

# EXPERIMENT-1 (HUB)

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 320, y: 1

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Hub0	ICMP
	0.002	Hub0	PC1	ICMP
	0.002	Hub0	PC2	ICMP
	0.003	PC2	Hub0	ICMP
	0.004	Hub0	PC0	ICMP
	0.004	Hub0	PC1	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.004 s

Time: 00:04:35.192 PLAY CONTROLS

Scenario 0

New Delete Toggle PDU List Window

Copper Straight-Through

Fire Last Status Source Destination Type Color Time(sec) Period

Successful	PC0	PC2	IC...		0.000	N
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Windows Taskbar: Type here to search, 30°C, 9:04 PM, 9/21/2022

# EXPERIMENT-2(STAR)

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 586, y: 79 [Root]

p.samera bin tsj  
192.110.45.7  
exp: 02 star protocol

PC-PT PC0 PC-PT PC4  
PC-PT PC1 2950-24TT Switch0 PC-PT PC3  
PC-PT PC2

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	1.001	Switch0	PC3	STP
	1.001	Switch0	PC1	STP
	1.001	Switch0	PC2	STP
	1.001	Switch0	PC4	STP
	3.001	--	Switch0	STP
	3.002	Switch0	PC0	STP
	3.002	Switch0	PC3	STP
	3.002	Switch0	PC1	STP
	3.002	Switch0	PC2	STP
	3.002	Switch0	PC4	STP
	4.760	--	Switch0	DTP
	4.761	Switch0	PC2	DTP

Time: 00:23:07.900 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic

Successful	PC0	PC3	IC...	Green	0.000	N
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Automatically Choose Connection Type

31°C 9:31 PM 9/21/2022

# EXPERIMENT-2 (MESH)

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 433, y: 190 [Root]

Simulation Panel

Event List

Vis	Time(sec)	Last Device	At Device	Type
	15.641	Switch1	Switch0	STP
	15.641	Switch1	PC1	STP
	15.641	Switch1	Switch2	STP
	15.641	Switch1	Switch3	STP
	15.642	Switch0	Switch2	STP
	15.642	Switch0	PC0	STP
	15.642	Switch0	Switch3	STP
	15.642	Switch2	Switch3	STP
	15.642	Switch2	PC2	STP
	15.642	Switch3	PC3	STP
	17.134	--	Switch1	DTP
	17.135	Switch1	Switch0	DTP

Time: 00:07:30.546 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Peri

Successful	PC0	PC3	ICMP		0.000	
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ENG 9:42 PM 31°C 9/21/2022

# EXPERIMENT-2(TREE)

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 263, y: 226 [Root] 03:13:00

p.sameera bin taj  
1921104577  
exp: 02 tree

PC-PT PC0 PC-PT PC1 PC-PT PC2 PC-PT PC3 PC-PT PC4 PC-PT PC5

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Switch1	ICMP
	0.003	Switch1	PC4	ICMP
	0.004	PC4	Switch1	ICMP
	0.005	Switch1	Switch0	ICMP
	0.006	Switch0	PC0	ICMP
	0.509	--	Switch0	STP

Time: 00:04:33.932 PLAY CONTROLS

Scenario 0 New Delete Toggle PDU List Window

Copper Cross-Over

Type here to search

ENG 9:52 PM 31°C 9/21/2022

# EXPERIMENT-3(BUS)

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 356, y: 236

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Switch1	ICMP
	0.003	Switch1	PC3	ICMP
	0.004	PC3	Switch1	ICMP
	0.005	Switch1	Switch0	ICMP
	0.006	Switch0	PC0	ICMP
	1.179	--	Switch1	DTP
	1.180	Switch1	PC2	DTP
	1.719	--	Switch0	STP

Time: 00:04:29.918

PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Period

Successful	PC0	PC3	IC...		0.000	N
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ENG 10:00 PM 31°C 9/21/2022

# EXPERIMENT-3(RING)

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 184, y: 112 [Root] 02:15:00

PC-PT PC2

2960-24TT Switch0

2960-24TT Switch1

PC-PT PC1

2960-24TT Switch2

2960-24TT Switch3

PC-PT PC3

P.SAMEERA BIN TAJ  
192110457  
EXP. 03

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Switch1	ICMP
	0.003	Switch1	Switch3	ICMP
	0.004	Switch3	PC3	ICMP
	0.005	PC3	Switch3	ICMP
	0.006	Switch3	Switch1	ICMP
	0.007	Switch1	Switch0	ICMP
	0.008	Switch0	PC0	ICMP
	0.236	--	Switch0	STP

Time: 00:03:51.310 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Period

Successful	PC0	PC3	IC...	0.000	N
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Copper Cross-Over

Type here to search

31°C 10:08 PM 9/21/2022



# EXPERIMENT-3(HYBRID)

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x 563, y 281

Simulation Panel

Event List

Vis	Time(sec)	Last Device	At Device	Type
	0.008	Switch6	Switch3	ICMP
	0.009	Switch3	Switch2	ICMP
	0.010	Switch2	Switch1	ICMP
	0.011	Switch1	Switch0	ICMP
	0.012	Switch0	PC3	ICMP
	0.764	...	Switch1	STP
	0.765	Switch1	Switch0	STP
	0.765	Switch1	PC4	STP
	0.765	Switch1	Switch2	STP
	0.766	Switch0	PC3	STP
	0.766	Switch2	PC5	STP
	0.766	Switch2	Switch3	STP

Time: 00:13:58.578

PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Copper Straight-Through

Fire Last Status Source Destination Type Color Time(sec) Periodic

Successful	PC3	PC0	IC...		0.000	N
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ENG 10:25 PM 9/21/2022

# EXPERIMENT-4

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x:357, y:239

Simulation Panel

Event List

Vis	Time(sec)	Last Device	At Device	Type
	0.006	Hub4	PC4	ICMP
	0.006	PC3	Hub3	ICMP
	0.007	Hub3	Hub2	ICMP
	0.007	Hub3	Hub4	ICMP
	0.008	Hub2	Hub1	ICMP
	0.008	Hub2	PC2	ICMP
	0.008	Hub4	Printer0	ICMP
	0.008	Hub4	PC4	ICMP
	0.009	Hub1	Hub0	ICMP
	0.009	Hub1	PC1	ICMP
	0.010	Hub0	Server0	ICMP
	0.010	Hub0	PC0	ICMP

Time: 00:12:11.530

PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Copper Straight-Through

Fire Last Status Source Destination Type Color Time(sec) Period

Successful PC0 PC3 IC... 0.000 N

ENG 10:38 PM 9/21/2022



# EXPERIMENT-5

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 581, y: 160 [Root] 02:45:00

p.sameera bin taj  
192110457  
exp . 05

Server-PT  
Server0

Hub-PT  
Hub0

PC-PT  
PC0

PC-PT  
PC1

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Hub0	ICMP
	0.002	Hub0	PC1	ICMP
	0.002	Hub0	Server0	ICMP
	0.003	PC1	Hub0	ICMP
	0.004	Hub0	PC0	ICMP
	0.004	Hub0	Server0	ICMP

Reset Simulation ☒ Constant Delay Captured to... 621.807 s

Time: 00:15:25.422 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Period

Successful	PC0	PC1	IC...		0.000	N
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Automatically Choose Connection Type

Type here to search

33°C

ENG 6:48 PM  
US 9/22/2022

# EXPERIMENT-6

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 556, y: 255 [Root]

```
graph TD
    PC0[PC0] --- Switch0[Switch0]
    PC1[PC1] --- Switch1[Switch1]
    Switch0 --- Router0[Router0]
    Switch1 --- Router0[Router0]
```

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Router0	ICMP
	0.003	Router0	Switch0	ICMP
	0.004	Switch0	PC0	ICMP

Reset Simulation ☒ Constant Delay Captured to: 0.004 s

Time: 00:05:37.688 PLAY CONTROLS

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic

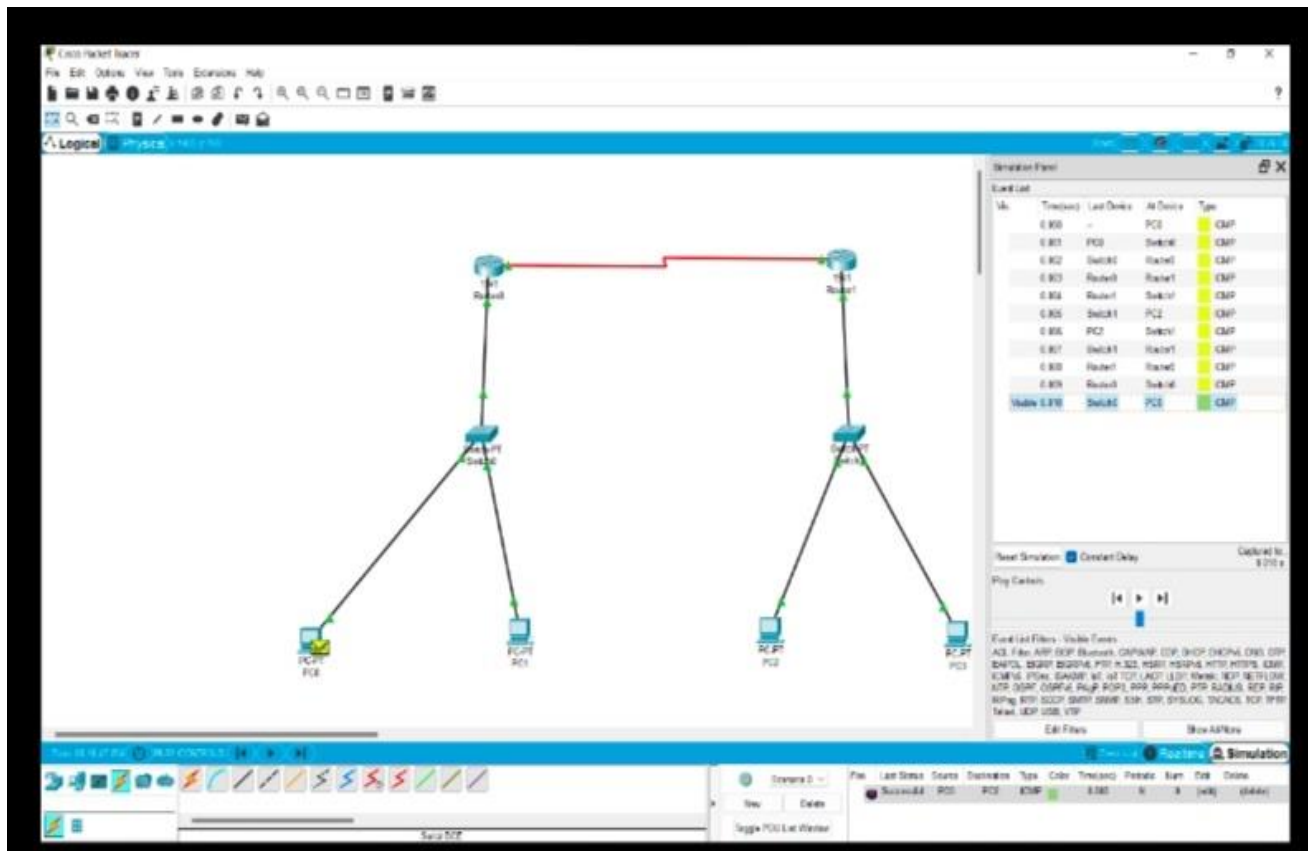
Successful	PC0	Router0	IC...		0.000	N
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Console

Type here to search

36°C 4:12 PM 9/21/2022

## EXPERIMENT-7



# EXPERIMENT-8

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 501, y: 299

[Root]

2511 Router0

2509 Switch0

2509 Switch1

PC-PT PC0

PC-PT PC1

PC-PT PC2

PC-PT PC3

PC-PT PC4

PC-PT PC5

p.sameera bin taj  
192110457

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch0	ICMP
	0.002	Switch0	Router0	ICMP
	0.003	Router0	Switch1	ICMP
	0.004	Switch1	PC4	ICMP
	0.005	PC4	Switch1	ICMP
	0.006	Switch1	Router0	ICMP
	0.007	Router0	Switch0	ICMP
	0.008	Switch0	PC0	ICMP

Time: 00:57:56.658

PLAY CONTROLS

Event List Realtime Simulation

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Period

Successful	PC0	PC4	IC...		0.000	N
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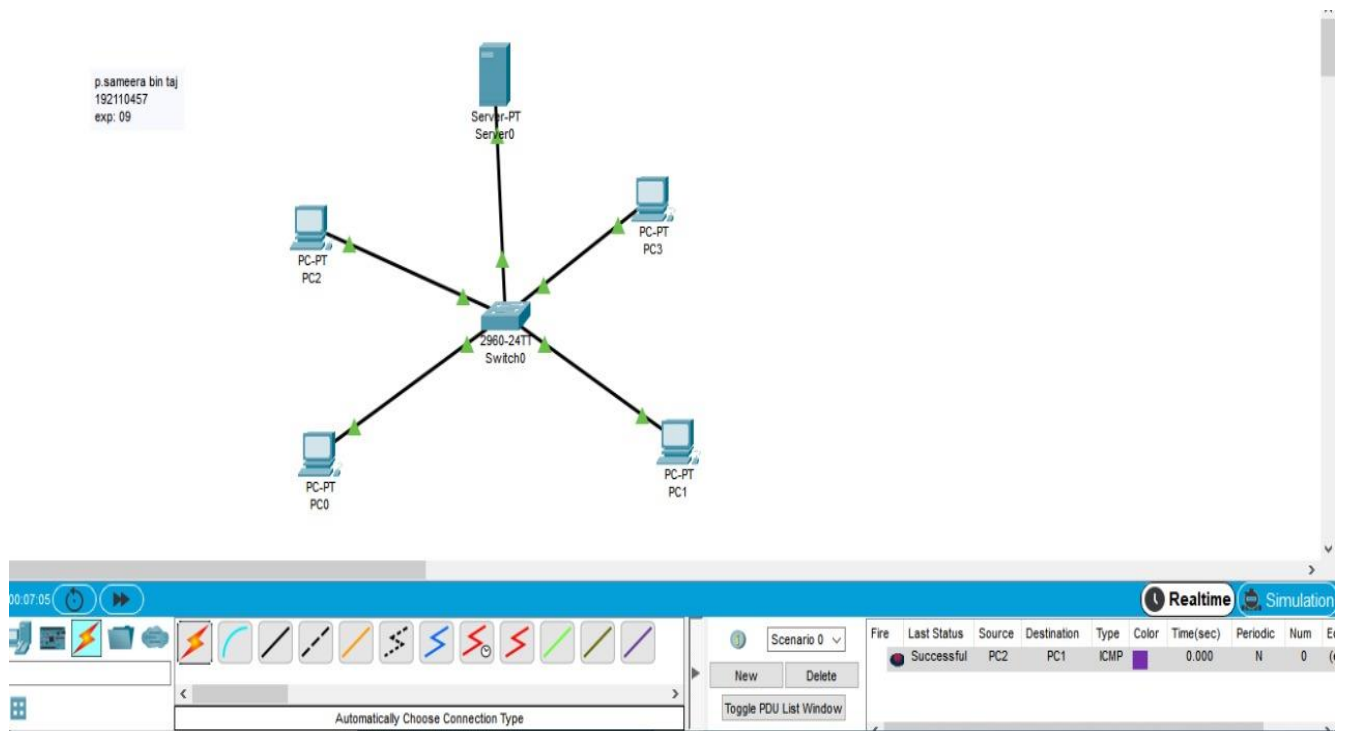
Type here to search

32°C

ENG 10:48 AM 9/22/2022

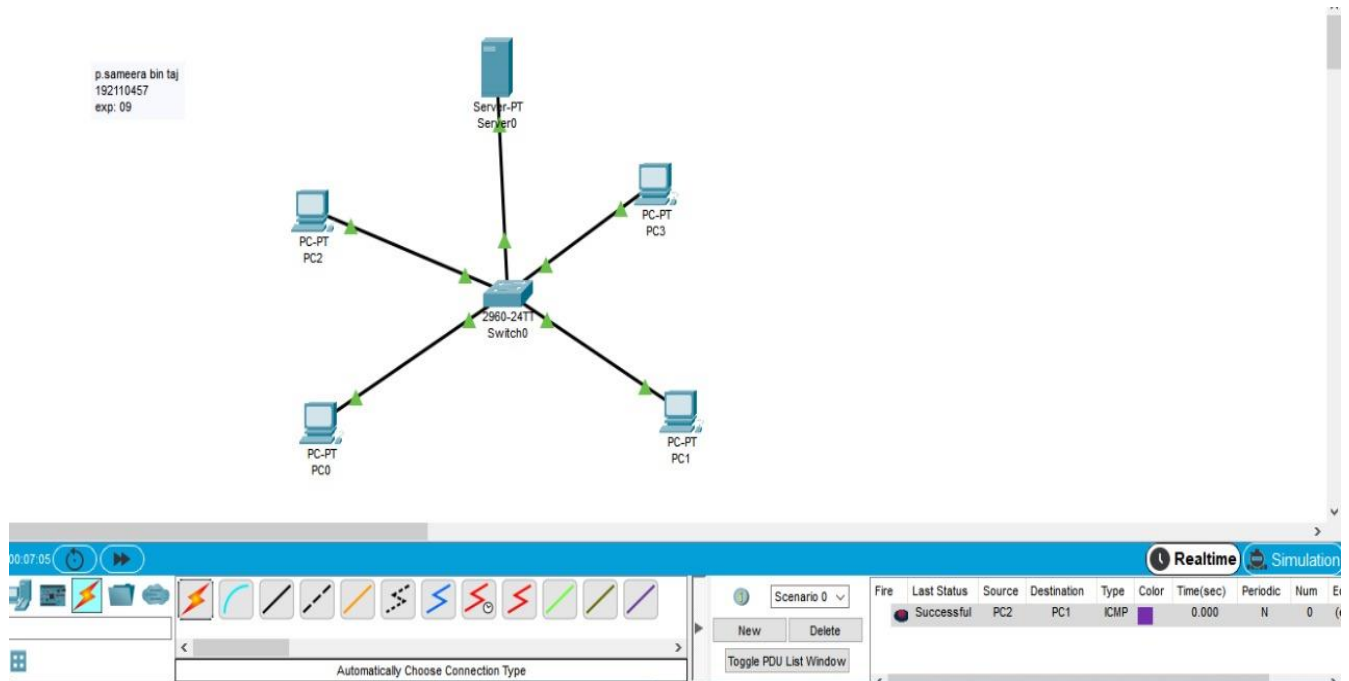
# EXPERIMENT-9

## Functionalities of UDP



# EXPERIMENT-9

## Functionalities of TCP





# EXPERIMENT-10

Cisco Packet Tracer

File Edit Options View Tools Extensions Help

Logical Physical x: 409, y: 245

[Root] [Icons] 05:08:30

p sameera bin taj  
192110457

Server-PT  
Server0

Switch1

PC-PT  
PC0

PC-PT  
PC1

PC-PT  
PC2

PC-PT  
PC3

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC0	ICMP
	0.001	PC0	Switch1	ICMP
	0.002	Switch1	Server0	ICMP
	0.003	Server0	Switch1	ICMP
	0.004	Switch1	PC0	ICMP
	1.755	--	Switch1	STP
	1.756	Switch1	PC3	STP
	1.756	Switch1	PC0	STP
	1.756	Switch1	PC2	STP
	1.756	Switch1	PC1	STP
	1.756	Switch1	Server0	STP
	3.758	--	Switch1	STP

Reset Simulation ☒ Constant Delay Captured to: 3.758 s

Time: 00:00:56.000 PLAY CONTROLS [Icons]

Scenario 0

New Delete

Toggle PDU List Window

Fire Last Status Source Destination Type Color Time(sec) Periodic

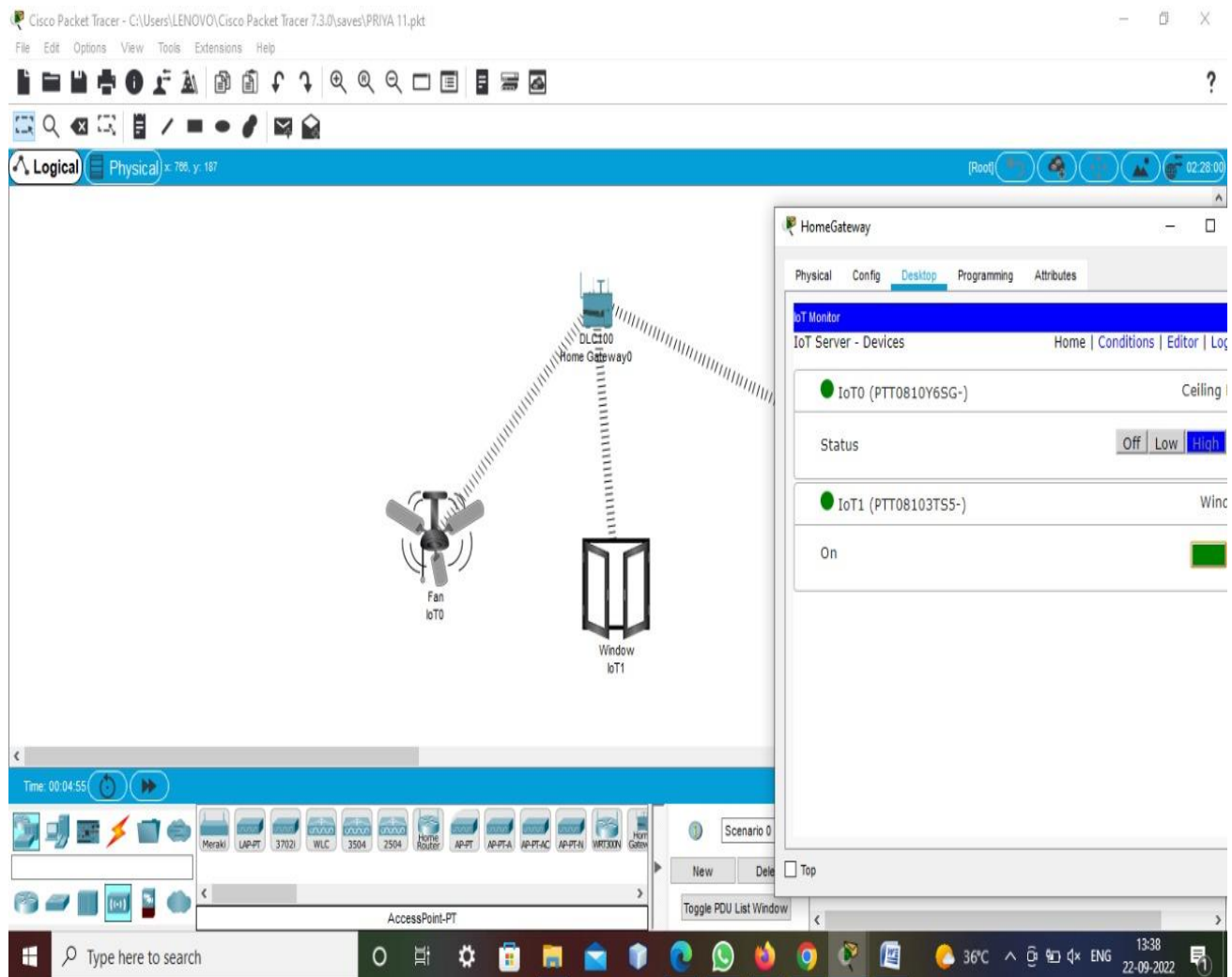
Successful	PC0	Server0	IC...	Green	0.000	N
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Automatically Choose Connection Type

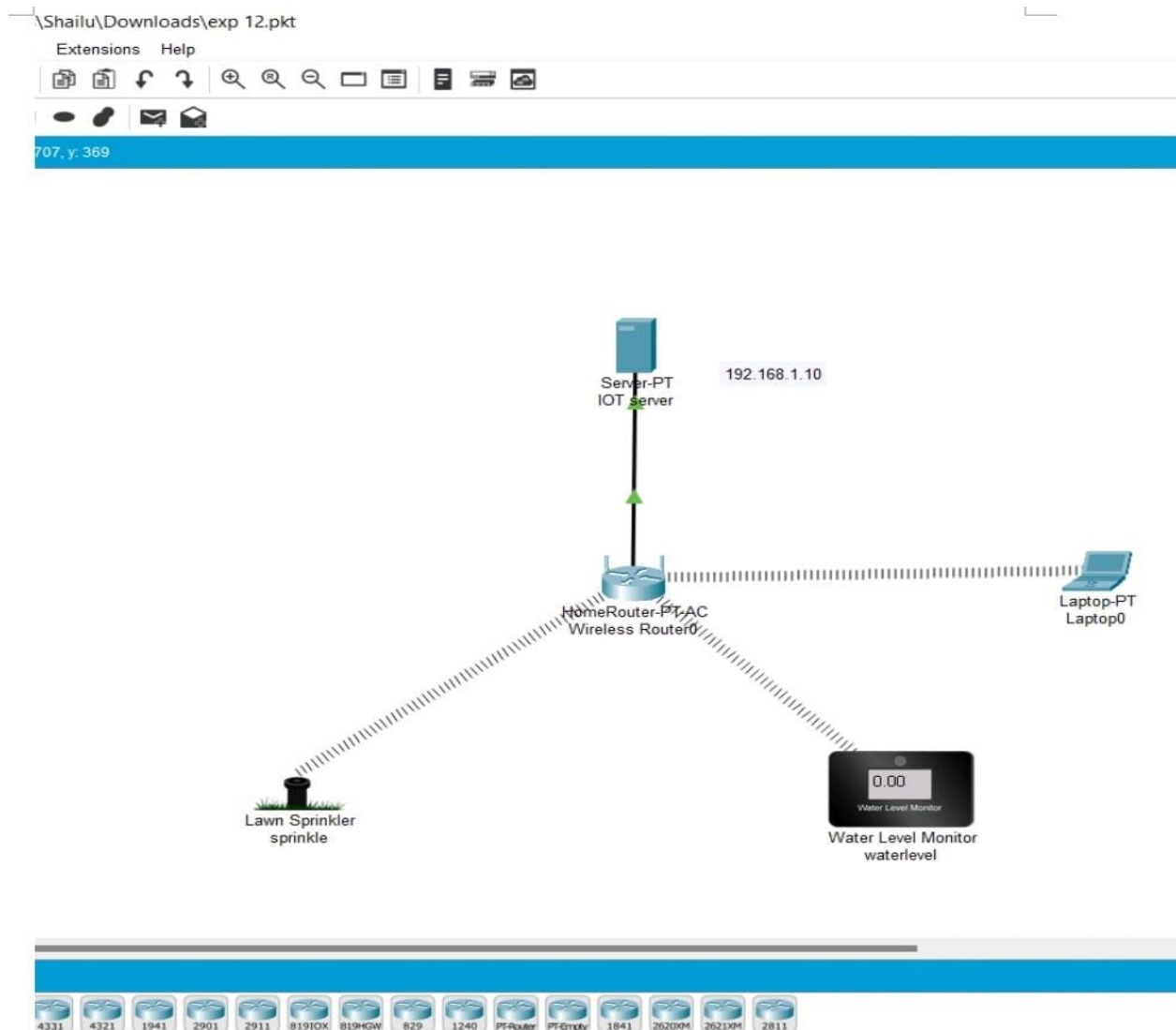
Type here to search

36°C 12:57 PM 9/22/2022

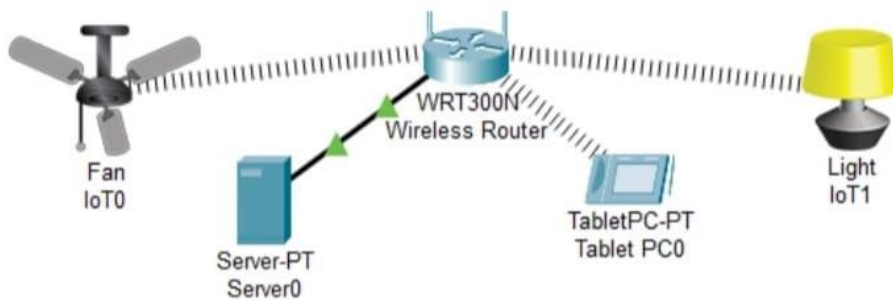
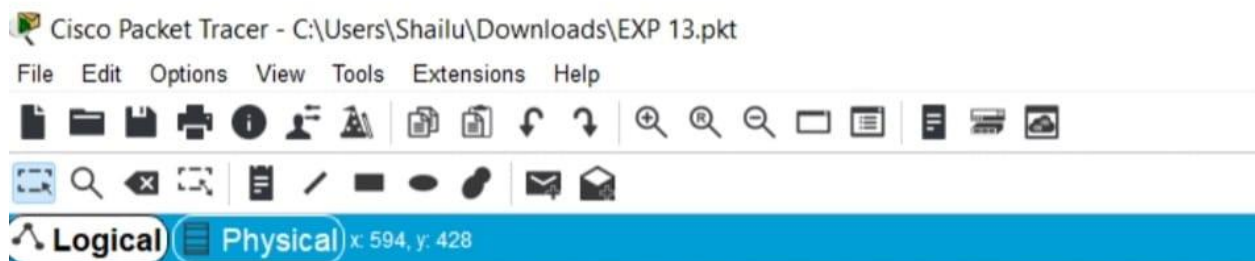
# EXPERIMENT-11



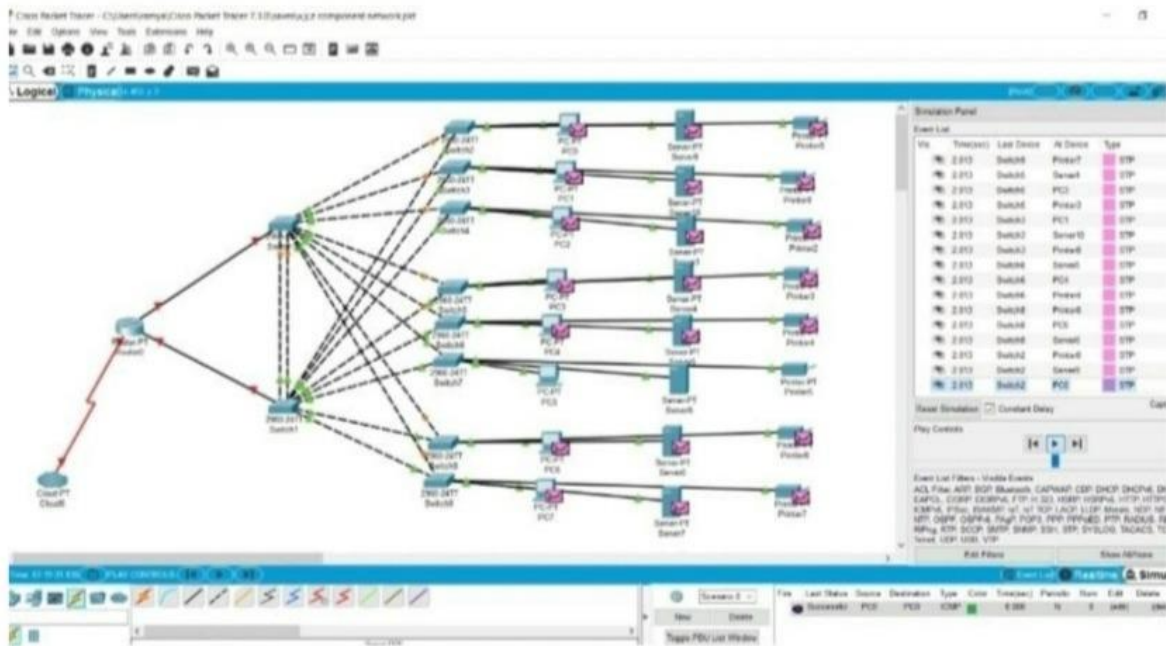
# EXPERIMENT-12



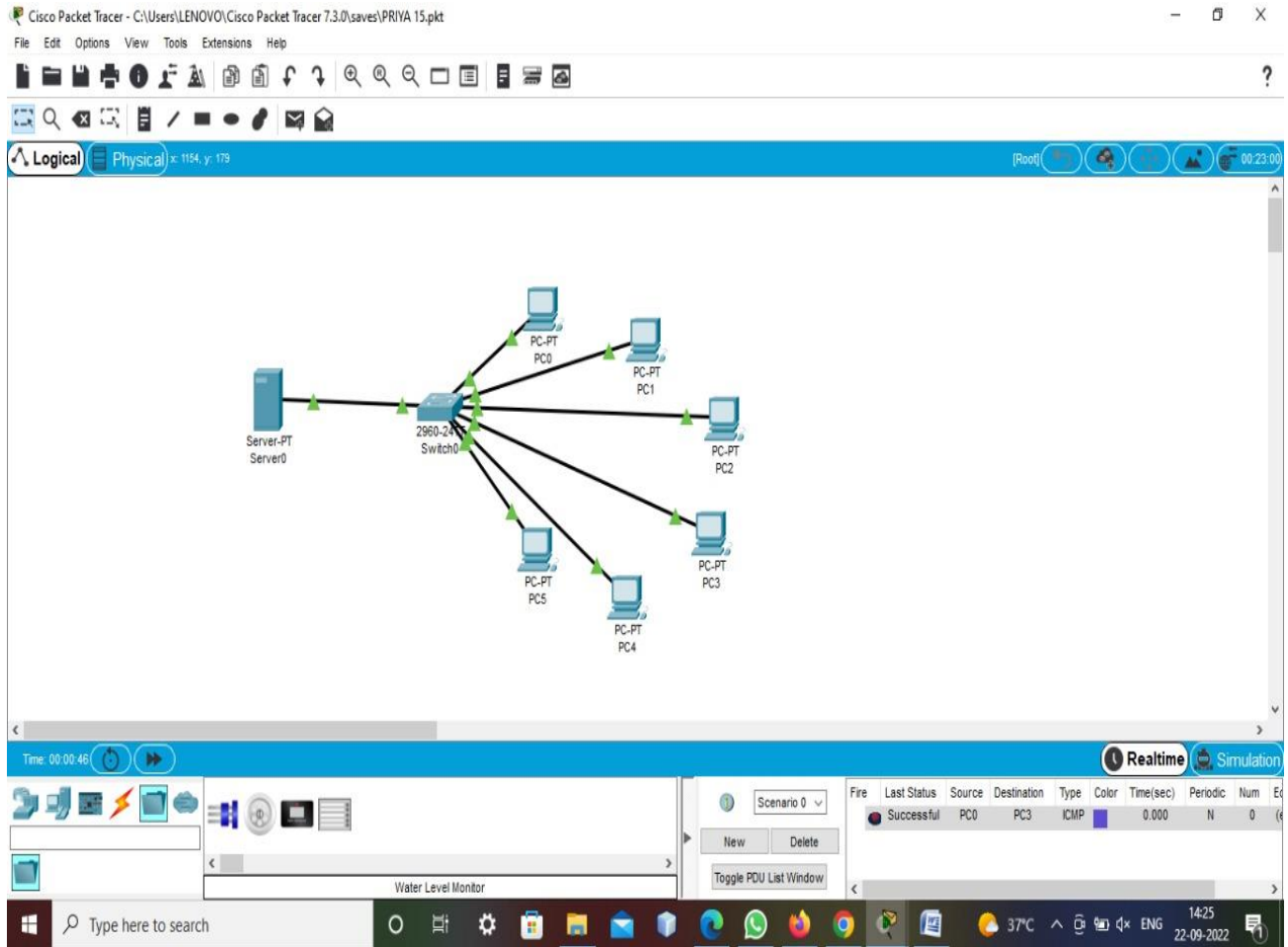
# EXPERIMENT-13



# EXPERIMENT-14

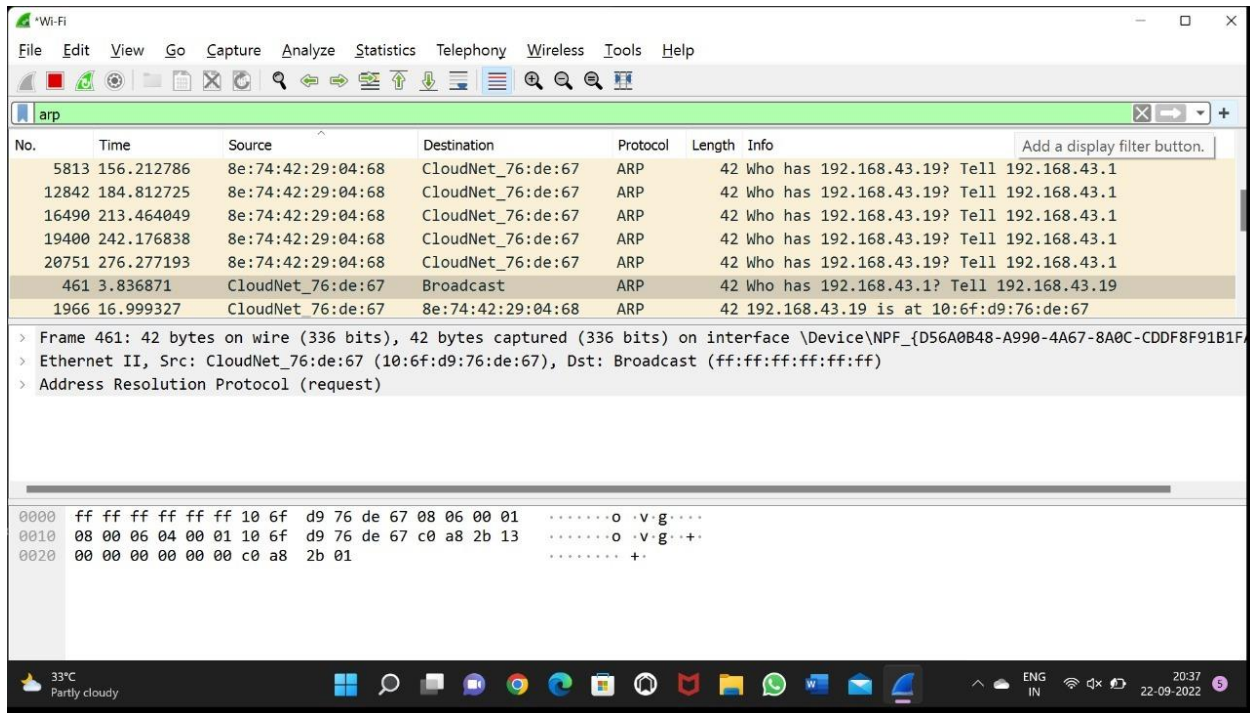


# EXPERIMENT-15





# EXPERIMENT-16



Wireshark capture of an ARP request. The filter is set to 'arp'. The packet list shows several ARP requests from CloudNet\_76:de:67 to 192.168.43.19. The selected packet (No. 461) is an ARP request for 192.168.43.19. The packet details show the Ethernet II header and the ARP request structure. The packet bytes show the raw data in hexadecimal and ASCII.

No.	Time	Source	Destination	Protocol	Length	Info
5813	156.212786	8e:74:42:29:04:68	CloudNet_76:de:67	ARP	42	Who has 192.168.43.19? Tell 192.168.43.1
12842	184.812725	8e:74:42:29:04:68	CloudNet_76:de:67	ARP	42	Who has 192.168.43.19? Tell 192.168.43.1
16490	213.464049	8e:74:42:29:04:68	CloudNet_76:de:67	ARP	42	Who has 192.168.43.19? Tell 192.168.43.1
19400	242.176838	8e:74:42:29:04:68	CloudNet_76:de:67	ARP	42	Who has 192.168.43.19? Tell 192.168.43.1
20751	276.277193	8e:74:42:29:04:68	CloudNet_76:de:67	ARP	42	Who has 192.168.43.19? Tell 192.168.43.1
461	3.836871	CloudNet_76:de:67	Broadcast	ARP	42	Who has 192.168.43.1? Tell 192.168.43.19
1966	16.999327	CloudNet_76:de:67	8e:74:42:29:04:68	ARP	42	192.168.43.19 is at 10:6f:d9:76:de:67

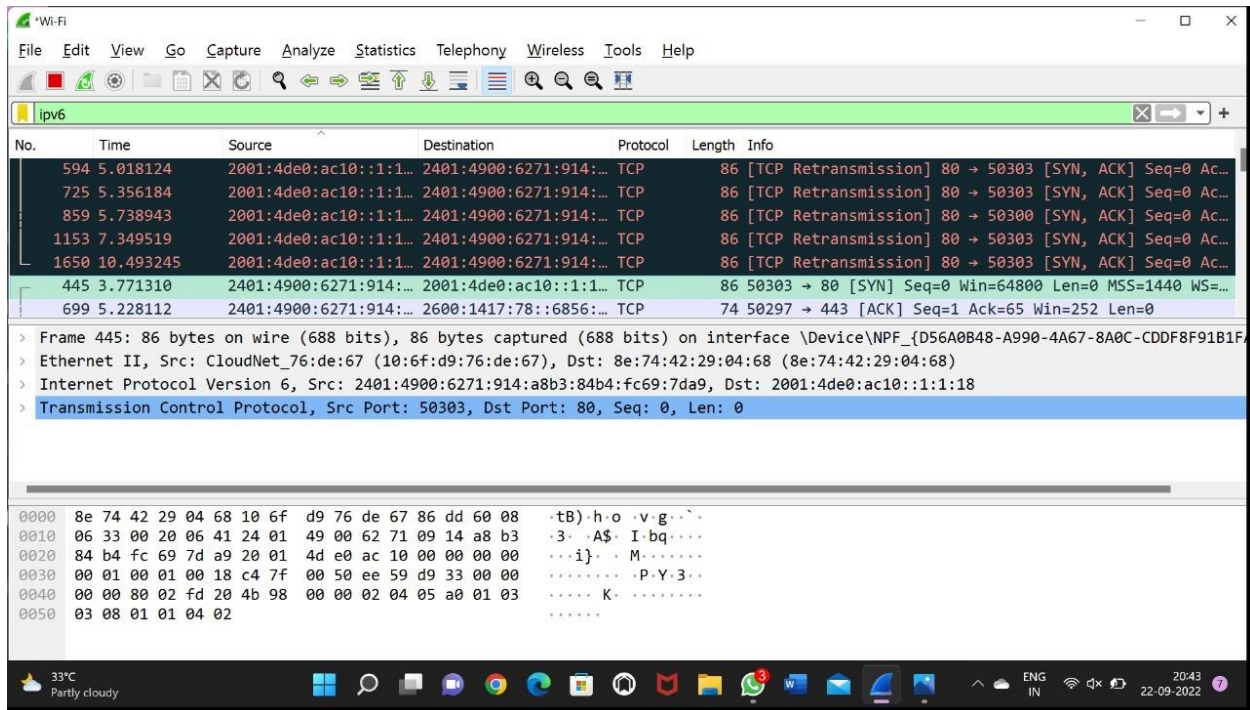
Frame 461: 42 bytes on wire (336 bits), 42 bytes captured (336 bits) on interface \Device\NPF\_{D56A0B48-A990-4A67-8A0C-CDDF8F91B1F}

Ethernet II, Src: CloudNet\_76:de:67 (10:6f:d9:76:de:67), Dst: Broadcast (ff:ff:ff:ff:ff:ff)

Address Resolution Protocol (request)

0000 ff ff ff ff ff 10 6f d9 76 de 67 08 06 00 01 .....o..v.g....  
0010 08 00 06 04 00 01 10 6f d9 76 de 67 c0 a8 2b 13 .....o..v.g...+  
0020 00 00 00 00 00 00 c0 a8 2b 01 .....+..

# EXPERIMENT-17



Wireshark capture of a TCP SYN packet. The filter is set to 'ip6'. The packet list shows several TCP retransmissions and a successful SYN packet. The selected packet (No. 699) is a TCP SYN packet from 2401:4900:6271:914::2600 to 2001:4de0:ac10::1:1. The packet details show the Ethernet II header, the Internet Protocol Version 6 header, and the Transmission Control Protocol header. The packet bytes show the raw data in hexadecimal and ASCII.

No.	Time	Source	Destination	Protocol	Length	Info
594	5.018124	2001:4de0:ac10::1:1...	2401:4900:6271:914::...	TCP	86	[TCP Retransmission] 80 → 50303 [SYN, ACK] Seq=0 Ac...
725	5.356184	2001:4de0:ac10::1:1...	2401:4900:6271:914::...	TCP	86	[TCP Retransmission] 80 → 50303 [SYN, ACK] Seq=0 Ac...
859	5.738943	2001:4de0:ac10::1:1...	2401:4900:6271:914::...	TCP	86	[TCP Retransmission] 80 → 50300 [SYN, ACK] Seq=0 Ac...
1153	7.349519	2001:4de0:ac10::1:1...	2401:4900:6271:914::...	TCP	86	[TCP Retransmission] 80 → 50303 [SYN, ACK] Seq=0 Ac...
1650	10.493245	2001:4de0:ac10::1:1...	2401:4900:6271:914::...	TCP	86	[TCP Retransmission] 80 → 50303 [SYN, ACK] Seq=0 Ac...
445	3.771310	2401:4900:6271:914::...	2001:4de0:ac10::1:1...	TCP	86	50303 → 80 [SYN] Seq=0 Win=64800 Len=0 MSS=1440 WS=...
699	5.228112	2401:4900:6271:914::...	2600:1417:78::6856::...	TCP	74	50297 → 443 [ACK] Seq=1 Ack=65 Win=252 Len=0

Frame 445: 86 bytes on wire (688 bits), 86 bytes captured (688 bits) on interface \Device\NPF\_{D56A0B48-A990-4A67-8A0C-CDDF8F91B1F}

Ethernet II, Src: CloudNet\_76:de:67 (10:6f:d9:76:de:67), Dst: 8e:74:42:29:04:68 (8e:74:42:29:04:68)

Internet Protocol Version 6, Src: 2401:4900:6271:914:a8b3:84b4:fc69:7da9, Dst: 2001:4de0:ac10::1:1:18

Transmission Control Protocol, Src Port: 50303, Dst Port: 80, Seq: 0, Len: 0

0000 8e 74 42 29 04 68 10 6f d9 76 de 67 86 dd 60 08 ..tB)..h.o..v.g...  
0010 06 33 00 20 06 41 24 01 49 00 62 71 09 14 a8 b3 ..3..A\$.I..bq...  
0020 84 b4 fc 69 7d a9 20 01 4d e0 ac 10 00 00 00 00 ..i}..M.....  
0030 00 01 00 01 00 18 c4 7f 00 50 ee 59 d9 33 00 00 .....P.Y.3...  
0040 00 00 80 02 fd 20 4b 98 00 00 02 04 05 a0 01 03 .....K.....  
0050 03 08 01 01 04 02 ..... .....