THE TIME FOR HOSTED VOICE IS NOW

Comcast Is a Complete Service Provider for Business Voice

WHITE PAPER

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INTRODUCTION: THE TIME FOR HOSTED VOICE IS NOW

Voice-over-IP (VoIP) has been growing in popularity for the past two decades. The value proposition for VoIP is multidimensional, as it empowers workers to streamline the way they communicate, significantly lowers costs and is considered to be the foundation for unified communications (UC). Because of the technology's strong potential, deploying VoIP should be at the top of every IT and business leader's priority list regardless of company size.

However, despite the technology's relative maturity, companies have been slow to adopt VoIP. During the transition from legacy voice to VoIP, organizations must consider several factors, including the following:

Budgetary concerns: Traditional customer-premises equipment (CPE)–based solutions require a significant up-front investment. In the current economic environment where capital investment may be minimized, this could limit the budget that IT leaders have to deploy a collaboration solution.

Longer deployment times: Premises-based solutions can have an elongated deployment period because infrastructure must be deployed, tested and optimized.

Operational and management skill-set gaps: Managing communications used to be very simple. Systems were self-contained and relatively straightforward but offered no flexibility. Today's systems offer significantly more power and potential but require a new operational skill set for IT. Exhibit 1 shows that the lack of technical expertise ranks as the number-one barrier to adopting a next-generation premises voice solution.

Before embarking on the transition from traditional systems to VoIP, it's important to understand how much more complex modern systems are. Legacy platforms were inefficient but relatively simple, as there were very few components: a PBX, phones, cables and a connection to the PSTN. With VoIP systems, administrators must deal with a physical server, virtual platforms, cloud resources, IP handsets, unified communications (UC) apps and a number of other factors (Exhibit 2). If the proper preparation work isn't done, the complexity can overwhelm even the savviest technical teams.
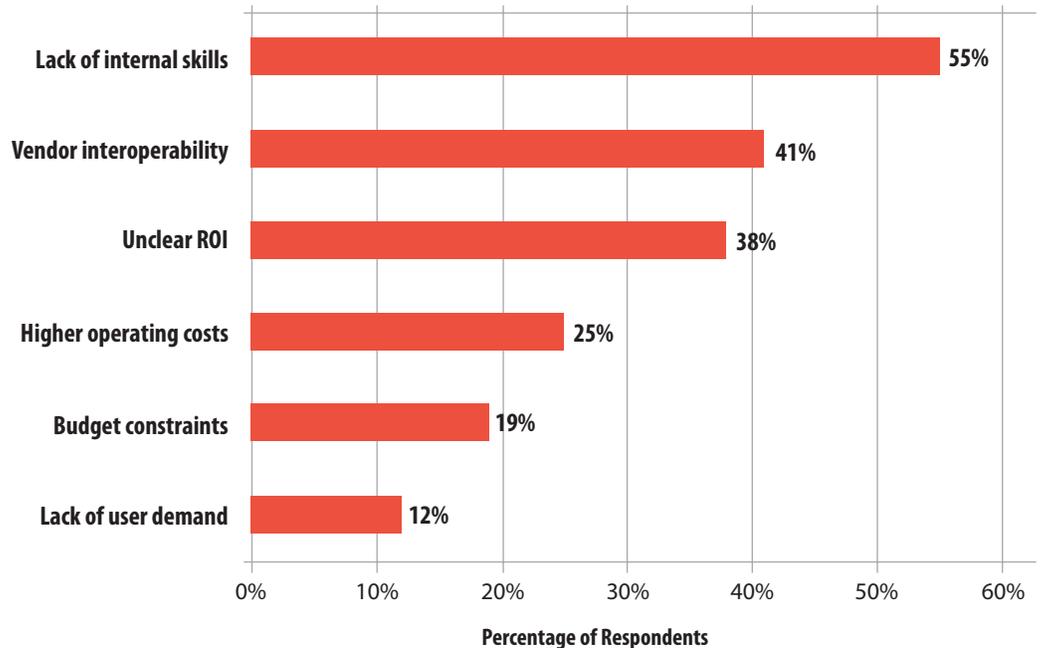
Despite the challenges, ZK Research believes that the benefits of VoIP are enormous and that companies should not wait to deploy the technology. To offset the challenges of an on-premises solution, businesses should consider a hosted solution because it offers all the benefits of a premises-based solution without the associated deployment risks.

Historically, organizations shied away from hosted services because of their perceived lack of security, features and control. Today's hosted voice services can offer the highest levels of security and manageability and are at feature parity with premises-based solutions. Also, in many ways, hosted voice is superior to on-premises solutions.

ABOUT THE AUTHOR

Zeus Kerravala is the founder and principal analyst with ZK Research. Kerravala provides tactical advice and strategic guidance to help his clients in both the current business climate and the long term. He delivers research and insight to the following constituents: end-user IT and network managers; vendors of IT hardware, software and services; and members of the financial community looking to invest in the companies that he covers.

VoIP is hardware, software or a service that enables people or organizations to use the internet or a data network for the transmission of telephone calls rather than using the PSTN.

Exhibit 1: Lack of Internal Skills Holds Back the Transition to VoIP

What are the top barriers to making VoIP pervasive in your organization?

Barrier	Percentage
Lack of internal skills	55%
Vendor interoperability	41%
Unclear ROI	38%
Higher operating costs	25%
Budget constraints	19%
Lack of user demand	12%

Percentage of Respondents

ZK Research 2016 Unified Communications Purchase Intention Study

Below are the top five reasons businesses of all sizes should consider hosted voice:
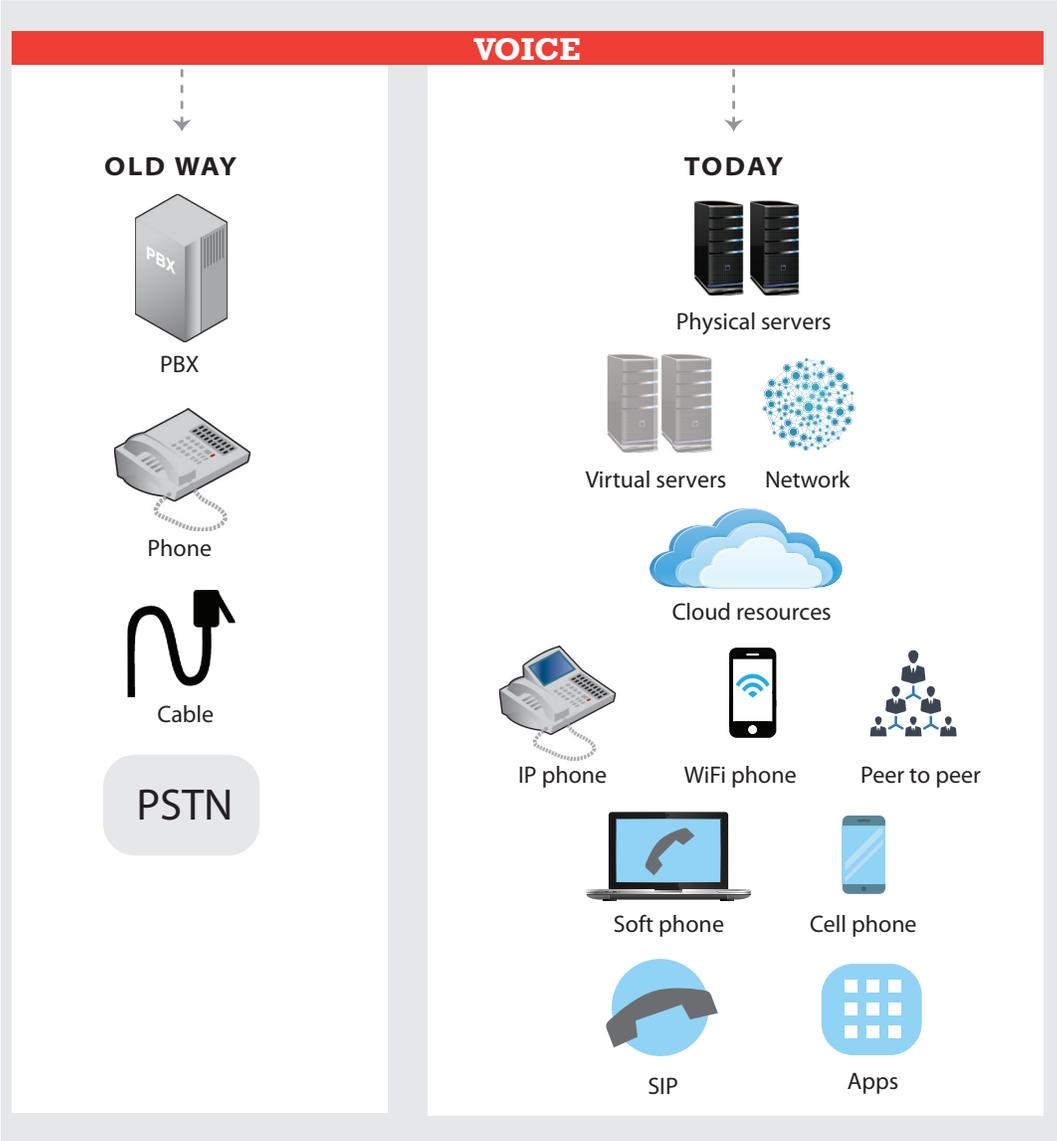
1. Faster Time to Market

Traditional CPE is typically managed on a node-by-node basis. This meant that upgrades could often take months or years to complete. With hosted voice, new features or applications are available to all users as soon as the service provider implements it. The customer now has the luxury of introducing new services aggressively, allowing companies to respond to competitive pressures almost immediately.

2. Centralized Management Functions and Administrative Tasks

One of the most difficult challenges in managing any kind of premises-based application is performing administrative tasks. Even simple tasks such as setting up new users and making changes or updating features can take a very long time, as the updates need to be completed at the system through a cryptic command-line interface.

With hosted voice, all administrative tasks can be done centrally through a management portal. The administrator can complete a certain task and push the functionality to users while having the

Exhibit 2: VoIP Is Significantly More Complex than Traditional Voice

VOICE

OLD WAY

PBX

Phone

Cable

PSTN

TODAY

Physical servers

Virtual servers   Network

Cloud resources

IP phone   WiFi phone   Peer to peer

Soft phone   Cell phone

SIP   Apps

ZK Research, 2016

confidence that it will be complete company-wide. The centralized management of administrative tasks can save companies hundreds of hours over the traditional distributed model.

3. Alignment with Mobile Strategy

A mobile strategy is no longer a "nice to have." According to the ZK Research 2016 Consumer-ization Survey, more than 80% of businesses now support the use of personal devices in the work-place. The challenge for IT is enabling a consistent set of applications on a wide range of endpoints that vary in form factor and operating system. Adding to the complexity is the fact that IT no longer controls these devices, and users replace them every 12 to 24 months.

A hosted solution is the most scalable, cost-effective way to address the unique challenges that mobility presents.

The only way to meet this challenge is to push the application into the network and deliver it via a hosted service. This deployment model can deliver business voice services to any user on any device. A hosted solution is ideally suited to the dynamic and distributed nature of today's workforce and is the most scalable, cost-effective way to address the unique challenges that mobility presents.

4. Budget Efficiency

Hosted voice provides superior budgetary advantages over CPE-based solutions, including the following:

Lower budget barrier to entry: There is little to no up-front capital outlay for a hosted voice solution. This means companies can get started with deployment immediately instead of having to seek approval for a large expense to purchase new call and application servers.

Budget planning: Hosted voice allows the company to plan its budget for the collaboration solution more accurately than with CPE-based solutions, since the subscription model provides predictable spend that is easy to calculate.

Lower overall TCO than on-premises solutions: A hosted voice solution costs less to run without the up-front capital investment. The cost of migrating a business application to a software-as-a-service (SaaS)–based solution is typically 30% to 40% lower over a five-year period, according to ZK Research.

IT resources and staffing efficiencies: By shifting the voice infrastructure to the cloud, IT can offload many repetitive maintenance tasks. This allows IT to focus on more strategic initiatives while maximizing efficiency.

5. Improved Business Continuity

Disasters can strike at any time. Natural disasters, power outages or even man-made problems can impact a company without a moment's notice, making any particular location, the resources in it or the people located there unavailable.

Ensuring that voice communications are continuously available to workers regardless of their location needs to be of the utmost importance. Often, voice solutions tools are used to communicate with customers and business partners, meaning any lack of availability could mean lost revenue and brand damage.

Because a hosted solution is not tied to any particular location, individuals can access them over any infrastructure using any device, whether the physical location is available or not. This can greatly simplify an organization's business continuity plan. The alternative would mean having to build a redundant data center with infrastructure that must be continually maintained and tested. Addition-

ally, a hosted voice solution obviates the need for a dedicated, physical disaster recovery location, so that in a disaster, workers can function anywhere including from a home office.

SECTION II: WHAT TO LOOK FOR IN A SOLUTION PROVIDER

Business decision makers have a wide variety of options when it comes to choosing a hosted voice provider. Typically, contracts are implemented for a two- to three-year period, so it's critical that a detailed analysis is done to ensure the right provider is chosen.

Companies can use the following decision criteria when selecting a hosted voice provider:

Voice Features

Rich set of basic voice features: Business voice requires far more features than just picking up a handset to make a call. Businesses require a broad feature set that includes options such as attendant console, music on hold, voicemail, call queues, unlimited local and long distance, and hunt groups.

Advanced features: In addition to the basics, several other advanced functions can improve the productivity of users and the efficiency of the IT department. These include HD calling, video capabilities, find me/follow me and voicemail-to-email transcription.

Mobile client: A robust mobile client will enable workers to use their mobile phone as a virtual extension of the office environment. The worker can perform functions such as retrieving voice-mails and calling co-workers using four-digit extensions.

Broad range of phones: Hosted voice providers should offer a wide range of phones to meet the needs of different workers, including low- to high-end IP phones as well as DECT handsets for areas such as lobbies and other locations where IP phones may not be appropriate.

Easy-to-configure 9-1-1 capabilities: One of the challenges with VoIP services is setting up 9-1-1 emergency services. With legacy TDM voice, 9-1-1 locations are tied to handsets. With VoIP, 9-1-1 services need to be provisioned manually. Hosted voice providers should ensure this process is easy for customers to set up and maintain.

Network Features

Ownership of a nationwide network: This is one of the biggest differentiators between a "cloud" voice provider and a true "hosted" solution. Most cloud voice vendors use the internet for transport, meaning call quality will be impacted by the instability of internet service. Network ownership means the call will be carried on a dedicated connection, ensuring the highest levels of quality. This is of particular importance for video calls.

Business decision makers have a wide variety of options when it comes to choosing a hosted voice provider.

Comcast is a multibillion-dollar multimedia organization with a history of addressing the needs of business customers.

Primary rate interface (PRI) services: Not all companies are ready to or want to transition to a hosted environment. Having the flexibility to run in a hybrid configuration allows customers to manage their communications needs by location. For companies that wish to maximize the investment in an IP PBX/PBX, the service provider should offer ISDN/PRI trunks to connect to the voice network.

SIP trunks: Another hybrid option involves connecting an existing IP PBX to the voice network via a SIP trunk. It's important to note that with SIP trunking, some service providers offer the service over a shared internet connection, which can interfere with voice calls. SIP trunking is increasing in importance and adoption. ZK Research data shows that in 2010, fewer than 15% of organizations were using SIP trunking. Today, 59% of businesses have adopted the service.

Last-mile connectivity: Although many service providers tout owning a nationwide network, they do not provide last-mile connectivity. Poor quality via the last mile can be highly disruptive to voice and video calls.

Other Factors

24x7 customer support: For most businesses, the phone is the first contact point with customers. Any disruption can result in a dissatisfied customer, which could cause irreparable damage to the business. The service provider must offer customer support when the customer needs it.

Proven success across companies of all sizes: Providing voice quality is difficult, even for service providers. Having a large base of customers that range from small businesses to large enterprises is a sign that the hosted voice provider understands the specific nuances of delivering voice.

Turnkey solution: One of the main value propositions of using a hosted voice provider is offloading the complexity of deployment. Solutions from a hosted voice vendor should be turnkey in nature and include all components from the core to the handset.

Financially stable organization: The voice industry continues to evolve. A hosted voice provider that has a strong financial base can make the necessary ongoing investments to ensure that customers have the latest features.

SECTION III: COMCAST BUSINESS: THE COMPLETE SOLUTION PROVIDER FOR BUSINESS-CLASS VOICE

Comcast is a multibillion-dollar multimedia organization with a history of addressing the needs of business customers. The company currently has more than 100,000 employees across the United States who service 23.3 million internet customers and 11.5 million voice customers.

ZK Research

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Comcast Business is the division of the company that provides a wide range of network and communication services to businesses of all sizes. Since 2008, the company has invested almost $5 billion in capital to build a premier infrastructure platform to offer best-in-class services to its customers. In that time, revenue for Comcast Business has grown from $256 million to more than $5 billion in 2015.

Voice communications remain a vital part of any organization. Because of this, Comcast Business offers a complete portfolio of voice services supported by the largest VoIP network in the country. The Comcast Advanced Voice portfolio, which includes Comcast Business VoiceEdge™ and Comcast Business SIP and PRI Trunking, offers scalable solutions that build efficiency in any business.

Comcast Business VoiceEdge

Comcast's Business VoiceEdge is a hosted VoIP solution that provides customers with a virtual PBX service offering the advanced features that businesses require while reducing capital expenditures. As a viable alternative to premises-based solutions, Business VoiceEdge empowers the company's workforce to effectively communicate at any time from anywhere using any device.

Customers have a choice of two VoiceEdge seats: standard and unified communications. The bundles are priced on a per-user/per-month basis that varies based on the number of seats purchased and whether the contract term is one or three years.

ZK Research believes that Comcast is a strong alternative to incumbent service providers and on-premises solutions. The section below compares Business VoiceEdge and its network services to the evaluation criteria listed in Section II.
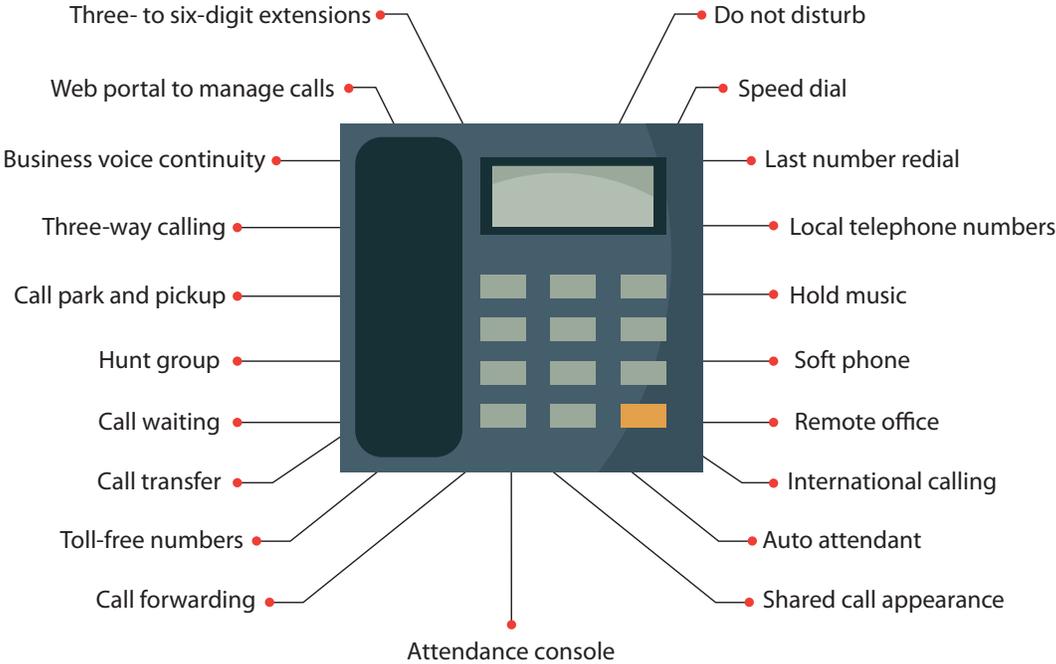
Voice Features

Rich set of basic features: Comcast VoiceEdge has all of the standard voice features required by businesses. Exhibit 3 shows the broad feature set of Business VoiceEdge.

Advanced features: In addition to standard voice features, VoiceEdge includes the following advanced features:

 o **HD Audio**, also known as wideband audio, is a high-quality voice service that extends the audible frequency range.

 o **Readable voicemail** is a service in which voicemails are transcribed into text and emailed to the user.

 o **Video calling** enables customers to communicate with others using the visual medium right from their desktop with an experience that's as easy as making a phone call.

 o **Be anywhere** is a feature that redirects calls to a user's mobile device.

Mobile client: The VoiceEdge mobile client enables workers to have full business phone functionality on their iOS or Android device. Users can seamlessly move an active phone call from

Exhibit 3: Comcast Provides a Wide Range of Voice Features

Three- to six-digit extensions

Web portal to manage calls

Business voice continuity

Three-way calling

Call park and pickup

Hunt group

Call waiting

Call transfer

Toll-free numbers

Call forwarding

Do not disturb

Speed dial

Last number redial

Local telephone numbers

Hold music

Soft phone

Remote office

International calling

Auto attendant

Shared call appearance

Attendance console

Comcast and ZK Research, 2016

the desk phone to a mobile device, check business voicemail, access the company directory and make outbound calls that display the business phone number.

Broad range of phones: Comcast offers a broad range of Polycom IP phones that can meet the needs of any use case. Also, Panasonic DECT phones can be included in the package for use cases such as warehouses, lobbies and conference rooms.

Easy-to-configure 9-1-1 capabilities: Comcast's solutions offer enhanced 9-1-1 (E9-1-1) services. This means that when a 9-1-1 emergency call is placed, the user's telephone number and location are automatically transmitted to the operator. In the event of a power failure, the IP phones will continue to function because they are powered off of the network switches. E9-1-1 is configured by Comcast, requiring no additional work for the business. On-premises phone systems must be provisioned and maintained by the network operations team.

Trunking Services

Comcast Business SIP and PRI Trunking provide a dedicated voice connection, allowing a business to leverage an existing PBX investment to scale according to current and future needs.

PRI trunking: Comcast Business offers PRI trunks to help customers connect existing PBX systems to the Comcast private IP network. Voice services are prioritized, and two layers of

Comcast Business SIP Trunking is a next-generation trunking solution for voice services.

authentication secure network equipment so customer communications are protected. The Comcast PRI service includes the following features:

o Dedicated 50-Mbps port

o Dedicated voice bandwidth

o Multiple trunk group configurations

o Managed quality of service (QoS)

o Service-level agreement (SLA)

o Multiple caller ID options

o Calling name delivery down to the level of the phone number

o Directed inward dial (DID) and direct outward dial (DOD)

o Call detail records

o Direct trunk overflow

The standard PRI offer includes 4,600 minutes (200 per channel) of domestic long distance, unlimited local and intraLATA calling as well as toll-free and outbound calling.

SIP trunking: Comcast Business SIP Trunking is a next-generation trunking solution for voice services. It is the best way to connect an IP PBX to the phone network because it extends the IP capabilities all the way to the Comcast network. Comcast can deliver its SIP trunking service over a fiber or hybrid fiber coaxial (HFC) connection.

The standard features of the Comcast Business SIP Trunking service include the following:

o Dedicated 100-Mbps port

o Dedicated voice bandwidth

o 6 to 800 concurrent calls over fiber and 46 over coax/HFC

o Multiple trunk group configurations

o Managed QoS

o Service-level agreement

o Multiple caller ID options

o Calling name delivery down to the level of the phone number

o Direct inward dial (DID) and direct outward dial (DOD)

o Call detail records

o Call forwarding no reply

The standard SIP offering includes 200 minutes per concurrent call sessions of domestic long-distance and unlimited local and intraLATA calling as well as toll-free and outbound calling. Continuity features include failure/overflow, which adds additional bandwidth to ensure that calls won't be missed in the event of an outage or if all concurrent calls are busy. Also, trunk groups can be set up with multisite load balancing for calls to route to additional channels on

other trunk groups. Another feature Comcast offers is on-demand bursting capabilities to increase call capacity to manage a 20% spike in call volume.

Ownership of a Nationwide Network

Comcast has a large, nationwide network leveraging 140,000 miles of fiber. The network's current capacity of 25 Tbps is continually being upgraded, with plans in place to double capacity every 18 to 24 months. The network is also physically diverse, as traffic can take multiple routes, access points and even building access conduits. Comcast currently owns the largest converged network in the United States and has a voice SLA of 99.9%. The network is managed and monitored on a 24x7x365 basis in every major market, and customers are monitored from redundant network operation centers (NOCs). One proof point of the network's quality is the fact that it won the 2014 Metro Ethernet Forum's Service of the Year award.

In addition to its massive nationwide network, Comcast has fiber, HFC or coaxial last-mile connectivity in every major market. Customers can choose bandwidth speeds from 10 Mbps to 10 Gbps. Last-mile connectivity is an integral part of the total network solution, so ensuring a reliable connection is important.

Other Factors

24x7 customer support: Comcast offers the highest level of customer support. Both Enterprise Care and Customer Repair will attend to any issue related to any Comcast product. Customers are serviced from three fully redundant care centers located in Naperville, IL; Cincinnati, OH; and Denver, CO. Additionally, there are 17 regional NOCs with local technicians and engineers who have an average of 12 years of tenure.

Comcast offers national maintenance support with on-site tech support. Customers can use an intuitive portal for instant network assessments to keep up with technical issues. Also, the vendor monitors services proactively and identifies and fixes 80% of Ethernet problems before the customer notices.

Turnkey solution: Comcast Business offers a full turnkey solution that includes SIP trunking, PRI connections, last-mile connectivity, a rich set of voice features, IP phones and mobile phone clients. This can save organizations considerable time compared to procuring the individual components and assembling the solution. In addition, the assembling process can often take months to optimize. In contrast, Comcast's turnkey approach enables customers to buy and consume voice services immediately.

Financially stable organization: Comcast is a diversified organization that has invested billions of dollars in its network to ensure the best customer experience. Its 2015 revenue totaled more than $74 billion, and the company now has a market capitalization of over $160 billion,

Comcast has a large, nationwide network leveraging 140,000 miles of fiber.

making it one of the largest service providers in the country. Because it is so highly diversified, it can withstand many of the ups and downs in the telecom industry.

Businesses have many choices with respect to hosted voice services. However, the market is changing rapidly, and some service providers are positioned well while others will struggle to meet the demands of the distributed enterprises. ZK Research believes that Comcast is one of the best-positioned service providers to deliver hosted voice services to businesses of all sizes.

SECTION IV: CONCLUSION AND RECOMMENDATIONS

The rapidly changing business environment is causing companies to focus on their core competencies. Consequently, business and IT leaders have been focused on transitioning services that do not create a competitive advantage to the cloud. Applications have rapidly been moving to a SaaS model, and because voice is largely considered an application on the network, businesses are looking to shift their communications services to a hosted model.

Companies that migrate to hosted services will achieve higher levels of agility and productivity. Those that do not will see the complexity of their communications continue to grow; they will need to dedicate more operational and capital budget to it and will risk falling behind their peers. This makes evolving to a hosted voice service a top initiative for CIOs and business leaders. With this in mind, ZK Research makes the following recommendations:

Embrace hosted voice services. Most organizations have partially embraced the cloud as a new way of doing business. The cloud brings unparalleled levels of elasticity to IT with new consumption models that enable organizations to optimize utilization levels and IT budget dollars. ZK Research strongly urges all businesses to fully embrace hosted voice as a way to shift communication services to a cloud-like model.

Make mobility part of the business decision criteria. Voice services extend past the company walls today. Workers are constantly mobile and need access to business voice capabilities no matter where they are. When evaluating voice services, make mobile enablement a key component of the decision process.

Choose your service provider based on hosted-buying criteria. Old decision criteria for voice services, such as incumbency and market share, will not be sufficient in the hosted voice era. Evaluators of these services should align decision-making criteria with hosted services such as nationwide reach, breadth of services and network quality.

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