

# Network System Implementation for the Marconi Law Firm, LLC.

Orlando, Florida

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SPR small project management services

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## Project Scope

<a href="#">Why are you initiating this project for Marconi Law?</a>
Your answer>Initiating project for Marconi Law to centralize operations to a single location, increasing efficiently and effectiveness. Design a new computer network system for the entire office capable of future expansion and growth.
<a href="#">What are the key objectives or high-level work specifications that you will provide to Marconi Law?</a>
Your answer>Installing a fully functional LANs, provide a project report including a detailed network diagram. Weekly timesheets and status report are required as well during this project.
<a href="#">What are the project deliverables needed in terms of hardware and software?</a>
Your answer>The deliverables include a router, a server, a switch (capable of future expansion), 10 computers, 2 WAPS, 10 VoIP phone, a printer, client software and a conference phone and smart TV are the required deliverables.
<a href="#">What is not included in this project?</a>
Your answer>Monitors are optional and not included in the budget but can be purchased.
<a href="#">What are the project constraints?</a>
Your answer>The project constraints is a five-week deadline, \$60,000 overall budget, and a New computer network system consisting of provided network needs/requirements with room for future business expansion.
<a href="#">What are at least 5 key success factors that will define this project?</a>
Your answer>scalability, design, efficiency, timely completion, strong communication
<a href="#">How long and how much will this project take and cost, respectively?</a>

Your answer> Project will be completed in a timely manner before 5-week deadline and is on schedule to be completed in 3 ½ weeks' time. The overall cost will not exceed \$60,000 and will range from \$40k-\$60k.

### Network Objectives/Benefits

- Accessibility – Easy access to files and important documents.
- Increased Productivity– The ability to perform multiple tasks and run multiple devices at once increasing productivity.
- Conserve space– With Files and documents stored electronically and securely conserve space and resources.

### IP Network Design Table

Subnet IP Information	
Netmask	255.255.255.0
First IP	10.0.0.0
Last IP	10.0.0.255
Total Host	256
Network ID	10.10.119.0/24
Broadcast Address	00001010.0

Group IP Ranges	
Computers	10.0.0.10-10.0.0.30
VoIP Phones	10.0.0.31-10.0.0.50
Network Backbone	10.0.0.100-10.0.0.150
WAPs	10.0.0.51-10.0.0.70
Other	10.0.0.71-10.0.0.99

Node	Hardware Name	Static IP address
1	Marconi Computer	10.0.0.10
2	Jones Computer	10.0.0.11
3	Stark Computer	10.0.0.12
4	Drums Computer	10.0.0.13
5	Shoemaker Computer	10.0.0.14
6	Brooks Computer	10.0.0.15
7	Long Computer	10.0.0.16
8	Adams Computer	10.0.0.17

9	Smith Computer	10.0.0.18
10	Schultz Computer	10.0.0.19
11	Marconi VoIP Phone	10.0.0.31
12	Jones VoIP Phone	10.0.0.32
13	Stark VoIP Phone	10.0.0.33
14	Drums VoIP Phone	10.0.0.34
15	Shoemaker VoIP Phone	10.0.0.35
16	Brooks VoIP Phone	10.0.0.36
17	Long VoIP Phone	10.0.0.37
18	Adams VoIP Phone	10.0.0.38
19	Smith VoIP Phone	10.0.0.39
20	Schultz VoIP Phone	10.0.0.40
21	Router	10.0.0.100
22	Server	10.0.0.105
23	Switch	10.0.0.110
24	WAP 1	10.0.0.51
25	WAP 2	10.0.0.2
26	Printer	10.0.0.71
27	Smart TV	10.0.0.72
28	Conference Phone	10.0.0.73

## Network Configuration Process

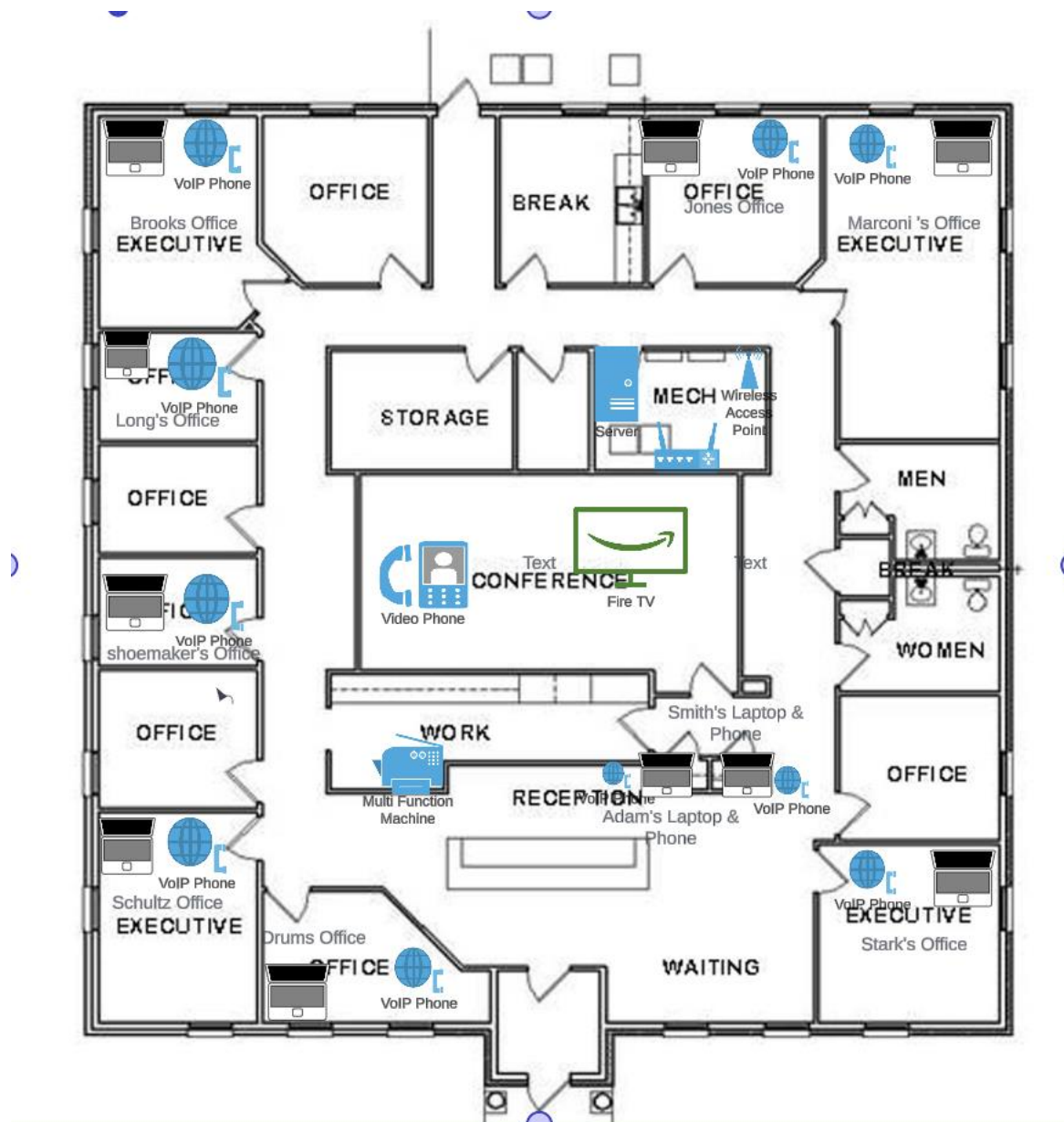
User Accounts	Setup and Configuration Process
Dan Marconi Phil Jones Karen Stark Evelyn Schultz Bill Shoemaker Mike Drums Lisa Brooks Terry Long Samuel Adams Brian Smith	Step 1: Launch <b>Windows Server 2019</b> VM Step 2: Log into server using admin password Step 3: Open <b>Server Manager</b> by going to <b>Windows Start Menu</b> and click on <b>Server Manager</b> Step4: Click <b>Tools</b> then <b>Computer Management</b> Step 5: Find the <b>Local Users and Groups</b> directory and click the <b>Users</b> folder Step 6: Right click in the Name and Description box and select New User. Step 7: Create username and password for user, add a brief description of what the user account is for.
Groups	Setup and Configuration Process
_Attorneys _Accounting _Administrative	Step 1: Launch <b>Windows Server 2019</b> VM Step 2: Log into server using admin password Step 3: Open <b>Server Manager</b> by going to <b>Windows Start Menu</b> and click on <b>Server Manager</b> Step 4: Click <b>Tools</b> then <b>Computer Management</b> Step 5: Find the <b>Local Users and Groups</b> directory and click the <b>Groups</b> folder Step 6: Right click in the Name and Description box and select New Group. Step 7: Create Group name and add a brief description of the use of the group.
Folders and Permissions	Setup and Configuration Process

Attorneys Accounting Administrative	<u>Create Folders</u> Step 1: Launch <b>File Manager</b> Step 2: Double-click on <b>Local C drive</b> Step 3: Right-click and click <b>New&gt; New Folder</b> Step 4: Create name <u>Set Sharing Permissions</u> Step 1: Launch <b>Windows Server 2019 VM</b> Step 2: Log into server using admin password Step 3: Open <b>File Explorer</b> clicking the File explorer icon in taskbar Step 4: Click <b>This PC</b> then <b>Local C; Drive</b> Step 5: Right-click the Marconi Folder created earlier and select <b>Give Access to...</b> Step 6: Give Marconi access to the Marconi Folder enabling read/write permission or Full control for all 3 groups in this folder. Step 7: Repeat steps used to give permissions and assign each user there proper group and permissions.
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## User Logins and Passwords

Employee Name	Employee Title	Login ID	Password
Dan Marconi	President/Attorney	Dan_M	FullSail2!
Phil Jones	Attorney	Phil_J	FullSail2!
Karen Stark	Attorney	Karen_S	FullSail2!
Evelyn Schultz	Administrative Assistant	Evelyn_S	FullSail2!
Bill Shoemaker	Attorney	Bill_S	FullSail2!
Mike Drums	Attorney	Mike_D	FullSail2!
Lisa Brooks	Attorney	Lisa_B	FullSail2!
Terry Long	Attorney	Terry_L	FullSail2!
Samuel Adams	Attorney	Samuel_A	FullSail2!
Brian Smith	Accountant	Brian_S	FullSail2!

Network Topology Diagram with Employee Names and Node Numbers



## Capital and Operating Costs

Hardware and Software	Per Unit Cost	Quantity	Total Cost
Laptops	\$1,591.99	10	\$15,919.90
Router	\$364.99	1	\$364.99
Server	<b>\$723.99</b>	1	<b>\$723.99</b>
Switch	<b>\$2,368.99</b>	1	<b>\$2,368.99</b>
Server Hard Drives (Consider a RAID 5)	\$417.99	4	\$1,671.96
VoIP Phones	<b>\$259.99</b>	10	<b>\$2,599.90</b>
Conference Phone	<b>\$3,999</b>	1	<b>\$3,999</b>
WAPs	<b>\$129.99</b>	1	<b>\$129.99</b>
Printer	<b>\$549.99</b>	1	<b>\$549.99</b>
Smart TV	\$3,999.99	1	\$3,999.99
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
<b>GRAND TOTAL</b>	<b>-N/A</b>	<b>- 42 items</b>	<b>\$54,186.58</b>

## Hardware and Software Specification Tables

### Laptops

Brand/Manufacturer	<b>Microsoft</b>
Product Line	Surface
Model	Laptop 5 for Business
Processor/Clock Speed	1.8 GHZ
Memory/Speed	16 GB
Hard Drive/Capacity	512 GB
Embedded Security	No
Display/Size/Resolution	2256 x 1504
Networking	802.11ax, Bluetooth 5.1, IEEE 802.11a, IEEE 802.11ac, IEEE 802.11b, IEEE 802.11g, IEEE 802.11n
Operating System	Windows 11 Pro
Cache	12 megabytes



Page URL	<a href="https://www.cdw.com/product/microsoft-surface-laptop-5-13-core-i7-16-gb-ram-512-gb-ssd-black/7193165?pfm=srh">https://www.cdw.com/product/microsoft-surface-laptop-5-13-core-i7-16-gb-ram-512-gb-ssd-black/7193165?pfm=srh</a> - TS
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## Server

Brand/Manufacturer	<b>Synology</b>
Product Line	Synology Disk Station
Model	DS923+
Hard Drive/Capacity	0
Processor	AMD Ryzen
Memory/Speed	2.6 GHZ
Storage Controller	NAS server
Monitor	
Ethernet	Ethernet, Fast Ethernet, Gigabit Ethernet
Operating System	
Networking	DNS, IPSec, iSCSI, L2TP, OpenVPN, PPTP, SFTP, TCP/IP
Expansion Bays	4
Expansion Slots	1 (total) / 1 (free) x PCI Express 3.0 x2, 2 (total) / 1 (free) x SO-DIMM 260-pin, 2 (total) / 2 (free) x M.2 2280
Page URL	<a href="https://www.cdw.com/product/synology-disk-station-ds923-nas-server/7253146?pfm=srh">https://www.cdw.com/product/synology-disk-station-ds923-nas-server/7253146?pfm=srh</a>

## Server Hard Drives

Brand/Manufacturer	Total Micro
Product Line	Total Micro
Storage Type	Serial Attached SCSI
Hard Drive Type	Internal hard drive
Form Factor	2.5"
Interface	Serial Attached SCSI
Capacity	600 GB
Data Transfer Rate (DTR)	Not provided
Page URL	<a href="https://www.cdw.com/product/total-micro-600gb-2.5-sas-hard-drive-w-tray-for-dell-poweredge-r710/3393675?pfm=srh">https://www.cdw.com/product/total-micro-600gb-2.5-sas-hard-drive-w-tray-for-dell-poweredge-r710/3393675?pfm=srh</a>

## Router

Brand/Manufacturer	Synology
Product Line	Synology

Model	RT6600AX
RAM	1 GB
Flash Memory	Not Provided
WAN Ports Qty	2
Integrated Switch	4-port switch
Data Link Protocol	2.5 Gigabit Ethernet, Ethernet, Fast Ethernet, Gigabit Ethernet, IEEE 802.11a, IEEE 802.11ac, IEEE 802.11ax (Wi-Fi 6), IEEE 802.11b, IEEE 802.11g, IEEE 802.11n
Network/Transfer Protocol	Not Provided
Page URL	<a href="https://www.cdw.com/product/synology-rt6600ax-wireless-router-wi-fi-6-desktop/7042267?pfm=srh">https://www.cdw.com/product/synology-rt6600ax-wireless-router-wi-fi-6-desktop/7042267?pfm=srh</a>

### Switch

Brand/Manufacturer	<b>D-Link</b>
Product Line	D-Link
Model	3630-28PC
RAM	0
Flash Memory	0
Performance	Not provided
Capacity	N/A
Ports Qty*	20
Page URL	<a href="https://www.cdw.com/product/d-link-dgs-3630-28pc-switch-20-ports-managed-rack-mountable/4988706?pfm=srh">https://www.cdw.com/product/d-link-dgs-3630-28pc-switch-20-ports-managed-rack-mountable/4988706?pfm=srh</a>

\*Switch needs to accommodate all hardware (nodes) for this LAN project.

### Printer

Brand/Manufacturer	Xerox
Product Line	Xerox
Model	C315/DNI
Duty Capacity	N/A
Printing Output Type	color
Processor	N/A
RAM	2 GB
Networking	LAN, USB 2.0, USB 2.0 host, Wi-Fi(n)

Page URL	<a href="https://www.cdw.com/product/xerox-c315-dni-color-multifunction-printer-print-copy-scan-fax-up-to-35ppm/6954609?pfm=srh">https://www.cdw.com/product/xerox-c315-dni-color-multifunction-printer-print-copy-scan-fax-up-to-35ppm/6954609?pfm=srh</a>
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### Wireless Access Points (WAPs)

Brand/Manufacturer	Netgear
Product Line	N/A
Model	WAX220
Antenna	N/A
Capacity	
Networking	IEEE 802.11 a/b/g/n/ac/ax/e
Interface	N/A
Power	15.2 watt
Page URL	<a href="https://www.cdw.com/product/netgear-wifi-6-ax4200-dual-band-access-point-with-multi-gig-poe/7386506?pfm=srh">https://www.cdw.com/product/netgear-wifi-6-ax4200-dual-band-access-point-with-multi-gig-poe/7386506?pfm=srh</a>

### Smart TV

Brand/Manufacturer	Samsung
Model	UN98DU9000F
Series	DU9000 Series
Video Interface	<b>HDMI</b>
HDMI Ports Qty	3
Diagonal Size	98 inch
Resolution	3840 x 2160
Display Format	Screen
Viewing Angle	
Digital Audio Format	Dolby Audio
USB Ports Qty	2
Wi-Fi Protocol	802.11ac
Page URL	<a href="https://www.cdw.com/product/samsung-un98du9000f-du9000-series-98-class-97.5-viewable-led-backlit/7915434?pfm=srh">https://www.cdw.com/product/samsung-un98du9000f-du9000-series-98-class-97.5-viewable-led-backlit/7915434?pfm=srh</a>

### Conference Phone

Brand/Manufacturer	Logitech
Product Line	N/A
Model	N/A
Type	<b>Video Conferencing camera</b>
Call Services	N/A
Speakerphone	N/A
Features	N/A

Phone connections	VIA TV
Page URL	<a href="https://www.cdw.com/product/logitech-rally-bar-video-conferencing-device/6394790?pfm=srh">https://www.cdw.com/product/logitech-rally-bar-video-conferencing-device/6394790?pfm=srh</a>

### Server Software

Brand/Manufacturer	Microsoft
Product Line	<b>Microsoft Windows</b>
Version	<b>Server 2019</b>
Licensing	License
Page URL	<a href="https://www.cdw.com/product/microsoft-windows-server-2019-license-20-users/6269374?pfm=srh">https://www.cdw.com/product/microsoft-windows-server-2019-license-20-users/6269374?pfm=srh</a>

### Client Software

Brand/Manufacturer	Microsoft
Product Line	<b>Windows 10</b>
Version	<b>Pro</b>
Licensing	Upgrade License
Page URL	<a href="https://www.cdw.com/product/windows-10-pro-upgrade-license-1-device/3446584?pfm=srh">https://www.cdw.com/product/windows-10-pro-upgrade-license-1-device/3446584?pfm=srh</a>

### VoIP Phones

Brand/Manufacturer	Cisco
Product Line	<b>Cisco IP Phone</b>
Model	<b>8841</b>
Type	
Conference Call Capability	<b>Yes</b>
Call Services	Call Forwarding, Call Hold, Call Transfer, Call Waiting, Caller ID, Message Waiting Capability, Voicemail
Speakerphone	Yes
Additional Functions	Call timer, Intercom
Features	N/A
VoIP Protocols	RTCP, RTP, SDP, SIP, SRTP
IP Address Assignment	
Network Protocols	Cisco Discovery Protocol (CDP), DNS, HTTP, HTTPS, IP, Link Layer Discovery Protocol - Media Endpoint Discovery (LLDP-MED), RTCP, RTP, SRTP, TFTP, UDP
PoE Support	Yes

Voice Features	N/A
Page URL	<a href="https://www.cdw.com/product/cisco-ip-phone-8841-voip-phone/5329935?pfm=srh">https://www.cdw.com/product/cisco-ip-phone-8841-voip-phone/5329935?pfm=srh</a>

## Timesheets

Milestone	Activity Description (be descriptive)	Start Time	End Time	Total Activity Time	Activity Date
Milestone 1	Finding Hardware and Software.	10am	3pm	5 hours	Aug 09,2024
Milestone 1	Capital & Operating costs completed.	9am	11am	2 hours	Aug 10,2024
Milestone 1	Hardware & Software specification tables completed.	12pm	2:20pm	2 hours & 20 min	Aug 10,2024
Milestone 2	Rename Windows 2019 VM	12pm	12:15 pm	15 minutes	Aug 16,2024
Milestone 2	Weekly Quiz	9am	10am	1 hour	Aug 16,2024
Milestone 2	Milestone 2	4 pm	5pm	1 hour	Aug 16,2024
Milestone 3	Create User accounts for Marconi Law	2 pm	2:45pm	45 minutes	August 31, 2024
Milestone 3	Create Groups & Users	12 pm	2 pm	2 hours	August 31, 2024
Milestone 3	Assign Permissions to Users	3 pm	3:30 pm	30 minutes	August 31, 2024
Milestone 4	Finish any unfinished work in Project.	7 am			August 31, 2024
Milestone 4	Remove Instructions (ORANGE)				August 31, 2024
Milestone 4	Complete Presentation for Final Project Report				August 31, 2024

TOTAL HOURS					

## Status Reports

### *Accomplished this week*

Milestone 1: Ensured business name and preferred name are on cover page
Milestone 1: Completed "Project Scope" section.
Milestone 1: Input capital and project costs.
Milestone 2: Completed Milestone 2 sections.
Milestone 2: Finished Weekly Quiz.
Milestone 2: Updated Network Diagram.
Milestone 3: Created User Accounts
Milestone 3: Created Users & Groups
Milestone 3: Assigned Permissions and shares
Milestone 4: Finish Project
Milestone 4: Review and revise removing orange instructions.
Milestone 4: Created a presentation for Project

### *Planned for next week*

Coming up for milestone 2: Review Diagram
Coming up for milestone 2: Complete status report
Coming up for milestone 2: Ip design table
Coming up for milestone 3: Create User's & Groups

Coming up for milestone 3: Complete Timesheet
Coming up for milestone 3: Create Files & Permissions
Coming up for milestone 4: Complete project
Coming up for milestone 4: Revise and Review
Coming up for milestone 4: Create Presentation

### ***Comments for each milestone***

<p><u>Milestone 1:</u></p> <p><u>What problems did you run into?</u> When adding up the total I found I was over budget.</p> <p><u>How did you fix them?</u> To fix this I turned to cost and removed the more expensive conference phone/system and replaced it with something more affordable.</p> <p><u>Is there anything that you did not complete that you now have to push off into the next milestone?</u> No</p> <p><u>Any other comments?</u> Went overboard by not reading instructions carefully, diagram complete, Milestone 2 Project Scope complete.</p>
<p><u>Milestone 2:</u></p> <p><u>What problems did you run into?</u> When logging into ProXmox password was incorrect.</p> <p><u>How did you fix them?</u> I attempted resetting the password myself but unfortunately could not be due to the password reset link no being sent after prompted.</p> <p><u>Is there anything that you did not complete that you now must push off into the next milestone?</u> No</p> <p><u>Any other comments?</u> No</p>
<p><u>Milestone 3:</u></p> <p><u>What problems did you run into?</u> No problems were encountered.</p> <p><u>How did you fix them?</u> N/A</p> <p><u>Is there anything that you did not complete that you now must push off into the next milestone?</u> Yes, Milestone 3's work was pushed off and completed at the same time as Milestone 4.</p> <p><u>Any other comments?</u></p>

Milestone 4:

What problems did you run into?

N/A

How did you fix them?

N/A

Is there anything that you did not complete that you now have to push off into the next milestone?

N/A

Any other comments?

No