Alex Lewis
Pat Richard
Phil Sharp
Rui Young Maximo

Foreword by
Jamie Stark
Skype for Business Senior Product Manager, Microsoft

Skype® for Business

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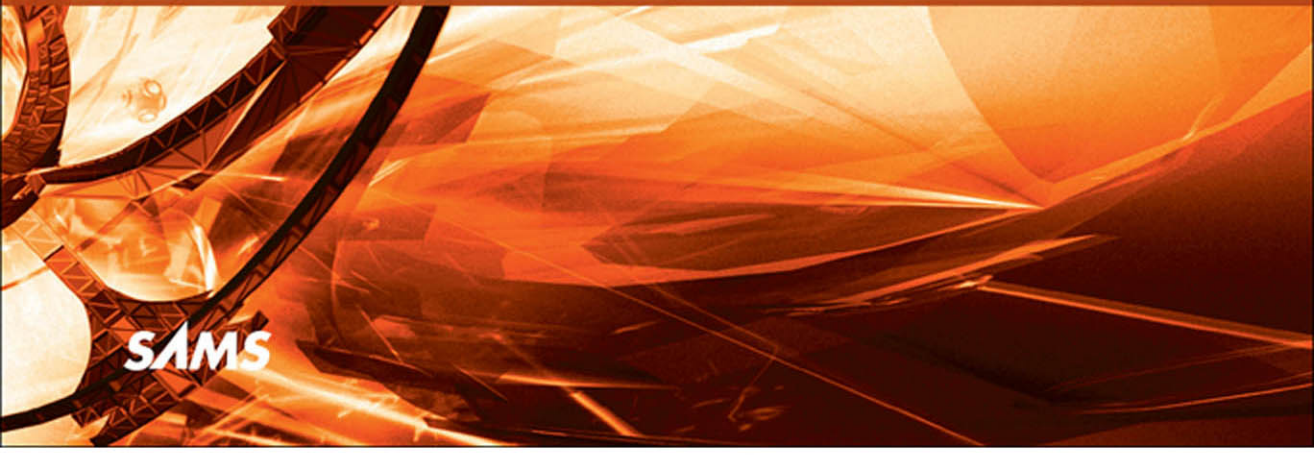

FREE SAMPLE CHAPTER
SHARE WITH OTHERS

Alex Lewis, Pat Richard,
Phil Sharp, Rui Maximo

Skype for Business

UNLEASHED

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Skype for Business Unleashed

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Foreword

When I work with customers, I find it's sometimes useful to put the current set of technology into a bit of a historical context—essentially how the solutions they are evaluating fit into a long-term timeline. There are a bunch of ways to look at the evolution of the business communications industry, and this model I've just found to be moderately helpful.

One can think of the first generation of business communications to be all about the on-premises circuit-switched PBX. This really started with the advent of deregulation, where it was now permitted to attach third-party equipment to the public network, and companies wanted a piece of that in their own environment. This was a big step—the birth of the heterogeneous network—and in many ways foretold a sliver of the power we would see in later years with the Internet.

The Internet also gave us the technical foundations for the next generation—the digital PBX. Now where we once had two wires coming into the office—one for data and one for voice—we could have a single wire with both. Yay progress! Of course as this generation of technology advances, we get some more benefits. Off-the-shelf hardware brings some cost and operational efficiencies. SIP brings some level of interoperability, although not nearly as much as HTTP, its signaling protocol inspiration.

What SIP does provide, though, is a way to think about sessions generically, leading to the third generation of business communication—that of on-premises unified communications. Now instead of consolidating wires, we're consolidating experiences—bringing media and applications together across different form factors and providing end users with communications capability in everything they do. Gurdeep Singh Pall, the long-time leader of Microsoft's UC engineering, compared this to salt in a cooking recipe—integrated, expected, and missed when it's not there.

I've been fortunate to help customers understand the technology options from Microsoft, which have matured in complexity and adoption over the last few years. This has been quite a set of products—from Communicator to Lync to Skype for Business. This set of clients spans nearly eight meaty server releases, each with new scenarios, additional capabilities, and lots to know about planning, deployment, and operations. We've dedicated entire conferences to the study of how the ever-increasing set of clients operates with the ever-increasing set of diverse server deployment options.

Now we're getting into the next generation—that of cloud-based UC. In one way this is a big simplification, to have the on-premises complexity of operating spindles, cycles, and bits, and the software requiring those resources all provided as a subscription service. This also opens up the opportunity for customers to make strategic decisions about how to operate UC workloads—whether it makes more business sense to have the global multitenant cloud do the work or to have those functions operate on on-premises servers. With every generation, more and more scenarios, clients, and features are available to

customers. Now we're adding the hybrid concept on top of this as well, with servers operating in concert with the cloud.

Each generation builds on the last, so in this volume you'll see everything from circuits to SIP interop to multimedia meetings. The task of cataloging all the technology and packaging it into a set of words and diagrams folks can make sense of is really, really big. The authors have combined some 50-plus years of experience, and it shows. So whether you're just getting started in your UC journey or are a seasoned veteran ready to make the transition to the next generation, you'll find tons of great insights here to light the way.

Thanks for being here and participating in the next huge change in business communications.

Jamie Stark
Senior Product Manager, Microsoft

About the Authors

Alex Lewis, MCITP, CISSP, has a mixed background in technology and business spanning 20 years. He has worked with a wide range of environments, from small organizations to large enterprises requiring complex or custom communications solutions, and is responsible for architecting and implementing some of the largest Lync and Skype for Business deployments in the world. Alex is a strong believer in aligning technology to business goals to create a competitive business advantage. Including titles on Active Directory and Exchange, and three on Lync, Alex has participated in writing nine books from 2004 to present. He is currently Vice President at Event Zero, the global leader in real-time analytics for Skype for Business. In his spare time Alex enjoys scuba diving and beach volleyball.

Pat Richard is a Unified Communications consultant and PowerShell Developer who began working with Microsoft Exchange and evolved into working with the full Microsoft Unified Communications stack. He has been involved in some of the best-known deployments and migrations in the world, including those in the defense, finance, government, real estate, manufacturing, and services fields. Pat maintains the renowned ehloworld.com blog, which focuses on solutions, ideas, scripts, and information centered on PowerShell and Unified Communications. His PowerShell scripts, Excel design calculators, and other tools have been used by many of the major consulting firms, large enterprises, small- and medium-sized shops, and even Microsoft Consulting Services to deploy and manage millions of seats on Exchange Server, Lync Server, and Skype for Business Server. Pat is the host of the popular Exchange/Lync/Skype for Business/Office 365 focused podcast "The UC Architects" and has been recognized by Microsoft and awarded the Microsoft MVP award more than 10 times across three products. He has contributed to several books, spoken at international conferences, and has been spotlighted by some Microsoft marketing campaigns.

Phil Sharp is a Unified Communications consultant with over 10 years of experience working with Microsoft Unified Communications solutions. His career in Microsoft UC began with one of the first Office Communications Server 2007 voice deployments in the U.S. He has extensive experience architecting, implementing, and supporting Microsoft Active Directory, Office Communications Server 2007/R2, Lync Server 2010/2013, Skype for Business, and Exchange for organizations of all sizes and verticals. In Phil's current role at Modality Systems, he leads a world-class team of Microsoft UC consultants who specialize in telephony integration of Lync and Skype for Business.

Rui Maximo started in the Microsoft Skype for Business product team at Microsoft since the early days of RTC in 2003. As a lead program manager, he managed multiple areas of responsibility on the server side, including AD schema, topologies, management, setup, Enterprise Voice, and CWA. Rui has authored over 40 technical articles, training videos, whitepapers, and multiple books.

In addition to writing technical books, Rui is the principal software architect of the Security Filters (www.lync-solutions.com), a suite of seven security products that protect Skype for Business Server against denial-of-service (DoS) and over 20 different types of attacks, provide granular control of federation traffic, and restrict access to only authorized mobile devices. He consults and does contract work for clients looking to integrate their products with Skype for Business Server 2015.

Dedications

Kate Hudson, I dedicate this to you for all your love and support over the years and for the years to come. You are and always will be my rock.

—Alex Lewis

Every adult has that one person who is a sounding board about life, who mentors and answers without judging. For me, that person is Joe Ferrera. Life wouldn't be the same without you, buddy.

—Pat Richard

This book is dedicated to my wife, Michelle, who inspires me beyond words.

—Phil Sharp

To my wife, Anne, who has patiently stood by me: Your strength in battling cancer the past 15 years is nothing short of inspiring. To my kids, Marie, Mathew, and Chloe: You never cease to amaze me how brilliant you are.

—Rui Maximo

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To all my friends, thank you for your endless understanding of all the nights I couldn't go out, all the trips I couldn't join you for, and all the fun I missed. Although you sufficiently rubbed it in, I love you all and I couldn't ask for better friends. Finally, thank you to Pugsley and Freya, my pups that provided endless companionship, love, and entertainment throughout the process!

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To the social media followers, thanks for understanding that I set aside working on scripts, podcasts, and blog posts while I worked on this. Life should get back to normal now.

Phil Sharp

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Rui Maximo

Thank you to Sams for publishing this book. Many hours from the team were put into this work. Thank you to my co-authors, and to Alex Lewis for inviting me to work on this book. Hard to believe this is my sixth one. I also want to recognize my contributing writer, Tom, and technical reviewers, Fabian and Shawn. You've been great technical resources and friends to me. Thank you!

To my colleagues and the professionals in the ever-growing Skype for Business community, I've made wonderful friends the past 13 years, and continue to meet fantastic individuals from all over the world. I'm grateful for your kindness and help. Do not hesitate to reach out to me. I'm always looking to make new friends.

We Want to Hear from You!

As the reader of this book, *you* are our most important critic and commentator. We value your opinion and want to know what we're doing right, what we could do better, what areas you'd like to see us publish in, and any other words of wisdom you're willing to pass our way.

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CHAPTER 3

Business Case for Skype for Business?

IN THIS CHAPTER

- Why Unified Communications
- Return on Investment (ROI)
- Why Skype for Business Server 2015 for Unified Communications

In this chapter we will explore common business cases for Skype for Business Server 2015. Before we cover the business cases for Skype for Business Server 2015, it is important to understand some fundamentals about *unified communications*, which has become a standard term in the Voice over IP (VoIP) industry. Unified communications (UC) is defined as the integration of real-time communication services such as instant messaging, Presence, telephony, video conferencing, data sharing, call control, and unified messaging (integrated voicemail, email, and fax). The term is pretty self-explanatory, as it aims to unify your existing communication tools over the IP network. A common approach to UC is to consolidate all communication tools into a single-vendor solution. This chapter outlines why many people believe that Microsoft Skype for Business Server 2015 is the go-to product for unified communications, and it covers the following topics:

Why Unified Communications—Gives an overview of why UC is beneficial to all types of organizations.

Return on Investment—Describes how you define ROI and how UC provides ROI.

Why Skype for Business Server 2015 for Unified Communications—Explains why, based on what we know about UC, Skype for Business Server 2015 is the ideal solution for UC.

Why Unified Communications

Communication that occurs in silos poorly replicates the richness of an in-person meeting. Individuals share ideas orally, visually, and in writing. The digital analogs are audio, video, application sharing, white boarding, IM collaborating on documents, and more. Communication that can seamless integrate all of these modalities comes closer to replicating that in-person interaction that sparks the best ideas and enables frictionless team collaboration. Skype for Business Server 2015 integrates these modalities to provide that level of remote collaboration.

There are four key components to UC:

- Instant messaging and Presence
- Web, audio, and video conferencing
- Enterprise telephony (traditional PBX functionality)
- Unified messaging

This section gives a brief description of each of the key UC components and explains why moving to a UC solution can be beneficial for organizations.

Instant Messaging and Presence

Instant messaging (IM) is the capability to communicate instantaneously between two or more people with text-based messages. Presence conveys the ability and willingness of a user to communicate. These two capabilities combine to be the most commonly used UC components in nearly every organization. Understanding how Enterprise IM and Presence evolved will help you understand why it is the core of any UC solution.

IM and presence has been around since the 1990s. You might remember ICQ and AOL Instant Messenger (AIM). A lot of companies followed suit, and soon there was an explosion of consumer IM providers, all with different protocols and clients. Consumers started to use these consumer IM services for business communications, which was very risky for organizations. Business users were using third-party tools that often were not secured in any form. Usage could not be tracked or controlled, and these tools were being used for day-to-day business on company PCs. When users were communicating through public networks, the exposure to malware increased, as well as the possibility of valuable company information leaving company PCs or being intercepted going over unencrypted traffic to public networks on the Internet. Because of those risks, there was a need to develop an enterprise-grade solution that would allow business users to securely communicate the way they were used to communicating outside of work.

In 1998, IBM launched Lotus Sametime, the first enterprise instant messaging product. Shortly after that, Microsoft released Exchange Instant Messaging, which would later evolve into Live Communications Server, then Office Communications Server, then Lync Server, before finally becoming what is Skype for Business to reflect the evolving integration of Lync Server with the Microsoft acquisition of Skype. IM has evolved into an integral business-critical communications tool for most organizations. In fact, many

organizations consider IM more critical than email, and some consider it even more critical than dial tone.

Benefits of Instant Messaging and Presence

IM and Presence are the core of all UC solutions. These two features are often packaged together, and sometimes are simply referenced as only "instant messaging." IM is a feature most organizations will implement on day one of a UC deployment. Presence is one of the major drivers for UC, because it is at the core of providing an increase in productivity to end users. Presence introduces the real-time availability of users, which allows organizations to benefit from increased productivity through more efficient communications, particularly when face-to-face meetings are not possible or are inconvenient, as in the case of remote work scenarios. This benefit is best described in the scenario that follows.

Assume that Randy and Alex both work for CompanyABC. The company does not have a UC solution deployed today. Randy works in the Manhattan office and Alex works in the San Francisco office. If Randy wants to get in touch with Alex, he has two options: He can either send Alex an email or call him on the telephone. The problem starts here: Randy does not know when Alex will respond to that email or whether Alex will be around to answer the phone when he calls. Most likely, time will be wasted with missed calls and emails while Randy is attempting to reach Alex. This type of inefficient communication impacts their overall business productivity.

Now, introduce a UC solution that leverages IM and Presence. When Randy wants to communicate with Alex, he simply needs to look at his Presence indicator. If Alex shows as available, Randy can send an IM to Alex and ask whether he is available to talk. In some cases, an IM might be all that is needed to cover what Randy originally needed to talk to Alex about. If they need to communicate through voice, this is often a quick escalation in the same Skype for Business client. If Alex is showing as not available, Randy will know what the most efficient way to communicate with him is. Randy could tag Alex's contact for status alerts, which would alert Randy when Alex becomes available. Randy could also communicate either through an email or a phone call to voicemail, or Randy could simply wait until Alex is available to start an IM conversation.

The scenario just described clearly outlines why IM and Presence are critical components for UC and are major drivers for organizations to introduce a UC solution to their environment.

Web, Audio, and Video Conferencing

Conferencing is not new to most organizations; however, a unified conferencing experience remains relatively new despite growing adoption. Many organizations have web, audio, and video conferencing through separate third-party providers. For web and audio conferencing, organizations are typically charged a monthly fee per user in addition to a per-minute fee for using these services. For video conferencing, some organizations have large deployments of video conferencing equipment on their network, whereas others might be using a third-party hosted solution.

The services available in each of these areas can vary greatly. Some audio conferencing solutions are simply PSTN dial-in bridges, in which all users in a conference will dial a

PSTN phone number and be placed into a conference hosted by the provider. Some web conferencing solutions provide a web browser application for conferencing functionality, whereas others require a desktop application to be installed. Which service options are available to organizations is not entirely important for this section; however, it is important that these services are usually not interoperable with each other. This leads to a disjoined conferencing experience, and organizations are not able to realize the true benefits of conferencing.

Benefits of Web, Audio, and Video Conferencing

When an organization deploys a unified communications solution that supplies all conferencing workloads as part of the solution, the most recognized benefit is leveraging a single vendor for its conferencing solutions. This often leads to a consistent user experience as well as reduced costs to deploy and operate such a solution.

Providing users with a unified conferencing solution that is easy to use and that provides benefits to their productivity means that they are more likely to use it. Because end users are actually using this solution more often, the ROI is realized faster, and the organization benefits from increased productivity. In the "Unified Communications Return on Investment (ROI)" section, we explore these benefits in greater detail.

Enterprise Telephony

Enterprise telephony has evolved greatly over time. Most commonly this functionality is referenced using the term *private branch exchange* (PBX), which was first used when switchboard operators were manually operating company switchboards. It now is used to describe complex telephony switching systems of all types.

Enterprise telephony refers to the capability of making and receiving voice calls between users across the Public Switched Telephone Network (PSTN) and all the complex features that many organizations demand of a PBX system. These features can include the following:

- Auto attendants
- Automatic call distribution (ACD)
- Call accounting
- Call forwarding
- Call park
- Call pickup
- Call transfer
- Call waiting
- Music on hold
- Voicemail
- Emergency call handling (911 and E911)

The features listed are commonly used to determine whether a modern telephony system is capable of performing PBX features. Many new systems are not marketed as PBXs. They are called PBX replacements with UC functionality instead. Microsoft's Skype for Business Server PBX replacement is called Enterprise Voice.

Understanding the Benefits of Enterprise Telephony as Part of a UC Solution

Many UC solutions are designed to replace PBXs. Because of this, the benefits of introducing enterprise telephony as part of a UC solution is just that—to remove your PBXs. Many organizations have a PBX deployment with the following characteristics:

- There are many vendors across many locations.
- If the same vendor is used, there are many software versions.
- Each system has a separate maintenance contract.
- Each system has a local PSTN ingress/egress.
- Systems typically require specialized engineers to perform basic tasks.

When you introduce a UC solution like Microsoft Skype for Business Server, you integrate voice communication as another modality into the same client used for IM, application and desktop sharing, file transfer, and web meetings. The user experience is integrated, making it more efficient for users to collaborate seamlessly. This convenience enabled by Skype for Business Server spans the Microsoft Office suite and can be easily integrated into customer line of business applications.

Skype for Business Server eliminates the need to configure internal dial plans. By routing based on the SIP URI, all internal calls initiated by dialing the user's phone number are translated into the callee's SIP URI and routed that way. Administrators, for the most part, only need to concern themselves with configuring dial plans and routing to the PSTN via a gateway. This significantly simplifies the configuration of Enterprise Voice in Skype for Business Server 2015 compared to a traditional PBX environment.

Unified Messaging

The term *unified messaging* (UM) is used to describe the integration of different messaging systems. This can include email, fax, and voicemail. This integration typically means that you can access all of these messages from the same interface and on different devices. The most common use of unified messaging is to combine voicemail and fax into an organization's email system.

Microsoft Exchange Server UM is the voicemail solution for Skype for Business Server 2015. UM functionality was introduced in Exchange 2007. Exchange UM provides voicemail, Outlook voice access, and inbound fax functionality. Many other solutions typically deliver voicemail and fax messages to a user's Exchange email inbox as an email

attachment, or through the use of an add-in. Modern UM systems offer functionality such as the following:

- **Interactive Voice Response (IVR)—**The capability for the caller to interact with the UM system through voice commands.
- **Find me, follow me—**The capability to ring other telephone numbers before leaving a voicemail.
- **Voicemail transcription—**The capability for the UM system to transcribe voice messages and provide voicemail preview as a text transcription in an email to the end user.
- **Secure voice messaging—**The ability for the UM system to encrypt voice messages and restrict the users who are able to listen to them.
- **Auto attendants—**Often leveraging IVR, UM systems are able to act as a receptionist, receiving calls coming into the organization and directing callers to end users.

Understanding the Benefits of Unified Messaging as Part of a UC Solution

Deploying unified messaging as part of a UC solution has similar benefits to deploying enterprise telephony. Many organizations today have a separate voicemail system deployed with each PBX. Introducing a single UM solution using Exchange UM can reduce costs as well as increase user productivity by providing enhanced features in a single interface.

Unified messaging is a key part of deploying UC in any organization. For many organizations, UM is considered "low-hanging fruit." Exchange UM can often be deployed rather quickly, replacing legacy voicemail systems, and integrate with Skype for Business Server 2015, resulting in a quicker ROI. Exchange UM provides additional benefits such as call logs, server-side conversation history, visual voicemail, calendar integration, and unified contact cards.

Unified Communications Return on Investment (ROI)

When organizations choose to deploy a new technology, there is always an investment that must be made. This investment is commonly referred to as a *capital investment* or *capital expenditure* (capex, for short).

Return on investment is the performance measurement of how an organization will see a benefit on the investment made. When a UC solution is deployed, there are various types of cost savings, and these savings make up the ROI. This next section outlines what investments an organization must make when deploying a full UC solution as well as the factors for realizing ROI.

Unified Communications Investments

Some organizations will have invested in UC prior to making the decision to move to a UC solution; however, it is still important to understand what these investments are and ultimately how they can be paid for (ROI).

Consider the Capital Investments

The term *capital investment* in terms of UC is described as the cost to deploy the solution. When UC is deployed, many components can contribute to a capital investment. Some organizations will categorize certain purchases. For example, some organizations will spread purchases out over five or more years, resulting in a distributed capital investment, or amortization. Regardless of how an organization chooses to categorize its purchases, the following expenses are most commonly referred to as "capital expense" (or capex):

- Licensing
- Data center hardware (servers, storage, and so on)
- Media gateways (PSTN gateways, Session Border Controller [SBC], and so on)
- End-user hardware (headsets, IP phones, cameras)
- Implementation costs (staff and professional consulting services)
- Network upgrade investments (hardware and other "setup" fees for network upgrades)

The capital investments will vary depending on the organization. Regardless of the size of the company, these investments will be significant.

Consider the Operating Expenses

In addition to capital expenses, organizations also have to consider an increase in certain operating expenses (or opex, for short). Although UC solutions reduce operating expenses overall, it is common for organizations deploying UC to increase IT operating expenses.

When organizations consider capital and operating expenses for UC, there will be a common theme: an increase in network costs. Network investments tend to make up the most significant capital and operating investment for organizations deploying UC. In a worst-case scenario, existing enterprise telephony is not IP based, and because of this, organizations are not equipped to run real-time voice over their IP networks. This results in a major investment in network expansion.

In an optimal scenario, the organization is already using an IP-based telephony system, and the new network investment must now account for increased usage such as conferencing and video.

The first scenario often requires a complete network overhaul. Multiprotocol Label Switching (MPLS) circuits and Internet connections must be increased, and that often comes with upgraded hardware. The second scenario involves network optimization. This is a combination of increasing bandwidth and optimizing connections to provide priority to UC traffic (quality of service).

Monitoring for quality of experience (QoE) and quality of service (QoS) should be a mandatory step in managing a successful rollout of Skype for Business Enterprise Voice.

Consider the Committed or "Dual-Run" Costs

One factor in calculating ROI that is often overlooked is committed costs. These costs can also be referred to as dual-running costs. In most scenarios, an organization cannot simply turn off a legacy system and immediately stop paying for it. Not only is there a transition period between systems, but there are often committed costs associated with a contract or lease. These committed costs can be attributed to hardware leases as well as support and service contracts. Many organizations will also choose to amortize capital investments over any number of years. Hardware investments must be depreciated before they can leave the books. Organizations typically have the following committed costs when deploying a new UC solution:

- **Investment depreciation—**Many organizations depreciate hardware over five years in order to spread out that capital investment.
- **Hardware lease costs—**Some organizations lease PBX hardware and PBX endpoints instead of purchasing them. These can have committed lease periods.
- **Dual-running solutions—**Costs to run legacy equipment and the new UC solution while migrating off the legacy solution to the new UC solution.
- **Support contracts—**Support contracts typically include a multiyear agreement between the organization and the vendor.

Before return on investment can be realized, these costs must be accounted for.

In summary, a UC solution is not purely cost savings. There will always be a significant investment to successfully deploy UC. However, the benefits of a true UC solution can lead to a rapid ROI, which ultimately makes UC worth the investment.

Audio Conferencing Return on Investment

It is common for many large organizations to spend millions of dollars a year on audio conferencing from a third-party provider. When deploying a UC solution that includes audio conferencing functionality, organizations tend to see a significant cost savings. This cost savings is typically the largest UC ROI factor for businesses.

When deploying a UC solution like Skype for Business Server 2015, organizations can bring all of their audio conferencing internally instead of using a third-party audio conferencing provider. Previously, organizations would pay per-minute audio conferencing charges for services that provided a dial-in conferencing bridge and audio conferencing. When this is brought in-house, those costs are reduced. The costs for audio conferencing are replaced by the costs to maintain the UC system and the inbound PSTN trunks for dial-in conferencing users. Many organizations are leveraging SIP trunks for this functionality to further reduce costs. On average, organizations will reduce their dial-in

conferencing usage by 85%. That 85% reduction accounts for users who are now leveraging a UC client to join a conference using IP audio. The remaining 15% accounts for users who are still dialing in to the audio conference through the PSTN.

When the ROI of a UC solution is evaluated, it is important to not completely remove audio conferencing costs from the total cost of ownership (TCO). A small portion of the costs that are removed are replaced by new costs. This can include PSTN trunks, PSTN gateways, bandwidth, and additional server hardware if needed. Additionally, many organizations require the use of a third-party audio bridge for advanced conferencing scenarios. This functionality is often referred to as *managed conferencing*. These scenarios include operator-assisted meetings, or very large audio conferences with more than 1000 participants.

Realizing ROI with Centralized Telephony

As mentioned in earlier sections, most organizations have a distributed PBX system. When an organization is considering UC, one option is to replace the distributed PBX systems with a centralized UC telephony platform. The centralization of the telephony platform can have many benefits.

Reduced Hardware Footprint

When an organization chooses to centralize its telephony platform, the hardware footprint is greatly reduced. This can provide ROI by reducing hardware purchase costs, hardware maintenance costs, and facility run costs.

Reduced Support Costs

Often when organizations move to a centralized telephony environment, the costs to support the environment are much smaller than the costs of a distributed system. If support of the legacy telephony solution was outsourced before, the outsourcing contract might be reduced. If this was completely supported by internal staff, staffing can often be reduced or allocated to other tasks.

SIP Trunk Opportunity

Using SIP trunks is a relatively new trend in telephony. They provide the capability to purchase PSTN services and have them delivered over IP connections rather than traditional T1/E1 PRI connections. Although SIP trunks do not require a centralized deployment model, a centralized telephony deployment does introduce the opportunity to deploy SIP trunks more easily. The combination of centralized telephony and SIP trunks is ideal for realizing cost savings.

Many organizations have a vast number of PRI connections delivering PSTN services. The problem with PRIs is that they come in only one size (23 voice channels per trunk in the U.S.). SIP trunks allow organizations to have more control over how many channels are purchased. In simple terms, if you were a mid-size organization that needed 40 voice channels to support your call load, this would result in two PRIs. Those two PRIs would require two T1 connections. The end result is double the cost for a very small capacity increase.

These are the three ways in which SIP trunks allow you to reduce your PSTN costs:

- **Reduction in the number of voice channels**—Organizations that deploy SIP trunks typically see a 40% reduction in the number of actual voice channels, because the capacity is much easier to predict and control. This reduction in voice channels also comes with a cheaper, more flexible delivery method: IP. Many times this is delivered through an MPLS connection from the provider directly to the organization's data center, but there are services that target small- and mid-market customers that also deliver these services over the Internet.
- **Shared usage**—Organizations can reduce their voice channels even more in a centralized telephony model. When the PSTN trunks are centralized, they can be shared across all of your sites. This works very well in organizations spread across multiple time zones. In fact, SIP trunks can be optimized based on time zones to provide capacity where it is needed, resulting in a large amount of cost savings.
- **Flexibility**—SIP trunks introduce the ability to increase or decrease capacity as needs change. Time-division multiplexing (TDM) connections often require additional physical line configurations to accommodate capacity changes. With SIP trunks, this simply becomes a matter of provisioning by the provider in many cases. SIP trunk providers are also able to offer advanced functionality, including failover routing as well as multiple area codes and international numbers on the same connection, something that TDM trunks are simply not able to do.

The areas previously described are the most common areas in which organizations can realize cost savings and ROI from deploying a UC telephony solution. The level at which ROI is realized will depend on how willing the organization is to adopt the centralized and shared model for the telephony infrastructure.

Productivity Improvements

When any UC solution is being introduced, an increase in productivity is one major selling point. How this increase in productivity influences ROI can be more difficult to calculate. Productivity increases are often referred to as soft *costs*, meaning that you cannot put a definitive dollar amount next to them. However, it is practical to make educated estimates based off of common scenarios that result in productivity increases. After the solution is deployed and used, it is possible to monitor usage and identify productivity cost savings.

A key scenario in which productivity increases can translate directly to dollar amounts is the task of checking voicemail. When you consider the process for listening to voicemail on a legacy voicemail system, it becomes clear how tedious this process is. Assume that you have a billable resource. This resource makes the company money at $300 per hour. If it takes that person three minutes per day to listen to his voicemail, it seems to be a small cost (under $2 per day). However, you must now multiply that number by all resources in your organization, say 10,000 users. That quickly turns into $20,000 dollars per day, or $100,000 per week.

When evaluating UC ROI, organizations should also consider time that is wasted for travel. Many organizations have resources that must travel to and from the office, as well as to and from clients. If you were to use similar logic as that used previously with a resource that can make the company $300 per hour, removing that travel time and replacing it with billable work will save the company money. Many organizations will charge customers travel time for such resources; however, if a business no longer has to charge for travel because moneymaking resources can work remotely with UC, that organization is now more attractive to do business with.

UC presence makes it possible for users to spend less time on common tasks and allows users to increase productivity in many other areas. When users have the real-time availability of their peers, their communications are more efficient, less time is lost, and similar logic to that used previously can be applied to calculate soft cost savings.

Reduced Travel Costs

The preceding section mentions cost savings due to travel reduction. That section outlines the increased productivity and potential "billability" of users based on less travel. This next section explains how organizations can reduce their overall travel costs.

Many organizations with a global footprint spend millions of dollars per year on travel between their sites. Today, even completely U.S.-based organizations require their employees to travel between sites. In recent years, Telepresence video was introduced as a way to reduce those travel costs. However, the complexity and cost of Telepresence systems has resulted in many organizations not realizing travel cost savings. A new and more reliable trend for travel cost reduction is to deploy a common UC solution across the organization that targets each and every end user.

Not all in-person meetings can be replaced with a conference, even if HD video is involved, but the industry is realizing that the majority of these trips can be replaced with a highly intuitive collaboration experience. When an organization empowers its end users with a tool that allows them to seamlessly collaborate with peers across the world, money is saved.

The process to calculate this savings varies across the different types of organizations. This is another cost that is hard to place a solid number on before the product is deployed and used for some time. However, as with the productivity increase, you can take estimates for common situations. Consider the travel expenses and the lost time associated with traveling for meetings and then estimate the savings when these meetings are moved to a UC conference.

There are also many tools in the industry that allow organizations to monitor the usage of their UC systems and then use that data to calculate estimated cost savings. Look for these tools to help you back up your original cost-saving estimates and show true contribution to the UC ROI.

Office Space Reduction

Another interesting trend in the industry is a cost reduction related to real estate. Many organizations are exploring the idea of a "modern work space." These modern work spaces typically are less formal and provide more of a shared environment. The idea is that fewer

users will actually be in the office, and therefore you can reduce the size of your offices, or remove some offices altogether. It is absolutely critical to have a true UC solution deployed to allow for this workspace transformation. Many organizations can save millions by moving to modern work spaces and remote work from home, thus reducing their real estate footprint.

This approach is not typically started with UC, but is driven by UC. In my experience, organizations that are exploring the benefits of this solution have already been working on this for quite some time. The amount of money that can be saved varies greatly across regions and business verticals.

Why Skype for Business Server 2015 for Unified Communications

Now that you know what makes up a UC solution and how UC can drive cost savings in an organization, let's talk about why you should choose Skype for Business Server 2015 as a UC solution.

With Skype for Business Server 2015, organizations are given more deployment options, greater resiliency, and enhanced voice, video, and web conferencing features. Skype for Business Server 2015 introduces advanced UC features into a single platform, with a single client software. This section outlines why Skype for Business Server 2015 is the superior UC solution in the market.

Software-Based Unified Communications

The key to a true UC solution is software. Without intuitive, user-friendly software, a UC solution cannot be successfully deployed. When compared on paper, the UC solutions from companies such as Microsoft, Cisco, Avaya, and ShorTel have nearly the same features. These solutions can perform the functionality that any organization needs for UC. The key difference between Microsoft and the competition is the software. If you look at the list of companies, which one is a software company and not a hardware company? Microsoft.

Hardware vendors are getting better at creating software, either through acquisition or through experience with development. However, these companies are playing catch-up with Microsoft. Since Microsoft Lync Server 2010, all UC functionality has been available in a single client UI. Even in the latest versions of Cisco's UC suite, functionality is spread across multiple applications. The complexity that this introduces to end users is a major deterrent to the successful deployment of UC.

For organizations to realize the full benefits of UC, there must be a high rate of adoption. Users are less likely to take advantage of a UC solution that is not user friendly. Microsoft is the only company that can provide a truly unified communications experience and allow organizations to reach their full potential with UC. Cisco is typically the biggest competitor of Microsoft Skype for Business Server 2015. The basic scenario that follows outlines the differences between Microsoft and other vendors' UC solutions, including Cisco. These differences can have a major impact on user productivity and overall user satisfaction. User satisfaction is critical to the success of UC deployments.

When you are using Microsoft Skype for Business Server 2015, not only are all modalities (IM, audio, video, and sharing) provided in a single application, but the conferencing experience for these modalities is in the same application. When you want to hold a conference, that conference is held in Skype for Business Server 2015. If you are in a peer-to-peer session and want to escalate to a conference, you can simply turn that call into a conference in Skype for Business Server 2015. Cisco, on the other hand, leverages two applications: Jabber for peer-to-peer functionality and WebEx for conferencing. This leads to two separate applications for end users to learn, resulting in a disjointed experience when escalating between peer-to-peer and conference. When you want to turn a peer-to-peer session into a conference, a web page to the WebEx site must be opened. This is where the problem starts for end-user productivity.

In addition to the more intuitive user experience provided in Skype for Business, the integration with Microsoft Office applications cannot be overlooked. Microsoft Office is the primary business application for many end users across the world. Having communication capabilities integrated into your business applications is a major factor for driving usage and enhancing productivity. Microsoft Skype for Business integrates UC capabilities into Office applications, reducing the amount of effort required for end users to collaborate with their peers. Although other vendors can leverage APIs to show presence and allow click-to-call capabilities from Microsoft Outlook, they cannot integrate at a deeper level. Examples of this include the following:

- **SharePoint skill search—**The capability to search SharePoint and view results based on skills and other user information, without leaving the Skype for Business client.
- **Exchange distribution list expansion—**The capability to add Exchange Server distribution lists directly to the Skype for Business client contact list as contact groups. These lists will query information directly from Exchange Server, so users do not have to worry about adding new contacts manually.
- **Exchange integration—**The Skype for Business client has the capability to display out-of-office messages that are configured by the user in the Outlook client and stored in Exchange Server.
- **Conversation history search in Outlook—**The Skype for Business client has the capability to store conversation history in the user's Exchange mailbox. Users can also search this conversation history in the Skype for Business client as well as in Outlook or the Outlook Web App with their mail.

The preceding examples show certain areas that competitors simply do not provide integration for. Office, SharePoint, and Exchange are deployed in nearly every organization, and that is why these features are important.

In addition to integrating with other Microsoft applications, Skype for Business Server 2015 also allows for easy integration with other line-of-business applications. One major benefit to Skype for Business Server 2015 is the development platform it is built on. The software APIs for the client and server are available to developers and are currently heavily utilized for many custom solutions. The simplest form of this development is integrating functionality, such as Presence and click to call, into line-of-business

applications. Many organizations have also taken advantage of the Skype for Business Server APIs to build custom solutions that enhance business processes. This concept is known as *communications-enabled business processes* (CEBPs) and is a major differentiator in the market. This ecosystem, which is open and "partner driven," has led many organizations to be more successful with UC than they ever could have imagined.

In summary, a UC deployment relies heavily on the software experience that is provided to users. Although UC includes telephony, and IP phones are important to telephony, the true value of UC is seen through the software application providing anywhere access and collaboration. Microsoft Skype for Business Server 2015 is a superior choice for UC because it is a software-based UC platform.

Lower Total Cost of Ownership

Lower Total Cost of Ownership (TCO) refers to the cost of purchasing, licensing, deploying, and maintaining an equipment (in our case, the equipment is a telephony solution) over the lifetime of the solution's use. Various solutions have components that are cheaper than others, but what is really important is TCO. Just because one software license is cheaper doesn't mean that the overall cost to purchase and run a solution is cheaper. Microsoft claims a lower TCO than the competition.

Microsoft offers key advantages that contribute to a lower TCO:

- **Hardware flexibility—**Skype for Business Server 2015 allows organizations to choose the server platform as well as the endpoints to be used. This allows organizations to deploy whatever server hardware is right for them, at the right price. This includes the capability to virtualize across the different platforms available to organizations. Other UC systems will leverage IP phones as the primary endpoint. Not only does Microsoft offer an IP phone solution through certified partners (Polycom, AudioCodes, and others) that is cheaper than the competition, but has high-quality headsets available at low prices. Many Skype for Business–optimized wired headsets are under $50, and that does not include bulk purchase discount.
- **Leveraging Microsoft investments—**Skype for Business Server 2015 leverages Exchange for Unified Messaging and Active Directory for identity management, domain name service (DNS), and public key infrastructure (PKI). Leveraging the customer's existing infrastructure helps drive a lower cost of investment and management because user identity is not dispersed across multiple independent identity systems.
- **Conferencing cost savings—**Skype for Business Server 2015 offers a great level of cost savings on audio conferencing. When directly compared, the architecture and, sometimes, the additional licensing required will make Microsoft up to 50% less expensive than the competition in this area.
- **Rapid ROI—**The fact that Skype for Business Server 2015 is an integrated solution, as opposed to other vendors' solutions, allows organizations to realize ROI much faster than when deploying a competing UC solution.

The factors just described contribute to Skype for Business Server 2015 having a lower TCO when compared to the competition.

Deployment Flexibility

The statement "Give us speed where we need it" highlights a common theme among many organizations evaluating Skype for Business Server 2015 and other UC solutions. Deployment flexibility is a key area in which Microsoft provides greater value than the competition through Skype for Business Server 2015. The following points highlight some of the aspects where Skype for Business Server 2015 provides greater value as a solution in a Microsoft-centric infrastructure:

- **Integration with existing systems—**Microsoft believes in integrating with existing systems and augmenting functionality through deep integration, not ripping and replacing. This allows organizations to utilize their existing investments to their full potential, and then replace when necessary.
- **Hybrid solutions—**Microsoft allows organizations to leverage cloud solutions from Office 365 to integrate with their on-premises Skype for Business Server 2015 infrastructure, creating hybrid deployments. Hybrid deployments integrate the Skype for Business experience whether users are homed on-premises or on Office 365. In the same timeframe of the Skype for Business Server 2015 release, Office 365 offers the following advantages:
  - **Skype Meeting Broadcast—**This allows organizations to host very large meetings in the cloud for up to 10,000 participants. Skype for Business Server 2015 and Lync Server 2013 support meetings with up to 1,000 participants with a dedicated Front End pool configuration.
    - **Cloud PBX with PSTN calling—**Office 365 users can make and receive calls from the PSTN without using an on-premises PSTN gateway.
    - **PSTN conferencing—**Participants can join a Skype meeting hosted on Office 365 from the PSTN.
- **"Speed where you need it"—**Microsoft allows organizations to choose at which speed they deploy their solution. If an organization has a desire to rapidly deploy the solution, it can easily be done. However, Microsoft does not force organizations to rip and replace or into upgrade scenarios. Many organizations will treat the core capabilities of UC as a more immediate need (IM, peer-to-peer A/V, conferencing) and then choose to opportunistically deploy enterprise telephony. With the features and flexibility of the on-premises and Microsoft cloud solutions, organizations can truly move at whatever speed they need to, and can be successful with their UC deployment.

Remote Access and Federation

To provide the best ROI, organizations must be able to offer UC solutions to end users anywhere, on any connection, at any time. More and more organizations are adopting the "living on the net" motto, meaning that their users must be able to do their job seamlessly from any Internet connection. Microsoft Skype for Business Server 2015 is without a doubt the superior solution for remote access in the UC industry. Microsoft Skype for Business Server 2015 was built with the Internet in mind. Not only does it

provide users with all functionality over the Internet, securely, without a VPN, but with the acquisition of Skype, the SILK media codec, which provides a superior audio quality used by millions across the Internet, has been integrated into Skype for Business Server 2015.

Many organizations can mistakenly discount the importance of choosing a UC solution that was developed for the Internet. Traditional IP telephony relied only on the LAN/WAN networks that were controlled by the organization. However, UC cannot be restricted to the same network conditions as traditional IP telephony. For UC to be successful in an organization, it must provide access to all functionality, from any connection, on any device. This is how organizations will see increased usage of the solution and, ultimately, rapid ROI.

Following on the remote access story, federation with other organizations is a trend in UC technology. Microsoft Skype for Business Server 2015 offers organizations the capability to communicate seamlessly with other organizations that are running Lync Server or Skype for Business Server 2015, as well as communicate with consumers on the public networks (Skype). Although competitors can provide IM and Presence federation to other organizations, no other solution provides Presence, IM, audio, video, and conferencing federation natively like Microsoft Skype for Business Server 2015 does. The capability to seamlessly collaborate with business partners and customers (Skype) makes many organizations treat federation as a critical requirement.

CAUTION

When deciding between UC products, organizations should dig deeper than the "check box" for functionality. Federation is a good example: Cisco allows XMPP federation to other XMPP systems for just IM and Presence functionality. An XMPP gateway is required on both ends to provide this federation. In Skype for Business Server 2015, XMPP and SIP federation are native to the Edge Server.

Skype federation was introduced in Lync Server 2013, and Skype for Business Server 2015 expands this integration to include directory search and video to the millions of current Skype users around the world. This includes both businesses and consumers, which means a user can search the Skype network for another user from within their Skype for Business client and establish a video session with them. The flexibility this provides organizations for establishing communications with partners and customers is a feature that many users cannot live without. Some critics will discount the importance of UC federation over Internet connections. We are definitely not at the point where federation is going to replace the PSTN; however, many people do believe that this is the path the industry is going down.

Summary

IM and Presence provide organizations with increased user productivity, and they are the key to providing more efficient communications across organizations.

Web, audio, and video conferencing allow organizations to increase productivity, reduce costs, and provide users with a more immersive collaboration experience, no matter where they are in the world.

Enterprise telephony allows organizations to the break the mold of traditional, distributed telephony systems. Organizations can realize major cost savings by centralizing enterprise telephony.

Unified messaging allows organizations to enhance the traditional messaging capabilities that users are stuck with. By introducing UM, organizations can reduce costs and increase user productivity.

Organizations that choose to invest in unified communications are able to achieve return on investment in five key areas:

Audio conferencing—Many organizations are paying millions in audio conferencing fees per year. UC allows organizations to change their audio conferencing model and see significant cost savings.

Centralized telephony—Organizations are able to reduce their telephony hardware footprint, reduce their support costs, and introduce the opportunity to deploy centralized SIP trunking.

Productivity—UC introduces productivity increases that can be translated into real dollar amounts.

Travel costs—UC functionality and UC conferencing allow organizations to reduce travel costs and become more attractive business partners.

Real estate—UC allows organizations to explore reducing real estate footprint through the use of modern workspaces.

Finally, Microsoft Skype for Business Server 2015 is considered by many to be the preferred UC solution for organizations large and small for the following reasons:

Software-based UC—Microsoft is a software company that develops software targeted at the end-user experience. The end-user experience is absolutely critical for UC and requires a truly software-based UC approach, which Microsoft Skype for Business Server 2015 follows.

Lower TCO—Microsoft has proven to have a lower total cost of ownership than the major competitors in the industry.

Deployment flexibility—Not only does Microsoft Skype for Business Server 2015 integrate with an existing solution by adding value instead of replacing the system, but the combination of cloud and on-premises services allows organizations to choose at which pace they want to deploy UC.

Remote access and federation—The capability to communicate from anywhere, on any device, to nearly anyone in the world is thought by many to be one of the most important features of UC. Microsoft is the leading UC provider when it comes to remote access and federation.

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