Genba Sopanrao Moze College of Engineering, Balewadi, Pune-45

Department of Electronics And Telecommunication

Academic year 2022_23

Roll No: **Subject: Control System Lab**

Date : **Staff Sign:**

Experiment no:-3

AIM: Observe and note the details of the live type of traffic (ARP, Frame analysis, ethernet) from interface using packet capture and analysis tool

REQUIREMENT:

WINDOWS 10 with LAN Connectivity.

Software: Cisco Packet Tracer

Theory:

We want to observe the ARP protocol in action. ARP is used to find the Ethernet address that corresponds to a local IP address to which your computer wants to send a packet. A typical example of a local IP address is that of the local router or default gateway that connects your computer to the rest of the Internet. Your computer caches these translations in an ARP cache so that the ARP protocol need only be used occasionally to do the translation. The setup from the viewpoint of your computer is as shown in the example below.

How ARP Works

When an incoming packet destined for a host machine on a particular local area network arrives at a gateway, the gateway asks the ARP program to find a physical host or MAC address that matches the IP address. The ARP program looks in the

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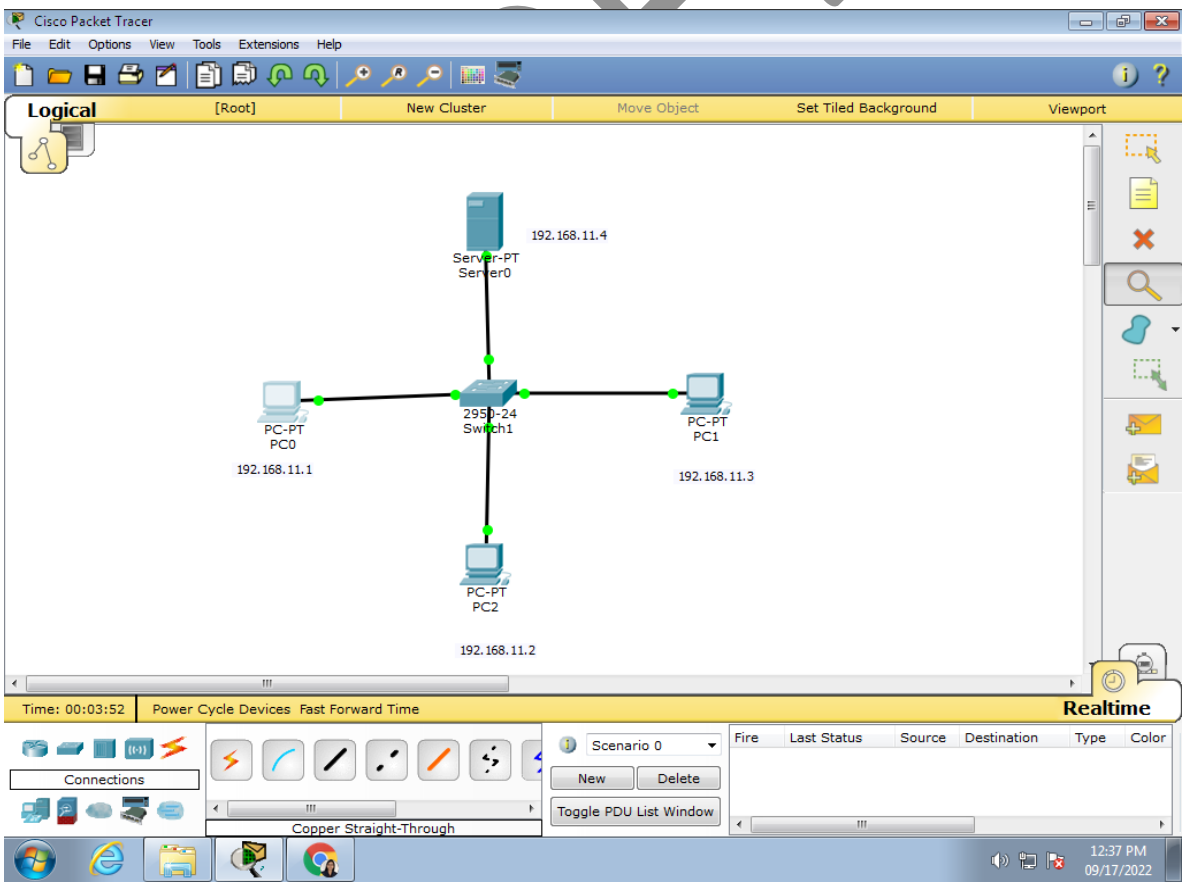
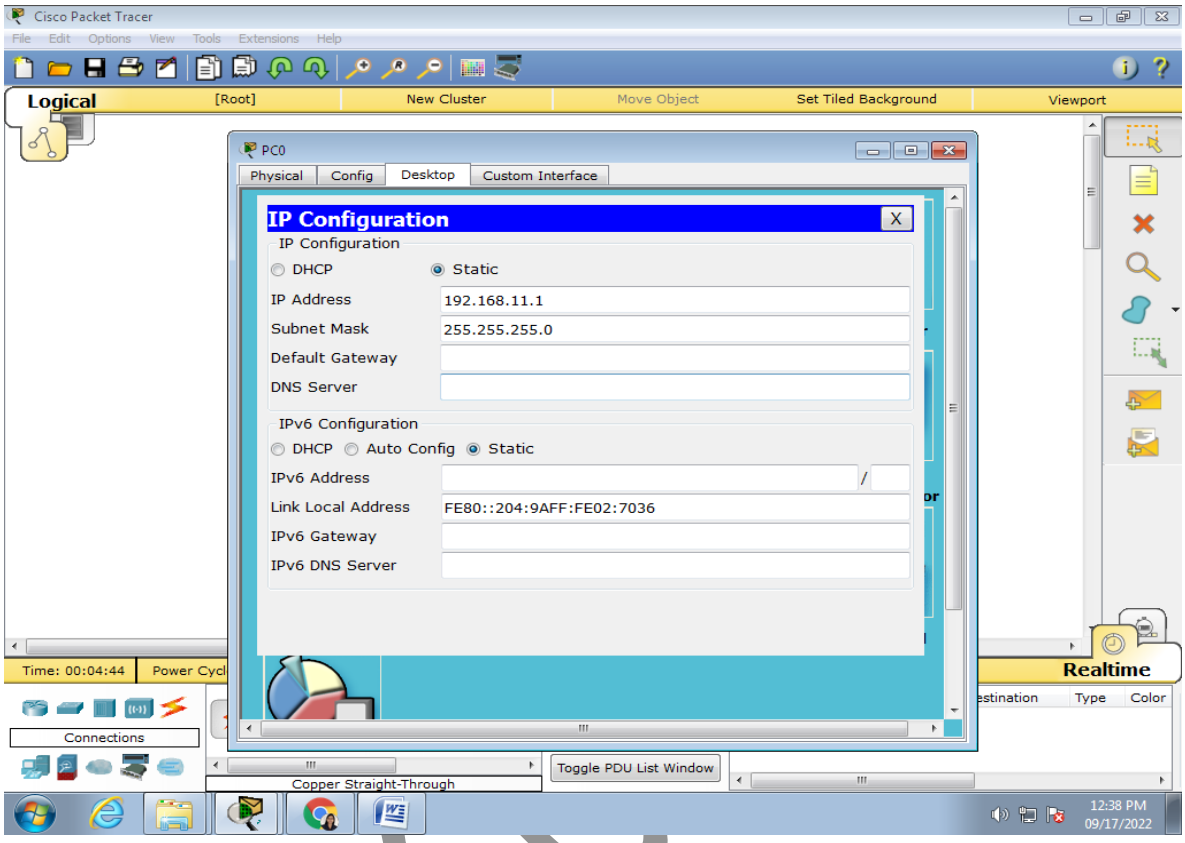
ARP cache and, if it finds the address, provides it so that the packet can be converted to the right packet length and format and sent to the machine. If no entry is found for the IP address, ARP broadcasts a request packet in a special format to all the machines on the LAN to see if one machine knows that it has that IP address associated with it. A machine that recognizes the IP address as its own returns a reply so indicating. ARP updates the ARP cache for future reference and then sends the packet to the MAC address that replied.

Steps:

1. Open the software ,cisco packet Tracer student version.
2. Design the network as shown in diagram
3. Configure IP addresses for all pc
4. Check connectivity



GSMCOE, E&TC



Same for all

5. Click on inspect icon then on PC and right click and open ARP table. Do this for server also
6. Initially in ARP no entry found
7. Click command prompt of source PC
8. Pc>arp –a……..enter
9. PC>Ping 192.168.11.4….enter

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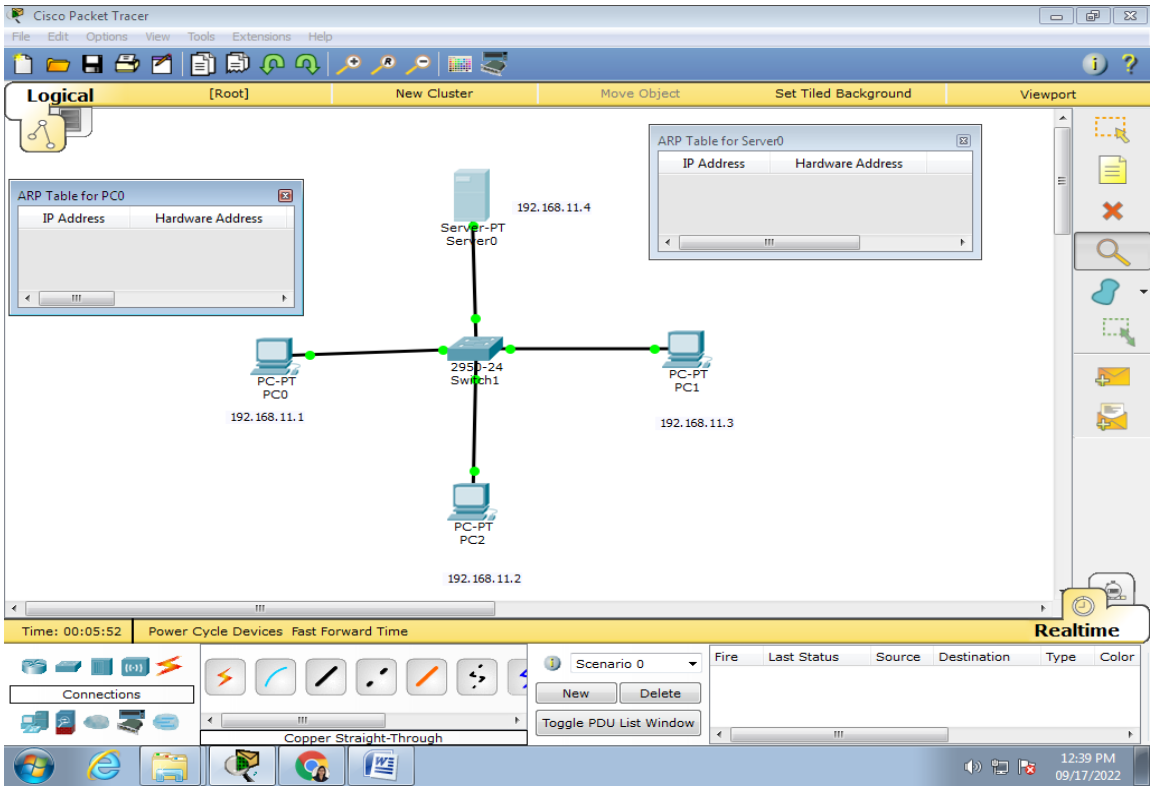
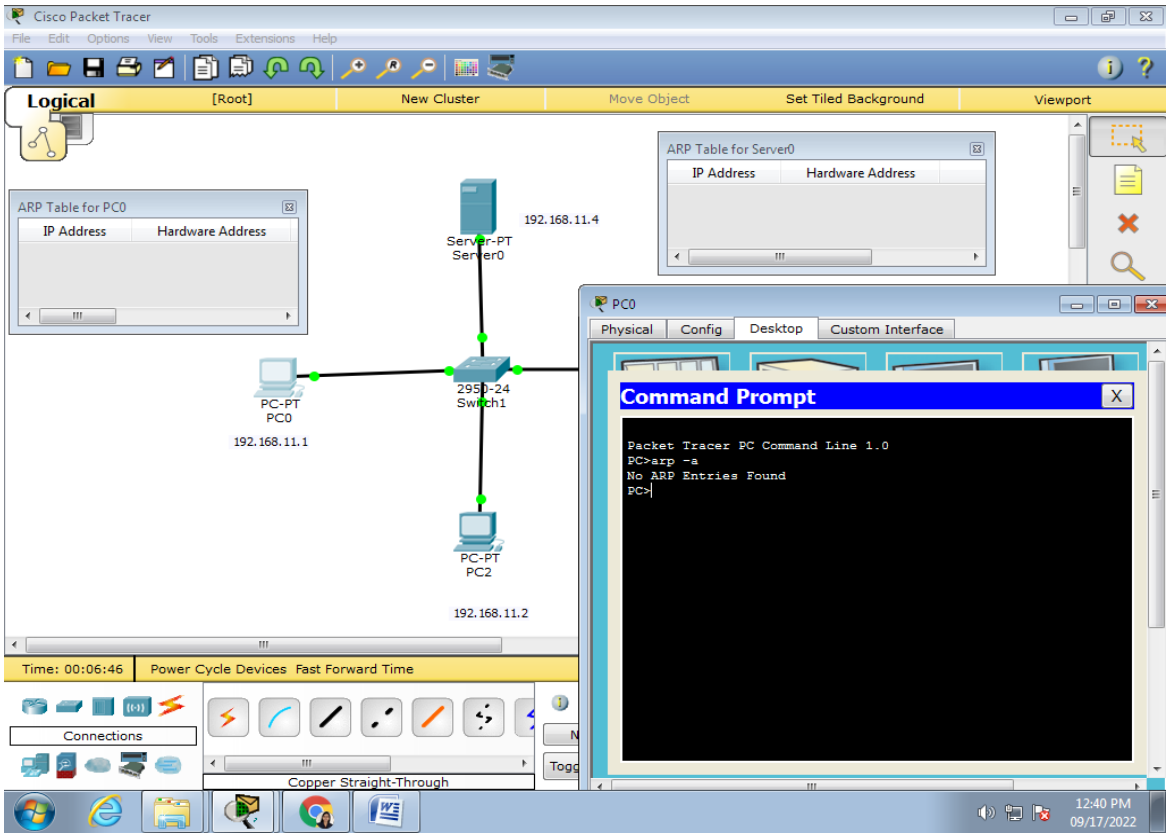
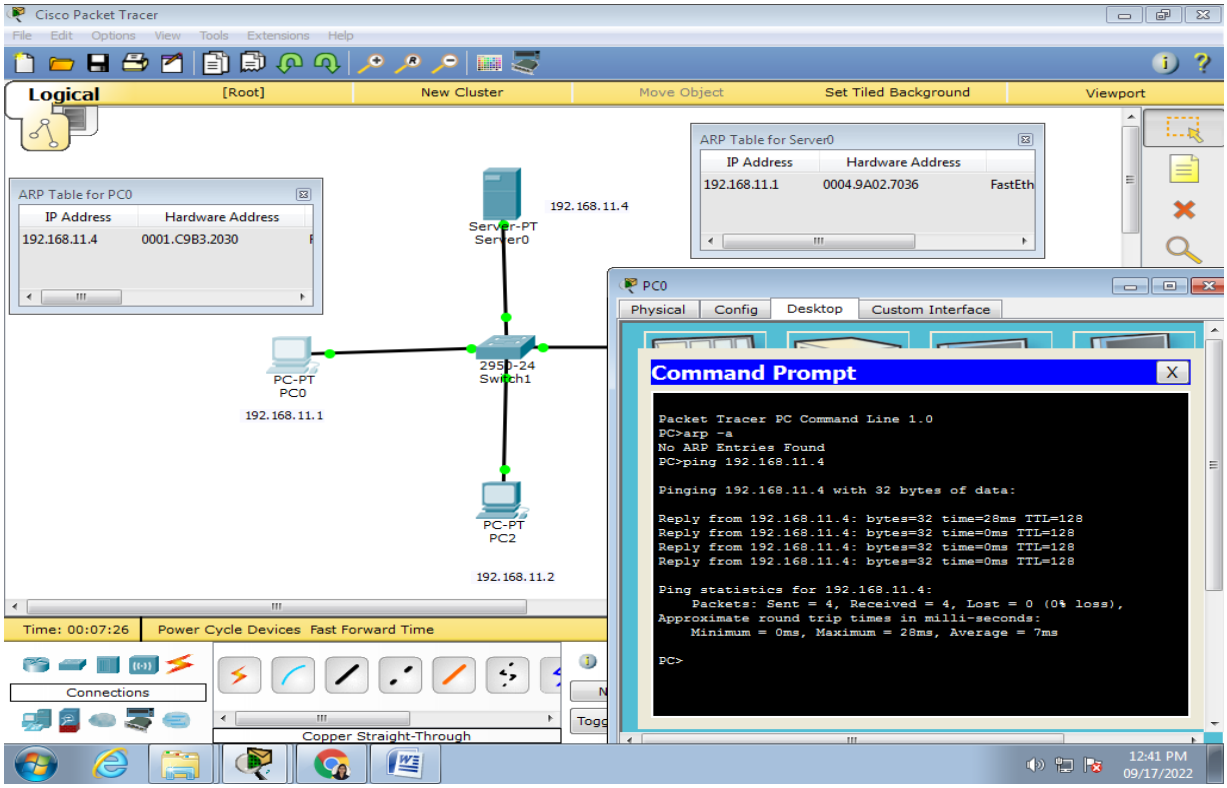

Cisco Packet Tracer
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
ARP Table for PC0
IP Address
Hardware Address
ARP Table for Server0
IP Address
Hardware Address
Server-PT Server0
192.168.11.4
2950-24 Switch1
PC-PT PC0
192.168.11.1
PC-PT PC1
192.168.11.3
PC-PT PC2
192.168.11.2
Time: 00:05:52
Power Cycle Devices Fast Forward Time
Realtime
Connections
Copper Straight-Through
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
12:39 PM
09/17/2022


Cisco Packet Tracer
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
ARP Table for PC0
IP Address
Hardware Address
ARP Table for Server0
IP Address
Hardware Address
Server-PT Server0
192.168.11.4
2950-24 Switch1
PC-PT PC0
192.168.11.1
PC-PT PC2
192.168.11.2
PC0
Physical
Config
Desktop
Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>arp -a
No ARP Entries Found
PC>
Time: 00:06:46
Power Cycle Devices Fast Forward Time
Connections
Copper Straight-Through
12:40 PM
09/17/2022

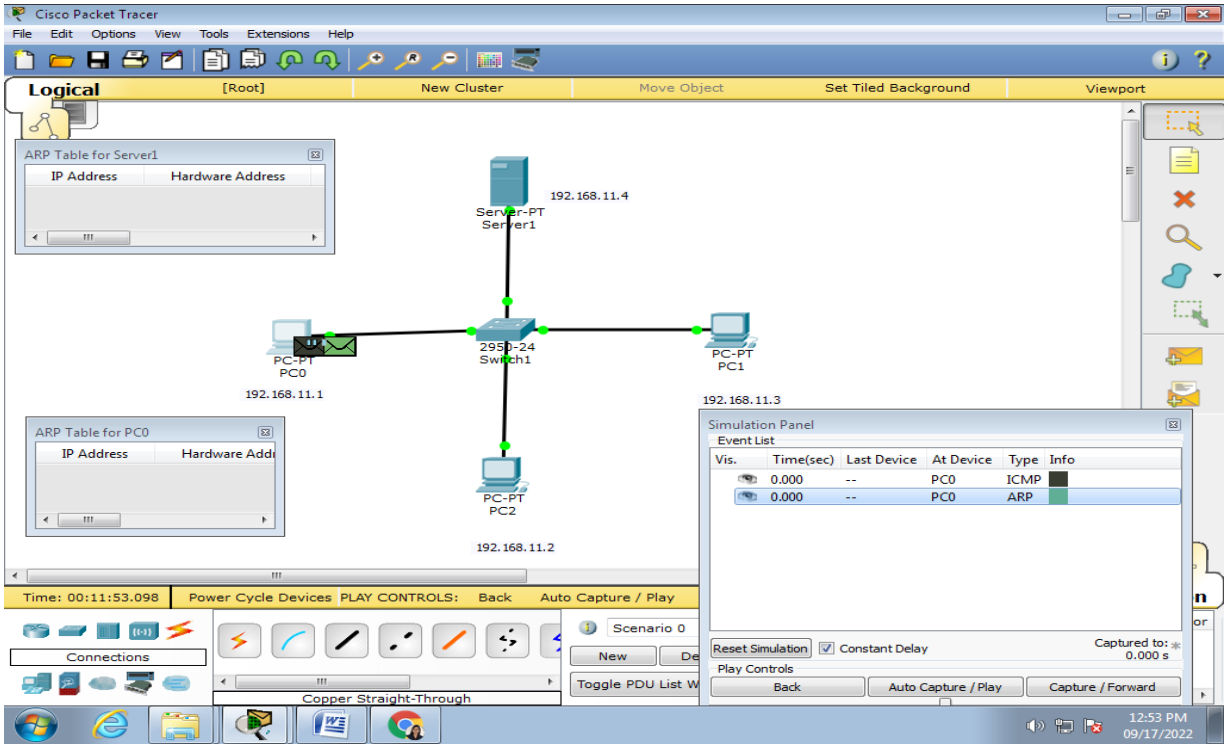


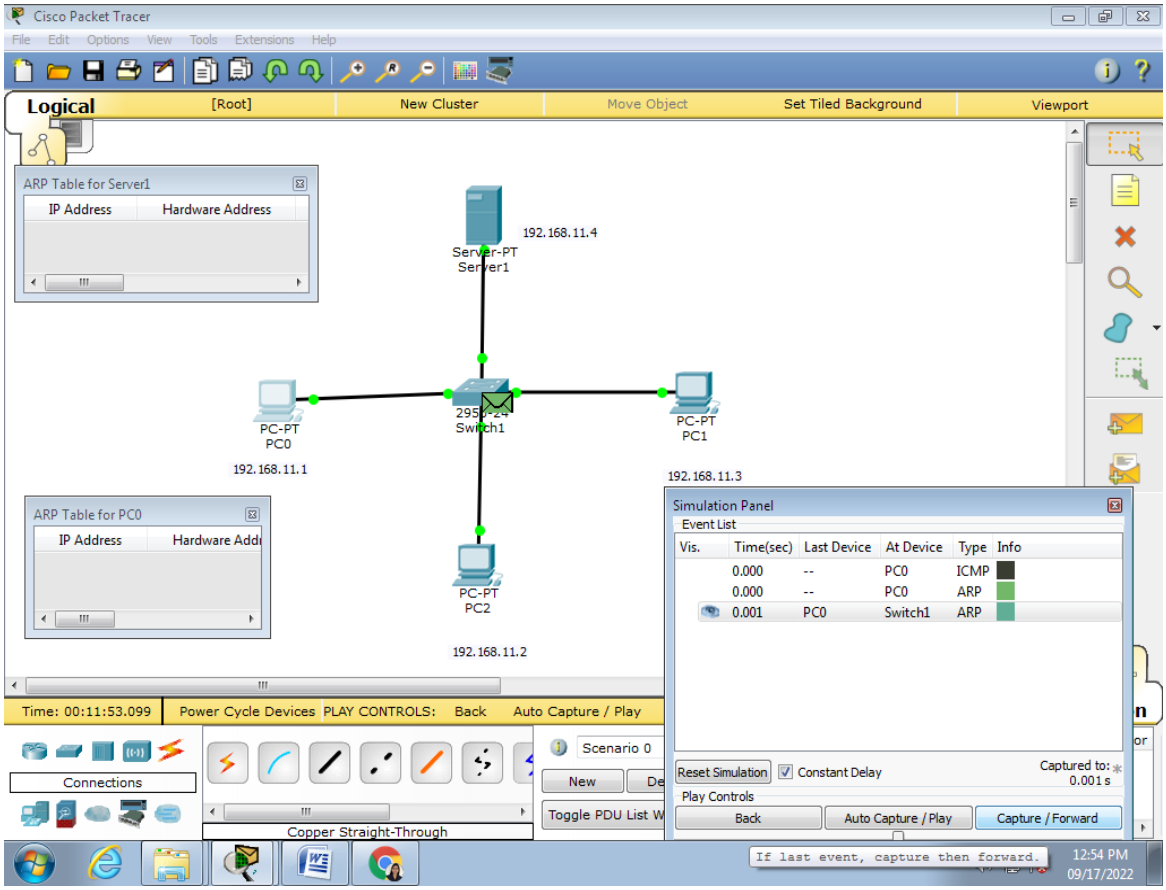
10.Check the simulation

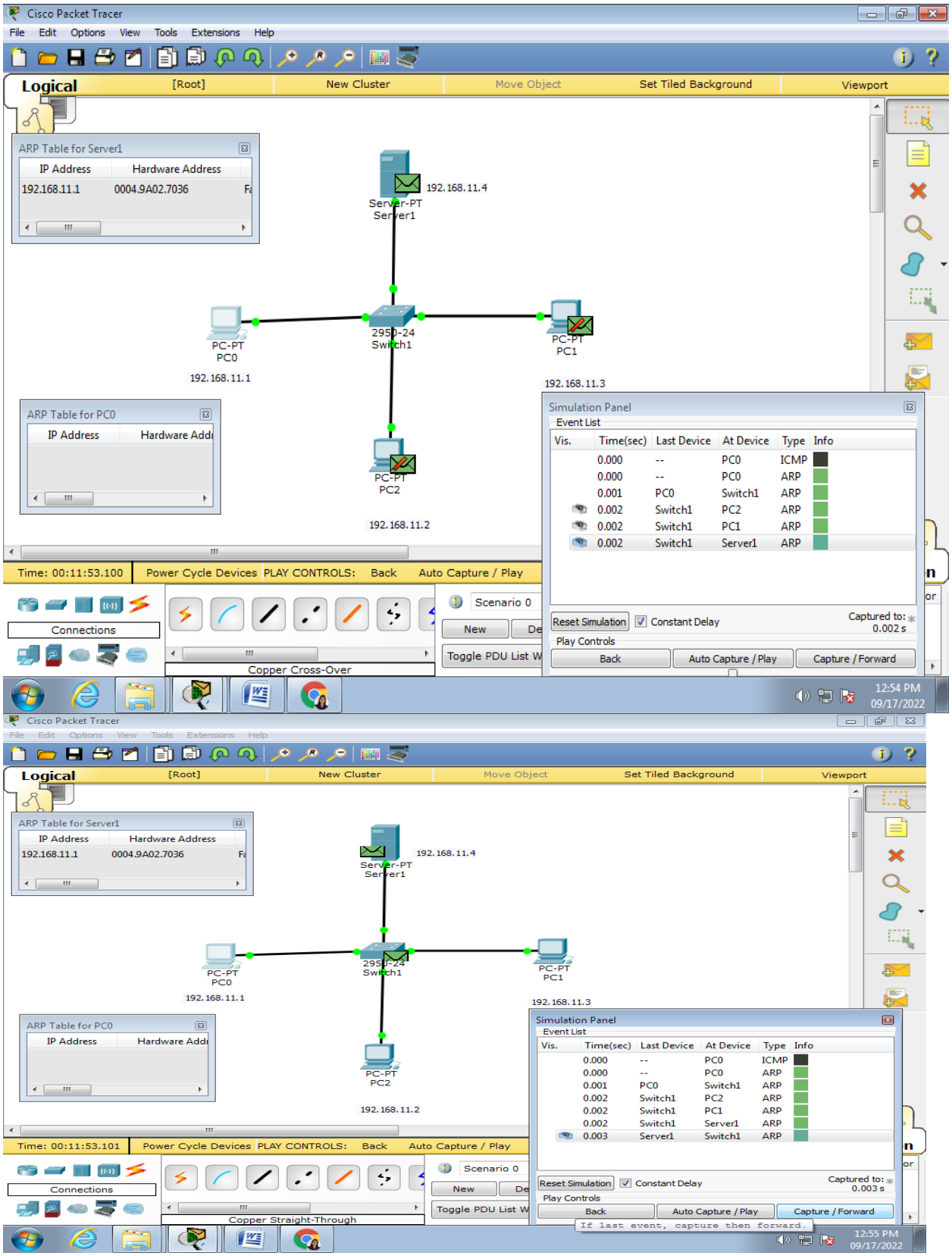
11.Two packets are there one is of ICMP and other is of ARP

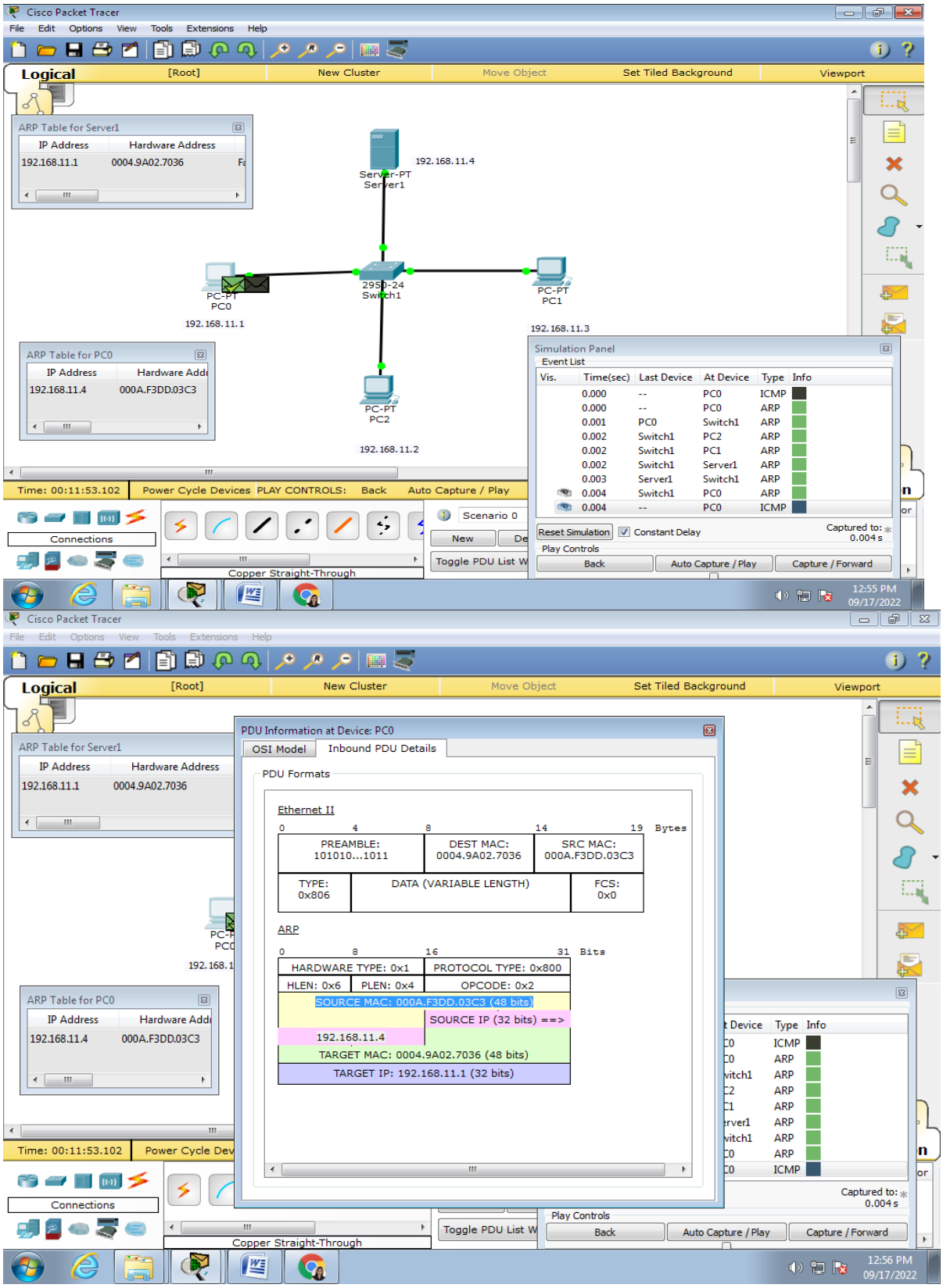
12.Click on ARP packet and open outbound PDU for more details

13.Now click on capture /Forward and observe simulation and ARP table


Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
ARP Table for Server1
IP Address
Hardware Address
Server-PT Server1
192.168.11.4
PC-PT PC0
192.168.11.1
2950-24 Switch1
PC-PT PC1
192.168.11.3
ARP Table for PC0
PC-PT PC2
192.168.11.2
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device Type Info
0.000 -- PC0 ICMP
0.000 -- PC0 ARP
Reset Simulation
Constant Delay
Captured to: 0.000 s
Play Controls
Back
Auto Capture / Play
Capture / Forward
Time: 00:11:53.098
Power Cycle Devices
PLAY CONTROLS:
Back
Auto Capture / Play
Scenario 0
New
Toggle PDU List W
Connections
Copper Straight-Through
12:53 PM
09/17/2022

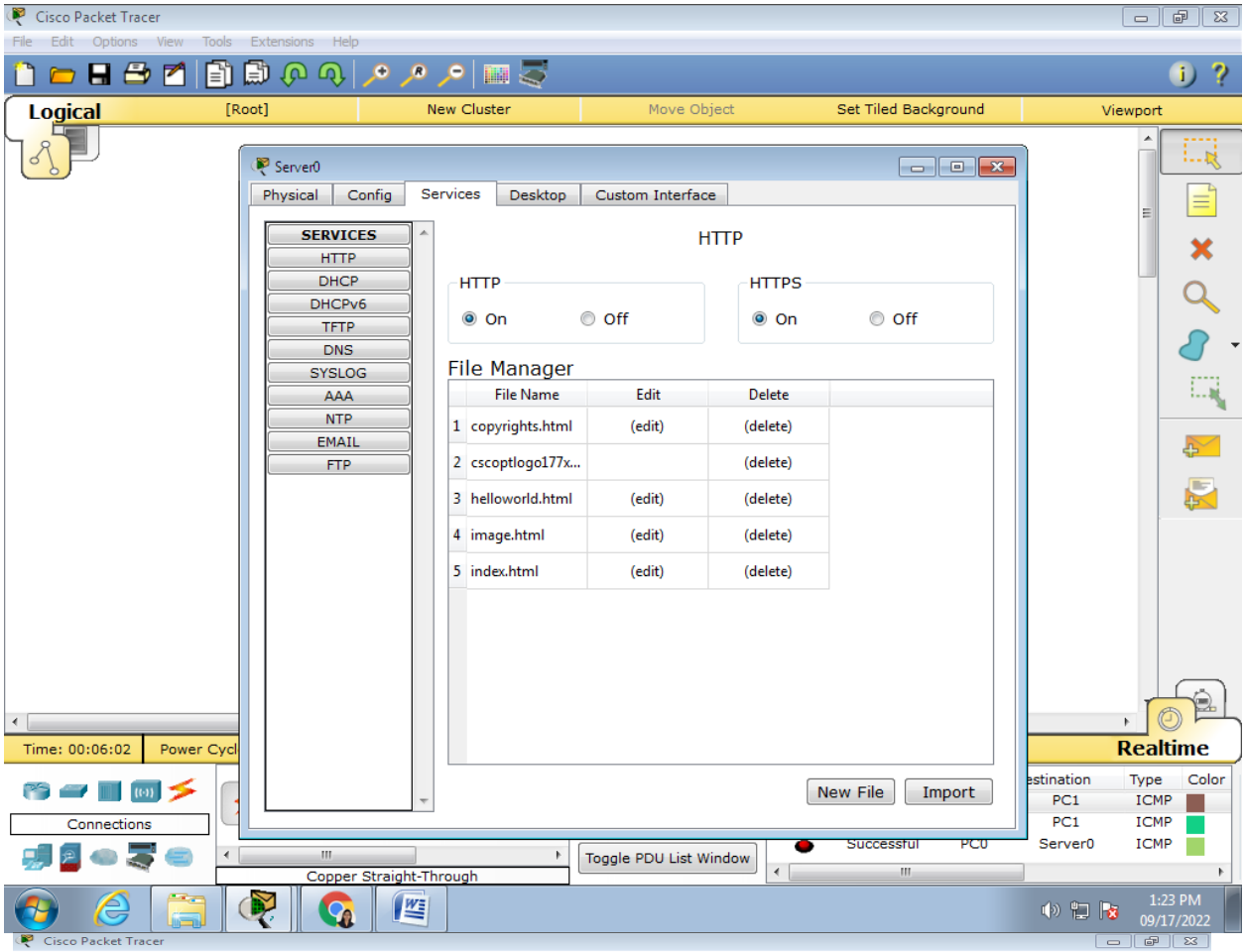

Cisco Packet Tracer
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
ARP Table for Server1
IP Address
Hardware Address
Server-PT Server1
192.168.11.4
PC-PT PC0
192.168.11.1
2950-24 Switch1
PC-PT PC1
192.168.11.3
ARP Table for PC0
PC-PT PC2
192.168.11.2
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device Type Info
0.000 -- PC0 ICMP
0.000 -- PC0 ARP
0.001 PC0 Switch1 ARP
Reset Simulation
Constant Delay
Captured to: 0.001 s
Play Controls
Back
Auto Capture / Play
Capture / Forward
Time: 00:11:53.099
Power Cycle Devices
PLAY CONTROLS:
Back
Auto Capture / Play
Scenario 0
New
Toggle PDU List W
Connections
Copper Straight-Through
If last event, capture then forward.
12:54 PM
09/17/2022

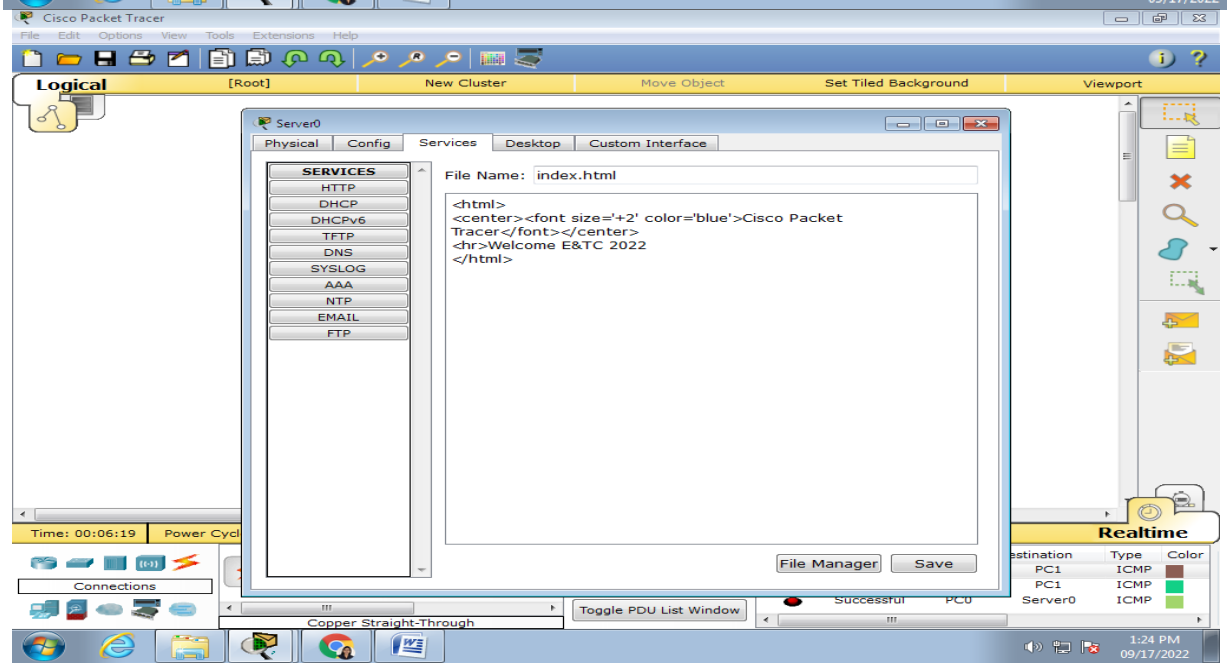

Cisco Packet Tracer
File Edit Options View Tools Extensions Help
Logical [Root] New Cluster Move Object Set Tiled Background Viewport
ARP Table for Server1
IP Address Hardware Address
192.168.11.1 0004.9A02.7036
Server-PT Server1
192.168.11.4
PC-PT PC0
192.168.11.1
2950-24 Switch1
PC-PT PC1
192.168.11.3
ARP Table for PC0
PC-PT PC2
192.168.11.2
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device Type Info
0.000 -- PC0 ICMP
0.000 -- PC0 ARP
0.001 PC0 Switch1 ARP
0.002 Switch1 PC2 ARP
0.002 Switch1 PC1 ARP
0.002 Switch1 Server1 ARP
Reset Simulation Constant Delay
Captured to: 0.002 s
Play Controls
Back Auto Capture / Play Capture / Forward
Time: 00:11:53.100 Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play
Connections
Copper Cross-Over
Scenario 0
New
Toggle PDU List W
12:54 PM
09/17/2022
Cisco Packet Tracer
Logical [Root] New Cluster Move Object Set Tiled Background Viewport
ARP Table for Server1
IP Address Hardware Address
192.168.11.1 0004.9A02.7036
Server-PT Server1
192.168.11.4
PC-PT PC0
192.168.11.1
2950-24 Switch1
PC-PT PC1
192.168.11.3
ARP Table for PC0
PC-PT PC2
192.168.11.2
Simulation Panel
Event List
Vis. Time(sec) Last Device At Device Type Info
0.000 -- PC0 ICMP
0.000 -- PC0 ARP
0.001 PC0 Switch1 ARP
0.002 Switch1 PC2 ARP
0.002 Switch1 PC1 ARP
0.002 Switch1 Server1 ARP
0.003 Server1 Switch1 ARP
Reset Simulation Constant Delay
Captured to: 0.003 s
Play Controls
Back Auto Capture / Play Capture / Forward
If last event, capture then forward.
Time: 00:11:53.101 Power Cycle Devices PLAY CONTROLS: Back Auto Capture / Play
Connections
Copper Straight-Through
Scenario 0
New
Toggle PDU List W
12:55 PM
09/17/2022

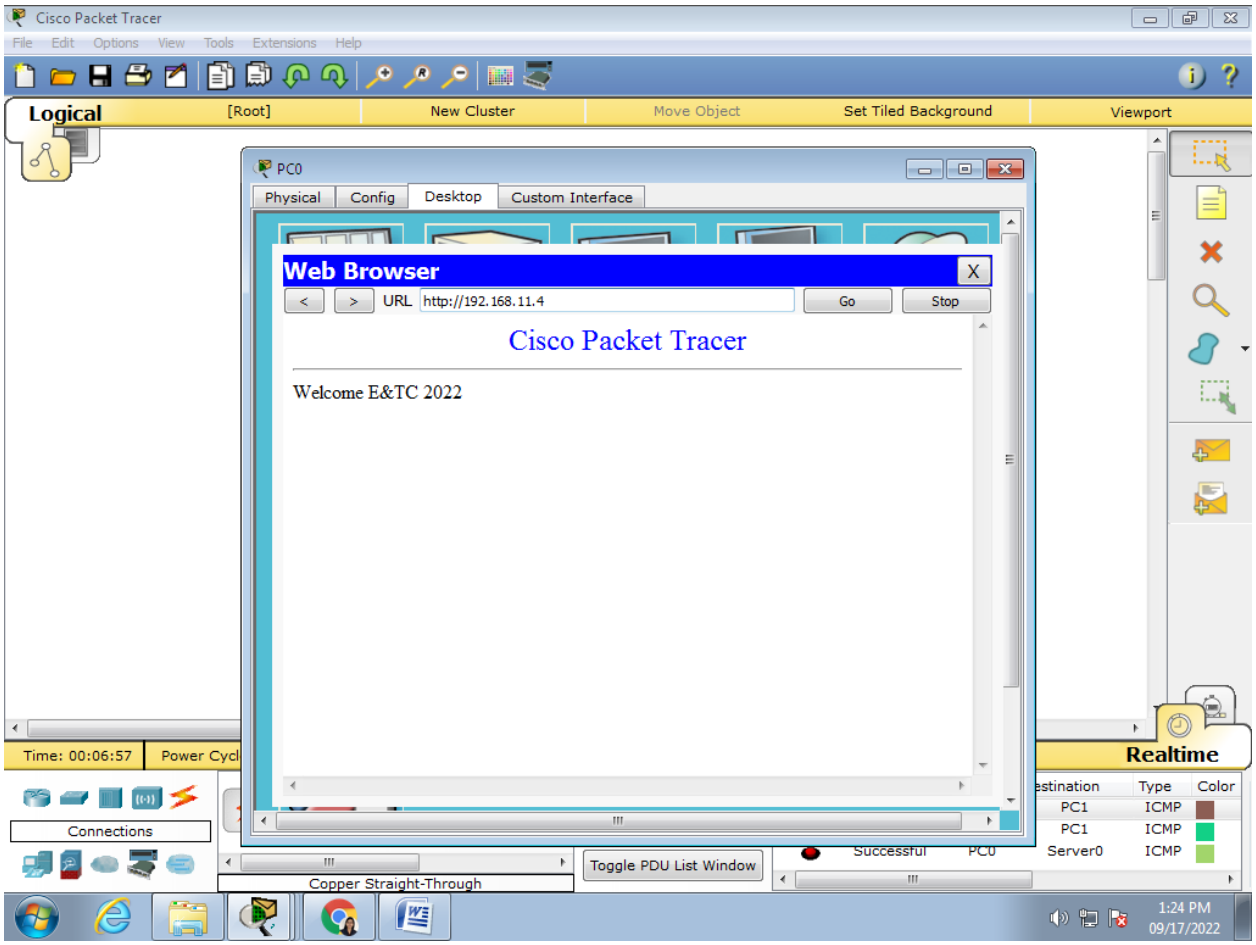


14.Now make server as web server

15.Click on Server and do following setting







Check for all PC

16.Now Click on PC0 and open traffic generator

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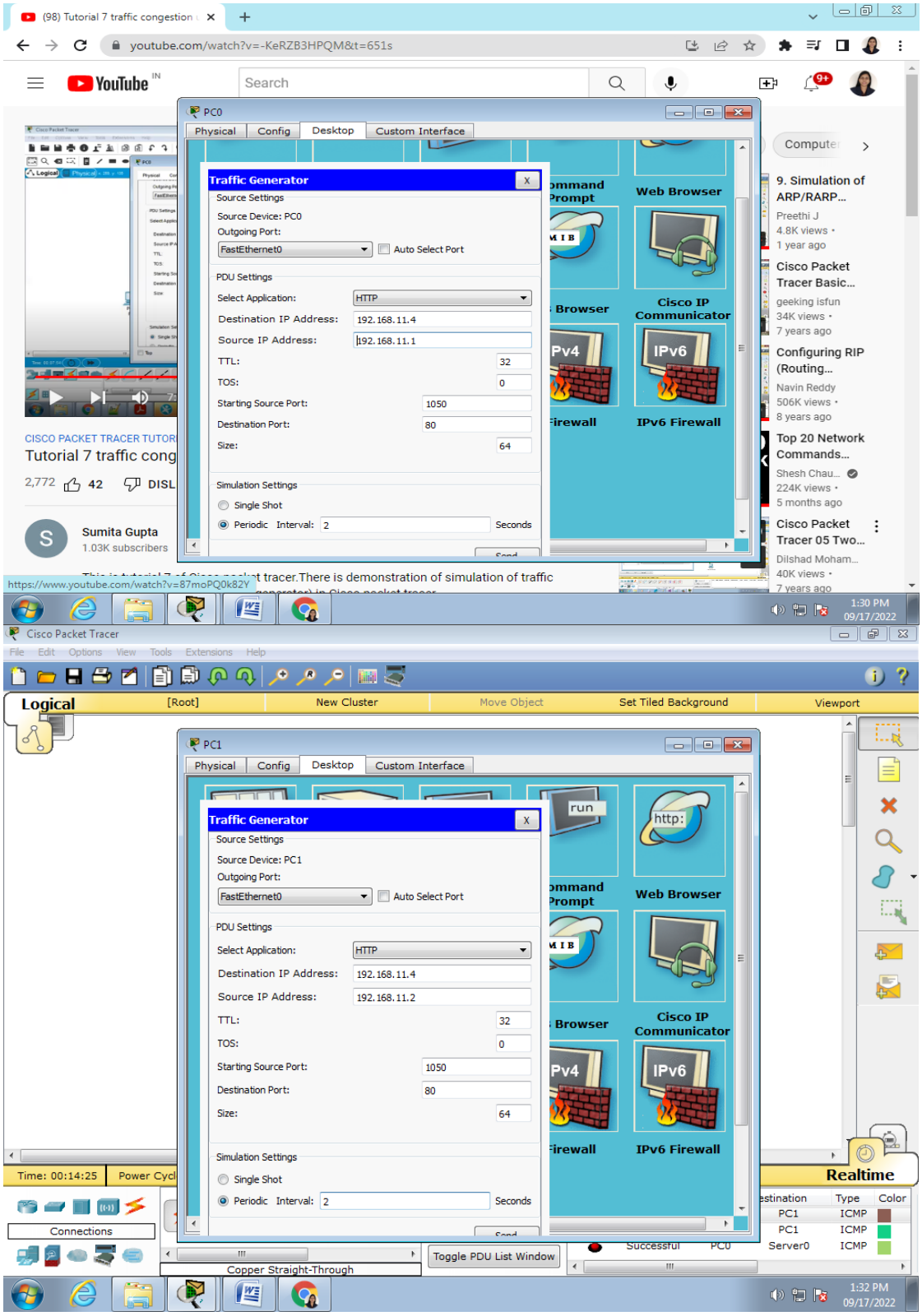
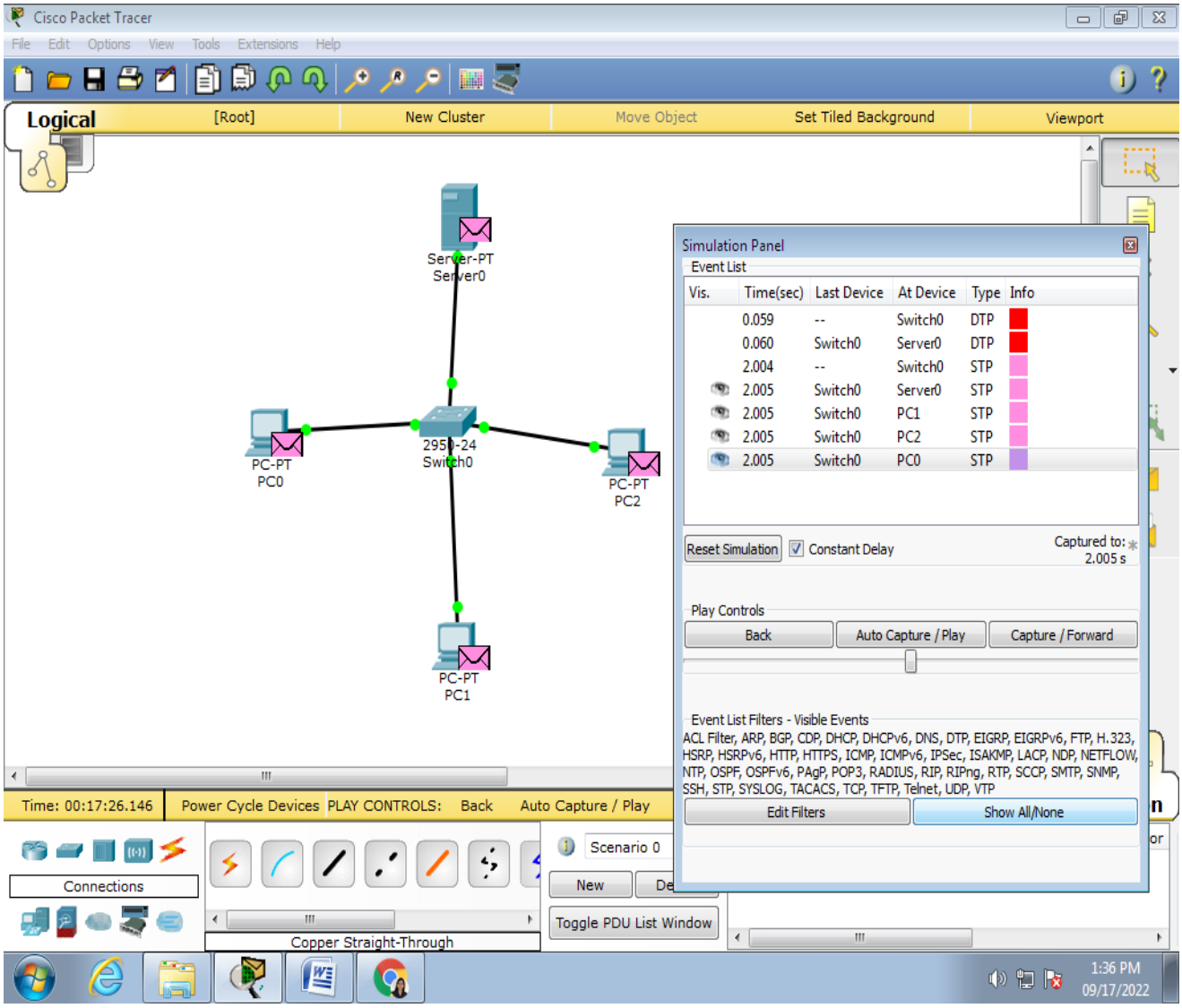


Repeat for all PC



Result Printouts:

CONCLUSION:

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