WHITE PAPER

The Business Benefits of VoIP

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More than ever, enterprises are relying on technology to help solve their business issues while constantly seeking better technological innovations that improve both operational efficiencies and better manage expenses. Nowhere is this more evident than with voice communications where companies, through growth and acquisition, are maintaining and managing disparate phone systems and multiple legacy voice networks. Additional concerns — such as equipment vendors phasing out support for some TDM (time division multiplexing) components and the need to support an increasingly mobile and virtual workforce require companies to consider new voice service options.

As with any IT project, budget is a consideration factor. You have to decide between continuing to spend capital and resources to maintain your current voice TDM architecture or considering another course. With challenge comes opportunity. TDM’s impending sunset presents an opportunity to organize, unify and standardize your network, as these forward-thinking enhancements will prepare your company for the future. This white paper analyzes why a move from TDM to a Voice over IP (VoIP) is a beneficial solution for your enterprise.

VoIP is a Priority for Today’s Enterprises

Level of Priority of Data/Voice Network Management, Unification, and Innovation in Supporting Business Goals — Next 12 Months

<table>
<thead>
<tr>
<th>Priority Level</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Critical Priority</td>
<td>16%</td>
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<tr>
<td>Very Important</td>
<td>36%</td>
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<tr>
<td>Moderate Priority</td>
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<td>Low Priority</td>
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Voice over internet protocol (VoIP) puts voice call traffic on the enterprise’s existing Intranet — or IP-based network. It allows a person to make voice calls by converting sound to data and processing it across a data network rather than using conventional or analog phone systems with TDM lines. In today’s market, data bandwidth is less expensive than ever, so expanding its capability to handle voice is an optimal transformation. Moving to VoIP enables you to use one network for both data and voice — removing the need to rely on the costly and aging TDM technologies.

As you are thinking about the move to VoIP, assess your current data network to learn how voice calls will affect its ability to function for simultaneous voice and data traffic. A correctly sized network is critical for a successful transition. In addition to the LAN, will the WAN also be capable of handling VoIP call traffic? Both questions are valid and should be addressed.
There are a number of ways to provide adequate call quality. Quality-of-Service (QoS) network capabilities help manage the LAN and WAN so call quality does not suffer in the converged environment. The LAN and WAN class of service and quality of service (CoS/QoS) can provide for voice prioritization over other traffic. On the LAN, separate virtual LANs (VLANs) can be created for data and voice in the local network. Data and voice traffic can compete with one another on the network, which may cause uneven voice audio quality. To mitigate this problem, you can use call admission control (CAC) mechanisms and VLANs to protect voice traffic from competing network traffic and prevent excessive voice traffic from flooding the WAN network. CAC rejects calls when there is insufficient CPU processing power, when the upstream and downstream traffic exceeds pre-specified thresholds, or when the number of calls handled exceeds a specified limit. Combined, these tools have made VoIP easier to manage without a negative effect on voice quality.

Benefits of VoIP

There are many benefits of moving to VoIP, some of which are not even offered as an option with TDM. The cost to maintain and manage TDM infrastructure is reflected at both the customer level and the carrier level. Operating costs of VoIP service providers are lower than traditional TDM phone companies, which must contend with expensive-to-maintain telephony architecture and costly regulations. Lower costs allow the VoIP provider to charge less while providing more features.

Many features and services are built into the VoIP platform or included by the provider—saving businesses from spending on the same functionality at the enterprise level. With TDM, you pay monthly for many of the features you need, such as caller ID, call forwarding, three-way calling and more. In contrast, VoIP providers include these features in the monthly cost of the service. These can be implemented user by user or location by location.

Increasing Productivity

VoIP services make your voice communication capabilities more flexible. They enable cost savings and productivity features that TDM has trouble matching:

- **Always available**: Today, many VoIP offerings are configured to simultaneously ring on multiple devices — such as your cell — making it easy for customers and partners to reach your employees thereby reducing “phone tag” situations. Achieving this “always available” feature with a TDM system would require additional lines to forward the call to a secondary device and possibly additional PBX (private branch exchange) equipment.

- **Enable a virtual workforce**: As long as users have access to a broadband connection, they can continue to handle calls outside of the physical walls of the office — even while traveling — via software installed on PCs and mobile devices that enable users to make and receive calls. External callers can reach employees using their published company phone number while keeping the employee’s mobile number private.

- **Voicemail via email**: With VoIP, voicemail can automatically be forwarded to the user’s regular email box as a wav file attachment or transcribed and sent as text. With all messages in one archive, employees can read or listen to their messages and forward them if necessary.

- **Combine and simplify features**: VoIP standardization eliminates the need for employees to master multiple phone systems as they move around the organization. Employees can be responsive and productive on day one, with less training required.

- **Portability**: Once an employee has a phone number, that number can follow him or her throughout the enterprise. If an employee moves to another physical location either within the building or to another location, he or she can take their phone, plug it into a LAN port and along with the number, all features and capabilities will follow. This saves IT staff time as there is no need to physically move equipment — administration is managed via a provider web-based portal. Technicians are no longer required to move users to a new cube or physical location as this can now be easily accomplished via an online portal.
Business Efficiencies
VoIP can assist enterprises by increasing efficiencies in IT operations:

- **Virtual numbers anywhere**: Many enterprises are expanding their services into markets where they do not have a physical presence. With VoIP, you can have a local phone number in an area code you select. You don’t need a physical system in that location. The VoIP line can connect calls to a location in a different region of the country. Because of TDMs rigidity and regulations, a local phone number in that market must be purchased requiring a form of call forwarding redirecting the call to another device or location. In these cases, there is a cost monthly in each market and often a cost per minute for each call processed.

- **Easier migration and deployment**: VoIP can be deployed with little cost because it operates on your existing LAN and WAN. Performing network assessments can identify what is needed to introduce VoIP into your ecosystem. Migration to VoIP is easy to deploy. It is a matter of setting up the service with a VoIP provider and migrating to the converged LAN and WAN architecture. VoIP can coexist with a TDM environment, with the migration coordinated over time. No more “flash cuts” into a new architecture.

Reducing Costs

- **Ongoing monthly savings**: Today your TDM bills are based on regulated fees and services. With VoIP, you can call other companies on the same network with no additional charges. If you are in an area of the country where minute-of-use charges exist for local calls, this cost does not apply when using VoIP. It is important to note that standard long distance rates on VoIP are often less expensive than traditional TDM.

- **Better bandwidth utilization**: Did you realize that during a voice conversation there is an average of 35-50% of silence during each call? When moving to VoIP this utilization savings can be applied so more calls can use the same amount of bandwidth. During those periods of silence, the bandwidth is available on the network for other voice, data or video communications.

- **Moves, adds, changes and deletions (macd) activities via portal**: Most VoIP providers offer online access for performing user-level changes as well as administration activities such as, moves, adds, changes, and deletions and modifying the features available for the enterprise. No more dispatching technicians or paying for MACD changes in the environment.

- **Technical resource cost management**: Today, most TDM PBXs and other voice hardware requires an enterprise to have one or more technical resources available to perform activities on the equipment. For some of these systems, the available resources are limited as the equipment may no longer be supported by the manufacturer, and therefore you may pay a premium for maintenance and technicians to support your environment. As stated earlier, the phone is another data device and managed using the data technical resources. You are no longer required to hire, train and manage legacy TDM IT staff. With VoIP, this can free up those IT resources to focus on strategic efforts aligned with the core business objectives.
Simplifying Management

- **Converged network architecture**: Today, many companies have separate voice and data networks. Generally, these are managed by separate resources. With VoIP, the telephone becomes another data device in the data infrastructure; therefore, there is now one network to manage. Most of the VoIP telephones available today have capabilities inside the telephone, allowing the PC to be plugged into the back of the phone thereby sharing a single LAN connection for both devices using VLANs (virtual LAN) to separate and prioritize the traffic.

- **Business continuity**: It is common for a data environment to have some level of redundancy; this aspect of business continuity may now be extended to the VoIP architecture. With several network level and site level options available, you have the choice to create many levels of redundancy. This savings no longer requires a duplication of TDM circuits and PBX equipment to create a failover voice strategy.

- **Rapid increase in capacity**: Using your data network to process all communications enables an enterprise to quickly augment the capacity on its network. Companies can dynamically re-allocate existing bandwidth from data to voice to accommodate increases in call volume, a process that is not possible with traditional TDM voice circuits.

- **Scalability**: Since VoIP uses your data connectivity, expanding and decreasing the data bandwidth based can be accomplished quickly with your carrier to accommodate voice traffic peaks and valleys throughout the course of the year. This means hours/days to add bandwidth rather than weeks required in the TDM network. In addition, there will be no PBX expense required to accommodate this traffic growth — no technician expense to perform work on the PBX, no equipment expenditures and no additional management or maintenance costs. Scale your network to fit your needs.

Improving Productivity

- **Improved support for remote workers**: Remote workers today connect to the data network using VPN or Internet access. With the VoIP applications running on the data network, this now expands the ability to use this access for voice communications as well.

- **Data application integration**: There is high business demand for more collaboration and telephony integration with data tools. Network application developers will find it easier to develop and deploy emerging applications for data communication using VoIP as it is based on industry standard well established in the marketplace today. This allows the enterprise to expand and use new applications faster.

- **Video support**: Video is not easily supported on most local TDM networks without purchasing a circuit designed for that purpose. With VoIP point-to-point video is allowed — provided the users have a supported application, a PC with video capabilities or a video-capable device at each end.
VoIP Implementation Choices

There are multiple ways of deploying VoIP in an enterprise, including a hybrid approach, to the multitude of VoIP choices. Although each option has various features and function that differentiate one from the other, the lowest common denominator is where the VoIP architecture should reside. The following identifies the most elemental differences when considering a cloud-based VoIP solution.

- **Hosted VoIP**: Hosted VoIP services are delivered via the cloud. Because of this, it is the easiest of all VoIP options to deploy, with very little maintenance cost and the lowest capital expense (CapEx). Hosted VoIP is per-seat priced, including the phone, with all of the responsibility of the applications servers and the robust features and capabilities and maintenance falling on the provider.

  Situations that may benefit from this type of offering:
  - Reducing CapEx
  - Reliable and good bandwidth at all locations
  - Limited IT staff
  - Staff travels often or telecommutes
  - Limited third-party integration
  - Small offices (100 or fewer users per site)

- **Premise or data center hosted VoIP architecture**: These include providing a system that is owned and managed by the service provider. This VoIP system can be located at an on-premises location or in a data center. This option would have a dedicated platform for the enterprise with WAN connectivity and using SIP Trunking capabilities.

  Situations that may benefit from this type of offering:
  - Reduced OpEx pending
  - Complex voice environment
  - Many users (100+ users per location)
  - Heavy third-party integration
  - No seasonal staffing
  - Have dedicated IT Staff
  - Strongly regulated HIPAA, PCI Compliance, encryption or other regulatory requirements
Conclusion

Voice communications are an essential part of every work environment and will continue to be one of the most widely used enterprise applications for the foreseeable future. Migrating from TDM to VoIP can be a gradual evolution because it does not involve actually deploying a new network. It is about expanding and executing a converged telecommunication data strategy that will carry the business well into the future. The right ecosystem can lay the foundation for growth, management and scalability and help improve the bottom line by providing flexibility, increased efficiency and reduced costs. The increase in employee productivity and reallocation of technology investments to strategic projects can be a boon to differentiating the business from competitors. As this paper explains, any VoIP architecture chosen will provide more benefits than you even imagined from your voice communications.

CenturyLink delivers a full range of VoIP services, from hosted VoIP to IO-SIP Trunk to managing your existing VoIP infrastructure. Call us at 1-855-262-3445 or contact us via the web. Discover how a CenturyLink VoIP solution can improve the operational efficiency of your business while reducing cost and complexity.

About CenturyLink Business

CenturyLink, Inc. is the third largest telecommunications company in the United States. Headquartered in Monroe, LA, CenturyLink is an S&P 500 company and is included among the Fortune 500 list of America’s largest corporations. CenturyLink Business delivers innovative private and public networking and managed services for global businesses on virtual, dedicated and colocation platforms. It is a global leader in data and voice networks, cloud infrastructure and hosted IT solutions for enterprise business customers.

For more information visit www.centurylink.com/voip.

About the CenturyLink ATS Team

The CenturyLink Advanced Technology Solutions organization is a team of highly experienced customer facing sales and engineering individuals providing technical and strategic customer solutions on CenturyLink VoIP, network and hosting solutions.

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1 IDG Market Pulse Research Survey, January 2016