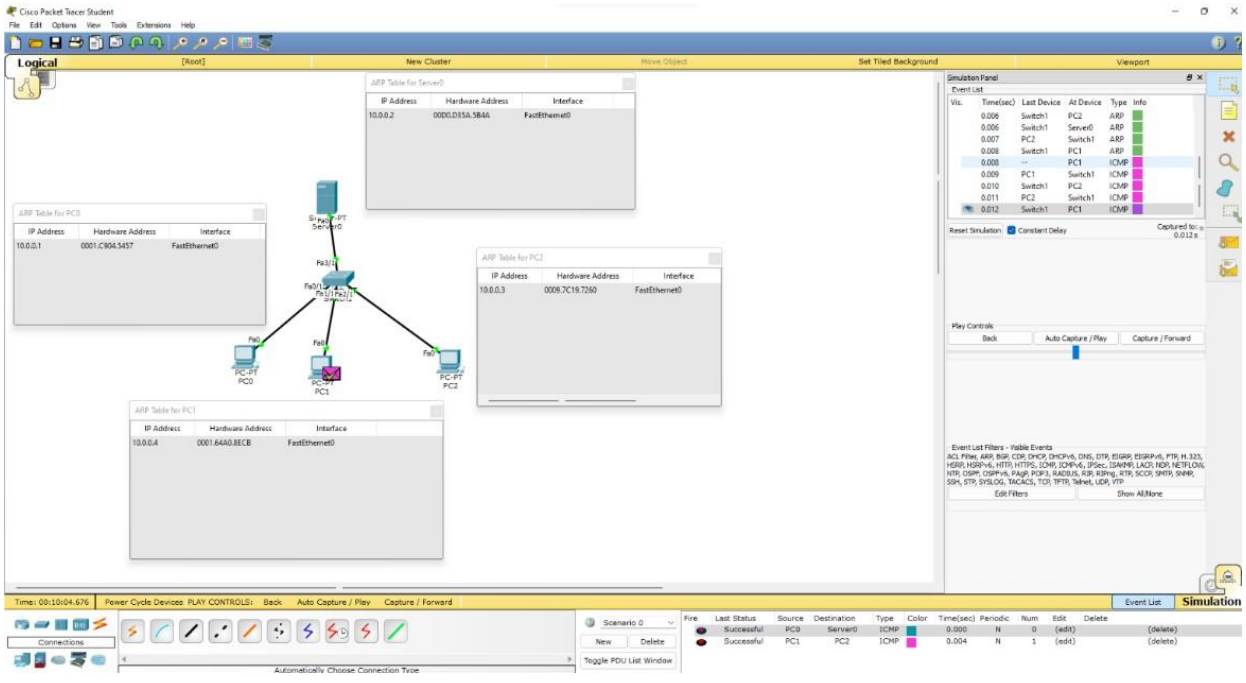
ping statistics for 10.0.0.4.
Packets: Sent=4, Recieved=4, Lost=0 (0% loss)
Approximate round trip times in milliseconds
Minimum=0ms Maximum=0ms Average=0ms

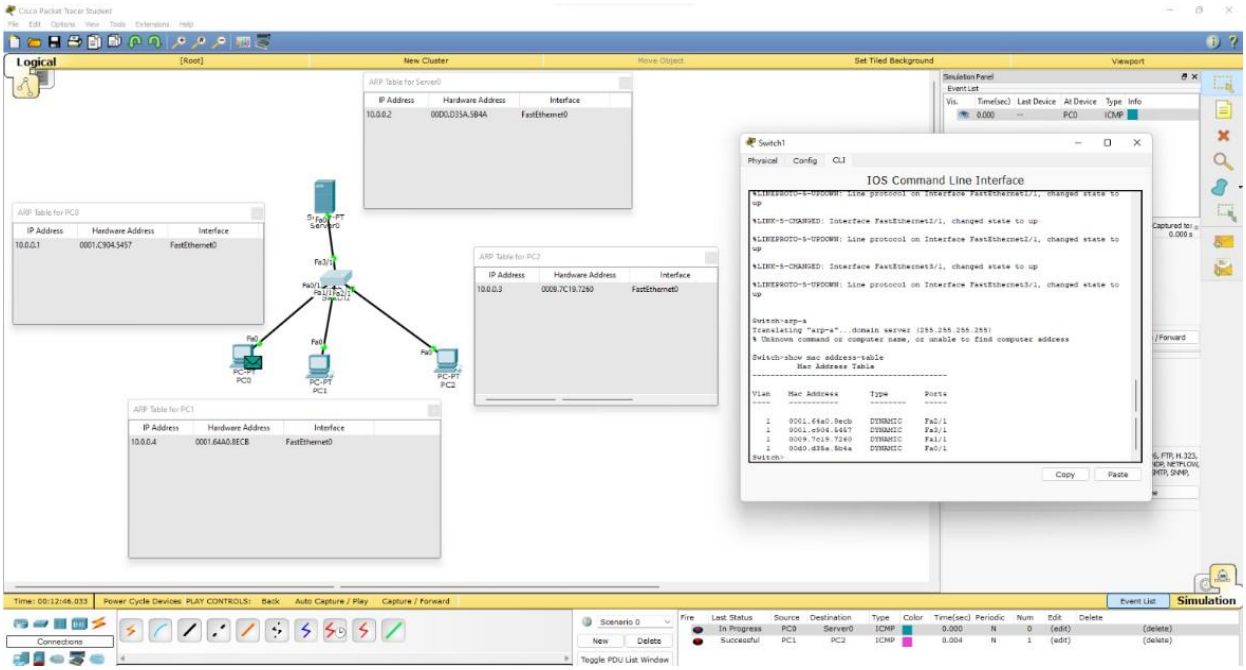
PC> arp -a.

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)