



CONSTANT HALL NETWORK

SWITCH DESIGN

HANDS ON #4

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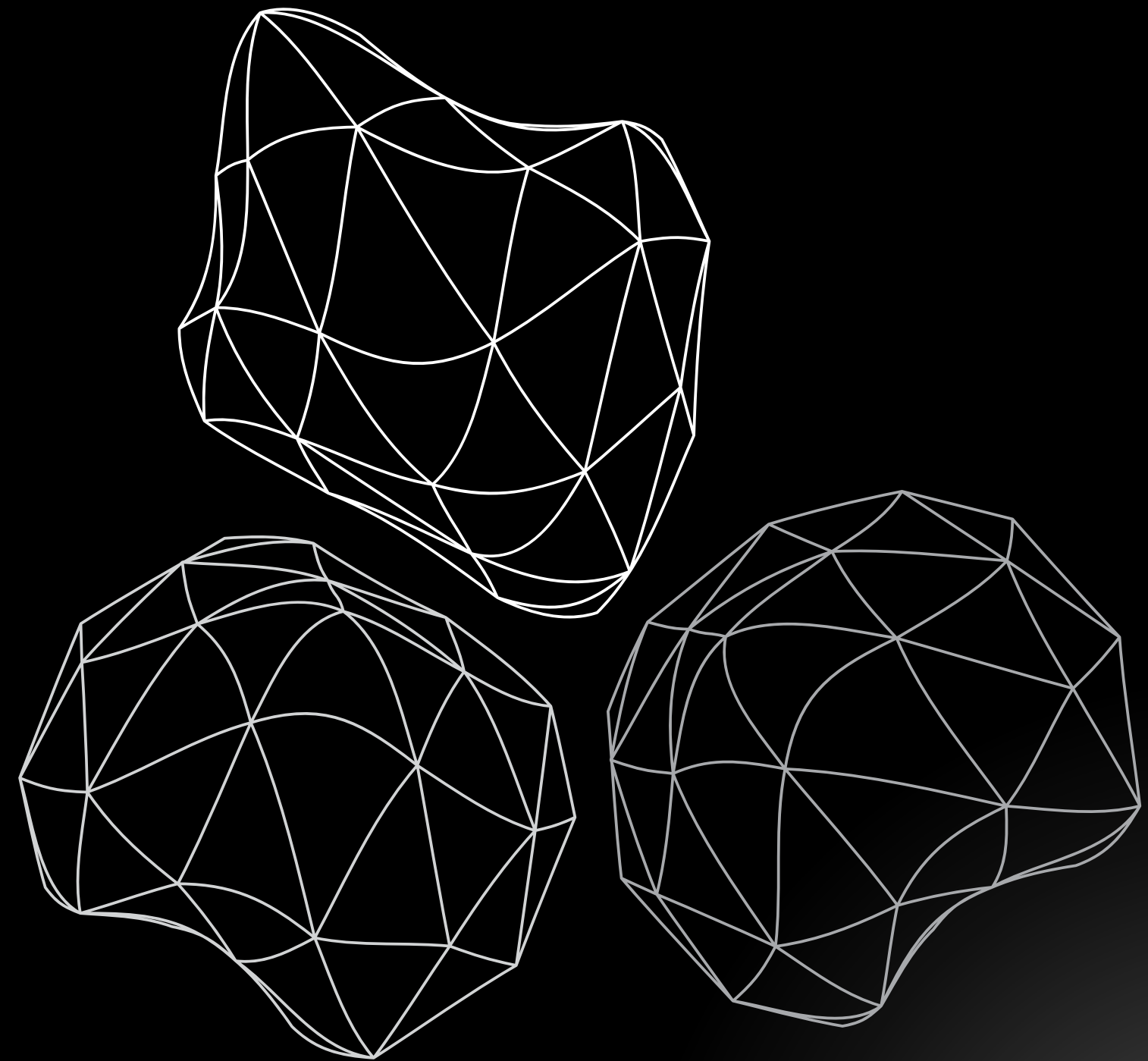
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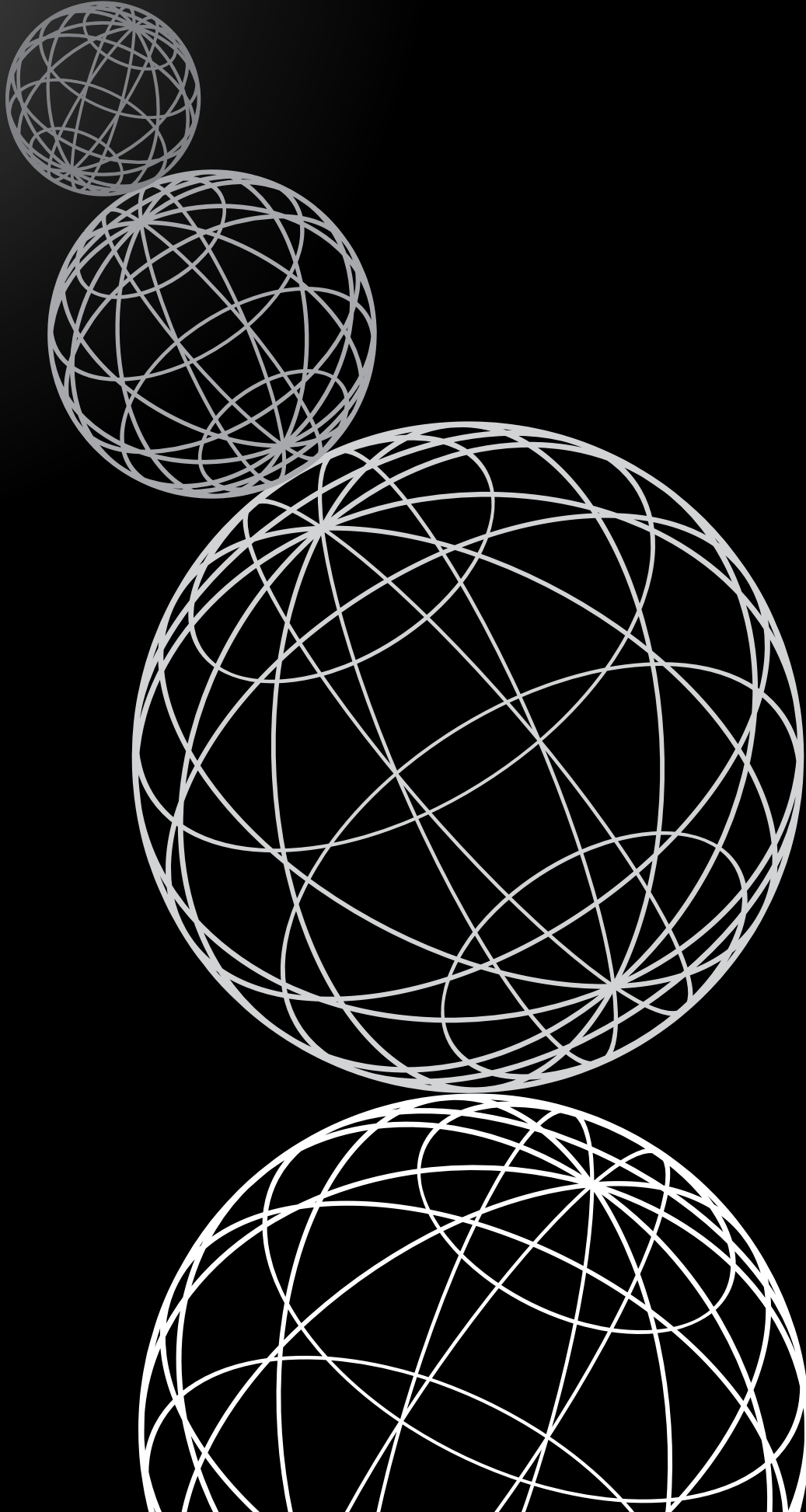
BOTTOM LINE UP FRONT

Will be designing the switch infrastructure for Constant Hall using managed enterprise switches. Will determine how the three telecom closets and interconnected, and provide a materials budget

- Three telecommunication closets will be connected using fiber optic 1Gbps ethernet
- The first floor closet will act as the core distribution switch
- The three servers (FS, Web, Files) will be installed in the first floor telecommunications closet



- *ESTIMATED COST OF SWITCHES ≈ \$4,500 – \$4,600*



ASSUMPTIONS

Campus backbone connection:

- 1 Gbps multimode fiber optic
- All switches are professional managed switches

Fiber links between closets will use:

- Multimode fiber (1000Base-SX)

Servers require:

- Dedicated gigabit ethernet connections

Each Telecommunications closet contain:

- One access switch
- Connection to the core switch

Goal:

Allow maximum simultaneous access to

- Servers
- Campus backbone
- Internal network

Device Type	Ports
Student Labs	150
Classrooms	25
Offices	35
Total	210 ports

FIRST FLOOR DIAGRAM

Location: Next to Room 1005

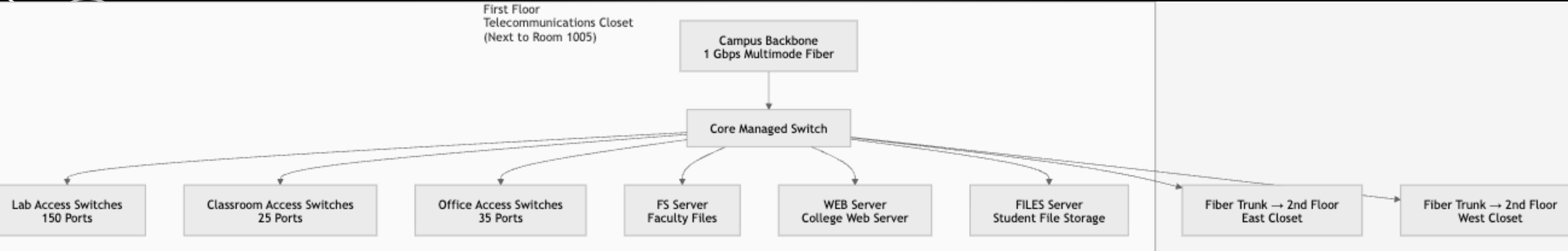
Connections:
Student Computer Labs
150 Cat5e connections – Access switches
Classrooms
25 Cat5e connections – Access switches
Offices
35 Cat5e connections – Access switches

Servers located here:

- FS Server
- WEB server
- FILES server

Fiber trunk links run from this core closet to:

- East 2nd floor closet
- West 2nd floor closet



SECOND FLOOR DIAGRAM

East Second Floor Telecommunications Closet

Location: Next to room 2145

Connections:

- 5 Cat5e ports – Classrooms
- 75 Cat5e ports – Offices

Total: 80 ports

Connected to the first floor core switch using a 1Gbps fiber optic link

West Second Floor Telecommunications Closet

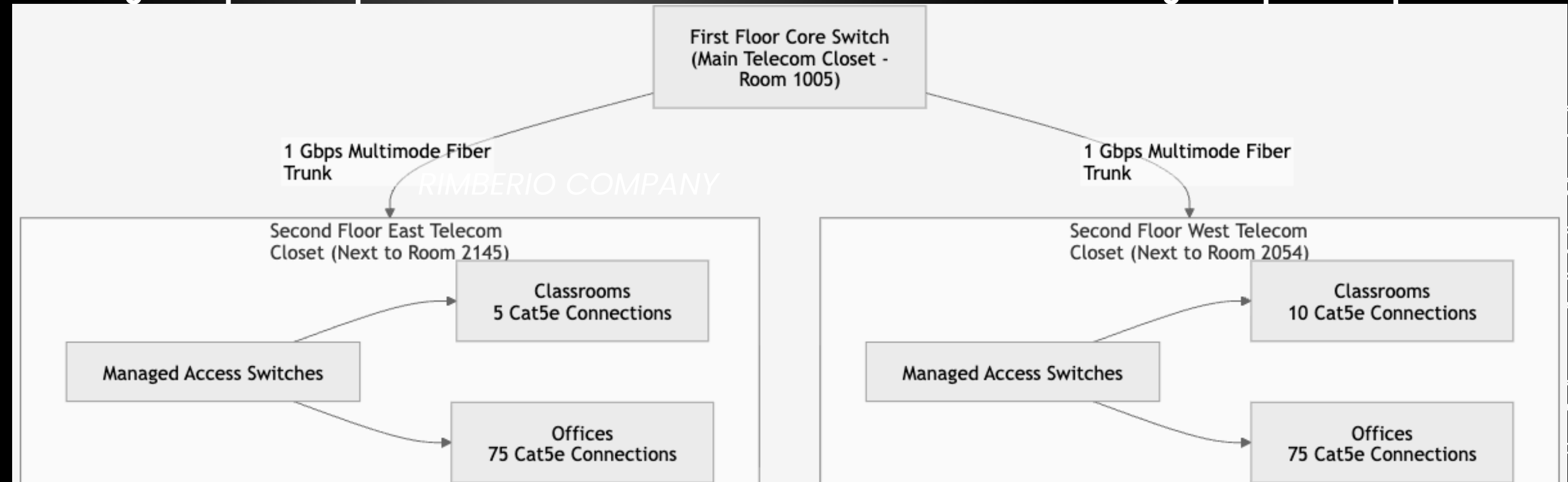
Location: Next to room 2054

Connections:

- 10 Cat5e ports – Classrooms
- 75 Cat5e ports – Offices

Total: 85 ports

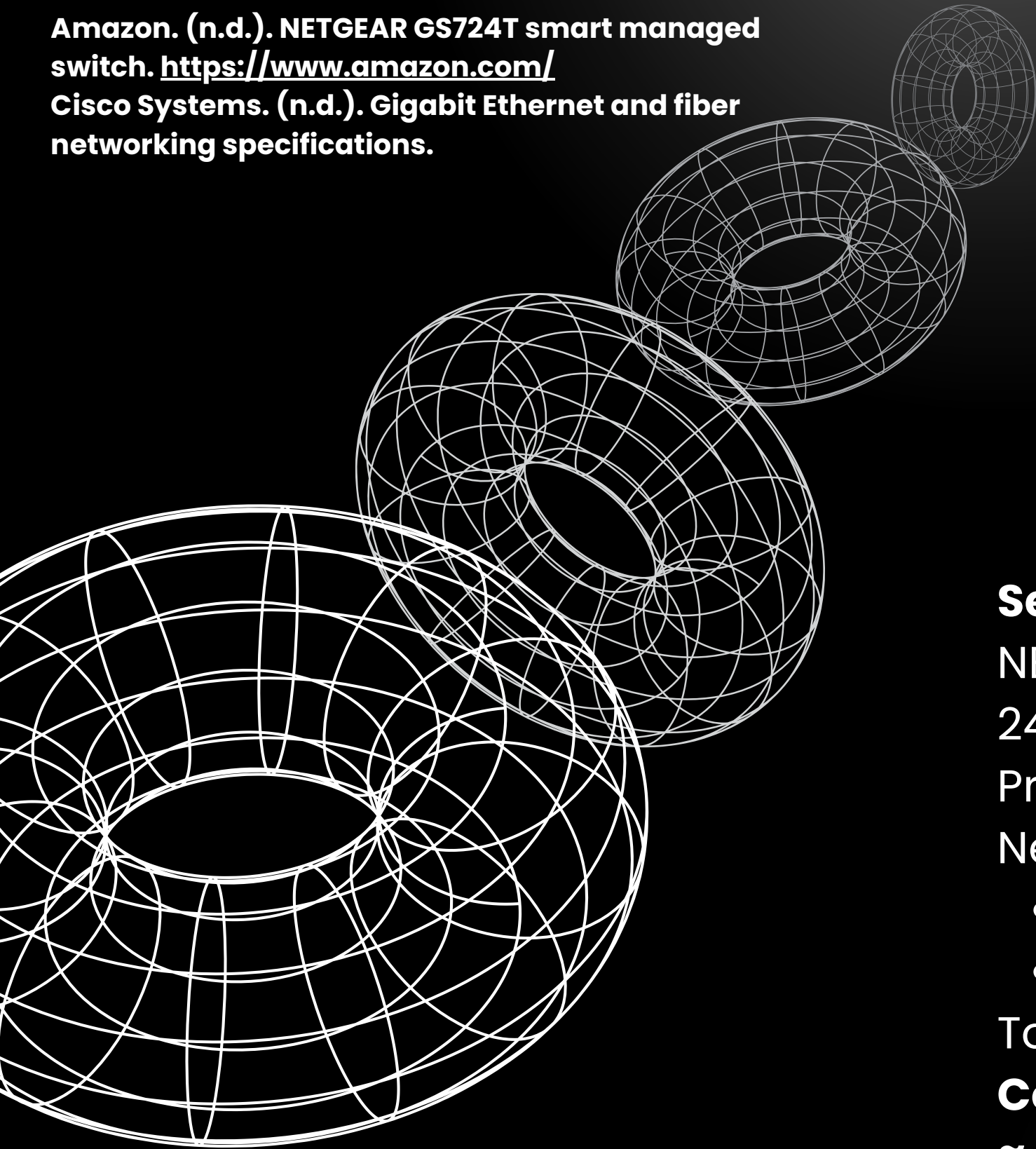
Connected to the first floor core switch using a 1Gbps fiber optic link



Amazon. (n.d.). Cisco Business CBS350-48T-4G managed switch. <https://www.amazon.com/>

Amazon. (n.d.). NETGEAR GS724T smart managed switch. <https://www.amazon.com/>

Cisco Systems. (n.d.). Gigabit Ethernet and fiber networking specifications.



BUDGET

Core Switch (First Floor)

Cisco Business CBS350-48T-4G Managed Switch
48-Port Gigabit Managed Switch

Price: ~ \$600

Needed:

5 switches (to support 210 ports)

Cost:

≈ \$3,000

Second Floor Access Switches

NETGEAR GS724T 24-Port Gigabit Smart Managed Switch
24-Port Managed Switch

Price: ~ \$200

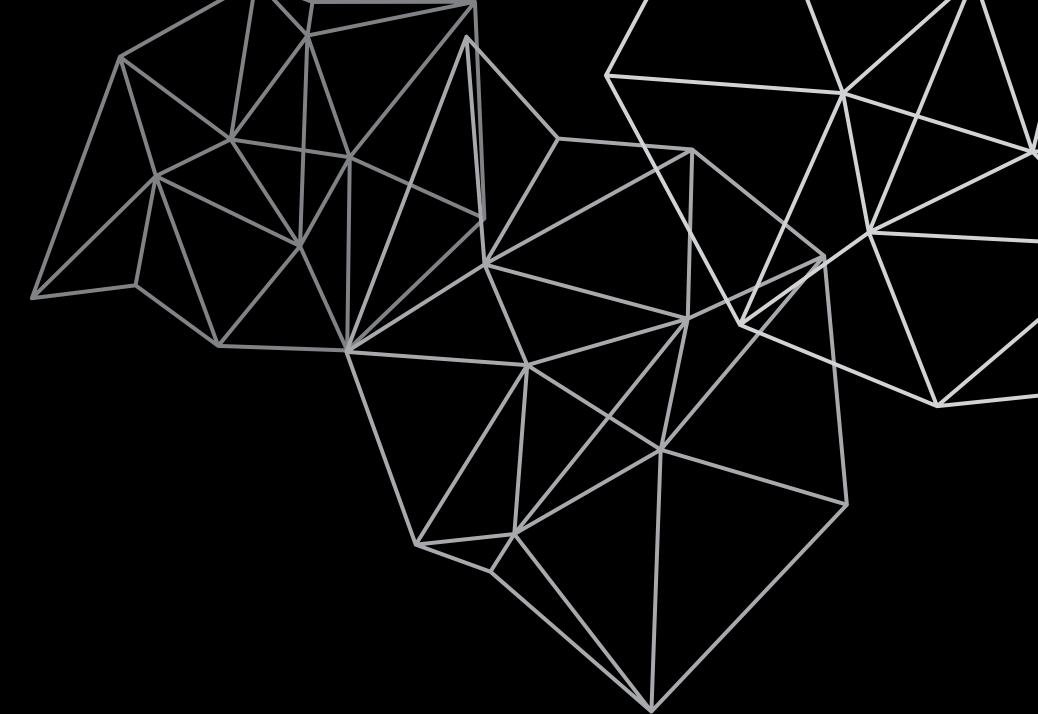
Needed:

- East closet: **4 switches**
- West closet: **4 switches**

Total switches: **8**

Cost:

≈ \$1,600



TOTAL NETWORK SWITCH COST

Item	Quantity	Price	Total Cost
Core switch Cisco Business CBS350-48T-4G 48-Port Managed Switch	5	≈\$600	\$3,000
Access switch Netgear GS724T 24-Port Smart Managed Switch	8	≈\$200	\$1,600
			Total ≈ \$4,600



THANK YOU