Network System Implementation for the Marconi Law Firm, LLC.

Orlando, Florida

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IT Solutions

Table of Contents

Project Scope

We are initiating this project with Marconi Law as we feel we can help Mr. Marconi continue growth and profitability by upgrading and expanding his computer network. Dan Marconi is patent lawyer who found Marconi Law Firm in 2006. Mr. Marconi started off small with one administrative assistant, a two-room office with two computers and a printer. Since then, he has added 8 more employees. He had to lease two additional office spaces to accommodate the number of employees. All 3 office spaces were on different floors. Which affected Productivity. His leasing officer just offered him a 4000 sq/ft office space on one floor. Mr. Marconi wants to centralize all operations in one location to operate more efficiently and effectively. He also wants to invest in a new computer network system for his entire office with future expansion capability.

The key objectives of this project for Marconi law are: produce a high level LAN including researching, pricing, identifying, and defining hardware and software specifications, and provide a network diagram of the LAN project. Also, we will be implementing a basic sever setup and configuration. I will configure various operating systems. Then I will finalize a detailed network diagram by labelling the computers, VoIP phones, router, server, switch, printer, WAPs, Smart TV, and conference phone. I will also perform user account setup and testing. Then I will format the project in a high quality professional manner and submit the project.

The Project deliverables are as followed –
Hardware: 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.
Software: Windows Server 2019, 10 Windows 10 Pro Edition

The items that are not included but will be required for your computer network will be: 10 Mouse, Firewall, and 10 Headsets. Keyboards and HDMI cables wouldn't be required for this project as we will be getting laptops. Although, headsets would be useful to have to isolate everyone's audio.

The main project restraint is I am on the only employee now. Although, the size of this project is manageable by me. Task will have to get completed one at a time. Other constraints are some products are going up in price. Although, they are still in our budget. These constraints are the main two we are facing right now.

In this project I have 5 key success factors. Keeping up to this will ensure the project's completion in a timely manner. First Diligent planning, I am a very organized and planned out person so everything with be planned out in advanced. You will know what is happening before its happening. There will also be strong communication during the project. I will keep Mr. Marconi in the loop with everything that is happening on our side. My project goals will be clear. Mr. Marconi will know exactly what we are looking to accomplish and when. Staying under budget is a top priority of mine as well. I have allocated extra funds in case there is anything additional needed. This project will also be done at the highest quality without cutting any corners. This project will be done properly and on time.

This project will take 5 weeks to complete. The cost of the project will be $39,515.52.

Network Objectives

- Growth – This computer network will allow for growth within your computer.
- Collaboration – A conference room with a smart tv to better demonstrate ideas.
- Efficiency – With new technology communicating and working online would be faster.

IP Network Design Table

-	IP Address	Reserved
Netmask	255.255.255.0	-
First IP	10.10.119.0	10.10.119.0
Last IP	10.10.119.255	10.10.119.255
Total Host	256	-
Total Range	10.0.0.255	-

Node	Hardware Name	Static IP address
1	Marconi Computer	10.10.119.101
2	Jones Computer	10.10.119.102
3	Stark Computer	10.10.119.103
4	Drums Computer	10.10.119.104
5	Shoemaker Computer	10.10.119.105
6	Brooks Computer	10.10.119.106
7	Long Computer	10.10.119.107
8	Adams Computer	10.10.119.108
9	Smith Computer	10.10.119.109
10	Schultz Computer	10.10.119.110
11	Marconi VoIP Phone	10.10.119.201
12	Jones VoIP Phone	10.10.119.202
13	Stark VoIP Phone	10.10.119.203
14	Drums VoIP Phone	10.10.119.204
15	Shoemaker VoIP Phone	10.10.119.205
16	Brooks VoIP Phone	10.10.119.206
17	Long VoIP Phone	10.10.119.207
18	Adams VoIP Phone	10.10.119.208
19	Smith VoIP Phone	10.10.119.209
20	Schultz VoIP Phone	10.10.119.210

21	Router	10.10.119.1
22	Server	10.10.119.3
23	Switch	10.10.119.7
24	WAP 1	10.10.119.9
25	WAP 2	10.10.119.11
26	Printer	10.10.119.150
27	Smart TV	10.10.119.151
28	Conference Phone	10.10.119.152

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: Click on **Tools > Computer Management** > **User** Step 5: Right click on **White Space**, Choose **New User** Step 6: Enter user information and password. Step 7: Uncheck the box to change user password. Step 8: Click **Create** Step 9: Repeat **Steps 6 – 8** until there is an account for everyone. Step 10: Click **Close**
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: Click on **Tools > Computer Management** > **Groups** Step 5: Right click on **White Space**, Choose **New Group** Step 6: Enter group name and description. Step 7: Add User to group and type their username and click **Check Names** (Put Mr. Marconi in all groups) Step 8: Click **Create** Step 9: Repeat **Steps 6 – 8** until all groups are created. Step 10: Click **Close**
Folders and Permissions	Setup and Configuration Process

Attorneys Accounting Administrative	Create Folders Step 1: Launch **Windows Server 2019** VM Step 2: Log into server using admin password Step 3: Click on the **File Explorer** and go to the **C: Drive** Step 4: Create the 3 Share folders in the **C: Drive** Set Sharing Permissions 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: Click on **Tools > Computer Management** > **Shared Folders > Shares** Step 5: Right click on **White Space**, Choose **New Share** Step 6: Find Folder Path > Browse Step 7: Next Step 8 Type in a Description Step 9: Next Step 10: Customize Permissions > Remove Everyone Step 11: Click Add > Pick the group > Allow Read & Change Step 12: Finish Step 13: Repeat **Steps 6 – 12** until all groups are created.

User Logins and Passwords

Employee Name	Employee Title	Login ID	Password
Dan Marconi	President/Attorney	dmarconi	Fullsail1!
Phil Jones	Attorney	pjones	Fullsail1!
Karen Stark	Attorney	kstark	Fullsail1!
Evelyn Schultz	Administrative	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!
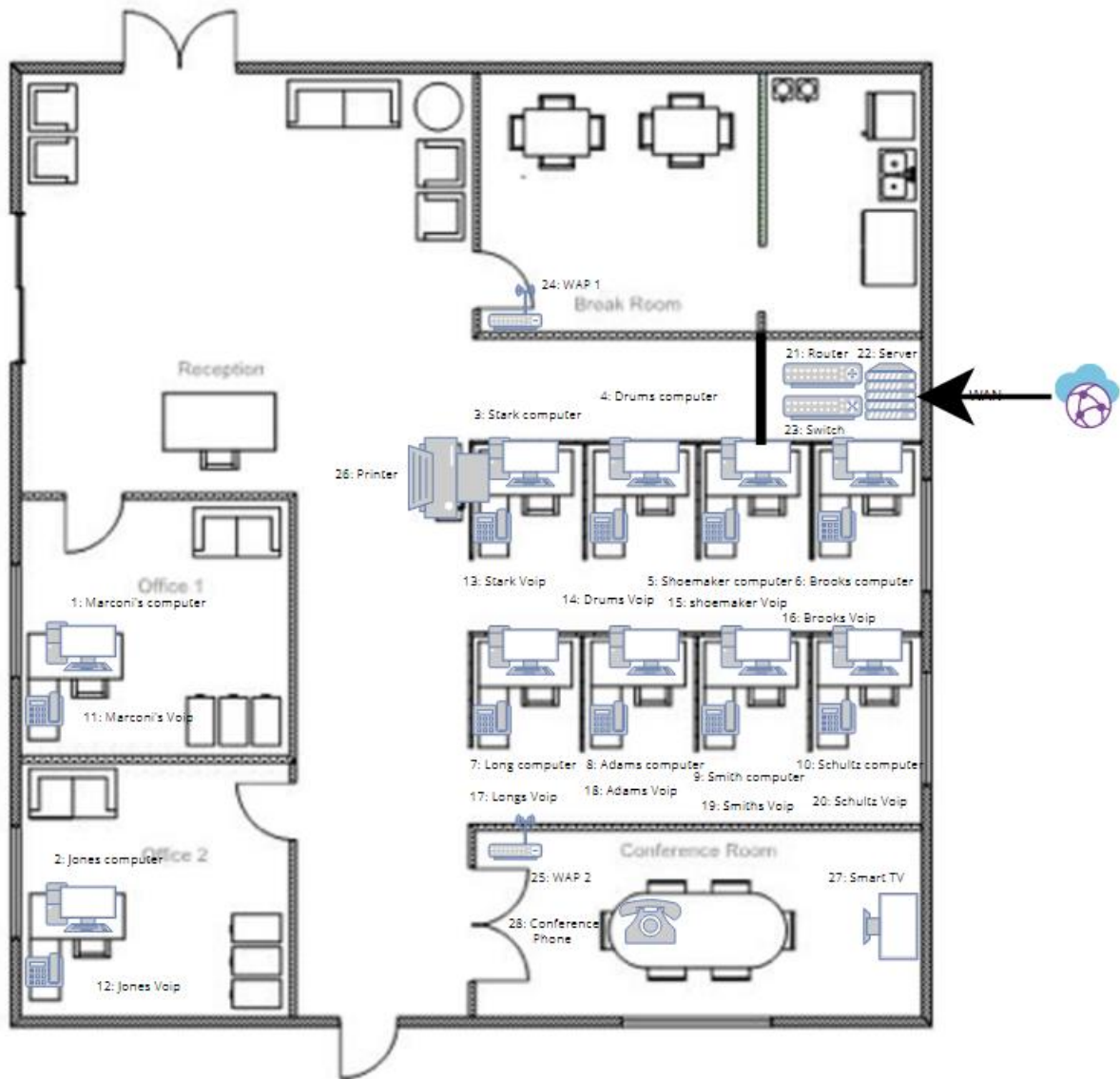
Capital and Operating Costs

Hardware and Software	Per Unit Cost	Quantity	Total Cost
Laptops	759.99	10	7,599.9
Router	299.99	1	299.99
Server	1	1	3,861.99
Switch	1	1	2,236.00
Server Hard Drives	1	1	1,497.99
VoIP Phones	288.99	10	2,889.9

Conference Phone	1,265.99	1	1,265.99
WAPs	129.99	2	259.98
Printer	549.99	1	549.99
Smart TV	1,199.99	1	1,199.99
Windows Server 2019	803.99	1	803.99
Windows 10 Pro	204.99	1	2,049.9
Labor (@ $75/hour)	$75	40 hrs	$3,000
Annual ongoing network maintenance and support	$12,000	1 yr	$12,000
GRAND TOTAL	-	-	**$39,515.52**

Hardware and Software Specification Tables

Laptops

Brand/Manufacturer	Microsoft
Product Line	Microsoft Surface
Model	Laptop 4
Processor/Clock Speed	AMD Ryzen 5 468u / 2.2GHz
Memory/Speed	16gb
Hard Drive/Capacity	256 GB
Display/Size/Resolution	13.5"
Networking	802.11a/b/g/n/ac/ax
Operating System	Windows
Cache	L3 cache 8 megabytes
OS	Windows 10

Server

Brand/Manufacturer	Supermicro
Product Line	Supermicro SuperStorage Server
Model	6029P-E1CR12H
Hard Drive/Capacity	No hard drive / 0
Processor	No CPU
Memory/Speed	16gb available
Storage Controller	Broadcom SAS3109 / RAID
Monitor	No Display
Ethernet	2 x 10 Gigabit Ethernet
Operating System	No operating system
Networking	10 gigabyte ethernet, fast ethernet, gigabyte ethernet
Expansion Bays	12 total / 12 free

Expansion Slots	16 total / 16 free

Server Hard Drives

Brand/Manufacturer	HPE
Product Line	HPE
Storage Type	Midline Helium
Hard Drive Type	Hot-swap hard drive
Form Factor	3.5"
Interface	1 x SAS 12 Gb/s
Capacity	12TB
Data Transfer Rate (DTR)	1.2GBps

Router

Brand/Manufacturer	NETGEAR
Product Line	NETGEAR Nighthawk
Model	RAX50
RAM	512mb
Flash Memory	256mb
WAN Ports Qty	1
Integrated Switch	4 port
Data Link Protocol	802.11ax, Ethernet, Fast Ethernet, Gigabit Ethernet, IEEE 802.11a/ac/b/g/n
Network/Transfer Protocol	Dynamic Host Configuration Protocol (DCHP)

Switch

Brand/Manufacturer	SonicWALL
Product Line	Sonic Wall Switch
Model	SWS14-48FPOE
RAM	512mb
Flash Memory	128mb
Ports Qty*	52 ports

*Switch needs to accommodate all hardware for this LAN project.

Printer

Brand/Manufacturer	HP
Product Line	HP Color LaserJet Pro
Model	MFP M283fdw
Duty Capacity	40,000 pages
Printing Output Type	Color
RAM	256mb
Hard Drive	256mb

Connectivity	Gigabit LAN, USB 2.0, USB host, Wi-Fi(n)

Wireless Access Points (WAPs)

Brand/Manufacturer	NETGEAR
Product Line	NETGEAR Insight
Model	WAX610
Antenna	Internal
Networking	2.4 GHz, 5 GHz
Interface	1 x 1/2.5GBase-T (PoE+) – RJ-45
Power	PoE+

Smart TV

Brand/Manufacturer	Samsung
Model	QN70Q60BAF
Series	Q60B Series
Video Interface	HDMI
HDMI Ports Qty	3
Diagonal Size	70"
Resolution	3840 x 2160
Output Power	20 watt
Speaker System	2 channel
USB Ports Qty	2
Wi-Fi Protocol	802.11ac

Conference Phone

Brand/Manufacturer	Cisco
Product Line	Cisco IP Conference Phone
Model	8832
Type	LCD Display
Speakerphone	Yes
Features	Class 4 PoE
Phone connections	USB

Server Software

Brand/Manufacturer	Microsoft
Product Line	Microsoft Windows
Version	Windows Server 2019 Standard

Client Software

Brand/Manufacturer	Microsoft
Product Line	Microsoft Windows
Version	Windows 10 Pro

VoIP Phones

Brand/Manufacturer	Cisco
Product Line	Cisco IP Phone
Model	7841
Type	LCD Display
Speakerphone	Yes
Features	Lightweight Directory Access Protocol
IP Address Assignment	DHCP, Static
Voice Codecs	G.711a/u, G.722, G.729ab, iLBC
Network Protocols	Cisco Discovery Protocol, SRTP
PoE Support	No

Timesheets

Milestone	Activity Description (be descriptive)	Start Time	End Time	Total Activity Time	Activity Date
Milestone 1	I reviewed the "Marconi Law Business Case Study" and the project report word doc. Then did some research on Hardware and Software.	3:00pm	4:00pm	1 Hour	4/7/23
Milestone 1	I started looking for hardware and software with the budget in mind. After finding the hardware and software I liked I reviewed the budget and saw I was in budget.	1:00pm	3:00pm	3 Hours	4/8/23
Milestone 1	I filled in the hardware and software details in the word doc. Then I filled in my Timesheets, Status Report, and milestones.	1:30pm	4:00pm	2 Hours 30 Mins	4/9/23

Milestone 2	Created the virtual Machines for the assignment.	3:00pm	4:00pm	1 Hour	4/15/23
Milestone 2	I completed the project scope and Network Objective.	1:00pm	3:00pm	3 Hours	4/16/23
Milestone 2	Completed the Network Objectives and IP Network Design Table. In addition to completing the timesheets, status reports, and milestones.	1:30pm	4:00pm	2 Hours 30 Mins	4/17/23
Milestone 3	Created all Users, Groups, and Shares.	3:00pm	4:00pm	1 Hour	4/21/23
Milestone 3	I did Quality control and verified that the shares worked properly.	1:00pm	3:00pm	3 Hours	4/22/23
Milestone 3	I came back and finished my timesheets and status report and turned in the video and word doc.	1:30pm	4:00pm	2 Hours 30 Mins	4/23/23
Milestone 4	Created PowerPoint presentation and Notes	3:00pm	4:00pm	1 Hour	4/28/23
Milestone 4	Presented the PowerPoint to Mr. Maroni	1:00pm	3:00pm	3 Hours	4/29/23
Milestone 4	Review Project Report Doc and finish the time sheets and such.	1:30pm	4:00pm	2 Hours 30 Mins	4/30/23
TOTAL HOURS	25 Hours				

Status Reports

Accomplished this week

Milestone 1: Reviewed the project

Milestone 1: Researched and found hardware and software for the project
Milestone 1: Filled in details for the hardware and software I chose for the project.
Milestone 1: Started the project report
Milestone 2: Created Virtual Machines
Milestone 2: Completed Project Scope, Network Objectives, IP Network Design, and Network topology with node numbers.
Milestone 2: Completed the project report.
Milestone 3: Created Users, Groups, and Shares
Milestone 3: Performed quality control to make sure that the groups and shares worked properly.
Milestone 3: Completed the timesheets and status report.
Milestone 4: Made PowerPoint and Notes
Milestone 4: Presented to Mr. Marconi
Milestone 4: Finished Project report doc

Milestones 1, 2, and 3
Enter **at least three activities** that you are planning for next week. Add in more lines to the table as needed. See the Documentation section for information on what we are planning to do in class for the upcoming milestone.

Planned for next week

Coming up for milestone 2: Project Scope
Coming up for milestone 2: Network Objectives
Coming up for milestone 2: IP Network Design Table
Coming up for milestone 2: Update network diagram
Coming up for milestone 3: Network Configuration Process
Coming up for milestone 3: Create User Logins and Passwords
Coming up for milestone 3: Complete project reports.

Coming up for milestone 4: Create a powerpoint for the project.
Coming up for milestone 4: Create a pitch for the project.
Coming up for milestone 4: Perform the pitch

Milestones 1, 2, 3, and 4
Ensure that you complete the questions in the *Comments* table so I know what issues, problems, concerns, etc. you may have run into. I use this information to provide feedback and to help you learn. If you did not run into problems, then tell me so. Otherwise, this section is considered incomplete.

Comments for each milestone

Milestone 1: What problems did you run into? How did you fix them? Is there anything that you did not complete that you now have to push off into the next milestone? I noticed that I am $20,000 under budget. Is that okay? Or am I looking to get as close as possible to the budget?
Milestone 2: What problems did you run into? How did you fix them? Is there anything that you did not complete that you now have to push off into the next milestone? Any other comments? I didn't run into any issues this week. Everything went smoothly.
Milestone 3: What problems did you run into? How did you fix them? Is there anything that you did not complete that you now have to push off into the next milestone? Any other comments? I did not run into any issues and everything went smoothly.
Milestone 4: What problems did you run into? How did you fix them? Is there anything that you did not complete that you now have to push off into the next milestone? Any other comments? Everything went smoothly