

BENEFITS OF SIP TRUNKING FOR CONTACT CENTERS

Executive Overview

With strong, consistent growth over the past few years, and continued growth forecasted well into the future, it's no secret that SIP trunking and other VoIP services will replace conventional access, switching and the PSTN to become the dominant telecommunications technologies. In the United States, recent FCC reports have indicated that the industry is quickly reaching that tipping point, and it's only a matter of "when, not if" VoIP will be used for more access than the traditional PSTN technologies. However, there have been some types of enterprises that have delayed this conversion due to concerns over lack of scalability, service quality, costs, complexity and the need to support existing equipment or applications.

Especially within the contact center community, there has been a lingering reluctance to migrate away from TDM access trunks. This is in spite of that fact that there is already widespread adoption of many IP-based technologies and services within the contact centers themselves. Adoption of IP-based technologies is also being driven externally by the increasing number of modes communication between contact centers and customers including SMS, e-mail, IM and video. Even the voice interactions of yesterday's "call center" may originate as an IP-based "click-to-call" application from within a web browser in addition to the traditional PSTN. Today there are a number of SIP trunking solutions that make the full IP technology transition especially compelling for contact centers, so there are no more reasons to delay. This paper will address those concerns and provide strong business incentives to make the migration from TDM to SIP trunking now. It will also cover many of the criteria to consider when choosing a SIP trunking service, and why IntelePeer is uniquely positioned to provide exceptional value for contact centers as a SIP trunking provider.

Enterprise Migration From TDM to SIP Trunking

While contact centers are a specialized type of enterprise in terms of the services they offer, there are many features and business processes that are common across all enterprises. In order to evaluate the unique opportunities and requirements for contact center services, it can be helpful to first understand the general trends across all enterprises to integrate additional IP-based applications and migrate from TDM to SIP trunking.

Enhanced Productivity and Integration of New Services

A strong driver for full migration to end-to-end IP technologies and SIP trunking is the tremendous growth in Unified Communications (UC) and integration of multi-media technologies. UC fosters greater collaboration and richer communication by integrating synchronous communications (including Instant Messaging (IM), presence, voice, video conferencing, whiteboard sharing and application/desktop sharing) with asynchronous communications (including voice-mail, e-mail and document sharing), while taking into account user preferences, location and availability. Especially for larger or geographically distributed enterprises, productivity gains have been estimated to be on the order of 20% or more through increased collaboration and more efficient communication.

The full benefit to these newer productivity suites is really only achieved when there is a full end-to-end IP connection. For example, even if both endpoints of a voice call are using an IP phone, if there are multiple media gateways and TDM segments in the middle then quality can be reduced by the additional delays and transcoding "noise" as the call transits the network. In a similar fashion, newer codecs and devices can provide High-Definition (HD) voice, which can be supported on SIP trunks, but not over TDM links, so the connection will default down to standard quality.

As more enterprises join UC ecosystems or convert their networks into UC platforms the value of direct IP communication is increased and the need for the PSTN as an intermediary is reduced. However, there is still a need to interconnect all those distributed UC systems. With proper use of available databases linking phone numbers to specific IP addresses, that type of call should never need to be transferred to the PSTN. That's where the need and value of federation comes into play.

Through federation, Communities of Interest Networks (COINs) can be established across disparate and distributed networks (such as partnerships, supply-chain or hosted/outsourced vendors) for tighter integration and extension of the UC features.

For distributed enterprises, centralizing connectivity with SIP trunks can simplify support and management of remote locations while providing a more consistent user experience across all the locations. In many cases, and depending on available capacity at the central location, remote PBX's or key systems can be removed. The use of SIP trunking can also make integration of new services easier through the use of externally hosted/cloud-based solutions or Business Process Outsourcers (BPOs).

Connection Costs

For many enterprises another primary driver for migration to SIP trunking has been to maximize the value of their network connections. This is especially true for enterprises that need to provision trunks based on potential full capacity, including short-term or dynamic spikes in call volumes and traffic. Beyond that, there are many additional areas of potential cost reductions that should be evaluated. By taking into account all the cost benefits, the Return on Investment (ROI) for migrating to SIP trunking becomes very compelling.

The first area for cost savings is simple replacement of commonly used T1/PRI trunks with SIP trunks. Because SIP trunks are frequently priced based upon per port or per user configurations along with actual Minutes of Use (MOU), cost reductions on the order of 30% have been shown vs. the per channel pricing of PRI trunks, but that amount can vary based on specific contracts and configurations. However, that's just the access cost. The actual cost savings are also based on the amount of long-distance MOU that may be bundled in to that rate. Even the structure of the contracts can be different. Some service providers require multi-year or minimum volume commitments. SIP trunks generally have more flexible terms, which can be very important with rapidly changing business demands.

The number of required trunks at each location can also be reduced by combining both voice and data services and capacities on the same links. However, additional savings can be found by eliminating the need to over-provision the network based on potential peak demands. In most cases the combined voice and data usage can be used to set the appropriate trunk capacity, while allowing Quality of Service (QoS) settings to always make sure that voice communications have the highest priority. For enterprises with multiple locations, there are also options from some SIP providers to offer trunk pooling, which combines the port and user capacities across all those locations. That reduces the number of required connections at each location and dynamically allows any idle capacity at one location to provide additional capacity beyond the standard purchased rate at any other location

SIP trunking provides an easy mechanism to rapidly change or scale capacities up and down based on true demands to further optimize costs. To change capacity with TDM trunks, additional physical ports and line cards are necessary in the PSTN gateway in addition to long service times (on the order of weeks) and non-recurring installation charges from the PRI service provider. And when those trunks are idle, the recurring charges continue to add up. That makes rapid service changes impractical to manage and too expensive for short durations. With SIP trunks, capacity changes can be made in a matter of minutes via remote software configurations. That can make it an easy solution for bursts of additional capacity based on time zones, holidays, time of day, days of the week or other short-term campaigns. Even better is that some SIP trunking providers may only charge for this additional capacity based on actual usage.

Both residential and enterprise users readily understand the cost savings of VoIP technologies for long-distance service. Much of this has been driven by proprietary peer-to-peer applications. That type of service is not appropriate for most enterprise communications, but SIP trunking service providers are able to provide much of those cost savings with built-in services such that neither party in a call needs to know that VoIP is being used. The use of advanced routing algorithms by SIP providers enables an enterprise to easily take advantage of the best rates across multiple long-distance providers with which it has existing peering agreements. Another advantage of this is that it also provides a layer of redundancy by providing automatic switchover between long-distance carriers in the event of congestion or service outages.

Even if an enterprise migration away from TDM trunks today is based solely on cost reductions, and no other changes are made in the near-term, a network using SIP trunks provides the best foundation for future services and upgrades.

Additional Value of SIP Trunking For Contact Centers

While all enterprises can achieve cost reductions or enable new services by migrating to SIP trunks, contact centers have some additional requirements, applications, processes and cost reduction opportunities that are even better positioned to take advantage of the migration away from TDM trunks. In fact, it's been because of these additional demanding requirements that there have been some incorrect perceptions that SIP trunking doesn't scale appropriately or may not have gotten far enough along the learning curve for full deployments. And those opportunities are not limited to just larger or geographically dispersed contact centers. Existing contact center deployments that range from only a handful of agents to organizations with tens of thousands of agents have already migrated to SIP trunks and are seeing additional cost savings and access to newer services with high availability and quality.

Architecture and Deployment Options

As with any SIP trunk migration, the initial starting point and need to support existing or legacy applications can be an overriding factor in the overall architecture and deployment decisions.

One of the first issues to address is whether deployment of SIP trunks will require all new equipment across the network or at the interface between the contact center and the service provider. This can be affected by any previous interoperability testing or certification between the SIP trunk provider and the equipment or applications in question. A related concern is whether a hybrid approach can be used to minimize costs and risks while new services are trialed. In a situation where a contact center manager only wants to make minimal network changes at the contact center location, migration to a SIP trunk may only involve the installation of a Media Gateway/Session Border Controller (SBC) (See Diagram 2) or possibly the removal of the TDM gateway and reconnection of lines from a PBX into an existing router (See Diagram 3). (Note: for illustration purposes, since every network is unique additional equipment such as network firewalls or specific call center applications/servers have not been included in the diagrams.) All of the other gateways and network changes are handled by the SIP trunking provider.

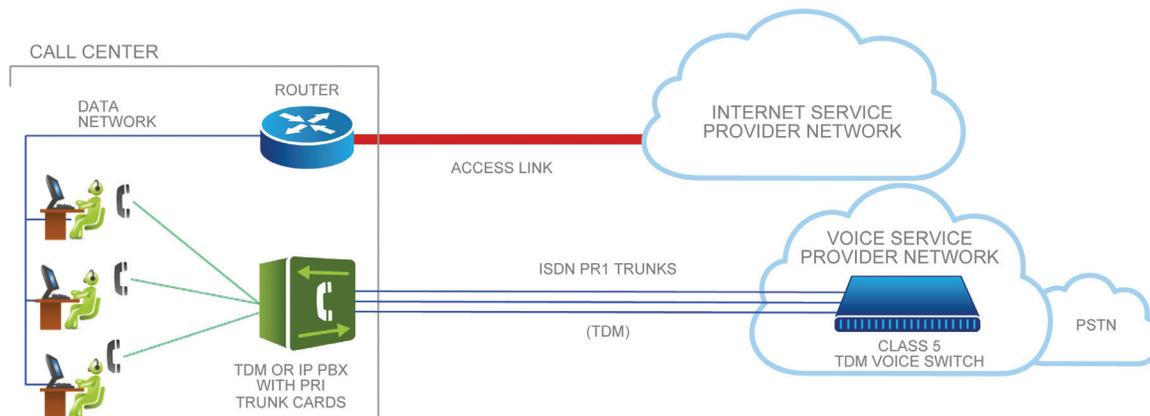


Diagram 1: Legacy Voice TDM Trunking With Separate Data Network

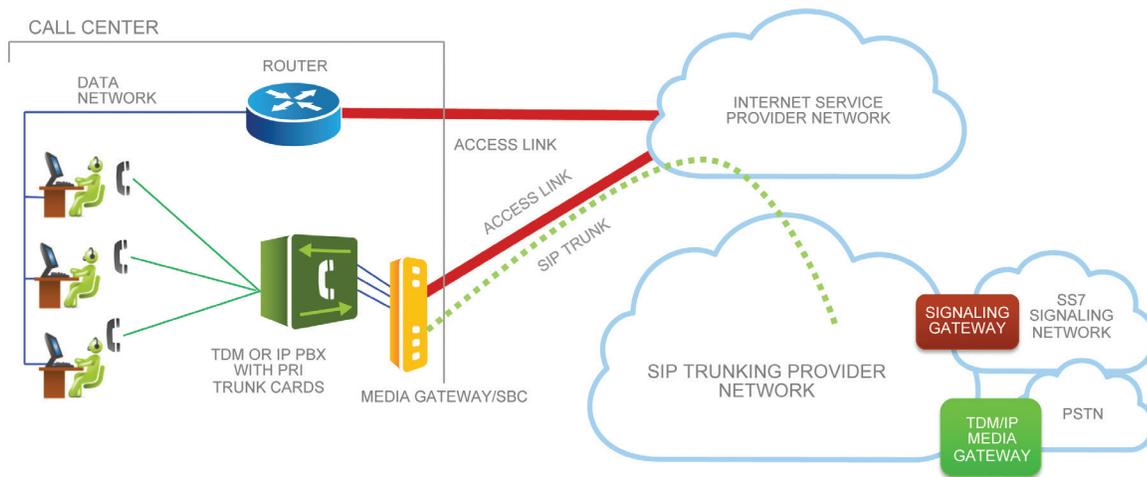


Diagram 2: SIP Trunk Connection With Separate Media Gateway/SBC

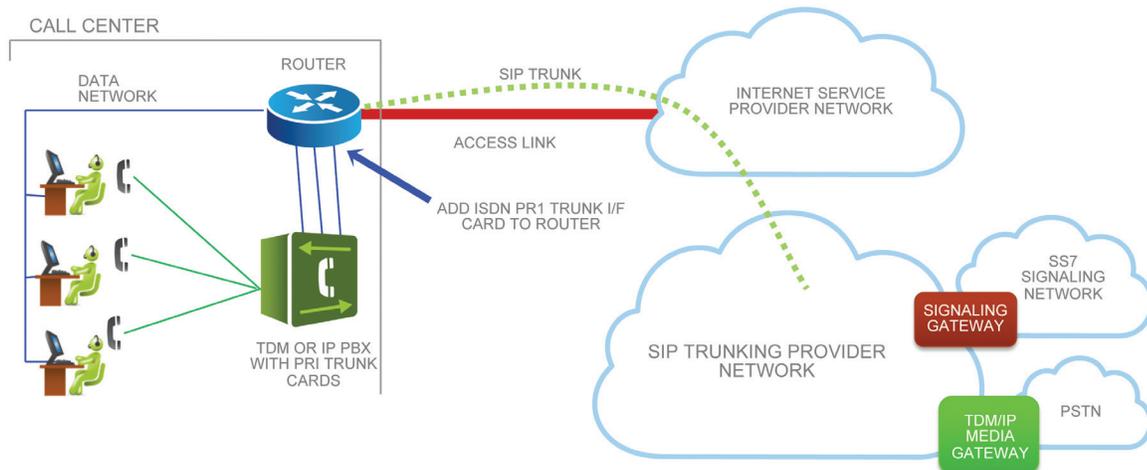


Diagram 3: SIP Trunk Connection With Addition of PRI Trunk Cards to Existing Data Router

The next set of choices is whether dedicated bandwidth, typically via MPLS, or the public Internet (frequently called Over-the-Top (OTT) services) will be used for access to the SIP trunk provider’s network. While many contact center managers want to have the contracted level of service and QoS guarantees of MPLS, it does come at higher cost and has less flexibility. Since the public Internet is a “best effort” service, there can be a mistaken impression that IP voice calls may be frequently dropped or experience additional delays in the event of congestion. However, SIP trunk providers can engineer their networks to have high QoS with very few hops between the customer networks and their own through key Internet Points-of-Presence (POPs) and high bandwidth connections. In most cases, testing at even the largest contact centers has shown that the subsequent QoS for OTT links is more than sufficient, and often equal to MPLS links. Another important consideration is that the SIP trunks over the public Internet can be turned up much faster, often within hours or days. Because the provisioning time for MPLS links can be significantly longer, contact centers can end up once again over-provisioning their links to account for potential peak demands, much as was done with TDM PRI trunks.

Another common concern is security across the SIP connection, especially in the case of public Internet access. Depending on any particular vertical industry that the contact center may focus on, there can be a multitude of regulations and best practices for security. These can include PCI, HIPAA, CPNI and others, or may even have overlapping or multiple

regulations. Thankfully, SIP has encryption and authentication protocols available for both the signaling (with TLS) and voice payload (via SRTP). Along with the SBC these can address the potential for toll fraud, TDoS attacks, and network topology discovery, along with other security concerns.

The final deployment consideration is related to the previous decision regarding the use of existing or legacy systems and applications. That consideration is whether to use any other externally hosted/cloud-based services that now become available with the conversion to SIP trunking. There are large ecosystems of vendors and service providers that can offer outsourced solutions, from individual services (including all the common applications such as IVR, proactive IVR, ACD, predictive dialers, etc.) to full contact center (sometimes referred to as a “virtual contact center”) solutions. Many are only available over IP links, and these hosted/cloud-based solutions can have a number of cost, performance and feature advantages over in-house systems. With so many potential communication modes with customers, the skillsets available and routing to appropriate agents becomes even more critical and complex.

Benefits and Concerns

As SIP trunking provides the foundation for ever increasing integration of all-IP technologies, additional options become available for more rapid scale changes and staffing flexibility. A few of these options include support for more distributed contact centers, remote agents (including home workers) and mobile agents. With greater use of skills-based routing, this can allow for solutions that cover wider geographies to take advantage of available labor pools or specific skills as well as changes in time zones. The inherent flexibility of SIP trunks also allows for rapid reconfiguration or re-homing in the event of network outages, short-term weather events or seasonal campaigns.

It also creates an opportunity to introduce additional modes of communication with customers, such as texting (SMS) or Instant Messaging (IM) as well as more multi-media (including video or web-based click-to-call). Tighter Computer Telephony Integration (CTI) for more efficient interactions can also enhance customer experiences.

With all of the increased integration and ease of connectivity it becomes important to address potential security and quality concerns. Especially for any kind of contact center taking in payment or personal health information, regulations and policies such as HIPAA or the Payment Card Industry (PCI) guidelines should be followed and the use of TLS/SRTP for authentication and encryption of the signaling and media streams should be considered. However, care must be taken to ensure that those security efforts don't cause significant delays or increase network congestions to the point where it impacts QoS.

IntelPeer Solutions Transform Contact Centers

IntelPeer has been an industry leader in providing flexible, scalable and cost-efficient IP trunking solutions for Unified Communications (UC) that increase productivity and enable services never before available to contact centers. In the future, customers will increasingly expect to be able to choose the time, method and location for their interactions with contact centers. The more a contact center converts its applications and network connections over to SIP and IP the more additional value that can be extracted from its network through services like IntelPeer's Fluent™ Federation Service, which can closely integrate previously unconnected networks.

Interoperability and Certifications

Because every contact center network is different, it's important that a SIP trunking vendor has the ability to be flexible and match their services to whatever combination of vendors and equipment might be found in the existing network. That also affects the speed of deployment and ease of migration from TDM to SIP trunking. IntelPeer has already undergone extensive interoperability testing with all of the major contact center system vendors including Cisco, Avaya, Siemens, Asterisk, Voxeo, Allworx and Interactive Intelligence. Through fully certified solutions and partnerships with these vendors, contact center customers not only have a full range of system options, but also can be assured that ongoing relationships are already in place for any future changes or migrations. IntelPeer has also demonstrated integration with a long list of other vendors for specific contact center applications and technologies (IVR, ACD, voice broadcasting, etc). The choice of technology and system vendors should be made by the contact center managers and not limited by a SIP trunking provider.

Scalability and Experience

IntelPeer's network is already supporting a widely diverse set of customers, including more than one hundred contact center. These solutions include smaller installations with only a handful of agents and scale up to deployments with tens of thousands of agents. That experience also extends to many different deployment models and configurations, including cloud and hybrid deployments that allow for greater longevity of existing equipment by not requiring forklift replacements of existing infrastructure. While the greatest value of IP networking comes from end-to-end IP connectivity, IntelPeer can also support both TDM and SIP trunks as a hybrid solution during migrations.

Pricing Flexibility

It wouldn't make sense for contact centers to migrate the networking technology from TDM to SIP without also changing the way those services are priced. Legacy TDM trunk pricing comes with legacy pricing models that are based upon fixed port capacities and long-term commitments. Some SIP trunking vendors have carried over that mindset by requiring minimum traffic volume commitments. IntelPeer has always had cost models based on actual usage, including pay-as-you-go pricing without charging per port or requiring minimum volume commitments or long-term contracts. That also means that unlike some other vendors, there is no additional charge to provide trunk pooling across multiple sites.

Flexible services and capacity on demand only have value if they are quick and easy to implement. While some dynamic traffic flows can be planned in advance (such as for seasonal demand changes, election or marketing campaigns), others can literally happen overnight. IntelPeer is able to accommodate those changes with incredibly short response times, all while maintaining its pricing model based on actual usage.

Increased Value in Contact Centers

With IntelPeer's extensive all-IP network, there are some additional services that can be especially cost effective for contact centers.

One of the ways that contact centers can increase customer service while continuing to hold down costs is through improving the accuracy of the speech recognition component of their IVR systems. Many customers can complete their calls using completely self-service voice interactions and never need to speak directly with an agent. But the IVR completion rate is dependent on the accuracy of the speech recognition algorithms, which can be greatly affected by the quality of a call. By carrying the call natively as IP, IntelPeer can maintain the highest possible QoS through reduced hop count and reduced transcoding "noise." This ultimately can result in better voice recognition accuracy and increased customer satisfaction

Another critical service is IP Toll Free. Even for the smallest contact centers there is a good chance that today's highly mobile customers may dial in to a toll free number from almost anywhere. Many service providers can still only provide toll free services over TDM links. Instead of continuing to route those calls over the PSTN, with accompanying long distance costs, IntelPeer's intelligent routing can direct those calls to connect through its all-IP network at the nearest point. In addition, CoreCloud™ Services and IntelPeer's unique peering grid architecture aggregates multiple call origination carrier networks for enhanced inbound toll and toll free call routing.

Another important component of CoreCloud Services is the built-in redundancy to provide resiliency across different carriers and routes to maximize availability and ensure that customers can reach the contact center. When combined with IntelPeer's IP network redundancies and proactive network monitoring (including toll fraud detection) the speed and ease of national and emergency re-routing can't be matched by any TDM trunking services.

Federation Service For Extended Value

Many contact centers continue to use Dedicated Access Lines to connect multiple locations or to connect to any hosted/cloud-based applications, but those can all be more efficiently replaced and connected with an IP-based federation. By using known numbers/addresses within the federation, the PSTN (and all its legacy limitations) can be bypassed. Through a system like IntelPeer's Fluent™ Federation Service all the modes of communication and collaboration (voice, video, IM

and presence) can connect seamlessly across networks and maintain the highest quality attributes by staying on an all-IP network. That also means premium services like HD-voice and video can be introduced while completely eliminating the legacy fees of the PSTN. Routing through IntelPeer's network also means that scaling services becomes even easier and more cost effective through rapid response times and high availability.

Conclusion

Although the PSTN is still the primary method of communication between contact centers and customers, IP-based SIP trunking services are quickly becoming the enabling technology to transform all aspects of that communication while continuing to lower the overall costs per transaction. The rapid customer adoption of multiple new modes of interactions with contact centers will enable more flexible and more effective communication resulting in greater customer satisfaction for contact centers that are able to make the necessary changes. As part of that transformation, continued migration from TDM to SIP trunking provides a necessary foundation for all other services, including Unified Communications, and is a critical enabling technology for contact centers that can, and should, be more widely deployed today.

GLOSSARY

Automatic Call Distribution (ACD) – queues and disperses incoming calls to agents or employees, frequently in conjunction with an IVR system. Routing may be based on first agent availability or specific criteria (skills-based call routing may be based on geography, specific product lines or other criteria).

Interactive Voice Response (IVR) – automated system to allow callers to interact with the call center applications through voice recognition responses or telephone keypad. If necessary, the call may then be transferred to an agent through an ACD.

Predictive Dialers – connect answered outbound calls to agents using statistical algorithms to minimize the time the agents spend waiting between conversations and minimizing the occurrence of a call being answered when no agent is available.

Proactive (Outbound) IVR – newer generation outbound dialers that automatically can send targeted, interactive messages to customers and only connect with an agent if requested by the requested by the customer. Common uses include notification of scheduling changes, appointment reminder, product and service availability or payment due notification.

Voice Broadcasting – automated outbound calls that are typically short duration and may involve large numbers of contacts in a very short period of time. This is commonly used by government agencies for emergency notifications.