White Paper

Avoiding Technical Wrong Turns with VoIP

What to Discuss with Your Vendor Before Implementing VoIP in Your Contact Center

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Executive Summary

Industry analysts and vendors alike have been trumpeting the arrival of IP-based telephony using Voice over Internet Protocol (VoIP) and its benefits for quite some time now. Despite the hype, adoption rates have not met predictions. Gartner now expects most companies to begin a migration to IP-based telephony between 2003 and 2005, and also cautions that VoIP "remains an emerging, evolving technology, and the transition to it will come gradually…"

Putting aside predictions for the future and dealing with what contact centers need today, VoIP does offer certain benefits for the contact center environment. With that said, there are also a number of issues and concerns that might not make VoIP right for your contact center today. As a result, it is important for IT managers and directors to evaluate all issues connected with VoIP implementation in order to avoid wrong turns.

This paper will address the questions that are designed to help IT managers and directors determine if their organizations can easily achieve benefits from VoIP. We will discuss how to make your VoIP deployment a success, which first begins with determining if VoIP is a cost-effective solution for your enterprise, understanding what support your VoIP solution will need, and if VoIP will provide your enterprise with the applications it needs.

Is VoIP a Cost-Effective Solution for Your Enterprise?

Today, corporations are striving to differentiate themselves from the competition, and the successful organization is evolving to better serve its customers. For most corporations, the first point of contact with the customer is the contact center, and improving contact center operations is one way to provide improved customer service. However, it is a daunting challenge as companies wrestle with disparate technologies, information integration and increasing labor costs, which — if not managed successfully — can lead to operational inefficiencies, higher costs and customer dissatisfaction.

From a technology perspective, call center technologies — or Automatic Call Distributors (ACDs) — have, in the past, utilized traditional voice networks and circuit-switching architecture to distribute calls to the appropriate customer service representatives based on business rules established by the enterprise. Because the importance of a reliable voice connection cannot be overstated, circuit-switched technology, which is known for its high reliability, has remained primarily unchanged.

Recently, though, companies have begun exploring ways of carrying their voice traffic on their IP networks in order to reap the benefits of using a single converged network that can carry both voice and data. While a VoIP implementation does offer many advantages, it is important to first understand all of the cost issues related to VoIP before leaping into a new technology environment.

Higher Operational Costs

In general, most people believe a converged network using VoIP will reduce operational expenses such as system maintenance and the cost of doing adds, moves and changes. However, that is not always the case. In reality, system maintenance can be even more complicated — and therefore costly — for a converged network, versus supporting two separate voice and data networks. We will examine this in more detail below. Also, while vendors of IP phones have promoted their flexibility in being able to move and reconfigure phones without the need of technical support, some traditional ACD vendors have always had this capability, and therefore can realize the same benefits.

Additionally, if your organization's goal is to equip all agents with IP phones, you may face more than the cost of additional operating expense. As a contact center handling incoming customer calls, you may end up losing customers because of voice quality. Because the public has grown accustomed to the high performance from circuit-based switches, IP latency greater than one-fifth of a second is not acceptable. In addition, in situations where the path that a call follows along the network cannot be controlled, the public's expectation for immediate communication cannot always be met.

For instance, even when using a well-run and well-maintained network, a cell phone call traveling cross-country via satellite could have quite a delay. Many of these issues can be addressed by provisioning your network to handle quality-of-service (QoS). However, as we will discuss in more detail later, the problem is how to guarantee, or at least reasonably assure, that delay-sensitive voice traffic takes priority over largely delay-insensitive data traffic. The cost of QoS provisioning must be factored into the economic model for deploying VoIP.

VoIP Cost Advantages

Still, many companies have started IP-enabling their circuit-switched systems to gradually take advantage of VoIP benefits. One such solution is to use VoIP in order to link multiple sites, reducing the number of leased lines between sites. This configuration not only creates a single infrastructure that reduces bandwidth, but it also can significantly reduce connection charges between facilities.

Another way your enterprise might be able to cost-effectively deploy VoIP is for remote agents. If your organization wants to create a home — or remote — environment for your contact center agents, then VoIP may be a good communication solution. A major advantage of deploying VoIP for remote or home offices includes the ability for remote agents to use a single network connection for both voice and data. This ability eliminates any toll charges incurred when agents establish a switched circuit between their phone and the contact center for voice connection. However, any calls that the remote agents might make which are outside of the contact center's local calling area would incur toll charges, as all connections to the public switched network would be made at the contact center location. Although agents in remote office locations can work effectively in such an environment, the home agent also faces several challenges, including decreased voice quality and lack of access to reliable data lines. The quality of VoIP on a dedicated circuit with QoS provisioning can be satisfactory, but the quality of VoIP on the public Internet cannot be assured. Further, 56K dial-up lines are unreliable, access to high-speed data circuits such as DSL is not available in many areas, and it is not practical to install T1 circuits to a residence.

The bottom line is that in order to determine if VoIP is a cost-effective solution for your enterprise, you have to go beyond the hype and the promise, and thoroughly evaluate if the advantages outweigh the disadvantages for your environment and network configuration.

What Type of Support Will Your VoIP System Demand?

One of the biggest misconceptions that enterprises face when installing VoIP is the belief that your technical staff will understand both voice and data systems. Unfortunately, however, voice and data maintenance require different skill sets. As a result, you may need to expand your technical support staff once VoIP is implemented to bring on the people skilled in working on a converged voice-data network.

VoIP Vendors Must Understand Telephony and Data

Your VoIP vendor must have complete understanding of telephony as well as data. The following considerations are of vital importance to discuss with your vendor before implementing VoIP in your contact center.

- Deployment issues arise when ensuring acceptable latency, especially for voice traffic.
- Provisioning capacity on converged links is still a problem that needs to be solved.
- Based on your organization's environment, there are advantages and disadvantages to pure IP systems and IP-enabled systems.

Once you have decided how to staff your internal technical team, your next assignment will be to find the best vendor to handle your VoIP implementation. Of critical importance is finding a vendor that has a solid grasp of telephony as well as data. Because there are deployment issues on the data side, the vendor you select must understand that voice and data fight one another, and that while bandwidth is important, it does not guarantee acceptable latency, which is an issue with voice.

In addition, the vendor should recognize that there are no "pure-voice" models created for a converged network that are comparable to the ones that exist for the voice-only environment. It has been known for a long time that Internet data traffic behaves differently than voice traffic, but no one has yet come up with a way to predict how a mix of the two traffic types on the same link will behave. Without such a formula, service providers and enterprises do not have a good model for provisioning capacity on converged links, and as voice enters the IP world, data experts will now be solving many of the same problems that voice experts solved years ago.

Along with deployment challenges, your chosen vendor should understand how to handle quality-of-service issues. Not only must the network be of voice quality, which is difficult to achieve, there are also bandwidth concerns. Undeniably, VoIP works well if you provide more than ample bandwidth for the IP traffic across dedicated, leased lines. However, this defeats the whole point of using VoIP technology. VoIP only makes economic sense when it is combined with data services across a converged network. So the problem is how to guarantee, or at least reasonably assure, that delay-sensitive voice traffic takes priority over largely delay-insensitive data traffic.

Your vendor partner should also be able to advise you on the advantages and disadvantages between a pure IP and IP-enabled system. If your company's existing environment is such that most devices, such as phones and network connections, are already in use without circuit-switched ports, then a pure IP solution makes more sense. However, if your environment is predominantly circuit-switched, then an IP-enabled solution is your better option. In addition, the IP-enabled solution has the ability to directly connect either IP devices or circuit-switch devices without going through the IP-switching mechanism.

Other Support Considerations

In addition to technical staffing and choosing a vendor, you will need to decide how to power your IP phones, as IP phones operate differently from other phones in this respect. Digital and analog phones are powered from the ACD or PBX, but IP phones are not necessarily powered from the network connection. In most instances, IP phones must be powered from a local power supply that must be connected directly to a power outlet. This alone can make installation more challenging. Alternatively, the power can be provisioned centrally at the switching hub and delivered to the phone via the network connection. This means that every network port is powered, which is expensive and a waste of power, as all other network devices, such as computers, have their own local power source.

The final support issue that you might face is how to link IP phones with other special services, like Emergency 911 call tracking and the telecommunications device for the deaf (TDD). For instance, if an emergency call is made from a remote IP phone, emergency personnel could inaccurately trace where the call originated back to the main office, which might not be where the phone is located. If this were to occur, emergency personnel could dispatch a response team to the wrong address. In addition, TDD may be unable to work in a VoIP environment because tones are often broken up into packetized data and may not be deciphered.

When considering the type of support that your VoIP solution will require, you will factor in the specifics of your business, along with the abilities of both your technical staff and your chosen vendor. At the crux of your technology choice, however, is ensuring that you can successfully use VoIP to enable the software applications that help your contact center to succeed.

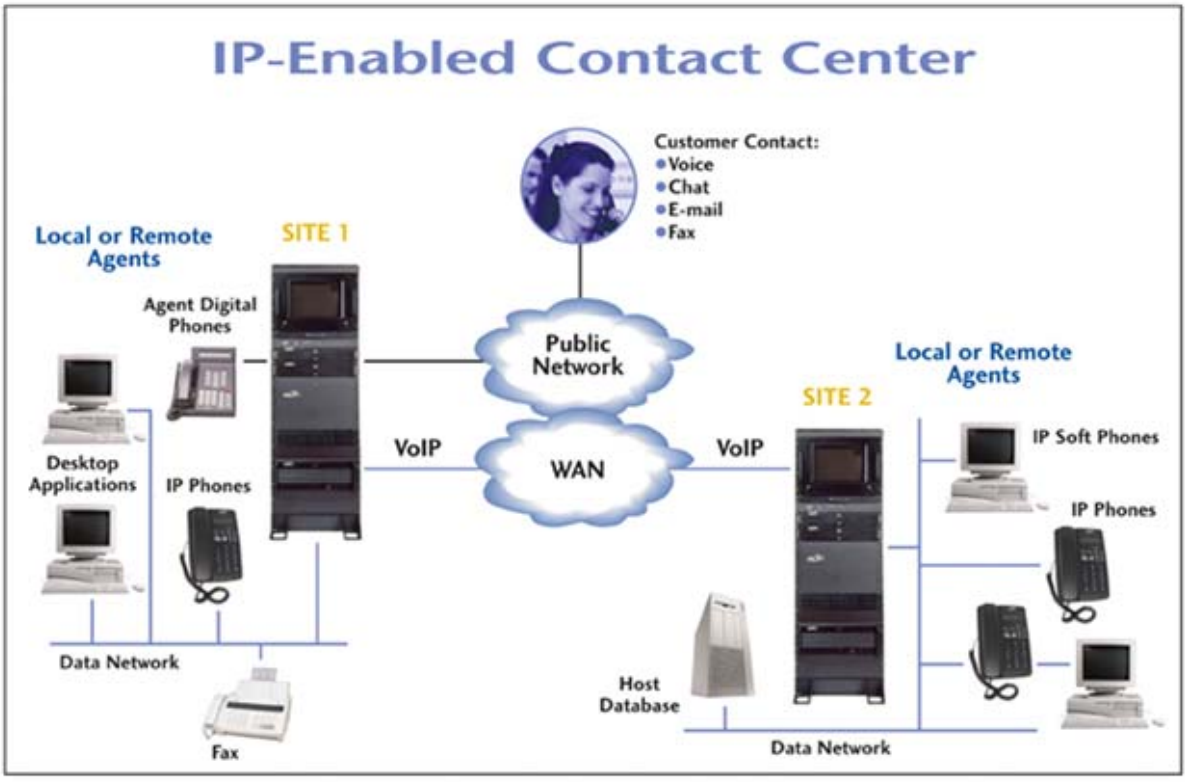
Will a VoIP Solution Give Your Enterprise Access to Every Application Needed?

A key point to remember is that your hardware alternative is not what should drive your decision to replace your current infrastructure. As you see every day, vendors are developing hardware that will run any application your company requires. Therefore, it is important for you to remember that applications — like skills-based routing of all contacts, interactive voice response, voice mail and call recording — are still the primary drivers that should compel your decision to upgrade your technology.

After evaluating all the benefits and issues that VoIP carries with it, the fact that you are changing software still remains at the crux of your decision. And, deciding what software is important to your company is what should drive your technology decisions. Once you have decided which software to implement, it is then time to decide how to best take advantage of VoIP technologies.

The difference between a pure IP environment and an IP-enabled solution basically comes down to a hardware component. In a pure IP environment, all circuit-switched voice interactions are packetized and switched by the IP technology. In the IP-enabled environment, voice calls are only packetized when being routed to an IP device. Because of this, a pure IP solution will incur a cost and performance penalty when there is a substantial amount of circuit-switched traffic. On the other hand, the IP-enabled infrastructure requires a central switching fabric that incurs an up-front capital cost regardless of the amount of circuit-switched traffic that you support. As we discussed earlier, a pure IP solution is justifiable only if you have limited circuit-switched traffic.

However, the hardware differentiator is becoming less and less significant because it does not carry the feature capability. Today's switching solutions — both pure IP and IP-enabled — run on open platforms, and therefore, either environment allows for easy deployment of feature capabilities.



With the future of VoIP in the contact center still uncertain, what is the best solution to choose? Because circuit-switched traffic is still in use, it does not make sense to change to a pure IP environment until the entire network — your network and others — has transitioned to IP, which may be five to ten years down the road. Until that transformation occurs, companies will still have the need to receive calls from the outside world, and to accomplish this, IP-enabled solutions are the better choice.

Conclusion

In the coming years, demand for converged networks with VoIP will be increasing. But because VoIP deployments are still being perfected, we believe — like Gartner Group — that the transition to IP will come gradually. Therefore, deploying an IP-enabled solution may be the best alternative because it allows you to deploy IP technology as you need it, and only where it is a fit for your business. Remembering that circuit-switch technology will not fade away during this decade, be sure to take this into consideration as you make your buying decision.

To avoid technical wrong turns when implementing VoIP in your contact center, you should fully understand the advantages and disadvantages of deploying VoIP in your enterprise, as well as the type of support you will need. Most importantly, you should ensure that your technology deployment plan will give your company all of the applications support needed to meet your business goals.

Are you ready for the future? Where does your company stand on the idea of deploying VoIP? Once you understand why you want VoIP, its deployment challenges, and that applications — not hardware — should ultimately drive your technology decision, then you are ready to talk to a contact center solutions provider about the technology options available to your company.

Contact eOn Communications

If you are interested in learning about how you can meet the needs of your contact center today and into the future by implementing the eOn eQueue® Multi-Media Contact Center Solution, contact us at 800-955-5321, or visit www.eoncommunications.com.

eOn eQueue Multi-Media Contact Center Solution

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- **Comprehensive Applications including E-mail and Web Chat:** Applications include, e-mail and Web chat with comprehensive knowledge database, integrated voice response, voice mail with unified messaging, fax messaging, quality assurance recording, workforce management, complete telephony capability and a complete range of desktop devices and applications.
- **Modular and Scaleable:** The eQueue provides the flexibility to add, combine and customize important features and functions to meet the individual needs of a contact center today and well into the future. The eQueue is compatible with most third party systems, allowing companies the ability to integrate other applications. For contact centers with as few as ten agents to those with thousands of agents, the eQueue provides the functionality required.
- **Proven and Reliable Platform:** Bridging the gap from traditional call centers to new web-enabled contact centers by applying years of experience in designing robust solutions for the demanding requirements of multi-media contact centers.
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