

IP Business Trunks

TABLE OF CONTENTS

INTRODUCTION	1
CLASS 5 LIMITATIONS = LIMITED COMPETITION	2
IP-BASED NETWORKS CREATE NEW BUSINESS OPPORTUNITIES	2
SONUS® SOLUTIONS FOR IP TRUNKING	2
IP ACCESS TRUNKS FROM SONUS	3
IP BUSINESS TRUNKS FROM SONUS	5
ADDING VALUE TO IP TRUNKS – MANAGING THE SUBSCRIBER	5
REGISTRATION	7
UNIFIED ENTERPRISE SOLUTIONS FROM SONUS NETWORKS	9
INTEROPERABILITY - SIPCONNECT	11
IP CENTREX SOLUTIONS FROM SONUS	11
STEPPING BACK: UNDERSTANDING THE BUSINESS MARKET	12
CONCLUSION	13

IP Business Trunks

INTRODUCTION

IP telephony products have been in-use in enterprises since the late 1990s. Initially these products were implemented as islands of connectivity requiring proprietary hardware and software. Even with the advent of IP private branch exchanges (IP-PBXs), IP telephony products still required a gateway to connect to the digital (T1/E1/BR1) or analog lines outside the enterprise. In a very real sense, IP telephony ended where the physical enterprise ended. Only recently have IP telephony vendors shifted from proprietary call control to the “open” Session Initiation Protocol (SIP), enabling IP-PBXs to connect to telephony service providers and other third-party solutions over an IP network.

During the same time, service providers were making similar strides to migrate their network cores to IP and SIP. Driving this migration was the opportunity to dramatically reduce operating and capital expenses while improving service quality. Yet, like enterprises, this IP technology often remained isolated inside the service provider’s core network, with traditional time division multiplexing (TDM) at the network edge.

More recently have service providers turned their attention to extending IP connectivity to enterprises and even desktops with IP Centrex. For service providers, the tactical goal for extending IP to the network edge is often cost reduction. But from a strategic standpoint, leveraging IP and SIP technologies enables them to provide enhanced services to businesses, thus creating new revenue sources and reducing customer churn. The move to IP isn’t limited to traditional telephony providers either; new market entrants such as cable and mobile providers are enhancing their networks to support IP-based telephony services as well. Despite some fundamental differences, they all share the same goal: to add business customers, provide services that generate revenue and maintain brand loyalty.

The concurrent migration to IP and SIP at the enterprise and the service provider level is eliminating the natural demarcation line that once existed between the two. Telephony services and features can now be delivered locally or remotely from miles away. While this creates new competition among service providers, it also presents new opportunities to create hybrid services that bring enterprise and network telephony together. And in a telephony market where subscribers can get the same pricing and raw technology from a multitude of companies, service providers must plan to succeed on the strength of the unique services they offer customers.

This focus on the network edge and business services is understandable when you look at the big economic picture. The residential wireline market is shrinking and facing increased competition from mobile providers. Meanwhile, fixed business lines continue to grow at a small but steady pace; about 2% year-over-year in the U.S. (source: FCC). Since business line ARPU (Average Revenue Per User) has always been higher than residential lines, each new business line has a greater potential impact on the bottom line. Equally important, many businesses view their phone service as a strategic business tool and thus are more likely to invest in enhanced capabilities that provide ROI. Even with the maturation of the Internet, businesses communications still rely heavily on the phone.

CLASS 5 LIMITATIONS = LIMITED COMPETITION

If the market for business services is so lucrative, why haven't we seen more business service providers enter the market? The answer lies in the limitations of traditional Class 5 trunking. In the past, business services could only be provided via a switch-based Class 5 trunk. Thus, service providers had to build-out a complete Class 5 infrastructure in a local area in order to offer business services. This was an expensive proposition even in densely populated areas, let alone less populated, rural areas. History records the names of now-forgotten telecom carriers who underestimated those market obstacles. Only an elite group of companies with deep pockets and resources were able to challenge or unseat incumbent, Local Exchange Carriers (LECs) for business services. Now, that's about to change.

The migration to an IP-based Class 5 infrastructure disrupts the business model that has benefited incumbent LECs for decades. IP allows providers to decouple the physical infrastructure from call control, enabling Class 5 features to be provided regionally or even centrally. Service providers need only backhaul IP traffic to a centralized point and apply feature treatments there, without having to build-out a local infrastructure. One pair of feature/application servers can serve hundreds or thousands of enterprises with a myriad of different call patterns. IP-based Class 5 trunking eliminates the need for local platforms, reducing real estate costs, staffing requirements and maintenance. These changes drive an entirely new business model; no longer limited by the distance between the service provider's facilities and the business customers they serve.

IP-BASED NETWORKS CREATE NEW BUSINESS OPPORTUNITIES

When carriers move IP to the network edge, they can leverage IP-based voice networking to create new business services, including IP trunking, IP Centrex and Unified Enterprise solutions. Each of these services enables businesses to leverage a single connection for voice and data. While both providers and their customers can save money through an exclusive bandwidth provider relationship, this scenario also raises the stakes for incumbent providers, who may lose a previously captive customer base in the all-or-nothing stakes of the new IP voice/data network.

However, with this risk comes a host of potential benefits to service providers:

- > Elimination of legacy Class 5 expenses
- > Simplicity of a single broadband connection for voice and data
- > Greater account control as a single bandwidth provider
- > Better positioning to upsell additional services to customers

SONUS SOLUTIONS FOR IP TRUNKING

At the most basic level, IP trunks can simply replace ISDN basic/primary rate interface (BRI/PRI) and analog connections. If the premise equipment is new, the IP trunk will terminate into the premise router and be directed to the premise telephone equipment, providing packetized audio and SIP call control all the way to the user's desktop. According to industry analysts, the majority of new premise PBX implementations are IP-PBXs, enabling the IP network to be seamlessly extended to the premise without gateways. If the premise gear is older, gateways can be installed on the customer premise (integrated access devices, premise gateways) to convert SIP back to legacy T1/E1 or analog.

Sonus Networks currently offers two IP trunking solutions. The most basic solution leverages Sonus' Class 4 infrastructure and border security to emulate an E1 or T1 service. Like the legacy trunk it replaces, it provides basic voice connectivity back into the carrier's network. It is an IP connection so there are inherent benefits in terms of creating a single IP pipe to the premise for voice and data. We refer to this as an **IP Access Trunk**. Sonus can support SIP or H.323 for call control. IP Access Trunks will typically be deployed for basic voice connectivity. They can optionally leverage the power of Sonus' centralized routing architecture to provide private dial plans. Network registration can not be supported, as no network registrar is provided; the Customer Premise Equipment (CPE) must have a public IP address. To provide additional services, Sonus offers an enhanced IP trunking solution, **IP Business Trunks**. The latter uses Class 5 services to provision individual subscribers, provision subscriber features and offer registration to support both NAT and endpoint encryption.

IP ACCESS TRUNKS FROM SONUS

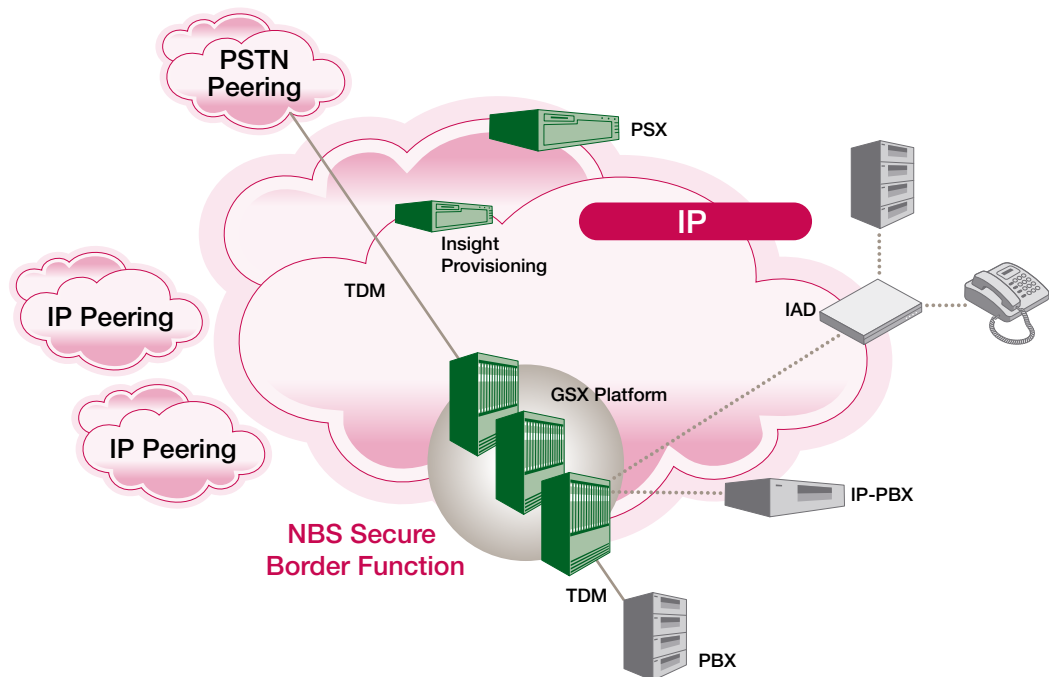


Figure 1. IP Access Trunk solution from Sonus

Sonus' IP Access Trunk solution (shown in Figure 1) provides basic IP trunking with SIP call control from infrastructure to endpoint. In essence, IP Access Trunking provides a "nailed up" connection between the secure border function and an IP-PBX, IAD or gateway at the subscriber's premise. Similar to a Class 4 peering trunk, the IP Access Trunk is a true pipeline whose main function is to provide a dial tone.

In this configuration, the central routing engine is the Sonus PSX server, which manages basic routing of the subscriber directory numbers to the SIP trunk. The subscriber must use fixed, public IP addresses, because IP Access Trunks don't include a registration component and thus can't manage NAT or dynamic addresses. Call access control and bandwidth management are available with IP Access Trunks and are managed by the secure border function, based on the IP address.

IP Access Trunks provide a very basic level of security insofar as they utilize a provider's private network. However, customers may require more security, such as endpoint registration and subscriber provisioning. Many large enterprises will simply insist that SIP endpoints have a private IP address. Private IP addressing and registration both afford greater security for the service provider and the end customer. Assuming that security credentials are properly managed, registration makes it more difficult to spoof a far-end IP address and gain unauthorized access to the call.

In addition to security, service providers should also consider the strategic value of provisioning subscribers. The more information a provider has on individual subscribers at the endpoint, the more value they can add to that end user's experience. There is no requirement that IP trunks provide any advanced features beyond raw connectivity. However, if a provider is only selling bandwidth, they can easily be replaced by a competitor who offers the same bandwidth at a lower price. Providers who offer their customers unique and valuable business services in addition to bandwidth are harder to displace. Look at voicemail service, for example, where subscribers resist simple changes to the user interface, such as the numbers assigned to deleting and saving messages. This underscores how dependent subscribers can become on familiar, day-to-day phone services. Apply that same paradigm to more sophisticated features like conferencing or IP Centrex applications, and you can see the value of becoming a service vendor rather than simply a bandwidth vendor.

IP Access Trunks: Advantages

- > Offers the same functionality as a traditional T1/E1 line without the limitations of a TDM infrastructure
- > Single connection from a single provider for voice and data
 - Creates complete account control
 - Reduces expense of separate physical infrastructure
- > PSX can still provide Voice VPN and emergency rerouting, etc.

IP Access Trunks: Limitations

- > No support for registration, a requirement for subscribers who use dynamic IP address or NAT as well as providers who don't support static hostnames
- > No way to provision features on the trunk or the subscriber's DID number
- > Service providers can't create new revenue opportunities by adding network services like find-me/follow-me or enhanced services like enterprise mobility, etc.
- > No "sticky" services to increase customer loyalty and prevent customers from shopping for the cheapest prices

Let's talk about how Sonus addresses these limitations.

IP BUSINESS TRUNKS FROM SONUS

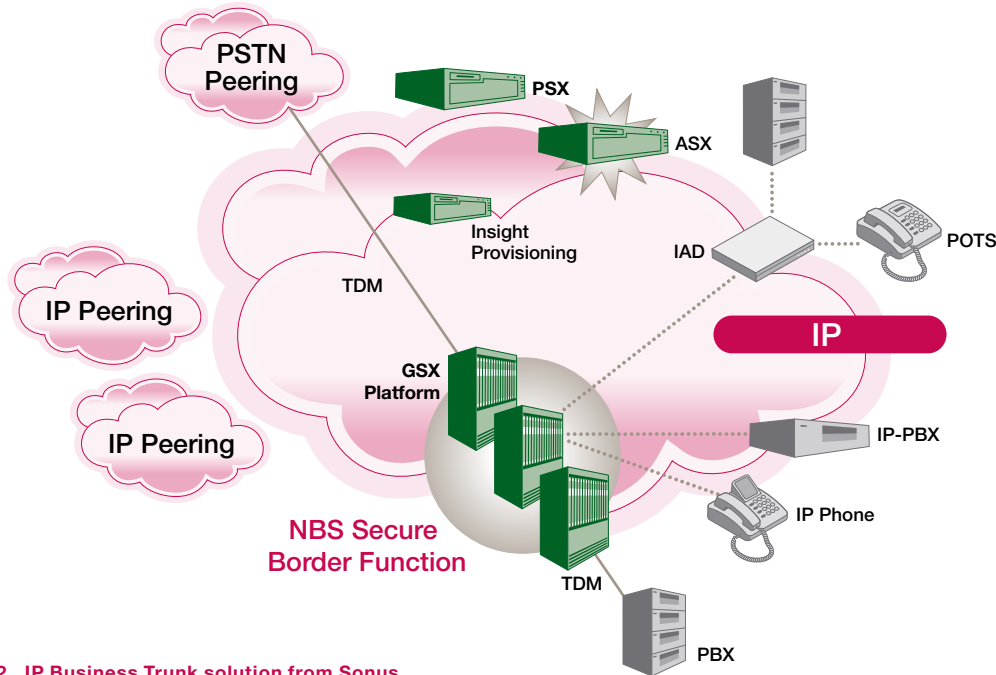


Figure 2. IP Business Trunk solution from Sonus

The Sonus IP Business Trunk (Figure 2) is an enhanced trunking solution that replaces traditional narrowband trunks for connectivity to the business subscriber's premise. Like IP Access Trunks, Sonus IP Business Trunks are IP-based and use SIP for call control. They can be terminated into an IP-PBX, IAD or gateway at the customer's premise. As with IP Access Trunks, IP Business Trunks also leverage the call access control and bandwidth management of the session border function, and leverage the Sonus PSX server for routing and private dial plan (Voice VPN) functions.

In terms of basic connectivity, the differences between IP Access Trunks and IP Business Trunks are subtle, but the addition of the Sonus ASX server into the call flow has significant advantages. First, IP Business Trunks allow subscriber provisioning at the directory number level in the Sonus ASX (Class 5) server. Provisioning subscriber DNs allows specific feature functions (e.g., call blocking) to be tailored to the individual subscriber. Second, IP Business Trunks use the ASX server to act as the registrar in the network. Registration is a requirement when end users have a dynamic IP address, NAT technology is employed or providers do not support static host names. *See the inset on Registration for more detail.*

ADDING VALUE TO IP TRUNKS – MANAGING THE SUBSCRIBER

Provisioning individual subscribers offers a tremendously positive paradigm shift for service providers. Traditionally, there was no information collected on individual business subscribers; each was a nameless Direct Inward Dialing (DID) number. Now, service providers can capture the individual employee's contact information and user profile. This creates a new avenue to build relationships with individual subscribers and establish brand equity. Once this relationship is in place, it is easier to market and sell incremental new services. Even well-established services such as hosted conferencing can be better marketed when the individual end user is a known entity.

Telecom veterans might be skeptical that an IP trunking solution can add any tangible benefits beyond the PBX. Even with an IP Business Trunk, end users will still be connected to some sort of premise key system, either a PBX or IP-PBX. As such, it can be expected that many features will be delivered locally without network involvement. For example, we can safely assume that the average end user would not choose a Vertical Service Code (VSC) to redial if they already have a redial button on their phone. Common wisdom says that the PBX already provides the necessary end user features. But, that assumption is based on a legacy paradigm where end users had no practical access to TDM Class 5 features. Sonus' IP business trunking changes all that. The difference is Sonus' ASX application server, which features a Web interface that allows customers to manage services on their DID number, such as:

- Call Forwarding
- Incoming Call Restrictions
- Find-me/Follow-me
- Remote Access to Features
- Do Not Disturb
- Multiparty Conferencing

A side-by-side comparison of PBX and network-delivered call features reveals some fundamental and important differences. Don't assume that simply because a phone may have a call forwarding button, that feature is the same as call forwarding on an IP network. In a standard PBX scenario, a business user in a small office would consume two phone lines—inbound and outbound—every time they forwarded a call to their mobile phone. Thus, a business with six phone lines might consume 66% of their bandwidth every time a user accepts a call on their mobile phone and receives a second call on that phone while they're still connected. By contrast, call forwarding on an IP network takes place before the call even reaches the IP-PBX, thus freeing up valuable bandwidth. Another example is conference calling. Most small PBXs only support 3 or 4 lines and lack the audio balancing that you'll find in IP network conferencing features. Additionally, very few premise solutions use Telecordia or ETSI implementations, so functionality can vary substantially.

IP networks are ideally suited for the converged telephony applications of tomorrow. As new ideas like Broadband Mobile Convergence enter the mainstream, providers will be able to use logic in the network to move calls seamlessly from wireline to wireless infrastructures. Placing a feature server, like the Sonus ASX, inside a network architecture allows the subscriber's DN to be managed regardless if the endpoint is wired or wireless, consumer or business. The network can simply apply the rules as set by the end user and move the call accordingly. By contrast, embedding everything in a premise-based device like a PBX won't provide this level of functionality without a significant investment in hardware.

Controlling the subscriber DN could play an important strategic role as the telecom evolution moves forward. In a market where geographic boundaries are irrelevant, customers will have their choice of low-cost service providers from any location. If a provider is only selling pipes of connectivity, they're not truly "connected" to their customer base. There may be subtle quality differences between providers, but those differences are often difficult to quantify at the time of sale. Service providers will need to take a new approach and find new ways to distinguish themselves from their competition. Those that build unique functionality into their network, and encourage subscribers to leverage it, will likely experience lower churn. But if the subscriber DN is not provisioned, the network is probably providing connectivity and nothing more, opening the door to customer attrition.

Now, the service provider network can deliver real business benefits:

Real-World Benefit: Moving/closing a site

Traditional Class 5 trunking requires customers to either abandon their directory number or pay significant premiums to forward them every time they move. Changing numbers can have a negative effect on the bottom line of a business, from new business cards to old customers who lose touch. With the ASX application server, directory numbers can quickly and easily be forwarded or re-provisioned to a new site, regardless of distance. The benefit: seamless business transitions that remain invisible to partners and customers.

Real-World Benefit: Disaster recovery

With traditional Class 5 trunking, changes to subscriber services like call forwarding required business customers to fill out a work order with their provider and wait for an answer. It might take days to receive a response, resulting in lost business that could be potentially devastating, especially in the wake of a natural or man-made disaster. With the ASX application server, customers can forward or re-route calls themselves from a remote location via the easy-to-use Web portal. The benefit: Businesses recover from disaster on their own timetable, not someone else's.

Real-World Benefit: Call forwarding with no tromboning

Businesses have long suffered when forwarding inbound calls to their mobile phones. Tromboning the call in and out of the premise equipment ties up two central office lines for each forwarded call. A small business with four lines, for example, would lose 50% of their phone capacity every time they forwarded a call. By using the ASX server, calls are forwarded before they even reach the business, so no phone capacity is sacrificed. The benefit: your business lines are left open for business, not tied up because of a convoluted redirect.

REGISTRATION

For service providers, registration is a practical and technical necessity. It enforces password-based authentication for each endpoint connected to the network. It also resolves the challenges of reaching endpoints behind a router or firewall where Network Address Translation (NAT) is in effect. A heightened emphasis on data integrity and network security has driven many IT managers to move IP endpoints in the enterprise to private IP addresses, thus limiting their exposure to the outside world. A NAT firewall provides a common entrance/exit point for these endpoints with a single, public IP address. While such a configuration has clear security advantages, it also presents practical challenges for media and SIP signaling connectivity. Specifically, in order to provide password-based authentication to subscriber endpoints, there needs to be a registrar: a database in the network that manages valid subscribers.

The Sonus ASX application server fills this role. Because it already contains the subscriber Directory Number (DN) and the feature attributes of that DN, the ASX treats security credentials as simply another attribute. The Sonus Network Border Switch (NBS)—or a similar border solution—is the first point of entrance for the service provider's network, so it queries the ASX to confirm the credentials of any endpoint that attempts to register with the network. The ASX application server and NBS work together to support SIP endpoints located behind the firewall. The endpoint could be an IAD or advanced technology attachment behind a residential router/firewall as well as an IP-PBX controller or IP phones on a private network residing behind an enterprise firewall.

Registration Implementation

There are two things to consider when dealing with NAT firewalls that are not SIP/SDP (Session Description Protocol) aware:

- The “private” address near the SIP endpoint is different than the “public” address required by the NBS to reach that endpoint through the firewall. Because the address information embedded in the signaling message by the SIP endpoint isn’t enough to route it correctly, the NBS needs an alternate method to determine the public destination IP address/port.
- Pinholes need to be open in the firewall for signaling and media to be exchanged between the NBS and the SIP endpoint. Without such pinholes, any unsolicited packets the NBS sends to the SIP peer will be dropped by the firewall.

The implication for both signaling and media is that the NBS must first receive packets from a SIP endpoint located behind a firewall before it can send packets to the endpoint.

From a SIP signaling perspective, the NBS supports a SIP registration relay service. REGISTER messages provide the NBS with the name of the destination IP address/port for signaling to the IP-PBX/IAD. The firewall’s public source address/port in the IP header becomes the next hop for reaching the registered contact address of the SIP endpoint. The NBS can then read the addressing information embedded in the SIP signaling message.

REGISTER messages also keep the signaling traffic pinhole open. When the endpoint registers, the NBS specifies a re-registration interval that is shorter than the firewall’s idle timeouts. The SIP endpoint is then forced to send a refresh registration before the firewall’s signaling pinhole closes. Once the initial registration is confirmed with the network registrar (ASX), the majority of the refreshes are handled locally by the NBS. Only a subset of the REGISTER messages that follow would go to the network registrar for confirmation.

As with signaling, there are similar considerations for sending media through the NBS. Specifically, the addresses embedded in the SDP message will reflect the endpoint’s private address, while in reality the NBS needs to send the Real-Time Transfer Protocol (RTP) message to the firewall’s public address/port. The difference between SIP signaling and media in the case of an IP-PBX is that the signaling comes from the PBX controller while the media comes from the individual IP phones. This is different than a local IAD or gateway, which would typically be the source/destination for SIP signaling and media.

Regardless of the source, the media stream is usually symmetrical. The NBS waits for RTP media packets from the endpoint and then uses the source IP address/port from the received RTP packet as its destination IP address/port for the return direction. Similarly, destination addressing for RTP Control Protocol (RTCP) requires additional steps when the endpoint is behind a firewall. In both cases, the approach is the same; the NBS does not send RTCP packets until it has learned the endpoint’s source IP address/port from a received RTCP packet.

UNIFIED ENTERPRISE SOLUTIONS FROM SONUS NETWORKS

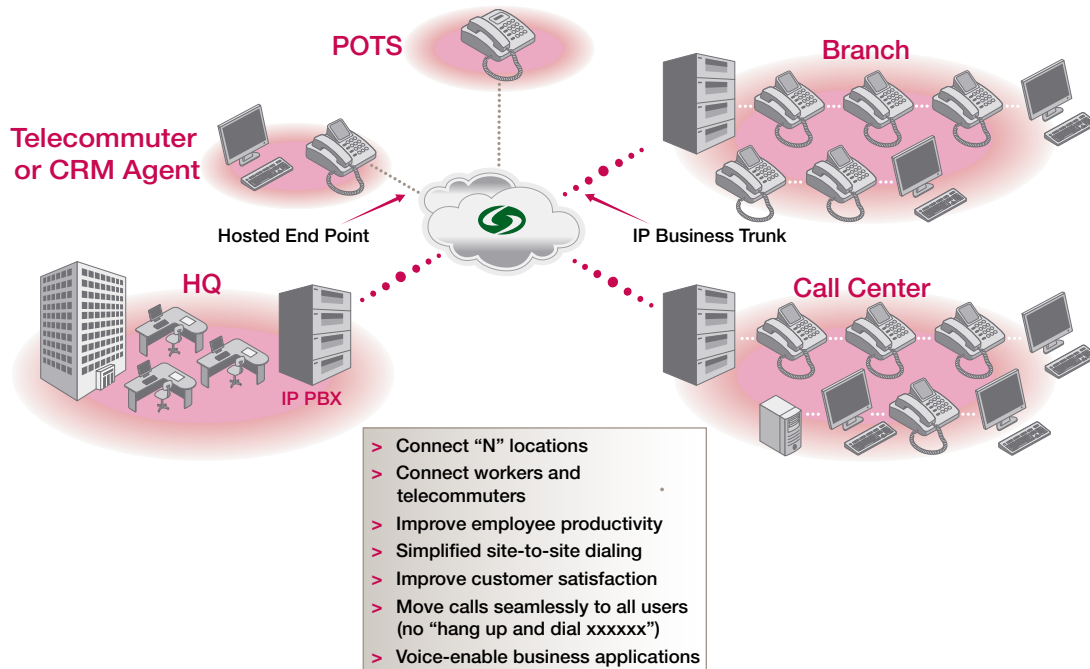


Figure 3. A Unified Enterprise Architecture

Creating a unified enterprise for voice communication presents some unique challenges. E-mail users expect that the e-mail system at one office will operate the same as the next. In the voice world, enterprises have often deployed, or acquired through business acquisition, a diverse set of PBX vendor platforms, many of which had their own proprietary functions. As a result, premise-based PBXs or key systems have traditionally existed in the enterprise as islands of features with limited intelligent connectivity between them. These solutions were severely constrained in their ability to easily dial between sites, transfer calls, and use more advanced features like call forwarding. Sonus can help carriers offer a compelling set of services to create a unified enterprise from multiple generations of technology including legacy PRI, POTS, IADs, IP-PBX and IP Centrex. The Sonus network provides a common architecture, bringing together different connectivity mediums and generations of technology, so that a legacy PBX user in Berlin can transfer a call to a SIP phone user working from their home office in Frankfurt.

This is a compelling proposition to enterprise buyers, as their enterprise vendors typically propose replacing much of the enterprise infrastructure with homogenous solutions that connect calls across a wide area network (WAN) instead of the PSTN. Replacing hundreds or even thousands of desktops can be incredibly expensive, in addition to the efforts required to support the roll-out of these systems. Large business customers would do well to closely examine the hidden costs and potential impact of such a solution. For example, this reliance on the WAN requires a substantial capital investment to provide enough low latency bandwidth to support network traffic. Many enterprises are surprised to learn the true costs and challenges associated with implementing multiple streams of low latency bandwidth between sites.

Even in scenarios where low bandwidth utilization is the norm, usage peaks can easily drive up latency and severely impact quality. A network that provides quality voice transmission 97% may seem acceptable, but take that 3%, multiply it over many business calls on the same network, and the perception by users is very different. Therefore, enterprises need to carefully engineer their network links to handle peak loads, especially between smaller sites with smaller links. To maintain quality over the WAN, care must also be taken with QoS settings and monitoring tools. In essence, enterprises are accepting the responsibility to build a carrier-like infrastructure for themselves, in most cases without the expertise or economy of scale that the carriers themselves enjoy.

Enterprises that elect to deploy voice services across a number of small sites will find the required WAN bandwidth is cost prohibitive. For example, the equipment price per user is typically higher for enterprise deployments. Also, if voicemail or other services are centralized, the WAN has to be sized to handle the backhaul traffic. Most WAN-based enterprise solutions still require a dial tone from the local carrier in order to provide local numbers for inbound callers and connect emergency/911 services back to the Public Service Access Point (PSAP). And WAN solutions do little to reduce narrowband expense or consolidate bandwidth. If sites are located across geographic boundaries, it's likely that multiple carriers will still have to be involved.

Sonus offers a better path to the unified enterprise: a combination of IP Business Trunks and WAN services. In this solution, IP Business Trunks connect enterprise sites to provide a single pipe for dial tone and Internet services; enterprises can still leverage premise-based PBX/application servers to deliver user features, even in heterogeneous systems. IP Business Trunks can either connect directly to IADs through an IP-PBX or use a gateway to connect to TDM or analog lines. Smaller sites can leverage a legacy key system and gateway or simply convert users to IP phones with hosted call control.

Benefits to end users are:

- A unified dial plan between sites (4- or 5-digit dial plans)
- Transfer or forward calls between sites without consuming valuable bandwidth
- Create a unified messaging server for some/all sites
- Leverage existing hardware investment
- Build best-of-breed solutions from multiple vendors
- Enjoy value-added services on top of traditional connectivity

Benefits to service providers are:

- One bandwidth connection, one invoice for multiple sites
- Shut the door on competitive bandwidth providers
- More opportunities to grow the customer relationship beyond bandwidth with value-added services and features

INTEROPERABILITY – SIPCONNECT

Today, there is no single standard for interoperability between service provider IP networks and CPE equipment; traditionally this interoperability burden was borne by service providers and vendors. However, a number of interested parties have teamed up through an industry consortium, the SIP Forum, to help define a set of fixed technical recommendations. The recommendations are published under the SIPconnect trade name. Sonus Networks is a full member of the SIP Forum and is helping to draft the new recommendations slated for version 1.1. As a coalition whose intent is to reduce the effort and expense associated with interoperability, the SIP Forum represents the best interests of everyone; no one gains from costly individual vendor certification programs. SIPconnect reduces the effort and cost of solution testing and deployment. We are committed to the SIP Forum's efforts as reflected by our support for SIPconnect 1.0 and, when available, SIPconnect 1.1.

IP CENTREX SOLUTIONS FROM SONUS

Centrex services have been around for decades, yet they never had much of a following in the Americas because of the limitations of tip/ring phones and VSC-based features. Only vertical markets which used more powerful ISDN phones, like the government, realized the true benefits of Centrex services. In Europe, however, businesses were able to better leverage Centrex services through multi-line ISDN feature phones, receiving rich services with capabilities that often rivaled a small key system.

Next-generation IP Centrex services could be described as "ISDN on steroids." IP Centrex provides a depth and breadth of services not previously available through traditional Centrex services. More importantly, it maintains Centrex' fundamental appeal for enterprises--the central hosting of phone features--which provides a dramatic reduction in capital cost versus purchasing a premise-based PBX box for phone features.

The addition of IP to a Centrex architecture inherently extends the services provided by a business phone and adds the ability for an individual user to provision and manage individual DNs from a simple Web interface. This focus on the individual user is an important benefit of IP Centrex. In the traditional Centrex services model, users had to go back to their service provider for nearly every feature change. Not surprisingly, many business managers and end users felt that providers were slow to respond to their needs; the customer's desire for more in-house control overshadowed the other value points of traditional Centrex services. IP Centrex allows enterprises to gain the economic benefits of a hosted solution without giving up control of their communication preferences.

To a service provider, the benefit of offering IP Centrex is the revenue to be gained through the user subscription fee. Centrex is a high-value service that has the potential to raise gross margins and gross profit. Once installed, Centrex creates user loyalty, reducing the likelihood that customers will switch providers to save a little money.

The challenges with IP Centrex have more to do with marketing than technical issues. The diversity of key systems and PBXs in the market is daunting, with very few standard behaviors, so even common features like Call Park work differently between brands. To effectively sell in this market, salespeople must understand the nuances of existing behavior and explain feature differences. Business users are no different than other consumers; they expect that a new product will provide the same features as their previous product in addition to new features. Thus, service teams need to know how to use the existing feature set to mimic expected performance. Service providers also need to be prepared to manage the end-user experience all the way to the phone. If a site has a Quality of Service issue on their LAN, the provider may get a call stating that the phone is “broken.” The end user is not interested in the fact that their LAN is the real issue; they see the IP Centrex service as the provider’s issue from end to end.

To be successful selling IP Centrex, a provider has to build a base of knowledge and a systematic plan to roll-out services. This requires time and experience. Service providers need to develop solutions that they can implement quickly with the skills they have, and then add more offers as their teams are ready. Deploying IP trunks provides a launch pad for adding IP Centrex services. By building both solutions concurrently, providers can realize a faster ROI while broadening their team skills.

STEPPING BACK: UNDERSTANDING THE BUSINESS MARKET

It’s tempting to make broad assumptions about the business market and customer needs, especially in the drive to quantify market size, but assumptions are dangerous. Too often, our industry is guilty of oversimplifying the requirements for business customers, envisioning them as a collective group that only needs to be “led to the water” to see the advantages of new technology. In reality, how a phone feature was delivered in the past often determines what customers expect from the future in terms of functionality and service. Centrex, ISDN, PBX, key systems and IP-PBX all provide varying levels of features and bring with them varying expectations. Further muddying the waters, telephony products can differ substantially from manufacturer to manufacturer and model to model. For example, the business phones installed at a local doctor’s office may operate far differently than the business phones used at a major enterprise.

Service providers need to be ever-vigilant when considering the requirements and the environments of their business customers as individuals. The telephony needs of a small business may in fact be more sophisticated than the needs of a large enterprise. In the case of the doctor’s office, call forwarding may be far more fluid as physicians move from office to hospital and call transfers more complex as customer wish to speak to both medical and billing specialists in the same call. Likewise, features such as call pick-up are more likely to be used by a small or medium business than a large enterprise. And, with limited IT departments, small businesses are typically more concerned with ease-of-use and technical support.

Large enterprises, on the other hand, rarely view ease-of-use as a critical pain point. Their primary concerns include system management and reporting, site-to-site connectivity, directory integration and security. Call flows are usually simpler at an enterprise, routing to a DID/DDI number and forwarding to voicemail if the call

recipient is unavailable. Complexity is usually found in call center applications that are managed by special hardware and software and often customized to a specific industry.

Clearly, incorporating the needs of SMBs and enterprises into a single, hosted feature set can be daunting. Hosted solutions that meet the needs of both large and small offices are significant undertakings that require the appropriate support structure to be designed in advance. Yet, service providers don't have to create solutions that bundle all of the features required for a small doctor's office along with the management aspects required by CIOs from the world's largest enterprises. They can market themselves successfully to both SMBs and enterprises so long as they avoid the trap of offering one monolithic set of services to all businesses. The key is to understand the individual business requirements and tailor the appropriate products and services to the right audience. For example, it may make more sense for service providers to sell IP connectivity to their largest business customers and market completely hosted solutions with IP phones to their SMB accounts. This allows large customers to seamlessly connect their sites together but maintain the reporting and management features they are accustomed to from their IP-PBX. Service providers that understand the historic expectations of their customer base and tailor their offerings accordingly will grow their customer base faster.

CONCLUSION

Service providers and enterprises have enjoyed the benefits of IP telephony for nearly a decade, but as isolated islands of technology separated by oceans of legacy infrastructure. Now, as service providers strive to reduce costs and find new revenue sources, IP and SIP are being driven to the edge of the provider's network. The result is that businesses can leverage their recent investments in IP-PBXs or add inexpensive gateway technology to bring the power of the network to their desktop.

Moving IP to the edge of the network also changes the fundamental rules of incumbency. The days of LECs who owned the wires and "owned" the customer relationship are ending. Business services can be provided from anywhere in the network, flattening the traditional entrance barriers to the business market. Service providers need to be ready for competition and develop a strategy to maintain existing business customers, add new accounts and add business services that raise monthly spend.

Providers have several critical choices in terms of the market and services they offer. One strategy is to start with IP Centrex, as it has the potential to create the largest invoice each month. Unfortunately, it is also the most difficult for providers to launch and service. Alternately, providers can start to leverage the power of their new IP networks by first connecting businesses with IP Business Trunks. This does not preclude them from offering IP Centrex; it simply recognizes the provider's core competency in marketing connectivity. Providers can rapidly deploy IP Business Trunks and begin to have an impact on the end-user experience, gaining access to the individual subscriber and using that access to market services over time. As providers launch more next-generation services from the network, they can allow IP Centrex services to grow organically so that sales, marketing and service staff will be better prepared to drive sales

and implementations. This will allow providers to create a truly unified enterprise by providing IP Business Trunk connectivity and IP Centrex, while layering on enhanced services and continuing to support legacy connectivity.

As the IP telephony revolution alters the playing field, service providers will need to move beyond their traditional role as bandwidth providers and offer value-added phone features in order to attract and retain business customers. At Sonus Networks, we believe that service providers must supplement standard services with new, market-specific services in order to thrive in the competitive business telephony market of tomorrow. They must look past a one-size-fits-all methodology and tailor features and services to specific customer segments. To that end, Sonus is committed to expanding our portfolio of IP business telephony features and services. The Sonus IP Business Trunk solution is a prime example of that commitment, providing an application-rich feature platform that allows service providers to quickly and cost-effectively create new value-added features and services to business customers. With Sonus IP Business Trunks, service providers can better differentiate themselves in a competitive market and elevate their customer relationship from bandwidth provider to trusted business partner.

ABOUT SONUS NETWORKS

Network operators around the world count on Sonus Networks to bring them into the future. We've been IP to the core since 1997, and today we lead the carrier IP-voice market, with over half of the world's top 10 telecommunications providers as our customers.

To learn more about our wireline solutions, talk to your Sonus sales representative or visit us online at www.sonusnetworks.com.



SONUS NETWORKS, INC. 7 TECHNOLOGY PARK DRIVE WESTFORD, MA 01886 978.614.8100

The content in this document is for informational purposes only and is subject to change by Sonus Networks without notice. While reasonable efforts have been made in the preparation of this publication to assure its accuracy, Sonus Networks assumes no liability resulting from technical or editorial errors or omissions, or for any damages resulting from the use of this information. Unless specifically included in a written agreement with Sonus Networks, Sonus Networks has no obligation to develop or deliver any future release or upgrade or any feature, enhancement or function.

Copyright © 2008 Sonus Networks, Inc. All rights reserved. Sonus is a registered trademark and ASX, Insight and PSX are trademarks of Sonus Networks, Inc. All other trademarks, service marks, registered trademarks or registered service marks may be the property of their respective owners. This publication may be used, copied or distributed only in accordance with the terms of the license agreement. Any other use, reproduction or distribution may occur only upon Sonus' prior written consent.