

4 Key Points to a Successful PSTN to All-IP Transformation



Introduction

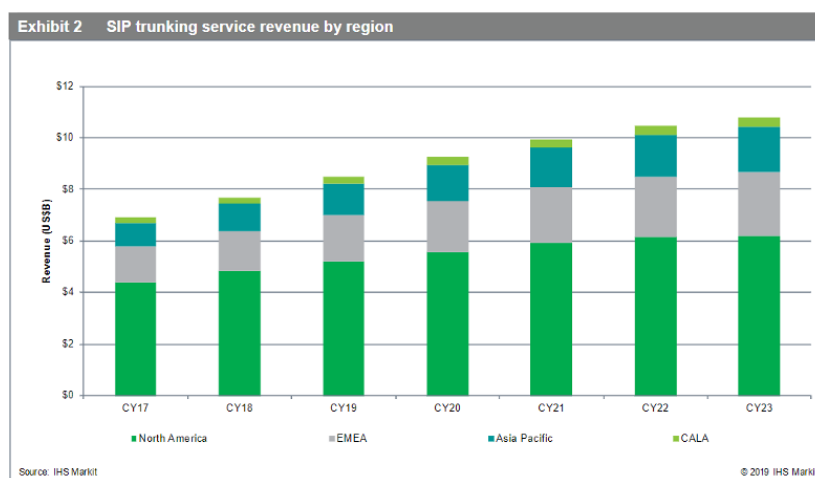
The evolution of the PSTN from TDM technology to IP is well underway. More and more service providers are migrating to all-IP infrastructure, adopting IP as the technology of choice for providing business voice services. SIP trunking provides IP PBXs, unified communications (UC) solutions, and IP contact centers with SIP voice connectivity. Taking into consideration factors such as end of life of the traditional TDM switches, real-estate that is occupied by these switches and the potential for significant energy savings, together with the need to compete with the growing popularity of SaaS and cloud services, operators are moving towards a complete replacement of their legacy TDM networks with all-IP networks in a process that is also known as “All-IP Transformation”.

The migration of legacy TDM networks to all-IP is far from simple. In fact, it includes many complex elements such as migrating the core network to IP, replacing customers’ on-premises equipment, introducing new services to end-customers and more. In this paper, we will cover some of commercial and technical challenges facing the fixed line operators who are planning to migrate their networks to all-IP, and we will offer some guidelines to help them to overcome these challenges.

Key Point 1: The Time is Right for All-IP Transformation

There is no denying that the world is moving to IP, and SIP is the de facto solution for business voice and UC connections.

The SIP trunking market grew 9% YoY in 1H19 to \$4.1B with the majority of sales coming from North America, and it is expected to continue solid worldwide growth over the next five years - the market will reach over \$10.7B in CY23 with 70.2M trunks in service.¹

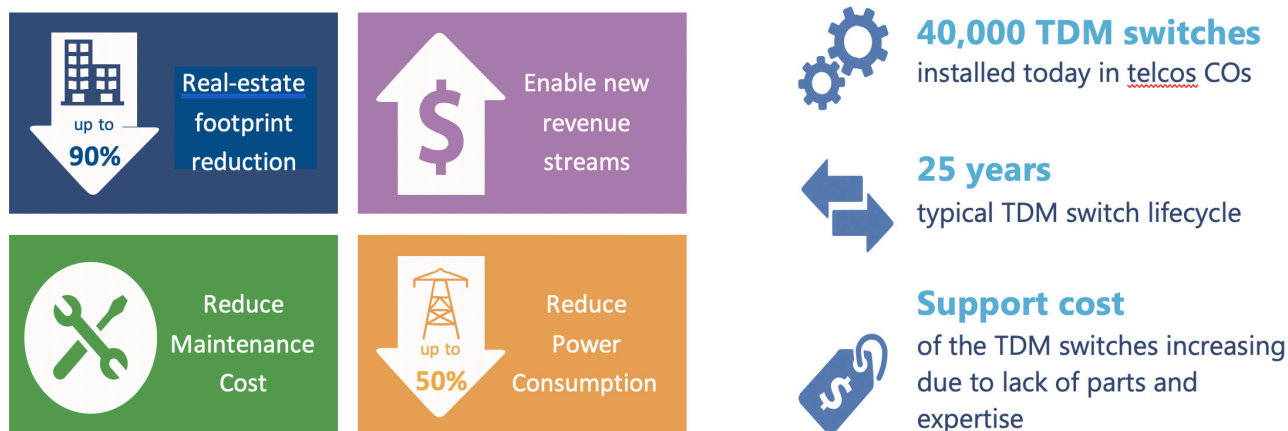


Global SIP Trunks Market Size

While we are expecting continued growth in the number of SIP trunks in the coming years we will continue to see a significant decrease in the number of PSTN lines as users switch to mobile and VoIP alternatives.

1. Source: IHS Markit, SIP Trunking Services: Annual Market Report: Regional, October 2019

At the same time, the number of the TDM switches serving these PSTN lines will remain almost unchanged as they will need to keep serving the remaining active PSTN lines. This means that the average number of access lines handled per PSTN switch will decline sharply, increasing the cost per PSTN user.



All-IP Transformation Motivators

Key Point 2: Focus on Business Customers

Though one of the main triggers for operators to transition their PSTN networks to all-IP is the significant decrease in the number of PSTN residential lines, they need to keep in mind that once they start the transition process, it will cover 100% of their network - meaning it will also include their business lines.

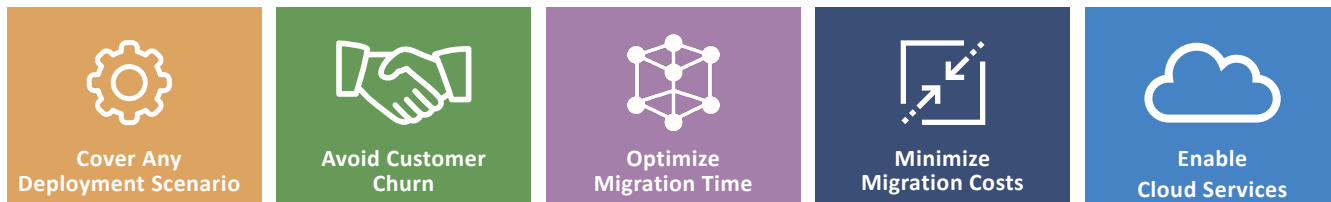
It is critical for operators to focus on their business customers during the PSTN migration process because business customers are far more sensitive to changes in voice services as they are critical to their on-going business operations.

Moving to an all-IP network will enable operators to offer new, appealing and revenue-generating services. The revenue potential from business customers using these services (such as cloud UC) is considerably higher than from residential customers.

Key Point 3: Ensure a Successful PSTN Migration Process

The PSTN to all-IP transformation process is far from being just a technology upgrade. It includes significant challenges that the operators will need to face, such as migrating on a massive scale, on time and on budget, and ensuring that the transformation has zero impact on existing services and end users. A detailed description of some of these challenges can be found in a useful paper from Deutsche Telekom covering their successful PSTN to All-IP transformation in Macedonia (http://www.ittoday.info/Excerpts/PSTN_Transformation.pdf).

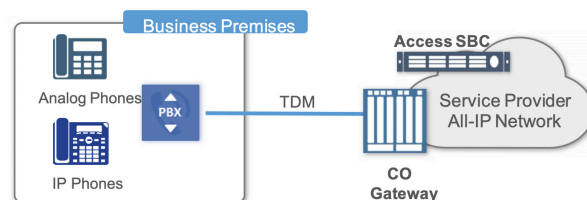
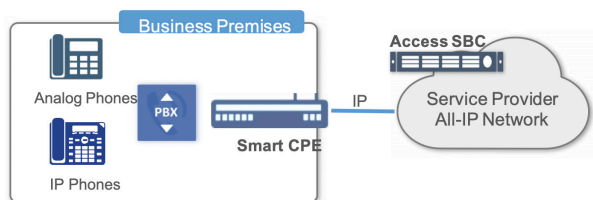
AudioCodes defines 5 key points that should be followed by the operator as part of the PSTN migration process:



Cover any Deployment Scenario

A key challenge of PSTN migration is migrating 100% of the network while providing solutions for any customer type, size, or location that may be using existing telephony applications and services.

There are two models that can be deployed in such a migration. In the first model, a high capacity trunking gateway, capable of handling multiple trunks is deployed on the service provider side. In the second model, the service provider sends a technician to move the ISDN trunk over to the SIP trunk and puts a smaller, but dedicated gateway at the customer site.



Smart CPE Migration Approach

- The IP network ends at the customer's premises
- New CPE has to be installed at the customer site
- The customer has to be informed when the migration is carried out
- The customer can keep using their old PBX

CO Migration Approach

- The IP network ends in the exchange or in the box near the customer's premises
- A trunking gateway has to be installed at the CO or in the street cabinet
- The customer does not always have to be informed when the migration is carried out
- The customer can still use their old PBX

Avoid Customer Churn

The customer-based footprint is the greatest asset of the fixed-line provider. It is critical to minimize churn during the migration process.

- Minimize business disruption during the migration process with a quick installation of the new devices
- Improve quality of service (QoS) and quality of experience (QoE) with the new IP network

Optimize Migration Time

Reduce the migration time of a large-scale deployment

- Quick installation and configuration of on-site devices is made possible by using wide-ranging interoperability devices, auto configuration wizards and zero touch provisioning
- Remote management tools enable remote configuration and installation of new applications while saving costs of technician time and visits

Minimize Migration Costs

The migration process is long and complex and requires detailed cost planning.

- Reduce equipment and logistics costs by using a single provider
- Reduce installation and engineering costs with a quick and easy deployment of the new devices, together with holistic management that saves the costs of on-site technician time and visits

Enable Cloud Services

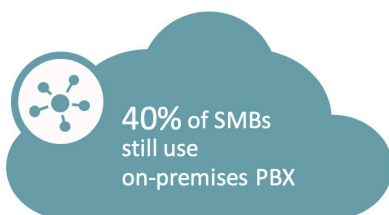
Once the all-IP network is in place, the operator will have the ability to offer additional revenue generating services. These include new applications from the cloud, all the way up to a full migration to the cloud with hosted unified communications services, all offering higher ARPU, improved differentiation and increased stickiness.

Key Point 4: Use Smart Cloud Transformation

The need to enhance collaboration among mobile and remote workers is the driving factor for the adoption of SIP trunking services among businesses. This enables operators to bring forward new revenue.

During the PSTN migration process the operator will need to disconnect the SMB's voice systems from the PSTN and reconnect them to the IP network using on-premises or central office (CO) VoIP gateways, and their focus should be on doing this with minimum customer disruption. Many of these businesses are still using on-premises PBX systems today and even if they are connected to a new all-IP network, there will still be another phase needed to migrate these businesses to cloud-based services. This situation reflects a challenge that the operator needs to face.

Moving an SMB customer to the cloud can be a complex task which includes replacing existing equipment such as desk-phones, cables etc. This task will require sending a technician to the customer and can increase the cost of the migration to the point where it will be higher than the potential revenue from this customer.



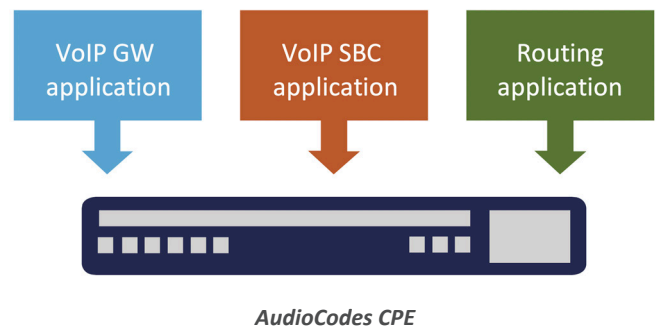
Gradual Cloud Migration

The main concern that the operator needs to address during the migration from TDM to IP is ensuring that it is done with minimal impact to the customer. If the operator deploys a smart CPE device to connect the customer to the new all-IP network, the device now serves as a “foot in the door” that can be used to offer additional cloud services. These new services can be offered in a gradual way where some applications are offered as enhancements in the first stage, increasing the stickiness of the SIP trunk. Then, the business can expand the number of extensions by adding virtual extensions from hosted/cloud UC platforms, together with enhanced features such as mobile workers, collaboration, monitoring, quality enhancements and resiliency.

Using smart CPE devices will allow the operators to promote the cloud advantages and to allay their customers' fears of the cloud.

Modular Design

AudioCodes' CPE unique modular design enables remote installation of session border controllers (SBCs), gateways, and routing applications in the same device, as well as the activation of the most suitable configuration for the desired service. This unique design enables fixed line operators to connect their customers to their SIP trunking services quickly and with minimum disruption, while being able to migrate those customers to cloud services without a technician needing to visit the customer and reinstall equipment.

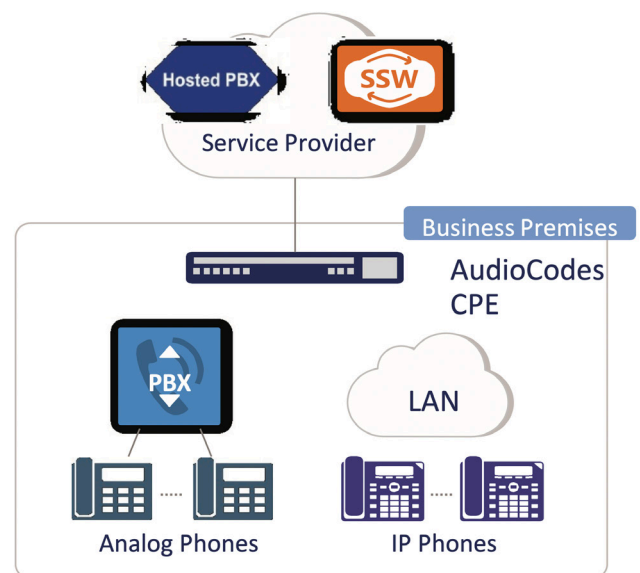


Hybrid Solution

The AudioCodes hybrid CPE enables service providers to benefit from a coexistence solution that merges the on-premises PBX and the new UC and hosted/cloud PBX into a single telephony solution. This hybrid design paves the way for a gradual migration to hosted PBX services while continuing to use the existing on-premises PBX system.

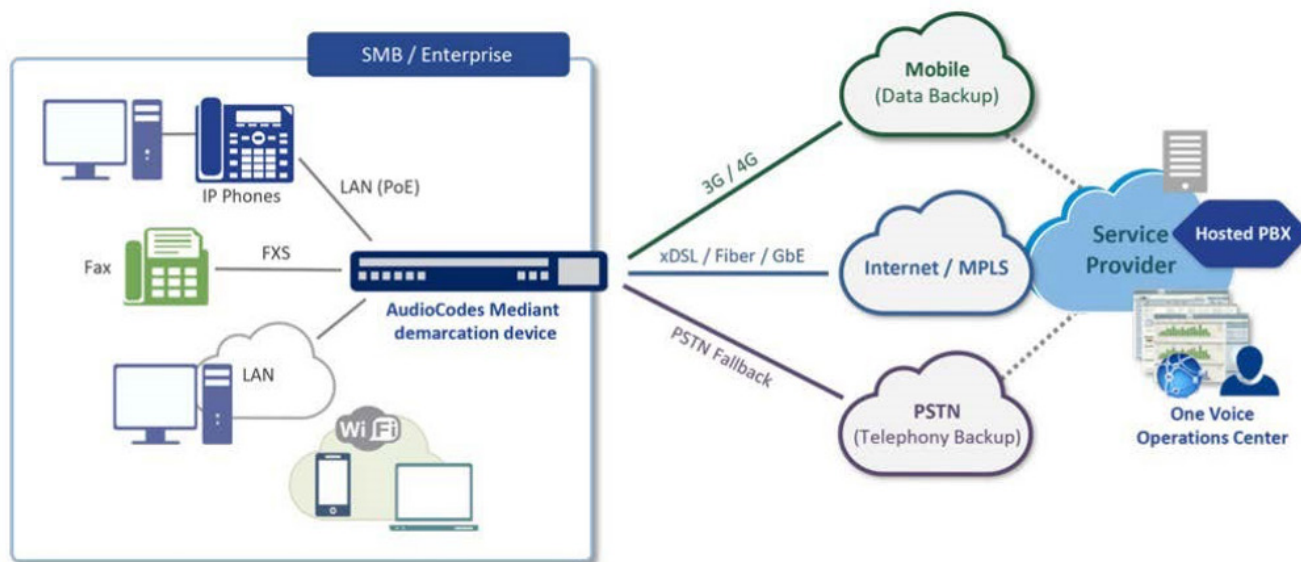
Hybrid IP PBXs remain the dominant line shipments, representing 61% of all lines shipped in 4Q19 and 59% of lines shipped in CY19. Hybrid systems appeal to businesses that want to continue using existing TDM handsets rather than fully replacing them, thereby minimizing upfront capital.

Source: Omdia - Enterprise UC and Voice Equipment Quarterly Market Tracker: Q4 2019



Resiliency

By deploying a CPE that has resiliency features such as survivability or dual WAN capability to access an alternative WAN service, the voice network can continue to operate even if there is a problem with the data connection. Resiliency features ensure that WAN connectivity continues either through a dual WAN or 3G/4G backup.



Multiple WAN Options

Conclusion

In this paper we have seen that the telecommunications market is going through a significant change as more and more operators undertake their transformation from TDM networks to IP. There is no doubt that operators need a holistic plan to avoid confronting the looming issues of the end-of-life of PSTN infrastructure. If carried out in a pre-planned and controlled manner, PSTN migration can provide multiple benefits such as additional revenue streams from cloud and IP services. We have highlighted several commercial and technical key factors that we believe every operator should take into account as part of their journey to a successful all-IP transformation.

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