

Network System Implementation for the Marconi Law Firm, LLC.

Orlando, Florida

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The EYE sees YOU!

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Project Scope

I am starting this project for Marconi Law firm because he has decided to expand his law firm since he founded his office in 2006 the company has continued to see growth and expansion. Now he needs to centralize everything in an office with space for 10 people and with future expansion. He also wants to take advantage of new technologies and invest in a new computer network system for his entire office with future expansion capability.
My key objectives in working with Marconi Law and his growth goals are to centralize his operations in a single place, then I want to Implement a fully functional local area network system for 10 employees. I also want to make sure there is capacity for future expansion. In this project, I need to ensure that there is accessibility and data security. I want to create a communicative environment for everyone. I want Marconi to feel confident about the project and that he can have all the requirements he is requesting accessible.
My deliverables for this project will be install a fully functional local area network system for 10 employees. I will also provide a comprehensive project report including a network diagram, weekly timesheets and status reports. In terms off the hardware and software I will provide 1 router, 1 server, 1 switch, 10 computers with monitors if needed, 2 WAPs, 10 VoIP phones, 1 printer, 1 Conference Phone and 1 Smart TV for conference room, server software, and a client computer software, within the \$60,000 budget.
What is not included in the project is the logistics of the place or its infrastructure. It also does not specify any training for employees in the software applications.
Some of the project constraints are time due to his plans of moving in 5 weeks. Also, a limited budget, and the space.
5 key success factors that would define this project are, above all, communication with the client. That way I can keep meeting their expectations. Second would be time, fulfilling the mandate in a precise time will lead the project to success. Third, trying to buy the best quality equipment possible is key in any office, so the work will be more effective. Fourth, while the work is being done, keep everything clean and organized, so the client will be more satisfied. And finally, security keeping all work and information safe and confidential.
This project would take about 5 to 6 weeks from initiation to completion before the schedule move-in date. The total cost would depend on the factors such as hardware and software details and prices, also the labor cost and any unexpected expenses. My expected amount for right now is about 48,879.22, this is including labor cost and hardware and software equipment.

Network Objectives/Benefits

- Growth– Investing in new computer network systems with the mentality of expansion, it ensures the growth of the Marconi Law firm.
- Better Communication– Having all employees in one place with their own equipment promotes better communication between employees and clients.
- Efficiency– Having a fully functional area network will streamline day to day operations by providing quick access to shared files and resources between co-workers and clients. This improved efficiency will increase productivity in employees.

IP Network Design Table

-	IP Address
Netmask	255.255.255.0
First IP	10.10.119.0
Last IP	10.10.119.255
Total Host	256
Network ID	10.10.119.0
Broadcast Address	10.10.119.255

Node	Hardware Name	Static IP address
1	Marconi Computer	10.10.119.10
2	Jones Computer	10.10.119.12
3	Stark Computer	10.10.119.14
4	Drums Computer	10.10.119.16
5	Shoemaker Computer	10.10.119.18
6	Brooks Computer	10.10.119.20
7	Long Computer	10.10.119.22
8	Adams Computer	10.10.119.24
9	Smith Computer	10.10.119.26
10	Schultz Computer	10.10.119.28
11	Marconi VoIP Phone	10.10.119.50
12	Jones VoIP Phone	10.10.119.51
13	Stark VoIP Phone	10.10.119.52
14	Drums VoIP Phone	10.10.119.53
15	Shoemaker VoIP Phone	10.10.119.54
16	Brooks VoIP Phone	10.10.119.55
17	Long VoIP Phone	10.10.119.57
18	Adams VoIP Phone	10.10.119.58
19	Smith VoIP Phone	10.10.119.59
20	Schultz VoIP Phone	10.10.119.60
21	Router	10.10.119.80
22	Server	10.10.119.90
23	Switch	10.10.119.100
24	WAP 1	10.10.119.200
25	WAP 2	10.10.119.250
26	Printer	10.10.119.30
27	Smart TV	10.10.119.40
28	Conference Phone	10.10.119.45

Network Configuration Process

User Accounts	Setup and Configuration Process
Dan Marconi Phil Jones Karen Stark Evelyn Schultz Bill Shoemaker Mike Drums Lisa Brooks Terry Long Samuel Adams Brian Smith	Step 1: Launch Windows Server 2019 VM Step 2: Log into server using admin password Step 3: Open Server Manager by going to Windows Start Menu and click on Server Manager Step 4: In Server Manager , click on Tools from the top right menu, then select Computer Management . Step 5: In the Computer Management window, expand System Tools and then expand Local Users and Groups . Step 6: Right-click on "Users" and select "New User". Step 7: Fill in the user details such as username, full name, and password. Optionally, user must change password at next logon. Click " Create " when finished. Step 8: Once the user account is created, close the New User window . Step 9: Repeat steps 6 to 8 for each additional user account you want to create. Step 10: After finishing close the Computer Management window.
Groups	Setup and Configuration Process

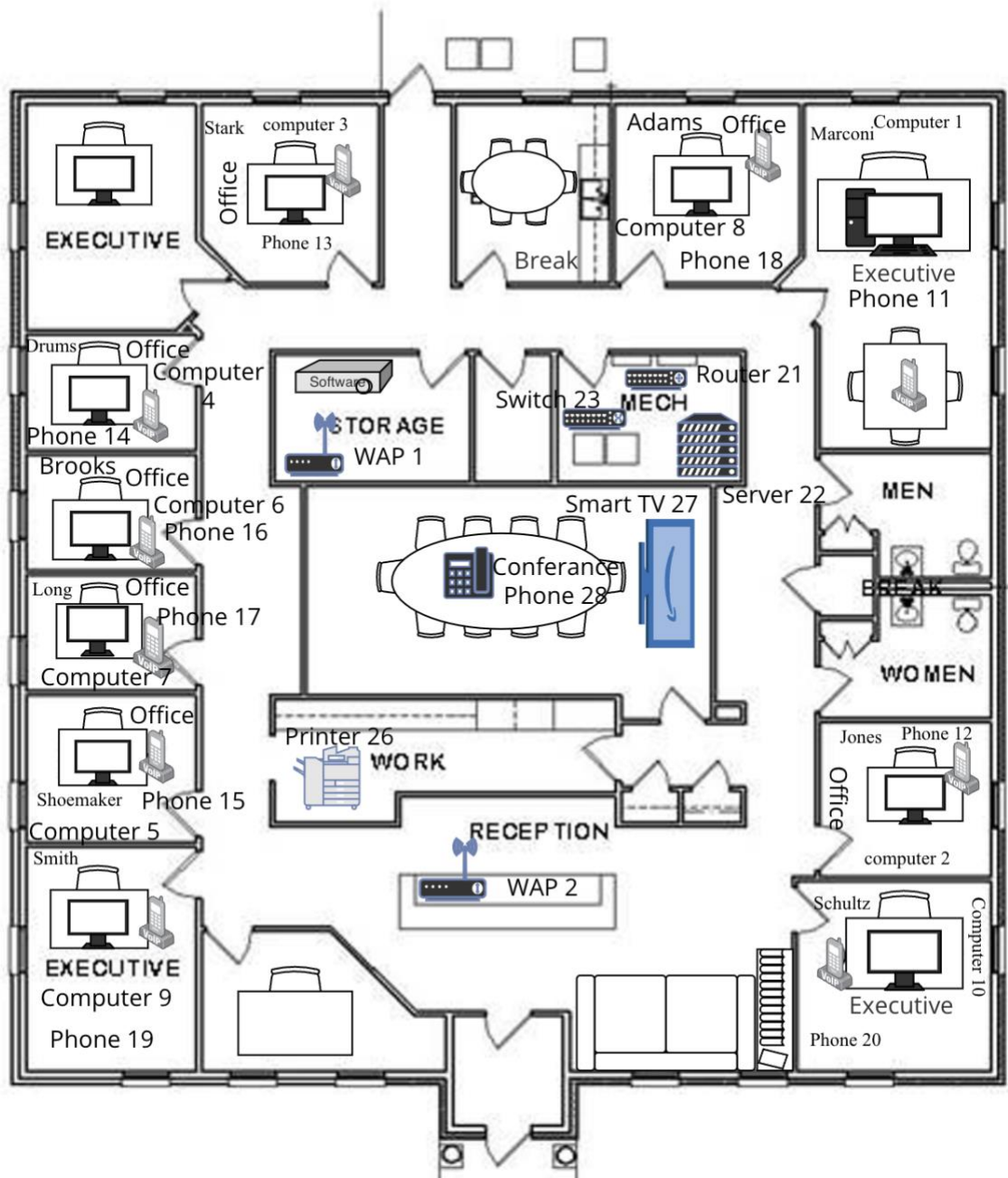
_Attorneys _Accounting _Administrative	Step 1: Launch Windows Server 2019 VM Step 2: Log into server using admin password Step 3: Open Server Manager by going to Windows Start Menu and click on Server Manager Step 4: In Server Manager, click on Tools from the top right menu, then select Computer Management. Step 5: In the Computer Management window, expand System Tools and then expand Local Users and Groups. Step 6: Right-click on Groups and select New Group. Step 7: In the New Group window, enter the group name and description. Choose the desired group scope (local, global, or universal) and group type (security or distribution). Click Create when finished. Step 8: Once the group is created, you can add members to it by double-clicking on the group, selecting the Members tab, and clicking on the Add button to add users or other groups as members. Step 9: After adding all desired members, click "OK" to close the properties window of the group. Step 10: Repeat steps 6 to 9 for each additional group you want to create. Step 11: After creating all desired groups, close the Computer Management window.
Folders and Permissions	Setup and Configuration Process

Attorneys Accounting Administrative	<u>Create Folders</u> Step 1: Launch File Manager Step 2: Double-click on Local C drive Step 3: In File Manager, navigate to the desired location where you want to create the folder. Step 4: Right-click in the empty space and select New> Folder. Step 5: Enter the name for the folder and press Enter. Step 6: Repeat steps 3 to 5 for each additional folder you want to create. <u>Set Sharing Permissions</u> Step 1: Launch Windows Server 2019 VM Step 2: Log into server using admin password Step 3: Open Server Manager by going to Windows Start Menu and click on Server Manager Step 4: In Server Manager, click on Tools from the top right menu, then select Computer Management. Step 5: In the Computer Management window, expand System Tools and then select Shared Folders. Step 6: Right-click on Shares and select New Share. Step 7: Follow the wizard to specify the path to the folder you want to share and configure the share permissions (read, write, etc.) for the users or groups accessing the share. Step 8: After configuring the sharing permissions, click Finish to create the share. Step 9: Optionally, you can configure additional permissions by right-clicking on the shared folder, selecting Properties, and then navigating to the Security tab to configure permissions. Step 10: Repeat steps 6 to 9 for each additional folder you want to share.
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User Logins and Passwords

Employee Name	Employee Title	Login ID	Password
Dan Marconi	President/Marconi	Danmarconi	Fullsail1!
Phil Jones	Attorney	Pjones	Fullsail1!
Karen Stark	Attorney	Kstark	Fullsail1!
Evelyn Schultz	Administrative Assistant	Eschultz	Fullsail1!
Bill Shoemaker	Attorney	Bshoemaker	Fullsail1!
Mike Drums	Attorney	Mdrums	Fullsail1!
Lisa Brooks	Attorney	Lbrooks	Fullsail1!
Terry Long	Attorney	Tlong	Fullsail1!
Samuel Adams	Attorney	Sadams	Fullsail1!
Brian Smith	Accountant	Bsmith	Fullsail1!

Network Topology Diagram with Employee Names and Node Numbers



Capital and Operating Costs

Hardware and Software	Per Unit Cost	Quantity	Total Cost
Laptops	1,098.99	10	10,989.90
Router	661.99	1	661.99
Server	4,301.99	1	4,301.99
Switch	674.49	1	674.49
Server Hard Drives (Consider a RAID 5)	762.99	1	762.99
VoIP Phones	137.99	10	1,379.90
Conference Phone	637.99	1	637.99
WAPs	436.99	2	873.98
Printer	4,049.00	1	4,049.00
Smart TV	1,733.00	1	1,733.00
Windows Server 2019	964.99	1	964.99
Windows 10 Pro	184.99	10	1,849.90
Labor	\$125	40 hrs	\$5,000
Annual ongoing network maintenance and support	\$15,000	1 yr	\$15,000
GRAND TOTAL	-	-	48,879.22

Hardware and Software Specification Tables

Laptops

Brand/Manufacturer	HP
Product Line	ProBook
Model	450 G10
Processor/Clock Speed	1.70 GHZ
Memory/Speed	Available Memory Slots 1.0 Occupied Memory Slots 1.0 RAM Installed 16 GB
Hard Drive/Capacity	512 GB
Embedded Security	YES
Display/Size/Resolution	In-plane Switching (IPS) Technology/ Full HD/ 15.6 inch/ 1920 x 1080
Networking	Bluetooth Yes Data Link Protocols Gigabit Ethernet Wireless LAN IEEE 802.11ax
Operating System	Windows, Windows 11 Pro
Cache	1.7 GHz
OS	Windows
Page URL	https://www.cdw.com/product/hp-probook-450-g10-15.6-notebook-full-hd-1920-x-1080-intel-core-i7-1/7434539?pfm=srh

Server

Brand/Manufacturer	HPE/ Hewlett-Packard
Product Line	HPE ProLiant
Model	DL380 Gen11 Network Choice
Hard Drive/Capacity	8 TB
Processor	Processor Brand/ Intel Processor Main Features/ Hyper-Threading Technology, Intel Turbo Boost Technology 2 Processor Number/ 5415+ Processor Type/ Xeon Gold Processors Installed/ 1 Server Scalability/ 2-way Total Processor Supported/ 2
Memory/Speed	4400 megahertz
Storage Controller	HPE MR408i-o Gen11 SPDM/ RAID
Monitor	None
Ethernet	Broadcom BCM57416/ 2 x 10 Gigabit Ethernet
Operating System	No operating system
Networking	Compliant Standards OCP 3.0 Data Link Protocols 10 Gigabit Ethernet, Gigabit Ethernet Ethernet Controllers Broadcom BCM57416 Ethernet Ports 2 x 10 Gigabit Ethernet Features PXE support, Wake on LAN (WoL) Remote Management IPMI 2.0, SMASH CLP, SNMP 3 Remote Management Controller Integrated Lights-Out 6
Expansion Bays	1 (total) / 1 (free) x external Universal Media Bay, 8 (total) / 8 (free) x hot-swap 2.5" SFF
Expansion Slots	1 (total) / 1 (free) x PCIe 5.0 x16 - full-length, full-height, 1 (total) / 1 (free) x PCIe 5.0 x16 - full-length, full-height (x8 mode), 1 (total) / 1 (free) x PCIe 5.0 x16 - half-length,

	full-height (x8 mode), 2 (total) / 2 (free) x FlexibleLOM
Page URL	https://www.cdw.com/product/hpe-proliant-dl380-gen11-5415-2.9ghz-8-core-32gb-r-mr408i-o-nc-8sff-800w-s/7549521?pfm=srh

Server Hard Drives

Brand/Manufacturer	HPE
Product Line	HPE
Storage Type	Serial Attached SCSI 3
Hard Drive Type	Hot-swap hard drive
Form Factor	Form Factor (Short) 3.5" Form Factor (Short) (metric) 8.9 cm
Interface	2 x SAS 12 Gb/s
Capacity	6 TB
Data Transfer Rate (DTR)	1.2 GBps
Page URL	https://www.cdw.com/product/hpe-midline-hard-drive-6-tb-sas-12gb-s/6424415?pfm=srh

Router

Brand/Manufacturer	Netgear
Product Line	Nighthawk
Model	RAXE500
RAM	1 GB DDR3 SDRAM
Flash Memory	512 MB
WAN Ports Qty	5
Integrated Switch	Yes
Data Link Protocol	2.5 Gigabit Ethernet
Network/Transfer Protocol	Ethernet, Fast Ethernet, Gigabit Ethernet, IEEE 802.11b, IEEE 802.11a, IEEE 802.11g, IEEE 802.11n, IEEE 802.11ac, 2.5 Gigabit Ethernet, IEEE 802.11ax (Wi-Fi 6)
Page URL	https://www.cdw.com/product/netgear-nighthawk-raxe500-wi-fi-6-ieee-802.11ax-ethernet-wireless-router/6475699?pfm=srh

Switch

Brand/Manufacturer	Ubiquiti
Product Line	Ubiquiti UniFi Switch
Model	USW-48-POE
RAM	1 GB
Flash Memory	1
Performance	Forwarding rate: 26.78 Mpps, Non-blocking bandwidth: 18 Gbps
Capacity	36 Gbps
Ports Qty*	48
Page URL	https://www.cdw.com/product/ubiquiti-unifi-switch-usw-48-poe-switch-48-ports-managed-rack-mount/6150815?pfm=srh

Printer

Brand/Manufacturer	HP
Product Line	LaserJet Enterprise
Model	M635fht
Duty Capacity	300000 pages
Printing Output Type	Monochrome
Processor	500 GB
RAM	2 GB
Networking	HP Jetdirect Ethernet embedded print server (standard) which supports: 10Base-T, 100Base-Tx, 1000Base-T; 802.3az (EEE) support on Fast Ethernet and Gig Links; IPsec (standard); Built-in 802.11a/b/g/n wireless networking (optional)
Page URL	https://www.cdw.com/product/hp-laserjet-m635-m635fht-laser-multifunction-printer-monochrome-copier-fax/6016670?pfm=srh

Wireless Access Points (WAPs)

Brand/Manufacturer	Netgear
Product Line	Business
Model	WAX630
Antenna	Internal
Capacity	2.5 Gigabit Ethernet
Networking	1
Interface	One 100/1000/2.5GBASE-T Gigabit Ethernet (RJ-45) ports with Auto Uplink™ (Auto MDI-X) supporting IEEE 802.3af, 802.3bt or 802.3at Power over Ethernet (PoE)
Power	YES
Page URL	https://www.cdw.com/product/netgear-business-wax630-tri-band-ieee-802.11-a-b-g-n-ac-ax-i-6-gbit-s-wirel/6720159?pfm=srh

Smart TV

Brand/Manufacturer	LG
Model	LG
Series	UR640S Series
Video Interface	HDMI
HDMI Ports Qty	3
Diagonal Size	75 inch
Resolution	3840 x 2160
Display Format	4K UHD (2160p)
Viewing Angle	Dimensions Details Panel with stand - 66.1 in x 14.3 in x 40.4 in x 70.8 lbs, Panel without stand - 66.1 in x 2.4 in x 38 in x 69.2 lbs Height 38 inch Weight 69.22 lbs Width 66.1 inch Depth 2.4 inch
Digital Audio Format	Audio Return Channel (ARC), Bluetooth audio streaming, LG Sound Sync
USB Ports Qty	1
Wi-Fi Protocol	802.11ac
Page URL	https://www.cdw.com/product/lg-75ur640s9ud-ur640s-series-75-led-backlit-lcd-tv-4k-for-digital-si/6688377?pfm=srh

Conference Phone

Brand/Manufacturer	Poly
Product Line	Poly RealPresence Trio
Model	8800
Type	Polycom Telephony
Call Services	Call Forwarding, Call Hold, Call Transfer, Call Waiting
Speakerphone	YES
Features	Multi-touch, Touch screen
Phone connections	USB / 4 pin USB Type A, USB / 5 pin Micro-USB Type B
Page URL	https://www.cdw.com/product/poly-realpresence-trio-8800-conference-voip-phone-with-bluetooth-interf/3870889?pfm=srh

Server Software

Brand/Manufacturer	Microsoft
Product Line	Microsoft Windows
Version	2019
Licensing	License Quantity 20 user CALs License Type License
Page URL	https://www.cdw.com/product/microsoft-windows-server-2019-license-20-user-cals/6269374?pfm=srh

Client Software

Brand/Manufacturer	Microsoft
Product Line	Windows 10
Version	10
Licensing	License Quantity 1 device License Type Upgrade license Licensing Program Microsoft Products and Services Agreement (MPSA)

Page URL	https://www.cdw.com/product/windows-10-pro-upgrade-license-1-device/3446584
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VoIP Phones

Brand/Manufacturer	Poly
Product Line	Poly VVX
Model	250 Business IP Phone
Type	VoIP phone
Conference Call Capability	3-Way
Call Services	Call Forwarding, Call Hold, Call Transfer, Call Waiting, Caller ID, Voice Mail
Speakerphone	YES
Additional Functions	Call timer, HD Voice
Features	Acoustic Clarity Technology
VoIP Protocols	SDP, SIP
IP Address Assignment	DHCP, Static
Network Protocols	DNS, HTTP, HTTPS, Link Layer Discovery Protocol (LLDP), RTCP, RTP, SNTP, TCP, TFTP, UDP
PoE Support	YES
Voice Features	Acoustic echo cancellation (AEC), Adaptive jitter buffer (AJB), Comfort noise generation (CNG), HD Voice, Packet loss concealment (PLC), Voice activity detection (VAD)
Page URL	https://www.cdw.com/product/poly-vvx-250-business-ip-phone-voip-phone/5165041

Timesheets

Milestone	Activity Description (be descriptive)	Start Time	End Time	Total Activity Time	Activity Date
Milestone 1	I read the instructions of the weekly assignment and I Read and review the project proposal of the business case. I also worked on my Visual Paradigm.	6:00pm	8:00pm	2 Hours	03/05/2024
Milestone 1	I started my research on CDW looking for, products, hardware components and prices seeing the best fit for Marconi Law Business. I finished working on my Visual Paradigm	9:00am	12:00pm	3 Hours	03/06/2024
Milestone 1	I started putting my selected products and started placing them on my word document while managing prices.	6:00pm	10:00pm	4 Hours	03/07/2024
Milestone 1	Today I finished my Milestone 1 work and finished adding my grand Total. I also worked on my timesheet, and status report.	5:00pm	10:00pm	5 Hours	03/08/2024
Milestone 2	I worked on my Network Diagram on Visual Paradigm putting the Employees names and Node numbers. I also worked on the IP network design table.	6:00pm	8:00pm	2 Hours	03/12/2024
Milestone 2	I log in into my VM's windows 10 and windows 2019 changed their names and took screenshots I also worked on my Project scope	6:00pm	10:00pm	4 Hours	03/13/2024

	and Network Objectives and Benefits				
Milestone 2	I finished working on my Timesheet and Status Report. I also worked in any left work.	4:00pm	8:00pm	4 Hours	3/15/2024
Milestone 3	On this week milestone I created Local Users for all the employees. I also created groups and later added them to their appropriated groups based on their job tittle	10:00am	2:00pm	4 Hours	3/19/2024
Milestone 3	I placed the logins on my milestone project and did a guide for the steps that need to be followed when creating users and groups.	10:00am	2:00pm	4 Hours	3/20/2024
Milestone 3	I finished working on my Timesheet and Status Report. I worked on my video and in any left work.	9:00am	1:00pm	4 Hours	3/22/2024
Milestone 4	I finalized my Project Report ensuring I completed all necessary componets to have the report ready for the client.	8:00 am	12:00p m	4 Hours	3/25/2024
Milestone 4	I worked on completing a pitch presentation, I started doing my presentation slides.	4:00pm	9:00pm	5 hours	3/27/2024
Milestone 4	I kept working on my slides and how my presentation going to look like.	4:00pm	8:00pm	4 hours	3/28/2024
Milestone 4	I made sure everything was correct and in the right place, after that I finish my presentation and recorded the presentation with the explanations	8:00am	12:00p m	4 Hours	3/29/2024
TOTAL HOURS				53 Hours	

Status Reports

Accomplished this week.

Milestone 1: On this week I learned how to work on Visual Paradigm.
Milestone 1: I learned how to manage a budget and purchases under specifications.
Milestone 1: I managed a project proposal.
Milestone 2: I figured the objectives and benefits the client would gain from this project
Milestone 2: I worked on creating static IP addresses.
Milestone 2: I learned the on how to determine the project network objectives.
Milestone 3: I perform user account setup, configuration, and testing for the employee user accounts.
Milestone 3: I worked on creating the user accounts, creating groups for users, creating folders for the users to work in, and establishing appropriate permissions for the groups of users.
Milestone 3: I documented the entire setup process.
Milestone 4: I format my completed project report in a professional manner to delivery to my client.
Milestone 4: I fixed any errors and worked on my presentation.
Milestone 4: I finished my presentation and I recorded.

Planned for next week.

Coming up for milestone 2: Set up and configure various operating systems.
Coming up for milestone 2: Finish creating a topology diagram.
Coming up for milestone 2: Compose my project scope and determining network objectives.
Coming up for milestone 3: I will perform user account setup, configuration, and testing for the employee user accounts.
Coming up for milestone 3: I will be creating the user accounts, creating groups for the users, and creating folders for the users to work in.
Coming up for milestone 3: I will be establishing appropriate permissions for the groups of users.
Coming up for milestone 4: I will format my completed project report in a professional manner for delivery to my client.
Coming up for milestone 4: I will fix any errors from the past weeks.
Coming up for milestone 4: I will create a pitch presentation to demonstrate the knowledge and skills I learned and promote my project.

Comments for each milestone

<u>Milestone 1:</u> What problems did you run into? I did not run into any problems at this time. How did you fix them? I didn't have to fix any problems at this moment. Is there anything that you did not complete that you now have to push off into the next milestone? I believe I completed every step listed for this milestone. Any other comments? This week milestone I have loved working on it, it seems like a quite interesting and fun project to do. I think that this project is motivating since it has made me learn and that is only the first week. I can't wait for the upcoming weeks.
<u>Milestone 2:</u> What problems did you run into? I did not run into any problems at this time.

How did you fix them? I didn't have to fix any problems at this moment.

Is there anything that you did not complete that you now have to push off into the next milestone? I completed every step listed on week 2 milestones.

Any other comments? I don't have any comments at this moment.

Milestone 3:

What problems did you run into? On this week I didn't run into any problems.

How did you fix them? I didn't have to fix any problems.

Is there anything that you did not complete that you now must push off into the next milestone? I believed I completed all my work, but I will be fixing some stuff for next week that were wrong last week.

Any other comments? I really enjoyed creating users and groups and setting up permissions.

Milestone 4:

What problems did you run into? On this week I did not run into any problems.

How did you fix them? I didn't have to fix any problems in this week.

Is there anything that you did not complete that you now have to push off into the next milestone? I believed I finished and completed all my work for milestone 1, 2, 3, and, 4.

Any other comments? This project was an incredible experience that I really enjoyed doing. It expanded my knowledge and made me think beyond. I thought at first that it was going to be very complicated, but it was quite the opposite.