

Unified Communications

Real-Time Communications Concepts and Business Applications

By Irwin Lazar, Principal Research Analyst and Program Director, Collaboration and Convergence,
Nemertes Research

Executive Summary

Unified communications has the potential to dramatically simplify and improve enterprise communications, as well as improve business agility. By integrating various forms of communications, such as voice, video, instant messaging, conferencing, presence and voicemail, individuals can more effectively control and manage their inbound and outbound communications sessions. Enterprises further stand to benefit from communications-enabled business processes whereby the integration of communications services with enterprise business applications and processes enables business intelligence and presence awareness to drive communications-session management. Enterprises that adopt unified communications will see significant competitive advantage, both from more efficient internal operations and improved customer interaction. However, vendors and enterprises must address significant management and interoperability concerns before the reality of unified communications meets the vision.

The Issue

As enterprises migrate to VOIP they're also increasingly adopting a number of other IP-based, real-time applications including instant messaging, audio, Web and video (both room-based and desktop) conferencing, and real-time communications dashboards. In interviewing about 100 enterprises for our "Building a Successful Virtual Workplace" benchmark, Nemertes confirmed that for most of these applications, adoption rates exceed 50%. (Please see Figure 1: Real-Time Application Usage).

Real-Time Application Usage

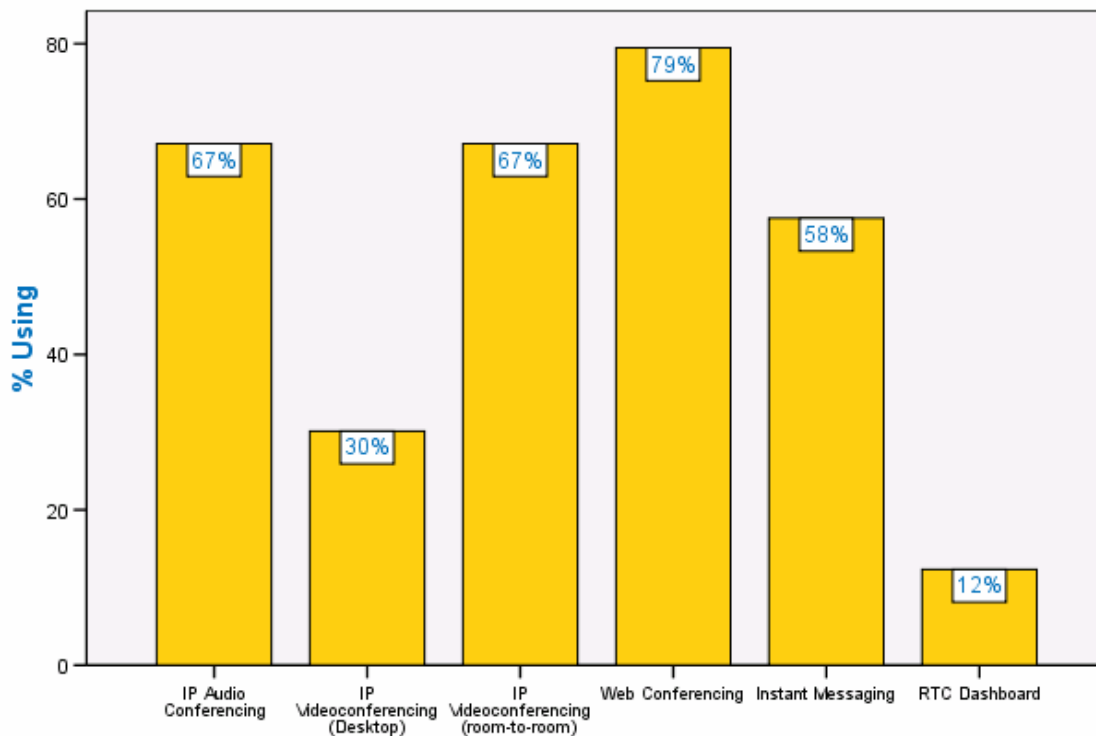


Figure 1: Real-Time Application Usage

As the number of communications applications has increased, so has the complexity for the end user. An individual must go through a series of steps to determine the best communications application or service to use depending on a given situation, location or time of day. Attempts to reach colleagues often result in numerous voice messages or chat requests across multiple services and devices, including desktop and mobile phones. For example, suppose "John" wants to call "Joe." John may first try to send an instant message to Joe. After not getting a response, he calls Joe's desk phone and leaves a voice message. He then calls Joe's mobile phone. Again not getting an answer, he leaves a message. Finally, John sends Joe an e-mail or SMS message with the hope that Joe will read it on his mobile device.

The end result of this example is that John went through a series of steps, but was never able to reach Joe. Joe has messages in multiple places that he must retrieve

and delete. The growing variety of applications made communications more, not less, complex, leading to increased frustration and reduced efficiency.

In addition to the growing number of communications applications, one must also factor in the changing nature of the knowledge worker. Individuals increasingly work from multiple locations, including home offices, hotels, conference centers, partner locations and airports. Mobile devices are often limited in the applications that they support, yet remote workers still need access to communications services.

What is needed is a way of integrating various forms of real-time communications and collaboration applications so individuals can manage all their communications in an integrated fashion, in both desktop and mobile environments. This will offer individuals the ability to not only control how they contact others, but how others can contact them.

Enter Unified Communications

“Unified communications” defines the establishment of an integrated set of user interfaces for all communications services. It further defines the integration of both real-time and non-real-time communications services to bring context and presence to the communications environment. Inherent in the unified-communications architecture is the *Real-Time Communications Dashboard*, or RTCD. RTCDs may consist of both desktop and mobile software clients, though often with differing levels of functionality. RTCD functionality may further be interwoven into office and business applications, enabling such features as click-to-call and presence status displays from within a variety of applications.

Unifying communications services and applications sets the stage for an organization to implement communications-enabled business processes, whereby business events and business process applications can directly create communications sessions or distribute information via voice, text and even video services. Enterprise applications such as those used for enterprise resource planning, customer relationship management and specific business processes establish direct connectivity into the unified communications architecture. This approach positions enterprise communications applications as a Web service, using such protocols as XML-based languages such Web Service Description Language (WSDL) and Simple Objects Access Protocol (SOAP) to exchange information between communications platforms and enterprise applications.

It is important to differentiate unified communications from unified messaging, which is simply the integration of voicemail, e-mail and often fax. In most unified messaging solutions, users can listen to e-mails from their phone, listen to voicemails or read faxes via attachments to e-mail messages. UM is often incorporated as a part of unified communications, but does not in and of itself represent a unified communications solution.

Both RTCDs and communications enabled business processes are further defined and explored in the following sections.

The Real-Time Communications Dashboard

Central to the goal of unifying enterprise communications applications and services is the RTCD. The dashboard provides a single user interface enabling individuals to access a myriad of communications via a common front-end. RTCDs may be stand-alone clients, or RTCD features can be integrated into office applications such as Microsoft Office or Lotus Notes. Examples of RTCDs include Alcatel-Lucent OmniTouch Unified Communication, Avaya one-X™ Mobile, one-X™ Desktop, one-X™ Portal, and one-X™ Speech, Cisco Unified Personal Communicator, IBM Lotus Sametime, Microsoft Office Communicator, Mitel Your Assistant, NEC UNIVERGE® Mobile Client Nortel MCS 5100, and Siemens HiPath OpenScape (Please see Figure 2: RTCD and the Real-Time Communications Architecture,” for an architectural view of the components of an RTCD.)

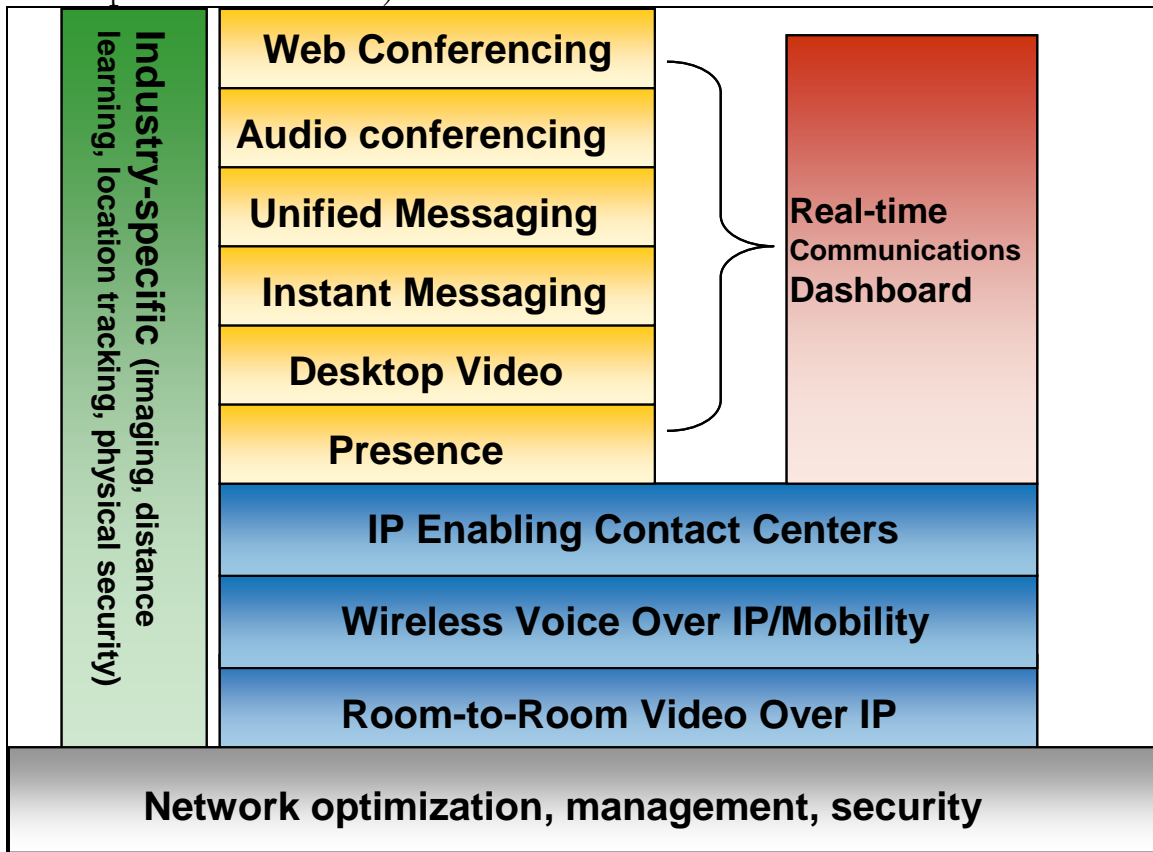


Figure 2: RTCD and the Real-Time Communications Architecture

RTCD capabilities vary but at a minimum typically feature a user-defined list of co-workers and colleagues. Entries on this list display real-time presence information, enabling users to see if others are available to communicate, and what forms of communications services (e.g. voice, video, IM) are available at any given time. For example, the entry for a person with an ability to receive a video call will show a camera icon. RTCDs can display presence information such as whether a user is available, on the phone, or in a meeting. They may even display additional information, such as location. By integrating presence, RTCDs can eliminate phone tag. Presence can also be coupled with business rules enabling location of individuals or call routing based on metadata

such as specialty areas or client experience. Enterprises can further integrate presence with calendaring and messaging applications, enabling presence information to reflect calendar appointments, as well as in-box indicators showing if a person who sent an e-mail is available to communicate.

A key value proposition of the RTCD is the ability support a multi-vendor environment through the use of open standards, such as the Session Initiation Protocol (SIP) the SIP Instant Messaging and Presence Leveraging Extensions (SIMPLE) or the eXtensible Messaging and Presence Protocol (XMPP). The use of open communications standards mean that RTCDs can provide a single unified user interface for IP telephony and video services from one vendor, instant messaging services from a second, and Web conferencing capabilities from yet a third. In recent months, a number of vendors have announced partnerships to deliver these capabilities. For example, Avaya and Cisco support provide interfaces for their telephony and video conferencing services with IBM Lotus Sametime. Additionally, numerous IP telephony vendors, such as Avaya, Alcatel Mitel, NEC, and Nortel, have announced integration of their telephony products with Microsoft Live Communications Server and Office Communicator client. Most vendors also integrate their RTCD capabilities with the Microsoft Office and Lotus Notes environments, enabling such features as click-to-call or chat from within a user's in-box.

Communications Enabled Business Process

Deployment of unified communications sets the stage for organizations to improve business processes by integrating communications services with enterprise applications. Integration of communications services with applications using standard protocols such as XML-based WSDL as well as SOAP, transitions the formerly stand-alone applications into components of a Service Oriented Architecture (SOA).

For example, organizations can interconnect their IP-PBXs with a CRM application to automatically update customer records after each phone call. That lets customer-service agents see who spoke with a customer and for how long (54% of enterprise IT executives interviewed for the Nemertes benchmark, "*Convergence and Next Generation WANs*," were either deploying or planning to deploy integration between CRM and telephony systems).

Contact-list entries can display data from other systems, as well. For example, selecting a person on contact list could bring up not only his or her presence status, but also information such as sales performance or average time to close a customer inquiry.

Mash-ups (the combination of output from multiple applications into a single user view) via Web services protocols enable integration of an RTCD with location services, such Google Maps, enabling display of a user's current location as well as his or her presence status.

Furthermore enterprises can integrate specific business processes with their communications systems. For example, a business event such as a manufacturing alarm, inventory shortage, or medical emergency can trigger initiation of a communications session such as notification of key personnel, automatic creation of meet-me conferences, or establishment of a Web conference. In one possible scenario a shortage in a warehouse could trigger an instant message to all product inventory managers, along with a proposed conference call meeting time, and additional information about the trends leading to the shortage.

Enterprises see the benefits in integrating unified communications with business processes. Over 66% of those interviewed for our benchmark, “*Building the Virtual Workplace*,” noted that they either had active plans or were evaluating ways to achieve business benefit by integrating real-time communications with business processes. (Please see Figure 3 - Communications Enabled Business Processes).

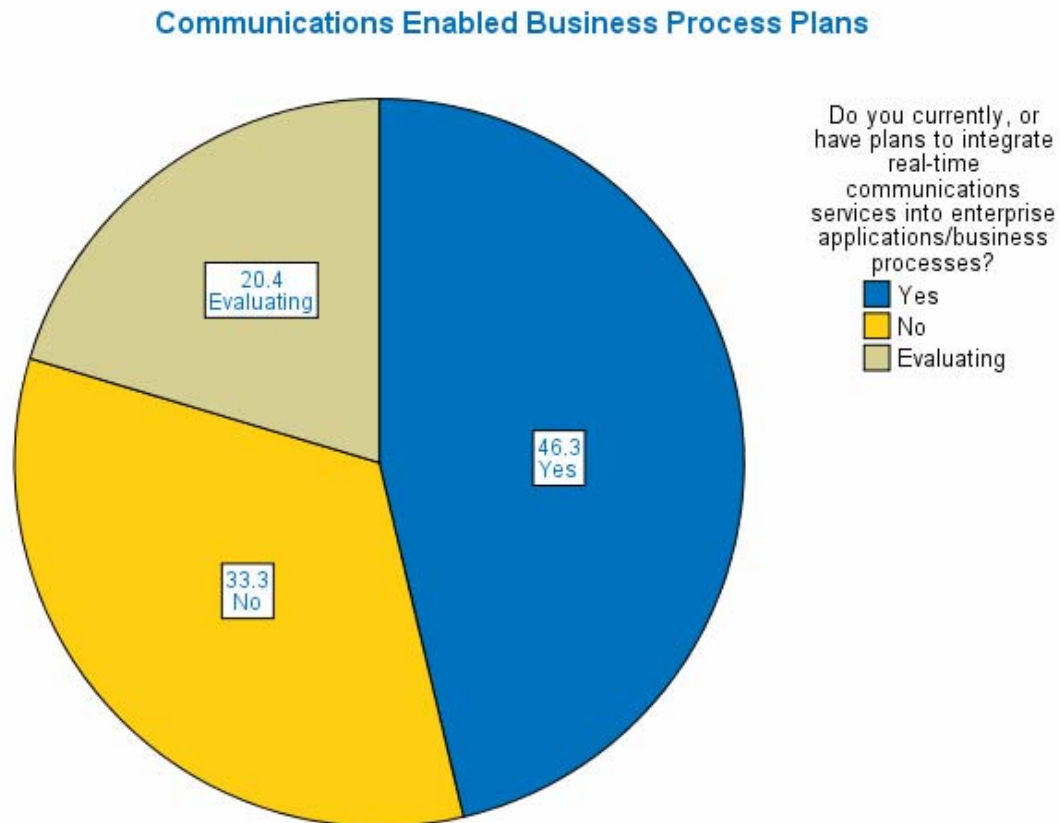


Figure 3 - Communications Enabled Business Processes

Enterprise Business Case for Unified Communications

Enterprises are already seeing significant business benefit as a result of using the “components” of unified communications. For example, the use of IP softphones means that mobile professionals can stay connected while outside the office, or enterprises can reduce costs for fixed locations such as call centers by enabling individuals to work from home. Web conferencing and meet-me conferencing services enable more effective meetings and eliminate the common refrains of “who’s on the call” so often heard in traditional audio conferences. For example, 86% of companies using Web conferencing tools report seeing reductions in travel costs, with 43% seeing a reduction in telecom costs; 29% reporting faster times to market and reduced overhead, and 14% noticing an increase in sales.

Enterprises view these tools as essential to business operations. For example, in Nemertes' "Getting a Grip On Collaboration" benchmark, 71% rated audio conferencing as "vital" followed by Web conferencing (43%), and instant messaging (40%).

Given the benefits of these point solutions, and the complexity brought about by disjointed communications applications (in both user experience and management), it stands to reason that integrating various communications and real-time collaboration applications offers the potential for even greater business benefit.

Nemertes has extensively interviewed enterprise IT executives about their interest in and plans for unified communications. Enterprises primarily see unified communications as a means to improve internal communications and increase productivity. The potential for cost savings, while less of a driver than productivity gains, also is viewed by enterprises as a primary business driver for UC adoption. On a 1-5 scale with five being the most important, productivity gains led all other perceived benefits (Please see Figure 4: Collaboration Benefits").

Collaboration Benefits

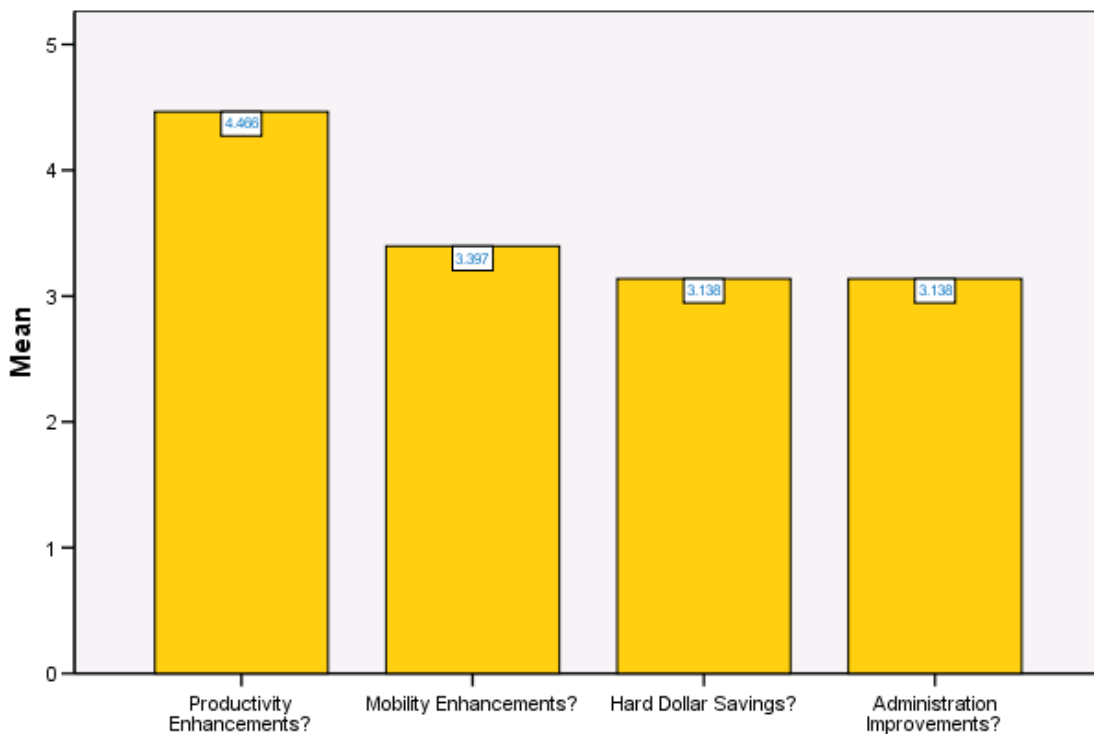


Figure 4: Collaboration Benefits

But perceived business value is typically not enough to drive adoption. Most enterprises must create justifiable business cases to obtain budget approval for procurement and deployment of unified-communications solutions.

Approximately 40% of enterprises interviewed for Nemertes' benchmark, "Building a Successful Virtual Workplace," have deployed or are planning to use RTCs within the next two years, indicating a strong growth in interest in unified communications,

and perhaps more importantly—a growing recognition among enterprise IT executives of the business value of unified communications.

The price IT executives are willing to pay is another strong indicator of the growing acceptance of RTCs. In 2004, the average per-seat price organizations were willing to pay was \$US291. In 2005, the per-seat amount they were willing to pay had increased to \$US467. By late 2006, the cost had dropped to \$US221. The one-time prices reflect the fact that most IT executives originally viewed the RTCs as a telephone replacement, or a phone-like communications device. By late 2006, many IT executives were starting to view RTCs as an application that complements a desktop phone. A decline in price willing to pay is reflective of growing awareness of unified communications, and a growing enterprise belief that UC functionality should be a standard feature of enterprise telephony systems.

Perhaps the most important question we asked enterprises was if they had developed any quantitative measures to support the deployment of collaboration tools. More than one-third said that they had indeed determined a specific quantifiable benefit for their applications (Please see Figure 5: Quantitative Collaboration Benefits).

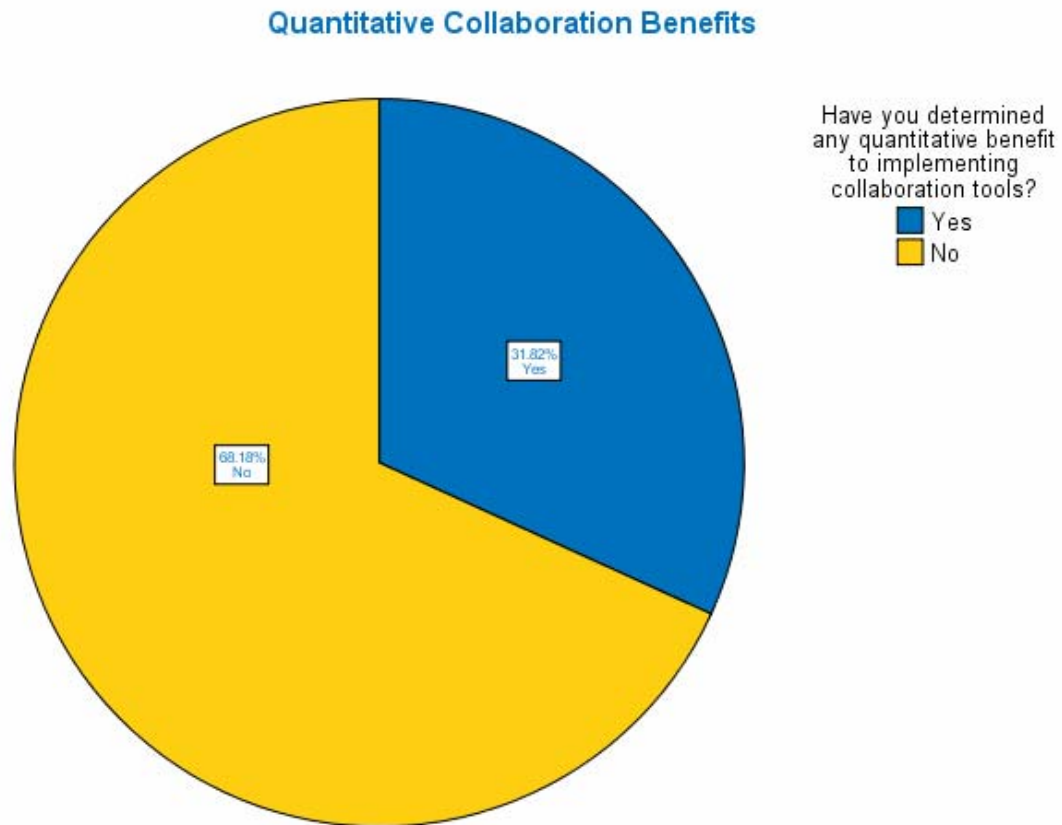


Figure 5: Quantitative Collaboration Benefits

But when we dug deeper, we found that in many cases, the benefits were those that an organization “expected” to receive, but had not yet measured. For example, a systems architect with a regional healthcare organization told us “we believe that we’ll be better able to cover employees who are absent,” his belief was that by using tools such as presence and instant messaging, employees would be better able to locate backup

experts if the primary expert was absent. “The ability to retain employees would be improved,” by eliminating or reducing calls made to those at home. The director of telecom for a service organization noted that they were able to increase the number of employees who could work at home, increasing morale, flexibility, and reducing facilities costs.

The CIO for an insurance company said, “We think we’ve achieved significant cost savings by giving people the ability to work from home, but we haven’t quantified it yet.” Several enterprises noted that they were able to reduce the use of costly room-based video conferencing systems by deploying Web-conferencing applications. Others noted that real-time collaboration technologies including unified communications enabled them to better support their virtual workers, leading to greater opportunities to reduce costs and improve retention by allowing more people to work from home.

Just In Time Fetch The Expert

Integration of presence information into business applications has the potential to dramatically improve business activities that involve direct interaction with customers. For example, contact-center agents receiving calls from customers interested in products can quickly and easily locate subject matter experts regardless of location by applying business rules combined with presence information to determine the best person to receive a call. The agent themselves does not need to be an SME, rather they need to have the capability to quickly locate the SME and bring them into the call.

One such example of this approach defined by Nemertes Research is “Just-in-time-Fetch-the-expert (JITFTE).” This approach quantifies a business benefit from the use of presence and real-time collaboration tools as part of a unified-communications architecture. This model is most applicable for organizations that place a heavy emphasis on reactively or proactively getting information to clients, often with geographically dispersed support teams. In these organizations effective customer interaction is critical to overall business success. For example, investment managers might need to apprise their clients quickly of events that might affect their portfolios. Community banks might need to answer specific questions about mortgages or consumer or business loans. Closing a sale might require involvement of an individual with specific vertical or product knowledge who is located in a separate geographic region.

In these scenarios, unified communications helps improve close rates by giving sales teams better access to support resources via the use of presence. Mobility services allow people to be available regardless of location. Salespeople can locate subject matter experts in rapid time to help close a sale. Without JITFTE, the sales person ordinarily would have to take notes, locate an expert, get an answer, and call the customer back—a process that reduces the likelihood of success and potentially puts a company at a competitive disadvantage. Presence-enabled unified communications serves to virtualize corporate resources, enabling individuals to find the experts they need regardless of location, and quickly join them into a call, Web conference, video conference, or audio bridge.

JITFTE examines business benefit of improved communications and collaboration by looking at specific business processes, such as sales cycles or length of time required to complete a customer inquiry. The goal of this approach is to determine if the application of unified communications technologies can shorten these cycles,

leading to such tangible benefits as increased sales or higher customer retention/satisfaction rates.

Consulting Projects							
Average Project Size	Typical Project Margin	Typical Close Rate	Number of Projects Bid Per Year	Bottom-Line Value of New Projects To Consulting Firm	Incremental Impact of Increasing Close Rate by 1%	Incremental Impact of Increasing Close Rate by 2.5%	Incremental Impact of Increasing Close Rate by 5%
\$250,000	60%	75%	75	\$8,437,500	\$8,550,000	\$8,718,750	\$9,000,000
Marginal Improvement					\$112,500	\$281,250	\$562,500

Figure 6 - Just-In-Time-Fetch-The-Expert

Figure 6 - Just-In-Time-Fetch-The-Expert,” shows a JITFTE scenario for a professional-services firm. In this model, the firm bids on 75 projects per year and has a typical close rate of 75%, for an annual revenue stream of \$8,437,500. If the firm is able to apply unified communications technologies to close just 1% in additional business in a year, the tangible benefit is \$112,500. This benefit increases rapidly as close rates improve, with a 5% increase in close rates providing a benefit of \$562,500.

Given the high rate of adoption of elements of unified communications, such as VOIP and instant messaging, models such as JITFTE provide incentive for enterprises to begin to integrate those applications to provide a unified communications experience to their users. One non-IT professional-services firm says unified communications helps its mobile employees become more productive, which translates into more billable hours. Because the employees are more productive, the organization bills an estimated \$20,000 more per individual.

Unified Communications Challenges

Enterprises must overcome numerous challenges before they can realize the value of unified communications. These range from technical, such as system integration, to business, such as organizational convergence, challenges.

A few lucky enterprises will be able to start with a clean sheet of paper and architect a single vendor unified communications solution. But most enterprises will require integration of any new products with the legacy infrastructure—typically a mix of TDM and IP phone systems, disjointed instant-messaging platforms, and hosted or owned conferencing applications. Legacy systems may not have an upgrade path to support SIP, which is typically a minimum requirement for integration into a unified-communications architecture. Enterprises should evaluate solutions which offer the best migration and integration strategy for their existing environments.

Enterprises also may find the very concepts of unified communications; integration of voice, video, instant messaging, conferencing and calendaring applications, will cross organizational boundaries. In many organizations Nemertes interviewed, voice architecture and management resides in the networking domain, while instant messaging and collaborative applications is considered an application function.

Enterprises often have disjointed planning activities that can create integration problems down the road. Enterprises must unify planning before they can unify communications.

Conclusions and Recommendations

Unified communications offer tremendous opportunity to improve enterprise efficiency, streamlining tasks, improving workflow, shortening project lifecycles, and improving customer interaction. A successful implementation requires enterprises understand these benefits, determine specific business cases that are applicable to their own organizations, and develop a migration strategy that takes both architecture and organizational factors into account.

As a starting point, enterprises should require that all new communications applications and systems support SIP. Enterprises should integrate architectural planning functions for all communications applications via converged teams or cross-functional communities charged with creating an organizational-wide roadmap for adoption of unified communications. This requires integration of infrastructure planning with application planning, but is essentially to realize the overall value that unified communications brings, not just as a way of combining application interfaces, but also in integrating communications services with business processes.

Finally, enterprises should work with their strategic vendors to determine unified communications roadmaps, paying special attention to evolving partnerships between companies and how opportunities those partnerships present.

Fortunately, enterprises can evolve along their own unified communications roadmaps, it is not something that must be implemented all at once. Enterprises can begin moving to unified communications now by leveraging their existing infrastructures or upgrade plans and application roll outs. They can unify their messaging by bringing email and voice mail together. They can unify their conferencing by bringing audio and Web conferencing together where users can control the audio components of the meeting directly from the web conferencing interface. They can leverage their IM initiatives and email upgrades by integrating telephony and IM presence, and establish click-to-call capabilities. They can ensure that communication applications used in the office are just as available for remote workers albeit accounting for specific differences and requirements related to security, networks and devices.

About Nemertes Research: Founded in 2002, Nemertes Research specializes in analyzing the business value of emerging technologies for IT executives, vendors, and venture capitalists. Recent and upcoming research topics include security and information protection, mobility and collaboration technologies, and outsourcing.