

18/12/2024

## Experiment 9- To construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP)

Observation Book:

Q: To construct a simple LAN and understand concept and operation of ARP

Aim: Construct simple LAN simulate operation of ARP

Topology:

```
graph LR; S[Server 0] --- SW[Switch 0]; SW --- PC0[PC0 10.0.0.1]; SW --- PC1[PC1 10.0.0.2]; SW --- PC2[PC2 10.0.0.3];
```

Procedure:

1. Open Cisco packet tracer and drag the following switch, PC: place 3 PC's, each connected to switch 0 and server: place 1 server and connect to switch 0
2. assign IP to all the end devices as shown
3. Use inspect tool to check the ARP table of all devices
4. Can also use CLI (of end devices) to check arp table (command - arp -a)
5. CLI of switch, show mac address-table displays table.

6. Use capture feature in simulator to go step by step so changes in ARP can be clearly noted.

**OBSERVATION:**

As message travels from one source host to its destination host, the ARP table gets updated, ARP maps IP to MAC and ensures communication within local network.

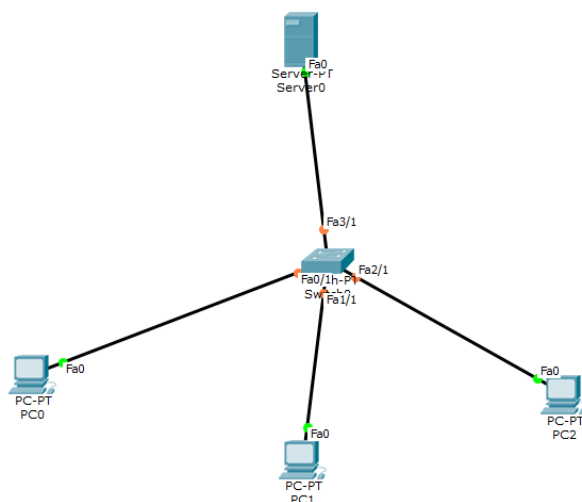
Source PC0  
Destination PC1

ARP (PC0)	IP address	Hardware Address	Interface
	10.0.0.3	00.60.2F.29.20B8	Fast Ethernet 0/1

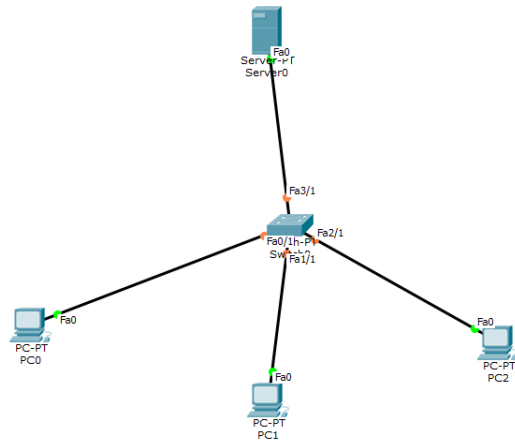
ARP (PC1)	IP address	Hardware Address	Interface
	10.0.0.1	0000.0300.960B	fast Ethernet 0

*Handwritten signature: P. H. Bhatnagar*

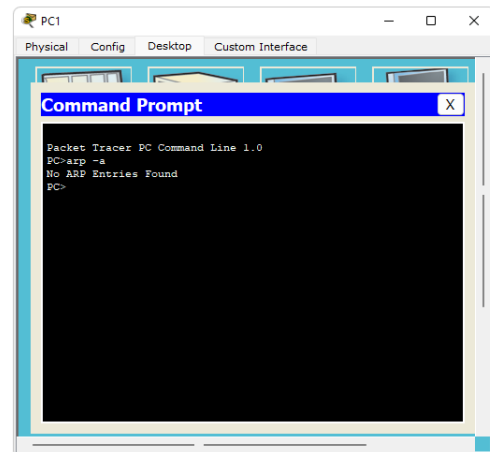
**Topology:**



Output:

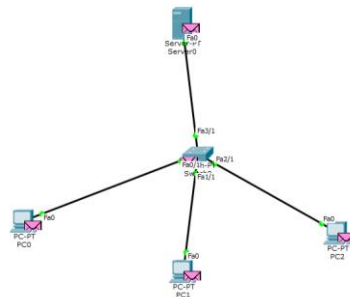


ARP Table for PC0		
IP Address	Hardware Address	Interface



ARP Table for PC2		
IP Address	Hardware Address	Interface
10.0.5.1	000A.41E5.130B	Fa1/1

ARP Table for PC1		
IP Address	Hardware Address	Interface



ARP Table for PC0		
IP Address	Hardware Address	Interface
10.0.0.3	0000.D337.698E	Fa0/1

ARP Table for Switch0		
IP Address	Hardware Address	Interface

Simulation Panel					
Event List					
Vis.	Time(sec)	Last Device	At Device	Type	Info
	0.948	Switch0	Server0	STP	
	0.948	Switch0	PC1	STP	
	0.948	Switch0	PC2	STP	
	0.948	Switch0	PC0	STP	
	2.947	...	Switch0	STP	
	2.948	Switch0	Server0	STP	
	2.948	Switch0	PC1	STP	
	2.948	Switch0	PC2	STP	
	2.948	Switch0	PC0	STP	
Reset Simulation <input checked="" type="checkbox"/> Constant Delay Captured for: 2.948 s					
Play Controls: Back Auto Capture / Play Capture / Forward					
Event List Filters - Visible Events					
ACL Filter, ARP, BGP, CD, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, LACP, NTP, NETFLOW, NTP, OSPF, OSPFv6, PAgg, POP3, RADIUS, RIP, RIPv2, RTP, SCCP, SNMP, SSH, STP, SYSLOG, Telnet, TFTP, Telnet, UDP, VTY					
Edit Filters Show All/None					