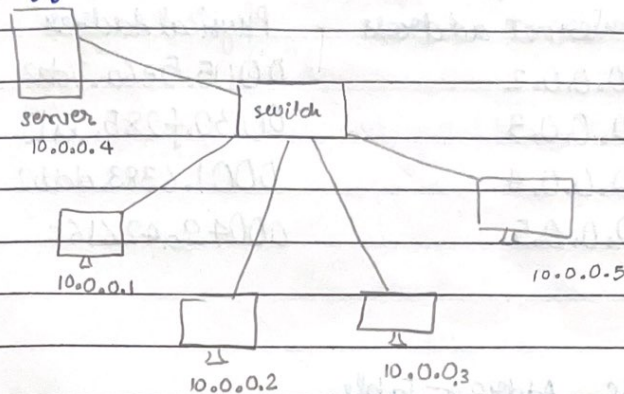


Experiment 8

1

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

Topology:



Procedure:

- Create a topology of 4 PC's and a server.
- IP address assigned to all
- Connect them through a switch.
- Use the inspect tool to click on PC to see the ARP Table
- Command in command prompt of the PC for 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 built the address-table.
- Use capture button in the simulation panel to go step by step so that the changes in

ARP can be clearly noted

Nodes and switches get updated in the ARP Table and new connections start.

command prompt

PC> arp -a

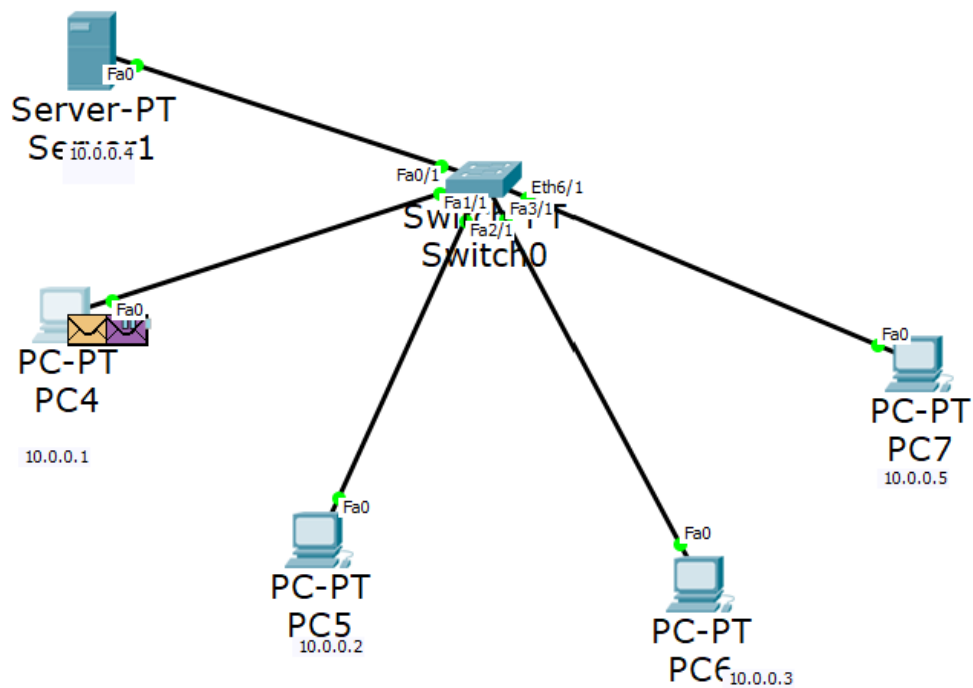
Internet address	Physical Address	Type
10.0.0.2	0005.5e6a.7da2	dynamic
10.0.0.3	0030.f285.7a19	dynamic
10.0.0.4	0001.6383.ddb2	dynamic
10.0.0.5	0004.9a42.616c	dynamic

show MAC Address-Table

Vlan	Mac Address	Type	Ports
1	0001.6383.ddb2	DYNAMIC	Fa0/1
1	0003.e49d.b2d9	DYNAMIC	Fa1/1
1	0004.9a42.616c	DYNAMIC	Eth6/1
1	0005.5e6a.7da2	DYNAMIC	Fa2/1
1	0030.f285.7a19	DYNAMIC	Fa3/1

q/p

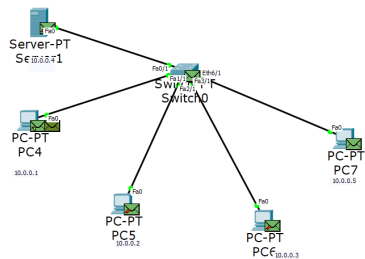
N
4/8/23



Logical

[Root]

New Cluster



ARP Table for PC5

Address	Hardware Address	Interface
10.0.0.1	0003.E49D...	FastEthernet...

ARP Table for PC4

Address	Hardware Address	Interface
10.0.0.2	0005.5E6A...	FastEthernet...
10.0.0.4	0001.6383...	FastEthernet...

ARP Table for PC6

Address	Hardware Address	Interface
10.0.0.1	0003.E49D...	FastEthernet...

ARP Table for PC7

Address	Hardware Address	Interface
10.0.0.1	0003.E49D...	FastEthernet...

ARP Table for Server1

Address	Hardware Address	Interface
10.0.0.1	0003.E49D...	FastEthernet...

Set Tiled Background

Viewport

Simulation Panel

Event List

Vis.	Time(sec)	Last I	At D	Type	Info
<input type="checkbox"/>	0.005	Swit...	PC5	ARP	<input type="checkbox"/>
<input type="checkbox"/>	0.005	Swit...	PC6	ARP	<input type="checkbox"/>
<input checked="" type="checkbox"/>	0.005	Swit...	PC7	ARP	<input type="checkbox"/>
<input type="checkbox"/>	0.005	--	PC4	ICMP	<input type="checkbox"/>

Reset Simulation ☒ Constant Delay

Captured to: 0.005 s

Play Controls

Back

Auto Capture / Play

Capture / Forward

Event List Filters - Visible Events

ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters

Show All/None

Time: 00:17:53.673 | Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play Capture



Automatically Choose Connection Type

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Sta Sou Destina Typ Col Time Peric Nu Edi Delete

Success	PC4	Server1	I...	0.0...	N	0	(e...	(delete)
In Pro...	PC4	PC5	I...	0.0...	N	1	(e...	(delete)

Event List Simulation

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet1/1, changed state to up
%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
%LINK-5-CHANGED: Interface Ethernet6/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet6/1, changed state to up

Switch(config)#show mac address-table
      ^
% Invalid input detected at '^' marker.

Switch(config)#exit
Switch#show mac address-table
      Mac Address Table
-----
Vlan    Mac Address      Type      Ports
----    -
1       0001.6383.ddb2   DYNAMIC   Fa0/1
1       0003.e49d.b2d9   DYNAMIC   Fa1/1
1       0004.9a42.616c   DYNAMIC   Eth6/1
1       0005.5e6a.7da2   DYNAMIC   Fa2/1
1       0030.f285.7a19   DYNAMIC   Fa3/1
Switch#
```

Copy

Paste

Command Prompt

Packet Tracer PC Command Line 1.0

PC>arp -a

No ARP Entries Found

PC>arp -a

Internet Address	Physical Address	Type
10.0.0.4	0001.6383.ddb2	dynamic

PC>arp -a

Internet Address	Physical Address	Type
10.0.0.2	0005.5e6a.7da2	dynamic
10.0.0.4	0001.6383.ddb2	dynamic

PC>arp -a

Internet Address	Physical Address	Type
10.0.0.2	0005.5e6a.7da2	dynamic
10.0.0.3	0030.f285.7a19	dynamic
10.0.0.4	0001.6383.ddb2	dynamic
10.0.0.5	0004.9a42.616c	dynamic

PC>