



VoIP Considerations ?

Originally the legacy PBX, or Private Branch Exchange, was at the heart of every business phone system. It was the central device that connected all internal phone extensions with all external phone lines/trunks, and allowed calls to be set up and transferred. PBXs were big, physical machines with limited functionality, had very expensive hardware, very expensive dedicated trunks and very high running costs.

Since the late 1990s, the PBX was gradually replaced by much more flexible voice servers offering many more features and integration with business computer systems. PBX manufacturers had to keep up with computer network companies as they compete for the voice business and customers were no longer locked into using one proprietary manufacturer.

By the late 1990s, many countries went through a phase of telecoms de-regulation, the protocol standards were also developing and forcing the manufacturers to support open standards and move away from the proprietary and often expensive protocols. The computer networking companies sold voice server products to integrate with their business network equipment.

By the 2000s many of the original PBX manufacturers had gone out of business or been bought by the computer network companies. With the development of the telecoms data networks and the Internet, several companies sprang up offering a hosted voice service - where the PBX/voice servers were housed in central data centers rather than on the company premises. This hosted voice service allowed very small companies that could not afford to have their own PBX/voice servers to get their dialtone from the hosted company.

Today, the three terms "hosted", "virtual" and "cloud" are used interchangeably. All providers need to be compared in great detail to understand what they offer and IF they actually offer a better or more cost effective service than having the PBX/voice servers on-site.

On-Site or Hosted PBX/Voice Service

Choosing a new voice system is daunting and complex. There are several competing technologies with overlapping and blurred distinctions between one another. As stated above, hosted, virtual and cloud are all used to describe a service that's hosted off-site by a third party. IT IS VERY IMPORTANT TO COMPARE THE FULL DETAILS regarding on-site versus hosted and how they change the functionality and costs for a particular business requirement.

	Off-site {hosted}	On-site
Costs	<p>A hosted service should have a lower initial cost, due to no costs involved with the purchase of the hardware.</p> <p>REMEMBER – the service is usually billed and will have a recurring monthly charge. Businesses should calculate the total cost of ownership, and consider that hosting prices could go up over time. Verify that there are no additional charges for implementation and integration with existing legacy voice systems. Additional costs may also be suffered for user training if there are new features and/or new telephone handsets etc.</p> <p>from \$20/usr/month</p>	<p>There is a wide range of options for on-site PBXs and voice servers. Some are proprietary and tied to expensive manufacturer contracts, some are open standards and are manufacturer-agnostic and reside on Linux servers and/or VM.</p> <p>ESSENTIAL to the success of on-site the voice systems is the presence of skilled VoIP support engineers during implementation - this must be costed + any costs for user and IT training for the new systems.</p> <p>from \$7/usr/month to more than \$60/usr/month for the most complex call center systems</p>
Maintenance	<p>Hosted voice software should be kept up to date by the hosting company. Configuration changes can often be made remotely, though a remote access GUI, but can be very limited. This can work very well for small businesses without dedicated IT staff, but can be frustrating and slow for larger businesses that require more moves, adds and changes during the normal working day. The hosting company should provide all of the updates and security checks and provide reports to the company.</p> <p>Watch out for re-sellers and</p>	<p>An on-site voice system could require a knowledgeable engineer or IT manager to make the moves, adds and changes and perform periodic maintenance and other updates.</p> <p>Often a company will support all of their own on-site first-line maintenance and will have remote support available for the more complex configuration changes. Some remote support companies offer full support including all system updates and security checks etc.</p> <p>On-site voice systems are</p>

	<p>middle-men that sell hosted services - it makes troubleshooting and maintenance very complex and slow + you are paying for the middle men.</p>	<p>always easier to troubleshoot with everything on-site. Training may be required to get the existing IT staff up to speed with the new voice systems.</p>
<p>Flexibility</p>	<p>This topic is a mine field of complex options vs costs – as some hosting companies see this as an opportunity to charge for each and every feature. The important thing here is that buyers ensure their hosting provider does meet the requirements at a known cost. There are no guarantees that providers will add new features that subscribers may want in the future.</p> <p>Features and reporting may not be a good match for the actual business requirements as you are usually stuck with the 'off the shelf' specifications from the hosted company.</p>	<p>There are few limitations with on-site voice systems. Some manufacturers charge license fees and feature license fees for every little thing – be sure to cost out the requirements if dealing with one of the big manufacturers {Cisco, Mitel, Avaya, Alcatel...} Open-standards systems do not charge for licensing and can be programmed and reconfigured at will without fees, as long as there's an employee or support consultant available who understands the system. On-site voice systems are always more flexible than those from a hosted system.</p>
<p>Security</p>	<p>With hosted voice systems, the hosting company should be responsible for keeping the system secure.</p> <p>Businesses still need to have their data connections secured and security audits performed.</p> <p>Hosting providers can usually make suggestions about how to do that and how to best configure firewalls so as not to interfere with voice traffic.</p>	<p>It is NOT essential to have the voice servers directly accessible from the Internet – if there is no requirement for enum and Internet inbound connectivity = then there will be fewer security worries.</p> <p>IF connected directly to the Internet, an unsecured voice system can become victim of denial of service and/or theft of services attacks. A properly configured firewall, SBC and security features on the voice servers can prevent these attacks. Security updates to software</p>

<p>Voice Trunks</p> <p>Hosted companies will provide the voice trunks either via dedicated link or over the Internet.</p> <p>IF using dedicated links – ensure they have provisioned enough bandwidth to handle the maximum concurrent channels required by the business {approx. 100kbps per voice channel}</p> <p>If using Internet make sure the QoS has been configured to ensure other Internet traffic does not destroy voice traffic.</p>	<p>has to be done by the on-site support staff or remote support companies.</p> <p>Existing PBX/voice systems and existing ISDN circuits can be integrate with new voice servers so that a company can make the most of the expensive legacy systems and migrate when suitable for the business.</p> <p>NEW VoIP trunks can be provisioned using dedicated links or via Internet provisions and will need bandwidth sizing and QoS provisioning to match the business requirements.</p>
<p>Telephone end-points</p> <p>With hosted voice systems, the hosting company will usually dictate the type of telephone that has to be used. Unless you are very lucky, any existing telephone handsets will not be supported.</p> <p>You can not usually integrate your existing legacy PBX/voice systems with the hosted provision, so it has to be decided how, when to make the big-bang approach switch over to the new hosted system and switch off the old legacy systems.</p> <p>REMEMBER to plan for emergency services via a LOCAL center and check for FAX, franking machine, conference room phones etc</p>	<p>IF using a proprietary voice manufacturer, you may be limited to using ONLY telephone handsets from that manufacturer.</p> <p>IF using an open-standards voice system, you can usually use any manufacturers telephone handsets, softphones, smart phones, tablets, webRTC etc.. provided you have the knowledgeable VoIP support staff to make the configuration changes. You can usually use your legacy telephone handsets on the new system and/or have the legacy system integrated to run simultaneously with the new system to allow migration if and when the business is ready.</p>



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Final Consideration

Many businesses switch to hosted voice systems for the simple reason that voice systems are not one of their core competencies and their IT department does not have any VoIP trained staff. They are willing to live with the limitations and pay the price to outsource the voice services.

However, if telephony and networking are central to what a business does (for example, a call center) or it has a VoIP skilled IT department, it is usually preferable {more cost effective and much more flexible} to keep the voice systems in house.

In Summary

HOSTED

Functions limited by provider
More complex troubleshooting
Off the shelf provisioned
Approx. \$22/usr/month
More complex MACs
Limited telephones supported
Limited integration

IN-HOUSE

Full control of features = flexible
In-house VoIP skills required
More complex provisioning
Ranges from \$7/usr/month
In-house easy MACs
Support for ANY telephones
Integrates with legacy systems
and CTI/CRM systems etc



EXAMPLE COSTING FOR ACME WDIGETS

Example small business with Mitel legacy system, 100 extensions using Mitel 5212 telephones, 20 concurrent external calls, 50 DID numbers using an ISDN service, voicemail, basic IVR/AA, no ACD, conference calling for 6 guests;

Existing Mitel system	is costing	\$ 31/usr/month
Cisco CME	replacement would cost	\$ 33/usr/month
Avaya IP Office	replacement would cost	\$ 45/usr/month
Cisco Call Manager 11.5 base	would cost	\$ 54/usr/month
Digium Switch VOX	would cost	\$ 29/usr/month
Hosted PBX in the cloud	would cost	\$ 22/usr/month
Asterisk on dedicated servers	would cost	\$ 16/usr/month
Asterisk on existing VM	would cost	\$ 8/usr/month
Sangoma/free PBX	would cost	\$ 7/usr/month

Recommendation would be to go to Asterisk IF they have VoIP trained IT staff OR obtain costing for VoIP/Asterisk training for the IT staff. IF no IT support staff then the hosted provision is worth obtaining more details.....

Example includes ISDN monthly on existing system, new SIP trunk provision and DID rentals, up front implementation charges spread over the year.

Call costs would also be reduced by moving from ISDN to SIP trunk where the ITSP billing can be as little as \$ 0.02 per min rounded to nearest 6 seconds -- depending upon country/area dialled