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Unified Communications as a Service

For dummies®

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Get advanced
UC in the cloud

Integrate biz communications
and workflows

Boost collaboration
and productivity

Brought to
you by:

RingCentral

Lawrence Miller

Paul Way

About RingCentral

RingCentral, Inc. (NYSE: RNG) is a leading provider of business cloud communications and contact center solutions based on its powerful Message Video Phone™(MVP™) platform. More flexible and cost-effective than legacy on-premises PBX and videoconferencing systems that it replaces, RingCentral empowers modern mobile and distributed workforces to communicate, collaborate, and connect via any mode, any device, and any location. RingCentral offers three key products in its portfolio: RingCentral Office®, a Unified Communications as a Service (UCaaS) platform including team messaging, video meetings, and a cloud phone system; Glip® the company's free video meetings solution with team messaging that enables Smart Video Meetings™; and RingCentral cloud Contact Center solutions. RingCentral's open platform integrates with leading third-party business applications and enables customers to easily customize business workflows. RingCentral is headquartered in Belmont, California, and has offices around the world.

Unified Communications as a Service

RingCentral Special Edition

by Lawrence Miller and Paul Way

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Unified Communications as a Service For Dummies®, RingCentral Special Edition

Publisher's Acknowledgments

Introduction

As businesses increasingly embrace a cloud-first strategy, many are migrating their most heavily used business applications — including office productivity, customer relationship management (CRM), customer care, and more — to the public cloud. In today's remote workplace, in which work from home (WFH) and work from anywhere (WFA) have become the new normal, this cloud-first strategy is a productivity booster for office employees, remote workers, IT staff, and others who need to stay connected with each other, as well as customers, business partners, and suppliers, regardless of their locations or devices.

In this book, you learn how unified communications as a service (UCaaS) can boost employee productivity and improve customer satisfaction by enabling unified communications for your remote workforce. It brings together team messaging, video meetings, and phone, as well as text messaging and fax, in a single cloud-based solution. UCaaS also can be tightly integrated with the productivity tools that companies use every day, such as email, persistent chat, file/desktop sharing, document storage, and more.

Foolish Assumptions

It has been said that most assumptions have outlived their uselessness, but we assume a few things nonetheless!

Mainly, we assume that you're a line-of-business manager or an IT decision maker (such as a CIO, CTO, director, or IT manager) for a small business (with 100 or fewer employees) or a medium to large enterprise and you're evaluating business communications solutions for your organization. Beyond an understanding of your business requirements and a basic awareness of cloud computing and other popular technology trends and challenges, we don't assume any deep technical knowledge. As such, this book is written primarily for nontechnical readers.

Icons Used in This Book

Throughout this book, we occasionally use special icons to call attention to important information. Here's what to expect:

This icon points out important information you should commit to your nonvolatile memory or your noggin!

If you seek to attain the seventh level of NERD-vana, perk up! This icon explains the jargon beneath the jargon.

Tips are appreciated, but never expected — and we sure hope you'll appreciate these useful nuggets of information.

These alerts point out the stuff your mother warned you about. Well, probably not, but they do offer practical advice.

Beyond the Book

There's only so much we can cover in this short book, so if you find yourself at the end of this book wondering, "Where can I learn more?," just go to `www.ringcentral.com`.

Chapter **1**

Tracing the Evolution of Business Communications

I n this chapter, you learn about the evolution of business communications technology and the costs associated with an on-premises business communications system, as well as the future of business communications — unified communications as a service (UCaaS).

A (Brief) History of Business Communications

For more than a half century, private branch exchange (PBX) was the centerpiece of business communications. A PBX is a phone switching system used to concentrate telephone lines or trunks, route intra-office calls, and manage phone features.

PBXs were originally purchased by businesses to improve the efficiency and reduce the expense of calls made within an office. Prior to the PBX, a call made by an employee to a coworker sitting at a

desk in the same office had to be routed the same way as a call to a customer across town. It had to be routed from the employee's desk phone to the telephone company's central office (CO) — perhaps several miles away — and then back to the coworker's desk phone. Businesses would incur phone charges for every call made — even for a call across the room! Ironically, today a PBX can be a pretty big expense for businesses, because many PBXs require a significant capital investment.

REMEMBER

With the proliferation of mobile phones today, it's easy to forget (or perhaps you're young enough to have never experienced it) that we used to have to pay for every phone call — long distance and local. We also had to walk a mile in the snow — uphill both ways — to fetch a pail of water!

Most traditional PBXs are proprietary and expensive to maintain, scale, and upgrade. Additionally, businesses must maintain separate systems or services to support other communications needs, such as audio and video meetings, voicemail, and fax (see Figure 1-1). Another disadvantage of legacy PBX servers is that they provide limited support for mobile and remote workers.
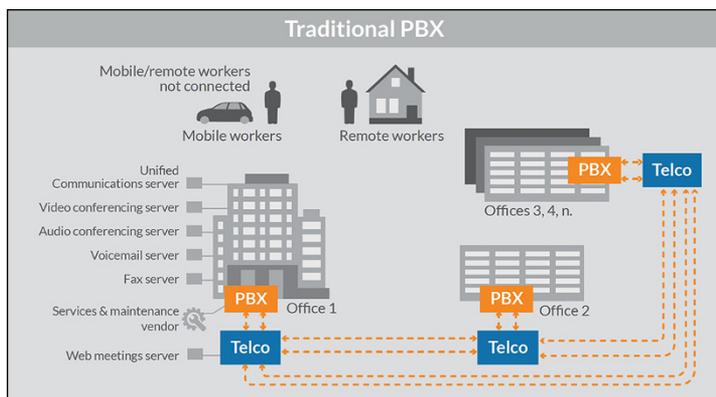
FIGURE 1-1: Traditional PBXs provide limited integration with other apps and systems and little or no support for mobile/remote workers.

In the late 1990s, the first Internet Protocol (IP) PBXs were introduced, and by 2008 the overwhelming majority of new PBX installations were IP-based. IP PBX systems take advantage of Voice over IP (VoIP) technology.

TECHNICAL STUFF

VoIP is a group of telephony protocols (such as H.323 and SIP) that transport voice and multimedia communications over IP-based networks (such as the Internet). H.323 was one of the first VoIP protocols and is still commonly used in videoconferencing equipment. Session Initiation Protocol (SIP) is an open signaling protocol standard for establishing, managing, and terminating real-time communications over IP-based networks.

One of the biggest advantages of VoIP technology (and IP PBXs) is that it enables businesses to use their wide-area network (WAN) and Internet connections for both data and voice traffic (see Figure 1-2). By converging their data and voice networks, businesses can significantly reduce their recurring telco expenses. This benefit alone is often enough to justify the expense of an IP PBX. Additionally, IP PBXs are generally less expensive than traditional PBXs, and they're easier to maintain, scale, and upgrade.
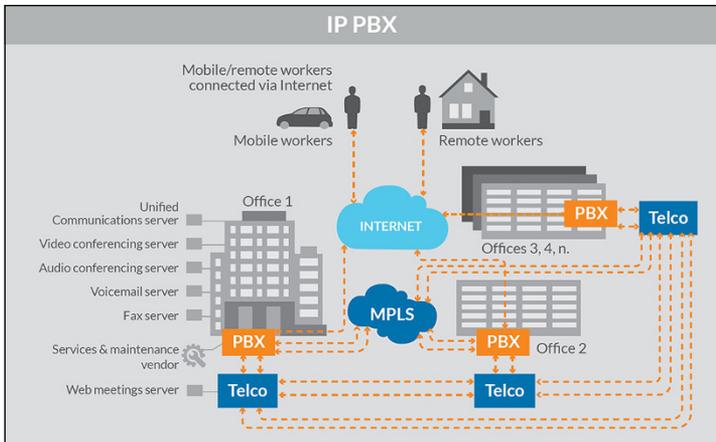
FIGURE 1-2: IP PBX systems enable converged networks and unified communications.

With voice and data systems sharing the same network backbone, it was only logical that these systems would also begin to converge. Thus came the advent of converged communications. Well, not exactly. It seems *converged communications* isn't as catchy as *unified communications* — so, thus came the advent of unified communications (UC)!

UC integrates team messaging, video meetings, and phone, and also includes text messaging and fax. These solutions also need

to tightly integrate with the productivity tools that companies use every day, such as email, persistent chat, file/desktop sharing, document storage, and more. UC addresses the modern business reality that effective communication and collaboration across geographically dispersed teams and a remote workforce requires more than just voice — it takes a powerful combination of voice, video, chat, and business productivity tools.

Exploring Unified Communications as a Service

The on-premises PBX has served companies well for a long time. But the world has changed around it. A dynamic, fast-paced economy and a world in which work from home (WFH) and work from anywhere (WFA) have become the new normal makes it necessary for organizations to adapt and become ever more agile. Business technologies have also changed. The original designers of your current PBX may never have envisioned advances like video meetings, connecting a remote workforce, or integrating with cloud-based business applications such as customer relationship management (CRM), contact centers, social media, and other popular services.

For any number of reasons — not least of which is the relatively large investment required for a new PBX — many businesses have delayed upgrading their on-premises PBX. Consequently, you may be straddled with a phone system that lacks the capabilities and flexibility to support a remote workforce and the rapid growth and agility that your business demands.

Today, businesses have a wide range of options to address their business communications needs — everything from the complex PBX systems traditionally used by businesses for phone communications to stand-alone videoconferencing stations, email systems, fax machines, and team messaging apps.

UCaaS enables advanced unified communications and collaboration features and capabilities that simply aren't possible — or are cost-prohibitive — in an on-premises PBX, as well as other siloed business communications tools, including the following:

>> **Phone calls:** UCaaS provides full PBX functionality including the basics (incoming and outgoing phone calls, audioconferencing, voicemail, and faxing).

>> **Video meetings:** The days of large, expensive, and complex videoconferencing equipment in dedicated conference rooms that require IT support to set up in advance (as well as to standby to troubleshoot during meetings) are over. Instead, today it's about smaller, adaptable, easy-to-configure huddle spaces that support a hybrid workspace, where employees work from home or go to the office a few days a week. Simple and intuitive, self-service video meeting capabilities — using an IP camera mounted on a desktop monitor, or a built-in camera on a laptop or smartphone — are becoming more common as users become increasingly familiar and comfortable with video meetings as an everyday communications tool.

>> **Team messaging:** Near-real-time team messaging tools (such as instant messaging [IM] and short message service [SMS] and multimedia message service [MMS] texting), as well as team messaging apps (like RingCentral and Slack) and asynchronous messaging options (such as email, discussion boards and wikis, social media platforms, blogs, and persistent chat) help keep team members up to date.

Although email is still the dominant form of communication in most businesses, most people have trouble keeping up with their email. According to a study by Yahoo! Labs and the University of Southern California, as the volume increases, people reply faster (47 minutes or less on average), with fewer words and to fewer emails (only about half). And as the inbox snowballs, users respond to only a small fraction of their messages — less than 5 percent when the load reaches about 100 emails a day. Although email has its place for longer or more formal communication between individuals, it lacks the immediacy of texting. According to Dymark's Mobile Intelligence Review, 2nd Edition, 90 percent of SMS text messages are read within three seconds of being received.

>> **Team collaboration:** Integration with office productivity suites such as Google Workspace and Microsoft 365 enable real-time editing and collaboration of documents, presentations, spreadsheets, and more.

» **Presence and availability:** Providing presence and availability information enables team members to be more productive by knowing when and how other team members are available or busy. Team members can highlight the best way to contact them — for example, by office phone, mobile phone, text message, or email.

As with many cloud-based applications used to run mission-critical parts of the business, UCaaS has come of age. The rapid adoption by businesses of all sizes — from small and midsize businesses (SMBs) to global enterprises — attests to its reliability. In addition to carrier-grade reliability for your business phone calls, UCaaS offers dramatic advantages over on-premises systems. These include benefits for your business and employees, as well as your network, data infrastructure, and IT resources. A full-featured UCaaS solution also offers all the integrated capabilities to address the challenges of today's business environment.

Key business benefits of UCaaS include the following:

» **It reduces app overload.** A RingCentral global study revealed that 69 percent of workers waste up to an hour a day switching between business communications apps and devices, contributing to significant lost productivity — 32 days per year for every worker. A single UCaaS platform that integrates all your communications channels will bring much-needed simplicity to your workforce.

» **It unifies communications across your company.** The typical company with an on-premises PBX uses a patchwork of business communications tools — stand-alone fax machines, individual Internet fax accounts, and third-party audio and video meetings. This approach typically lacks connection or synergy among the various tools. In addition, as the service accounts have accumulated over time, you may need to manage multiple, and sometimes redundant, bills from the various providers. UCaaS integrates your business communications into a single solution that includes voice, audio and video meetings, team messaging (such as persistent chat), text, voicemail, fax, and other UC features. It also integrates with cloud-based and back-office business applications. This one-stop service not only saves costs and delivers the synergy of linking various modes of

communication, but also eliminates the management, unwieldy billing, and cost tracking associated with multiple vendors.

UCaaS also unifies the image that your organization presents to the world — a single identity. All your employees — whether they work in an office or on the road — make and receive calls from a single business number, giving your company's communications a consistent and professional appearance. Even remote workers' outbound calls are routed through the cloud and appear as if they're calling from the corporate location. For example, a salesperson doesn't have to provide a personal mobile phone number to continue with business when out of the office; instead, the salesperson provides the same corporate number to all customers. When employees leave the office, calls automatically follow them to their smartphones.

» **It simplifies multi-location management globally.** Maintaining and administering phone systems at multiple locations — especially where there are PBX hardware and phones from different vendors at the various sites — can present a management nightmare for IT. However, by having the entire phone system in the cloud, UCaaS enables any IT person to manage the phone system from any location. This means you save the cost and headache of sending an IT person with telephony experience to remote locations to perform maintenance or make simple changes, such as adding numbers and provisioning new employees UCaaS also allows you to quickly start up a new location without the need for costly and complete WAN connectivity. Instead, all UC traffic travels over your Internet connection.

» **It enables employees to work from anywhere.** Flexible WFH and WFA arrangements are must-haves in our modern world, and many companies have found that their remote workforce can be more productive away from the office. UCaaS makes it possible to communicate and collaborate in various modes (including text messaging, video, and phone) on multiple devices (such as web, desktop, and mobile) around the globe — anytime, anywhere.

» **It flexes when your business flexes.** When you're growing or simply competing in today's competitive markets, you can't afford anything that holds you back — including a business system. You can't wait for a service provider to add

a new number or send an IT person to a remote location every time you add an employee. And you can't afford to be locked into inflexible systems.

As your business grows or your business needs change, UCaaS adapts. For example, whether it's adding retail staff during the holidays, adding tax preparers during tax season, or allowing your employees to work from home, plugging a phone into an Ethernet jack and making a simple change on an intuitive dashboard interface is all it takes to onboard a new phone user.

Additionally, you can't predict where your business will be in two or three years, how many phone lines you'll need, or how many locations you'll have. A cloud-based system is inherently flexible and scalable. UCaaS provides instant access to virtually limitless inbound and outbound call capacity.

» **It reduces infrastructure management headaches and costs.** UCaaS eliminates the need for upfront investments in costly PBX hardware, as well as separate building wiring for phones and data and maintenance items such as additional cards required for adding new employees. Also, few companies can afford to invest in or support a PBX at every site.

With UCaaS, the entire infrastructure for your business communications resides in secure, redundant, and geographically distributed data centers where telephony experts manage the system 24/7 (which results in carrier-grade reliability). This becomes an even bigger cost advantage with multiple locations as you eliminate more than one piece of PBX hardware, along with costly WAN connectivity. You no longer need skilled IT staff to manage one or more PBXs or have the expense and distraction of traveling to remote locations or calling a local service provider to make changes or repairs.

» **It connects mobile and remote workers globally.** On-premises PBXs inherently lack direct connectivity to remote and mobile workers, and more advanced systems can charge you separate licensing fees. With UCaaS, workers at remote locations or home offices are connected in the same way as employees in the main corporate office. Mobile and remote workers also have access to voicemail, fax,

email, and all other company communications as if they're working in the office.

» **It gives you instant access to the latest features.** Some legacy PBX systems come with a limited feature set, and more advanced products may charge extra for basic features such as voicemail or the latest UC tools as they become available. Additionally, risky upgrades to aging PBXs may be delayed, causing lost employee productivity and frustration. With UCaaS, the latest features and capabilities are continually integrated into the system.

» **It gives you greater control.** Having an on-premises PBX might seem to provide control, but hosting your business communications in the cloud actually affords you greater control that includes easier management. For example, with UCaaS, you no longer need to be in the same physical location as the phone system to manage it. When you're traveling or at home, you can make urgent changes to the system via a simple web interface using your laptop or smartphone. This direct access to the system also means you no longer have to deal with a third party or wait for them to make adds, moves, or changes. For example, any IT person can add a new number in seconds using the web interface.

WARNING

Although many on-premises IP PBX systems can be integrated with some IT systems, such as email, they're inherently limited in their ability to support the latest business communication innovations and the requirements of a remote workforce. Also, many on-premises PBX vendors are now offering a hosted UC model provided as a subscription-based service.

However, this is not UCaaS — it's a managed service. It only solves the operating expenditures (OpEx) and capital expenditures (CapEx) issues of owning an on-premises PBX, but it doesn't solve the other issues of an on-premises PBX, including slow pace of innovation, complex deployment, and limited support for growth. On-premises PBX systems are designed primarily to support desk phones with traditional features (such as multi-line access, conference calling, dial plans, call forwarding, and hold/transfer functionality) and don't feature the advanced capabilities of UCaaS that can be delivered in innovative software designed for the cloud.

Chapter **2**

Deploying Cloud Solutions Simply and Globally

I n this chapter, we take a look at the cloud computing trend, the business benefits of a unified communications as a service (UCaaS) solution, and an example comparison of the total cost of ownership (TCO) of an on-premises private branch exchange (PBX) and UCaaS.

Following the "Great Migration" to the Cloud

Businesses everywhere and in every industry today are adopting cloud strategies to drive growth and increase revenues. According to a study from IDG, 38 percent of enterprises today say they are "all" or "mostly" in the cloud — a number that is expected to jump to 59 percent by 2022.

The *Flexera 2020 State of the Cloud Report* found that 53 percent of application workloads are currently hosted in public clouds, with more than 60 percent moving to public clouds in 2021.

UCaaS is a specialized software as a service (SaaS) offering that enables businesses to replace costly legacy on-premises PBX phone systems with modern business communications systems that integrate messaging, video, and phone in the cloud. With UCaaS, all the hardware and software required for managing unified communications and collaboration services runs in highly available, redundant data centers, and all traffic runs over the Internet. This approach delivers many benefits for your infrastructure, network, IT resources, and business.

REMEMBER

SaaS is a cloud service model in which the customer is provided access to an application in the cloud, but the provider is responsible for managing the underlying platform, networking, and infrastructure.

Looking at the Business Benefits of UCaaS

Any successful organization could attest that great innovations begin with having the right technology. The technology should meet business needs on multiple fronts, including cost, management, user experience, workflow improvements, and many other criteria.

UCaaS is the same way. A UCaaS system can be an excellent building block for innovation if their benefits make sense to a business.

Here are several key benefits a UCaaS system provides

>> **It eliminates the large upfront expenditures, licensing costs, and ongoing maintenance and management of hardware.** An obvious advantage of UCaaS is that the need for costly PBX hardware disappears, along with associated separate building wiring for phones and data, additional cards required to add new employees, and space and power to house a PBX in your network room or data center. This becomes an even bigger advantage when you have multiple locations, as you begin to eliminate multiple pieces of PBX hardware.

>> **It removes the cost and complexity of managing phone lines to the telco provider and between locations.** Because you no longer have a PBX, you don't need the costly trunk lines or circuits between your various business locations and telco providers. All calls will travel over the Internet.

>> **It scales up or down when your business requirements change, and you only pay for what you need.** UCaaS eliminates the need to overprovision phone lines and circuits, which can often take weeks or months for a telco provider to install. UCaaS furnishes virtually limitless inbound and outbound call capacity. You only need to ensure that you have enough bandwidth, devices, and people to answer the calls.

>> **It takes the burden of upgrades, maintenance, and repairs off IT while enabling easier control.** PBX hardware is complex and costly to support and maintain, whether you have a legacy PBX that requires ever harder-to-find technical skills or a newer IP PBX requiring highly trained technicians or costly third-party support. This can mean employing dedicated resources at each of your business locations to ensure the proper care and feeding of your on-premises PBX hardware. Or, it puts you at the mercy of expensive truck rolls that happen on the local service provider's schedule — not your business's and customers' schedules.

>> **It provides the business benefits of advanced phone and unified communications and collaboration features in a single service.** Lack of flexibility is often a major reason for replacing an on-premises PBX with UCaaS. That's because UCaaS can support rapid growth and other changes in an agile way. For example, if your organization experiences a seasonal spike in staffing, adding a line to a legacy PBX would require the services of someone qualified in that particular hardware. However, UCaaS enables practically any authorized person to easily add, move, or change phone services — typically in seconds and often from anywhere, on any device.

>> **It provides faster access to innovation.** New capabilities and features can be rapidly developed by your UCaaS provider in cloud-native software. These capabilities and features can be made instantly available to your users so you gain the benefits of "evergreen" software that is always kept current with version upgrades, feature updates, and security patches.

REMEMBER

Moving to the cloud means the UCaaS provider furnishes all the manpower and expertise required for upgrades, maintenance, and repair. A centralized system in the cloud further eliminates the need for trained staff at multiple sites, calls to local third-party support services, or one person with telephony experience driving or flying to each of your business locations. Additionally, IT gains flexibility and greater administrative control over the system with easy online accessibility using any device to manage the system during off hours or when traveling.

Seeing How UCaaS Drives Business Growth and Success

Let's compare the TCO for a new on-premises PBX and a typical UCaaS offering. Figure 2-1 shows the hard costs to deploy a basic business communications system for a hypothetical 200-person company with four locations, and the comparable costs for UCaaS.

Traditional PBX or IP PBX Premises-Based Phone System Costs

Cost Area	Qty	Unit Cost	One-Time Costs	Annual Subscription Cost	Cost Over 5 Years	
Initial Capital Outlay						
PBX hardware and initial software license	1	$53,300	$53,300		$53,300	Less visible costs often dwarf the upfront capital expense of the PBX hardware.
New phones (190 standard, 10 executive, 10 conf rooms)	210	$150	$31,500		$31,500	
Recurring Costs						
PBX licensing and maintenance contracts, software/firmware/ hardware upgrades	1	$9,061		$9,061	$45,305	Over a 60-month life of a phone system, the cost for connectivity and bandwidth between locations alone can exceed the original price tag of the PBX.
Telco connectivity: Voice T1	3	$400		$14,400	$72,000	
Multi-location connectivity: MPLSs, PSTN	3	$350		$12,600	$63,000	
Telecom charges: Local/ Long Distance	210	$8		$20,160	$100,800	
Standalone: eFax	200	$8		$19,200	$96,000	Added charges for standalone services like eFax, web meetings, and audio conferencing often constitute significant line items.
Standalone: Audio Conferencing	200	$10		$24,000	$120,000	
Total On-Premises			$84,800	$99,421	**$581,905**	

UCaaS System Costs

Cost Area	Qty	Unit Cost	One-Time Costs	Annual Subscription Cost	Cost Over 5 Years
Monthly Service	210	$19.99		$50,375	$251,875
Phones	210	$150	$31,500		$31,500
Total UCaaS			$31,500	$50,375	**$283,375**

Total on-premises over 5 years: **$581,905**

Total UCaaS over 5 years: **$283,375**

Difference **$298,530**

SAVE OVER 50%

FIGURE 2-1: TCO comparison of an on-premises PBX (and associated costs) and UCaaS.

Like many businesses, this hypothetical company may be experiencing business communications challenges such as the following:

» Rapid business growth requiring the addition of new locations and employees

» Seasonal fluctuations in employees or use of temps requiring many add/change orders to add new lines/phone numbers and then scaling back in down periods

» Skyrocketing conference-calling costs from business surges, which IT cannot easily control due to pricing models from the provider

» The need to unify communication, integrating everything from remote offices to mobile and remote workers, as well as consolidating disparate stand-alone business services such as online fax and videoconferencing

WARNING

Custom integrations between different SaaS business solutions and an on-premises PBX may not be possible or may otherwise be prohibitively expensive.

Although a phone system is essential to any business, its costs are not typically high profile. In fact, in many companies, management may have never seen these costs rolled up in one place. Nonetheless, the sample numbers shown in Figure 2-1 — large as they are — only account for the basic system. When you add in the many hidden costs of an on-premises system, the total number may give management a real eye-opening experience.

UCaaS completely changes not only the business communication paradigm, but also the cost structure of both hard costs and soft costs. In fact, beyond eliminating the upfront expense of the PBX hardware, many of the line items in Figure 2-1 simply disappear. Here are some examples of these hard cost savings:

» **Lower multisite management costs:** Practically any IT technician or other authorized person can add phones or numbers, make changes, or handle moves from a simple web interface. There is no time-consuming reconfiguration of physical hardware, no new port or feature cards to buy and install, no requirement for training or certification, and no travel costs to support a remote location.

» **Reduced IT maintenance and infrastructure:** It's all handled in the cloud by the service provider, eliminating operational expenses and manual IT involvement.

- **Elimination of many telco costs:** It does away with line items ranging from telco circuits to switches, because all unified communications and collaboration traffic travels over the Internet.

- **Lower IT service provider costs for ongoing updates:** The service provider handles all updates and also provides continuous improvements and innovations.

- **Increased worker productivity:** UCaaS helps eliminate app overload by bringing together all the messaging, video, and phone apps that your employees use in a single solution. A RingCentral survey found that more than two-thirds of workers find the volume of communications at work challenging to getting their work done, and that 21 percent of U.S. workers, on average, navigate between apps six or more times per hour. New capabilities such as direct-extension dialing and the ability to forward calls and faxes to mobile phones make workers more productive. The provider also handles integrations with leading customer relationship management (CRM) systems like Microsoft 365 and Salesforce (see Chapter 5).

- **Reduced capital expenditures (CapEx):** With UCaaS, you have the option to simply rent your phones and gain the flexibility to upgrade to the latest models.

- **Decreased cost of supporting a mobile workforce:** Typical mobile apps for UCaaS enable you to turn any smartphone into a Voice over Internet Protocol (VoIP) office phone — saving carrier costs, especially for conference calling, video meetings, and when traveling internationally.

TIP

Native support for mobile devices is a significant advantage of UCaaS offerings, enabling business communications functionality and integration capabilities with practically any mobile device. This helps support a rapidly growing remote and mobile workforce.

REMEMBER

Many companies switching to UCaaS see cost savings of 30 percent to 70 percent or even higher compared to an on-premises PBX system. For example, some companies may have numerous locations, each with its own PBX hardware, plus the need to support home offices and mobile workers. In a case like this, the company could save hundreds of thousands of dollars with UCaaS.

Chapter **3**

Defining UCaaS Business Requirements

P rofessional and prompt communication with customers and colleagues is critical to business success. The way busi-nesses communicate and collaborate today — including team messaging, video meetings, and phone calls — affects pub-lic perception of the company, as well as the company's ability to operate effectively in a world in which work from home (WFH) and work from anywhere (WFA) have become the new normal. Evolving businesses can better serve customers and enhance the way employees work by adopting the most readily available and affordable technology. In this chapter, we help you identify which business requirements for a unified communications as a service (UCaaS) solution matter most to your organization.

Recognizing Today's Business Requirements

In today's high-pressure world, a business communications sys-tem is a lifeline to customers, suppliers, and other key contacts. Businesses need a system they can rely upon to serve employees

in the office, as well as the flexibility to accommodate employees who are mobile or working remotely. This kind of system allows employees to communicate and work with equal efficiency, no matter where they are or what devices they're using.

Modern businesses also need technological solutions that leverage cloud computing to enable the business benefits of the cloud, such as lower costs, greater agility, and enhanced productivity.

With cloud computing's pay-as-you-go subscription-based model, buying cloud-based services such as UCaaS is far easier than the typical capital budgeting and procurement processes required for a costly on-premises private branch exchange (PBX).

Implementation is also easier without the need to install new hardware and supporting infrastructure (such as space, power, and cooling) or replace proprietary desktop phones. UCaaS offerings support a broad range of desktop phone systems, as well as PC softphones, smartphones, and tablets.

Finally, administration and management of UCaaS — such as moves, adds, and changes — is easier, with self-service capabilities that often enable an end user to simply plug a desktop phone into a port and log in to a simple and intuitive portal to configure advanced features.

When selecting a UCaaS provider, determine whether its product meets the following core requirements:

>> **Seamless operations:** In today's always-connected work world, the concept of teamwork has shifted dramatically. Companies now need office employees, remote workers, partners, and suppliers to be able to collaborate with team members from anywhere using messaging, video, phone, text, and other communication tools.

By consolidating these various functions onto one platform, a UCaaS solution helps make teams more agile by allowing participants to share information and make decisions quickly and then move on to other projects. The result? Companies can better harness the collective knowledge of everyone across their extended enterprises, helping to ensure their long-term success in today's competitive business environment. UCaaS also enables seamless operations during disaster recovery, particularly for a remote workforce.

For example, if an Internet outage occurs at a company site, public cloud services that maintain voice and emergency calling capabilities can provide seamless, ongoing operations with features such as:

- *Emergency calling and callback:* Enables connection to the local public-safety answering point (PSAP) through a public switched telephone network (PSTN) connection and routes emergency callbacks in an emergency.

- *Extension-to-extension dialing:* Extension dialing will function continuously both at customer sites via the PSTN connection and at the affected site.

- *Outbound and inbound calling:* Calling external numbers via the PSTN connection will still be possible, and incoming calls can be directed to specifically designated employees.

» **Global capabilities:** To be effective in a global market with a remote and mobile workforce, your employees must all work in sync, no matter where they're located. Your company needs to find ways to operate in unison and present a local presence wherever you conduct business. Yet it's easy for your company to lose track of critical business when time and distance are standing in its way. This is especially true when dealing with stand-alone legacy equipment that was never intended to connect to the rest of the world.

A UCaaS solution can address these challenges head-on by employing the cost efficiency, reliability, and ubiquity of the cloud. Businesses can operate across geographic boundaries with one system that seamlessly unites collaboration and communication functionality. Businesses get a truly global communications system that's easy to manage and use plus offers the flexibility needed as they grow and change.

» **Mobile device, browser, and app support:** With the vast majority of people now using their mobile devices to stay connected to their work, the idea of a 9-to-5 workplace has changed. For many people, the work environment is fluid, limited only by the number of reception bars on their wireless devices. This rise in workforce mobility creates new business communications challenges. And keeping pace with today's remote and mobile workforce requires companies to reevaluate their current business phone systems to meet the changing needs of employees on the move.

Look for a UCaaS provider with mobile, desktop, browser, and integrated applications for its UCaaS solution that cross device and application boundaries. These features enable you to collaborate with colleagues right from your personal mobile phone or laptop through a company-approved browser or application. You can make and receive calls, meet, and collaborate directly from Google Workspace, Microsoft Outlook, Salesforce, and other productivity tools.

» **Carrier-grade reliability:** Messaging, video, and voice are the core business communications and collaboration tools that companies use to get work done and connect with their customers. This requires the same level of reliability in your UCaaS platform that folks used to expect in their phone company — when you pick up the phone, you get a dial tone every time.

A UCaaS solution should offer "five nines" (99.999 percent) reliability with globally redundant data centers and robust service-level agreements (SLAs). Additionally, a UCaaS solution must be able to quickly and seamlessly scale up (or down) to meet business demand.

» **Vendor innovation (research and development):** Collaboration and unified communications solutions and technologies continue to evolve. A UCaaS vendor needs to have a culture of innovation, backed by significant research and development, to stay ahead of current and emerging trends.

» **Open platform:** Businesses haven't just changed the way they communicate; they've also changed the way they work. This includes organizing workflows around business software, such as customer relationship management (CRM) and enterprise resource planning (ERP) applications. In recent years, many enterprises have moved these critical systems out of the data center and into the cloud. This includes not only software as a service (SaaS) models — such as Google Workspace, Microsoft 365, and Salesforce — but also homegrown business applications developed by enterprise IT departments and deployed on public, private, or hybrid clouds, as well as vertical app integrations such as Canvas (education) and Smarsh (finance). Previously, any company that wanted to create a seamless workflow between phone calls or other communication methods and their business applications discovered it was costly,

complicated, and often impossible to achieve. The advent of truly enterprise-class UCaaS offerings now makes it possible to integrate business applications with business communications in an open platform that enables simple integrations with other critical business applications through application programming interfaces (APIs) and a broad developer ecosystem for custom integrations.

We take a closer look at application integration in Chapter 5.

» **Security:** In a SaaS offering, the provider is responsible for the security of the application and the underlying stack, but the customer is responsible for the data. In UCaaS, this data includes messaging, video, voice, and integration with file sharing and productivity apps, among others. Your UCaaS provider should have robust security controls to protect your business communications and collaboration tools from advanced cyberthreats.

Exploring Endpoints

Although choosing physical phones may seem like a simple decision at first glance, there are many important considerations that must be factored into your decision.

Many legacy on-premises PBX systems made the choice simple, albeit limited. It was a lot like buying a Ford Model T in the early 1900s — you could have any color, as long as it was black. Many legacy PBX systems require proprietary desktop phone hardware, effectively limiting your endpoint options, features, and functionality.

More recently, IP PBX systems have somewhat opened up the choice of desktop endpoints, often allowing a choice of Session Initiation Protocol (SIP)–enabled phones from different vendors, as well as desktop software (softphones) that can be used.

The real challenge for many businesses operating their own IP PBX is supporting a remote and mobile workforce. Many of these companies have lost control of their business communications, with employees simply using their personal mobile devices to conduct business.

UCaaS enables a broad spectrum of endpoint choices. A UCaaS provider will typically support plug–and–play functionality with an approved list of third–party SIP-enabled desktop phone vendors and models, as well as smartphones (either using the native dialer or via an installed app) and desktop software (softphones). But your choice of endpoints extends well beyond phones with UCaaS: You also have a choice of video endpoints across desktops, mobile phones, and conference rooms, to name a few.

Looking at Advanced Functionality

UCaaS also supports advanced unified communications and team collaboration functionality, including the following:

» **Advanced analytics:** Detailed metrics reporting and analytics enables businesses to optimize their UCaaS environment and increase business performance and productivity. Examples of useful reports might include the following:

- *Summary:* Ideal for the business owner or executive staff, these reports provide an at-a-glance, high-level usage overview of the entire phone system. You can use the metrics to assess the volume of incoming and outgoing calls or answered and missed calls, and then review your business hours to ensure they're consistent with caller patterns.

- *Adoption and usage:* The real return on investment (ROI) and hard and soft cost benefits for any project are realized only when your users make it a part of their everyday workflows. Adoption and usage analytics provide deep insights to help you gain visibility and drive adoption with actionable data.

- *Queue activity:* Ideal for group or department managers, these reports summarize call queue activity and volume for historical activity. You can use these reports to analyze the ratio of calls answered to calls missed, call wait times, and average talk time on a call, and then fine-tune your call queue responses accordingly.

- *User activity:* Ideal for team leaders, these reports summarize inbound and outbound call volume and usage

for historical activity. You can compare call volume metrics with a user's job performance or workload to understand how to optimize the calls for best results. IT can leverage usage and adoption reports when introducing new tools and solutions to determine user acceptance and ensure these new offerings are being used broadly and effectively across the organization.

- *Phone number:* Ideal for marketing and sales teams, these reports summarize the call activities of each purchased phone number (for example, associated with a particular campaign, promotion, or product), so you can understand which numbers get the most calls, which numbers result in the highest placement results, and which calls are getting answered or not.

- *Call detail:* Ideal for IT managers, these reports list all inbound and outbound call activities during the given time frame, so you can view all call log information, including caller ID, destination, call duration, call results, and so on, to understand and control the company's usage of the UCaaS offering. More technical data can include quality of service (QoS) analytics to identify improper QoS tagging and call quality metrics to help IT staff troubleshoot poor call performance and voice/video quality issues.

- *Company metrics:* View all activities and monitor the performance of company metrics such as interactive voice response (IVR), sales, customer service, marketing campaigns, and international numbers. Use this data to streamline workflows and maximize coverage for callers.

» **Contact center as a service (CCaaS):** A truly advance UCaaS solution would also include contact center as a service (CCaaS) features and capabilities that drive inbound, outbound, and digital customer engagement in one unified platform. Likewise, customer service today requires more than a "hotline" to a call center. Customers demand easy access to businesses via multiple modes of communication, whether phone, email, text, web-enabled chat, or video. Customers trying to reach your support team expect an experience that feels local. Forcing them to dial an international number or only providing an interactive voice response (IVR) menu in a foreign language erodes that

experience. They also expect contact center agents to have instant access to relevant customer information and history, problem notes and history, and answers to their questions and issues.

UCaaS enables these advanced contact center capabilities with third-party integration to customer relationship management (CRM) and enterprise resource planning (ERP) systems (among others), support for multiple modes of communications (both internally and customer-facing), and advanced features such as skills-based routing, multi-language IVR, and automated call distribution (ACD).

» **Global availability:** When purchasing UC per location, features, functionalities, and plans are determined by local carriers and vendors and may not be available — or available at the same cost — elsewhere. Call quality can also often be inconsistent from location to location. These problems are further compounded as remote work grows around the world. Employees must be free to do their best work anywhere and everywhere work takes them. UCaaS makes it easier for businesses to provision unified communications and collaboration services from anywhere in the world, providing an instant global footprint to businesses of any size instead of layering on region-specific services and solutions, creating a disjointed patchwork of tools and communications workflows across locations that can erode efficiency and results.

Chapter **4**

Understanding UCaaS Technical Requirements

I n this chapter, we explain several important technical consid-erations in a UCaaS offering, including performance, reliability, and security.

Call Quality and Performance

Every cellphone user has experienced spotty coverage and incon-sistent reliability. You've come to expect this and you move to a better location. A business, however, can't move around in pur-suit of a better, more reliable connection. Your business depends on your cloud vendor to provide consistent, high-quality coverage at your present location.

The following factors can profoundly impact call quality over a network.

Insufficient bandwidth

First and foremost, you need to ensure adequate bandwidth. Insuf-ficient bandwidth can cause packet loss and other issues. A single Voice over Internet Protocol (VoIP) call consumes approximately

90 kilobits/second (kbps) of bandwidth, so you can safely have 10 to 11 concurrent calls per megabyte. Multiplying your expected maximum number of calls by 90 kbps makes it easy to estimate how much bandwidth you'll need in your data pipe.

In the real world, relays in switches and other areas of your network can impact this estimate. You also need to allow for bandwidth hogs such as employees who are streaming music or uploading large image files. Consequently, you should allow for three to four times your original estimate.

Network delay

Two problems can arise from end-to-end delay in a voice network: echo and talker overlap. Round-trip delay in a voice network should be less than 50 milliseconds (ms) to avoid echo problems. Because VoIP typically has longer delays, echo control and echo cancellation methods must be employed.

TECHNICAL STUFF

Talker overlap (one caller interfering with another caller's speech) will be significant if the one-way delay in a network is greater than 250 ms. Network delays compound as the voice packet travels through the network.

TECHNICAL STUFF

Employing a fast coder/decoder (CODEC) such as G.279 code-excited linear prediction (CS-ACLEP) helps take care of accumulation and processing delays, while network delay can be minimized by a network design consisting of fewer hops and faster Layer 3 switching devices.

Jitter

Voice calls sent over the Internet and other packet-switched networks are divided into packets. Because each packet can travel a different path from sender to receiver, individual packets can arrive at the destination at different times and in a different order. *Jitter* is the variation in the arrival time of data packets, which results in gaps between the packets. The result of high jitter (over 50 ms) is speech that sounds jerky. Severe jitter can cause sounds to be jumbled.

Removing jitter requires collecting packets in buffers and holding them long enough to allow the slowest packets that arrive in time to be played in correct sequence (see Figure 4-1). Jitter buffers can be used to remove the gaps in the packets, but jitter buffers

themselves cause additional packet transit delays in the network. When these delays become excessive, call quality becomes difficult to maintain.
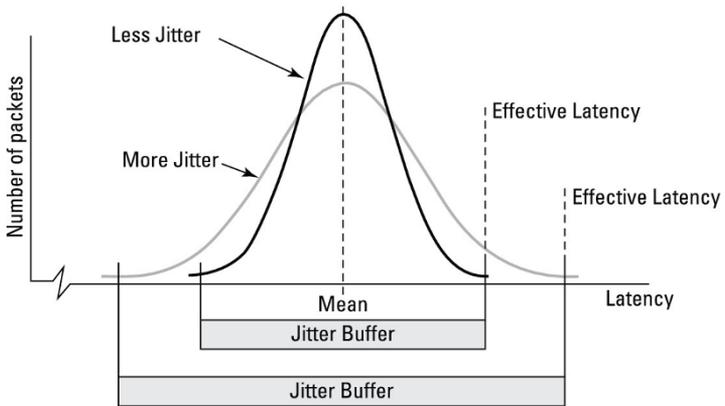
FIGURE 4-1: Jitter buffers can reduce jitter in VoIP calls.

Packet loss and out-of-order packets

IP networks can't guarantee delivery of every packet, much less their order of arrival. Packets will drop under peak load conditions and during periods of congestion.

Among the approaches used to compensate for packet loss are interpolation of speech by replaying the last packet and sending redundant information.

Out-of-order packets are treated as irrevocably lost and are replaced by their predecessors (see Figure 4-2). When the late packet finally arrives, it's discarded. When packet loss rises above a certain level, call quality can no longer be assured.

Poor Internet connection

The best quality requires a solid Internet connection. Internet service providers (ISPs) provide network performance guarantees known as service-level agreements (SLAs). SLAs are based on achievable levels of consistent performance over a given network — meaning the ability of a given network to deliver the service needed by a specific network application from end to end.

Packet Loss: 0 - 80%
Latency: 150 - 500ms

Internet

Carrier
Gateway

Latency: 20 - 150ms
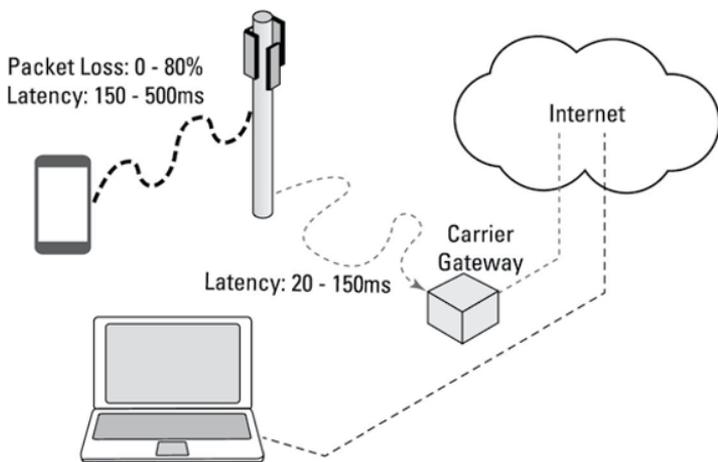
FIGURE 4-2: Packet loss and out-of-order packets cause latency in an IP network.

This can also include edge to edge, as in the case of a network that connects to other networks rather than to hosts or end systems, with the network itself providing some control over bandwidth, jitter, delay, and packet loss.

Inadequate network equipment

Unless you set up your network to split voice and data into separate pipes, you may need a QoS-enabled router. This device can prevent latency by prioritizing voice traffic over lower-priority data traffic, such as email or large downloads. QoS depends on support throughout the entire network, end to end. To achieve QoS from sender to receiver, all the network elements through which a traffic flow passes — such as network interface cards, switches, routers, and bridges — must support QoS. If a network device along this path doesn't support QoS, the traffic flow receives the standard first-come, first-served treatment on that network segment.

Routers supporting differentiated service configure their network scheduler to use multiple queues for packets awaiting transmission from bandwidth constrained (for example, wide-area network [WAN]) interfaces. Router vendors provide different

capabilities for configuring this behavior, to include the number of queues supported, the relative priorities of queues, and bandwidth reserved for each queue.

In practice, when a packet must be forwarded from an interface with queuing, packets requiring low jitter (for example, VoIP or video) are given priority over packets in other queues.

Improperly configured network

Other important factors that can affect call quality and performance include dropped packets and errors, routing loops, misconfigured QoS on routers, inefficient rule sets or low throughput on perimeter firewalls, poor Wi-Fi coverage or inadequate bandwidth, and poorly defined virtual local-area network (VLAN) segmentation.

Global Reliability

Natural disasters, power outages, and malicious network attacks can cause communications downtime that frustrates your customers and threatens your bottom line. There's a common misconception that on-premises communications systems offer greater reliability than hosted solutions. But in fact, leading cloud UCaaS providers host their services on high-quality, high-availability systems that few customers could afford to own. These providers also staff data centers with highly trained experts who manage systems 24/7 and perform all the latest upgrades to ensure reliability.

Consequently, today's enterprise-class UCaaS solutions ensure the highest levels of availability, reliability, and disaster recovery. Leading solutions house the infrastructure in geographically redundant data centers and guarantee uptime as high as 99.999 percent. The "elastic" nature of cloud architecture also means these systems can quickly scale up or down based on demand — whether due to business fluctuations or a disaster recovery event, such as a natural disaster or power outage.

FIVE NINES AVAILABILITY

Uptime or *availability* is the percentage of time that a system is fully operational. Availability is measured as a percentage, with 100 percent indicating a system or service that experiences zero downtime (that is, a system or service that never fails). One hundred percent uptime is pretty rare for complex systems and services. Most services fall somewhere between 99 percent and 100 percent uptime. Most cloud vendors offer some type of SLA around availability. Amazon Web Services (AWS), Google Cloud Platform (GCP), and Microsoft Azure all set their cloud SLAs at 99.9 percent (or "three nines"), which the industry generally recognizes as "very reliable" uptime, even though it means a system or service can have nearly 8 hours and 46 minutes of total downtime per year.

A step above, 99.99 percent (or "four nines") is considered "excellent" uptime. But four nines uptime still means a system or service can have up to 52 minutes of total downtime per year. Consider how many people rely on web tools to run their lives and businesses. A lot of things can go wrong in 52 minutes.

The difference between "four nines" and "five nines" may seem small (you might even say "minute") — after all, we're talking about the ten thousandth and hundred thousandth decimal place. But "five nines" uptime means that a system or service is fully operational 99.999 percent of the time, with less than six minutes of total downtime per year. So, no, the difference between "four nines" and "five nines" isn't minute — it's 46 minutes!

RingCentral supports up to 99.999 percent uptime, which exceeds the level that most SaaS vendors can offer today.

Security and Compliance

There is no higher priority for companies than the security of their customer data. When businesses implement on-premises solutions, they take on full responsibility for data security and regulatory compliance. Companies in highly regulated industries, such as financial services and healthcare, have an even higher threshold to ensure that their solutions and vendors are compliant. But few IT organizations can afford the resources or time to acquire the latest security measures required to meet today's increasingly strict privacy regulations.

An enterprise-class UCaaS provider will typically house all customer data in secure Tier 1 data centers with strong physical and network security audited by independent third parties. The data centers should be managed by highly trained, on-site engineering specialists, including experts in various aspects of security and regulatory compliance.

This shared security environment and policy platform offers an inherent advantage to businesses without large IT departments or extensive PBX management skills, as well as those spread across multiple locations. Customers benefit from the economies of scale provided by leveraging the UCaaS provider's security expertise and hardened facilities. In this way, moving to a cloud-based business solution can actually raise an organization's security posture.

A global UCaaS provider can help support companies entering challenging markets with stringent compliance requirements (for example, with a global ecosystem to address data residency issues). For enterprises that maintain large on-premises PBX phone systems, yet another layer of complexity typically exists within the security infrastructure required to safeguard the VoIP environment. Session border controllers (SBCs) are typically installed to control real-time communications signaling and media streams. SBCs provide many of the same security capabilities as a traditional packet filtering firewall, but they're specialized devices that are optimized for VoIP traffic.

SBCs aren't required, but they can be used with a UCaaS offering. Typically, all that's required to secure a UCaaS environment on the customer end is a packet-filter firewall or next-generation firewall with the appropriate Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) ports properly configured.

By choosing the right cloud phone/UCaaS vendor, your organization can gain the benefits of shifting business communications systems to the cloud, while actually enhancing your enterprise security position. Before earning a spot on your short list, a UCaaS vendor should demonstrate that it provides comprehensive cloud security, including the following:

>> **Secure data center:** All infrastructure should be housed in facilities with strong physical protection, redundant power, and tested disaster recovery procedures. The highest levels

of security and reliability should be backed by independent certifications such as:

- American Institute of Certified Public Accountants (AICPA) System and Organization Controls (SOC) 2
- ISO9000

» **Secure voice:** All voice traffic within your corporate phone system should be encrypted to prevent eavesdropping on voice calls.

» **Data encryption:** To ensure protection of valuable intellectual property and competitive information and also to ensure regulatory compliance, all data — from competitive proposals to patient private information to smartphone screenshots — should be encrypted in transit and at rest.

» **User access controls and management:** To ensure only authorized users access cloud communications accounts and services, the vendor should implement, at a minimum, strong password policies and ideally multifactor authentication (MFA), as well as single sign-on (SSO) to avoid log-in fatigue.

» **Fraud prevention:** Toll fraud, healthcare fraud, and credentials theft represent significant financial and legal risks for businesses. The service provider should have protections built in to the service layer and should conduct continuous monitoring for dangerous anomalies or other indicators of fraud. The provider should also offer guidance on best practices to eliminate the human factor in fraud risk.

» **Account management and administration:** To prevent data loss, the solution should have provisions to instantly revoke user rights or demote an administrator's credentials of employees who leave the company or are terminated.

» **Robust network security:** In addition to all the protections for the network perimeters typically in place for data, the UCaaS vendor must now add unique protections designed to prevent attacks on voice infrastructure.

Chapter **5**

Working with APIs and Custom Integrations

I n this chapter, you discover how an open unified communications as a service (UCaaS) platform can unlock opportunities for you to embed and integrate new capabilities in your business processes, workflows, and applications to enhance user productivity and deliver a superior customer experience.

Understanding Why Embedded Workflows Matter

Although cloud-based applications — such as Google Workspace, Microsoft 365, Salesforce, and Zendesk, to name a few — provide tremendous cost savings and are vital to greater efficiency and productivity, for the most part, these systems have not been integrated with business communications.

With the exception of email, most modes of communication — voice calls, messaging, voicemail, fax, and video meetings — still require inefficient, manual data entry to log a conversation or store information in call logs that are isolated from other systems. For example, if a sales rep uses a call, text, or web meeting

to communicate with a customer, critical information gained by the rep during the conversation can easily be lost or forgotten.

This capability to break down barriers that isolate communications from business system applications and workflows is important for one of the most critical goals of any business today: improving customer satisfaction. Customer service integrations not only eliminate manual processes and human error but also represent a significant step forward because businesses want to connect with customers more effectively. Having communications well integrated into the tools and applications companies rely on every day is critical to eliminating inefficiencies and gaps that get in the way of achieving the best possible customer experience.

Integrating unified communications features into workflows improves customer response time and satisfaction.

A new type of consumer is driving organizations to put more focus on the customer experience. Smartphones, ubiquitous broadband connectivity, and services like Uber have created an on-demand society in which we all have a variety of content and services at our fingertips. As a result, consumers who in the past were comfortable waiting their turn in line now expect immediate gratification and instant answers to their questions. Whether it's a taxi, an airline seat assignment, or an answer about billing on an order, they not only want to get it now, but also want to get it via the communications channel of their choice. And that channel may change based on their location, the device they're using, the time of day, or other factors.

This new customer will abandon purchases after long hold times on the phone or ambiguous types of communication — and there is a high likelihood that their next call will be to a competitor. According to a study conducted by CITE Research for RingCentral's *Overcoming the Digital Age Disconnect* e-book, nine out of ten employees agree disjointed communications technologies negatively affect workflow and job satisfaction — and this, in turn, impacts customer satisfaction and the bottom line. The vast majority of employees (92 percent) say a seamless communications and collaboration platform would make it easier to keep customers happy, improve customer satisfaction scores, and improve both the employee and customer experience.

This shortage of satisfaction may be an indicator that most companies haven't yet adjusted to the fact that customers have changed in a fundamental way. This applies not just to consumers but also to business-to-business (B2B) customers who — armed with "perfect information" acquired online — increasingly look to themselves for buying advice rather than to the salesperson. In other words, they have little patience for engaging with an employee who doesn't have ready and seamless access to all the data pertinent to a transaction.

Consequently, organizations that want to do business with these always-on customers need to invest in new integrated solutions. Building the capacity to respond to this new customer involves new processes that require integrations between systems that traditionally have been siloed and unable to work together. These integrated solutions give employees the customer-facing tools they need to deliver the best and most efficient customer interactions possible. For example, caller ID–based pop-ups that provide key customer data can result in employees or call center agents who feel less frustrated and more empowered to help customers. This access to the right tools and information to resolve issues or complete sales creates a virtuous circle because happier employees tend to make for happier customers.

TIP

Enabling access to data across previously isolated silos also enables line-of-business leaders to gain valuable insights by making it possible to perform business analytics on broader pools of data.

Organizations that ignore the customer experience do so at their own peril. For example, in an always-connected and uber-social world, customers tend to share good experiences, but bad experiences tend to be shared even more quickly. According to research by Microsoft, one in two millennials has complained about a brand on social media and one in three Americans has used social media to complain about a brand or its customer service, hurting a company's brand and impacting overall market and customer perception.

But the real key to achieving the levels of customer satisfaction that can be a business differentiator involves tightly connecting communications with data and business logic contained in core business systems such as customer relationship management (CRM), enterprise resource planning (ERP), and others.

Recognizing the Importance of Open Platforms

A key benefit of moving from inflexible, closed on-premises communications systems to the cloud is the ability to extend a communications platform with new features and capabilities — and to tightly integrate communications into core business applications. Yet many cloud-based solutions are also closed and proprietary, which makes integrating communications into workflows costly and complex. This either limits the capabilities that are possible or requires too much time and effort to deploy new capabilities.

Maximizing the potential business value of a cloud communications system requires an extensible platform based on open standards and open application programming interfaces (APIs). An open platform makes it significantly more time- and cost-effective to integrate communications into key business processes, enabling automated workflows. This allows IT departments and third parties to rapidly roll out solutions that enhance employee productivity and deliver higher levels of customer satisfaction.

A number of companies offer transport as a platform. That is, they provide closed APIs to add basic voice and text capabilities to custom applications. However, the end result of this approach is to simply add another layer of communications on top of the existing communications and customer service platforms, which basically results in subpar telephony services and added complexity. And ultimately, these kinds of services cannot deliver the flexibility and capabilities required by enterprises and fast-growing companies.

An open platform goes far beyond these proprietary approaches. With an open API, independent developers and enterprise IT teams can access the power of real-time communications and messaging, supported by extensive business logic and customer data management and reporting. This open approach makes it simple for developers to not only enable applications to send and receive calls and texts, for example, but also deeply embed communication functionality into the business workflow of an application.

With an open API, developers can enable advanced business communications capabilities, such as the following:

>> **Embedded communications:** Deliver amazing customer experiences by arming your customer representatives with rich, contextual customer data for every interaction.

>> **Automation and integration:** Add communications triggers and custom call routing rules to automate your processes and workflows.

>> **Business insights:** Use customized real-time dashboards to gain deeper insights into how your company communicates. Access archived recordings to meet compliance requirements.

>> **Team messaging:** Embed team messaging capabilities into your apps, allowing users to create dynamically generated teams, or build alert text bots utilizing popular bot frameworks.

TIP

Having an app gallery to browse integrated apps allows UCaaS customers to pick and choose ready-to-use integrations instead of building custom integrations to help drive productivity.

Chapter **6**

Exploring Different UCaaS Use Cases

n this chapter, you explore unified communications as a service (UCaaS) use cases for small businesses, medium businesses, and large enterprises.

Small Businesses

For small businesses, with fewer than 100 employees, unified communications and collaboration options have traditionally been limited. Typically, these organizations have no, or only very limited, in-house IT expertise, and many IT functions are either outsourced or performed by the owner of the business or the most tech-savvy employee.

FAST-GROWING SHIRT DESIGN COMPANY IMPROVES CUSTOMER SERVICE WITH RINGCENTRAL

When Chais and Shawna Meyer founded 24 Hour Tees in 2013, they had a couple of major goals in mind:

- Create a custom shirt design service that gives everyone, even people without artistic experience, the opportunity to express themselves.

- Build a company and a customer experience that is collaborative, simple, and fun.

Their strategy proved successful. In just the few years since its launch, 24 Hour Tees has grown from a boutique service handling mostly small orders — often just a couple of shirts for a person who had a fun design idea — to a sophisticated print design house fulfilling corporate orders for thousands of units — all with fewer than ten employees.

As the business grew and orders became both more frequent and more complex, they needed to automate some of their processes to handle the increasing demand without complicating things for their customers.

Automating while still providing the human touch

When they launched the company, Chais and Shawna set up their office with a few landlines and a standard service from the telephone company. "That was okay at the very beginning," Chais explains, "but it didn't give us much flexibility in our business communications, and it didn't allow us to automate any of our processes."

In one of his previous businesses, a web development service, Chais had used RingCentral. "As soon as we realized this shirt company was going to grow, we went right back to RingCentral, and that's when I discovered the RingCentral application programming interface (API), which could help us automate key parts of our operations."

"For example, RingCentral lets us use the same business number not just for voice but also texting. So, when a customer places an order on our site, we automatically generate a confirmation text message from

our business number that goes out to that customer. And because the RingCentral API integrates easily with other apps, like our shared to-do app, when a text request or question comes in from a customer, we can automatically create a to-do item that everyone in the company can see. This way, we make sure each customer request gets dealt with quickly."

"We've even created automated text messages specifically for our fundraiser-based orders," Chais continues. "If a customer places a shirt order for a fundraiser, we'll send them not only a confirmation but also a message letting them know they've raised X dollars toward their goal. It's a great way to let these customers know we understand who they are and why their order really matters."

With the RingCentral API, 24 Hour Tees has also been able to utilize artificial intelligence to send relevant, customized messages to the right people at the right time. "When someone texts in a specific question — for example, 'What's my order status?' — our system can do a search of our database for that number, then check to see if that person has an active order and what its status is. Then we can send an immediate response, a prewritten note with our 24 Hour Tees fun tone, which no one in the company has to manually write in that moment. This saves us from needing a call center rep to answer questions like these."

"I'd estimate this automation with the RingCentral API has saved us the need to hire about four additional full-time employees."

Making internal company communication easier than ever

Although it's a small organization, the 24 Hour Tees team is distributed internationally. "We have a full-time employee in Mexico," explains Chais, "and a freelance developer in Palestine. Thanks to the RingCentral apps we all have on our desktops and mobile phones, we're all easily able to communicate much more easily and cost-effectively via phone or text from our business numbers, and it doesn't matter where anyone is or whether they're at their desks."

Scaling up and expanding operations

24 Hour Tees is growing so rapidly that Chais, Shawna, and their team have recently launched a sister company, Screen Print USA, to focus on larger-scale orders for organizations.

> "We're going to be running both of these companies using the same team and the same resources," says Chais. "A lot of what's making this possible is that we now have the communication and automation tools to increase our capacity without needing a lot of additional staff. We couldn't do a lot of what we're doing without tech automation like RingCentral."

Midsize Businesses

Midsize businesses with between 100 and 1,500 employees typically have IT departments, but there is generally little room for specialization. Managing the unified communications and collaboration platform may be a shared responsibility across IT support, desktop support, and applications teams. To compete successfully against larger enterprises in their industry with far greater resources at their disposal, midsize businesses must take full advantage of cloud-native technologies such as UCaaS.

AWARD-WINNING MORTGAGE LENDER CONTINUES DELIVERING WORLD-CLASS SERVICE DURING LOCKDOWNS

Union Home Mortgage Corp. (UHM) is a high-growth, full-service retail, wholesale, and consumer direct independent mortgage banking company with more than 150 branches and 1,200 employees across the United States and more than $7 billion in lending per year.

In the months following the initial pandemic lockdowns in 2020, thousands of borrowers across the country turned to UHM for a much-needed financial lifeline to help them through the most troubled economy in anyone's recent memory. Fortunately, the company was ready to continue providing this all-important service to customers, because it had already put in place a cloud communications platform that allowed its partners to work from anywhere.

Replacing a phone system that was taxed to its limits

As challenges mounted with the company's previous phone system, UHM's technology team decided to use the end-date of that vendor's contract as an opportunity to find a better solution. As Chief Information Officer Mark Langhans explains, the company had several problems with its phone service — problems that became more serious as the business grew and too large to ignore as UHM reached the 175-location mark.

"We had system performance issues at headquarters and in many of our branch offices — not all the time, but enough that our partners and customers noticed," he said. "We've really built this business on providing outstanding service, and our phone system was becoming a limiting factor in achieving that mission."

Amanda Coyne, the company's IT infrastructure team lead, adds that UHM also wanted to consolidate as many communications services as possible onto a single platform, to improve their partners' workflows and customer service. Prior to migrating to RingCentral, UHM's staff often had to use less-than-ideal workarounds for online meetings, business faxing, and exchanging text messages with borrowers.

She explains, "We didn't want our lending officers to have to tell borrowers, 'Call me at this number. But if you want to text me, it's best to use this number. And use this number to send me a fax.'"

Making communication more effective than ever with RingCentral

Migrating to RingCentral's all-in-one communications solution solved the reliability issues — which was the immediate, high-priority need. "We stopped having phone outages," Mark explains. "That alone was a huge win for our business."

But as Amanda points out, UHM's partners began finding many other ways the cloud solution improved their productivity — and their ability to deliver the level of service UHM is known for.

"Our lending officers now had the ability to easily communicate with borrowers from anywhere and in whatever ways the borrowers preferred," she explains. "They could call, text, or talk face-to-face over a video chat and share their screens." She adds, "The built-in digital faxing was also a big advantage, because it helped our sales teams respond more quickly to borrowers' faxes even if they weren't in the office."

Preparing to thrive as a remote workforce

Then everything changed when the pandemic led to lockdowns in all of the 40 states where UHM has locations. As Mark and Amanda explain, RingCentral had positioned the company well to handle the sudden transition, but they had still planned to take at least a couple of weeks to make sure all their 1,200 partners around the country had what they needed to work from home.

"Turns out, it went much smoother than anticipated," says Mark. "We were 100 percent remote within a few business days. And there's no way we could've done that without RingCentral."

As Amanda explains, what made the transition so smooth was that UHM was able to re-create partners' workflows at home to be essentially identical to their office experience. "For inbound sales calls, for example, our standard process is for those to route to assistants, who then transfer them to the appropriate lending officer. Because RingCentral's phone system is so easy to use, we were able to re-create that same experience, even with everybody at home."

And because RingCentral is able to support UHM's staff even for the largest virtual meetings they've ever had, the company has been able to host all-hands video meetings — and keep everyone feeling connected during the lockdowns. "We've had literally 1,200 partners on these calls," says Mark. "And I can't tell you how important that is — or how great it is to hear our CEO say that the communications solution we chose is giving our company a world-class experience."

Large Enterprises

Large enterprises (with more than 1,500 employees) have large IT teams, often with very specialized skills, but they must support thousands (even tens of thousands) of users who may be working from literally anywhere in the world. These demands can be taxing for even the largest and most specialized IT teams, particularly when dealing with on-premises communications systems that provide limited support for remote working from home.

FIGHTING A GLOBAL PANDEMIC WITH AN ASSIST FROM RINGCENTRAL

It would be hard to think of a time when respiratory care played a more important role in society's health. And few companies have contributed more to this effort over the years than Vyaire Medical.

Although its latest corporate iteration was formed just a few years ago, the global company known today as Vyaire Medical has a decades-long track record of delivering groundbreaking medical solutions that have literally changed the field of respiratory care around the world.

For example, founders of earlier iterations of the company are credited with inventing the medical ventilator and creating the first fully operational laboratory for pulmonary-function testing and diagnostics. Today, the company's 5,000 employees, working across five continents, manufacture and market more than 27,000 unique products to support the diagnosis, treatment, and monitoring of respiratory conditions.

So, with the world facing a pandemic caused by a virus that attacks the respiratory system, Vyaire suddenly found its products and expertise in urgent demand all over the globe. But at that same time, the lockdowns forced the organization to quickly transition thousands of employees to remote-working arrangements. Fortunately, the company had the cloud communications platform in place to handle this massive workforce migration without disrupting its vital work.

Outgrowing the on-premises phone system

There were several catalysts that prompted Vyaire to retire its on-premises phone infrastructure in favor of a cloud solution. For example, the legacy system had technical difficulties, such as poor audio quality and frequently dropped calls. Also, the company's telecom provider wasn't able to effectively create a seamless communications experience between the company's locations across the Americas, Europe, Asia, the Middle East, and Australia.

But the real driver behind Vyaire's move to RingCentral's cloud communications was a separation from its previous corporate parent.

(continued)

When that parent organization sold its respiratory line of business, the new stand-alone company — Vyaire Medical — needed to establish its own IT infrastructure, including a new communications solution.

Martin Kastner, Vyaire's senior director of global IT infrastructure, recalls that the sale happened quickly, and the business needed to transition its staff to a new communications solution quickly. After initially trying a hybrid communications environment — part on-premises, part cloud — Martin's team knew they needed to go full cloud.

Proving the value of cloud communications during lockdowns

Although Vyaire had begun using RingCentral's all-in-one solution prior to the pandemic as its phone, audio and video meetings, and contact center system, the company truly saw the value of the solution when its staff was forced to vacate their offices all over the world and start working from home.

"The transition itself was very successful," says Martin. "If we didn't have RingCentral, if we still had our old on-prem system, we would've run into so many problems trying to migrate thousands of employees to remote work for the first time."

Alexander Roth, the company's lead engineer for global telecom, points out that because RingCentral was so intuitive and easy to use, it helped to make the remote-work transition less stressful — for both the IT team and the company's employees. "I heard from a lot of people that the system was great and easy to use right from the start, and this was a real relief for all of us."

And as they began using RingCentral for all their business communications during the lockdown, Vyaire's employees also began discovering highly useful services that they hadn't realized they had.

As Martin explains, "Employees who were used to dialing phone numbers manually and having to be at their desks to do so, began seeing the benefits of the softphone capabilities. Now they could plug a headset into their computer, bring up the RingCentral app, and auto-dial a colleague or customer with a single click."

Vyaire's staff is also getting tremendous value from the built-in video meeting service RingCentral Meetings. "We're using it all the time to stay connected as a company," says Martin, "and even to host medical-device training webinars for our customers."

He adds, "At a time like this, when everyone is locked down, it's invaluable to be able to continue offering video-based training to healthcare providers on how to use our lifesaving respiratory products."

Chapter **7**

Ten Things to Consider When Choosing a UCaaS Solution

This chapter offers ten key considerations to help guide you through your evaluation of potential UCaaS providers.

Easy to Set Up

Although the ability to integrate with a broad ecosystem of third-party and custom apps easily and seamlessly is an important capability to look for in a UCaaS solution, your solution also needs to provide core functionality without requiring a bunch of "add-on" features. Deploying multiple tools from multiple vendors

across different locations can lead to interoperability issues and troubleshooting challenges. You want to avoid having to build "Frankenstein's monster" to support business communications — otherwise, your video meetings and calls may look and sound monstrous!

REMEMBER

A complete UCaaS solution offers ease of buying, setup, and management — particularly when compared to an on-premises communications system.

Cloud Native

The cloud enables many business advantages including agility, on-demand elasticity, and global scalability, among others. However, if your unified communications (UC) solution isn't designed for the cloud, it may not be optimized to fully leverage the benefits of the cloud. Simply, porting a business communications suite or "lifting and shifting" an on-premises UC infrastructure to the cloud won't necessarily deliver the benefits you and your business users are expecting. Look for a cloud-native solution that enables you to pay as you go and rapidly scale up or down to meet constantly changing business requirements and new growth opportunities.

Global Scalability

Employees located anywhere in the world — in remote offices, on the road, in airports and hotels — need to be on the same secure communications network with the ability to access the same robust business features from a single business phone system. They and their global customers and partners require a secure, reliable voice, messaging, and collaboration solution that supports global reach and devices of their choice.

To meet their requirements and ensure a consistent, high-quality experience, you need a business communications solution built on a global, redundant service delivery architecture designed from the ground up to ensure superior, scalable, and secure service across worldwide distributed offices, employees, and customers.

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Your global network should enable easy and rapid international provisioning of offices and employees, with local points of presence (POPs) wherever you're doing business, to ensure high performance and maximum cost effectiveness.

Robust Reliability

For enterprise organizations moving to a cloud solution, reliability is a primary concern. Choosing a solution that offers carrier-grade reliability and quality of service (QoS) is critical. You should demand the following capabilities in any potential UCaaS provider:

» **Five nines availability:** Your UCaaS provider should ensure minimal downtime for your critical communications services. It may seem like splitting hairs (or fractions), but 99.999 percent availability means no more than 26 seconds of downtime per month versus 99.99 percent availability, which allows up to 4 minutes and 22 seconds of downtime per month.

» **Business continuity:** Natural disasters, outages, and cyberattacks can cause communications downtime that frustrates your customers and threatens your bottom line. Your UCaaS provider should have a distributed network that is fully redundant and provides a global infrastructure that ensures 24/7 business continuity.

» **End-to-end monitoring:** Your UCaaS provider should provide continuous end-to-end monitoring of network performance to ensure that key performance indicators (KPIs) such as quality metrics, completion rates, and availability remain at peak levels and proactive alerting to warn of potential issues.

» **Self-service access to real-time system information:** A self-service portal enables business customers to log in 24/7 to check the overall health of the UCaaS solution. You should be able to confirm, in real-time, whether your communications services are up and running and monitor the status of any system-wide issues that may occur.

>> **Disaster recovery:** Your UCaaS solution should be architected for automatic failover in case of emergency — for example, using Session Initiation Protocol (SIP) trunking to provide real-time disaster recovery by switching active services from one data center to another.

Seamless Collaboration

UCaaS allows your end users to work within a single unified platform instead of constantly switching between different communications and collaboration apps for messaging, video meetings, and calls, among others.

Seamless integration with third-party business collaboration tools such as office productivity suites (for example, Google Workspace and Microsoft 365), customer relationship management (CRM) applications (for example, Microsoft Dynamics and Salesforce), DevOps tools (for example, Jira and PagerDuty), chatbots, and desktop sharing further extends the functionality of UCaaS so your users can stay focused and productive no matter what they need to do.

Enterprise-Class Features

Look for enterprise-class features, including the ability to do the following:

>> Make or receive calls directly from your contact applications.

>> Click-to-dial any phone number that appears in your contacts.

>> Send and receive text messages from a centralized hub that integrates messaging, video meetings, and phone in one app.

>> Schedule a meeting or audio conference from your calendar.

>> Provision new accounts and numbers (long code or toll-free) as needed.

>> Support large video meetings (for example, up to 200 participants) and voice conference calls (for example, up to 1,000 participants).

>> Enable unlimited audioconference calling initiated within your office productivity interface.

>> Provide an auto-receptionist to greet callers and route them to any employee, department, or phone extension.

>> Allow automatic audio recording for inbound and/or outbound calling.

>> Provide a multilevel auto attendant to extend your auto-receptionist capability with easy-to-customize inbound call routing and telephone prompts that connect callers to their desired destinations.

>> Capture and access voicemail (including standard voicemail, visual voicemail, and voicemail with email notifications) to allow users to manage their voice and fax messages directly within their office productivity and CRM apps.

>> View complete communications history including calls, texts, video meetings, faxes, and voicemails.

>> Support multisite deployment, advanced call handling (such as Barge and Whisper), single sign-on (SSO), and Internet failure backup.

Open APIs to Support Custom Workflows

Your organization, business requirements, and user expecta-tions are unique. To optimize your business performance, your UCaaS solution should provide the tools your developers need — specifically application programming interfaces (APIs) and a soft-ware development kit (SDK) — to seamlessly integrate business communications into your key business processes, so you can automate workflows, drive efficiency, and gain valuable insights.

You want your developers to have direct access to voice, text, team messaging, video, fax, account configuration, and communica-tions data to ensure that your business communications solution is aligned and working to support your business objectives and to allow them to make changes as needed in today's fast-paced business environment.

Trust: Security and Compliance

Secure and reliable communications are critical to business operations. As you consider UCaaS providers, you should be especially diligent in examining the security systems and policies they have in place to protect your business and to assure your customers and partners that their interactions with your company will be protected. Look for a UCaaS provider that makes trust an essential part of its culture and corporate values to ensure your data is secure, compliant, and private.

You'll want to be certain that your UCaaS provider has a comprehensive security strategy that comprises multiple layers and many components, from policies and methodologies to service architecture.

In doing your due diligence, evaluate your UCaaS provider's security and privacy terms (usually in their data processing addendum [DPA] and information security addendum [ISA]). These should demonstrate overall security and data handling practices aligned with international standards and regulations, including ISO27001, ISO27017, ISO27018, and the European Union's General Data Protection Regulation (GDPR), with additional regulations as required, such as the California Consumer Protection Act (CCPA).

Here are some additional things to look for:

» A secure Statement on Standards for Attestation Engagements (SSAE) 16 Service Organization Controls (SOC) 2 covering at least trust and availability and ideally also confidentiality, integrity, and privacy

» Industry-specific controls compliance, including U.S. Health Insurance Portability and Accountability Act (HIPAA), GDPR, and Payment Card Industry Data Security Standards (PCI DSS)

» Continuous availability backed by a service-level agreement (SLA)

» Built-in service layer fraud protection and continuous monitoring for anomalies

Speak with customers to verify that a UCaaS provider's security and compliance controls are meticulously implemented and monitored — not just paper measures. Make sure they represent the most recent, relevant, and stringent industry standards for security and that they're audited regularly to ensure efficacy. And ask your provider how often they release updates and upgrades to continuously improve the effectiveness of their security measures. Finally, be sure you understand your own role and responsibilities in ensuring the security of your communications solution.

Same Experience across All Devices and Core Business Apps

The days of switching between multiple applications throughout the workday are disappearing. Enabling employees to access the applications they need and perform varied tasks throughout the day without frequently switching between applications improves productivity and reduces frustration.

As you consider embedding UCaaS in your software as a service (SaaS) applications, you'll want to ensure that the result will be an implementation that features a consistent, elegant, easy-to-use user interface across all elements of your office productivity tools and other core applications. Your UCaaS interface, in particular, should follow your users as they work within your widely used SaaS applications, ensuring that the comprehensive functionality they need is always visible and at hand.

REMEMBER

Business communications today must be user-centric: The user decides how they want to communicate — whether by video meeting, email, text message, or phone. In addition to the mode of communication, the device used for communication is a user choice as well. Business communications in the mode of choice must be supported on the device of choice, from anywhere and at any time.

Support and Service-Level Agreements

Moving applications to the cloud largely frees IT staff from service and support tasks, but it's important to understand what services and support your UCaaS partner provides and to get binding assurances that hold them accountable for delivering those services and support.

TIP

Make sure your cloud provider's support and SLAs aren't just paper measures. When things go wrong, the need for proactive account managers and responsive support teams is paramount. Ensure your support agreements and SLAs have teeth and your team understands the support and remediation processes that are defined in these agreements.

Glossary

application programming interface (API): A set of rules and specifications that software programs can follow to communicate with each other; serves as an interface between different software programs and facilitates their interaction.

automated call distribution (ACD): A unified communications feature that answers and distributes incoming calls to a specific group of stations or call center agents within an organization.

central office (CO): In telecommunications, a central office (or telephone exchange) is a building that connects subscriber telephone lines in a local loop.

code-excited linear prediction (CS-ACLEP): A high-speech-quality, low-bit-rate (8 kbps) codec. *See also* coder/decoder (CODEC).

coder/decoder (CODEC): A compression technology composed of an encoder to compress files and a decoder to decompress files.

customer relationship management (CRM): A set of technologies and tools used to manage, improve, or facilitate sales, support, and related interactions with customers, prospects, and business partners.

enterprise resource planning (ERP): Software that stores and manages data created during every stage of business — from product planning, cost, and development to shipping and payment — to provide an integrated real-time view of core business processes.

first-in, first-out (FIFO): A packet queuing method in which the first packets received in a device are the first packets transmitted from the device.

five nines reliability: Refers to a high standard (99.999 percent) for the desired availability of a system. It's equivalent to approximately 5 minutes of downtime — planned or unplanned — in a given year.

General Data Protection Regulation (GDPR): A European Union (EU) mandate that addresses personal data protection within the EU and the export of personal data outside the EU.

H.323: A protocol that is commonly used in videoconferencing equipment. *See also* Voice over IP (VoIP).

Health Insurance and Portability Accountability Act (HIPAA): A U.S. federal regulation that addresses security and privacy requirements for medical systems and PHI. *See also* protected health information (PHI).

interactive voice response (IVR): An automated phone system capability that allows incoming callers to access certain information in prerecorded messages via a voice response system, without having to speak to a live agent.

Internet Protocol (IP): The principal communications protocol in the TCP/IP communications suite for routing across network boundaries (routers) and the Internet. *See also* Transmission Control Protocol (TCP).

Internet Protocol private branch exchange (IP PBX): A private business telephone system that provides functionality similar to a PBX, but over data networks like a local-area network (LAN) or wide-area network (WAN) rather than traditional circuit-switched networks. An IP PBX typically can switch calls between VoIP on local lines or between VoIP and traditional telephone users. *See also* private branch exchange (PBX) *and* Voice over IP (VoIP).

jitter: A variation in latency that occurs on packet-switched networks when individual packets travel different paths from sender to receiver, and then arrive at different times and in a different order. Jitter is typically caused by network congestion, route changes, or timing drift, and results in a call with poor or scrambled audio.

key performance indicator (KPI): A type of performance measurement that evaluates the success of an organization or service based on specific elements and criteria.

multifactor authentication (MFA): A type of access control that grants access only after at least two forms of authentication are provided.

Payment Card Industry Data Security Standards (PCI DSS): An industry standard mandated for organizations that handle American Express, Discover, JCB, MasterCard, or Visa payment cards, such as credit and debit cards.

point of presence (POP): A demarcation point or interface point between communication entities, typically containing servers, routers, switches, multiplexers, and other networking equipment.

private branch exchange (PBX): A private telephone system that switches calls between business users on local lines while allowing all users to share a certain number of external phone lines.

protected health information (PHI): Any personal information about health status, or healthcare provisioning and payment that can be linked to a specific individual.

public safety answering point (PSAP): A call center responsible for answering calls to an emergency telephone number for police, fire, and ambulance services.

public switched telephone network (PSTN): The world's hard-wired phone system over which landline telephone calls are made. To connect one phone to another on the PSTN, a phone call is routed through a circuit sometimes comprising numerous switches operating on a local, regional, national, or international level.

quality of service (QoS): The ability to prioritize various types of voice and data traffic based on operational needs such as response time, packet loss, and jitter.

service-level agreement (SLA): An official commitment between a service provider and a client that addresses specific aspects of the service provided such as quality, performance, availability, and responsibilities.

session border controller (SBC): A network security device that protects SIP-based VoIP networks. *See also* Session Initiation Protocol (SIP) *and* Voice over Internet Protocol (VoIP).

Session Initiation Protocol (SIP): An open signaling protocol standard for establishing, managing, and terminating real-time communications over IP-based networks.

Short Message Service (SMS): A text messaging service.

single sign-on (SSO): A system that allows a user to present a single set of logon credentials, typically to an authentication server, which then transparently logs the user on to all other enterprise systems and applications for which that user is authorized.

software as a service (SaaS): A category of cloud computing services in which the customer is provided access to a hosted application that is maintained by the service provider.

software development kit (SDK): A set of software development tools that allows custom applications to be created for a specific software application.

Statement on Standards for Attestation Engagements (SSAE) 16: A standard that addresses engagements undertaken by a service auditor for reporting on controls for organizations that provide services to user entities. It extends to "Security, Availability, Processing Integrity, Confidentiality, and/or Privacy" for SaaS, cloud computing, managed service providers, and many other IT-related entities. *See also* software as a service (SaaS).

talker overlap: A call-quality issue in which one caller interferes with another caller's speech.

Transmission Control Protocol (TCP): Provides reliable, ordered delivery of a stream of bytes from a program on one computer to another program on another computer.

unified communications (UC): The integration of team messaging, video meetings, and phone. UC also includes text messaging and fax capabilities. UC solutions are also tightly integrated with productivity tools such as email, file/desktop sharing, document storage, and more.

unified communications as a service (UCaaS): A category of business communication and collaboration applications and services delivered by a cloud service provider.

User Datagram Protocol (UDP): A network protocol that doesn't guarantee packet delivery or the order of packet delivery over a network.

virtual local-area network (VLAN): A logical network segment within a physical network.

Voice over Internet Protocol (VoIP): A group of telephony protocols (such as SIP), that transport voice and multimedia communications over packet-switched, IP-based networks (such as the Internet), rather than circuit-switched networks, such as the PSTN. *See also* Session Initiation Protocol (SIP) *and* public switched telephone network (PSTN).

wide-area network (WAN): A large network that uses telecommunications devices, circuits, and facilities to form an internetwork.

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Message. Video. Phone. Together.

Simplify your business communications environment

For many companies, supporting an aging on-premises PBX phone system has become a painful challenge. The cost and complexity of keeping the hardware alive make these systems more of a liability than an asset. Plus, they lack the flexibility and functionality needed to keep pace with a mobile and distributed workforce. Today's cloud communications and collaboration solutions can alleviate many of these headaches while enabling a dramatic increase in productivity. By offering videoconferencing, team messaging, tight integrations with popular business applications, and other advanced capabilities, these modern solutions go far beyond the legacy phone systems of yesterday.

Inside…

- Upgrade your on-premises phone system to UCaaS
- Embrace mobility and team collaboration
- Simplify UCaaS administration and management
- Ensure on-demand global scalability
- Integrate workflows and core applications

RingCentral

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