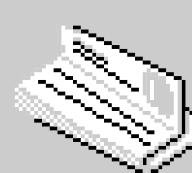
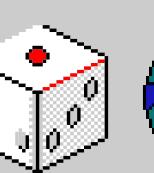
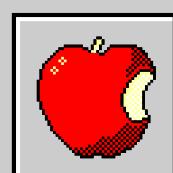
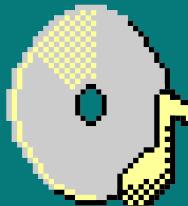
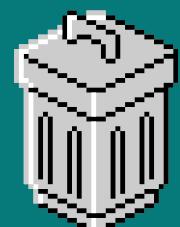
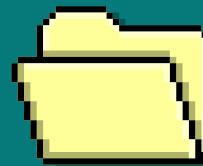
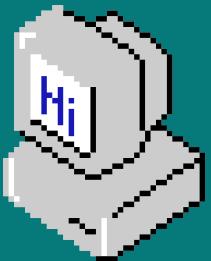


# AOL Computer Networks



Atiqah Pramudya



15:20

Topics Covered

Start

Media Devices

Topology

Addressing

Routing

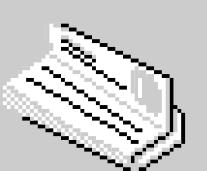
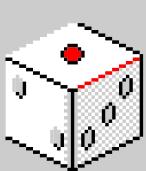
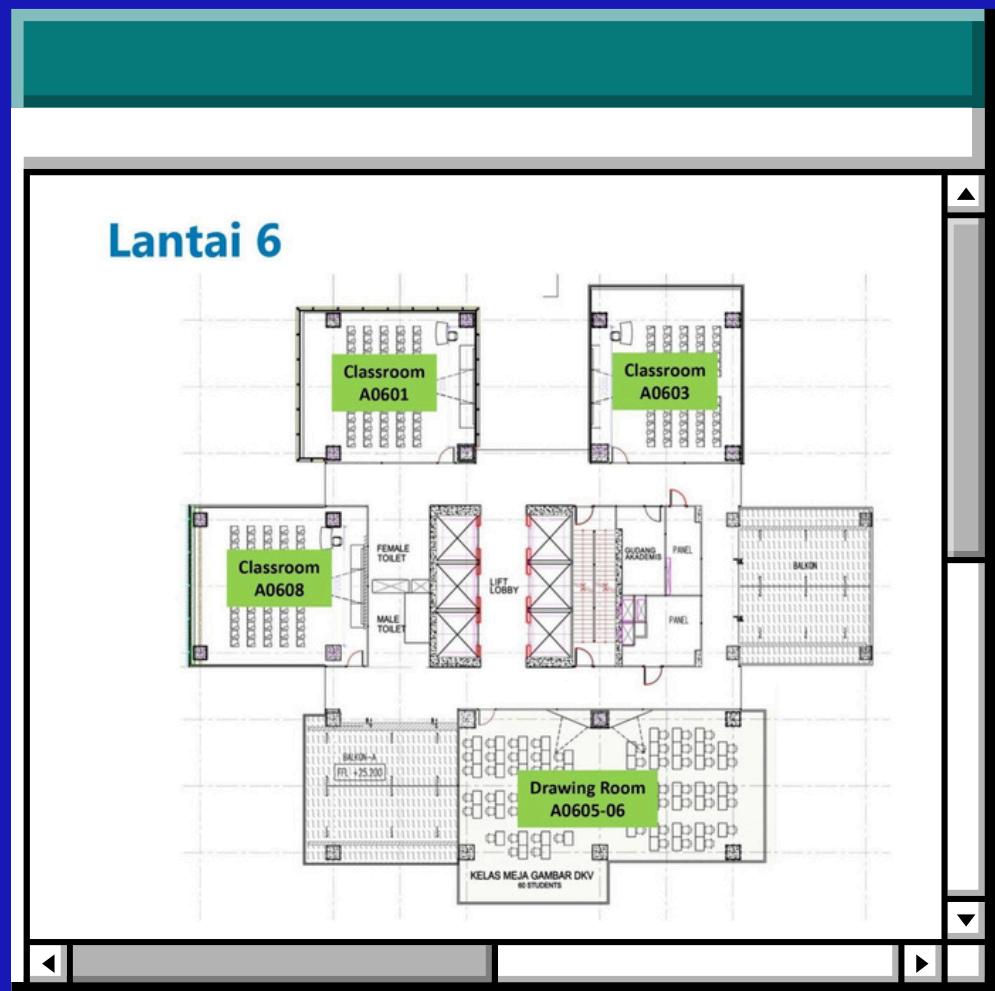
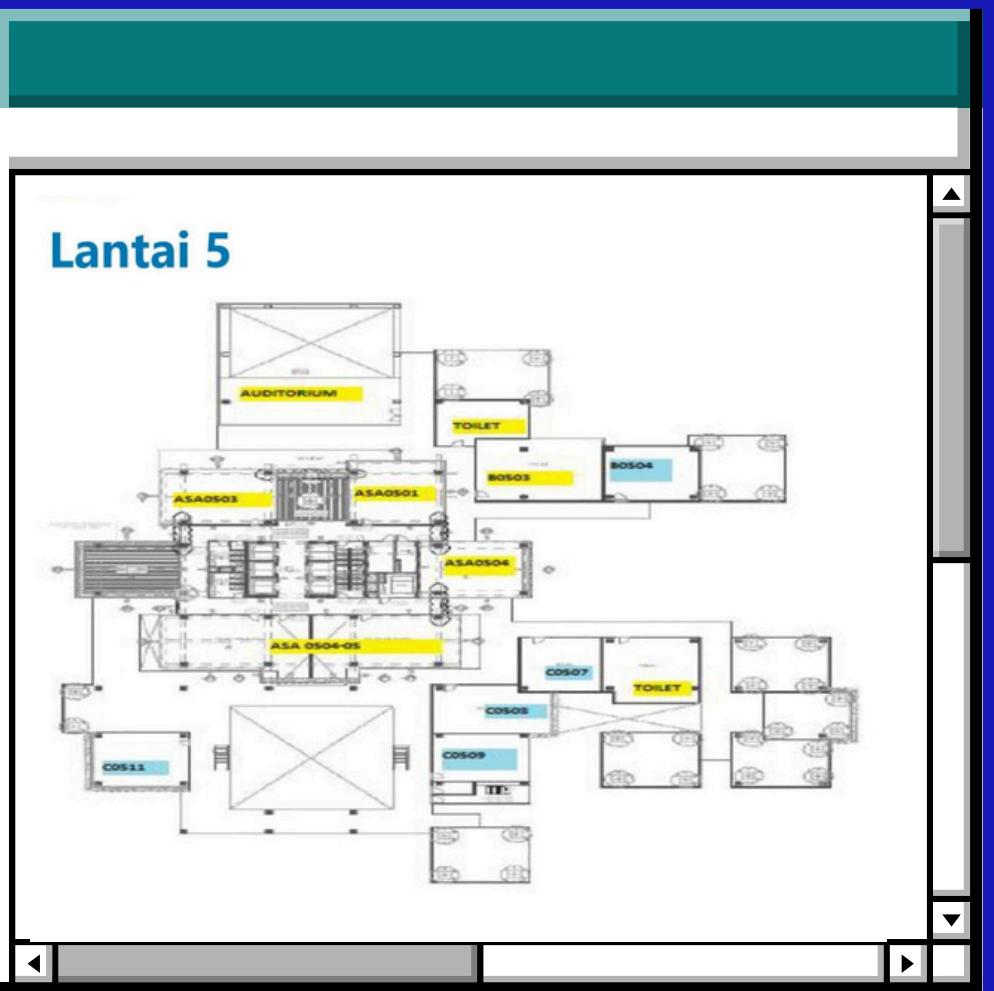
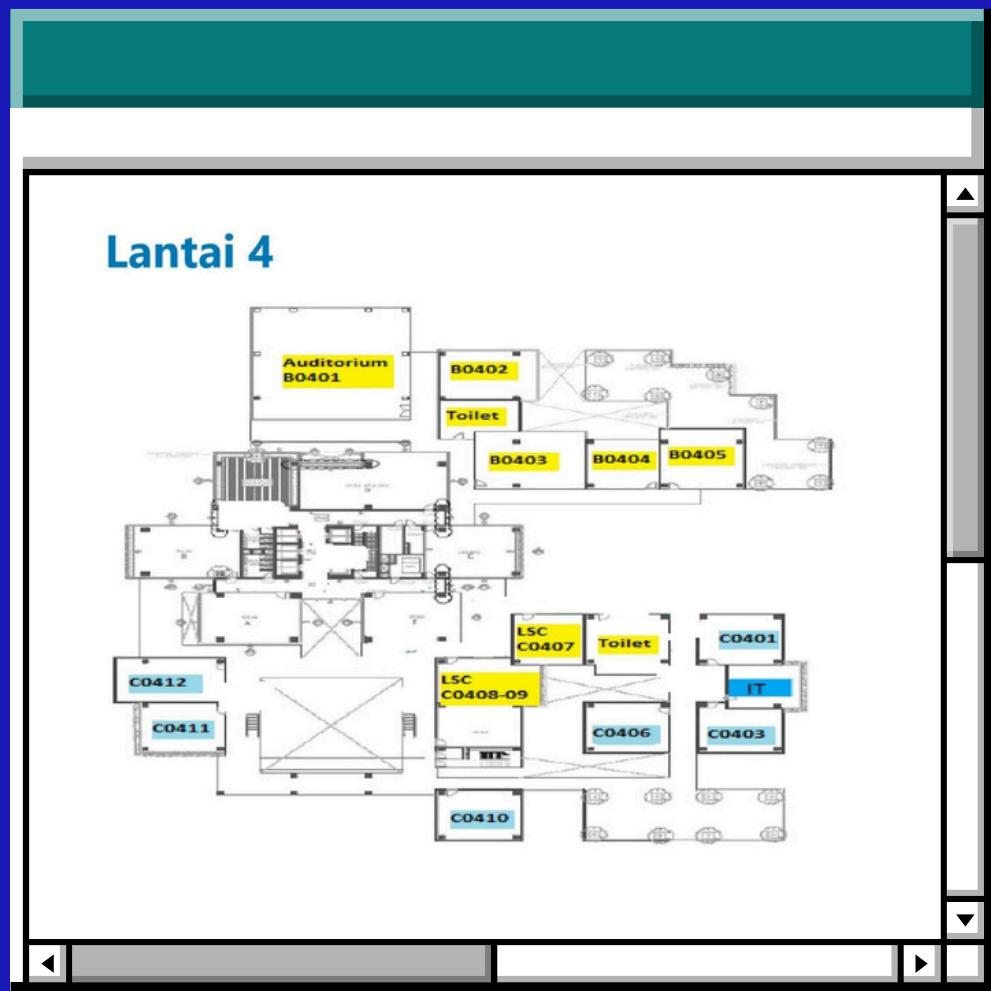
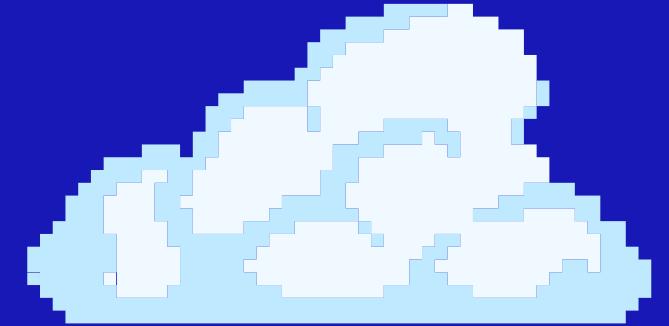
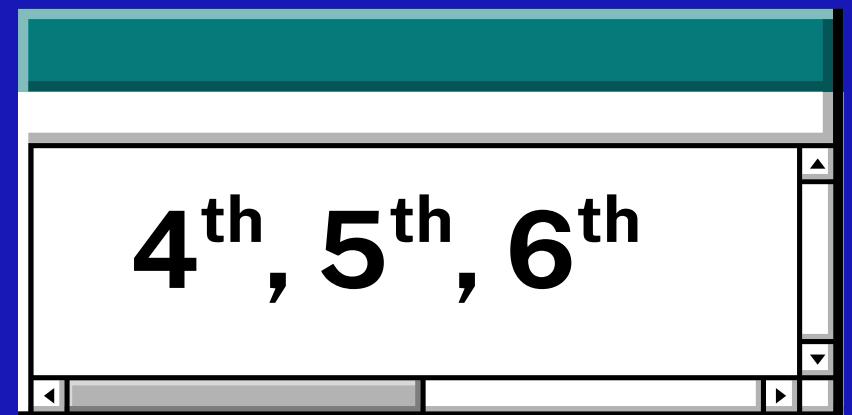
Application Layer

Agenda

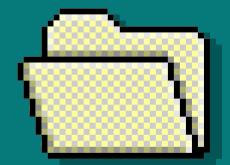
!

i

# Floor



# Media Devices



## Router

Connecting a local network to another network.



## Switch

A device that connects computers within a network



## PC

Used by users to access a network



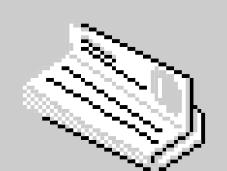
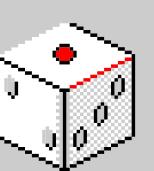
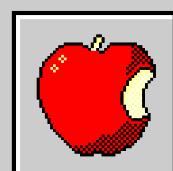
## Server

Provides services or data to other computers on the network



## Fiber Optic

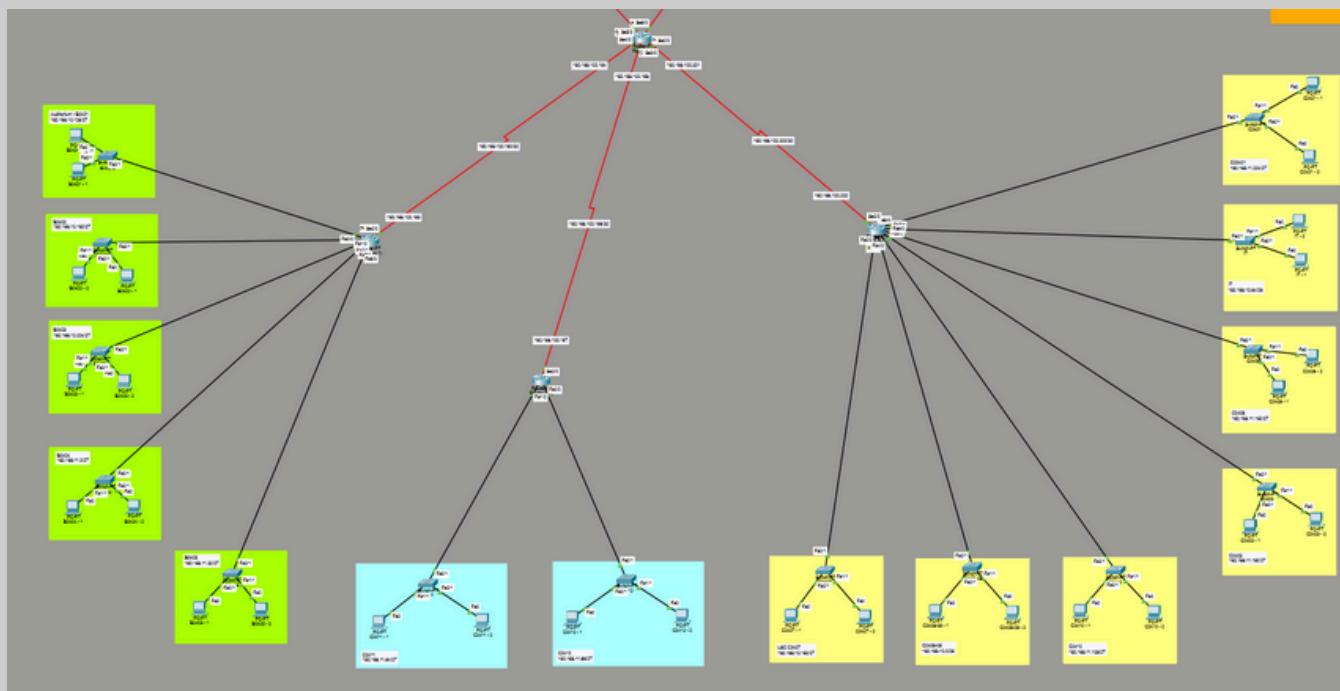
Very high data transfer speed, stable, and minimally affected by electromagnetic interference.



[Back to Agenda Page](#)

# 4<sup>th</sup> Floor

## Media & Devices



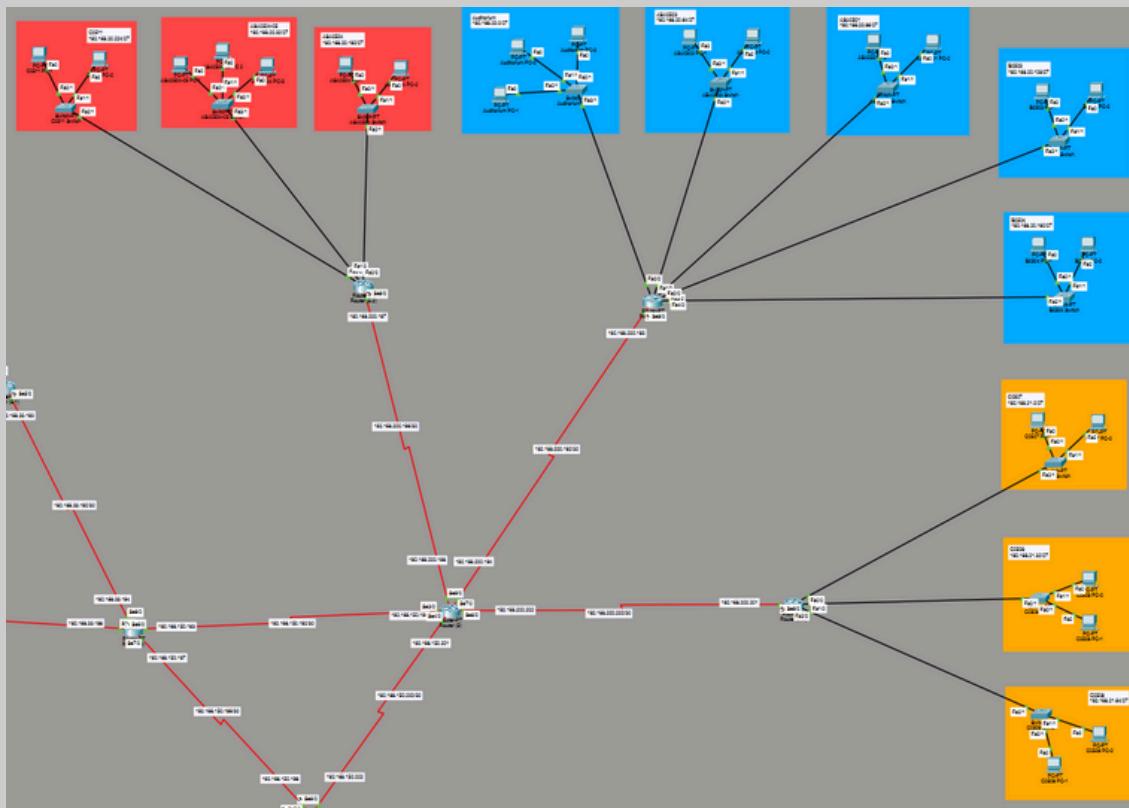
14 Rooms, 3 Section

Room	PC	Device & Media
Auditorium - B0401	29	Switch 48 Port
B0402	20	Switch 24 Port
B0403	20	Switch 24 Port
B0404	20	Switch 24 Port
B0405	20	Switch 24 Port
C0412	20	Switch 24 Port
C0411	20	Switch 24 Port
LSC C0407	29	Switch 48 Port
LSC C0408-09	40	Switch 48 Port
C0410	20	Switch 24 Port
C0406	20	Switch 24 Port
C0401	20	Switch 24 Port
IT	40	Switch 48 Port
C0403	20	Switch 24 Port

Total PC = 338  
Switch = 14

# 5<sup>th</sup> Floor

## Media & Devices



Room	PC	Device & Media
Auditorium	29	Switch 48 Port
ASA0503	20	Switch 24 Port
ASA0501	20	Switch 24 Port
B0503	20	Switch 24 Port
B0504	20	Switch 24 Port
ASA0504	20	Switch 24 Port
ASA 0504-05	29	Switch 48 Port
C0511	20	Switch 24 Port
C0507	20	Switch 24 Port
C0508	20	Switch 24 Port
C0509	20	Switch 24 Port

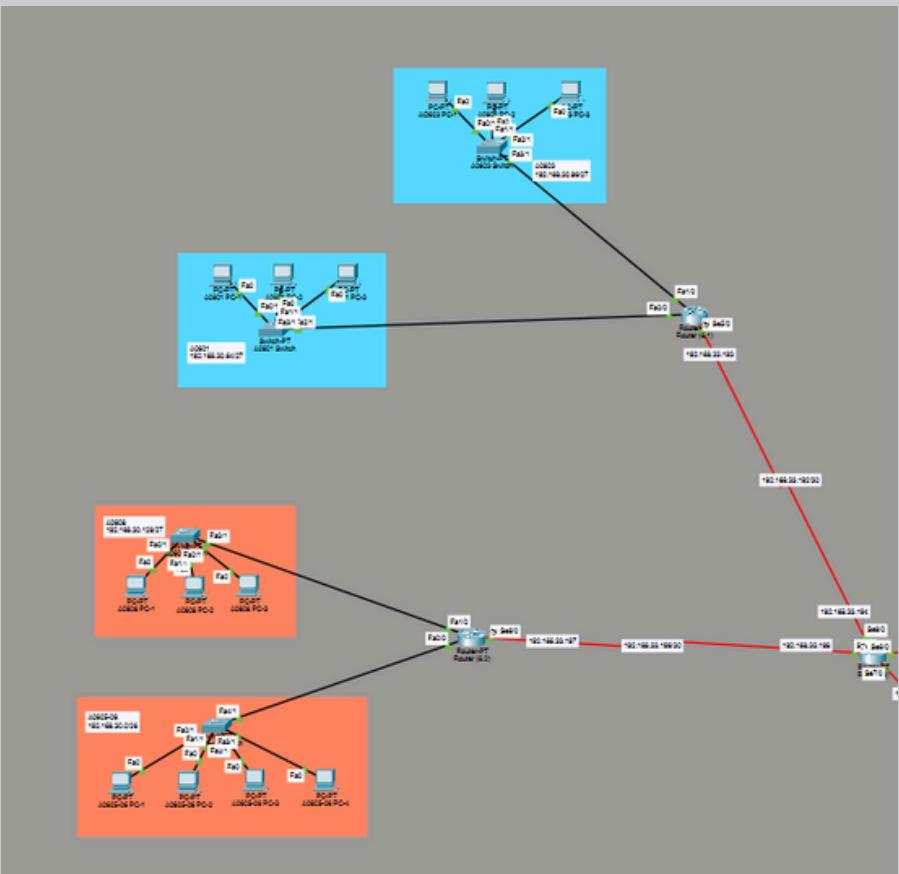
Total PC = 268  
Switch = 11



11 Rooms, 3 Section

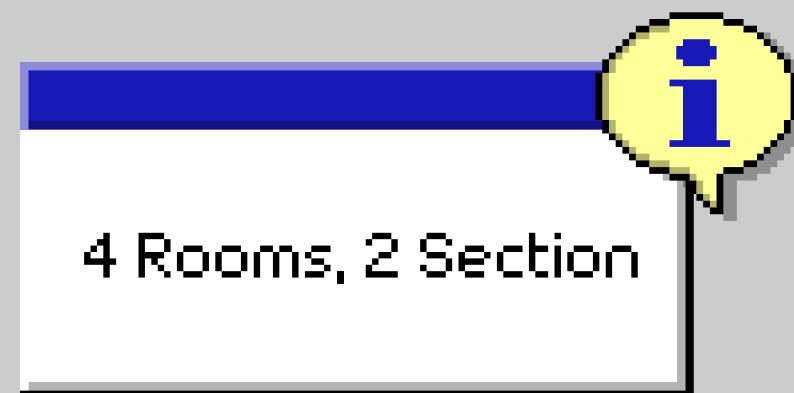
# 6<sup>th</sup> Floor

## Media & Devices



Room	PC	Device & Media
A0601	29	Switch 48 Port
A0603	29	Switch 48 Port
A0608	29	Switch 48 Port
A0605-06	40	Switch 48 Port

Total PC = 127  
Switch = 4





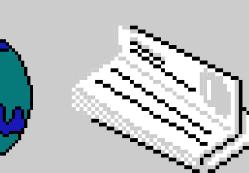
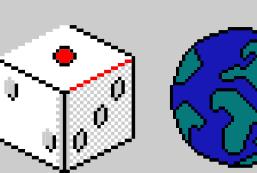
# Length of Media Used & Cost



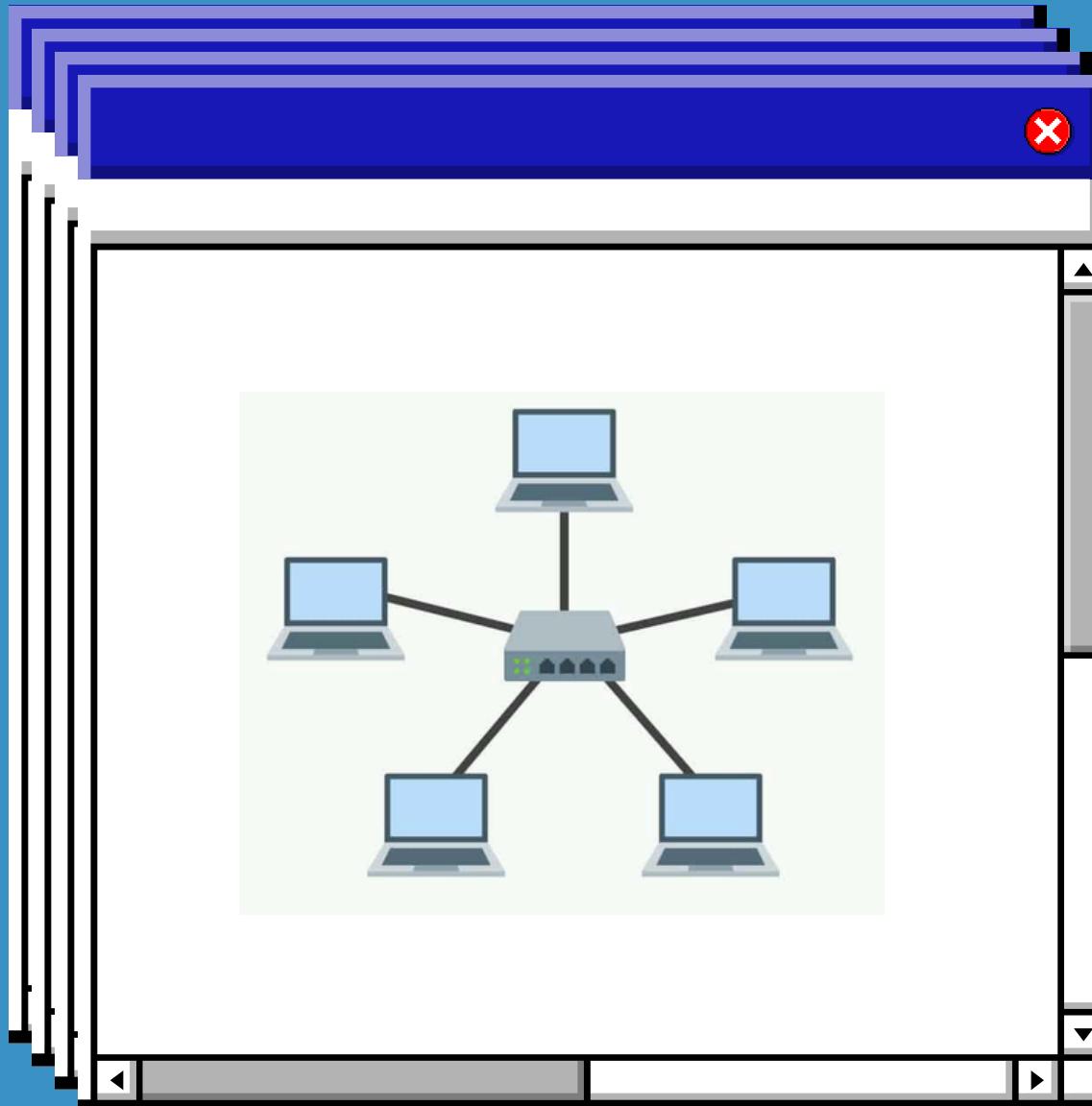
Destination	Cable Needed	Device	Total Cable Length
PC -> Switch	20 meter	733	14660
Switch -> Router	60 meter	29	1740
Router-> Router	80 meter	11	880
Total Straight-Through (PC->Switch, Switch->Router)			<b>16.400 meter</b>
Total Crossover (Router->Router)			<b>880 meter</b>



Cost			
Komponen	Jumlah Unit	Harga per Unit (Rp)	Total Harga (Rp)
Router	11	2.000.000	22.000.000
Switch	29	3.500.000	101.500.000
Server	3	25.000.000	75.000.000
Straight-Through Cable	16.400 meter	10,000	164.000.000
Crossover Cable	880 meter	20,000	17.600.000
Total Cost			<b>380.100.000</b>



# Star Topology



- **Easy to maintain and troubleshoot**

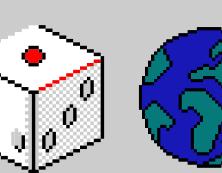
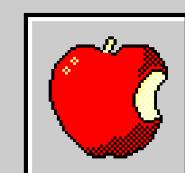
If one computer has a problem, it will not affect other computers because all devices are connected to a central switch.

- **More stable network performance**

Each device has its own dedicated connection to the central device, resulting in fewer data collisions compared to other topologies.

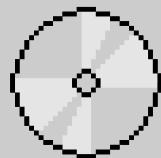
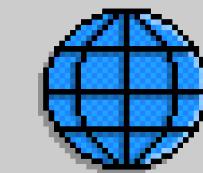
- **Easy to expand (scalable)**

Adding or removing devices is very easy without shutting down the entire network.

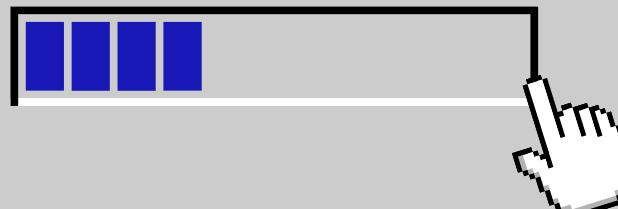




# 4<sup>th</sup> Floor Addressing

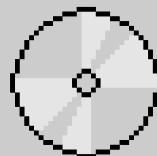
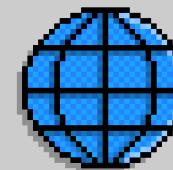


Lantai 4					
Ruangan	Jumlah Host	Subnet Mask	Network Address	Broadcast Address	Usable IP
LSC C0408-09	40	255.255.255.192/26	192.168.10.0	192.168.10.63	192.168.10.1 - 192.168.10.62
IT	40	255.255.255.192/26	192.168.10.64	192.168.10.127	192.168.10.65 - 192.168.10.126
B0401	29	255.255.255.224/27	192.168.10.128	192.168.10.159	192.168.10.129 - 192.168.10.158
LSC C0407	29	255.255.255.224/27	192.168.10.160	192.168.10.191	192.168.10.161 - 192.168.10.190
B0402	20	255.255.255.224/27	192.168.10.192	192.168.10.223	192.168.10.193 - 192.168.10.222
B0403	20	255.255.255.224/27	192.168.10.224	192.168.10.255	192.168.10.225 - 192.168.10.254
B0404	20	255.255.255.224/27	192.168.11.0	192.168.11.31	192.168.11.1 - 192.168.11.30
B0405	20	255.255.255.224/27	192.168.11.32	192.168.11.63	192.168.11.33 - 192.168.11.62
C0411	20	255.255.255.224/27	192.168.11.64	192.168.11.95	192.168.11.65 - 192.168.11.94
C0412	20	255.255.255.224/27	192.168.11.96	192.168.11.127	192.168.11.97 - 192.168.11.126
C0410	20	255.255.255.224/27	192.168.11.128	192.168.11.159	192.168.11.129 - 192.168.11.158
C0406	20	255.255.255.224/27	192.168.11.160	192.168.11.191	192.168.11.161 - 192.168.11.190
C0403	20	255.255.255.224/27	192.168.11.192	192.168.11.223	192.168.11.193 - 192.168.11.222
C0401	20	255.255.255.224/27	192.168.11.224	192.168.11.255	192.168.11.225 - 192.168.11.254

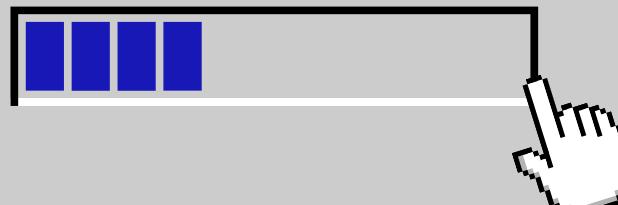


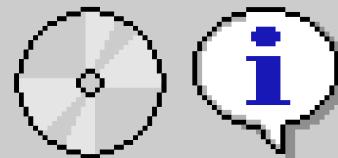


# 5<sup>th</sup> Floor Addressing



Lantai 5					
Ruangan	Jumlah Host	Subnet Mask	Network Address	Broadcast Address	Usable IP
Auditorium	29	255.255.255.224/27	192.168.20.0	192.168.20.31	192.168.20.1 - 192.168.20.30
ASA 0504-05	29	255.255.255.224/27	192.168.20.32	192.168.20.63	192.168.20.33 - 192.168.20.62
ASA0503	20	255.255.255.224/27	192.168.20.64	192.168.20.95	192.168.20.65 - 192.168.20.94
ASA0501	20	255.255.255.224/27	192.168.20.96	192.168.20.127	192.168.20.97 - 192.168.20.126
B0503	20	255.255.255.224/27	192.168.20.128	192.168.20.159	192.168.20.129 - 192.168.20.158
B0504	20	255.255.255.224/27	192.168.20.160	192.168.20.191	192.168.20.161 - 192.168.20.190
ASA0504	20	255.255.255.224/27	192.168.20.192	192.168.20.223	192.168.20.193 - 192.168.20.222
C0511	20	255.255.255.224/27	192.168.20.224	192.168.20.255	192.168.20.225 - 192.168.20.254
C0507	20	255.255.255.224/27	192.168.21.0	192.168.21.31	192.168.21.1 - 192.168.21.30
C0508	20	255.255.255.224/27	192.168.21.32	192.168.21.63	192.168.21.33 - 192.168.21.62
C0509	20	255.255.255.224/27	192.168.21.64	192.168.21.95	192.168.21.65 - 192.168.21.94

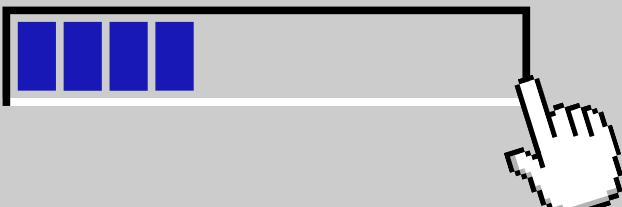




# 6<sup>th</sup> Floor Addressing



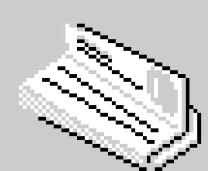
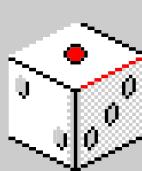
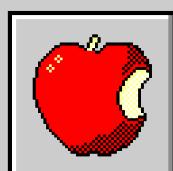
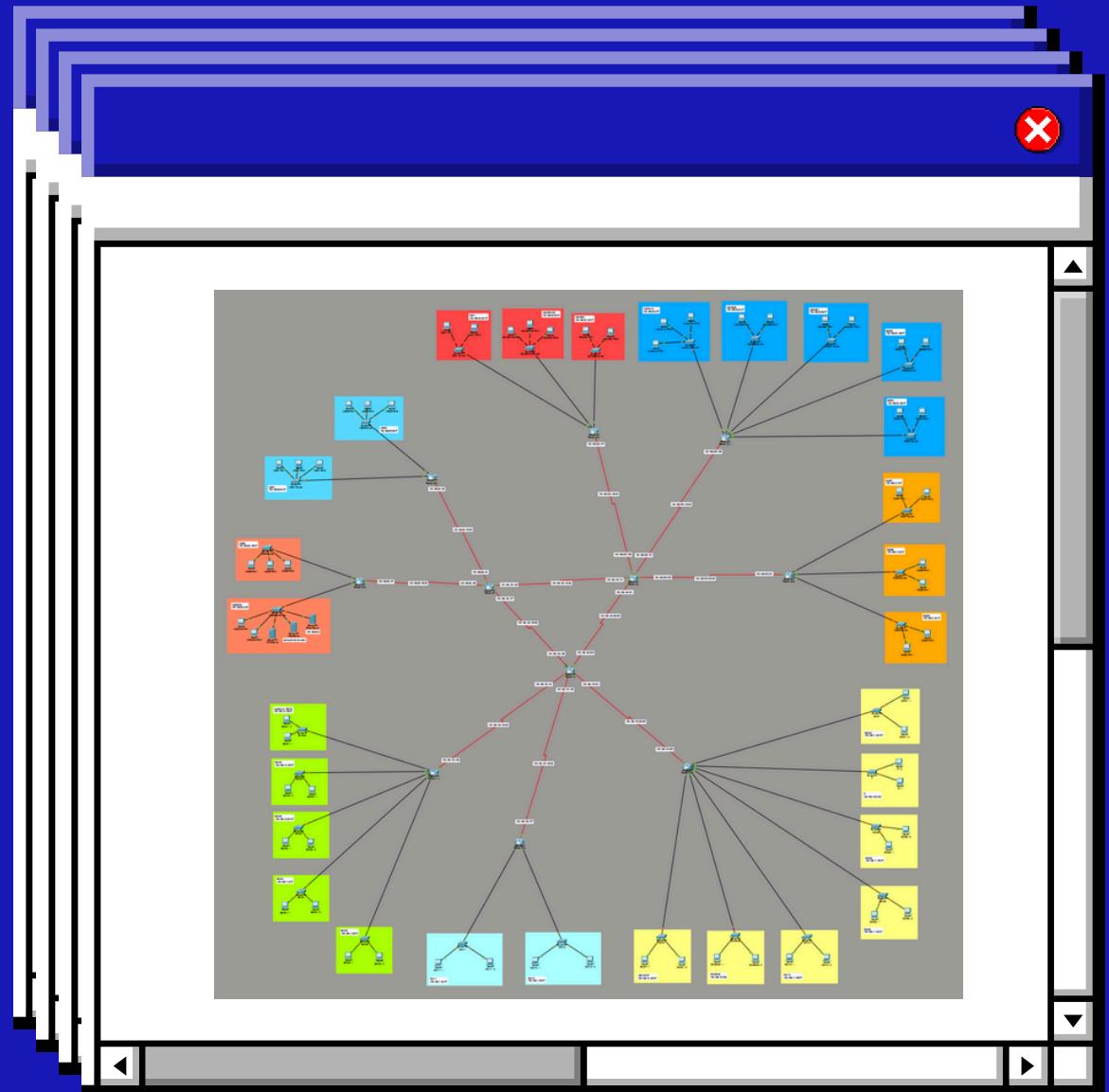
Lantai 6					
Ruangan	Jumlah Host	Subnet Mask	Network Address	Broadcast Address	Usable IP
A0605-06	40	255.255.255.192/26	192.168.30.0	192.168.30.63	192.168.30.1 - 192.168.30.62
A0601	29	255.255.255.224/27	192.168.30.64	192.168.30.95	192.168.30.65 - 192.168.30.94
A0603	29	255.255.255.224/27	192.168.30.96	192.168.30.127	192.168.30.97 - 192.168.30.126
A0608	29	255.255.255.224/27	192.168.30.128	192.168.30.159	192.168.30.129 - 192.168.30.158





# Static Routing

- Static routing was chosen because the campus network has a relatively stable topology, allowing communication paths between networks to be fixed and controlled by the administrator.
- It has a light processing load because it does not require the continuous exchange of routing information; this optimizes router performance and makes bandwidth usage more efficient.
- From a security standpoint, this method is also more secure because routes cannot be automatically changed by other devices.



# Routing Table 4<sup>th</sup> Floor

Router (4.1)			
Network Destination	Interface	Next Hop	Status
192.168.10.128/27	Fa0/0	-	DC
192.168.10.192/27	Fa1/0	-	DC
192.168.10.224/27	Fa5/0	-	DC
192.168.11.0/27	Fa7/0	-	DC
192.168.11.32/27	Fa6/0	-	DC
192.168.100.192/30	Se2/0		DC
192.168.11.64/27	Se2/0	192.168.100.194/30	RN
192.168.11.96/27	Se2/0	192.168.100.194/30	RN
192.168.10.160/27	Se2/0	192.168.100.194/30	RN
192.168.10.0/26	Se2/0	192.168.100.194/30	RN
192.168.11.128/27	Se2/0	192.168.100.194/30	RN
192.168.11.192/27	Se2/0	192.168.100.194/30	RN
192.168.11.160/27	Se2/0	192.168.100.194/30	RN
192.168.10.64/26	Se2/0	192.168.100.194/30	RN
192.168.11.224/27	Se2/0	192.168.100.194/30	RN
192.168.30.0/26	Se2/0	192.168.100.194/30	RN
192.168.30.128/27	Se2/0	192.168.100.194/30	RN
192.168.30.64/27	Se2/0	192.168.100.194/30	RN
192.168.30.96/27	Se2/0	192.168.100.194/30	RN
192.168.20.0/27	Se2/0	192.168.100.194/30	RN
192.168.20.32/27	Se2/0	192.168.100.194/30	RN
192.168.20.64/27	Se2/0	192.168.100.194/30	RN
192.168.20.96/27	Se2/0	192.168.100.194/30	RN
192.168.20.128/27	Se2/0	192.168.100.194/30	RN
192.168.20.160/27	Se2/0	192.168.100.194/30	RN
192.168.20.192/27	Se2/0	192.168.100.194/30	RN
192.168.20.224/27	Se2/0	192.168.100.194/30	RN
192.168.21.0/27	Se2/0	192.168.100.194/30	RN
192.168.21.32/27	Se2/0	192.168.100.194/30	RN
192.168.21.64/27	Se2/0	192.168.100.194/30	RN
192.168.20.224/27	Se2/0	192.168.100.194/30	RN
192.168.21.0/27	Se2/0	192.168.100.194/30	RN
192.168.21.32/27	Se2/0	192.168.100.194/30	RN
192.168.21.64/27	Se2/0	192.168.100.194/30	RN
192.168.30.0/26	Se2/0	192.168.100.194/30	RN
192.168.30.128/27	Se2/0	192.168.100.194/30	RN
192.168.30.64/27	Se2/0	192.168.100.194/30	RN
192.168.30.96/27	Se2/0	192.168.100.194/30	RN

Router (4.2)			
Network Destination	Interface	Next Hop	Status
192.168.100.196/30	Se2/0	-	DC
192.168.11.64/27	Fa1/0	-	DC
192.168.11.96/27	Fa0/0	-	DC
192.168.10.0/26	Se2/0	192.168.100.198/30	RN
192.168.10.64/26	Se2/0	192.168.100.198/30	RN
192.168.10.128/27	Se2/0	192.168.100.198/30	RN
192.168.11.192/27	Fa5/0	-	DC
192.168.11.160/27	Fa6/0	-	DC
192.168.10.64/26	Fa7/0	-	DC
192.168.11.224/27	Fa8/0	-	DC
192.168.100.200/30	Se2/0	-	DC
192.168.10.64/26	Se2/0	192.168.100.201/30	RN
192.168.10.128/27	Se2/0	192.168.100.201/30	RN
192.168.10.192/27	Se2/0	192.168.100.201/30	RN
192.168.10.224/27	Se2/0	192.168.100.201/30	RN
192.168.11.0/27	Se2/0	192.168.100.201/30	RN
192.168.11.32/27	Se2/0	192.168.100.201/30	RN
192.168.11.128/27	Se2/0	192.168.100.201/30	RN
192.168.11.160/27	Se2/0	192.168.100.201/30	RN
192.168.10.64/26	Se2/0	192.168.100.201/30	RN
192.168.11.224/27	Se2/0	192.168.100.201/30	RN
192.168.20.0/27	Se2/0	192.168.100.201/30	RN
192.168.20.32/27	Se2/0	192.168.100.201/30	RN
192.168.20.64/27	Se2/0	192.168.100.201/30	RN
192.168.20.96/27	Se2/0	192.168.100.201/30	RN
192.168.20.128/27	Se2/0	192.168.100.201/30	RN
192.168.20.160/27	Se2/0	192.168.100.201/30	RN
192.168.20.192/27	Se2/0	192.168.100.201/30	RN
192.168.20.224/27	Se2/0	192.168.100.201/30	RN
192.168.21.0/27	Se2/0	192.168.100.201/30	RN
192.168.21.32/27	Se2/0	192.168.100.201/30	RN
192.168.21.64/27	Se2/0	192.168.100.201/30	RN
192.168.30.0/26	Se2/0	192.168.100.201/30	RN
192.168.30.128/27	Se2/0	192.168.100.201/30	RN
192.168.30.64/27	Se2/0	192.168.100.201/30	RN
192.168.30.96/27	Se2/0	192.168.100.201/30	RN

Router (4.3)			
Network Destination	Interface	Next Hop	Status
192.168.10.160/27	Fa0/0	-	DC
192.168.10.0/26	Fa1/0	-	DC
192.168.11.128/27	Fa4/0	-	DC
192.168.11.192/27	Fa5/0	-	DC
192.168.11.160/27	Fa6/0	-	DC
192.168.10.64/26	Fa7/0	-	DC
192.168.11.224/27	Fa8/0	-	DC
192.168.100.200/30	Se2/0	-	DC
192.168.10.192/27	Se2/0	192.168.100.201/30	RN
192.168.10.224/27	Se4/0	192.168.100.201/30	RN
192.168.11.0/27	Se4/0	192.168.100.201/30	RN
192.168.11.32/27	Se4/0	192.168.100.201/30	RN
192.168.11.64/27	Se3/0	192.168.100.197/30	RN
192.168.11.96/27	Se4/0	192.168.100.193/30	RN
192.168.11.128/27	Se2/0	192.168.100.202/30	RN
192.168.11.160/27	Se2/0	192.168.100.202/30	RN
192.168.11.192/27	Se2/0	192.168.100.202/30	RN
192.168.11.224/27	Se6/0	192.168.100.201/30	RN
192.168.12.0/27	Se6/0	192.168.100.201/30	RN
192.168.12.32/27	Se6/0	192.168.100.201/30	RN
192.168.12.64/27	Se6/0	192.168.100.201/30	RN
192.168.12.96/27	Se6/0	192.168.100.201/30	RN
192.168.13.0/27	Se6/0	192.168.100.201/30	RN
192.168.13.32/27	Se6/0	192.168.100.201/30	RN
192.168.13.64/27	Se6/0	192.168.100.201/30	RN
192.168.13.96/27	Se6/0	192.168.100.201/30	RN
192.168.14.0/27	Se6/0	192.168.100.201/30	RN
192.168.14.32/27	Se6/0	192.168.100.201/30	RN
192.168.14.64/27	Se6/0	192.168.100.201/30	RN
192.168.14.96/27	Se6/0	192.168.100.201/30	RN
192.168.15.0/27	Se6/0	192.168.100.201/30	RN
192.168.15.32/27	Se6/0	192.168.100.201/30	RN
192.168.15.64/27	Se6/0	192.168.100.201/30	RN
192.168.15.96/27	Se6/0	192.168.100.201/30	RN
192.168.16.0/27	Se6/0	192.168.100.201/30	RN
192.168.16.32/27	Se6/0	192.168.100.201/30	RN
192.168.16.64/27	Se6/0	192.168.100.201/30	RN
192.168.16.96/27	Se6/0	192.168.100.2	

# Cisco 4<sup>th</sup> Floor

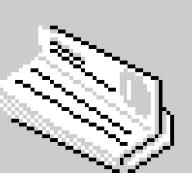
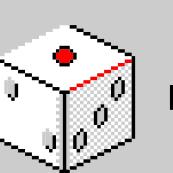
Logical Physical x 900, y 1011

Root 07:54:00

The diagram illustrates a network topology across four floors. The top floor is orange, the middle-left is green, the middle-right is light blue, and the bottom is yellow. A central switch connects to several other switches, which in turn connect to various hosts (labeled B0401-2, C0412-1, etc.). Some connections are highlighted in red.

PDU List Window

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit
●	Successful	B0401 - 2	C0412 - 1	ICMP	■	0.000	N	0	(edit)
●	Successful	B0402 - 2	C0407 - 2	ICMP	■	0.000	N	1	(edit)
●	In Progress	B0403 - 2	C0401 - 2	ICMP	■	0.000	N	2	(edit)
●	Successful	B0404 - 2	A0605-06 PC-1	ICMP	■	0.000	N	3	(edit)
●	In Progress	B0404 - 1	A0601 PC-3	ICMP	■	0.000	N	4	(edit)
●	In Progress	B0401 - 2	C0508 PC-2	ICMP	■	0.000	N	5	(edit)
●	In Progress	B0402 - 2	B0504 PC-2	ICMP	■	0.000	N	6	(edit)
●	In Progress	B0401 - 2	ASA0504 PC-3	ICMP	■	0.000	N	7	(edit)



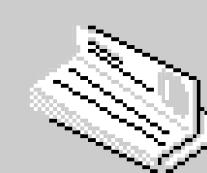
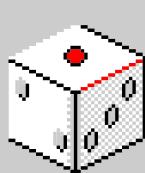
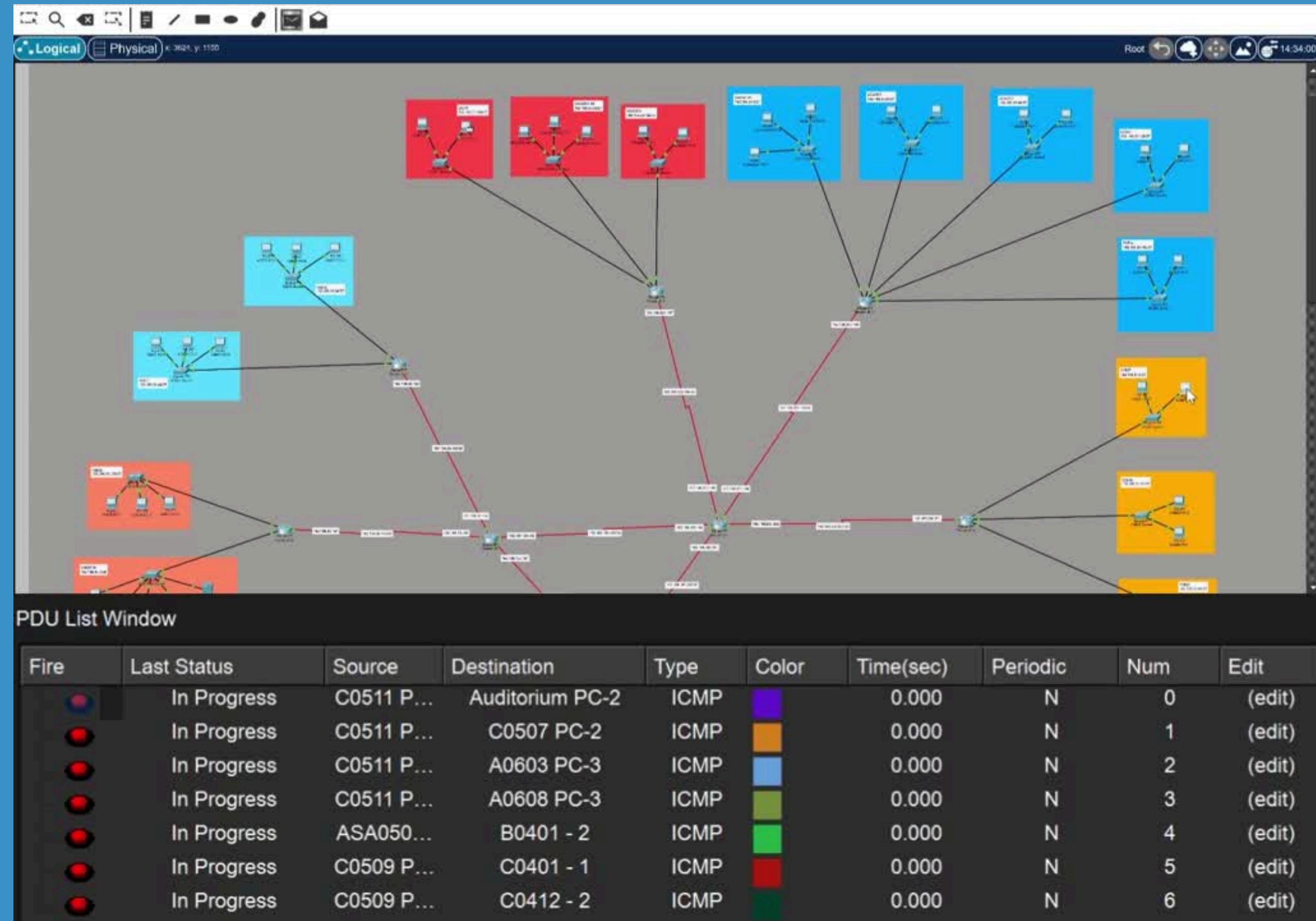
# Routing Table 5<sup>th</sup> Floor

Router (5.1)			
Network Destination	Interface	Next Hop	Status
192.168.20.0/27	Fa0/0	-	DC
192.168.20.64/27	Fa1/0	-	DC
192.168.20.96/27	Fa2/0	-	DC
192.168.20.128/27	Fa3/0	-	DC
192.168.20.160/27	Fa4/0	-	DC
192.168.200.192/30	Se9/0	-	DC
192.168.20.224/27	Se9/0	192.168.200.194/30	RN
192.168.20.32/27	Se9/0	192.168.200.194/30	RN
192.168.20.192/27	Se9/0	192.168.200.194/30	RN
192.168.21.0/27	Se9/0	192.168.200.194/30	RN
192.168.21.32/27	Se9/0	192.168.200.194/30	RN
192.168.21.64/27	Se9/0	192.168.200.194/30	RN
192.168.10.0/26	Se9/0	192.168.200.194/30	RN
192.168.10.64/26	Se9/0	192.168.200.194/30	RN
192.168.10.128/27	Se9/0	192.168.200.194/30	RN
192.168.10.160/27	Se9/0	192.168.200.194/30	RN
192.168.10.192/27	Se9/0	192.168.200.194/30	RN
192.168.10.224/27	Se9/0	192.168.200.194/30	RN
192.168.11.0/27	Se9/0	192.168.200.194/30	RN
192.168.11.32/27	Se9/0	192.168.200.194/30	RN
192.168.11.64/27	Se9/0	192.168.200.194/30	RN
192.168.11.96/27	Se9/0	192.168.200.194/30	RN
192.168.11.128/27	Se9/0	192.168.200.194/30	RN
192.168.11.160/27	Se9/0	192.168.200.194/30	RN
192.168.11.192/27	Se9/0	192.168.200.194/30	RN
192.168.11.224/27	Se9/0	192.168.200.194/30	RN
192.168.30.0/26	Se9/0	192.168.200.194/30	RN
192.168.30.128/27	Se9/0	192.168.200.194/30	RN
192.168.30.64/27	Se9/0	192.168.200.194/30	RN
192.168.30.96/27	Se9/0	192.168.200.194/30	RN

Router(5.2)			
Network Destination	Interface	Next Hop	Status
192.168.20.224/27	Fa0/0	-	DC
192.168.20.32/27	Fa1/0	-	DC
192.168.20.192/27	Fa2/0	-	DC
192.168.200.196/30	Se9/0	-	DC
192.168.20.0/27	Se9/0	192.168.200.198/30	RN
192.168.20.64/27	Se9/0	192.168.200.198/30	RN
192.168.20.96/27	Se9/0	192.168.200.198/30	RN
192.168.20.128/27	Se9/0	192.168.200.198/30	RN
192.168.20.160/27	Se9/0	192.168.200.198/30	RN
192.168.21.0/27	Se9/0	192.168.200.198/30	RN
192.168.21.32/27	Se9/0	192.168.200.198/30	RN
192.168.21.64/27	Se9/0	192.168.200.198/30	RN
192.168.10.0/26	Se9/0	192.168.200.198/30	RN
192.168.10.64/26	Se9/0	192.168.200.198/30	RN
192.168.10.128/27	Se9/0	192.168.200.198/30	RN
192.168.10.160/27	Se9/0	192.168.200.198/30	RN
192.168.10.192/27	Se9/0	192.168.200.198/30	RN
192.168.10.224/27	Se9/0	192.168.200.198/30	RN
192.168.11.0/27	Se9/0	192.168.200.198/30	RN
192.168.11.32/27	Se9/0	192.168.200.198/30	RN
192.168.11.64/27	Se9/0	192.168.200.198/30	RN
192.168.11.96/27	Se9/0	192.168.200.198/30	RN
192.168.11.128/27	Se9/0	192.168.200.198/30	RN
192.168.11.160/27	Se9/0	192.168.200.198/30	RN
192.168.11.192/27	Se9/0	192.168.200.198/30	RN
192.168.11.224/27	Se9/0	192.168.200.198/30	RN
192.168.30.0/26	Se9/0	192.168.200.198/30	RN
192.168.30.128/27	Se9/0	192.168.200.198/30	RN
192.168.30.64/27	Se9/0	192.168.200.198/30	RN
192.168.30.96/27	Se9/0	192.168.200.198/30	RN

Router(5.3)			
Network Destination	Interface	Next Hop	Status
192.168.21.0/27	Fa0/0	-	DC
192.168.21.32/27	Fa1/0	-	DC
192.168.21.64/27	Fa2/0	-	DC
192.168.200.200/30	Se9/0	-	DC
192.168.20.0/27	Se9/0	192.168.200.202/30	RN
192.168.20.64/27	Se9/0	192.168.200.202/30	RN
192.168.20.96/27	Se9/0	192.168.200.202/30	RN
192.168.20.128/27	Se9/0	192.168.200.202/30	RN
192.168.20.160/27	Se9/0	192.168.200.202/30	RN
192.168.21.0/27	Se9/0	192.168.200.202/30	RN
192.168.21.32/27	Se9/0	192.168.200.202/30	RN
192.168.21.64/27	Se9/0	192.168.200.202/30	RN
192.168.20.192/27	Se9/0	192.168.200.202/30	RN
192.168.20.224/27	Se9/0	192.168.200.202/30	RN
192.168.21.0/27	Se8/0	192.168.200.201/30	RN
192.168.21.32/27	Se8/0	192.168.200.201/30	RN
192.168.21.64/27	Se8/0	192.168.200.201/30	RN
192.168.20.192/27	Se8/0	192.168.200.201/30	RN
192.168.20.224/27	Se8/0	192.168.200.201/30	RN
192.168.21.0/27	Se7/0	192.168.200.193/30	RN
192.168.21.32/27	Se7/0	192.168.200.193/30	RN
192.168.21.64/27	Se7/0	192.168.200.193/30	RN
192.168.20.192/27	Se7/0	192.168.200.193/30	RN
192.168.20.224/27	Se7/0	192.168.200.193/30	RN
192.168.21.0/27	Se6/0	192.168.200.201/30	RN
192.168.21.32/27	Se6/0	192.168.200.201/30	RN
192.168.21.64/27	Se6/0	192.168.200.201/30	RN
192.168.20.192/27	Se6/0	192.168.200.201/30	RN
192.168.20.224/27	Se6/0	192.168.200.201/30	RN
192.168.21.0/27	Se5/0	192.168.150.202/30	RN
192.168.21.32/27	Se5/0	192.168.150.202/30	RN
192.168.21.64/27	Se5/0	192.168.150.202/30	RN
192.168.20.192/27	Se5/0	192.168.150.202/30	RN
192.168.20.224/27	Se5/0	192.168.150.202/30	RN
192.168.21.0/27	Se4/0	192.168.150.202/30	RN
192.168.21.32/27	Se4/0	192.168.150.202/30	RN
192.168.21.64/27	Se4/0	192.168.150.202/30	RN
192.168.20.192/27	Se4/0	192.168.150.202/30	RN
192.168.20.224/27	Se4/0	192.168.150.202/30	RN
192.168.21.0/27	Se3/0	192.168.150.193/30	RN
192.168.21.32/27	Se3/0	192.168.150.193/30	RN
192.168.21.64/27	Se3/0	192.168.150.193/30	RN
192.168.20.192/27	Se3/0	192.168.150.193/30	RN
192.168.20.224/27	Se3/0	192.168.150.193/30	RN
192.168.21.0/27	Se2/0	192.168.150.193/30	RN
192.168.21.32/27	Se2/0	192.168.150.193/30	RN
192.168.21.64/27	Se2/0	192.168.150.193/30	RN
192.168.20.192/27	Se2/0	192.168.150.193/30	RN
192.168.20.224/27	Se2/0	192.168.150.193/30	RN
192.168.21.0/27	Se1/0		

# Cisco 5<sup>th</sup> Floor

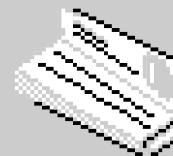
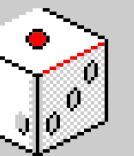
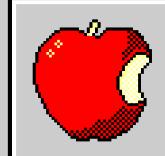


# Routing Table 6<sup>th</sup> Floor

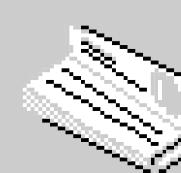
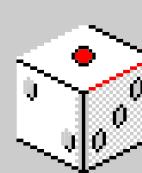
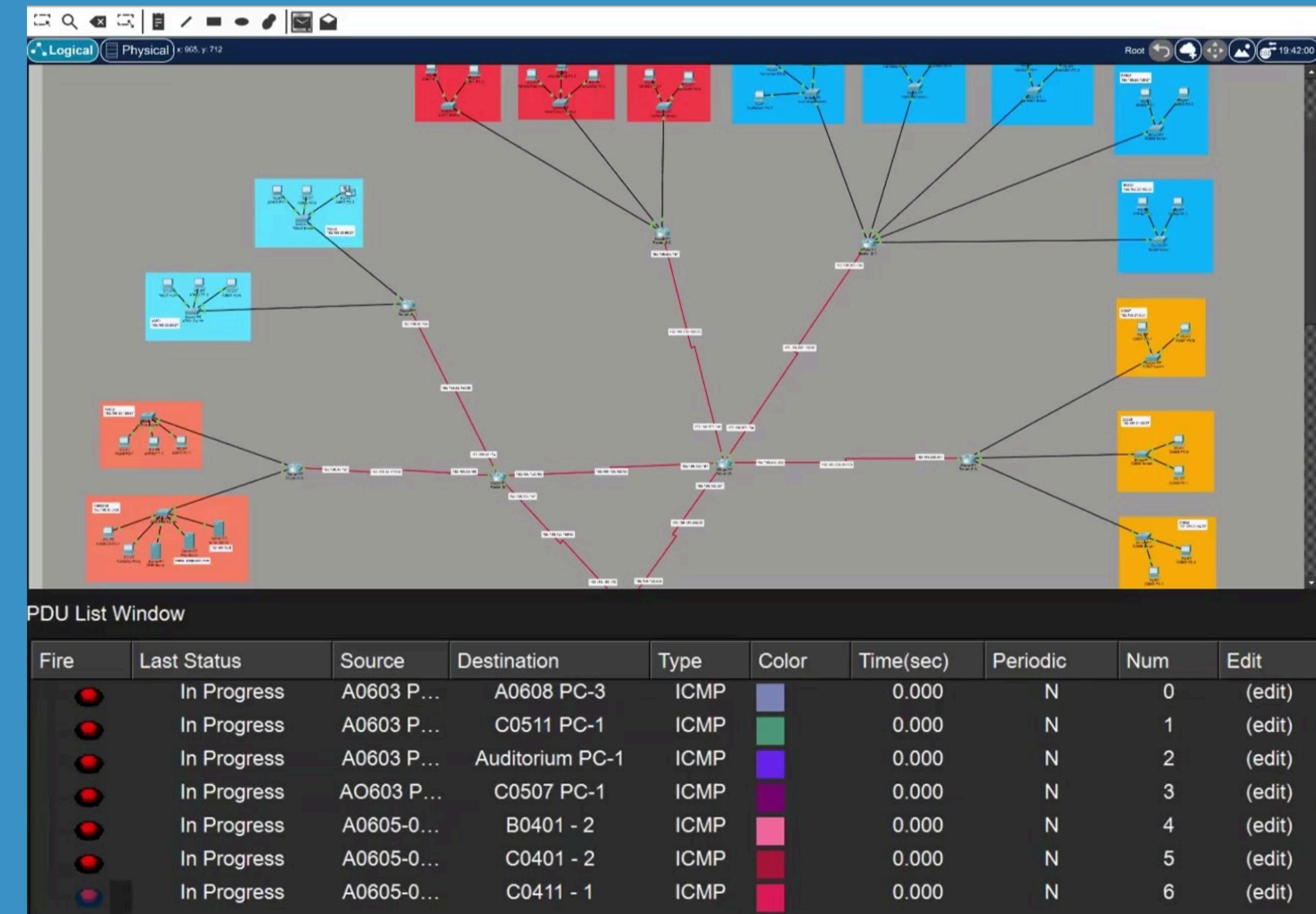
Router (6.1)			
Network Destination	Interface	Next Hop	Status
192.168.30.96/27	Fa1/0	-	DC
192.168.30.64/27	Fa0/0	-	DC
192.168.33.192/30	Se5/0	-	DC
192.168.30.128/27	Se5/0	192.168.33.194/30	RN
192.168.30.0/26	Se5/0	192.168.33.194/30	RN
192.168.10.0/26	Se5/0	192.168.33.194/30	RN
192.168.10.64/26	Se5/0	192.168.33.194/30	RN
192.168.10.128/27	Se5/0	192.168.33.194/30	RN
192.168.10.160/27	Se5/0	192.168.33.194/30	RN
192.168.10.192/27	Se5/0	192.168.33.194/30	RN
192.168.10.224/27	Se5/0	192.168.33.194/30	RN
192.168.11.0/27	Se5/0	192.168.33.194/30	RN
192.168.11.32/27	Se5/0	192.168.33.194/30	RN
192.168.11.64/27	Se5/0	192.168.33.194/30	RN
192.168.11.96/27	Se5/0	192.168.33.194/30	RN
192.168.11.128/27	Se5/0	192.168.33.194/30	RN
192.168.11.160/27	Se5/0	192.168.33.194/30	RN
192.168.11.192/27	Se5/0	192.168.33.194/30	RN
192.168.11.224/27	Se5/0	192.168.33.194/30	RN
192.168.20.0/27	Se5/0	192.168.33.194/30	RN
192.168.20.32/27	Se5/0	192.168.33.194/30	RN
192.168.20.64/27	Se5/0	192.168.33.194/30	RN
192.168.20.96/27	Se5/0	192.168.33.194/30	RN
192.168.20.128/27	Se5/0	192.168.33.194/30	RN
192.168.20.160/27	Se5/0	192.168.33.194/30	RN
192.168.20.192/27	Se5/0	192.168.33.194/30	RN
192.168.20.224/27	Se5/0	192.168.33.194/30	RN
192.168.21.0/27	Se5/0	192.168.33.194/30	RN
192.168.21.32/27	Se5/0	192.168.33.194/30	RN
192.168.21.64/27	Se5/0	192.168.33.194/30	RN

Router (6.2)			
Network Destination	Interface	Next Hop	Status
192.168.30.0/26	Fa0/0	-	DC
192.168.30.128/27	Fa1/0	-	DC
192.168.33.196/30	Se9/0	-	DC
192.168.30.64/27	Se9/0	192.168.33.198/30	RN
192.168.30.96/27	Se9/0	192.168.33.198/30	RN
192.168.10.0/26	Se9/0	192.168.33.198/30	RN
192.168.10.64/26	Se9/0	192.168.33.198/30	RN
192.168.10.128/27	Se9/0	192.168.33.198/30	RN
192.168.10.160/27	Se9/0	192.168.33.198/30	RN
192.168.10.192/27	Se9/0	192.168.33.198/30	RN
192.168.10.224/27	Se9/0	192.168.33.198/30	RN
192.168.11.0/27	Se9/0	192.168.33.198/30	RN
192.168.11.32/27	Se9/0	192.168.33.198/30	RN
192.168.11.64/27	Se9/0	192.168.33.198/30	RN
192.168.11.96/27	Se9/0	192.168.33.198/30	RN
192.168.11.128/27	Se9/0	192.168.33.198/30	RN
192.168.11.160/27	Se9/0	192.168.33.198/30	RN
192.168.11.192/27	Se9/0	192.168.33.198/30	RN
192.168.11.224/27	Se9/0	192.168.33.198/30	RN
192.168.20.0/27	Se9/0	192.168.33.198/30	RN
192.168.20.32/27	Se9/0	192.168.33.198/30	RN
192.168.20.64/27	Se9/0	192.168.33.198/30	RN
192.168.20.96/27	Se9/0	192.168.33.198/30	RN
192.168.20.128/27	Se9/0	192.168.33.198/30	RN
192.168.20.160/27	Se9/0	192.168.33.198/30	RN
192.168.20.192/27	Se9/0	192.168.33.198/30	RN
192.168.20.224/27	Se9/0	192.168.33.198/30	RN
192.168.21.0/27	Se9/0	192.168.33.198/30	RN
192.168.21.32/27	Se9/0	192.168.33.198/30	RN
192.168.21.64/27	Se9/0	192.168.33.198/30	RN

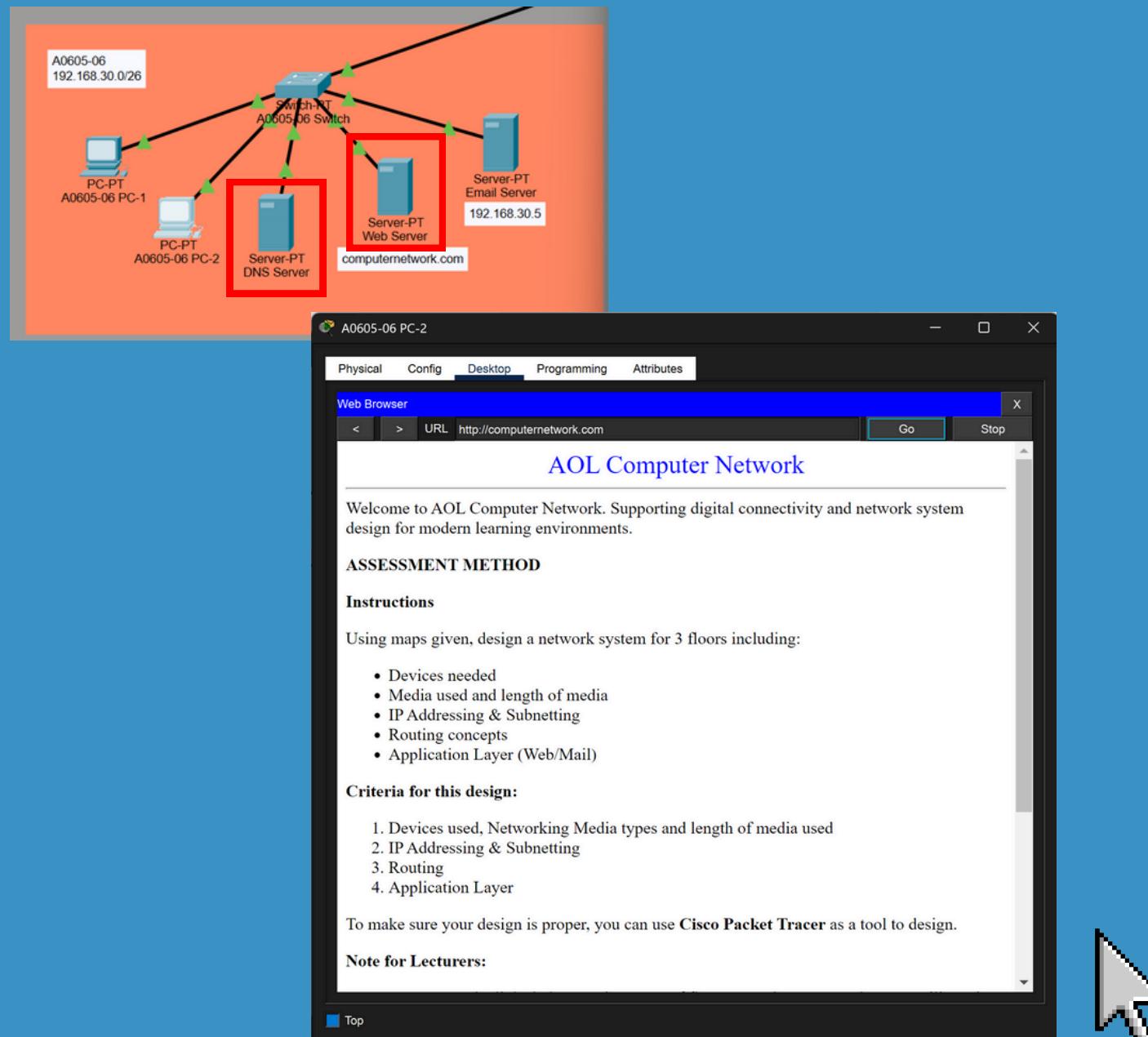
Router (6)			
Network Destination	Interface	Next Hop	Status
192.168.33.192/30	Se9/0	-	DC
192.168.33.196/30	Se5/0	-	DC
192.168.150.192/30	Se6/0	-	DC
192.168.150.196/30	Se7/0	-	DC
192.168.30.0/26	Se5/0	192.168.33.197/30	RN
192.168.30.128/27	Se5/0	192.168.33.197/30	RN
192.168.30.64/27	Se9/0	192.168.33.193/30	RN
192.168.30.96/27	Se9/0	192.168.33.193/30	RN
192.168.10.0/26	Se7/0	192.168.150.198/30	RN
192.168.10.64/26	Se7/0	192.168.150.198/30	RN
192.168.10.128/27	Se7/0	192.168.150.198/30	RN
192.168.10.192/27	Se7/0	192.168.150.198/30	RN
192.168.10.224/27	Se7/0	192.168.150.198/30	RN
192.168.11.0/27	Se7/0	192.168.150.198/30	RN
192.168.11.32/27	Se7/0	192.168.150.198/30	RN
192.168.11.64/27	Se7/0	192.168.150.198/30	RN
192.168.11.96/27	Se7/0	192.168.150.198/30	RN
192.168.11.128/27	Se7/0	192.168.150.198/30	RN
192.168.11.160/27	Se7/0	192.168.150.198/30	RN
192.168.11.192/27	Se7/0	192.168.150.198/30	RN
192.168.11.224/27	Se7/0	192.168.150.198/30	RN
192.168.20.0/27	Se6/0	192.168.150.194/30	RN
192.168.20.32/27	Se6/0	192.168.150.194/30	RN
192.168.20.64/27	Se6/0	192.168.150.194/30	RN
192.168.20.96/27	Se6/0	192.168.150.194/30	RN
192.168.20.128/27	Se6/0	192.168.150.194/30	RN
192.168.20.160/27	Se6/0	192.168.150.194/30	RN
192.168.20.192/27	Se6/0	192.168.150.194/30	RN
192.168.20.224/27	Se6/0	192.168.150.194/30	RN
192.168.21.0/27	Se6/0	192.168.150.194/30	RN
192.168.21.32/27	Se6/0	192.168.150.194/30	RN
192.168.21.64/27	Se6/0	192.168.150.194/30	RN



# Cisco 6<sup>th</sup> Floor



# Application Layer - WEB (HTTP)



- **HTTP (Hyper Text Transfer Protocol)**

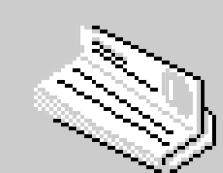
A communication protocol used to send and receive data between a web browser and a server, allowing users to access website pages on the internet.

- **HTTP Process**

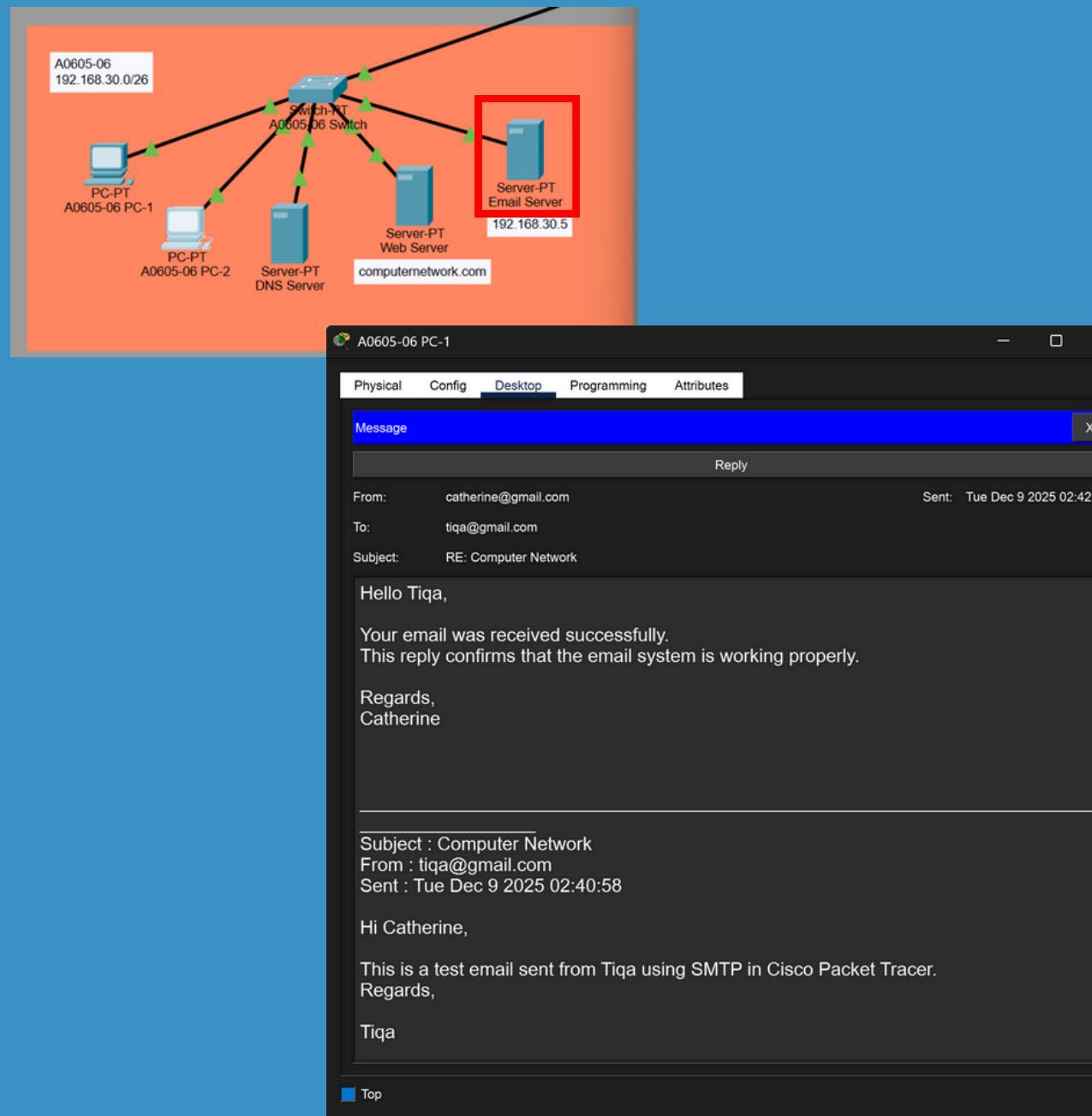
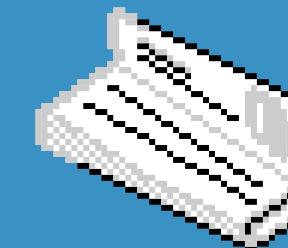
The process starts when the browser sends a request to the server when a user opens a website. The server then processes the request and sends a response in the form of a web page to be displayed in the browser.

- **Project Implementation**

Two servers are used: a DNS Server and an HTTP Server. The DNS Server functions to convert a website address such as <http://computernetwork.com> into the IP address of the HTTP Server. Next, the user's browser accesses the website through that domain name, and the web page that has been created on the HTTP Server can be displayed.



# Application Layer - EMAIL (SMTP)



- **SMTP (Simple Mail Transfer Protocol)**

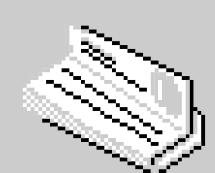
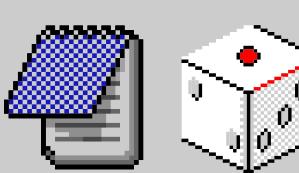
A protocol used to send emails from a client to a server and between email servers on the internet.

- **SMTP Process**

A user sends an email, which is first delivered to the sending server, then forwarded to the destination server, and finally stored so it can be retrieved by the recipient using other protocols such as POP3 or IMAP.

- **Project Implementation**

In the project, an Email Server is used to handle the email sending process using the SMTP protocol. Each user has an email account for testing purposes. The test results show that emails are successfully sent from one PC to another through the server.



Thank you!

