MCHUGH'S BETTER BUSINESS

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SITUATION

CURRENT HARDWARE

UP TO DATE ....

All current computers and printers are up to date. Door locks and scanners are working as well. The infrastructure of the building is assumed to be in working order. There is a server room within the main work room. Locks on doors, with deadbolts and includes locks for both doors.

OUTDATED ....

All network infrastructure needs to be replaced. The NICS on the computers are also presumed to be out of date.

CURRENT ISP

EXPIRING ....

Current Internet Service Provider is dropping customer. Need a new one.

CURRENT NETWORK SETUP

OUTDATED ....

Token ring needs to be removed and upgraded.

SUGGESTED UPGRADES

NEW HARDWARE

ROUTER ....

We suggest the Edgerouter Infinity ER-8-XG. Two of these routers will provide more than enough throughput for computers communicating with servers and internet. Each have 8 10 G ports that will be separated by 5 to servers, 2 to switch, and one interconnecting both. This provides a fast backbone along with redundancy between one router failing. Finally, both having one final to connect to internet side. This will provide redundancy when trying to access data and reduce any bottle neck by providing multiple ways to the servers.

SWITCH ....

These switches will be pushing out EXTRA CREDIT: 1 G POE to the Phones so the phones do not need power outlets and receive the power from the switch. There are also 2 10G SFP connections that will be responsible for talking back to routers (1 SFP per router). It also has 2 10G copper that will be used to talk with the other switch

ACCESS POINT SWITCH ....

Have Wi-Fi on separate switch. This will provide needed ports and connection to router. Keeps BYOD in one section of the network.

NICS SERVERS ....

Each server will have one. Will have 2 10G SFP ports to connect to routers. This will provide fast access to needed data. Will also allow load balancing.

NIC CLIENT ....

Replacing 120 NICs to connect to 1G. This will provide enough for single purpose use. Do not anticipate them to use 1 G for 90 at the same time.

NEW ACCESSORIES

RACK ....

Holds 4 1U router + switches. Assuming the servers are each 2U then that leaves 6U for UPS and modem provided by internet provider.

UPS ....

Both will provide power to 16 total devices. 5 servers, 4 router and switches, ISP provided modem, no additional power cables should be required due to power strips presumably built into tables for computers and laptops.

CAT6 CABLE ....

*With the room being ~123 ft long. If 90 computers were at their full length with access points and printers also at full room length. It will require ~12000 ft (123 * 98) with 1000 ft per box, there will be 2000 ft extra cable (and one returnable if not used). This extra 2k will cover the small length from VOIP to computers.*

SFP + CABLE ....

This is for routers to switches and routers to servers. 5 per server with 2 routers is 10 SFP connectors. Also 2 SFP per 2 routers comes out to 14 cables

RJ45 CONNECTORS ....

50 pack. Total needed connectors would be 188(376 connectors for both ends of CAT cable) The 180 covers 90 from computer to VOIP phone and another 90 connections from VOIP to switches. There would also be 3 more connections for Wi-Fi and 5 more for printers. With 50 pack we would only need 400. The extra pack will be for damages, and malfunctions.

NEW ISP
WI-FI ACCESS POINT ....

This can be placed on ceiling. Provides access to individuals with phones and laptops. 802.11 ac provides theoretical speed of over 1G. Range can cover the entire office.

INTERNET SERVICE PROVIDER ....

4 G of download speed should be enough. If that is not enough, the routers have 10G of throughput they can provide, so scalability will be as easy as calling for more.

NEW NETWORK SETUP
VLAN ....

There will be two Primary Layers. 2 VLANs will be laid out by business and casual. VLAN 1 will be used for general workers. This will cover 45 ports on each switch. VLAN 2 will be dedicated towards visitors and employee BYOD (Bring Your Own Device) and Laptops.

SUBNET ....
> *For Layer 3 LAN, there will be a CIDR of /23. This will provide 50 IPs.*

PRICING

No.	Nomenclature	Price per unit	Quantity	Total Price
1	Router	$1849	2	$3698
2	Switch	$1553.49	2	$3107
3	Wi-Fi Switch	$37.88	1	$37.88
4	CAT6 Cable	$159.99	13	$2079.9
5	SFP + Cable	$19.99	14	$279.86
6	RJ45 Connectors	$41.99	9	$377.91
7	NICs Servers	$150	5	$750
8	NIC Client	$11.99	90	$1079.1
9	VoIP	$34.99	90	$3149.1
10	Rack	$199.99	1	$199.99
11	Wi-Fi	$179	3	$537
12	Internet	$299.95	2	$599.9
13	UPS	$1520.99	2	$3042

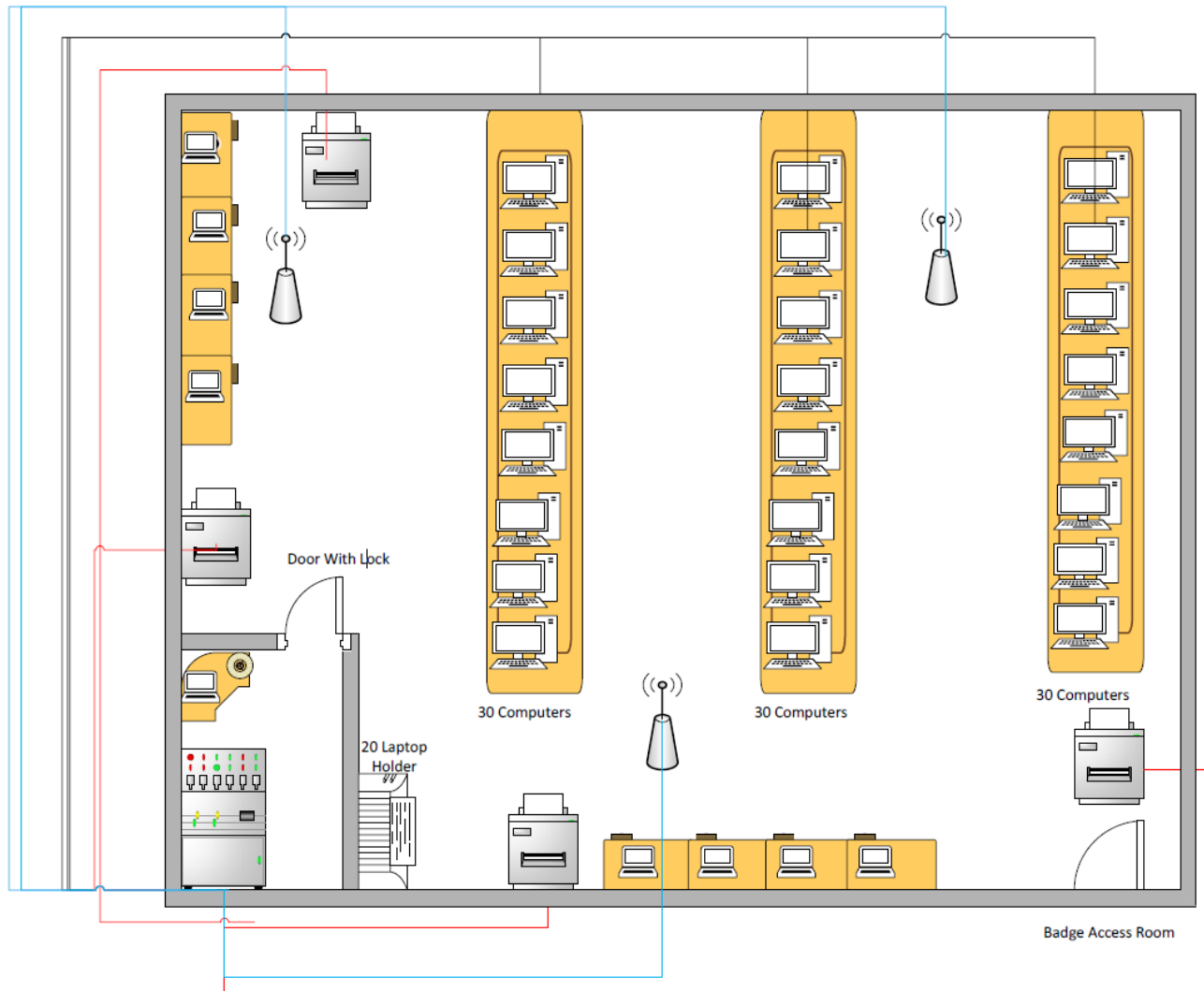| Grand Total (Including Labor)	$28,406.355

NOTE: EXCEL SHEET IS PROVIDED WITH THE DETAILED DESCRIPTION OF THE BRAND WE USE AND THE LINK.
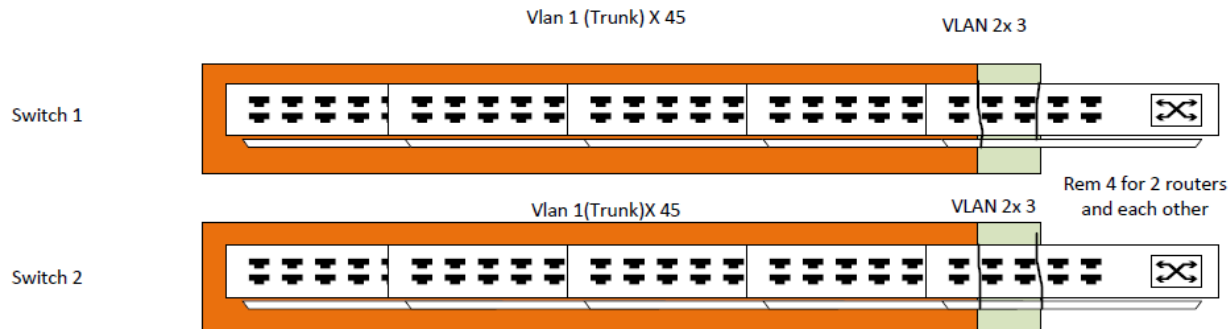
DIAGRAM

Note:

The following diagrams are also provided through digital means. When delivered will be in a zip file for owners' discretion.
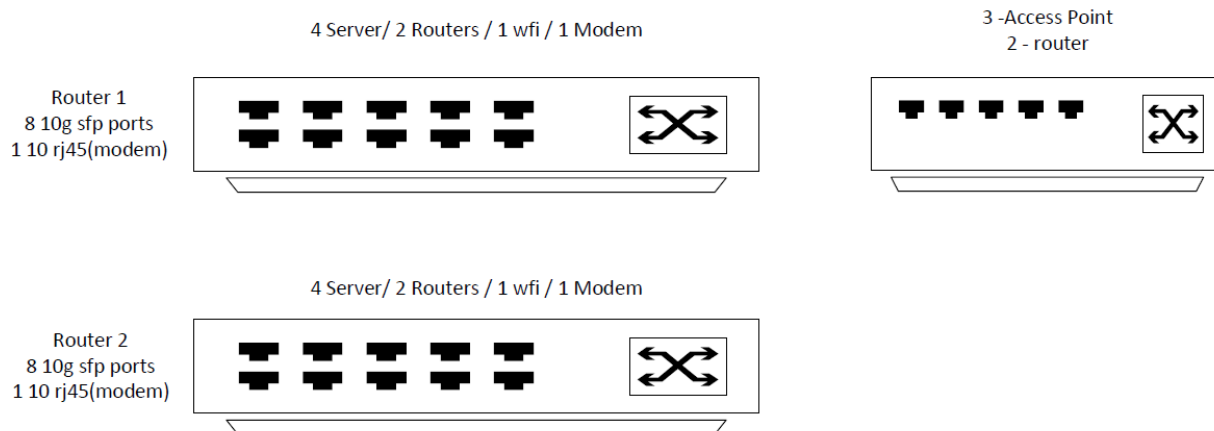
- FLOOR PLAN

- VLAN

VLAN1 = 90 VOIP Phones /Computers

VLAN2 = 4 Printers (2 to grow)

4 10G Ports for 2 Routers and each other

- REST OF NETWORK

CONCLUSION

Looking forward to working with you to upgrade the efficiency of the network infrastructure. We provide 24/7-hour support via email. We will get back to you as soon as possible with any help or guidance needed. Below are primary contacts.

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