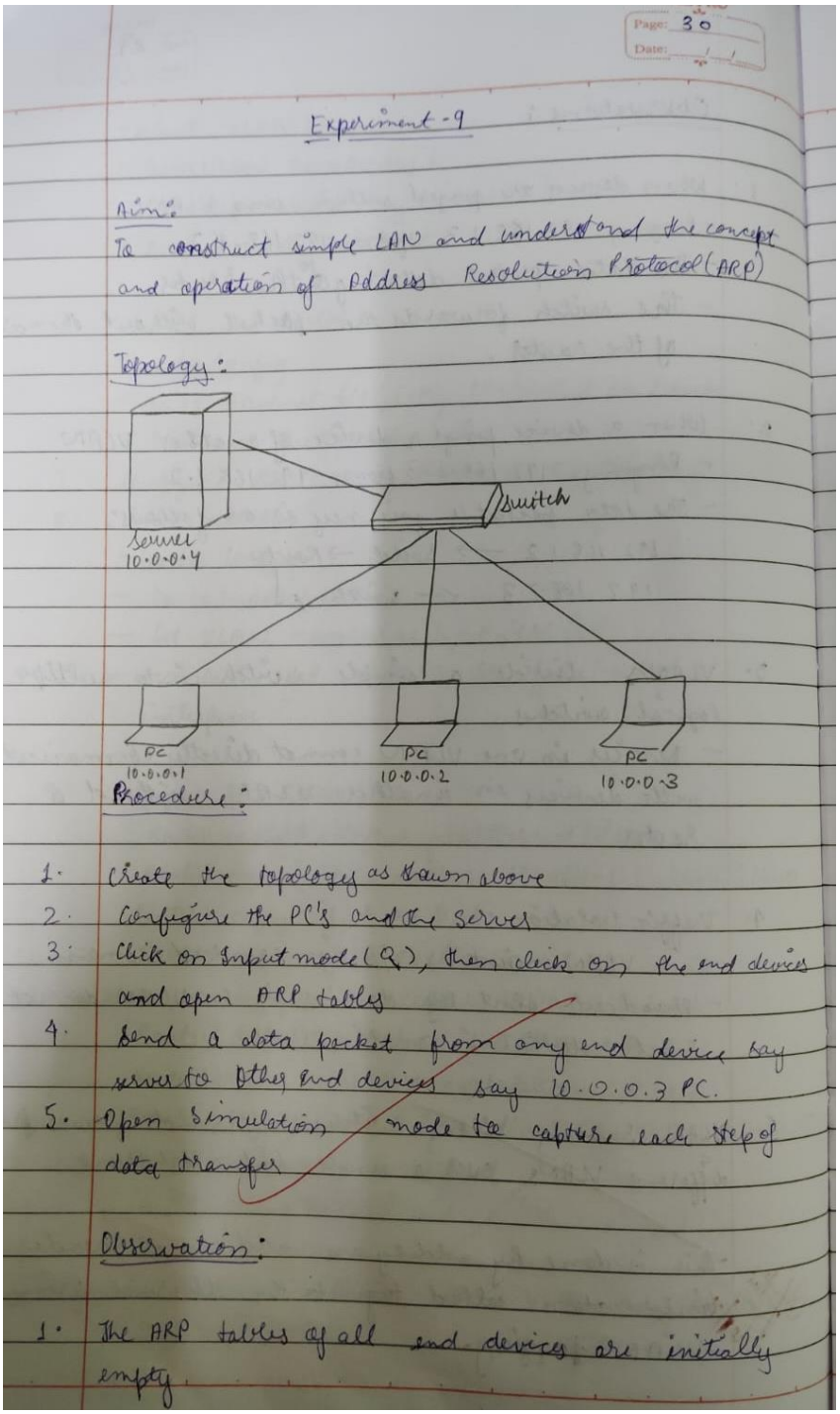
Program 10

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

Topology , Procedure and Observation:



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Experiment - 9

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

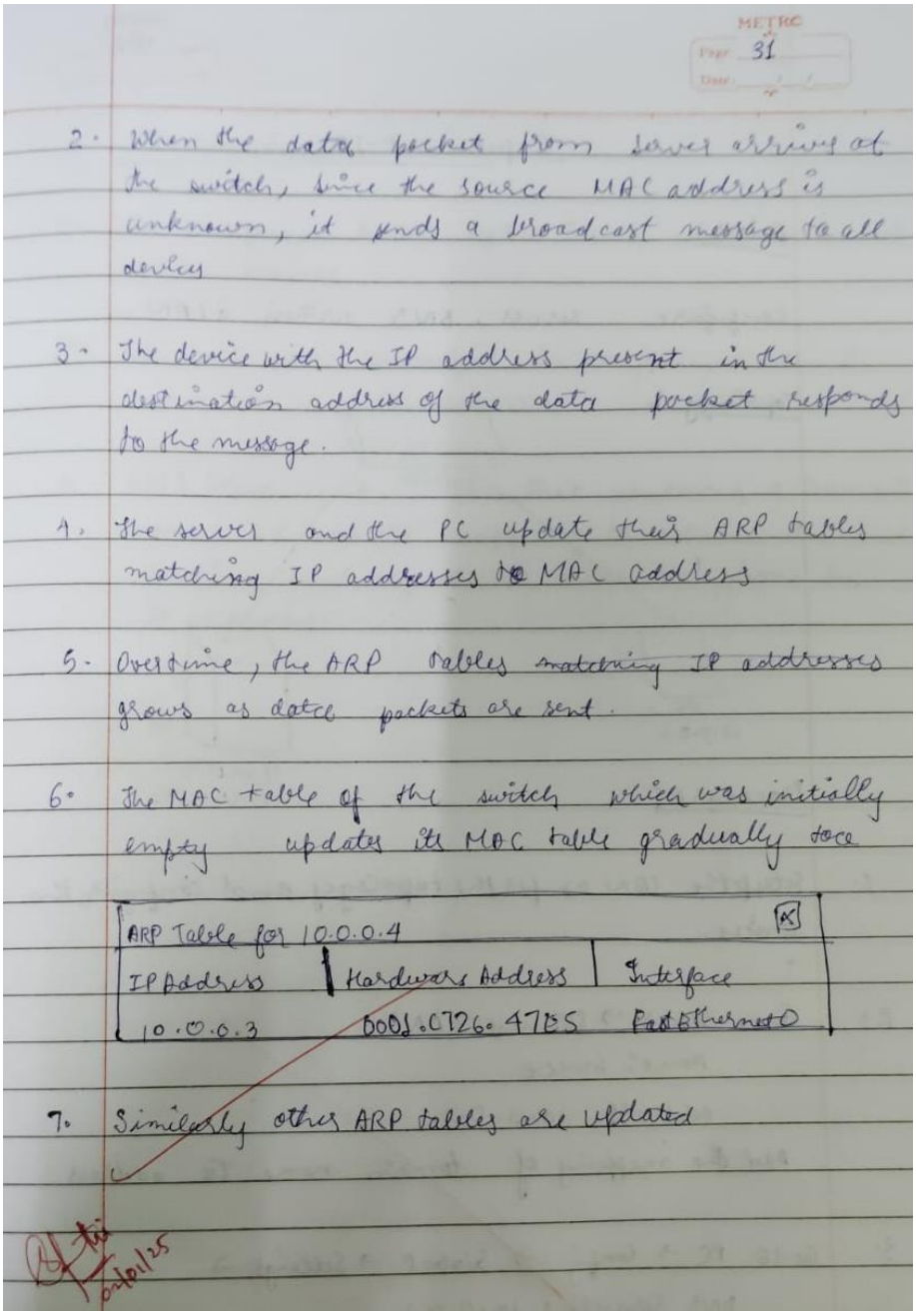
Topology:

Procedure:

1. Create the topology as shown above
2. Configure the PC's and the server
3. Click on Inspect mode (Q), then click on the end devices and open ARP tables
4. Send a data packet from any end device say server to other end devices say 10.0.0.3 PC.
5. Open simulation mode to capture each step of data transfer

Observation:

1. The ARP tables of all end devices are initially empty.



2. When the data packet from server arriving at the switch, since the source MAC address is unknown, it sends a broadcast message to all devices

3. The device with the IP address present in the destination address of the data packet responds to the message.

4. The server and the PC update their ARP tables matching IP addresses to MAC address

5. Overtime, the ARP tables matching IP addresses grows as data packets are sent.

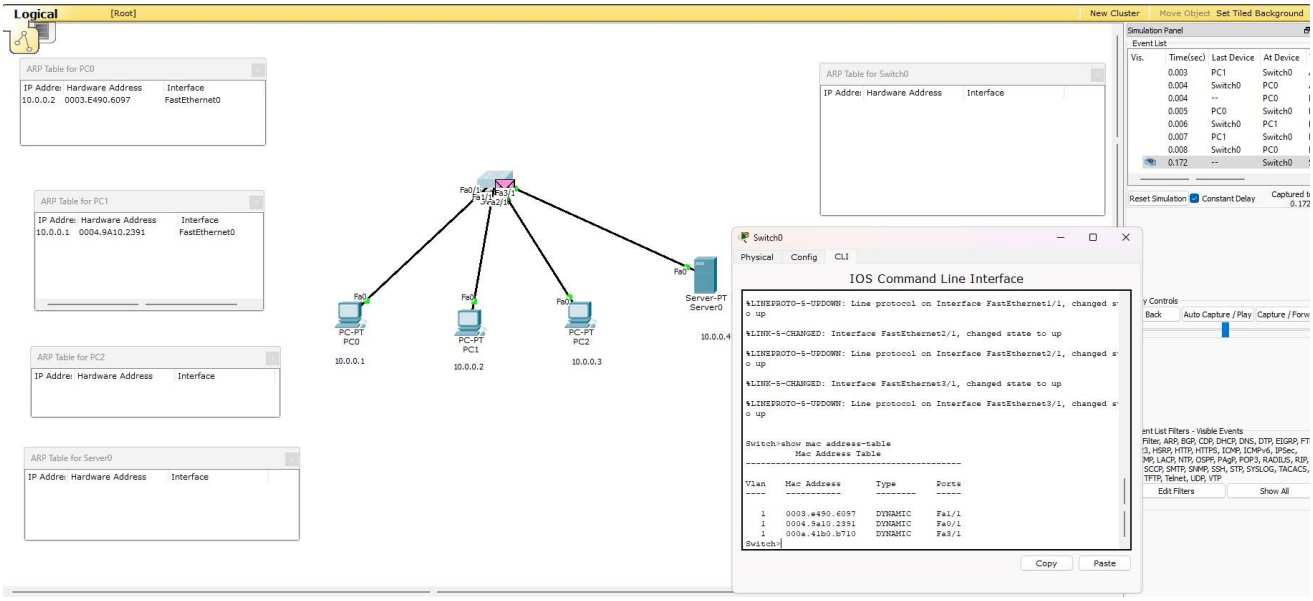
6. The MAC table of the switch which was initially empty updates its MAC table gradually once

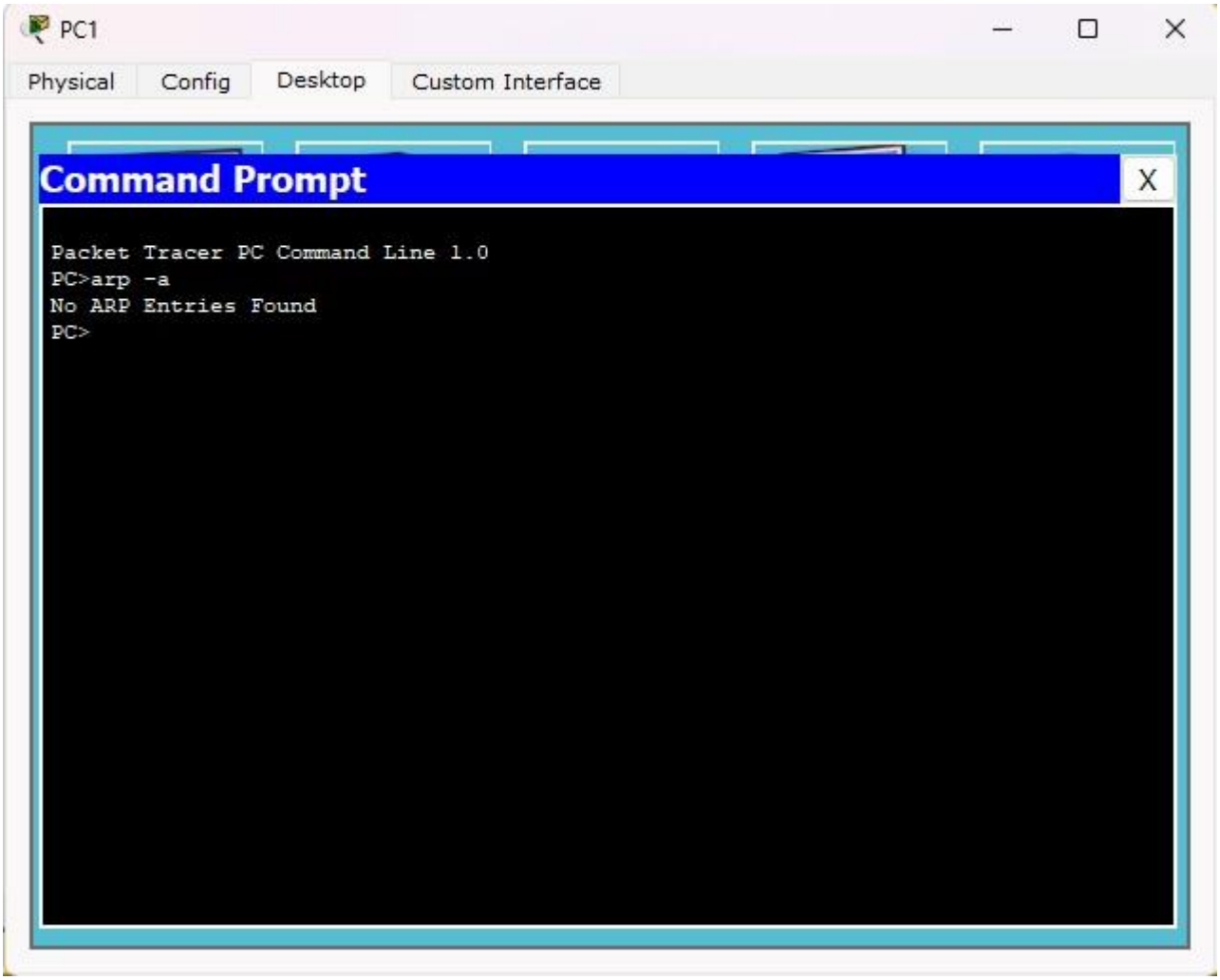
ARP Table for 10.0.0.4

IP Address	Hardware Address	Interface
10.0.0.3	0001.C726.4785	FastEthernet0

7. Similarly other ARP tables are updated

Screen Shots:


Logical
[Root]
New Cluster
Move Object
Set Tiled Background
ARP Table for PC0
IP Addre: Hardware Address Interface
10.0.0.2 0003.E490.6097 FastEthernet0
ARP Table for PC1
IP Addre: Hardware Address Interface
10.0.0.1 0004.9A10.2391 FastEthernet0
ARP Table for PC2
IP Addre: Hardware Address Interface
ARP Table for Server0
IP Addre: Hardware Address Interface
ARP Table for Switch0
IP Addre: Hardware Address Interface
PC-PT PC0
10.0.0.1
PC-PT PC1
10.0.0.2
PC-PT PC2
10.0.0.3
Server-PT Server0
10.0.0.4
Switch0
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>show mac address-table
Mac Address Table
Vlan Mac Address Type Ports
1 0003.e490.6097 DYNAMIC Fa1/1
1 0004.9a10.2391 DYNAMIC Fa0/1
1 000a.41b0.b710 DYNAMIC Fa3/1
Switch>
Copy
Paste
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device
0.003 PC1 Switch0
0.004 Switch0 PC0
0.004 -- PC0
0.005 PC0 Switch0
0.006 Switch0 PC1
0.007 PC1 Switch0
0.008 Switch0 PC0
0.172 -- Switch0
Reset Simulation
Constant Delay
Edit Filters
Show All


PC1
Physical
Config
Desktop
Custom Interface
Command Prompt
X
Packet Tracer PC Command Line 1.0
PC>arp -a
No ARP Entries Found
PC>