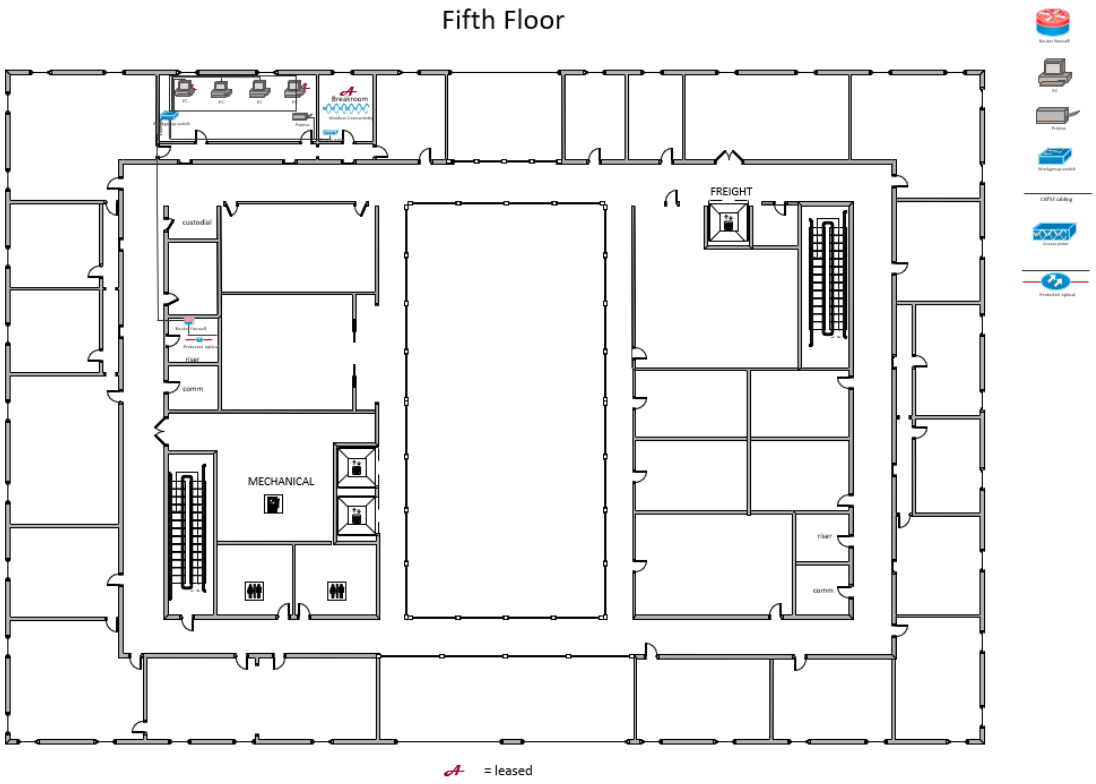
Fifth Floor



Budget

Based on the condition that the building was left in many pieces of network equipment needed to be hauled off and were considered un-salvageable. This included the entire 1st and 5th floor CAT5E cabling and the multi-mode fiber in between floors. Also, both 12-port Ethernet hubs. Among equipment that was still salvageable but would require days of upgrading, reinstallation of operating systems and wiping all hard drives to factory condition, the team made the decision that the man hours and operation costs to create a user-friendly environment with these outdated systems did not seem cost effective and reliable for future use. With that said the storage room on the first floor will strictly be used to store old computer systems including both Pentium lll and Celerons along with all CRT screens and LCD monitors. These will be used as backup computers on a needed basis.

Since majority of all network devices were outdated or obsolete to the network standards of today's expectations we would like to propose the materials and logic behind the network. Our goal is to create an interactive environment for kids, staff members, and the donors that come recurrently to donate to the Non-Profit's needs.

On the first floor we first will need to provide a new cable modem to create a connection to the outside internet. CAT5E cabling will be used throughout the first floor and fifth floor being a cost- efficient measure compared to CAT6E. CAT5E will provide enough bandwidth for what the building is being utilized for, mostly small business functions and small processes being carried out, taking up less bandwidth than most large corporate networks. A router will then be connected to the cable modem which will provide access to both the network on the first floor and to a router on the fifth floor so that all information within both networks can be accessed in the building. This router will have a firewall built in to protect from outside security threats but also regulate different access rights for the different types of users in the building when trying to gain access to the outside internet. There will be four 10 port managed switches on the first floor and one on the fifth floor, which will allow all clients on the network to be connected and allow for transferring of information to and from each other and outside sites. This will also provide room for expansion if more rooms in the building are leased. File, Print and Email services will be provided by two servers, one dedicated to file and print and the other for only email. This will provide plenty of room for storage and quick access when those files are needed. These servers will be connected by a switch in the communication closet where it can be locked and managed. All offices on the first floor and fifth floor have wireless connectivity via an access point in each room. These will be password protected so that only people within the building that have proper authority will have access rights to the network. Wireless printers and laptops will be provided, all laptops having windows 10 operating system installed with Microsoft Office Suite for business requirements. The conference room will have a polycom conference phone for business meetings and wireless connectivity allowing laptops and other devices to gain access to the network. All classrooms on the first and fifth floor will also have new All-In-One desktop computers with the desired amount of memory, hard drive space, and processing speed to allow for a great interactive environment for kids to learn. Switches will provide the option for up to ten devices to be connected in each room allowing for future deployment. Lastly, all rooms in the building that have cabling also have surge protectors to aid in the event a surge is presented to the building, protecting all equipment.

In the deployment of this network we would like to recommend hiring an outside network engineer to install the cabling, modem, routers, servers and switches between both floors. This will ensure efficiency and integrity of the network. We will utilize all volunteers and the thirty-five graduate interns during the first week of the lease to set up all access points, printers, laptops, desktops, and polycom to cut back on operation costs and will have the director and all four full time employees monitoring and assisting as needed. Since all new equipment was bought to setup the network, many points of emphasis were analyzed, before deciding to move forward. Labor and resources were saved by implementing new desktops in all the classrooms. The outdate machines would have required days of installation of all operating systems, Microsoft office, and the complete wiping of all files and programs previously stored on these machines. Money would have also been spent on each instance of Microsoft office and a windows operating system for each desktop.

Maintenance of the network and all machines comprised should be managed by a Network Administrator and our recommendation is to hire an in-house administrator so that fixed cost is

known. If an event in which the whole network goes down, the cloud would provide back up assistance. Being a non-profit we did not deem it cost-effective to have redundancy in the network, instead allocating a certain amount of donated money each fiscal quarter towards an emergency management fund to provide backup assistance.

List of Materials

1st Floor

(4) WS-C3550-12T Cisco Catalyst 3550-12T Managed Switch - 10 Ethernet Ports & 2 GBIC Ports

Cost: $290.00 x 4

(1) ZyXEL USG20-VPN Security Router VPN Firewall w/SFP Port

Cost: $179.99

(4) Cisco Small Business WAP371-A-K9 Wireless-AC/N Dual Radio Access Point with Single Point Setup

Cost: $168.99

(10) HP - 23.8" All-In-One - AMD A8-Series - 4GB Memory - 1TB Hard Drive

Cost: $482.99

(6) Epson - WorkForce Pro WF-4740 Wireless All-In-One Printer - Black

Cost: $179.99

(1) Spool of 1000ft Cat5E Plenum Ethernet Networking Cable 24Awg UTP 350Mhz Blue of Which 700ft will be used for first floor

Cost: $90

(2) PowerEdge T30 Mini Tower Server with 1 TB 7.2K RPM SATA 6Gbps Entry 3.5in Cabled Hard Drive

Cost: $549.00

(51) RJ45 connectors

Cost: $.07

(4) Dell 15.6" Inspiron 15 3000 Series Notebook

Cost: $499.99

(1) ARRIS SURFboard SBG6900-AC Cable Modem

Cost: $159.00

(11) Wall plates 1 port

Cost: $1.56

(1) Polycom SoundStation IP 3000 Conference VoIP Phone

Cost: $175.00

(11) Keystone Jacks

Cost: $.87

(1) Tripp Lite 8U/12U/22U Expandable Wall-Mount 2-Post Open Frame Rack, Adjustable Network Equipment Rack, Switch Depth, 18" Deep (SRWO8U22)

Cost: $101.71

(8) APC - SurgeArrest Performance 11-Outlet Surge Protector - Black

Cost: $28.99

Total for 1st floor materials: $11,811.68

Fifth Floor

(1) WS-C3550-12T Cisco Catalyst 3550-12T Managed Switch - 10 Ethernet Ports & 2 GBIC Ports

Cost: $290.00

(1) ZyXEL USG20-VPN Security Router VPN Firewall w/SFP Port

Cost: $179.99

(1) Cisco Small Business WAP371-A-K9 Wireless-AC/N Dual Radio Access Point with Single Point Setup

Cost: $168.99

(4) HP - 23.8" All-In-One - AMD A8-Series - 4GB Memory - 1TB Hard Drive

Cost: $482.99

(1) Epson - WorkForce Pro WF-4740 Wireless All-In-One Printer - Black

Cost: $179.99

(1) Spool of 1000ft Cat5E Plenum Ethernet Networking Cable 24Awg UTP 350Mhz Blue of which 300ft will be used for fifth floor

Cost: $90

(14) RJ45 connectors

Cost: $.07

(4) Wall plates 1 port

Cost: $1.56

(4) Keystone Jacks

Cost: $.87

(1) 2 Strand CustomLine Indoor (Plenum) 62.5/125 OM1 Multimode Fiber Optical Cable 100ft

Cost: $44.73

(3) APC - SurgeArrest Performance 11-Outlet Surge Protector - Black

Cost: $28.99

Total for 5th floor materials: $2,983.33

Grand Total for Network Materials: $14,795.01