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# VoIP Buyers' Guide: Key Issues

a White Paper from Better Buys for Business



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**In these days** of rising telecom costs and shrinking budgets, companies everywhere are looking for ways to trim their telephone bills and enhance employees' productivity. One tool many businesses are turning to: Voice over Internet Protocol, often abbreviated as "VoIP" and also known as Internet telephony and voice over broadband.

**So what is VoIP?** Put simply, VoIP allows phone calls to be transferred over the Internet, rather than the traditional phone network that handles most calls today.

In other words, when VoIP is used, the users' phone calls aren't traveling through dedicated telephone lines, but rather, the callers' voices are converted to digital data and sent back and forth through the Internet.

Possibly the most well-known example of a VoIP service is Skype, a service that lets computer users make free calls to each other online. There are also for-pay options that let Skype users make and receive calls to and from traditional telephones.

The Skype example can also be misleading, however. A common misconception is that Internet-based telephone service requires users to make calls with their computers. On the contrary, as far as the end users are concerned, making calls using VoIP is not that much different from using a traditional analog phone. In many cases, calls are made and received with a device that looks like a traditional phone. Phone numbers for VoIP devices can look exactly like regular phone numbers. A VoIP phone can call a traditional phone, and vice versa.

## What equipment do companies need?

**One of the** most common ways of making VoIP calls is by plugging a standard analog phone into an ATA (analog telephone adapter). The ATA connects to a router through an Ethernet cable and converts voice signals into digital data for transmission over the Internet (and converts digital data from the other caller back into a voice signal).

The other common method of using VoIP is with a device known as an IP phone. IP phones look more or less like standard telephones, but instead of being plugged into phone jacks, they connect directly to a router via an Ethernet cable.

Since these devices are specifically designed for use with VoIP systems, they often offer greater functionality than can be found when using analog phones plugged into an ATA.

Common IP phone features include a display for caller ID, a locally stored or network-hosted directory and specialized function keys.

Another option is using the computer to make calls with specialized software. These so-called “soft phones” come in two flavors.

You can use a networked desktop PC as a phone, using a headset connected to the PC’s sound card and software controls that are on the screen. A typical example of this is Skype, as mentioned above.

The alternative is a USB phone, connected by a USB interface to the PC, that looks and feels like a familiar handset.

One big advantage of soft phones is their portability. Employees who travel, for example, can have immediate access to their calls, phone directories and other information, as long as they have their laptop and, if applicable, USB phone with them.

## Why are companies turning to VoIP?

**While VoIP has** been around since the mid-1990s, it’s only in the past few years that the concept has started to rapidly catch on. More and more businesses are turning to VoIP due to increasing pressure to cut telecom costs and enhance productivity and communication among an increasingly mobile workforce.

And it isn’t just big corporations that are getting their feet wet with VoIP. In a recent survey by ISP Star, 41% of businesses with 100 or fewer employees reported they’re using VoIP in some capacity now. In addition, 20% said they’re looking at deploying VoIP systems within the next year.

Why are businesses turning to VoIP systems? Cost is the main driver. The savings can be substantial, especially when it comes to long-distance calls and calls between employees in different offices.

When phone calls are transferred over the Internet, the physical location of the phones becomes a non-factor. Therefore, using VoIP can eliminate or greatly reduce long-distance charges for businesses.

For companies with multiple locations, those different offices are often already connected through a Local Area Network (LAN) or a Wide Area Network (WAN). Those internal networks can be used for making VoIP calls, eliminating per-minute charges for calls made between employees in different locations.

Also, since physical location doesn’t matter, phone numbers in different locations can be grouped together as if the phones were located in the same building. In other words, an employee in New York could call an employee in Los Angeles simply by dialing the person’s extension. And customers could reach employees in both locations by dialing the same main number and using the proper extension.

In addition to lower costs for making calls, other advantages of VoIP systems include:

## **1. Flexibility**

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One common complaint about traditional PBX systems is the cost and difficulty involved with adding lines, moving employees' desks to a different part of the office and other system configurations – also known as the Move, Add, Change (MAC) process. With those traditional systems, businesses have to call the supplier, wait for a technician and pay a fee to have the change made through physical rewiring.

But with VoIP, the phone system is configurable by in-house staff through a software application. Adding a line is simple (provided the right hardware is available) and employees can move their handsets to different locations, and their extensions will follow them.

## **2. Mobility**

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These days, employees are doing less and less of their work in the actual office. More work is being done in employees' homes, in remote branch offices, or over cellular networks while people travel. VoIP systems allow employees to make and receive calls with their office phones no matter where they are, as long as they have an Internet connection.

This mobility is commonly achieved by the use of the aforementioned soft phones, which are especially suited for employees who use an office computer while traveling or working from home. In addition, many VoIP systems have call routing features that let employees have calls to their work numbers automatically routed to their cell or home phones, depending on where they are.

## **3. Unified communications**

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Putting voice data on the same network as email, instant messaging, video conferencing and other communication tools gives companies a variety of ways to boost productivity.

For example, many systems let users receive their voicemails as emails with sound file attachments, allowing them to get all their messages from the same place.

Employees can also access one unified contact list of their co-workers that displays all the possible ways of getting a hold of them. Users can also set their status information to indicate which method of contact is most convenient at that given time, making it easier for co-workers to communicate.

## **4. Advanced features**

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With analog phones, advanced calling features like caller ID, call waiting, etc., are often hardware-based, so upgrading to a phone with more or better features can be expensive. But

with VoIP, these features can be run as software applications on the company's server, making upgrades much simpler.

Therefore, many features that would be expensive with traditional phone systems come standard in VoIP systems, and there are few limits to what new software-based features can be developed.

## 5. Integration with software

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VoIP systems can also enhance productivity by integrating with other software applications the business uses.

For example, many companies use VoIP in conjunction with CRM (customer relationship management) software to provide features for customers such as “click to call” service, which allows people to call customer service simply by clicking a button on the company's website.

Since VoIP calls are made over the network, companies can also use call logging applications to keep better track of phone calls to further enhance the productivity of the call center. Many software providers are coming up with other productivity-related software along with custom telephony solutions for VoIP systems.

## The VoIP marketplace

**While switching to** VoIP has many advantages for companies, some systems are better than others. Sorting through all the providers that offer VoIP services can be a huge challenge.

VoIP business services and equipment are being sold by a large number of companies. Unlike cell phones or cable TV, for example, this is a market that is still wide open and highly competitive. The good news is that there are plenty of eager suppliers and prices have come down even as features have expanded; the bad news is that comparing claims and costs is very difficult.

Furthermore, it is a tiered market. There are big national companies like Avaya, Cisco, Siemens, Microsoft and others that sell equipment as well as services directly, mostly to larger corporations. There are also the big phone and cable TV companies (AT&T, Verizon, Comcast and so on). Then there are over a hundred smaller service providers who normally use equipment and networks from the big players to build VoIP solutions geared toward small to midsize businesses. Add to the mix a large number of specialist companies that make niche software and hardware products, and you've got a wealth of potential vendors.

## Getting the right deal

**We'll assume that** you have already done the basic research. For those companies that already have a VoIP system and are looking to migrate, you know what you're looking for in a new vendor. For those who are planning to replace a traditional phone service, we assume you have a pretty good idea of the advantages that VoIP will give your business, and that you have started looking for bids and estimates from a variety of service providers.

So you pull in a few (local) service providers to hear their spiels. The companies bidding for your service will have polished presentations and competitive bids. They are all more than willing to show you the genuine advantages of their services and both the savings and the expanded opportunities that are certain to boost your company's profits.

But based on what we have heard from managers that have looked back on their VoIP buying decisions, there are a few issues that the sales presentations won't tell you about and which are likely to become real problems only after you have signed a contract. There are a few areas that you might want to resolve and possibly budget for before you sign on the dotted line.

These are the "gotchas" that some of the buyers we talked to wish they had planned for in advance:

### 1. Is your network ready?

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Your in-house Local Area Network (LAN) and possibly your Wide Area Network (WAN) – if your company has one – is going to take on a major new burden with VoIP. This is a hidden cost of adopting VoIP that can be difficult to plan for.

It is strongly recommended that you perform a call traffic study before the installation. This can be done internally (if your IT department has the time and the expertise) or – more likely – through an external consultant (who should have the experience and equipment to do an efficient job). In almost all cases, the vendor you settle on should supply this service as part of the basic contract.

If you don't currently have a VoIP system, a thorough job means analyzing your analog phone volume as well as your current Internet data traffic.

Traffic analysis will help you determine the amount of bandwidth you need in your networks and routers in order to handle data traffic and voice calls. The process involves measuring the number of messages transmitted and the volume of data sends, both internally and externally. In addition, the amount of time taken to process each message is recorded along with the number of failed transmissions.

It's important to conduct this analysis during the busiest business hours, when the majority of traffic is generated.

If you already have a VoIP system installed and are unhappy with the quality of the service,

you want to measure the bandwidth on your network being taken by in-network calls and keep track of such factors as availability, calling rates, latency and jitter.

The problem with too little bandwidth is that an overwhelmed router, for example, will start discarding data packets. The sender has to resend the same data, causing a small delay that can make your voice sound jittery. In the worst case, that situation can simply cut off an ongoing call.

If you are planning on installing a VoIP system for the first time, then your networks are now handling standard data traffic. You need to have an idea of how much more traffic overhead will be added.

If the conclusion is that your network needs more horsepower, one further issue is whether you want to have a dedicated parallel network infrastructure that services your VoIP needs – a very expensive option – or whether you require higher-capacity replacements for network components, including higher-capacity cabling and upgraded routers.

If your network, whether local or wide area, is totally up to date, with the latest cabling, routers, and servers, you can get away with a few adjustments to optimize VoIP systems, primarily by giving VoIP traffic precedence over data traffic.

In the real world, most companies have a network setup that has gradually evolved, with a mix of older and newer equipment. In this way, digital telephony may expose problems that are not apparent in day-to-day data transmission. After all, waiting a few milliseconds for email to arrive or for a file to open is imperceptible; that same interval might cause annoying distractions in a phone call.

Some companies take the introduction or upgrading of VoIP services as a time to also analyze and upgrade internal networks as well. In any case, you should plan on the cost and time involved in making otherwise postponed network updates.

One other point: you should establish clearly who is responsible for the monitoring of traffic after the VoIP system is installed. It make sense that the service provider, who should be very responsive to quality of service issues and who should have the expertise and equipment, take the lead in regularly measuring network performance and recommending specific upgrades to your network.

## **2. What is the quality of VoIP service offered?**

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Quality of service for a VoIP system can fall into two categories. First, there is the problem of dropped and low-quality voice calls, a problem that is usually internal and related to the traffic issues discussed above. Second is the reliability of the service provider, a problem external to your company.

For most businesses, full availability of phone service is essential, especially during working hours. Even an hour's downtime can cause major losses in productivity and decreases in sales. For companies that do a significant part of their business over the phone, any disruption, even for a few minutes, is a disaster. And many potential VoIP customers fall into that area.

Specifying a service level agreement (SLA) is a critical step in the negotiations.

The integrity of VoIP systems can vary greatly, depending on the technical skills, the redundancy of the equipment, and the bandwidth of the service provider's backbone connections with the Internet and with the client. Perhaps even more important is the sharpness with which the lines and traffic are monitored, and the urgency with which problems are fixed or re-routed.

Because of that variance you should get an idea of the actual track record of the VoIP provider. The only way to get that is through references from companies that have had the services of the provider in question for the last 2-4 years. If the service provider won't release the names of any references (or is too new to have any), then you should consider shopping elsewhere.

Of course, you won't be put in contact with anyone but the most contented customers, but talking to the person in charge at several companies will give you a good sense of how well the service provider can keep its best clients happy.

The references should be able to tell you how much downtime they've had over the period and how quickly interruptions were handled. A loss of service that was just a minor annoyance to one company might be a disaster for another.

Because of the critical nature of phone availability, the SLA is possibly the most important part of your contract with the service provider. All too often the SLA is an afterthought, and once the contract is signed, you won't have any leverage for renegotiating service expectations.

The ideal SLA would include real penalties for downtime, especially during business hours. Most service providers will try to offer you downtime compensation in terms of waiving fees. That is not enough. You should be able to negotiate a dollar figure penalty that at least partly covers the costs of opportunity lost due to downtime. Make sure you negotiate explicitly what a failure of service consists in and how its occurrence, beginning, and ending are recorded. By the way, up times of 98% and above are pretty standard. But even that is not enough. The loss a minute here or there during the work week or time between midnight and 3 a.m. are not in the same category as an hour shutdown during the business day.

Negotiating a good SLA is not an easy job, and your service provider, which has a lot of experience doing this, has a large advantage. In many cases you will be offered an SLA tied to an industry complex norm called Mean Opinion Score (MOS), which is made up of a combination of measures such as dial tone wait time and the rate of completed calls. Still, coming to the table with a clear idea of what your requirements are and starting the negotiation from a clearly defined position is far better than agreeing to whatever the vendor proposes.

### **3. What are the hidden cost issues?**

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Some VoIP companies offer low basic costs but add hidden fees to monthly bills. Extraordinarily low costs can be a signal that service will be inferior. But even when the

services are adequate, some VoIP systems are set up to nickel-and-dime you with unexpected costs that can end up seriously inflating your monthly bills.

These include unmentioned taxes and tariffs, along with added service and training fees once the system is deployed. All this should be negotiated in advance of signing a contract with explicit guarantees against unstated add-on fees. Make sure that prices for all foreseeable fee requirements are spelled out. For example, if you plan to add cell phone connectivity to the system, but don't plan on it as a first-stage objective, make sure you settle on the price in advance when you still have negotiating muscle.

Some other issues to negotiate:

Long-distance calls overseas can end up being very expensive and vary greatly among plans. If your company requires a serious amount of international calling, you might need to check this out in advance.

Beware of year-over-year price rises, VoIP service providers sometimes offer lowered initial year fees then jack up the prices to the customers who have already made the deal, or who are reluctant to change a system after all the effort of rolling it out. This is a good reason to get a multiyear contract, with the ability to back out if service benchmarks are not met.

## **4. How much technical support do you need?**

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One of the areas where VoIP manufacturers vary most is in terms of tech support. In a small part, this is the availability of tech support for your end users. But more crucial is support for the people in your company charged with maintaining phone service.

One key issue is whether your current IT staff can handle both the installation of the system and the day-to-day maintenance of the system without requiring major shutdowns or a lot of off-hour work. Some experts suggest that you designate one person with technical savvy to oversee the project. That person will certainly require a deeper level of training than anyone else in the company. What does the service provider offer as part of the package?

So the question arises, how much IT expertise and hand-holding is offered by the service provider as part of the contract? Is it a limited number of hours? How expert is their support group? What kind of expertise is available on off hours?

Another issue is the issue of initial setup. What are the responsibilities of the vendor, and what are the responsibilities of your staff? How much help does your vendor give in installing and testing what goes on within your walls? To manage the situation, do you have to hire outside contractors at your company's expense, or is it something your own staff can (and has time to) do? Both can be costly options.

Also important is the ease of performing the routine adding, deleting, and transferring of phone accounts. This is a major advantage over traditional PBX systems, where switching or moving extensions could be a complex and costly process, so it should be something that even a non-technical person, such as an administrative assistant, can do.

## 5. How do I train employees to take advantage of the system?

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So you get this flexible, multifaceted VoIP system working, but there's still one thing missing – do your company's employees know how to take advantage of the features? That's not a trivial issue – if they are going to use the VoIP phone system in the same way as they do an analog phone, you are missing out on one of the key reasons you changed over in the first place.

One area you might pursue in the evaluation process before signing with a provider is taking a close look at the user interface offered by the bidding service providers. There are no industry standards, and the interface varies widely from vendor to vendor.

The interfaces might include three factors: the phone hardware offered, the software run on the phone (most soft phones have display panels and a bunch of function buttons), and the PC interface (which may be used for videoconferencing, or for integration with other software such as customer or sales management software).

You might think that in the age of iPhones and BlackBerrys that system designers would have seen enough examples of an intuitive phone interface to develop a system that requires little training and provides easily available help. But that's not always the case.

A weak interface means that many users won't try to use any of the added features, or they will make added demands on your IT or training staff. No one needs training on how to use an iPhone. So why are many soft phones, with far fewer functions than a smartphone, often so hard to figure out?

And while we are convinced that no one outside the IT staff actually reads printed documentation any more, it might be a good idea to take a look at what the service provider offers in that area as well.

There are also serious issues with end user training. Gathering the whole staff into a room and running over the system feature-by-feature just won't work. Most users will just try to figure out how to do what they already have done in the old system.

You're probably going to have to train small groups or individuals to ensure that they can set up and use the advanced features that have an impact on their jobs. It's unlikely that the service provider is going to offer more than a little end-user training (unless you want to add extra cash to pay the trainers), so someone on your staff will have to spend time doing this, whether from IT or from administration.

Furthermore, as new employees come in, as people change jobs or as previously unused features become relevant, you're going to have to retrain. For example, most users may not see any immediate advantage of switching calls from their desktop to their cell phone. But once that employee has a need to be on the road for work, that feature will become critical.

But no matter what the initial training, that user is going to need some support and help in using the feature. Even more common will be people who use some features once a year and will likely have forgotten how to set up and use them when the next year comes around.

Experts stress that the training probably will have to be managed by a support person who should not just run over the features, but should also be prepared to talk about how those features can improve productivity and make life easier.

All this costs money and time, possibly from an IT person, whose time is valuable. One suggestion some experts make is that you hire a trainer with good personal and technical skills who understands the VoIP system to provide training for the initial weeks of set-up and deployment.

For this reason, software that provides good interactive phone training that is available on the desktop and for a mobile device will become critical. Unfortunately, it is an afterthought with most vendors.

## Conclusion

**The bottom line** for businesses: VoIP systems can bring significant benefits in the form of cost savings and productivity boosts for employees.

But making the switch is also a significant undertaking, and it's worth putting in the effort to properly test networks and evaluate providers so that the full advantages of VoIP can be realized.