

CornerStone Architect

Erik Checo



Table of context

Title page –	1
Table of context –	2
Executive summary –	3/4
Topology/Diagrams -	5/6
Material List –	7/9
Schedule –	10/13
Conclusion –	14

Project Overview:

Cornerstone Architect LLC, in collaboration with ChecoTech Solutions, is pioneering an innovative network enhancement project for its dual offices in South Tampa. Leveraging WiMax technology, the Baicells Nova 233 3.5GHz 1W Gen2 Outdoor Base Station mBS1105, paired with the HUAWEI Wi-Fi WALKER WiMAX HWD13, acts as a bridge for the TP-LINK G36 New Omada Pro Gigabit VPN Router.

WiMax Infrastructure:

Strategically deploying the WiMax base station, Baicells Nova 233, at both locations enables a shared LAN connection over the three-mile distance. This ensures a seamless and high-speed network connection between the offices, fostering efficient collaboration.

VPN Router for Secure Data Sharing:

To facilitate secure and high-speed data network sharing, the TP-LINK G36 VPN Router incorporates the OpenVPN Protocol. This protocol establishes a secure link between both buildings, enabling encrypted communication. Through this secure link, both locations gain visibility into each other's files, data, and collaborative resources, creating a unified and interconnected workspace.

VPN Router with QoS Features:

The TP-LINK G36 New Omada Pro Gigabit VPN Router brings advanced Quality of Service (QoS) features to the forefront of network management:

- Up to 5 WAN Ports: Gigabit SFP WAN port and gigabit RJ45 WAN port optimize bandwidth usage, ensuring efficient data flow.
- Highly Secure VPN△: Multiple VPN protocols, including SSL, Wireguard, OpenVPN, GRE VPN, IPSec, PPTP, L2TP, and L2TP over IPSec, facilitate flexible and secure VPN connections.

Security Features:

The router further fortifies the WiMax setup with abundant security features:

- Abundant Security Features: IDS/IPS, DPI, advanced firewall policies, DoS defense, IP/MAC/URL filtering, and more protect the network and data from various threats.

Scalability and Redundancy:

- Scalability: Both buildings will feature four 48-port Jetstream managed switches, ensuring scalability to meet evolving network needs.
- Redundancy: Building one will conduct daily backups of its servers (web server, FTP server, VOIP, and print server) and transmit them to building two. In the event of a server failure in building one, building two, equipped with a cold server, seamlessly takes control, ensuring continuous access to critical resources.

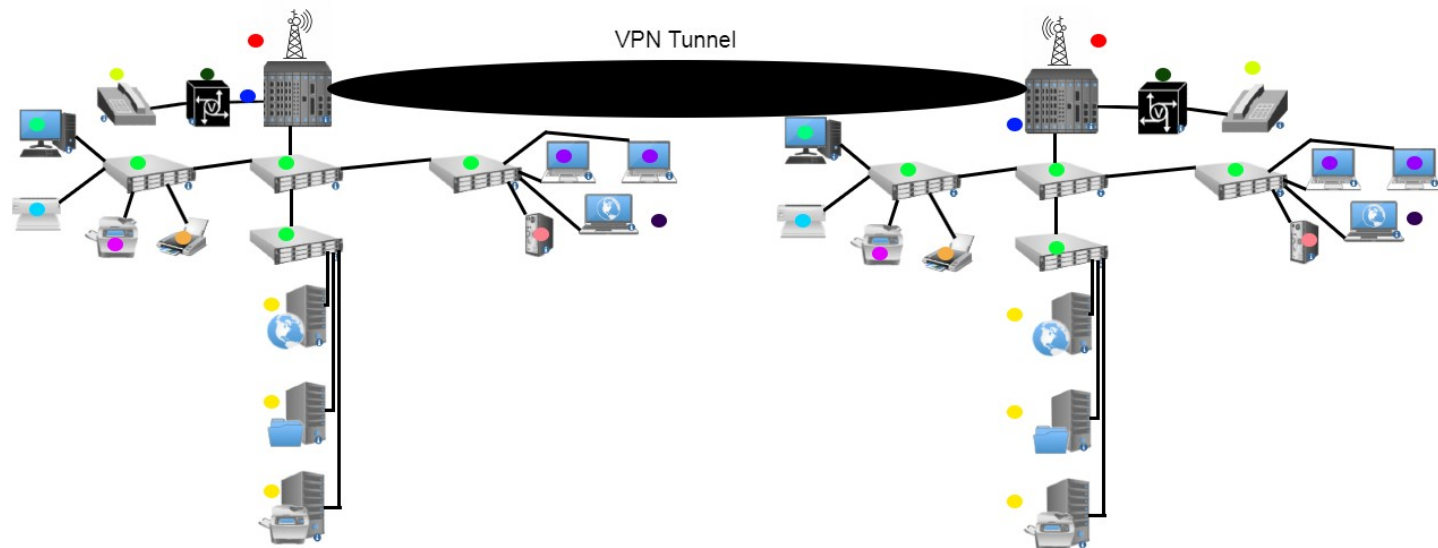
UPS Redundancy with CyberPower PFC Sinewave UPS:

To further enhance redundancy, CyberPower PFC Sinewave UPS units will be deployed on all critical components, including architects' workstations, draftsmen stations, receptionist desk, servers, router, switches, and the WiMax bridge. This ensures an uninterrupted power supply, safeguarding against potential power disruptions.

This structured proposal guides the implementation of a reliable and efficient WiMax-based network solution for Cornerstone Architect LLC, fostering seamless collaboration and enhancing productivity.

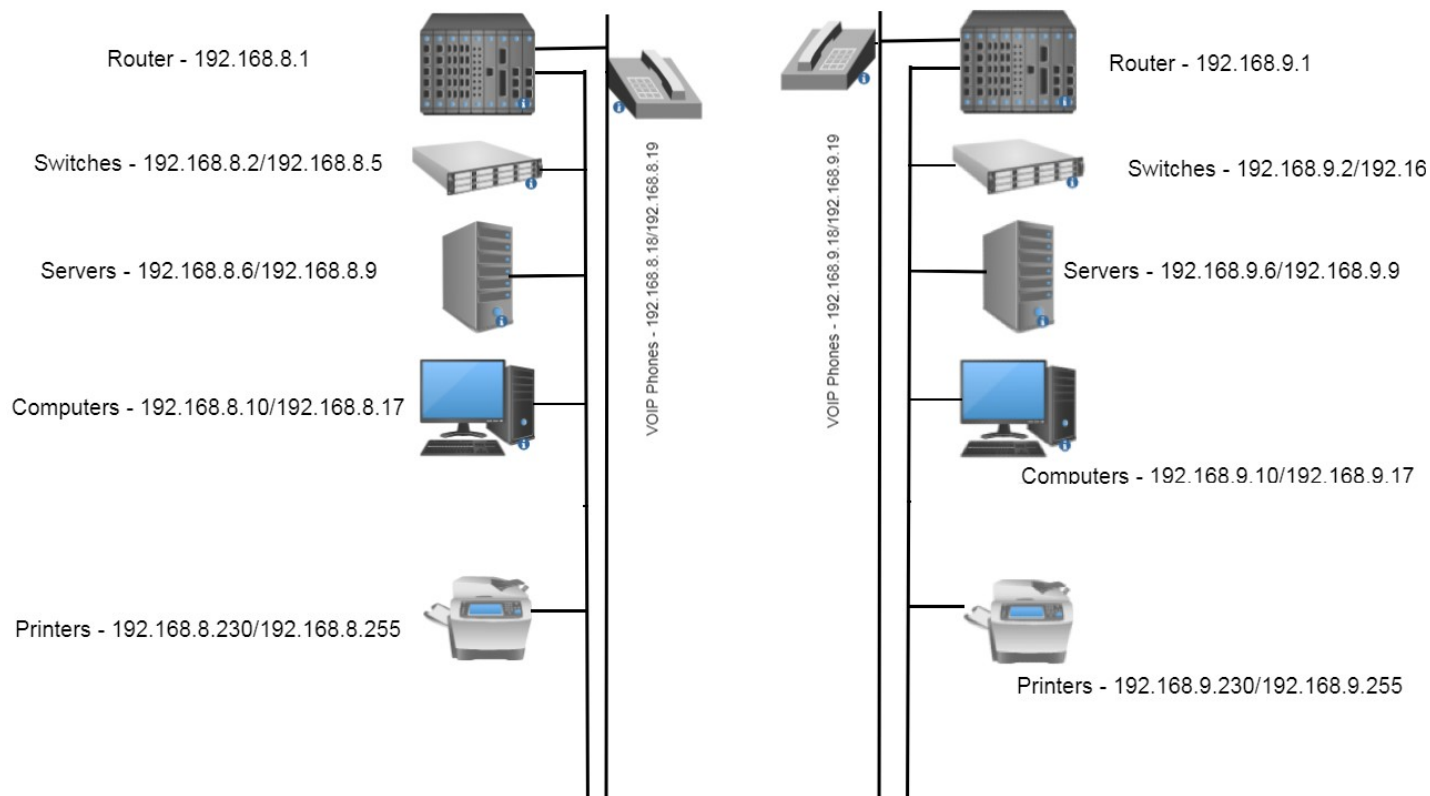
[Note: Detailed technical specifications and implementation details will be included in the full project documentation.]

CornerStone Architects LLC Physical Network Diagram








- WiMAX - Baicells Nova 3.5GHZ ●
- VOIP Service - Frontier Communications OneVoice
- Router - TPLINK G36 Omada Pro ●
- Switch - JetStream 48-port ●
- Server - Dell PowerEdge R640 ●
- Office Printer - Xerox Altalink C8030 ●
- Architect/Draftsman printer - Xerox B225 ●
- Plotter Printer - HP DesignJet T630 ●
- Architect/Draftsman Workstation - Dell XPS 8960 ●
- Secretary Laptop - Dell Inspiron 14 2-in 1 touch ●
- Office Manager - Dell Inspiron 16 2-in 1 touch AMD ●
- Office Receptionist - Dell Inspiron 3020 ●
- VOIP Gateway - Grandstream Port FX S ●
- VOIP Phone - Poly VVX 250 4-Line ●

CornerStone Architects LLC Logical Network Diagram



Materials List (Building one)



Item	Description	Quantity	Unit Price	Total Price
Wimax Base station/Antenna	Baicells Nova 233 3.5GHz 1W Gen2 Outdoor Base Station mBS1105 W/ Halo-B Key	1	\$2,500	\$2,500
VOIP Services	Frontier Communications OneVoice	1	\$30	\$30
Router	TP-LINK G36Omada Pro Gigabit VPN Router 	1	\$200	\$200
WiMAX Bridge	Huawei Wi-Fi Walker WiMAX HWD13	1	\$200	\$200
Managed Switch	JetStream 48-Port Gigabit L2 Managed Switch with 4 SFP Slots (TL-SG3452) 	4	\$549	\$2,196




Cabling	trueCABLE Cat5e Shielded Riser (CMR), 1000ft, Blue, 24AWG Solid Bare Copper, 350MHz, PoE++ (4PPoE), ETL	10	\$215	\$2,150
Server	Dell PowerEdge R640 Rack Server 	3	\$2,771.30	\$8,313.9
Office Printer	Xerox AltaLink C8030 Multifunction Color Printer with Office 	1	\$2,299	\$2,299
Architech/Draftsman Printers	Xerox B225 Multifunction Printer 	13	\$199	\$2,587
Plotter Printer	HP DesignJet T630 Large Format Wireless Plotter Printer - 36"	1	\$1,899	\$1,899
UPS	CyberPower CP1500PFCLCD PFC Sinewave UPS System, 1500VA/1000W, 12 Outlets, AVR, Mini Tower	22	\$219	\$4,818

Architect/Draftsmen Workstation	Dell - XPS 8940 Desktop - 13th Gen Intel Core i7 - 16GB Memory - NVIDIA GeForce RTX 3050	13	\$1,449	\$18,837
Secretary Laptops	Dell - Inspiron 14.0" 2-in-1 Touch Laptop - 13th Gen Intel Core i7	2	\$1,000	\$2,000
Office Manager	Dell - Inspiron 16.0" 2-in-1 Touch Laptop - AMD Ryzen 5 7530U	1	\$850	\$850
Office Receptionist	Dell - Inspiron 3020 Desktop - 13th Gen Intel Core i5 -	1	\$700	\$700
Receptionist VOIP Phones	Poly VVX 250 4-Line Business IP Phone OBi Edition	9	\$154.99	\$1,394.91
VOIP Gateway	Grandstream Powerful 8-Port FXS Gateway with Gigabit NAT Router (HT818)	2	\$120	\$240
Labor Cost		15 workers	\$30 an hour	\$6,480

Total Cost = \$57,494.81

Materials List (Building Two)

Item	Description	Quantity	Unit Price	Total Price
Wimax Base station/Antenna	Baicells Nova 233 3.5GHz 1W Gen2 Outdoor Base Station mBS1105 W/ Halo-B Key	1	\$2,500	\$2,500
VOIP Services	Frontier Communications OneVoice	1	\$30	\$30
Router	TP-LINK G36Omada Pro Gigabit VPN Router 	1	\$200	\$200
WiMAX Bridge	Huawei Wi-Fi Walker WiMAX HWD13	1	\$200	\$200
Managed Switch	JetStream 48-Port Gigabit L2 Managed Switch with 4 SFP Slots (TL-SG3452) 	4	\$549	\$2,196

Cabling	trueCABLE Cat5e Shielded Riser (CMR), 1000ft, Blue, 24AWG Solid Bare Copper, 350MHz, PoE++ (4PPoE), ETL	10	\$215	\$2,150
Server	Dell PowerEdge R640 Rack Server 	3	\$2,771.30	\$8,313.9
Office Printer	Xerox AltaLink C8030 Multifunction Color Printer with Office 	1	\$2,299	\$2,299
Architech/Draftsman Printers	Xerox B225 Multifunction Printer 	13	\$199	\$2,587
Plotter Printer	HP DesignJet T630 Large Format Wireless Plotter Printer - 36"	1	\$1,899	\$1,899
UPS	CyberPower CP1500PFCLCD PFC Sinewave UPS System, 1500VA/1000W, 12 Outlets, AVR, Mini Tower	22	\$219	\$4,818

Architect/Draftsmen Workstation	Dell - XPS 8940 Desktop - 13th Gen Intel Core i7 - 16GB Memory - NVIDIA GeForce RTX 3050	13	\$1,449	\$18,837
Secretary Laptops	Dell - Inspiron 14.0" 2-in-1 Touch Laptop - 13th Gen Intel Core i7	2	\$1,000	\$2,000
Office Manager	Dell - Inspiron 16.0" 2-in-1 Touch Laptop - AMD Ryzen 5 7530U	1	\$850	\$850
Office Receptionist	Dell - Inspiron 3020 Desktop - 13th Gen Intel Core i5 -	1	\$700	\$700
Receptionist VOIP Phones	Poly VVX 250 4-Line Business IP Phone OBi Edition	9	\$154.99	\$1,394.91
VOIP Gateway	Grandstream Powerful 8-Port FXS Gateway with Gigabit NAT Router (HT818)	2	\$120	\$240
Labor Cost		15 workers	\$30 an hour	\$6,480

Total Cost = **\$57,494.81**

Total cost of both buildings = \$114,989.62

Schedule

10

Week	Date	Day	Task Description	Duration	Start Date	Finish Date	Note
1	11-13-23	Monday	Install and Setup Baicells Nova 233 3.5GHz/base station	1 day	11-13-23	11-13-23	
1	11-14-23	Tuesday	Setup VOIP Services - Frontier Communicaitons One Voice	1 day	11-14-23	11-14-23	
1	11-15-23	Wednes day	Install Router TP-LINK G360/HUAWEI Wi-Fi WALKER WiMAX/Bridge	2 days	11-15-23	11-16-23	
1	11-17-23	Friday	Configure Managed Switches - JetStream	3 days	11-17-23	11-19-23	
2	11-20-23	Monday	Install Cabling - trueCABLE cat5e	5 days	11-20-23	11-24-23	Thanksgiving break
2	11-27-23	Monday	Setup Dell PowerEdge R6640 Rack Servers	4 days	11-27-23	11-30-23	
3	12-04-23	Monday	Setup and configure Xerox Altalink C8030 Printer	2 days	12-04-23	12-05-23	
3	12-06-23	Wednes day	Setup and configure Architech/Draftsmen printers Xerox B25	2 days	12-06-23	12-07-23	
3	12-08-23	Friday	Install and configure Plotter Printer HP DesignJetT630	1 day	12-08-23	12-08-23	
4	12-12-23	Monday	Setup UPS CyberPower Sinewave	2 days s	12-12-23	12-14-23	
4	12-15-23	Friday	Configure and install Architect/Draftsmen Workstation - Dell XPS 8960	2 days	12-15-23	12-18	
4	12-18-23	Monday	Setup and install Secretary Laptops - Dell Inspiron 14 2-1/Configure and install Office Manager Laptop Dell inspiron/Install Receptionist Desktop - Dell	1 day	12-18-23	12-18-23	

			inspiron 3020/Setup Receptionist VOIP - Poly VVX 250				
5	12-19-23	Tuesday	Bulding one complete	1 day	12-19-23	12-19-23	
5	12-20-23	Wednes day	Building two installation begins/ Install and Setup Baicells Nova 233 3.5GHz/base station	1 day	12-20-23	12-20-23	
5	12-21-23	Thursda y	Setup VOIP Services - Frontier Communicaitons One Voice	1 day	12-21-23	12-21-23	
5	12-22-23	Friday	Install Router TP-LINK G360/HUAWEI Wi-Fi WALKER WiMAX/Bridge	2 days	12-22-23	12-27-23	Christmas break (3 day break)
6	12-28-23	Thursda y	Configure Managed Switches - JetStream	3 days	12-28-23	1-2-24	New Years Break (1 day)
7	1-3-24	Wednes day	Install Cabling - trueCABLE cat5e	5 days	1-3-24	1-9-24	
8	1-9-24	Tuesday	Setup Dell PowerEdge R6640 Rack Servers	4 days	1-9-24	1-12-24	
9	1-15-24	Monday	Setup and configure Xerox Altalink C8030 Printer	2 days	1-15-24	1-16-24	
9	1-16-24	Tuesday	Setup and configure Architech/Draftsman printers Xerox B25	2 days	1-16-24	1-17-24	
9	1-17-24	Wednes day	Install and configure Plotter Printer HP DesignJetT630	1 day	1-17-24	1-18-24	
9	1-18-24	Thursda y	Setup UPS CyberPower Sinewave	2 days	1-18-24	1-19-24	
10	1-22-24	Monday	Configure and install Architect/Draftsman Workstation - Dell XPS 8960	2 days	1-22-24	1-23-24	
10	1-23-24	Tuesday	Setup and install Secretary Laptops - Dell Inspiron 14 2-1/Configure and install Office Manager Laptop	1 day	1-23-24	1-23-24	

			Dell inspiron/Install Recptionist Desktop - Dell inspiron 3020/Setup Receptionist VOIP - Poly V VX 250				
10	1-24-24	Wednes day	Bulding two complete	1 day	1-24-24	1-24-24	

Conclusion

14

Having explored the intricacies of the comprehensive proposal detailing the innovative network enhancement for Cornerstone Architect LLC, a collaborative effort with ChecoTech Solutions, we present a succinct summary of the transformative connectivity solution designed for the firm's dual offices in South Tampa. The integration of cutting-edge WiMax technology, featuring the Baicells Nova 233, HUAWEI Wi-Fi Walker WiMAX, and TP-LINK G36 New Omada Pro Gigabit VPN Router, establishes a shared LAN connection over an impressive three-mile span, fostering seamless collaboration.

The VPN Router introduces advanced Quality of Service (QoS) features and ensures secure, high-speed data sharing through the OpenVPN Protocol. Security enhancements, such as IDS/IPS, DPI, advanced firewall policies, and DoS defense, fortify the WiMax setup against various threats.

Scalability and redundancy are key considerations, with four 48-port Jetstream managed switches in each building, offering adaptability to evolving network needs. Daily backups and failover capabilities between buildings guarantee continuous access to critical resources.

To further enhance redundancy, CyberPower PFC Sinewave UPS units will be deployed on all critical components, including architects' workstations, draftsmen stations, receptionist desk, servers, router, switches, and the WiMax bridge. This ensures a reliable power supply, mitigating the impact of potential disruptions and fortifying the network against unforeseen power challenges.

With a total project cost of \$114,989.62, this proposal outlines a structured plan for a reliable WiMax-based network solution. Please note that this proposal is valid for 60 days from submission. Additionally, VOIP services will be seamlessly handled through Frontier Communications One Voice, ensuring a comprehensive and integrated communication solution.

As we eagerly anticipate the opportunity to bring this transformative project to fruition, we remain open to addressing any inquiries or further discussions you may have. Thank you for considering our solution, and we look forward to enhancing the productivity and collaboration capabilities of Cornerstone Architect LLC.