



Hands on #4

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2/26/2023

Instructions

In Constant Hall, assume the building was wired into three telecommunications closets, one on the first floor (next to room 1005), and two on the second floor - one on the east side of the building (next to office 2145) and one on the west (next to office 2054).

On the first floor:

- 150 ports connect to student computer labs via category 5e cabling.
- 25 ports connect to classrooms via category 5e cabling.
- 35 ports connect to the MBA and advising offices via category 5e cabling.
- One multimode fiber optic cable connects to the campus backbone.

On the east side of the second floor:

- 5 ports connect to classrooms via category 5e cabling.
- 75 ports connect to offices via category 5e cabling.

On the west side of the second floor:

- 10 ports connect to classrooms via category 5e cabling.
- 75 ports connect to offices via category 5e cabling.

Three servers need to be connected to the network:

- FS, which stores files for faculty use only.
- WEB, which stores all of the web pages for the college.
- FILES, which stores files that are placed by faculty for student use.

All of the computers have 10/100/1000Base-T NICs. The campus backbone uses 1Gbps ethernet.

REQUIREMENTS

Your task is to determine: 1) how the three rooms will be interconnected and 2) the switches to buy based on these specifications.

Diagram

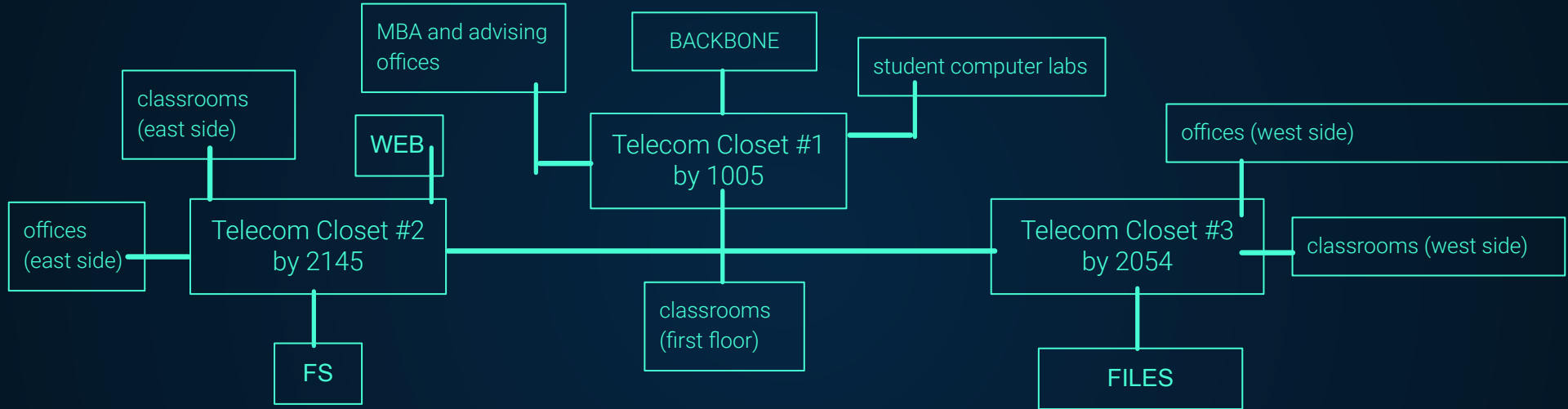


DIAGRAM Explanation

For TC1, the switch should have:

- 150 ports for student computer labs
- 25 ports for classrooms
- 35 ports for MBA and advising offices
- 1 port for the multimode fiber optic cable connecting to the campus backbone
- 1 port to connect to the TC2 trunk line
- 1 port to connect to the TC3 trunk line

For TC2, the switch should have:

- 5 ports for classrooms (east side of second floor)
- 75 ports for offices (east side of second floor)
- 1 port for the FS server
- 1 port for the WEB server
- 1 port to connect to the TC1 trunk line

For TC3, the switch should have:

- 10 ports for classrooms (west side of second floor)
- 75 ports for offices (west side of second floor)
- 1 port to connect to the TC1 trunk line
- 1 port for the FILES server

TC1 Total Ports: 213 = 5 48-port switches

TC2 Total Ports: 83 = 2 48-port switches

TC3 Total Ports: 87 = 2 48-port switches

To connect the three telecommunication closets, each closet will have a 10Gbps fiber optic trunk line running to the other two closets, as shown by the lines in the diagram.

Budget

Product	Description	Price (excluding tax)	Amount	Total Price
Switch	48 Port Gigabit Ethernet Switch	\$250	9	\$2,250

https://www.amazon.com/Ethernet-Unmanaged-Rackmount-Lifetime-TL-SG1048/dp/B004UBUJZG/ref=sr_1_3?crd=MCPTJXQ7PGV2&keywords=48%2Bport%2Bswitch&qid=1677448988&sprefix=48%2Bport%2Bswitch%2Caps%2C87&sr=8-3&ufe=app_do%3Aamzn1.fos.0566e4a0-c021-43c5-b0fb-9f56f724aabb&th=1