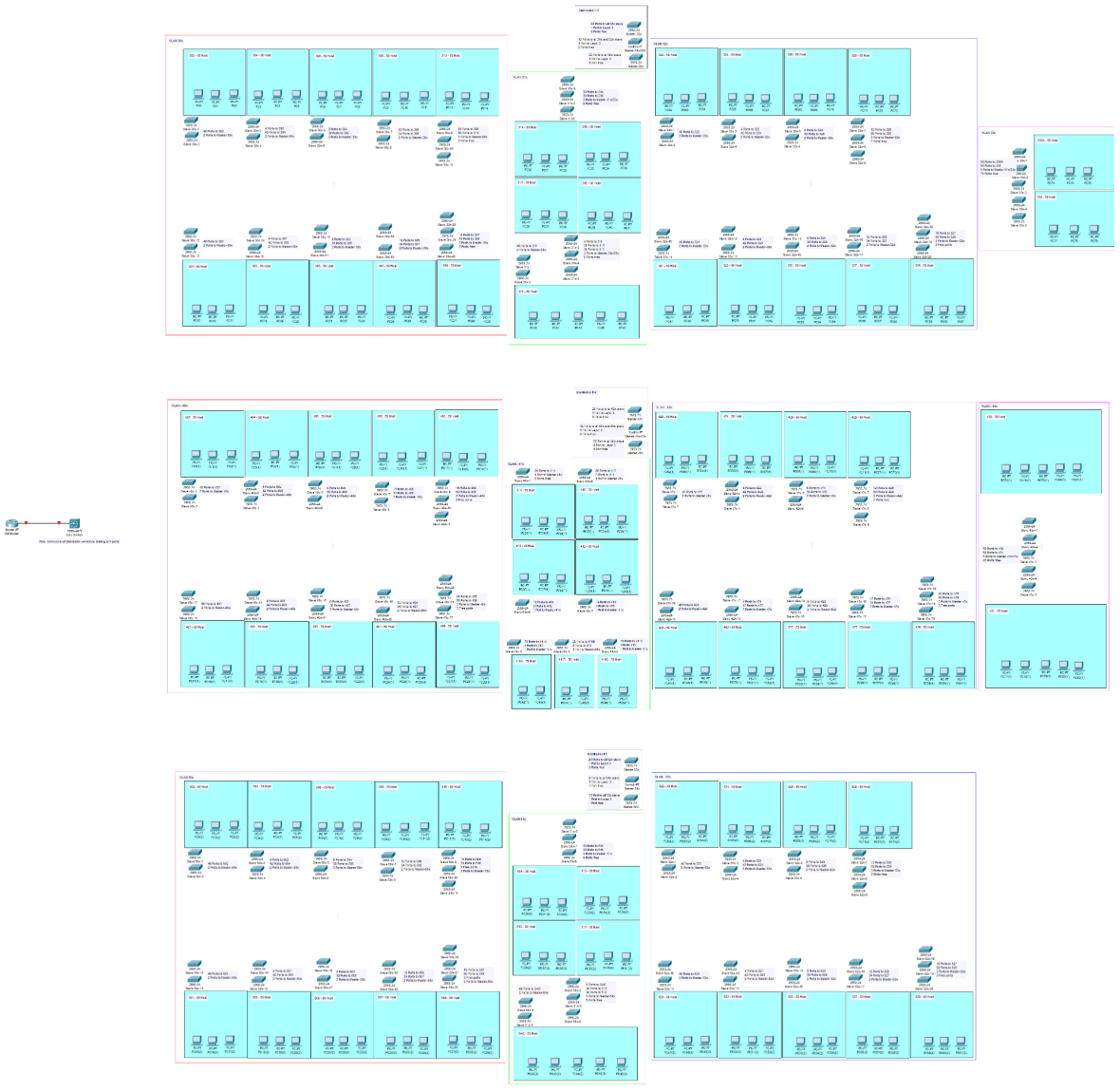
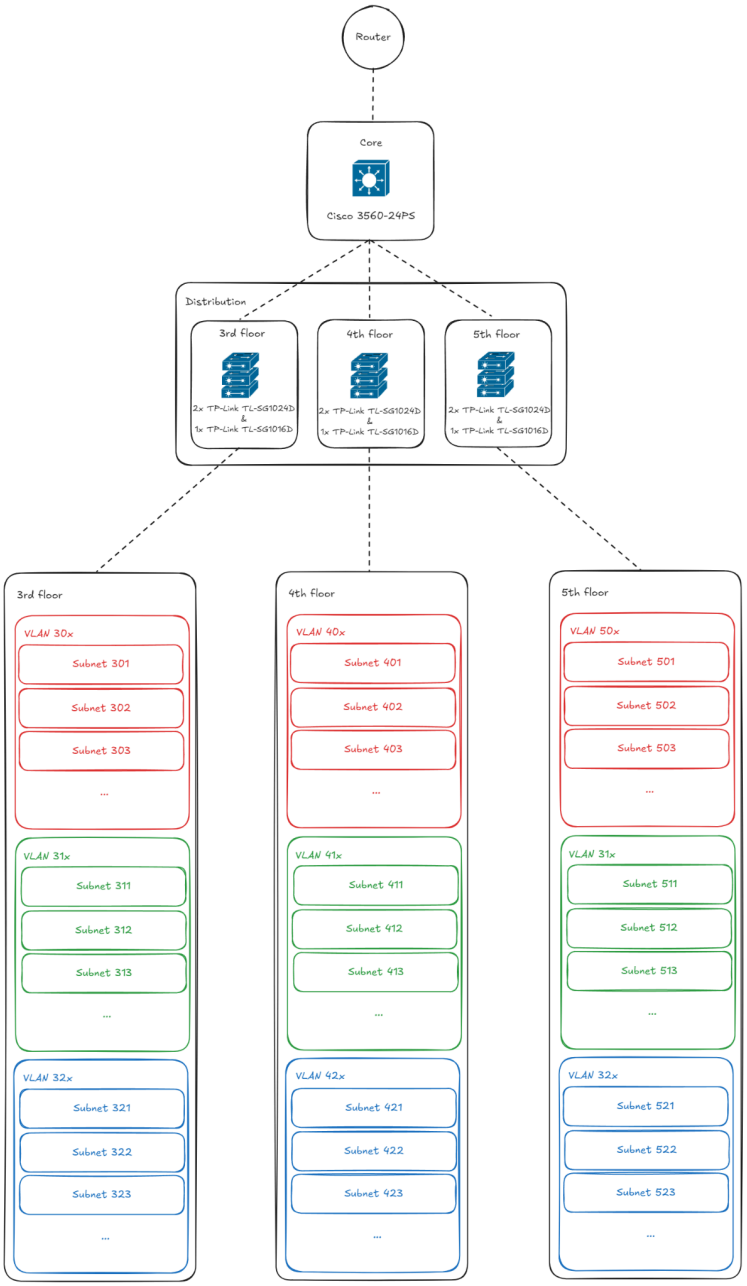
AOL Computer Network Phase 1 Report

Group Members:
Aaron Winston Gho - 2702210522
Austin Kane - 2702229232
Josh Manuel - 2702225543
Rayhan Permana - 2702215896
Vanness Christian Rulianto - 2702209382

1.0 Network Design





2.0 Network Subnetting

Our subnetting can be seen on the following google spreadsheet:
https://docs.google.com/spreadsheets/d/1YYqsJ3FS-BLrBws3IzzYHalzuhaxseCrq7QNw3SX7F4/edit?gid=0#gid=0

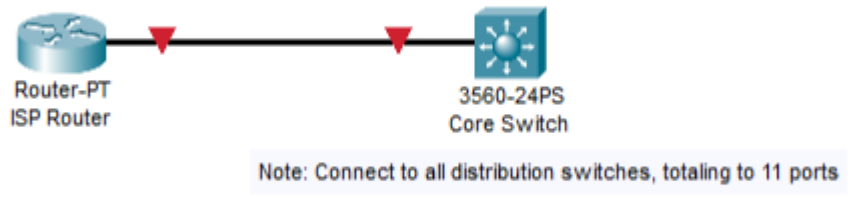
3.0 Device List Placement per Floor and Device Placement

Lantai 2 (Core Switch)		
Product	**Unit**	**Placement**
Cisco 1000 ISP [C1111-4P]	1	IT Room_FL2
Cisco 3560 Catalyst WS-C3560G-24TS-S	1	IT Room_FL2
Lantai 3		
Product	**Unit**	**Placement**
TP-LINK TL-SG1024D 24-port	57	Each Room and Distribution Room
TP-LINK TL-SG1016D 16-port	1	Distribution Room
Lantai 4		
Product	**Unit**	**Placement**
TP-LINK TL-SG1024D 24-port	56	Each Room and Distribution Room
TP-LINK TL-SG1016D 16-port	1	Distribution Room
Lantai 5		
Product	**Unit**	**Placement**
TP-LINK TL-SG1024D 24-port	52	Each Room and Distribution Room
TP-LINK TL-SG1016D 16-port	1	Distribution Room

Image 3.0 Device List Per Floor

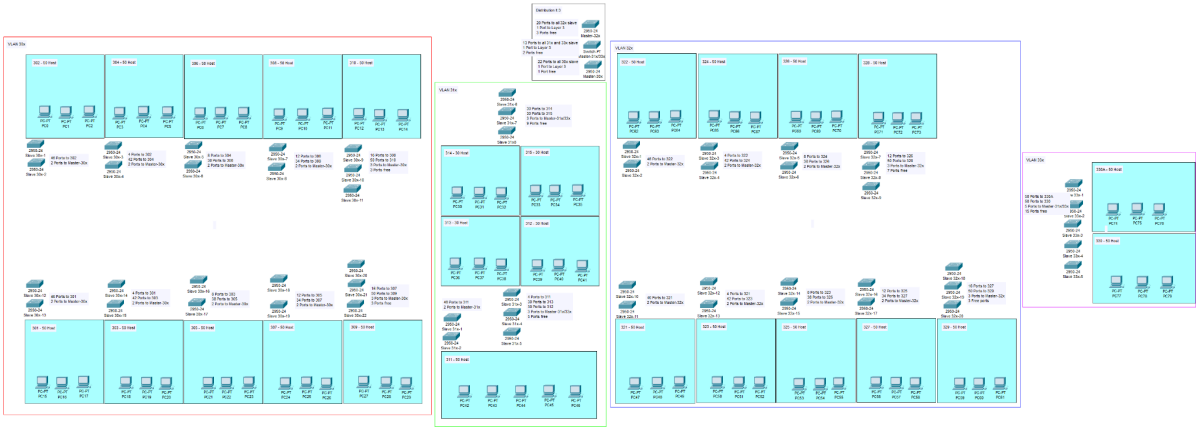
Image 3.0 shows devices in each floor, placement, and units. On the 2nd floor, the ISP router will be installed in the IT Department room on the 2nd floor, with the core switch.

3.1 2nd Floor Device Placement

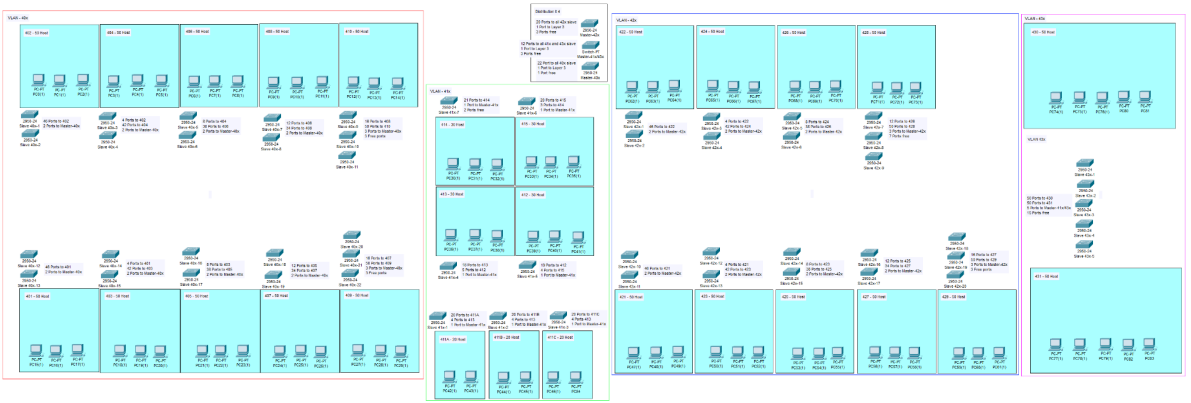


A router and a 3 layer switch will be placed in the IT support room, and cables from floor 3-5 will go from the elevator near the toilet.

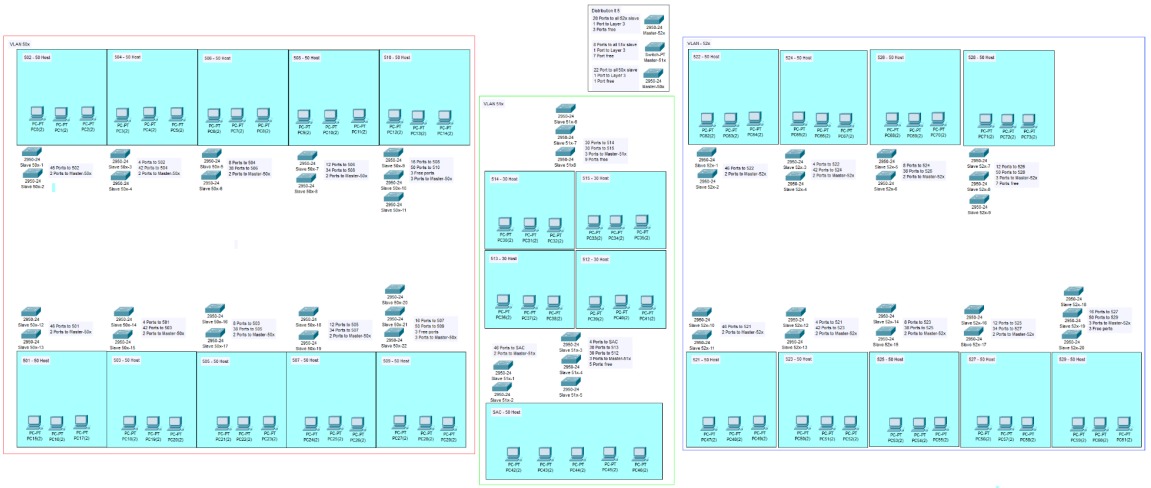
3.2 3rd Floor Device Placement



3.3 4th Floor Device Placement



3.4 5th Floor Device Placement



4.0 Price List For Each Network Device And Total Investment

(Core Switch)					
Product	**Amount**	**Unit**	**Price**	**Link**	**Total**
Cisco 1000 ISP [C1111-4P]	1	Unit	Rp20,200,000	https://www.toko	Rp20,200,000
Cisco 3560 Catalyst WS-C356(	1	Unit	Rp24,500,000	https://www.toko	Rp24,500,000
RJ45 Connector	20	Piece	Rp500	https://www.toko	Rp10,000
Cat 6 Cable	316	Meter	Rp2,200	https://www.toko	Rp695,200
				Total	**Rp45,405,200**
Floor 3					
Product	**Amount**	**Unit**	**Price**	**Link**	**Total**
TP-LINK TL-SG1024D 24-port	57	Unit	Rp1,000,000	https://www.toko	Rp57,000,000
TP-LINK TL-SG1016D 16-port	1	Unit	Rp790,000	https://www.toko	Rp790,000
RJ45 Connector	2556	Piece	Rp500	https://www.toko	Rp1,278,000
Cat 6 Cable	14875	Meter	Rp2,200	https://www.toko	Rp32,725,000
				Total	**Rp91,793,000**
Floor 4					
Product	**Amount**	**Unit**	**Price**	**Link**	**Total**
TP-LINK TL-SG1024D 24-port	56	Unit	Rp1,000,000	https://www.toko	Rp56,000,000
TP-LINK TL-SG1016D 16-port	1	Unit	Rp790,000	https://www.toko	Rp790,000
RJ45 Connector	2574	Piece	Rp500	https://www.toko	Rp1,287,000
Cat 6 Cable	14275	Meter	Rp2,200	https://www.toko	Rp31,405,000
				Total	**Rp89,482,000**
Floor 5					
Product	**Amount**	**Unit**	**Price**	**Link**	**Total**
TP-LINK TL-SG1024D 24-port	52	Unit	Rp1,000,000	https://www.toko	Rp52,000,000
TP-LINK TL-SG1016D 16-port	1	Unit	Rp790,000	https://www.toko	Rp790,000
RJ45 Connector	2346	Piece	Rp500	https://www.toko	Rp1,173,000
Cat 6 Cable	14805	Meter	Rp2,200	https://www.toko	Rp32,571,000
				Total	**Rp86,534,000**
				Total Cost	**Rp313,214,200**

Notes:

1. Assuming lower prices by buying in bulk, prices are rounded down
2. Amount are assumed in a perfect condition where there are no faulty products or human error(setting up/crimping)

5.0 Justification for chosen Technology and Devices

Design Choice

- **VLAN:** Creates networks bigger than the physical switch limit by combining multiple switches, improves performance, simplifies troubleshooting by isolating potential IP conflicts.
- **Subnetting each class:** Improves performance by reducing the broadcast domain size, isolates parts of the network so each class has its own isolated network, and due to the smaller size, it also reduces the size of routing tables and makes troubleshooting easier.

Device Choice

- **Cisco 3560-24PS:** A layer 3 switch for handling inter-VLAN communication routing and for managing the core of the network.
- **TP-Link TL-SG1024D:** A layer 2 switch that is used for the distribution and access layer. The distribution layer connects a trunk to the network core (Cisco 3560-24PS), and the access layer connects end users to the distribution switches.
- **TP-Link TL-SG1016D:** A smaller version of the TL-SG1024D that only has 16 ports, only used in the distribution layer.