

Hosted PBX Network Readiness



Once the decision has been made to migrate to a cloud based Hosted PBX system there are some infrastructure requirements that must not be overlooked. As long as the proper steps are taken prior to and during the implementation process your company can be assured of exceptional performance to go along with the flexibility and the lower costs of a properly installed Hosted PBX system.

Cabling

Hosted PBX service works great on Category 5 cable or above. If you currently have a computer network or a telephone system then chances are the cabling will meet this criterion. The cable that is currently being used by your phone system can be converted to Ethernet and reused in most cases. This requires the cables to be re-terminated to a patch panel on the equipment side and in some cases re-terminated on the wall plate side as well. Regardless, the cost of re-terminating the cable is extremely low in comparison to installing new cables. The preference is to have two cables (one for PC and one for phone) to each work area and keep the voice and data networks separate, sharing their own switch. However, the service will work with only one cable to each work area. Please see the sample installation options at the end of this document.

Broadband/Internet Connection

The internet connection is a very important piece to a successful Hosted PBX implementation. Broadband connections that are not DSL are typically fine. It is easy to determine if the current service is adequate by using some online tools that test bandwidth, latency and jitter. DSL almost always has very slow upload speeds which is measured with a bandwidth test. If the current service is DSL Cloud9 can assist in finding a provider that meets the requirements of Hosted PBX service. If the current connection is not DSL, but the speed is not adequate then Cloud9 can assist in determining the least cost plan to meet the requirements.

Router

The router or edge device is a critical piece of the system because it has the ability to connect, protect, optimize and manage the Hosted PBX service. It optimizes voice quality through prioritizing and traffic shaping and allows Cloud9 to access system remotely including the phones themselves. This router can be used in conjunction with your existing router or firewall or it can be used as an all-in-one device. A customer owned router may also be used as the edge device as long as it provides the same functionality and it is managed internally.

Switches

In most cases a new switch is needed to accommodate the transition to voice over IP. If the networks are separate (two cables – option 1) then a port is needed for each new phone. If the networks are combined using VLANs (one cable – option 2) then an upgraded switch is usually needed. The only decision left is what size and whether or not you prefer power over Ethernet. The SIP phones used with Hosted PBX systems require power. This power can be provided by plugging a power supply into each phone or by deploying a power over Ethernet (PoE) switch. PoE switches are always more costly, but they do provide the convenience of not needing a power supply. This is especially important when there are not local power outlets available. Cloud9 can provide the switches and help you to make an informed decision regarding which one to purchase.

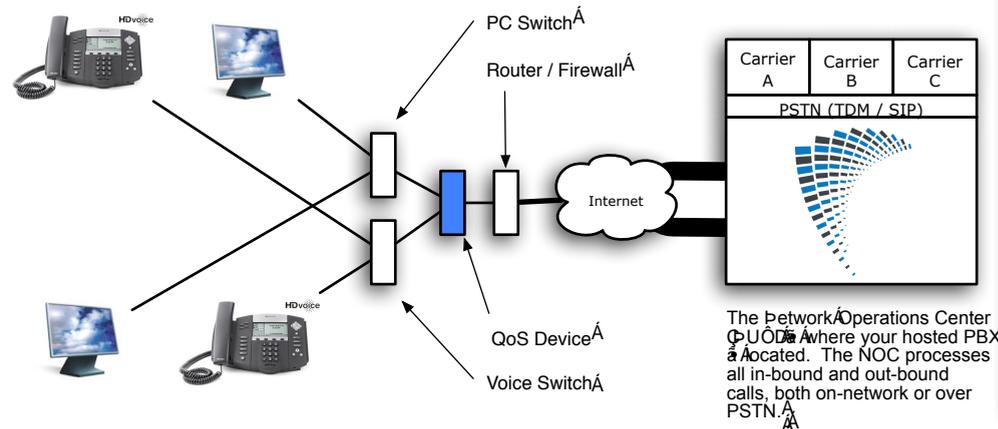
Sample Installation Options

For 7-ci X- Business VoIP Services



Sample Install 1 – 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

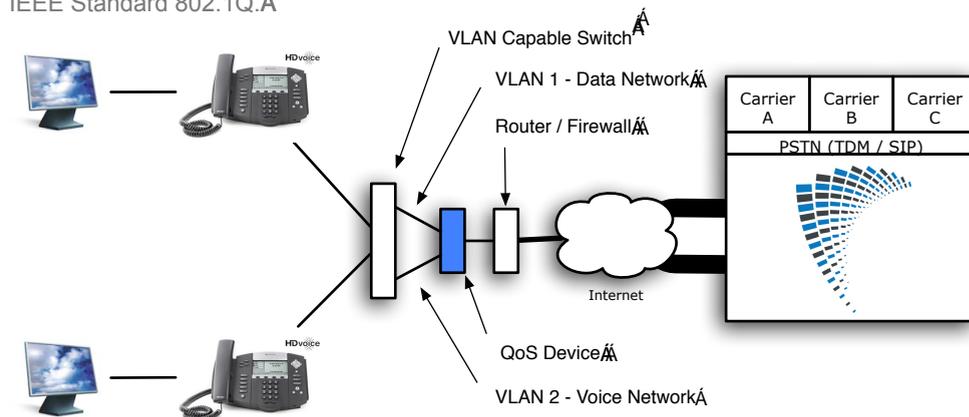
Note #1 – When planning your installation you must decide between Power over Ethernet (PoE) or traditional AC outlets. This choice will dictate type of switch and phone accessories.

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.

Note #3 – It is important that there are two separate switches, one for voice and one for data. Any mixing of the data and voice networks will likely result in voice quality issues.

Sample Install 2 – One (1) Ethernet Run / 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 – When planning your installation you must decide between Power over Ethernet (PoE) or traditional AC outlets. This choice will dictate type of switch and phone accessories.

Note #2 – This graphic shows two network connections between the switch and QoS device, however certain CoreDial QoS devices also support VLAN Trunks over a single connection.

Note #3 – There are a few edge cases where this installation model is inferior to physically separating the voice and data networks. With proper configuration users are certain to experience enterprise quality and reliability when segmenting the traffic using VLANs.

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