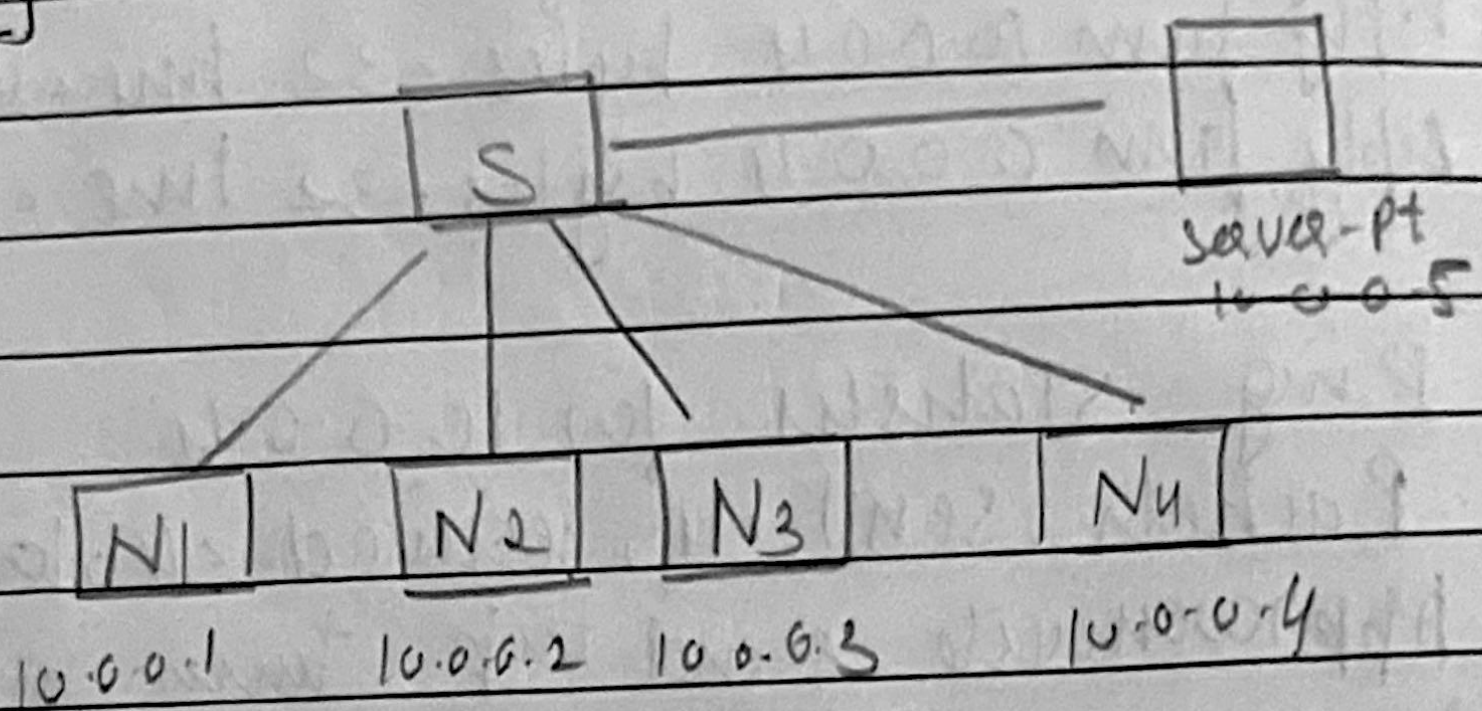


8) construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP)

Topology



Procedure

- 1) Create a topology of 4 PCs and a Server
- 2) IP address assigned to all.
- 3) Connect them through a switch.
- 4) Use the inspect tool to click on a PC to see the ARP Table.
- 5) Command in CLI for the same in a/b - c. Initially ARP Table is empty.
- 6) Also, in CLI of switch, the command - show mac address-table can be given every transaction to see how the switch learns from transactions and build the address-table.
- 7) Use the capture button in the simulation panel to go step by step so that the changes in ARP can be clearly noted.
- 8) Observe the switch as well 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, Received = 4, Lost = 0 (0% loss)

Approximate round trip times in milliseconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>arp -a

Internet address	physical address	Type
10.0.0.4	0060.2f00.324d	dynamic

Observation

- When we ping 1 PC and server the address of server is known to PC & vice versa.
- When we ping between other two PCs simultaneously the addresses of each other are known.
- Every time a host request a MAC address in order to send a packet to another host in the LAN, it checks its ARP cache set if the IP to MAC address translation address already exists. If the translation doesn't exist perform ARP.

FileEditOptionsViewToolsExtensionsHelp

Logical

[Root]

PC-PT PC0

PC-PT PC1

PC-PT PC2

Server-PT Server0

ARP Table for PC2

IP Address	Hardware Address	Interface
10.0.0.1	00E0.A32C.AE49	FastEthernet0

ARP Table for PC0

IP Address	Hardware Address	Interface
10.0.0.2	0001.96AD.E47D	FastEthernet0
10.0.0.3	00E0.A3AA.581D	FastEthernet0

ARP Table for PC1

IP Address	Hardware Address	Interface
10.0.0.1	00E0.A32C.AE49	FastEthernet0

Switch0

PhysicalConfigCLI

IOS Command Line Interface

6 FastEthernet/IEEE 802.3 interface(s)

63488K bytes of flash-simulated non-volatile configuration memory.
Base ethernet MAC Address: 0001.C8AD.078E
Motherboard assembly number: 73-5761-09
Power supply part number: 34-0965-01
Motherboard serial number: FOC061004S2
Power supply serial number: DAB0609127D
Model revision number: C0
Motherboard revision number: A0
Model number: WS-CSwitch-PT
System serial number: FHX061020WC

Cisco Internetwork Operating System Software
IOS (tm) PT3000 Software (PT3000-I6Q4I2-M), Version 12.1(22)EA4, RELEASE SOFTWARE (fc1)
Copyright (c) 1986-2006 by cisco Systems, Inc.
Compiled Fri 12-May-06 17:19 by pt_team

Press RETURN to get started!

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

CopyPaste

Time: 00:08:27.261

Power Cycle DevicesPLAY CONTROLS: BackAuto Capture / Play Capture

Connections

Scenario 0

NewDelete

FireLast StatusSource Destination Type ColorTime(sec)PeriodicNumEditDelete

In ProgressPC0PC2ICMP0.000N0(edit)(delete)

Translating DHTML to HTML