



VoIP SUCCESS  
DRIVERS FOR  
SMALL BUSINESS

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## OVERVIEW

Voice over Internet Protocol (VoIP) has made significant inroads into the business telecommunications market. As legacy phone equipment continues to drift toward obsolescence, VoIP offers unprecedented cost-savings, flexibility and integrated features.

According to Forrester Research, 63% of North American enterprises plan to increase spending on IP telephony and VoIP services in 2007, while only 22% intend to increase spending on legacy technology. This demonstrates a continued uptake in adoption from 2006, when 52% of enterprises planned to increase spending on VoIP.<sup>1</sup>

In the small to medium-sized business (SMB) market, adoption has proceeded at a slower pace. Forrester found that 34% of SMBs plan to increase spending on VoIP technologies in 2007. Smaller businesses reported the slowest adoption rates: 29% of small businesses (6-99 employees) planned to increase year-over-year IP technology spending, compared to 43% of the medium-to-large SMBs (500-999).<sup>2</sup>

SMBs are interested in VoIP's many benefits, especially the cost-savings, but they face a knowledge barrier. Although IP telephony can ultimately simplify IT management, billing, customer communications and more, it is not an "out of the box" business solution. With limited IT resources, SMBs often need education in order to make an informed VoIP choice.

There has also been a slow process of differentiation among major small business VoIP brands. In fact, experts say that the limited availability of simplified and comprehensive solutions is a primary reason why small businesses have not adopted VoIP as quickly as enterprises. Though SMBs are typically technology optimists and early adopters, they rarely have the time or in-house IT expertise to piece together a VoIP solution from multiple providers.<sup>3</sup>

Businesses are most likely to consider a VoIP solution if one or more of the following conditions apply:

- » New business
- » Moving or opening new branch location
- » Existing system failing
- » Existing system unable to support growth
- » Need to control long distance spending
- » Need to support mobile and remote workers
- » Interest in distributed workforce models

The challenges of making an informed VoIP decision and implementing it successfully fall into three categories:

- » **Cost Factors.** In the business VoIP world, there is no such thing as one size fits all. Buyers must be able to interpret a constellation of factors to assure a quality solution at the right price point. These factors include rate plans, long distance billing options, broadband infrastructure, and equipment choice.
- » **Reliability & Call Quality.** To avoid reliability or call quality issues with VoIP, small businesses need a voice-optimized carrier network, end-to-end quality of service management, and adequate SLA guarantees.

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<sup>1</sup> Pierce, Lisa. *The State of North American Business Customer Adoption of IP Telephony and VoIP in 2007*. Forrester Research, July 18, 2007.

<sup>2</sup> Ibid.

<sup>3</sup> McGillicuddy, Shamus. *VoIP too big a 'pain' for small businesses*. SearchSMB.com, November 28, 2006.

- » **Features & Support.** Advanced IP features can enhance productivity, support virtual workers, and boost customer satisfaction—but not if employees don't understand or use them. Caliber of customer support and training should be evaluated carefully when choosing a VoIP provider.

Throughout these categories, businesses face the question of **hosted** versus **premise-based**. With a premise-based solution, IP-PBX equipment is installed and maintained at each business location. With a hosted or managed VoIP service, phone system functionality is hosted by the provider and accessible from any business location. Multiple offices and individual remote workers can be joined in a single phone system.

Although a premise-based solution may be ideal for a larger business with static workers, hosted solutions make much more sense for the small business. Rather than using expensive IP-PBX equipment on the premises, phone service functionality and maintenance are outsourced to the VoIP provider. That means lower start-up costs, no maintenance, greater administrative flexibility, and unique capabilities for mobile and remote workers. Compared with enterprises, two to three times as many SMBs are "very interested" in managed VoIP services as opposed to premise-based solutions.<sup>4</sup>

In order to realize the benefits of outsourced phone service, small businesses must be able to confidently entrust one of their most mission-critical systems to a hosted VoIP provider. Understanding the key drivers of VoIP success will help SMB buyers and their advisors make a discerning provider choice and collaborate on a successful implementation.

## **COST FACTORS**

The promise of cost savings has always been a top motivator for VoIP adoption. The short and long-term cost benefits of VoIP are even more relevant to small businesses because they typically devote a larger percentage of their resources to phone service. Most small businesses have moderate long-distance needs, primarily intrastate calling, but they often pay comparatively high rates with traditional phone service because they lack the buying power for volume discount plans.

VoIP can significantly reduce long distance spending with low calling rates and purchase options that have not previously been accessible to small businesses. Plus, when VoIP is implemented at each location of a multi-site business, all calls between locations are considered "on-net" and can be made free of charge. For businesses that operate regionally or nationwide, interoffice calls often comprise a significant subset, even a majority, of long-distance calls.

With hosted VoIP, small businesses can also lower start-up costs. Equipment investment is limited to phones and perhaps voice gateway equipment or a specialized router. The need for an on-site maintenance contract is eliminated. Additional savings are realized by combining voice and data on one network.

To choose the most cost-effective phone system for their needs, businesses must consider multiple factors, including rate plans, long distance billing, broadband infrastructure, connectivity, and equipment. Ideally, a single provider can deliver on all these elements and offer responsive customer support for implementation and training.

### **Rate Plans & Long Distance Billing**

Hosted VoIP pricing typically begins with a flat monthly rate per employee for basic service and features. Across the VoIP industry per-employee rate plans increasingly include a full spectrum of VoIP features offered by a given VoIP

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<sup>4</sup> Pierce, Lisa. *2006 North American SMB Adoption of VoIP*. Forrester Research, September 5, 2006.

provider. However, some providers continue to offer tiered pricing, limiting the feature set available to users on lower-priced seats. In this case it is important to consider the productivity and mobility advantages of specific features. Higher tier seats may be worth the money if they help an employee work more effectively.

The per-employee rate plan may or may not include long-distance calling. Buyers have three basic long-distance billing options:

Long Distance (LD) Option	Description	SMB Needs
Metered	Pay per call	Little to no LD calling
Unlimited	Nationwide and/or international calling included in per-employee rate plan	Heavy LD users
Volume minutes	Purchase LD minutes in bulk at a discount price and share companywide	Predictable LD needs, ability to control LD costs across employees

### Broadband Infrastructure

Adequate and reliable broadband connectivity is a necessary foundation for VoIP success. Moreover, only a single provider for both VoIP and data can implement end-to-end Quality of Service (QoS). (See page 6 for more information about Quality of Service and the importance of a voice-optimized ISP network.)

When determining connectivity capacity for VoIP, the rule of thumb is four phones per concurrent call. If connectivity supports 12 concurrent calls, it should support 48 employee phones. Businesses with heavy phone use across the company, such as call centers, may need more capacity to accommodate higher concurrent call volumes.

Each VoIP call requires roughly 85-100k up and down. With an asymmetrical circuit, such as ADSL, capacity is limited by upload speed. A 6.0/768 DSL line would theoretically support seven concurrent VoIP calls, while a 1.5/1.5 T1 would theoretically support up to fifteen calls. In reality, capacity is lower because 10-20% of bandwidth is reserved for overhead and unavailable for voice or data transmission. The aforementioned ADSL line would realistically support only 5 or 6 concurrent calls. Overburdening a circuit can create quality issues or cause all calls to disconnect.

### Equipment

Hosted VoIP eliminates the need for on-site IP-PBX equipment, thus eliminating the need for on-site maintenance. Businesses are only required to purchase phones and, with some providers, voice gateway equipment or a specialized router.

#### Phones

Users rely on their phones every day and may not have any other connection to the phone system. Therefore, phone choice has a profound influence on employee adoption and overall satisfaction with VoIP. Most providers sell and support a range of phones. In addition to cost and the subjective consideration of physical appearance, the following factors may influence phone choice:

- » *Ease of use.* Soft menus can vary widely between intuitive to obtuse. Dedicated buttons for common functions – such as call transfer, conference, and hold – make it easier for anyone to pick up and use a phone. Backlit displays make a noticeable difference in readability, particularly in lowlight environments.

- » *Sound quality.* Sound quality can vary among phone manufacturers. When hands-on testing is not possible, a reputable manufacturer brand offers the best assurance of quality electronics and unimpeded call clarity.
- » *Proprietary or SIP-based.* With most IP-PBX providers and some hosted VoIP providers, phones are proprietary. This is purported to offer better support and more seamless integration, but phones that utilize an industry-wide standard like SIP (session initiated protocol) offer more flexibility and freedom of choice. Theoretically, any SIP-enabled phone will work with any SIP-enabled switch.
- » *Softphones.* A physical phone is not always ideal, particularly for highly mobile users. With a headset and a software-based phone installed on a laptop computer, users can access VoIP from anywhere.

#### *Voice Gateway*

Not all providers use voice gateway equipment, but some employ it to more quickly to troubleshoot VoIP service and ensure call quality. The equipment monitors the VoIP infrastructure at the customer site and in the "last mile" between the provider network and the customer site. It registers latency, packet loss, hardware failure and capacity issues. It may also be used to prioritize voice calls over data packets (see QoS, page 6) or cap call capacity, preventing a business from exceeding throughput limits which would cause calls to drop

If providers do not provide voice gateway equipment, their ability to troubleshoot service issues and ensure Quality of Service may be limited. Businesses with sufficient IT resources may be able to manage these responsibilities independently, but would not be able to look to their provider for help.

#### **Add-on Services**

With hosted VoIP, certain company-wide features are typically billed as add-on services. Popular add-ons include auto attendant, hunt groups and integrated conferencing. Businesses may also require a software console that enables the front desk receptionist or group administrator to view the status of all phones and route incoming calls.

#### **Maintenance**

With an IP-PBX, regular on-site maintenance is required and physical rewiring may be necessary for even simple updates to the system. Businesses may need to pay someone to make moves, adds and changes – or they might invest in specialized training for a designated staff member. With hosted service, features and user profiles can be managed virtually. Administrators are often able to make changes themselves via a web portal, or they may simply contact a provider with change requests.

## **RELIABILITY & CALL QUALITY**

VoIP can and should deliver toll-quality voice and guaranteed reliability. Only a single provider for both VoIP and broadband can address these mission-critical essentials with uptime SLAs, a voice-optimized carrier network, and complete end-to-end QoS management.

#### **Service Level Agreements**

Forrester cites SLAs as an area in which VoIP providers need improvement.<sup>5</sup> Many providers do not publish their SLAs, but prospective buyers can and should ask about these guarantees. Additionally, SMB buyers need a provider who will

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<sup>5</sup> Pierce, Lisa. *The State of North American Business Customer Adoption of IP Telephony and VoIP in 2007*. Forrester Research, July 18, 2007.

work closely with them to manage the system on an ongoing basis. That includes reporting ability to pinpoint any problems that may occur, as well as overall responsiveness and customer service.

Because most providers have redundant back-ups spread across multiple sites, problems on the VoIP platform itself are unlikely. If there is an issue, it will most likely occur along the last mile of connectivity or on the customer premises. A business can only get a solid SLA with a single provider for VoIP and data connectivity, and the uptime guarantee will most often correlate directly with the known reliability of the connectivity choice. Providers should be able to specify a rapid mean time to repair and clear crediting policies if there should ever be a problem.

### **Network Quality**

In addition to high speed and throughput, successful VoIP implementation requires a connectivity provider that can ensure the following:

- » *Low latency.* With latency over 300ms, VoIP call problems such as echo, repeating or one-way audio are likely. Ideally, latency should be 150ms or lower.
- » *Low jitter.* High levels of jitter on a network can cause choppy calls ("stutter") as large numbers of packets are discarded by the jitter buffer in the receiving IP phone or gateway.
- » *Very low packet loss.* Packet loss can result in dropped calls and should be as close to 0% as possible.

### **Quality of Service**

QoS management maintains bandwidth for voice calls. This is often achieved by prioritizing voice packets over other types of data as they travel over the network. If there is network congestion, voice data is protected so call quality does not suffer. QoS can also be managed via port prioritization, making one port on the switch first priority and everything else lower priority.

QoS applications are built in to some VoIP systems, as well as some routers. Or they can be purchased separately as upgrades. Complete end-to-end QoS management for a hosted VoIP service is only possible with a single provider for VoIP and data connectivity, as well as a voice gateway or other equipment to manage the last mile and customer LAN where problems are most likely to arise.

## **FEATURES & SUPPORT**

Almost every business phone service offers a long menu of features, and with IP technology these features are more powerful and flexible than ever before. To realize the full potential of VoIP, businesses must first identify the advanced features that will best support their goals.

At first glance, IP-PBX providers seem to have the advantage over hosted providers in the area of features. Because they run all their features off localized hardware, they can introduce new features at no extra cost. However, the need for on-site maintenance to program most IP-PBX features makes the user experience considerably less flexible than with a hosted provider.

Hosted VoIP features can be managed by individual users from any location through a web-based portal. Some providers take it a step further, offering a toolbar plug-in that integrates VoIP functionality with Microsoft Outlook and Internet Explorer. Toolbars serve as intuitive dashboards, making VoIP easy to use right from the desktop. Users can even click-to-dial a number from their Outlook Contacts or any phone number they find on the internet.

Other popular IP features include the following:

- » *Find Me / Follow Me.* Users can define call treatments so that incoming calls ring simultaneously or sequentially to multiple phones. Users can give out a single business number and remain available from any phone, including mobile and home phones. Call treatments can be applied to all calls or limited to specific phone numbers, such as those of VIP clients.
- » *Voicemail to Email.* Users can receive copies of their voicemail messages as audio file attachments, often with Caller ID information in the subject line. Alternatively, they can receive email notices when new voicemail messages arrive.
- » *Remote Office.* This feature is only available with hosted VoIP service and enables users to use any direct dial phone (home, mobile, hotel, etc.) as their business phone. Incoming calls to the user's business phone are intercepted and rerouted to the remote phone. Outgoing calls are placed through a web portal or toolbar and appear to come from the business office. Long-distance charges are billed to the VoIP account.

With hosted VoIP service, all call routing and forwarding occurs off-site on provider equipment. If a call comes in and is forwarded to a mobile phone, no bandwidth is being used at the business location. By contrast, a call coming into an IP-PBX system and being forwarded out to a mobile phone requires two calls worth of bandwidth – one call in and one call out. That means that when multiple employees are out of the office and taking calls from a home office or mobile phone, a business needs twice as much capacity to avoid overloading the circuit.

### **Training and Customer Support**

In spite of their enormous potential to increase productivity, collaboration, customer satisfaction and virtual workers, VoIP features are underutilized by many businesses. Employees may even resist the new phone system. Therefore adequate training and ongoing support are crucial and should be top-of-mind when choosing a VoIP provider. Users must understand the benefits of using VoIP features and receive guidance on using their toolbar plug-in or web portal.

Many VoIP providers do not offer robust training and support, which should include some or all of the following:

- » *Written documentation.* Users need step-by-step directions to begin using features immediately. Web-based or PDF resources may be adequate, but many users appreciate a concise printed piece that they can keep by the phone for instant access.
- » *Live training.* Real-time webinars are often offered for free or low-cost training. Providers may also offer on-site training for an additional fee.
- » *Ongoing user support.* Providers may distribute email newsletters targeted to end users or maintain an online knowledgebase. Phone support is typically available only to VoIP administrators (not all employees), but should be responsive, informed and available around the clock.

Most users will not take the time to learn a new phone system on their own. Proactive investment in employee training can preempt "migration frustration" and help ensure a successful VoIP implementation.