NETWORK CHOICES, REQUIREMENTS, CONSIDERATIONS AND RECOMMENDATIONS FOR HOSTED TELEPHONE INSTALLATIONS

a. Public IP address: One static Public IP address is REQUIRED to be dedicated to the hosted system at each site. This can be obtained from your ISP or Network Administrator.

b. Power over Ethernet: POE switches are recommended to eliminate the separate power supply bricks for EACH TELEPHONE. POE is much more reliable than power bricks.

c. Network topology: DHCP is recommended for the voice network. Your LAN must be configured with separate, independent voice and data networks OR with managed Ethernet switches capable of supporting V-Lans to emulate separate voice and data networks. NOTE: Phones CANNOT OPERATE ON A WIRELESS (802.11) CONNECTION. Please review the topology diagrams included on the reverse (page 2) for a general understanding of the requirements. Any reconfiguring of your network to meet these requirements is NOT INCLUDED in any of our proposals unless specifically detailed on such proposal.

d. Internet: The telephones require adequate Internet bandwidth (up to 80k per call) in addition to your other Internet bandwidth needs. The Internet connection is ordered by the end-user from your ISP. In our experience Cable Internet (i.e. Comcast), direct carrier Internet and Verizon FIOS (all with adequate bandwidth) have all proven to work reliably while DSL and wireless Internet are usually unsatisfactory for IP voice applications and quality IP voice transmission.

e. Network Responsibility: We will work with and under the guidance of your IT Professional or Network Administrator. Responsibility for your overall network must remain with your Network Professional since it is he or she who should know everything about all of your networking requirements, topology, etc. and he or she will retain overall responsibility for your network connection, coordination with local ISP and any required setup or changes to the termination equipment provided by the Local ISP.

f. Network Services Gateway: A new Network Services Gateway or a VoIP enabled router (usually a Peplink Device) should be used to route all voice network traffic. This device manages the connection with the hosted switch across the Internet and helps to maintain quality voice quality. Any new Network Services Gateway or a Session Border Controller should be connected directly to the ISP modem/interface. Where a particular carrier (i.e. Verizon FIOS) REQUIRES that their equipment be placed "at the edge" their equipment must be placed in "bridge mode" allowing it to operate while it still passes information through the Network Services Gateway. Shelves, tables, racks etc. for the placement of patch panels, Ethernet switches, Network Services Gateway, Session Border Controller etc. on are NOT included in our proposal unless specifically detailed on the proposal. Often existing space or shelves can be utilized.

g. Electrical: The appropriate quantity of dedicated 110v electrical outlets and circuits should be made available to power the equipment that we are providing. The minimum is one 20 amp circuit although additional circuits may be required for large installations. Equipment for the protection of such circuits from noise, surges and outages is separate and not included in any of our proposals unless specifically described and shown.

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Network Requirements & Considerations

For VoIP Hosted Telephone Systems

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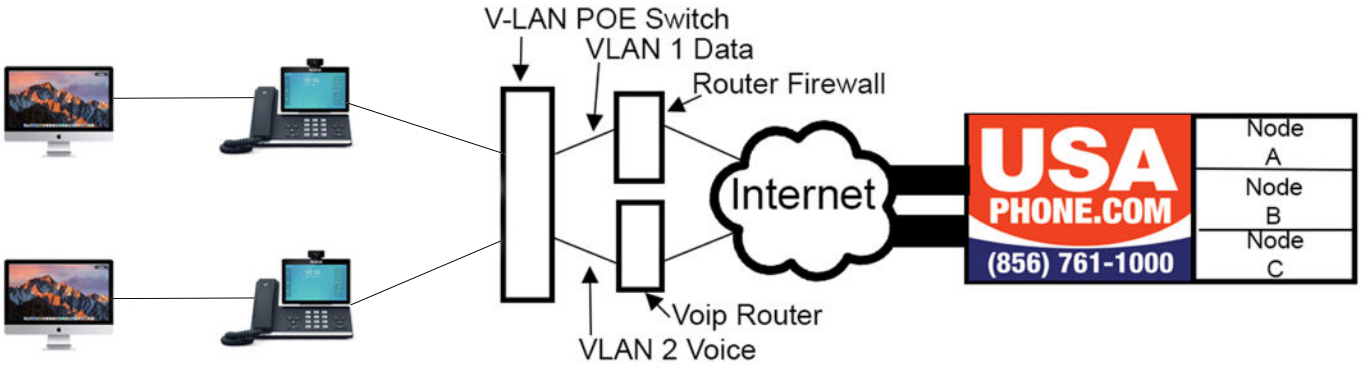
Sample Install 1 – One (1) Ethernet Run per Location using VLAN

A Virtual LAN (VLAN) is a logical, not physical, separation of the voice and data networks, and may be used to achieve enterprise class voice quality and reliability VLANs allow network administrators to virtually segment their networks over a single cable run. This can leverage existing infrastructure, and eliminate the cost associated with running new cable to each workstation. A VLAN requires a switch which supports IEEE Standard 802.1Q.

Installation Notes

Note #1 - With proper configuration users are certain to experience enterprise quality and reliability when segmenting the traffic using VLANS.

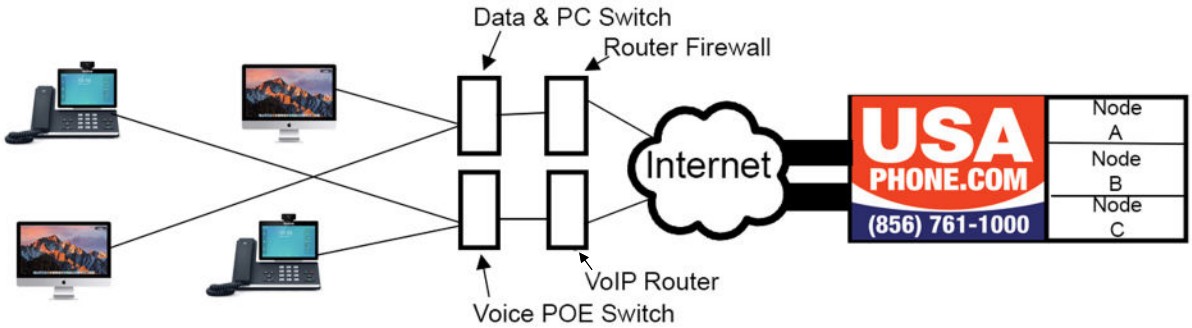


Sample Install 2 – Two (2) Ethernet Runs Per Location

The diagram below shows two (2) Ethernet connections to each workstation that has a phone and a PC. Two individual Ethernet switches are required to separate the voice and data network traffic. This option is ideal for ensuring reliability and excellent voice quality for the most demanding business users.

Installation Notes

Note #2 – In order to assure quality the Ethernet run for the phone should be Category 5e or better cable with all 8 wires properly terminated to female RJ45 jacks on either end of the run.



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