Guide to Unified Communications as a Service

Insights on cloud-based UC costs, benefits, and deployments

In this e-guide

In this e-guide:

What do people mean when they say UCaaS and cloud UC?

Today's hosted UC services now include video conferencing, collaboration tools, email, file sharing, instant messaging and more – all of which can be categorized as UCaaS.

This guide looks into the complex technology landscape that is Unified Communications as a Service and puts it into simple terms for you. You'll uncover the benefits of cloud-based UC, the development of cloud UC services, and ways to devise a successful UCaaS strategy.

Plus, learn the cost benefits and calculations involved in hosted UC services, differences between cloud and on-prem UC solutions, and determine what UC strategy you should consider for your enterprise.

In this e-guide

🔖 Section 1: Defining UCaaS

It is not uncommon for buzzwords to surface and lose their concrete meaning. "Cloud UC" and "Unified Communications as a Service" are two such terms whose meaning is fuzzy, thanks to vendors attempting to make their current products look like UCaaS. In this section of our guide, we help shed some light on the true meaning of these terms.

🔖 UCaaS (Unified Communications as a Service)

Margaret Rouse, WhatIs.com

Unified Communications as a Service (UCaaS) is a delivery model in which a variety of communication and collaboration applications and services are outsourced to a third-party provider and delivered over an IP network, usually the public Internet.

UCaaS technologies include enterprise messaging and presence technology, online meetings, telephony and video conferencing. UCaaS is known for providing high levels of availability (HA) as well as flexibility and scalability for core business tasks.

Currently, there are two primary "flavors" of UCaaS: single-tenancy and multi-tenancy. With a single-tenancy approach, the customer receives a customized software platform that can be integrated with on-premises applications. Multi-tenancy customers share a single software platform. Enterprises can also adopt a hybrid approach, keeping a portion of their unified communications on-premises and other applications in the cloud.

Many companies, primarily small businesses, use UCaaS to avoid the capital and operational expenses associated with deploying a unified communications solution on their own.

↘ **Next article**

◪ What does it mean when people refer to 'cloud UC?'

Dave Michels, Verge1

What is "cloud UC"? What do people mean when they use this term?

That's a double whammy. Both *cloud* and *UC* (unified communications) have murky definitions. Let's start with cloud. At a high-level, there are two kinds of clouds (pun intended): private and public.

Private clouds generally refer to enterprise IT applications running on virtualized servers. Virtualization offers IT departments numerous operational benefits but requires a commitment to specific skills and tools. Once an organization makes a commitment to virtualization, it often wants to move most applications -- including unified communications -- to its virtualized environment.

Public clouds are service offerings available to IT departments and/or individual users. They are typically delivered over the public Internet and charges are based on a per-user per-month basis. Unified Communications as a Service (UCaaS) typically runs about $30 to $60 per month per user. There are lots of Anything as a Service (XaaS) offerings: Netflix offers movies as a service; Pandora offers Internet radio as a service, etc.

UC is a trickier term. UC represents modern enterprise communications with, typically, and at a minimum, voice, IM/presence and video. Broader definitions include conferencing, contact center solutions and mobility. The space is undergoing rapid development and major vendors now offer the following:

- Various endpoints (such as phones, softphones, IM and mobile clients)
- Media types (including voice, video, text and messaging)
- Collaborative tools (such as conferencing, desktop sharing, calendar integration and presence)

Most solutions also include mobile clients' special features to enhance communication with external users. These UC solutions come in all shapes and sizes. Appliance-based hardware platforms remain quite popular, but so do software-based products that can sometimes be virtualized.
Another option is to consider public cloud models in which case you subscribe to a UC service provider and obtain UC capabilities with a per-user per-month arrangement. Some companies select all of the above and use a combination of appliances, virtualized servers (private cloud) and UCaaS (public cloud) hybrid implementations.

⬂ **Next article**

🔖 Is 'UC as a Service' synonymous with 'cloud UC'?

Tom Nolle, CIMI Corporation

Is "UC as a Service" synonymous with "cloud UC" or is it a proprietary term? And are services like voice (IP telephony) and video typically part of the UC cloud?

While Unified Communications as a Service (UCaaS) might have started out as a proprietary term, it's not used that way today. Most everyone uses the term generically. The difference between UCaaS and some other terms is that they don't necessarily imply the UC offering is Software as a Service; you could host a UC server on Infrastructure as a Service or even without a cloud. Adding just the term "cloud" to a UC or voice element isn't all that helpful because there's too much cloud washing to allow you to define what you mean reliably. As for voice and video services featured under UCaaS, I think that all IP telephony is a service, likewise video communications. With UCaaS it's significant because there are data-center-hosted UC options so cloud UC is a different approach to a common application.

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🔖 Unified Communications as a Service primer: Moving UC to the cloud

Sally Johnson, Contributor

Unified Communications as a service (UCaaS) is an increasingly popular way for businesses to outsource communications and collaboration technologies.

Here are the basics:

Many companies offer UCaaS

As the industry matures, more companies -- ranging from Cisco to IBM, and Microsoft to AT&T and Verizon, to namedrop only a handful out there -- are now providing UCaaS services.

Different classes of vendors provide UCaaS services. Unified communications (UC) vendors Cisco, IBM and Microsoft sell their own products in the cloud. AT&T and Verizon are building UCaaS by using UC technology from leading UC vendors. Small vendors are also setting up shop.

These companies are all offering UCaaS services because the market's burgeoning growth represents a major business opportunity for them or because customers are requesting these services. For some, it's a natural extension of their existing businesses.

Many buyers are searching for UCaaS solutions that closely align with their own strategic plans -- everything from codecs such as H.264 SVC to APIs such as OpenSocial -- to ensure they don't end up "painting themselves into a corner with their solution," according to Henry Dewing, principal analyst at Forrester Research Inc.

What sorts of services are involved?

UCaaS includes a wide variety of applications and services delivered over an IP network, usually the public Internet. The services available include enterprise instant messaging and presence, online meetings, telephony, video conferencing and more.

"The way different solution components fit together depends on the service provider and the underlying technology," explains Dewing. "Implementing a Lync-based UCaaS service based on Microsoft's Office 365 is very different [from] buying Lync-based UCaaS service from Orange."

UCaaS services can use technology from multiple UC vendors, but maintaining interoperability is difficult for providers. Enterprises that choose UCaaS solutions with a primary or lead vendor can ease the integration and operational tasks, he adds.

What are the key benefits of UCaaS?

With UCaaS, buyers can wash their hands of the technology, capital and capacity issues associated with deployment of UC, says Dewing. "The service provider is entrusted to make technology decisions and can be held to a strict business service-level agreement -- not just up-time or network delay, but real availability, call completions or user-experience measures."

What exactly does this mean for buyers? "It frees the buyer from having to worry about selecting a vendor, a standard or an architecture to deploy," Dewing explains. "By insisting on open connectivity to other firms within the ecosystem, the buyer pushes the service provider to adopt and support broadly adopted standards and capabilities -- without having to make decisions or investments themselves."

There are at least four different integration points where the selection of technology and insistence on reliable open standard interconnects are important to understand.

"The first point is between different original equipment manufacturers (OEMs) within a company. The second is between cloud and hosted solutions within the same company. The third is when federating presence or communications capabilities with ecosystem partners. And the fourth is when extending UCaaS capabilities into business processes or applications. All of these can be provided by the same vendor or multiple vendors," notes Dewing.

Why should you consider your UCaaS options?

UCaaS can sharpen a company's competitive edge by reducing costs, increasing flexibility, and boosting efficiency and productivity.

"The key benefits include flexibility to add or subtract users as needed, minimal up-front capital investment and the outsourcing of system administration -- no training needed. This frees up IT groups to focus on more strategic projects," says Irwin Lazar, vice president and services director at Nemertes Research.

But keep in mind that not all UCaaS offerings are the same. When considering your UCaaS options, explore the service provider's reliability by talking to its customers or asking to trial it. Also, look closely at their scope of coverage, support for E911, extensibility, flexibility, cost, performance management capabilities and network access requirements.

Who's using UCaaS and how?

Many companies -- around 60% -- are already embracing some form of hosted UC, but they use some UC applications more than others, Lazar says. "These companies are using it mainly for Web conferencing; a mere 7% are currently using hosted voice. But interestingly, the clear majority of companies using hosted UC right now are small businesses," he adds.

Since hosted voice is a relatively new technology, even with overwhelming interest, it will take time to migrate to the entire market. "There are some aspects of UCaaS -- such as identity, security, or sensitive corporate intellectual property that might be shared in collaboration or on team sites -- that firms are extremely wary of moving into the cloud, and this is slowing decision making," Dewing says.

UCaaS appeals to businesses that are seasonally cyclical -- think tax preparers or retail at Christmas -- or expense-driven organizations like the government and technologically savvy industries like high-tech, Dewing notes. But the ability of UCaaS to offer cost savings and improved flexibility will appeal to businesses large and small alike. More than half of companies will deploy some form of UCaaS, he adds.

Flavors of UCaaS

There are a couple of different flavors of UCaaS available, as Irwin Lazar explains. "You can choose either single-instance or multi-tenant. For the single-instance option, the provider creates a specific software image for each customer, which enables customization and integration of on-premise applications. For the multi-tenant option, each customer shares a single software platform."

The cloud isn't an all-or-nothing proposition, according to Lazar. Many companies take a hybrid approach with a portion of their UC applications in the cloud, and others on-premises. "Products are now emerging to enable integration of on-prem and cloud," he says.

Enterprises can also integrate UCaaS with other cloud-based services. It isn't simple, but it can deliver real benefits by giving workers new capabilities rapidly. Integrating UCaaS with other cloud capabilities (such as enterprise apps from SalesForce.com) drives user productivity for firms by reducing the friction between business applications and business processes, according to Dewing.

"Moving forward, UCaaS-specific standards will be critically important for connecting public and private clouds, on-prem and in-network or intercompany and internetwork capabilities that can't be done in one-off or a

pair-by-pair basis," Dewing says. "Standards move slowly, but the slow-and-
steady progress is what enables UCaaS to really deliver business value
rapidly."

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↘ **Next article**

🔖 # Section 2: How UCaaS has Evolved

Just like any technology, cloud UC has evolved over time, and so has the market demand for it. In this section of our guide, we take a look at the technology behind cloud UC and examine its market and business impact.

A unified communications cloud evolution

Tom Nolle, CIMI Corporation

For IT professionals who accept that cloud changes everything, it's also going to be true that the cloud changes unified communications (UC). Technology and business drivers are combining to redirect UC focus to the cloud, so users will have to decide when and how they'll evolve their UC approaches to meet their evolving cloud commitments. They can view this unified communications cloud evolution three ways: as an **evolution of applications**, as an **evolution of communications services** and as an **evolution of hosting technology**. Cloud UC will likely implicate all three of these evolutions, but IT departments in most cases can decide where it's best to start.

Unified communications cloud evolution of applications

Many companies build collaborative relationships around their applications. Workers communicate with other workers and supervisors to resolve issues that come to light while processing a transaction or reviewing an account. For these collaborative relationships, the key step is duplicating the

application context for the others involved in the collaboration. If this isn't done, embarrassing and costly errors are certain to follow.

Modern thin-client orchestrated applications make it easy to customize worker screens; in many cases, these applications allow a worker to create a URL that represents the specific thing they're looking at to share with collaborating partners. The evolutionary goal here would be to ensure that an email or instant messaging or text messaging (IM/SMS) sent to convey this application context offers the option to reply in the same form or to escalate the conversation to voice or even video. In these latter cases, providing a link for that collaborative session is more than a little helpful, particularly for mobile workers who would face considerable navigating to set up functions. To make this work, the UC/UCC systems must expose calling interfaces as APIs and provide a means of sending someone an invite to join.

Unified communications cloud evolution of communications

Some businesses frame their evolution to UC as an evolution from TDM or traditional voice to VoIP. VoIP services are often cheaper than traditional voice and more easily integrated with applications, particularly when mobile

devices become a big part of collaboration applications. A voice-centric evolution is likely to involve equipment changes, though.

Companies can make current phone systems compatible with VoIP services through simple gateway functions, but this won't address the question of how to create IP voice calls to and from data devices like tablets. Some UC vendors that also offer TDM voice or that have TDM voice incumbency offer tools to create a kind of uniform calling plan that allows users to call IP and TDM voice extensions and extend attendant services across both voice forms. This approach has the advantage of allowing a company to evolve from a pure TDM to a pure VoIP service while letting workers transition from current phones or stay with them, at least for a time.

Unified communications cloud evolution of hosting technology

The final evolutionary option for UC is one driven by changes in hosting UC elements. Many UC systems today are server-hosted and run on-premises, but a growing number of vendors (or vendor partners) offer UC as a Service hosted in the cloud. For SMBs in particular, this can be a cost-saving tool because it eliminates local capital equipment and software support.

The major question for UCaaS evolution is the reliability of the cloud service on which UC is based. While the general expectation in the marketplace is

that cloud is more reliable, many users of cloud UC services have reported more problems with availability than they experienced with in-house application hosting. To be sure your UC evolution doesn't join that group, first validate the long-term reliability of your current communications system and determine whether it's sufficiently robust. From this interview process, you can set a goal on availability -- a goal that can then be used to set up an SLA and service plan with a hosted UCaaS provider.

Cloud UC = greater dependence on broadband

Any evolutionary path leading users to cloud UC will create a greater dependence on broadband connections. Internet connectivity will mostly likely be an issue when cloud UC is used to support mobile devices or teleworkers.

It's easy to underestimate the impact of unified communications on broadband connections and costs, so an audit of the specific UC applications is essential to determine whether a given broadband plan will work and be cost-effective.

Video is the most expensive of all communications forms in terms of consumed bandwidth, and some companies have elected to restrict video use in UC applications to control the load on the networks -- especially to conserve mobile bandwidth. Since more than 70% of UC exchanges now

occur within company facilities, it's possible to control mobile costs by adopting Wi-Fi as the primary connection tool and using Wi-Fi-capable appliances. However, Wi-Fi may not support workers roaming between hotspots, and most large facilities can't be covered with a single Wi-Fi base station.

Early adopters of unified communications cloud report that their greatest problems come early on; the problems create a negative momentum for cloud UC adoption that becomes increasingly difficult to overcome. Trial programs help ensure that major issues in an early rollout are avoided, particularly if a single small facility is used and tested thoroughly as a pilot site before main locations with larger worker populations are empowered. As in all projects, a cloud UC evolution project is most likely to succeed if it's well planned and well tested.

↘ **Next article**

◪ Unified communication cloud service models

Tom Nolle, CIMI Corporation

Unified communications (UC) or unified communications/collaboration (UCC) has been a topic of interest to users looking to evolve from a disorderly combination of voice, email and message communications to something more structured. It's also been the target of UCC vendors to transition their older voice system businesses, expand their software collaboration offerings and most recently build cloud service offerings. Today, it's becoming increasingly clear that the cloud will figure prominently in UC, so it's important for prospective UC buyers to understand what services are available today and how these unified communication cloud service models are evolving.

The cloud is a mechanism for hosting applications on external resources, and clearly that definition is very broad. It's the breadth, in fact, that opens the door for a number of "cloud UC" models to exist, all having valid credentials as cloud services but differing significantly from one another in terms of functionality, focus, and compatibility with current equipment and practices. A good review of UC cloud services has to begin with an assessment of the models.

Service model type 1: The cloud communications service

The most radical unified communication cloud model is the **cloud communications service**, the most popular of which is Skype, now a part of Microsoft. Cloud communications services like Skype were designed as hosted services; the only premises component is a software client that's installed on each device. These services offer users considerable flexibility in supporting smart devices from desktops to smartphones, but they are limited in how they can integrate with current voice systems and devices. While it's possible to find adapter devices to use Skype and other services like Google Voice with phones, most users don't know that and never make the attempt.

The biggest problem users report with cloud communications services is that they emulate public telephone services and not business phone systems. They lack features for attendant services, call forwarding, and the like. They also often lack a closed community or user group with open inter-calling and restrict external calling. For larger businesses, or even for call center activities in smaller businesses, this can be a fatal flaw.

Service model type 2: UC as a Service

The second cloud UC model is the **UC as a Service** model created by having traditional UC software hosted in the cloud. Microsoft's Lync software has transitioned from a traditional server model to a cloud model (called Lync Online), and is now being integrated with Skype. Most larger network operators are now offering or preparing UCaaS offerings, and they're also available from providers like Siemens and Mitel. UC Market leader Avaya has gradually expanded its own UC/UCC service plans to include private and public cloud capabilities, directly and through partners.

Nearly any server-based UC product can be converted to UCaaS simply by finding an Infrastructure as a Service or Platform as a Service provider or integrator who hosts the platform on which the product runs. In fact, some UCaaS offerings are simply cloud-hosted server-based UC, but others (like Cisco and Avaya) are providing a set of UC platform tools and allowing for developer enhancement and expansion of their UC capabilities. This strategy is the one most likely to prevail in this space because UC requirements tend to be somewhat specialized; companies value different features and capabilities and thus need expert developer or integrator tuning. That tuning is easier with UCaaS than with cloud communications services, which rarely offer much latitude for customization.

Service model type 3: Distributed UC model

The final of the unified communication cloud service models is the model Microsoft is creating in the integration of Skype and Lync: the **distributed UC model**. In the distributed model, UCaaS elements are combined with cloud communications services to create a UC strategy that can be totally hosted, hybrid hosted in-house and in the cloud, or totally in-house. However UC is implemented, it can be integrated with a UC/UCC-capable service set (in Microsoft's case, from Skype) that will itself serve as a basic cloud UC service to small users, which can extend UC capabilities outside the company to customers and partners.

The distributed UC model offers enormous advantages:

- First, it tracks the true cloud trends toward hybrid clouds more accurately because it allows both public and private hosting of UC components.
- Second, it is more easily integrated with premises equipment since, at worst, some components of the model can be hosted in-house for easier connection with legacy systems and phones.
- Third, it presents a low barrier to adoption while allowing enterprises to expand to a full-featured UC system as the cloud UC value proposition is proved.

- Lastly, the promise of developer support to build custom features, particularly for vertical markets, like legal and medical, will be critical to many users.

It's possible to create a distributed UC model by combining VoIP services with email and IM from various providers, using application program interface (API) integration, and this model of distributed UC would offer users some relief from concerns that a proprietary cloud communications service, like Skype or Google Voice, would lock them into or limit connectivity. It's reasonably easy to integrate IM and email with VoIP now, but video collaboration may pose a problem because of the lack of accepted standards for cross-platform video conferencing. There is increasing pressure to adopt video standards, but it's not likely that pressure will create open video collaboration any time soon.

Unified communication cloud service models will continue to pose challenges for prospective buyers, both in terms of selecting a model and in terms of how to support current voice systems investments or balance voice, video, and email and IM in importance. As usual, the lowest costs and best features in cloud UC will be available to those companies who focus on empowering their workers through advanced appliances like laptops, tablets and smartphones rather than to try to preserve legacy voice handsets. For most technologies, but for cloud UC in particular, it makes more sense in the

long run to invest in where markets are going than to cling to current practices.

⮧ **Next article**

🔖 Cloud UC strategies: Hosted unified communication service models diverge

Tom Nolle, CIMI Corporation

Given that everything these days seems to be about the cloud, it's not surprising that you hear a lot about cloud UC. Cloud UC refers to the union of unified communications (UC) and cloud computing and focuses on hosting UC applications on the cloud. If we believe the cloud is the future, moving UC applications to the cloud is hardly a technical challenge. And, this move has brought about new cloud UC strategies and architectures that may not address real telecom issues.

Cloud computing is the new architecture that binds IT and networking into a single system, and its primary value isn't cost management or opening IT to public hosting. The value is the flexibility that cloud will bring to the way we empower workers, particularly via a spectrum of mobile devices. In this cloud era, workers will work differently, consume information differently and collaborate differently. It follows then that they will communicate differently, and it's that basic change that will drive the cloud UC vision.

Cloud UC is different mainly because of what is being unified. The past UC focus has been on unifying the tools of communication -- getting voice,

video, email and IM into one common, usable format. That issue has been resolved in the mobile space through applications. Workers who can tap the email, IM, call or video icon on their mobile devices don't need further unification of functionality.

Today's UC vision is the unification of communications tools, where cooperation among workers occurs around a tool set or UC platform. The UC platform is essentially a workflow manager -- a system that manages document flows, approvals, reviews and so on. This vision is easily applied for document creation, but less easily applied to work activities built on applications for order entry, order management, etc.

Cloud UC unifies applications and communication so that workers can share information while they are communicating. Surveys say that the No. 1 collaborative application is the "review-information" application, where a worker contacts a support specialist or supervisor to help them through a question about their job. Such questions are almost always accompanied by viewing information, so while the first step in the collaboration is to set up the review via some person-to-person message, the second is to share the application context with the originating worker.

This is a profound change in focus for UC because it means that instead of combining UC features into a single client, they should be componentized and integrated with the applications themselves. Since most unified communication services are already available through application program

interfaces (APIs) or URLs, vendors have approached UC using two different models: **application-centric** and **process-centric**.

Vendor-proposed cloud UC strategies

Microsoft is an example of an application-centric UC provider. As the company became more focused on its Azure cloud platform, its UC position has evolved from "UC-as-an-application" to "UC-as-a-cloud element." The Lync UC server and system from Microsoft was what could be viewed as a traditional UC platform, one based on unifying the communication. Document handling and approvals were automated. Lync, however, lacked specific tools to share a more general view of workers' applications.

With the new version of Office, Microsoft wants to integrate the applications with Lync. This would take collaboration deeper into the workers' processes of document creation and data analysis; it would also integrate both Office and Lync with online, cloud-hosted tools. Microsoft is widely expected to field development tools to allow its partners to create applications that integrate communication and data handling on a single screen, in the cloud.

Other UC vendors have focused more on the process of collaboration and on turning that process into an automated workflow. These vendors often include tools that track revisions to documents and track "work" by tracking how it's passed from person to person.

Avaya Inc., one of the leaders in UC and voice communications, has both per-user client tools for UC integration and call center tools for support and sales systems. By making UC an "application," Avaya makes it possible to easily integrate UC with other applications. The company, however, hasn't yet proposed its own application platform to integrate UC with other application components.

Cloud UC vendors will architect unified communication services

Cloud could deepen the divisions between the radical vendors that see UC as a set of composable application services and traditional vendors that see UC as an application. The radical approach has the advantage of supporting collaboration on any kind of application because it is based on composing communication and information into common screens. That composition is also its downside; without work to create integrated communication/application screens, the benefits of the radical UC approach can't be realized.

Traditional vendors can create a collaborative framework within their UC applications and easily fit that framework into current document-production practices. While the scope of integration of UC with applications is narrower for this group, the adoption is much easier, faster and cheaper.

This radical-versus-traditional debate will frame UC in the future. More application- and cloud-centric providers will likely take a broader view of UC and work to create simple tools that can build worker screens combining application data and collaborative communications links. Most traditional UC vendors will likely work to refine their process-centric visions so that sequential application processes such as order entry or shipping can be structured into a UC-centric workflow that incorporates application data. For unified communications buyers, the choices will be feature-rich in the future, but they'll be more difficult to make.

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↘ **Next article**

Integration between cloud-based UC apps require cloud federation

Gina Narcisi, Former Senior News Writer

Cloud-based unified communications adoption may have started off slow, but momentum is building as enterprises are more readily signing up with providers like Google for email, and Salesforce.com for customer relationship management and collaboration.

Just as enterprises need their on-premises phone, videoconferencing and collaboration tools to be integrated for single sign-on functionality and ease of use, they now expect the same from cloud-based applications. As Unified Communication as a Service (UCaaS) adoption grows, so will the need for UC cloud federation.

"There is desire right now to join cloud-based, mixed-vendor UC [unified communications] and collaboration applications in the cloud, and I think that will be much more important and demand will increase in the next few years," said Irwin Lazar, vice president and service director at Mokena, Ill.-based Nemertes Research Group Inc.

Third parties facilitate UC cloud federation

Even though enterprises want federated UC and collaboration tools, vendors are hesitant to open up their technology to integrate with competitors. Third-party federation specialists are emerging to make UC cloud federation happen. Vendors believe federation can expose their propriety technology and install base to competitors, said Elka Popova, program director of UC and collaboration at San Antonio-based Frost & Sullivan Inc.

Esna Technologies, a Canadian cloud-enabled UC and collaboration provider, offers Cloudlink, a software offering that allows businesses to federate their Google apps, Jive social software and Cisco's cloud-based collaboration into a single interface. NextPlane, a Sunnyvale, Calif.-based UC federation service provider, offers federation services through its UC Exchange offering for enterprises using software and cloud-based offerings from Microsoft, Cisco, IBM, Google and Jive.

"NextPlane offers federation services that are unique, because they are not offered by UC vendors today," Popova said. "As a third party, they don't have vested interest in making federations between certain vendor offerings more challenging or easier."

"As companies move to the cloud, UC doesn't have to be a disjointed experience," said Lee Ho, vice president of marketing for Esna. "All UC capabilities -- like click to dial, presence and instant messaging, and even Cisco's WebEx for meetings -- are all integrated within the application [employees] are used to."

Esna's Cloudlink software sits between the two UC applications -- like Voice over IP (VoIP) offering and collaboration software, or cloud-based email -- to proxy calls and coordinate between the two applications, said Dave Ballins, director of channels, North America, at Esna Technologies.

What federation services are enterprises asking for?

While there isn't widespread demand for UC cloud federation services today, enterprises will demand such services as UCaaS adoption grows, Popova said. "It will take time for IT decision makers to understand the value of federation services, and become familiar with the available options."

Since many enterprises are kicking off their UC cloud strategy by moving to Google for email, many vendors will probably kick off federation efforts by opening their technology to Google Apps.

"I expect to see UC and collaboration vendors start to seek this kind of federation with Google Apps because Google is less of a competitor in the UC space," Popova said.

Some UC vendors -- like Siemens -- already have a native capability to federate their applications with other UC vendors, Nemertes' Lazar said. "The vendors will start to develop the capability to federate because there's always the fear that a UC vendor could buy a company like Esna, which would leave other UC vendors out in the cold."

While cloud federation with Google Apps may be a good starting point for vendors, many companies also want cloud-based UC applications to federate with Salesforce.com because the customer relationship management Software as a Service provider is currently the most popular UC cloud service provider, Lazar said.

Some cloud-based phone systems -- like 8x8's VoIP phone service -- already have the ability to federate with Salesforce.com, Lazar said. "When users look at a client's record in Salesforce, they can click to call through the phone controls on the Salesforce interface and the call will go out through 8x8," he said.

"Federation between cloud-based UC apps and Salesforce is crucial, but the demand for other UC cloud federations will increase as the UCaaS market grows."

⚑ Section 3: Cloud vs. On-Prem UC

Businesses have deployed UC solutions on-premises for years. With the advent of cloud computing, enterprises are reconsidering where to host their UC applications. Are you considering ditching your on-premises ways for the world of hosted UC? This section of our guide, containing a comparison chart and advice from some of our most trusted UC experts, can help you decide whether you are ready to make the plunge.

▌ UC as a Service: When is it right for you?

Tom Nolle, CIMI Corporation

More companies are adopting cloud computing now, but it's clear that the cloud is far from the universal solution some expect it to be. Users are particularly concerned about applying the cloud to applications they depend on for doing business. These include the core mission-critical vertical-industry tasks like banking or insurance, but they also include universally popular horizontal applications such as unified communications (UC).

When is UC as a Service the right answer?

Companies report that cloud computing offers the following critical benefits:

- **Better cash management.** By converting capital costs for telecom equipment to expenses for UC services, companies can match their cash outlays with the write-off they can expect, which significantly improves cash management. For companies with limited credit or cash flow issues, this is critical.
- **More flexibility in expanding and contracting the scope of an application to match changes in worker complement or usage.** This is valuable to companies that experience large seasonal variations in employee count.

- **Reduced technical support.** UC as a Service for key applications can reduce in-house support needs, and in areas where labor markets for skilled technical resources are tight, this may be the only way to get effective support at all.

While these are good general principles of UC as a Service, they may fall short in guiding businesses in deciding on UCaaS specifically. And issues that are somewhat unique to UC may either accelerate or interfere with some of the benefits.

What UC as a Service issues might you run into?

Probably the largest specific UCaaS issue is the **greenfield/brownfield** question. Communications systems often have a large sunk cost, particularly in handsets. If a UCaaS strategy isn't compatible with existing per-worker equipment, the additional cost of installing new equipment can erase years of savings in other areas. Changing worker equipment also raises the risk of creating acceptance and support problems that are also likely to erode the benefit case for UCaaS. This means that UCaaS is most readily adopted when there is no prior communications service in place (a new facility) or when it's been accepted that a complete change in worker equipment is needed. Where this isn't true, UCaaS may be practical only if the vendor who supplied the current equipment offers it as an option.

The second UCaaS issue is **changes in worker activity created by changes in technologies and services**. A major change in software used by workers could change how they operate and communicate, which changes the demand on their communications system. It's easier to use UCaaS in pilot or trial mode, which means that it may be possible to test several service options before making a final selection.

If a traditional UC option is purchased, it's much more difficult to "kick the tires" and evaluate how well the system will perform in the company's day-to-day operations. In some cases, it may be possible to run tests using the UCaaS version of a system and still purchase the components for in-house installation and support. That gives companies a way of shifting out of UCaaS if the financial case can't be made in the long term.

A third area where UCaaS may require special consideration is when **merger and acquisition (M&A)** changes the size of an organization radically. It may be that such a change offers an opportunity to change handsets or other worker devices, reducing the impact of stranded capital equipment on adoption and widening the choice of UC/UCaaS suppliers. M&A also often has a special budget for consolidation that can help bear these costs if necessary, and it may even include a budget for retraining personnel on a new system.

The final UCaaS concern is **application integration with the UC tools**. In many cases, applications use UC application program interfaces (APIs) to

make calls, route calls, match numbers with databases and so on. These APIs may not be supported for some UCaaS services, and even where they are supported, performance issues may need to be addressed. The largest problem reported in this area is associated with number lookup for customer record retrieval; in many cases, hosting the customer database in the cloud is too expensive or poses security concerns, and if that database remains on premises, it may be harder to access it from the UC processes without custom software modifications.

Deciding when UC as a Service is right for you

Whatever UCaaS strategy prospective buyers consider, they must also consider the stability of the business model. Software-based UC has considerably lower profit margin than large hardware systems, and so vendors transitioning to UCaaS offerings may be facing internal restructuring and even a threat to their business. It's wise to consider the financial industry's view on the viability of all the UCaaS providers under consideration, particularly if you have special issues of sunk costs or special enhancements needed to support a specific system. Cloud is in its infancy, and so finding a UCaaS provider with long-term credibility may be so difficult under some conditions that a more traditional in-house approach would be a better bet.

🔖 On-premises vs. hosted cloud UC: Comparison chart

Kara Deyermenjian, Associate Site Editor

Ever since hosted UC came on the scene, businesses have started opting out of their on-premises (on-prem) UC solutions and replacing them with cloud-based UC options. Before you make the plunge into the world of hosted cloud UC, however, it is advisable to compare and contrast the two in order to determine whether you're making the right decision.

Areas that vary depending on which solution you deploy include cost, installation, maintenance, disaster recovery (DR) options and more -- all of which deserve some scrutinizing before committing to either on-prem or hosted UC.

The following chart compares these two alternatives. It offers you a quick and easy way to evaluate the pros and cons of each and helps you decide which is best for your business.

	Hosted UC	On-prem UC
Capital expenditure (CAPEX costs)	Low CAPEX costs. No hardware costs -- except for phones.	The larger the enterprise, the greater the CAPEX costs. Expenses include phone hardware, rack space, power, cooling, etc.
Installation costs	Low installation costs because little/no hardware needs installing.	High installation costs because hardware needs to be installed and staff/contractors need to be paid.
Migration strategy	IT teams can add new UC features alongside existing communications systems to evaluate deployments. New UC features/services can be readily available, allowing IT to roll out new functionality at will.	IT teams usually must rip and replace existing infrastructure. This can result in communication downtime and troubleshooting. On-prem solutions can take months, even years, to roll out company-wide.

Infrastructure required	The hosted infrastructure required to provide UC functions (chat, presence, etc.) resides in the data center of your service provider. Your IP connection to the cloud allows users to access that functionality. Back-end infrastructure is all bundled in a monthly fee.	On-prem infrastructure may vary by vendor but will typically include: proprietary control units to house analog telephony boards; server(s) for hosting voicemail; UC functions (chat, presence, etc.); and sometimes management/administration functions.
Provisioning requirements	Landline connectivity is provided in the cloud. So, there is one less contract to worry about -- since the cost of this connectivity is bundled into your per-user fee.	For in/outbound calling, IT must provision (in blocks of 23) analog land lines, which can be provided by a full T1 circuit that requires a telephone company contract.

Licensing	Providers typically charge a per-user licensing fee.	Licensing is more granular and complex. There are OPEX costs for software maintenance on the license to ensure support and functionality upgrades.
Maintenance and updates	Software updates are maintained by the cloud provider, so subscribers will always be up to date.	Updating features may need to be repeated a number of times, depending on the architecture of the on-prem solution. Upgrades or feature enhancements can take months or even years.
Total cost of ownership (TCO)	Host UC TCO savings can be substantial.	On-prem UC TCO costs are much higher than hosted UC.

Disaster recovery (DR)	Hosted UC makes you reliant on your Internet link and hosting service. Most providers do offer reliable redundancy. One con is you don't have immediate access to your equipment like you would with on-prem UC.	It can be expensive to include redundancy into on-prem UC. Only larger enterprises can typically afford investing in DR. One pro is that you have access to equipment for troubleshooting at any time.

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■ To cloud or not to cloud your unified communications applications?

Dave Michels, Verge1

For most IT leaders, there are few things more dreadful than selecting a new communications solution. Sure, anything new is fun, but unified communications (UC) solutions are the least fun. Many feel that comparing the various UC options is a high-risk, intimidating and arduous task involving software subtleties and licenses.

That task is now even more complex with this inevitable question: To cloud or not to cloud? UC as a Service (UCaaS) is experiencing rapid growth, and most market researchers see that trend continuing for several more years. That's good news with more options, but while there are twenty-some premises-based solutions to consider, there are also hundreds of service providers to consider. It's very easy to get overwhelmed.

Unified communications: To cloud or not to cloud?

First, be sure cloud-based and premises-based solutions are initially considered, but work to figure out the best model as quickly as possible.

There are no silver bullets here -- the best approach depends on the unique requirements of the business. Premises-based solutions remain the dominant approach, but many enterprises are moving away from unmanaged unified communications and collaboration. Surprisingly, neither premises nor hosted solutions offer any unique user-feature advantages. Instead, the preference is more likely to be driven by other factors. Here are some of the top considerations that tend to push organizations one way or the other.

Mobility. The promise of being able to work anywhere has emerged as one of the top drivers of UC adoption. Many UC solutions offer advanced mobility features such as single-number reach, mobile clients, softphones and more. Cloud-based solutions have a slight advantage here because they view everyone as a remote user. Premises-based solutions sometimes require additional equipment and bandwidth to accommodate remote users, which can be cost-prohibitive for small groups of mobile users.

Multiple locations. If an organization has lots of office locations, a cloud solution inherently creates a virtual campus. Each location gets local numbers, yet can be part of a larger internal network that features free intersite calling, abbreviated dialing and other common advanced features -- all with centralized administration. Virtual campuses are possible with cloud and centralized premises-based implementations but are simpler to set up with cloud deployments. Locations that necessitate failover capabilities will

need some premises-based equipment, and that's inherently included with equipment-based deployments.

Technical skills. UC can be complex -- very complex. It's rarely a standalone system anymore and frequently integrates with mobile devices, servers (call control, applications, email, CRM, etc.), and desktops (soft clients, collaboration apps); it may also involve custom application programming interface integrations with workflow systems. Be wary of the line between controlling the technology and being controlled by technology. An organization that regularly finds itself on the wrong side of that line may be a good candidate for a hosted solution. UCaaS is effectively a form of outsourcing and turns a considerable amount of the complexity into a simplified delivered service.

Scalability and seasonality. Some firms experience dramatic swings in required telecom capacity, and this is an area where many cloud services excel. Most premises-based solutions are engineered to accommodate the busiest hour of the busiest day, and that may not be cost-effective year round. This is an important topic that can favor the cloud or premises. The cloud generally charges for usage rather than capacity, so seasonal spikes are handled with lower costs. Of course, some cloud providers share resources among customers, so huge spikes may still be problematic. It is important to consider how the firm reacts to seasonal spikes. For example, an event planner needed to move from cloud to premises because of its

annual ticket sales event. The firm had only had two agents, so the cloud's capacity meant it could handle 100 people in the on-hold queue rather than generate a busy signal.

Endpoints. The old-school approach of picking a phone system was to compare prices and endpoints. Although many now prefer softphones, physical phones are still common in most implementations. Aside from look and feel, most Session Initiation Protocol (SIP) phones offer less desktop functionality than proprietary endpoints. That may not matter to organizations, especially because desktop clients are often associated with a desk phone. Most hosted providers use general SIP phones, however, so mind the feature gap. Desktop phone features vary, so verify what features are being offered -- especially hands-free paging and intercom, visual call park, and busy light indicators. Also, be sure to include any conference saucers, fax machines, alarm lines, and elevator and door phones necessary within the evaluation scope.

Disaster recovery and business continuance. Many look to the cloud as a simple approach to disaster recovery and business continuance. To properly prepare for business contingencies, some form of off-site recovery is generally recommended, and the cloud effectively comes with this benefit. Of course, each provider must be carefully reviewed for operational reliability, including geographic diversity of data centers.

Accounting. One point that frequently gets raised regarding this debate is capital expenditure versus operating expenditure (Opex). Most firms favor OpEx, which tends to favor the cloud. Don't let accounting rules dictate technology decisions, though; if OpEx is particularly important, it can be resolved by leasing premises-based equipment. On the other hand, cloud services typically won't require as long of a commitment as a lease.

Don't go into the cloud vs. premises debate with a pre-notion that one is better than the other. Both cloud-based and premises-based UC solutions are here to stay; both are proven, and both offer advantages. The key lies with understanding what fits best with the specific needs and objectives of an organization.

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🔖 # How to decide which cloud-based UC applications should be in the cloud

Irwin Lazar, Nemertes Research

Adoption of cloud-based UC applications like voice, Web conferencing and video are on the rise: Almost a quarter of companies are now using or planning to use cloud-based IP telephony services, up from just 14% in 2012. Plans for cloud-based video, instant messaging, email/calendaring, and social computing are also increasing. What explains this trend? For most, it's the opportunity to reduce UC costs coupled with the ability to improve business agility. IT buyers like the Opex model of cloud offerings versus the Capex-intensive approach for on-premises deployments. Furthermore, they find that moving services to the cloud frees up IT resources to think and act more strategically. Even for those not yet ready to embrace the cloud, 57% say that a provider's cloud roadmap is of critical importance when evaluating their solution.

So, how do you decide if cloud-based UC applications make sense for your organization? Let your answers to the following five questions be your guide:

1. Am I comfortable giving up control? Those who deploy on-premises platforms own the UC application. They upgrade on their schedule. They can

enhance, extend and integrate their UC applications as they see fit. Perhaps most importantly, they own the data that their UC applications generate. In many regulated or extremely security-conscious firms, leaving sensitive call data records, voicemail, email or even Web conferences on someone else's servers is simply unacceptable. Cloud providers offer several options for the security conscious: They can potentially manage your own servers within their data centers, and they have largely achieved independent security certifications such as SAS-70 that demonstrate their data protection management capabilities. Still, for a percentage of organizations, these measures -- or the potential of data ending up in countries where concerns over data privacy exist --aren't enough to convince them to relinquish the reins of on-premises applications.

2. Will I save money? With potential cost savings the primary driver for those considering cloud-based UC applications, it makes sense to take some time and do the math to determine if the potential cost savings are real. In 2011 Nemertes Research conducted a cost analysis of cloud versus on-premises IP telephony solutions. We found that for companies of 2,500 or more, the per-user-seat cost of cloud solutions was more expensive on an annual basis than the cost of a self-owned solution. While this scenario won't be true for all companies, it's worth your time to develop an accurate cost model as you evaluate cloud-based solutions. Even in cases where hosted cloud UC is more expensive than on-prem, it may still be worth adopting to free up your IT staff to work on other programs with higher

value to your company, or to leverage the flexibility and ease of scaling (up or down) provided by Opex-based billing models.

3. Can the cloud go where I need it? Cloud-based UC services are widely available around the world, but few companies are capable of delivering and supporting a single global cloud service across broad geographies. If you have locations dispersed across regions such as Asia, North America and Europe, you may find a limited number of potential partners who can support all of your sites. Depending on your needs, best-of-region solutions can allow you to save money while supporting local requirements.

4. Do cloud services offer everything I need? For a long while, cloud-based UC services lacked the features and application interfaces of on-premises solutions. They didn't offer broad, integrated UC feature sets including video, mobile extensibility and a wide choice of end-points. Those days have changed, as leading UC vendors, either on their own or through their partners, have developed cloud-based platforms derived from their on-premises offerings, enabling the same feature sets for on-premises and cloud, and easing migration of existing customers to the cloud by enabling them to reuse existing end points.

5. Can I manage the cloud? This may seem like an oxymoron. The common conventional wisdom is that by going to the cloud you offload support to your cloud provider. But UC application performance is dependent on a variety of factors often outside of the cloud provider's control -- LAN

bandwidth and architecture, wireless LAN capabilities, Power over Ethernet, even PC performance (for softphone applications). Successfully delivering cloud services requires a partnership with your cloud provider, and potentially access to your internal network from the provider's network operations center.

Let your answers to the above questions guide your evaluation of cloud services, and remember that cloud UC applications are rapidly evolving. If cloud doesn't make sense for you today, check back next year.

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🔖 Section 4: Buying Decisions

When it comes to Unified Communications as a Service, enterprises have a lot of choices to make. Is it best to embrace a hosted or a multi-tenant service model? Are all apps suitable for the cloud, or just some? And there's also the ultimate question of whether or not it even makes sense to include the cloud in the typical UC program. This section can help you answer all these questions so you can start planning your cloud UC strategy.

🔖 Hosted vs. multi-tenant UCaaS: What are enterprises receiving?

Gina Narcisi, Former Senior News Writer

Much like IT infrastructure, UC and collaboration technologies are becoming more complicated. To avoid this complexity, businesses are looking to the cloud as an outsourcing option. But moving UC to a cloud environment looks like a risky venture to many enterprises that require reliable and secure communications and collaboration.

Countless Unified Communications as a Service (UCaaS) options are emerging as many vendors and service providers jump on the cloud bandwagon. But while some UCaaS providers are offering true, multi-tenant cloud unified communications (UC), other providers are delivering a more static and traditional hosted UC service.

"There are a lot of providers right now that are actually just offering [a] hosted service delivery model [for UC] once you peel back the layers," said Jim Lundy, CEO and founder of Palo Alto, Calif.-based Aragon Research Inc.

Hosted UC offers a segregated environment, in which each enterprise is provided its own dedicated networking capacity and physical infrastructure to run their UC applications. Enterprises move their existing UC

infrastructure into someone else's data center in a hosted delivery model, said Irwin Lazar, vice president and service director at Mokena, Ill.-based Nemertes Research Group Inc. Many UCaaS providers present this service as cloud-based UC.

In a multi-tenant cloud UC environment, many enterprises compute capacity, networking resources and even UC application instances with other customers in a provider's data center. While this service delivery model is typically cheaper than hosted UC -- a desirable option for SMBs -- businesses have little room to modify their applications and may run a higher risk of downtime, Lazar noted.

Regardless of whether providers are offering a multi-tenant or hosted UCaaS delivery model, enterprises must have scalable and reliable UC and collaboration tools. An IT organization should understand a provider's delivery model before assessing these service capabilities.

Hosted versus multi-tenant UCaaS: What are providers really offering?

UC vendors often offer multi-tenant cloud services or they sell their products through cloud providers or network service providers who in turn resell UCaaS to enterprises. While this UC model is attractive to smaller companies thanks to its flexible pricing, some enterprises worry about

service and network reliability. Cisco might have a great reputation in UC, but the cloud provider selling cloud-based Cisco UC has its own reputation to earn.

"When choosing a [multi-tenant UCaaS service], the enterprise must decide if they trust the provider that vendor is using to deliver their UC service in the cloud," said Ken Landoline, principal analyst of unified communications and contact center for Washington, D.C.-based Current Analysis Inc.

Some industries don't have a choice over what UCaaS delivery model they use. Finance and health care companies are opting for hosted environments in which their data is physically separated on dedicated infrastructures inside the providers' data center, offering little opportunity for data to be swapped or misplaced.

"Some industries have strict policies against using any shared environments, so they are choosing hosted UC offerings," Lazar said.

Despite what's under the hood, UCaaS services deliver similar results

Whether multi-tenant or hosted, the underlying service should be indistinguishable to the end user.

VOSS Technology, a Richardson, Texas- based UC and collaboration management provider and Cisco partner, offers software for the management and provisioning of Cisco's Hosted Collaboration Solution (HCS) for large enterprises and service providers. The company has been working with another Cisco partner -- managed service provider NWN -- to offer hosted collaboration service to enterprises.

While Cisco HCS can be offered as both a hosted or multi-tenant application, VOSS Technology allows NWN to offer each customer its own UC services in the same way they would have them running in their own data center, said Drew Phelps, vice president of NCare managed services at NWN, noting that customers like the security they are receiving from the hosted environment.

While customers enjoy the benefits of a hosted, rather than a shared environment, NWN is able to efficiently deploy new customers and manage multiple customers using VOSS Technology from a single interface, he noted.

"Within this hosted model, we are keeping [Cisco HCS] provisions up to date, making sure the applications are running at peak performance and are available to our customers at all times," Phelps said.

Reading between the UCaaS lines

Some smaller providers and vendors touting multi-tenant UC are likely offering "glorified hosted UC," while larger vendors -- like Cisco and Citrix -- are offering true, multi-tenant UCaaS offerings, Lundy noted.

"Cisco has both hosted and multi-tenant UC offerings, and will offer customers the choice between both service delivery options," he said.

But if enterprises prefer one UC service delivery model over another, they must do a little digging to determine if a provider is using the term "cloud" loosely, Landoline said.

"Enterprises should ask about the cloud operating system -- like is it a Cisco or Genesis system for example. A cloud operating system means multi-tenant," Landoline said.

If a cloud operating system is running the UCaaS offering, Aragon's Lundy noted that enterprises should request to see reporting statistics on uptime or voice reliability. Despite the physical differences between multi-tenant and hosted UC environments, many concerns associated with multi-tenant UCaaS -- like security -- are overblown, Lazar noted.

"While some enterprises may feel safer in a hosted UC environment on their own dedicated server, I'm not aware of any major data breaches in a shared environment related to UC," Landoline agreed, noting that large providers offering cloud services have well-tested offerings.

Regardless of the UCaaS delivery platform, performance, reliability and scalability are crucial. "If an enterprise needs to make a worldwide VoIP call, it just needs to work," Lundy said, noting that customers need to be guaranteed that "their soft phone offering will be just like having a PBX in the building."

And true, multi-tenant UC offerings should live up to the service-level agreement (SLA), he noted.

"Vendors need to start being upfront with their clients, and enterprises need to pay close attention to the terms and conditions of what they are buying," he said.

⬊ **Next article**

Cloud telephony allures businesses with full features, low costs

Ed Tittel, Writer, Trainer, Internet Consultant

Ever-improving communications, networking and computing technologies are combining to create amazing new markets for ho-hum standard business services. Case in point is the continued move of conventional telephone-based systems and services into the cloud, which replaces telephones' handsets with local VoIP-based handsets, computer-based headsets and/or mobile devices.

For a long time, economies of scale, security, network control and the development of critical in-house skills and expertise drove enterprises to design, deploy and maintain their own complex telephone infrastructures in-house. As complex and demanding as those tasks turned out to be, they've been eclipsed and surpassed in a variety of ways over the past few years, as all the elements involved have moved to the cloud:

- Unified communications (UC) technology has increased interfaces between voice and other digital forms of communication by adding email and instant messaging technologies to the mix, with video-based capabilities shouldering their way in forcefully, too.

- Unified Communications as a Service (UCaaS) has become a genuine phenomenon as all aspects of communication have migrated into the cloud.
- A large number of high-end communications service providers, including major carriers and serious technology players, are offering enterprise-class, cloud-based communications services that embrace telephony, unified communications, interactive media and more.

Key cloud telephony and UC features and functions

Despite UC services moving to the cloud, telephony system users want to keep all of their advanced features and functions. These include such key features as:

- Hold music
- Call screening
- Auto directory
- Powerful auto-attendant capabilities
- Voicemail handling options
- Follow-me functions to forward inbound calls to designated handsets or mobile phones

Caller ID management in such systems will allow outbound calls to use in-house caller ID displays even when made out of house or on a mobile phone. Certain systems work not just with conventional land lines and VoIP

systems, but also with Skype, Google Talk or even via users' cellphone connections.

Unified communications comes into the picture with the integration of voicemail and email, where email notifications can be issued for waiting voicemail if desired. Many systems include text-to-speech (to let a user listen to email on a cellphone) and speech-to-text (to enable voicemail messages to be sent as chat or SMS text messages, if preferable).

Enterprise-class cloud telephony and UC services

PBX systems evaporate into the cloud, leaving VoIP handsets behind

To make a converged, cloud-based telephony and UC service enterprise-ready, the usual requirements for scope and scale always apply (i.e., you still need to know how many sites and users you have and how many services you will need). But so do a variety of important linkages to key communications and data acquisition and management systems.

On the email front, most major offerings provide links to Exchange/Outlook, Gmail, Lotus Notes and other high-end email systems; this usually happens in the form of connectors that permit systems to interact with one another and move files and data back and forth between them. Connectors also provide linkages to collaboration and workflow environments such as Microsoft's Lync and SharePoint servers, along with various content

management systems. Likewise, enterprises often make link-ups to customer relationship management packages, such as SalesForce.com, Microsoft Dynamics and ACT! by Sage, and to various enterprise resource planning platforms, such as SAP, Sage and QuickBooks.

Ultimately, acquiring and managing voice and message data inside a converged telephony and UC environment add value to your communications products, since they can interact with other systems and applications that enterprises regard as mission-critical.

Cloud telephony pricing and cost structures

Because the types of services and solutions currently under discussion are cloud-based, they generally adhere to a pay-as-you-go financial model. Though some offerings do require the purchase (or rental) of special VoIP handsets for office use, these offerings do not otherwise require investing in (or maintaining) the servers and infrastructure necessary to deliver advanced telephony and unified communications features and functions.

Instead, enterprises who choose to put these solutions to work will usually pay a monthly per-user fee in a range from $25 to $30 for basic no-frills telephony and email coverage, up to $50 to $60 per user for more advanced capabilities and sophisticated features (such as text-to-speed and speech-to-text rendering, advanced caller ID handling and automated directory plus

follow-me functions from desktop handset to cellphone). In addition, adding connectors for entry into ERP, collaboration or workflow, and CRM environments also adds to monthly costs (but usually on a per-site or per-company basis rather than per user). By and large, however, the economics of the pay-as-you-go approach are favorable, especially because enterprises who adopt this approach can then forgo CapEx for acquiring systems and infrastructure, and personnel costs for IT staff to install, configure and maintain them.

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⤵ **Next article**

⚑ ROI template helps calculate UCaaS costs, benefits

Irwin Lazar, Vice President and Service Director - Nemertes Research

One of the biggest challenges in measuring the benefits of unified communications is quantifying the ROI. Simply "improving collaboration" doesn't mean anything unless it translates into reducing costs or improving revenues. But moving to UCaaS adds a new wrinkle.

IT leaders need to understand the specific and measurable ROI benefits offered by cloud services, not just in reducing operational and capital costs, but enabling buyers to take advantage of faster upgrades and broader accessibility to UC applications.

Any ROI exercise for UC as a service (UCaaS) should start with measuring the total cost of ownership (TCO), which is just one component of ROI calculations. To decipher TCO, companies can start with this ROI template:

The Cloud Calculator

Unified communications as a service, or cloud-based UC, can cut capital expenses. Here's how to calculate UCaaS total cost of ownership and return on investment.

Determine initial setup fees for phones, gateways or other on-premises hardware.

Consider network upgrades including IP phones migration, additional bandwidth and private connections to UCaaS provider.

Take into account WAN optimization devices to ensure voice quality over the Internet and other networks.

Calculate the costs to carry out certain operations, such as network assessments and optimization. These costs can include staff time, third-party fees and number of licenses.

Training employees and other staff who may support a UCaaS solution takes time and money.

Evaluate licensing costs including monthly service fees, staff time, equipment maintenance and managed services.

Ask yourself: Will cutting on-premises capital costs offset monthly UCaaS expenses?

Measure more than the cost of operations. Consider other UCaaS benefits such as speedy upgrades, remote employee support and UC services integration with cloud apps.

WARNING: Despite the initial savings of moving to the cloud, long-term costs could exceed on-premises services.

SOURCE: IRWIN LAZAR, NEMERTES RESEARCH; COMPILED BY LUKE O'NEILL; DESIGNED BY LINDA KOURY; ILLUSTRATIONS BY NIK SCHULZ

- Upfront investment: Some UCaaS providers charge initial setup fees or require customers to pay the costs of phones, gateways or other on-premises hardware. Other providers bundle these elements into the monthly per-user cost.
- Network upgrades: These updates can include power-over-Ethernet-compliant switches to support a migration from digital to IP phones, additional Internet bandwidth or private wide area network (WAN) connections to support accessing the UCaaS provider's network.
- WAN optimization or software-defined WAN (SD-WAN): These devices help ensure voice performance over public Internet or private network connections.
- Implementation costs: Network assessments and optimization can be calculated as ((staff time x loaded hourly rate) + third-party costs) / number of licenses.
- Training: Employees and other staff who may support the UCaaS solution will need proper preparation.
- Operational cost per license: Includes any monthly service fee plus staff time, equipment maintenance, third-party managed services, training and certification, calculated as:
  - (monthly service fee + (number of full-time equivalents x average annual loaded salary) + equipment maintenance + managed services + training and certification) / number of licenses

Network upgrades, implementation time, training, and phone and gateway investments often apply to both on-premises and UCaaS solutions.

However, shifting the back-end platform to an operational expenditure (Opex) reduces the need for upfront investment, especially in capital costs. Thus, companies evaluating a UCaaS ROI template need to answer this question: Will the savings in capital expenditures (Capex), and possibly in Opex, offset the monthly operational and licensing costs for a given UCaaS solution?

The appeal of eliminating capital expenses associated with on-premises platforms is a major reason why roughly 30% of companies that Nemertes Research has interviewed, mostly small and medium-sized businesses (SMBs), are using UCaaS today, and why another 56% are planning to do so or are evaluating the potential of moving to the cloud in the near future.

Unfortunately this calculation isn't always that straightforward.

Going beyond the ROI template

Nemertes' annual study of UC TCO looks at the capital and operational costs for UCaaS. For on-premises services, UCaaS offerings are typically cheaper in the first year of ownership. But, by the fifth year, cloud service annual costs typically exceed those of on-premises services -- with the caveat that this ROI template assumes no additional capital expenses over the five-year cycle.

But, as noted earlier, TCO isn't the only element of a ROI template. IT leaders also find that cloud services provide tangible benefits, including faster upgrades, easy support for remote and guest workers, and integration of UC services with other cloud apps like customer relationship management (CRM) and enterprise resource planning (ERP).

To determine a true ROI template for UCaaS, buyers must evaluate not just the cost of procuring and supporting the applications, but also the positive impact that UCaaS can deliver to business processes.

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🔖 Section 5: Comparing Top UC Cloud Products

Before you buy UC cloud-based products, consider these four key criteria: your business size, provider tech support, third-party app integration and contact center capabilities. This section of our guide examines the top UCaaS providers, their cloud products and how they might meet your business needs.

⚑ Comparing the top UC cloud products and providers

Chris Partsenidis, Founder - Firewall.cx

Simply put, UCaaS is an evolution of UC where your telecom infrastructure is placed in the cloud and turbocharged with several collaboration and telecom features. UCaaS is still relatively new, and businesses are just starting to grasp it, which means they're pretty skeptical about jumping on the bandwagon.

A key starting point to consider is the size of your business and the number of users you'd like to accommodate. While most UCaaS providers can service organizations of all sizes, different-sized businesses have different communication needs.

To help businesses decipher this emerging market, let's examine the top UCaaS providers, their cloud products and how they might meet your business needs.

Varied licenses for small and medium-sized businesses

Mitel's MiCloud Business and MiCloud Office are suited for SMBs. The business service is offered in three licensing plans: Professional, Business and Contact Center.

The Professional license is designed for small companies with up to 10 extensions and provides basic voice over IP (VoIP) functionality, with the ability to make and receive calls through the PSTN. No softphone support is provided, so companies must use Mitel IP phones to connect.

The Business license breaks into four additional plans, with varying features, including Extension Only, Extension Only with Voice Mail, Lite and Advanced. From the four plans, only the Lite and Advanced plans offer more advanced outbound-calling capabilities, while the first two are very limited.

The Contact Center license breaks into two plans -- Agent and Supervisor -- and targets businesses focusing on contact-center services. Collaboration services, such as presence and instant messaging (IM), require a collaboration upgrade license as an additional purchase.

Interactive Intelligence PureCloud is offered in three versions, two of which are appropriate for SMBs. The PureCloud Collaborate license is free,

offering unlimited user support, 1 TB storage and some neat UC services, but no outgoing or incoming PSTN calls. PureCloud Communicate offers IP PBX capabilities, which means businesses can start making and receiving calls via the PSTN.

Avaya IP Office and OnAvaya target SMBs and large organizations with five to 3,000 users, and they provide full UC services with outbound and incoming PSTN calling. Avaya's mobile and desktop applications offer advanced features, so companies don't have to invest in IP phone devices.

Microsoft's Skype for Business is based on the well-known Skype application. Two versions are offered: Plan 1 and Plan 2 at $2.00 and $5.50, respectively, per user, per month. While both plans support any number of users, Plan 2 offers additional UC services and can be upgraded with Microsoft's cloud PBX service, which enables businesses to make and receive phone calls.

Toshiba VIPedge, based on the IPedge VoIP PBX, extends functionality and portability to deliver a fully managed cloud-based service to businesses. Hardware devices, such as IP phones, are not required, thanks to the smart softphone and UC applications offered, which help businesses curb startup costs. VIPedge also integrates with Toshiba's IPedge or Strata CIX system, which enables a hybrid setup.

Unify Circuit offers four packages, three of which cover SMBs. The Circuit Free package supports up to 100 users, with limited storage space and UC capabilities. The free package does not provide incoming and outgoing calls to PSTNs. The Team package provides additional storage space -- 5 GB total -- more call capabilities and service-level agreement (SLA) help desk support, but no incoming and outgoing calls to PSTNs. The Professional package is the entry-level service for companies that require PSTN access, plus 10 GB of storage space and other features. Unify's Enterprise package is similar to the Professional package, but with 20 GB of storage space.

Cloud products targeting larger enterprises

ShoreTel Connect Cloud includes full VoIP and UC capabilities, as well as support for all types of mobile client devices. Smart telephony functions, such as Shared Line, help users in the same group respond to calls on each other's behalf.

NEC's Univerge Blue is a highly scalable cloud-based UC service that can cover an enterprise of pretty much any size. Apart from the basic telephony features most UCaaS providers offer, NEC also includes contact-center capabilities, as well as a find me/follow me feature that lets users configure where their incoming calls will ring based on who is calling. NEC's mobility

application provides full UC capabilities, ensuring productivity even on the road.

Avaya's UCaaS offering is an enterprise-class product powered by the Aura platform. It provides an extensive range of telephony and UC features delivered over IP phones or a softphone application available for desktops and mobile devices.

Mitel's MiCloud Enterprise is designed for companies with 100 to 10,000 users and features full telephony services, strong UC and mobility applications.

Cisco's CallManager is one of the most popular services on a worldwide scale. CallManager offers extensive telephony capabilities and UC features, such as presence and IM. Because Cisco doesn't sell or provide the service directly, customers will have to search for a Cisco partner, making the process a bit more difficult and less practical for businesses.

Microsoft's Office 365 Enterprise plans offer advanced presence and IM capabilities, as well as HD video conferencing capable of handling hundreds of users. Office 365 offers three enterprise plans: E1, E3 and E5. PSTN conferencing and cloud PBX are included in the E5 plan and available as add-on services in the other enterprise plans.

The **Interactive Intelligence PureCloud** platform is also a strong option for large enterprises. With a presence in more than 35 countries, it offers its services from 12 global data centers.

High availability and technical support

No matter how great some cloud products are, if they lack the necessary support and SLAs, customers will think twice before signing up. While all UCaaS providers offer some type of support and SLA, only a few have gone the extra mile.

NEC's Univerge Blue is hosted in NEC's fault-tolerant data centers and is backed up with multilevel redundancy, which allows NEC to offer uninterruptable services to its customers. NEC's certified data centers are secured using the latest technologies, with 24/7 monitoring, alerting and support services.

ShoreTel lets users contact its support staff directly with the click of a button. If users are experiencing problems, they can tap the "Help" softkey on their phones and confirm the support request by selecting "Yes." This will then automatically place a call to ShoreTel's 24/7 support. This feature helps IT departments deal with other pressing problems, and users get the support they need quickly.

Toshiba proactively conducts a full-network assessment before installing its VIPedge. This extensive work covers four areas: LAN requirements, VoIP requirements for remote users, VoIP requirements for Wi-Fi users and customer WAN requirements. This process helps Toshiba ensure the correct and stable delivery of services.

Mitel offers its services through its MPLS network, which allows branches to connect via a private cloud using multiple paths that ensure service availability. All lines and services offered are monitored 24/7 with safeguard mechanisms to ensure quick response and service restoration in case of a problem.

CRM and third-party application integration

Integrating UCaaS with a customer relationship management (CRM) system or third-party applications is a useful feature -- and, in many cases, it's mandatory. Most UCaaS providers offer integration with CRM systems via an API, or they have special plug-ins that allow connectivity with various applications.

Avaya, for example, makes use of open standards that enable customers to develop custom applications or integrate their UC and contact-center services with existing applications, such as Salesforce. Businesses with an internal development team can customize many features to suit their needs.

ShoreTel also provides extensive API integration with leading brand names, such as Salesforce, Microsoft Dynamics and NetSuite. Mitel's MiCloud follows a similar trend with Salesforce CRM and Microsoft Office support.

Toshiba's VIPedge supports integrations with Salesforce and possibly other CRM services. Interactive Intelligence offers CRM integration in its PureCloud Engage package, but doesn't provide details as to which CRMs are supported.

Calling on advanced contact-center capabilities

Many businesses house their own contact centers, or call centers, to provide customer support services, while other businesses provide dedicated call-center services to other companies. No matter what category a company might fall into, most UCaaS providers have contact-center capabilities that are powered by extensive UC services that help deliver support to their customers and businesses.

For example, Interactive Intelligence's PureCloud Engage mainly targets contact centers. The features include advanced auto attendant, speech-enabled Interactive Voice Response, outbound calling campaigns, detailed reporting and CRM integration.

Mitel's MiContact Center provides businesses with a complete service that covers inbound and outbound calling and campaigns, as well as advanced call routing, with extended UC capabilities that allow agents to contact customers in various ways, including phone, chat, email and social media.

NEC also promises a complete contact-center service tightly integrated with its Universe Blue. The contact center includes Automatic Call Distributor (ACD), with skill-based routing to help customers connect with the right person. Features such as voice self-service allow customers to obtain the information they need without speaking to an agent, freeing up valuable resources for the business.

ShoreTel Connect Cloud Contact Center provides several features, including ACD, CRM integration, prioritization of queues, call recording, remote and local agent support, queue metrics and much more.

Find the service and vendor that fits your business

The UCaaS market is surely gaining momentum, and most businesses could benefit from cloud products. Undoubtedly, UCaaS is here to stay and going to dominate the UC and telecom market as soon as businesses understand just how much they can benefit from it.

UCaaS providers are racing against each other to introduce their services. Though most vendors offer cloud products catering to both large and small businesses, organizations with specific requirements -- such as high availability, CRM or contact-center integration -- would be better off with larger providers, like Avaya or NEC. Enterprises considering UCaaS should carefully weigh every vendor's offerings and put them against their own business requirements.

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Pros, cons of Cisco, Microsoft cloud communications

Antone Gonsalves, Director of News - Networking Media Group

Microsoft Office 365 is considerably less expensive than a comparable bundle of cloud-based unified communications and collaboration applications from Cisco. But a close examination of the two leading UCC suppliers shows that enterprises should weigh more than price when comparing the vendors' products.

Brent Kelly, an analyst at KelCor Inc., based in North Logan, Utah, broke down pricing and features for the providers' cloud communications bundles during a session at last week's Interop trade show in Las Vegas. Cisco and Microsoft dominate the UCC market for companies with more than 2,500 users, according to Nemertes Research.

While Microsoft is less expensive, its architecture is a lot different than Cisco's. Microsoft's approach is a merger of its Office productivity suite and UCC applications. Cisco, on the other hand, builds its UCC platform on top of its data networking gear and software.

"It's really a different kind of mindset," Kelly said of the two vendors' cloud communications platforms.

Competition between Cisco and Microsoft is fierce. Almost half of large enterprises surveyed by Nemertes use a single UC vendor or plan to use only one by the end of 2016. Of that group, 53% were in Microsoft's camp and 35% favored Cisco.

Which platform enterprises should choose depends on their needs, Kelly said. Companies that want Cisco UC tools and its Spark collaboration application often have Cisco video conferencing and Google Apps for office productivity. Also, they have a large and complex telephone system.

Businesses that pick Office 365, which includes Skype for Business and other UCC tools, typically use Polycom for video conferencing, Kelly said. They also have a large number of office workers and are replacing a legacy phone system with Microsoft.

Microsoft telephony immature

An IT architect attending the Interop session said his employer, a large manufacturing company, had thousands of workers using Office 365. But despite that investment, the company wasn't ready to dump Cisco's on-premises telephone system for Microsoft's less mature Skype for Business.

"The reality is I've got a multibillion-dollar company that's been using Cisco for our telephony infrastructure for a long time," said the IT architect who

preferred to remain anonymous. "I've got a good investment there. I've got a good partnership there."

Nevertheless, Microsoft's low pricing of Office 365 and its telephony features continue to hold the interest of enterprises. The vendor's top-of-the-line enterprise bundle for cloud communications, which includes domestic and international calling and the Office productivity suite, costs $47 per user, per month, according to Kelly.

A comparable package of Cisco technology and Microsoft's online Office applications was $77 a month. Swapping Office with Google Apps dropped the price to $71 per month.

Cisco is known to offer discounts as much as 60% for on-premises UC products, Kelly said. The vendor, however, won't be nearly as generous with its cloud communications products.

"Cisco has said they are not discounting this at nearly the same extent," Kelly said.

Microsoft has less expensive bundles that let small businesses add access to the public telephone system for an additional $12 a month for U.S. calls and $24 a month for international calling. Each user gets a maximum of 2,000 minutes a month, Kelly said. "If you're a small business, this is an awesome offering."

In this e-guide

In the small and medium-sized business market, Microsoft competes with many more vendors than Cisco, said Irwin Lazar, an analyst at Nemertes Research in Mokena, Ill. Competitors include large vendors Mitel Networks, NEC and ShoreTel, along with pure cloud-based telephony providers, such as RingCentral, 8x8 and Vonage.

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With our exclusive focus for IT and networking professionals, we provide a reliable source of how-to tips and best practices for implementing, managing and securing VoIP and advanced UC applications, enabling IT professionals to take advantage of the cost savings and new features and benefits associated with converged enterprise network.

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