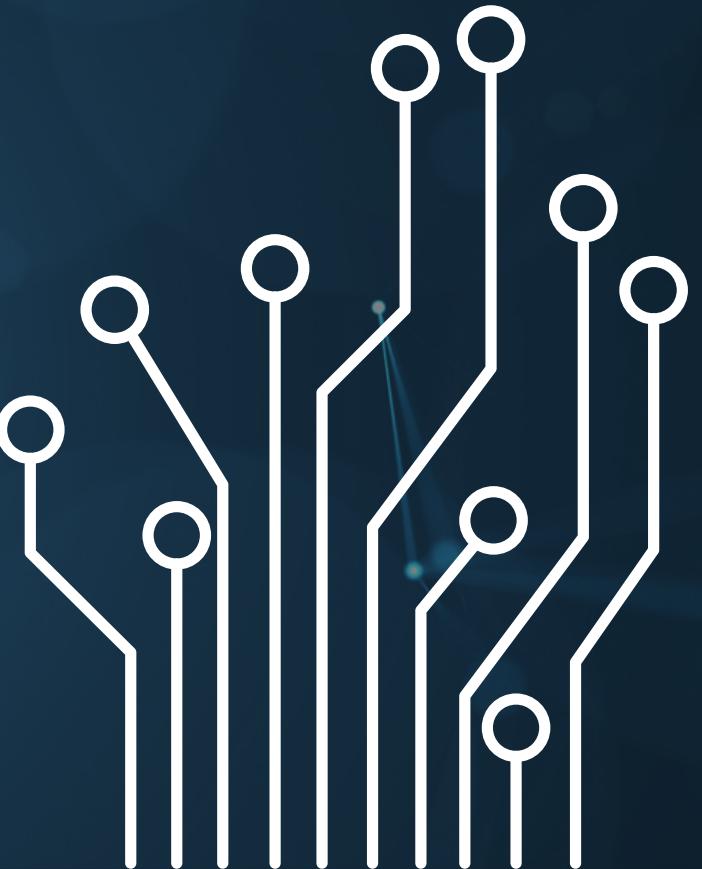


CASE STUDY COLLEGE NETWORK





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Introduction

This College Network Scenario is about establishing a network topology for a LAN (Local Area Network) for a College in which multiple machines from various departments are set up to interact and communicate with each other through exchanging data.



client requirements

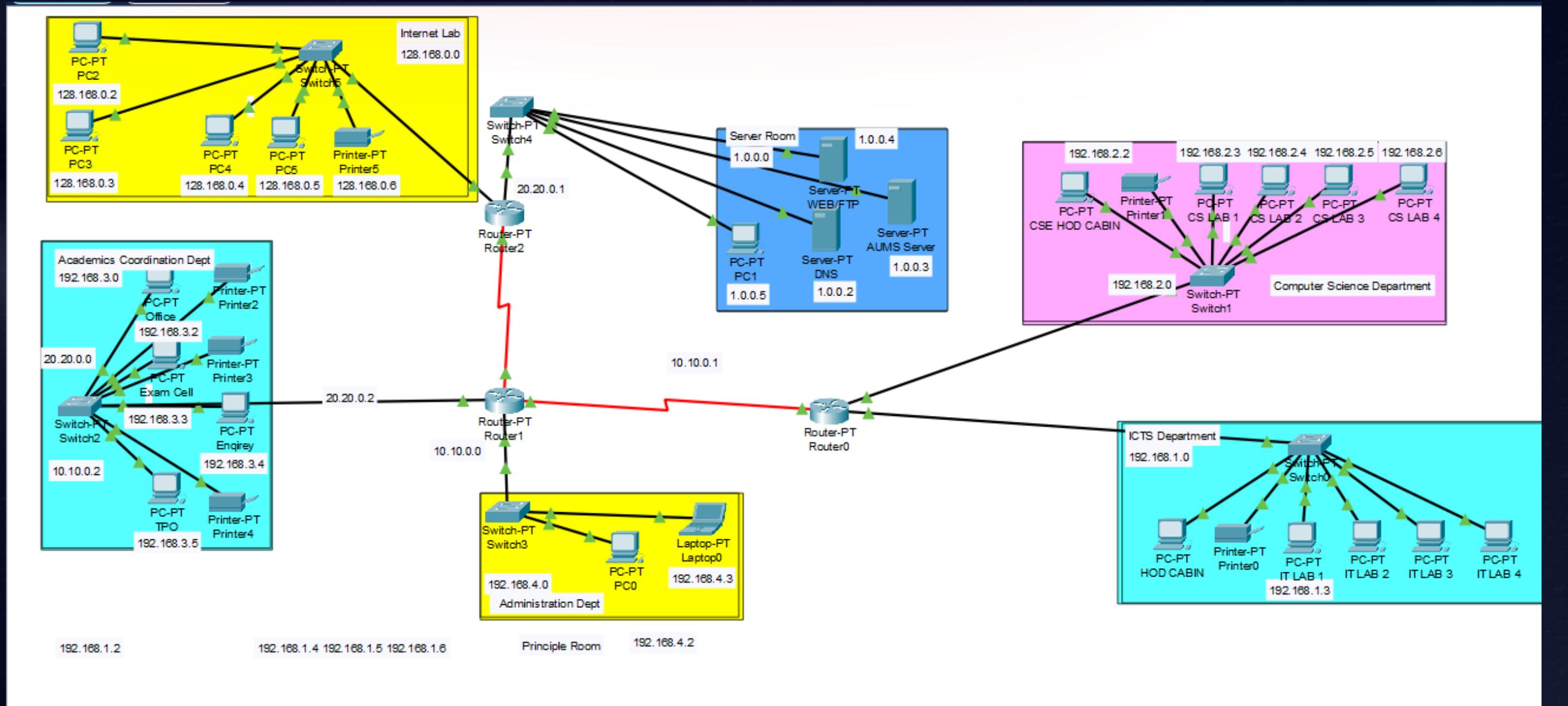


Five departments in his Institution and server room

Each departments consists of different devices like pc's, and printers.

The client wants scalable network and the system should support remote access.

STAR TOPLOGY



Configuration for routers USINR RIP PROTOCOL:

Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
*LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to down
*LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router>enable
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
      i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter
area
      * - candidate default, U - per-user static route, o - ODR
      P - periodic downloaded static route

Gateway of last resort is not set

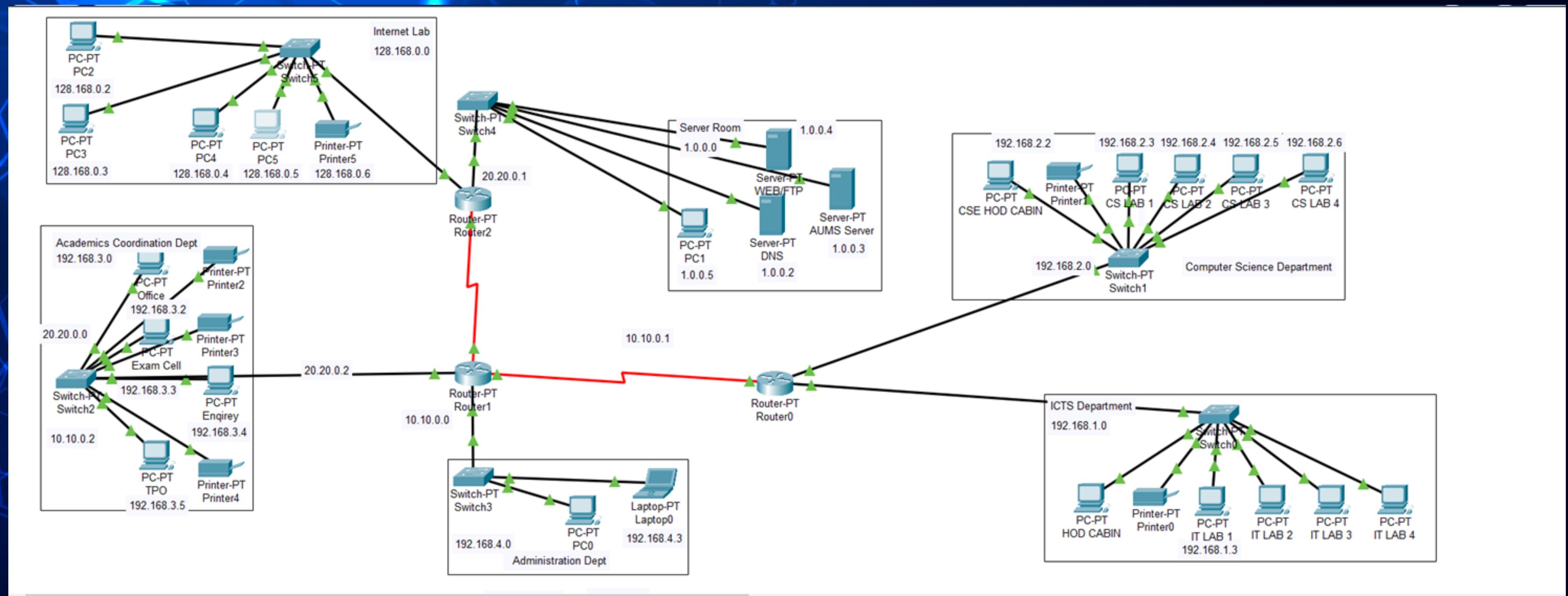
R    1.0.0.0/8 [120/2] via 10.10.0.2, 00:00:05, Serial2/0
C    10.0.0.0/8 is directly connected, Serial2/0
R    20.0.0.0/8 [120/1] via 10.10.0.2, 00:00:05, Serial2/0
R    128.168.0.0/16 [120/2] via 10.10.0.2, 00:00:05, Serial2/0
C    192.168.1.0/24 is directly connected, FastEthernet0/0
C    192.168.2.0/24 is directly connected, FastEthernet1/0
R    192.168.3.0/24 [120/1] via 10.10.0.2, 00:00:05, Serial2/0
R    192.168.4.0/24 [120/1] via 10.10.0.2, 00:00:05, Serial2/0

Router#
```

Copy Paste

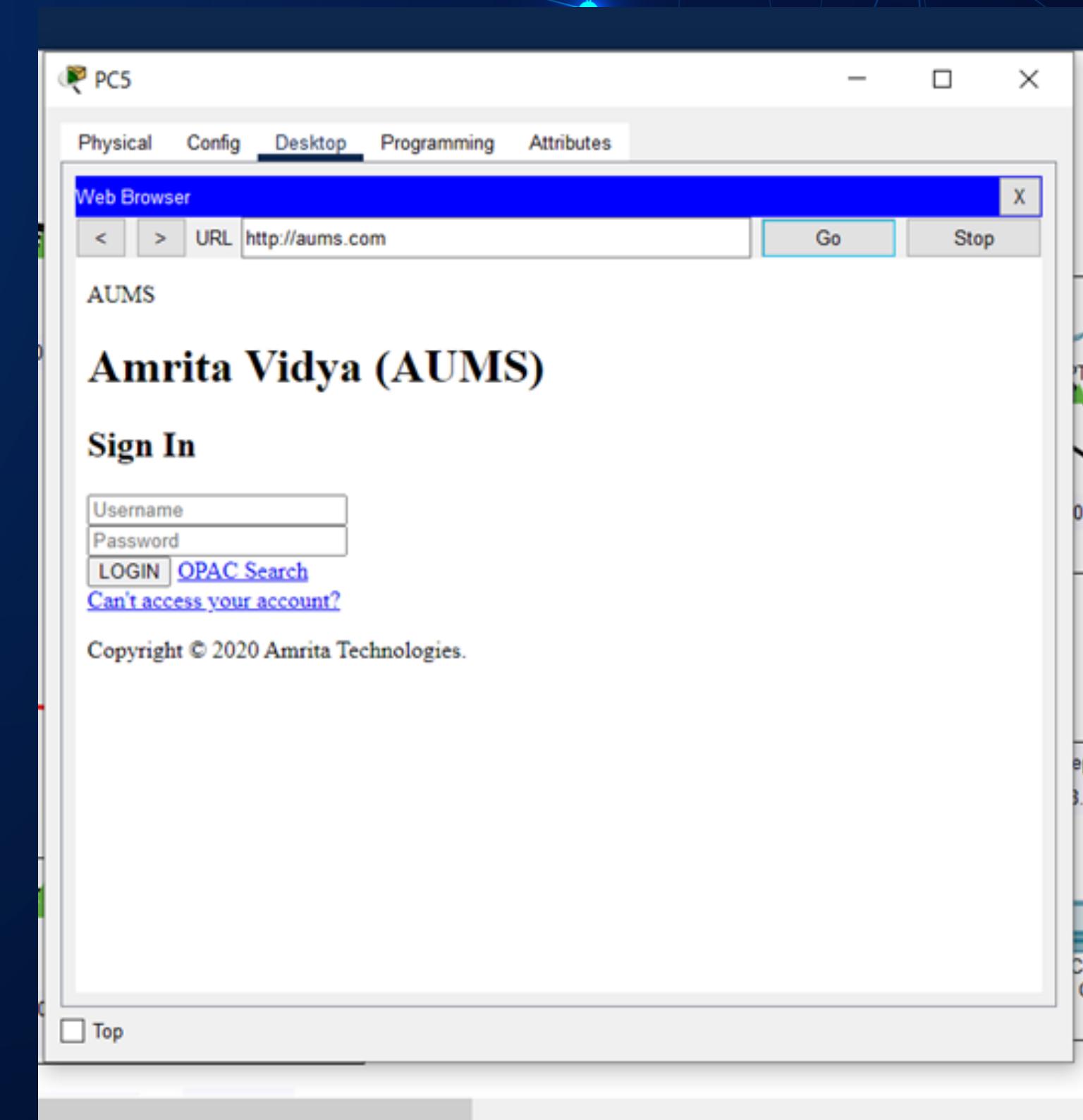
Top

Network Model





Hosting a website



Physical Config Desktop Programming Attributes

Web Browser URL http://welcome.com Go Stop

Mrs. Network

Home

Career

Contact

About

"Do something important in life."
- Mrs. Network

About Me

Hello my name is Siddaradha Anagani

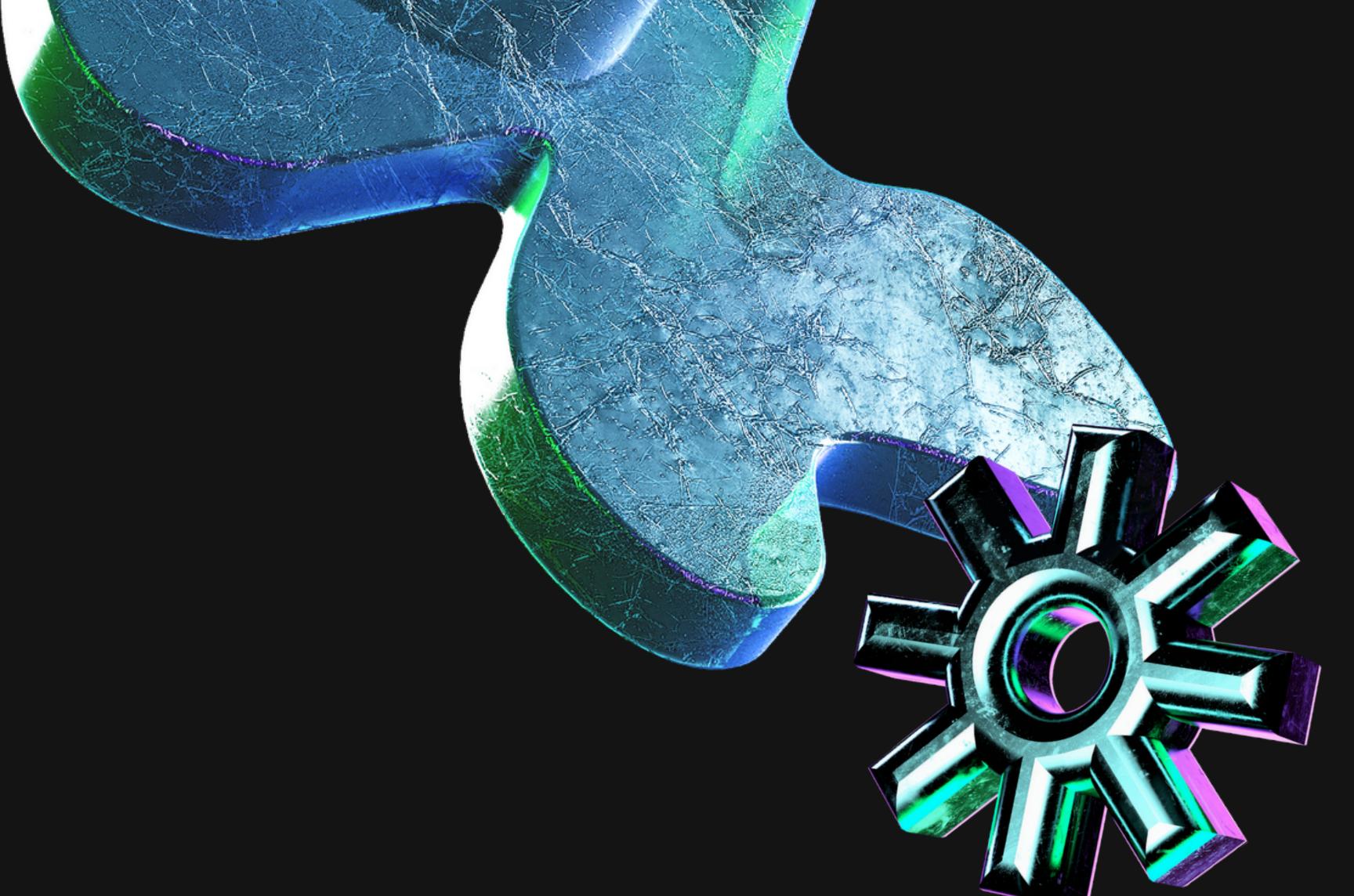
Sumanth and Revanth are a small part of this project

Cisco is the best

I want to become a Network Engineer.

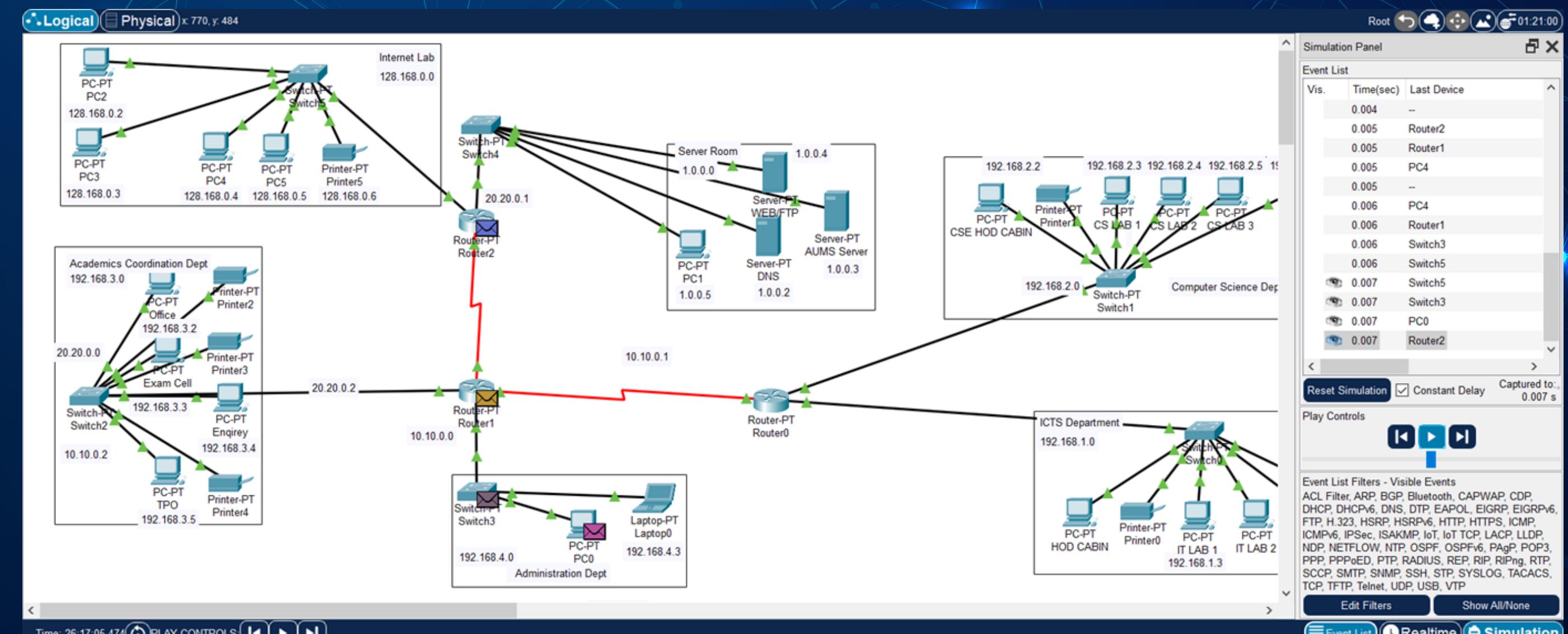
Can You Help me and my friends?

CCNA CCNP CCIE



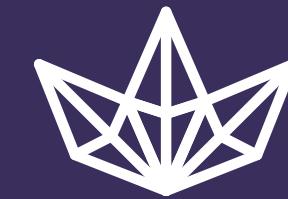
ANOTHER
IMPLEMENTATION

Packet-Transmission



Snipper





Snipping being done internally

The screenshot shows the Cisco Packet Tracer application running on a Windows operating system. The main window displays a network topology with several nodes: PC-PT PC2 (128.168.0.2), PC-PT PC3 (128.168.0.3), PC4 (192.168.2.6), PC-PT CS LAB 4 (192.168.2.6), PC-PT IT LAB 2 (192.168.2.3), PC-PT IT LAB 3 (192.168.2.4), and PC-PT IT LAB 4 (192.168.2.5). A pink highlighted area represents the 'Finance Department' network.

Two windows are open in the foreground:

- Sniffer0**: This window shows a packet capture interface. The selected service is "Port0". The buffer size is set to 256. The packet list pane shows two captured Ethernet frames. The top frame is an IEEE 802.3 frame with a Preamble (101010...), Destination Address (0001.6364-AAAC), Source Address (00E0..), Type (0x0800), and FCS (0x0000). The bottom frame is an IP header with Version (4), IHL (5), DSCP (0x00), Total Length (347), Identification (0x004f), Flags (0x2), and Fragment Offset (0).
- PC4**: This window shows a web browser window titled "AUMS" displaying the Amrita Vidya (AUMS) sign-in page. The URL is http://aums.com. The page includes fields for "Username" and "Password", and buttons for "LOGIN", "OPAC Search", and "Can't access your account?". Copyright information at the bottom reads "Copyright © 2020 Amrita Technologies."

The status bar at the bottom indicates "Root" and the date and time as "03:23:00".

Server

```
import socket
```

```
s = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
```

```
host = "192.168.2.1"
```

```
port = 12345
```

```
s.bind((host, port))
```

```
s.listen(5)
```

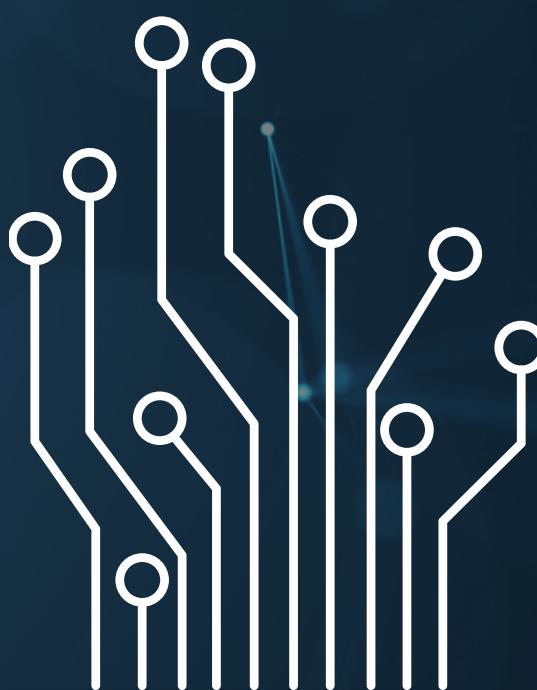
```
conn, addr = s.accept()
```

```
data = conn.recv(1024)
```

```
data = data.decode()
```

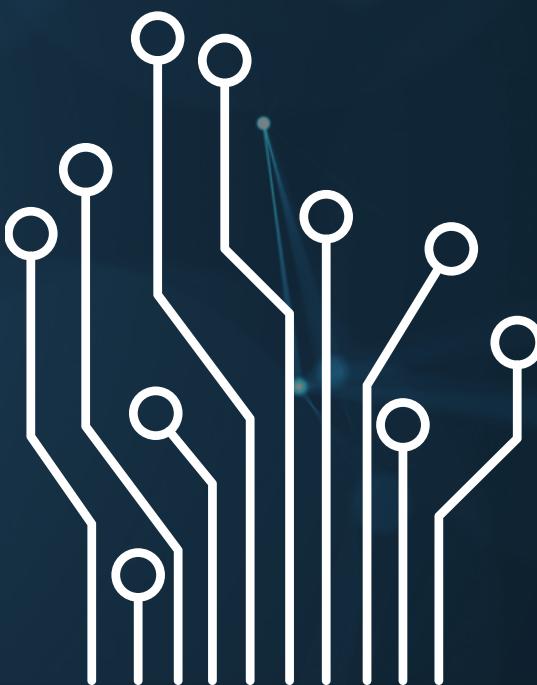
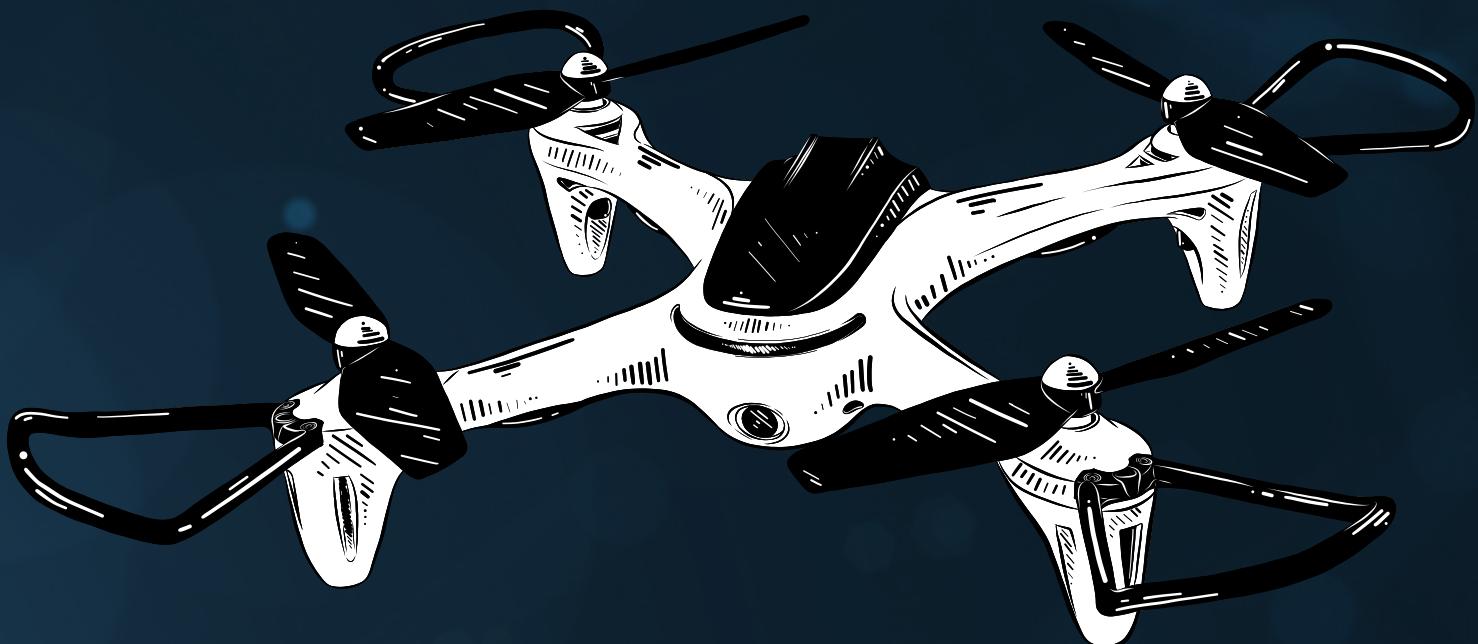
```
print(data)
```

```
conn.close()
```

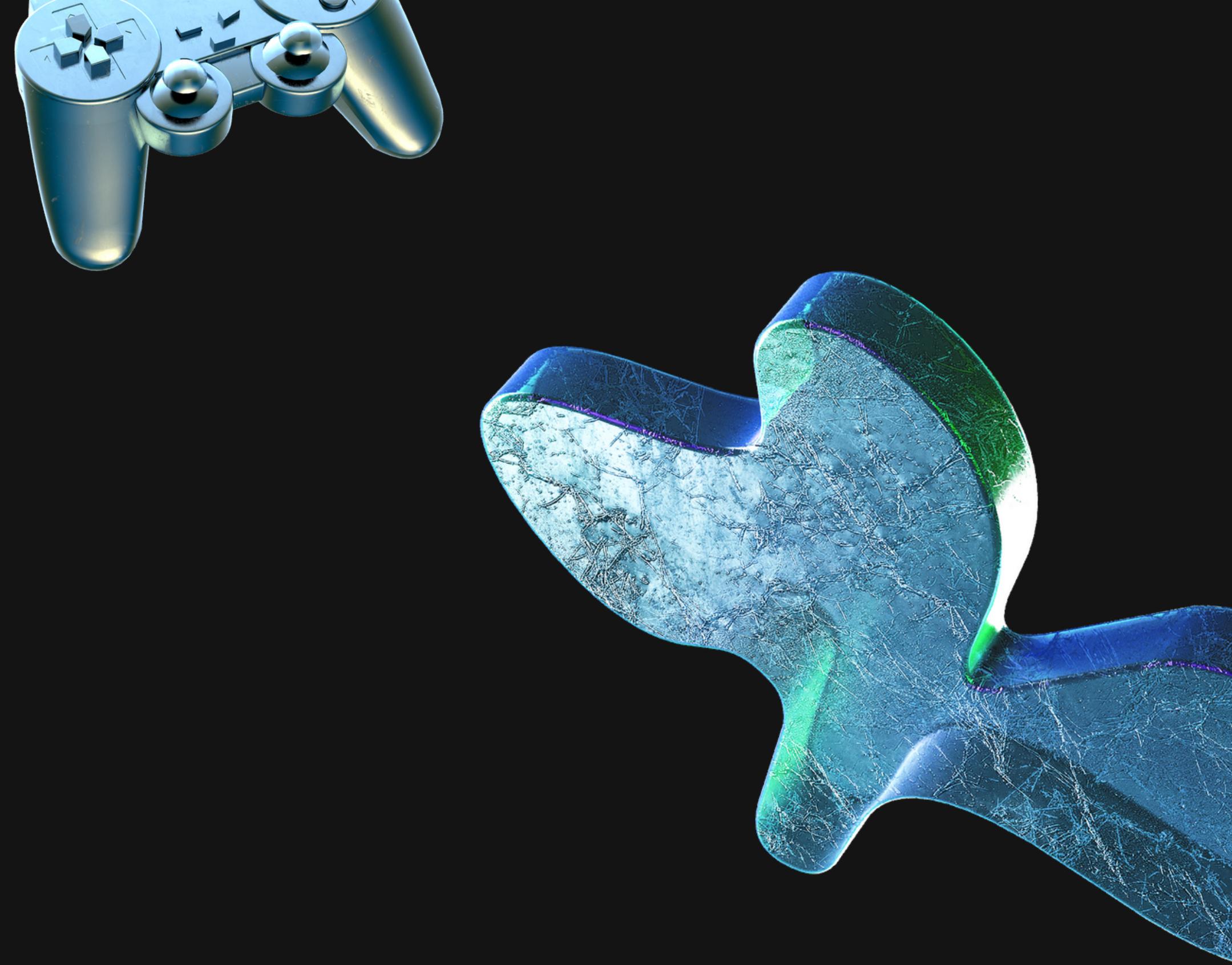


client

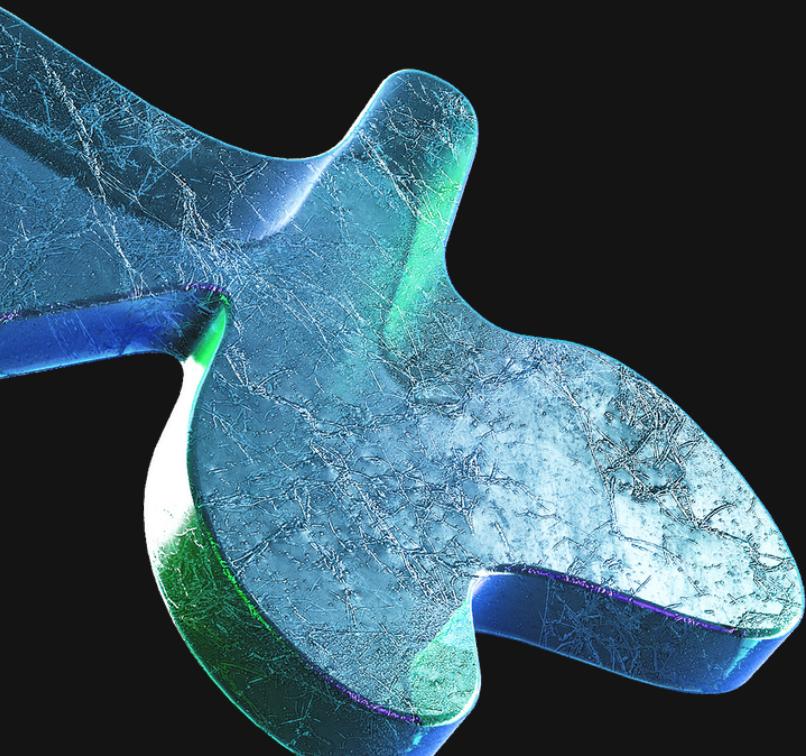
```
import socket
s =
socket.socket(socket.AF_INET,socket.SOCK_ST
REAM)
host = "192.168.2.100"
port = 12345
s.connect((host, port))
name = input("Enter your name: ")
age = input("Enter your age: ")
gender = input("Enter your gender: ")
message = f"Name: {name}\nAge:
{age}\nGender: {gender}"
s.sendall(message.encode())
s.close()
```



wireshark

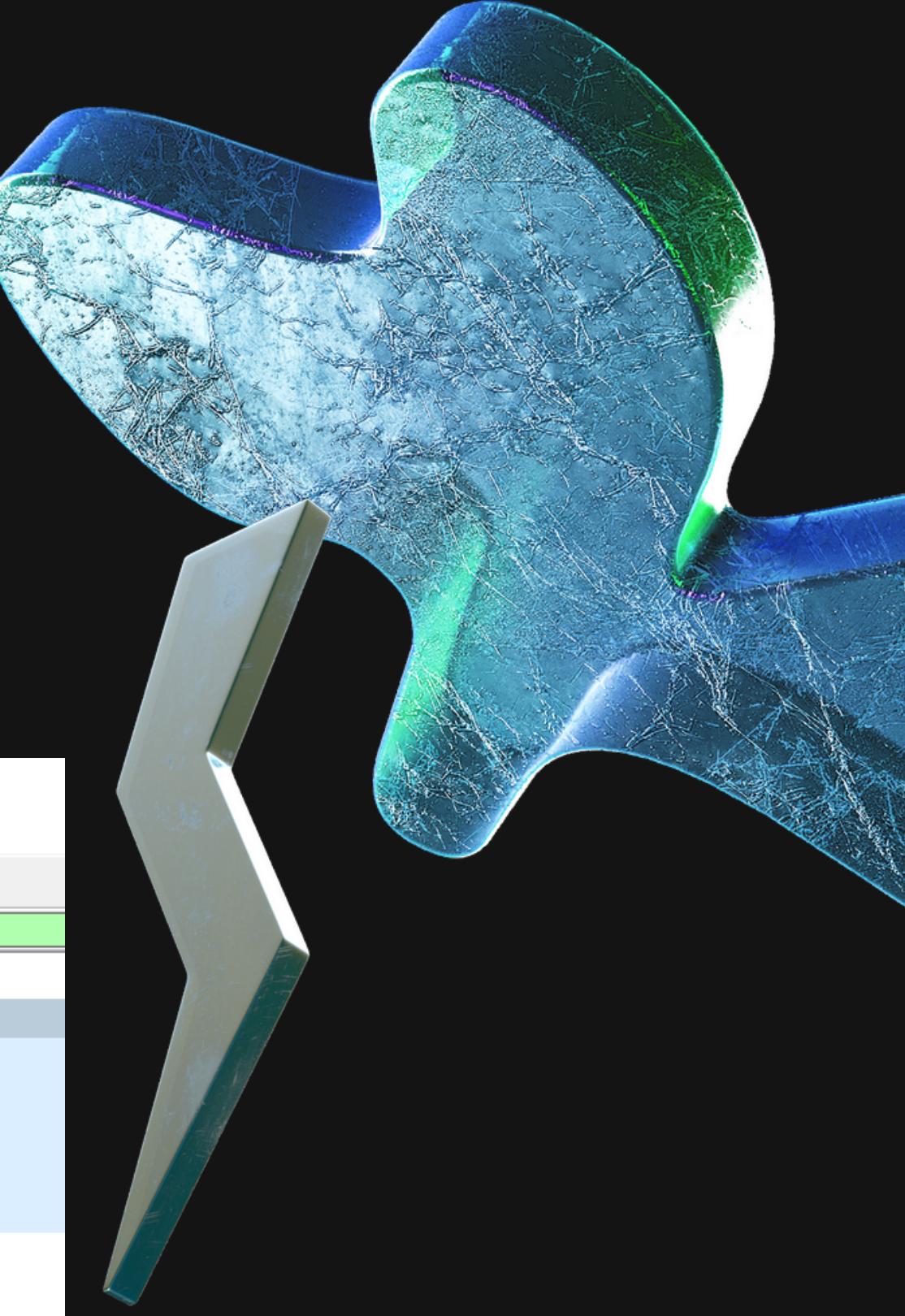


ARP PROTOCOL



No.	Time	Source	Destination	Protocol	Length	Info
3	0.000000	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.28.140? Tell 172.31.16.1
45	0.302062	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.24.119? Tell 172.31.16.1
53	0.302062	CloudNet_0d:1d:dd	Broadcast	ARP	56	Who has 169.254.169.254? Tell 172.31.18.247
63	0.400829	ae:12:b9:6b:ca:f3	Broadcast	ARP	56	Who has 172.31.16.1? Tell 172.31.18.78
67	0.500881	IntelCor_36:5e:25	Broadcast	ARP	42	Who has 172.31.18.78? Tell 172.31.29.170
69	0.500881	IntelCor_6b:56:fc	Broadcast	ARP	56	Who has 172.31.18.78? Tell 172.31.18.167
75	0.500881	XiaomiCo_f2:38:f8	Broadcast	ARP	56	Who has 172.31.16.186? Tell 172.31.18.43
80	0.609808	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.17.29? Tell 172.31.16.1
91	0.609808	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.18.78? Tell 172.31.16.1
110	0.805564	Chongqin_a7:15:01	Broadcast	ARP	56	Who has 172.31.16.245? Tell 172.31.25.18
111	0.810823	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.28.140? Tell 172.31.16.1
127	1.018261	CyberTAN_df:37:2f	Broadcast	ARP	56	Who has 169.254.169.254? Tell 172.31.23.236
161	1.120048	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.24.119? Tell 172.31.16.1
168	1.120048	IntelCor_1f:a4:87	Broadcast	ARP	56	Who has 172.31.16.1? Tell 172.31.21.212
170	1.120048	IntelCor_1f:a4:87	Broadcast	ARP	56	Who has 172.31.16.1? Tell 172.31.21.212
173	1.120048	IntelCor_1f:a4:87	Broadcast	ARP	56	Who has 172.31.16.1? Tell 172.31.21.212
177	1.120048	LiteonTe_3c:11:8d	Broadcast	ARP	56	Who has 172.31.18.78? Tell 172.31.28.105
182	1.218618	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.26.77? Tell 172.31.16.1
193	1.323129	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.17.29? Tell 172.31.16.1
203	1.422931	52:a3:58:a3:d5:aa	Broadcast	ARP	56	Who has 172.31.29.110? Tell 172.31.17.207
204	1.422931	52:a3:58:a3:d5:aa	Broadcast	ARP	56	Who has 172.31.30.160? Tell 172.31.17.207
205	1.422931	52:a3:58:a3:d5:aa	Broadcast	ARP	56	Who has 172.31.18.108? Tell 172.31.17.207
208	1.422931	aa:ae:9b:39:83:cd	Broadcast	ARP	56	Who has 172.31.27.74? (ARP Probe)
214	1.525887	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.28.140? Tell 172.31.16.1
221	1.525887	5a:06:03:48:f2:48	Broadcast	ARP	56	Who has 172.31.16.1? Tell 172.31.29.233
223	1.525887	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.30.72? Tell 172.31.16.1
230	1.630526	JuniperN_b9:6c:e0	Broadcast	ARP	60	Who has 172.31.29.105? Tell 172.31.16.1

DHCP PROTOCOL



No.	Time	Source	Destination	Protocol	Length	Info
44	0.302062	0.0.0.0	255.255.255.255	DHCP	340	DHCP Discover - Transaction ID 0x2407eedd
50	0.302062	0.0.0.0	255.255.255.255	DHCP	350	DHCP Request - Transaction ID 0x2407eedd
73	0.500881	0.0.0.0	255.255.255.255	DHCP	342	DHCP Request - Transaction ID 0x9f4d4a12
879	8.278906	0.0.0.0	255.255.255.255	DHCP	342	DHCP Discover - Transaction ID 0xa73a5373
1317	12.586472	0.0.0.0	255.255.255.255	DHCP	344	DHCP Discover - Transaction ID 0x6e5988ec
1439	13.919980	0.0.0.0	255.255.255.255	DHCP	364	DHCP Request - Transaction ID 0xaeb21c2d

Thank You!

