

Unified Communications for Healthcare

Delivering positive ROI from improved communication and collaboration

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Executive Summary

Demand for healthcare services continues to grow. Meanwhile, challenging economic times necessitate improved operational efficiency for better margins—while also meeting patient care and regulatory requirements. By reducing human latency, improving collaboration, and enabling individuals and groups to improve their communications applications management, unified communications offers healthcare organizations tangible business benefits. Those benefits include improved patient care, operational efficiency, better compliance, lower costs, and the ability to deliver new and innovative patient care services.

The Issue

The modern healthcare organization operates in an ever-challenging environment. It must fulfill its primary mission of providing high-quality patient care, while also addressing economic realities that require maximum operating efficiency and minimal costs. What is more, healthcare is highly regulated; data and information resources must meet strict requirements for privacy and protection. These requirements often extend beyond the traditional enterprise boundaries, thanks to programs such as telemedicine, and the need to support contract-based workers.

Unified communications can help meet all these requirements by reducing communication complexity, integrating disparate applications, and tying communications services directly to specific business process to reduce human latency.

Defining Unified Communications

The goal of unified communications is two-fold:

- ✦ To integrate disparate communications applications such as voice, video, conferencing, and messaging applications into a common set of user interfaces accessible across fixed and mobile devices

- ✦ To integrate those applications into business processes, giving individuals and teams the tools they need to communicate within the constraints of specific operational requirements. The extensible nature of UC allows IT architects to embed communication and collaboration capabilities throughout the suite of business process applications.

Nemertes' model for UC defines architecture, rather than a product or application. UC is a model for understanding how organizations can integrate various communication and collaboration applications into a unified set of interfaces, gateways and functions (Please see Figure 1: Nemertes Unified Communications Architecture, Page 2.)

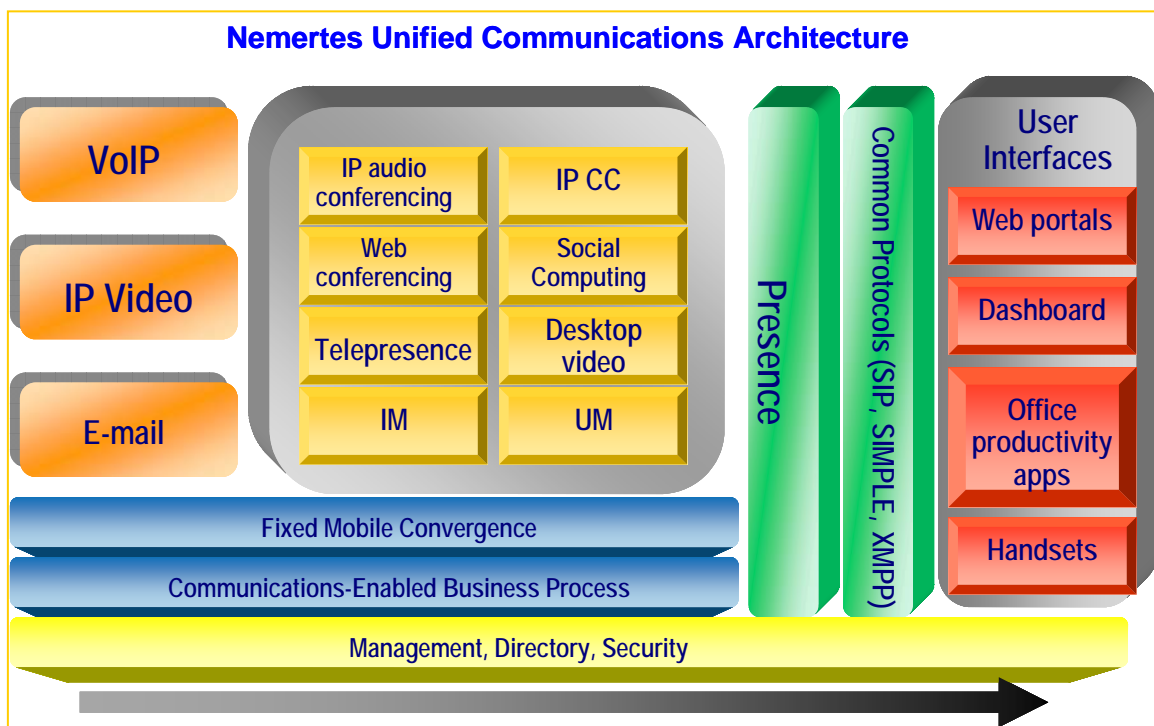


Figure 1: Nemertes Unified Communications Architecture

The Nemertes' UC architectural model defines the following components:

- ✦ UC applications – the services that employees can use to communicate and collaborate, both internally and externally, most organizations start with VOIP, video and e-mail, building in additional applications such as video, unified messaging, social networking, and web conferencing as they evolve their deployments.
- ✦ Presence – the “glue” of unified communications, enabling applications to share information about user status and availability.

- ✦ Common protocols – the standards for linking various services to each other, as well as to external applications via gateways, or application interfaces.
- ✦ User interfaces – the methods that provide access into various UC services. Interfaces may be stand-alone desktop or mobile clients (a real-time communication dashboard such as IBM Lotus Sametime, Microsoft Office Communicator, or other client), or they could provide UC services access via a portal, office application (Microsoft Office or IBM Lotus Notes) or through custom-written applications designed for a specific organization, vertical, or job function.
- ✦ Gateways –to external systems, such as legacy PBXs, external wireless networks, or business applications via Web services or service-oriented architecture (SOA) frameworks.
- ✦ Management, directory and security services – the core infrastructure to support UC. This includes security, network and performance management and optimization, and directory and identity services.

Unified Communications Business Cases in Healthcare

A key driver for UC adoption is in integrating various communication and collaboration applications to reduce human latency (defined as the time it takes for individuals or groups to exchange the information they need to address a given situation). In healthcare, this includes responding to a patient phone call, an alarm in a hospital room, or the need for a nurse or physician to contact a colleague to discuss patient care or schedule an appointment. A number of factors hamper these scenarios, including lack of integration among communication services and the lack of awareness of the availability of various people or departments to respond to a call.

Disjointed communications architectures often lead to unnecessary delays as individuals navigate a maze of applications to find the right person to assist in a particular need. For example, an advice nurse who must locate a physician may need to look up numerous phone numbers, leave messages in multiple voice mailboxes, and issue pages to numerous devices or over PA systems, never knowing if the physician receives them. Patients may call into a general voicemail box, requiring an on-call physician to routinely call in to check for messages rather than receive proactive notification of new calls.

It gets worse. Healthcare staffs increasingly work virtually. Individuals often work from multiple locations, including various offices, healthcare facilities, and home offices. Caregivers must reach on-call physicians or nurses regardless of time or location. Virtual workers rely on mobile devices, which often are limited in the applications they support. Many organizations rely on contract staff with little to no control over their communication capabilities. Nonetheless, they must easily

share information, communicate, and interact unencumbered by technical limitations while protecting patient information to meet regulatory requirements.

To reduce human latency, the staff must have tools that let them quickly locate the appropriate resource for an inquiry, determine their availability, and connect them to a call, regardless of location and/or device. Nemertes defines this approach as “Just-In-Time-Fetch-The-Expert (JITFTE).” The principle behind JITFTE is that IT architects can determine tangible business benefits for UC by measuring before-and-after times for specific business processes. For example, it may take 10 minutes for a nurse clerk to call multiple numbers, issue pages, and ultimately locate a physician to whom a nurse needs to talk about a patient need. Then, when the physician calls back, the nurse may be unavailable, dealing with another patient. Phone tag begins. Contrast that with a clerk having presence data on the physician listing the various forms of communication available (e.g. voice, mobile phone, or text messaging). The nurse then uses the available channel, perhaps even transferring the call to a wireless device worn around the neck, all within minutes.

In this example, unified communications delivers measurable productivity metrics, such as reduced time to respond, or quantifiable return on investment data, such as fewer clerks required on a hospital floor, or measurable effect on customer satisfaction, such as better patient ratings of their stay.

Working with a number of healthcare organizations, Nemertes has uncovered several scenarios in which UC is meeting these challenges, leading to tangible customer care, operational and cost-management benefits.

Contact-Center Optimization

In this scenario, a healthcare organization operates a phone-based “Ask a Nurse” program that fields calls from individuals who want advice from nurses. Key challenges include staffing the contact center and responding to patient inquiries as quickly as possible.

Using UC capabilities, including instant messaging and voice conferencing coupled with presence awareness, the organization realizes the following tangible benefits:

- ⊕ Increased throughput of contact centers. By leveraging unified communications, nurse agents can use presence information to quickly find experts able to assist with patient questions. Measurable benefits include increased contact center throughput reducing staffing requirements and reducing the need to expand contact center capacity.
- ⊕ Faster response time to patient needs. Increased ability to quickly respond to patient calls, conference in medical experts, or use instant messaging to talk to physicians leads to faster resolution of patient requests without requiring physicians to call patients, improving customer satisfaction.

- ✦ Ability to support distributed workers. By using IP-based communication services to enable telecommuting, organizations can avoid opening new contact centers and hire workers in regions with lower employment costs. One Nemertes research participant saved \$11 million by using UC to enable virtual agents versus building a new fixed contact center to meet expansion requirements.
- ✦ Potential to easily deliver new services such as video or text chat through Web sites, or via kiosks in offices or healthcare facilities.
- ✦ Integration with medical records systems and Web conferencing applications for groups of nurses and doctors to quickly access and jointly review patient data, speeding diagnosis and response times.

Improved Voice Messaging and Compliance

Physician paging is inefficient. Those placing the page often send it to multiple devices. The physician must call an answering service to receive the message, and then call the patient. Worse yet, there is no way to track if the physician responded to the page, called the patient, and if so, how quickly it happened. Individuals often lack the ability to transfer messages to others, and there is typically no means to capture the text of a page and associate it with a patient care record.

Healthcare organizations also struggle with enforcing compliance requirements, such as HIPAA (Health Insurance Portability and Accountability Act). One common scenario is the physician who relies on his or her personal cell phone to converse with patients, often with patients leaving voicemail messages in the physician's personal voicemail box. In this scenario, health care organizations are unable to archive messages or enforce access restrictions in accordance with governance requirements.

Concerns over compliance often serve to limit implementation of emerging communications applications, such as instant messaging or unified messaging due to message archiving requirements. More than one health care firm has told us that they will not leverage unified messaging, for example, due to fears over voicemail messages escaping via e-mail, or because they lack the capability to archive voicemail messages in accordance with governance requirements.

Using unified communications, healthcare organizations can realize the following tangible benefits:

- ✦ Time savings from richer voicemail services including proactive notification instead of calling to check messages, as well as the ability to retrieve messages via e-mail or telephone. Nemertes has documented scenarios where implementing unified messaging with speech-to-text conversion saved physicians 45 to 60 minutes per day via more efficient response to patient inquiries. At an average U.S. primary-care physician salary of \$93 per hour, the savings can run from \$35,000 to \$50,000 in a year (and significantly more for specialists and surgeons).

- ✦ HIPAA compliance by integrating personal mobile devices with enterprise messaging systems.
- ✦ Enhanced record-keeping ability by converting voicemail messages to text, and associating messages with patient records.
- ✦ Ability to send group messages to a variety of devices (phone, pager, inbox), improving the ability to respond to urgent situations.

Facility Operations and Patient Entertainment

In this scenario, a healthcare organization is investigating ways to generate new revenues and improve patient care at hospitals and treatment centers. Using unified communications, the organization realizes the following tangible benefits:

- ✦ Delivery of new services via in-room telephones. Capabilities to deliver video on demand, gaming, customer care or Internet access via IP-based telephones integrated with patient billing and care applications, leads to increased revenue opportunities.
- ✦ Utilizing IP phones or wireless devices for paging as a replacement for dedicated paging systems. UC-based paging systems also may be tied into location-tracking applications. Nurses can locate physicians and view the case history of the patient in a particular room where the physician is located. UC offers potential to reduce costs by eliminating specialty paging infrastructure, as well as speeding location and notification of medical care staff.
- ✦ Enhanced patient-care management. An example include using IP phones as data-entry devices to enable nurses and/or physicians to enter medication and treatment data on an IP phone in a patients room, eliminating paper-based processes.

Healthcare Adoption of Unified Communications

Given the numerous opportunities for UC to provide tangible business benefit for healthcare, it's no surprise that more than 73% of healthcare organizations participating in Nemertes' research are deploying or planning to deploy UC technologies (Please see Figure 2: Unified Communications Adoption in Health Care (Source: Nemertes Benchmark: Unified Communications and Collaboration, 2008), Page 7.)

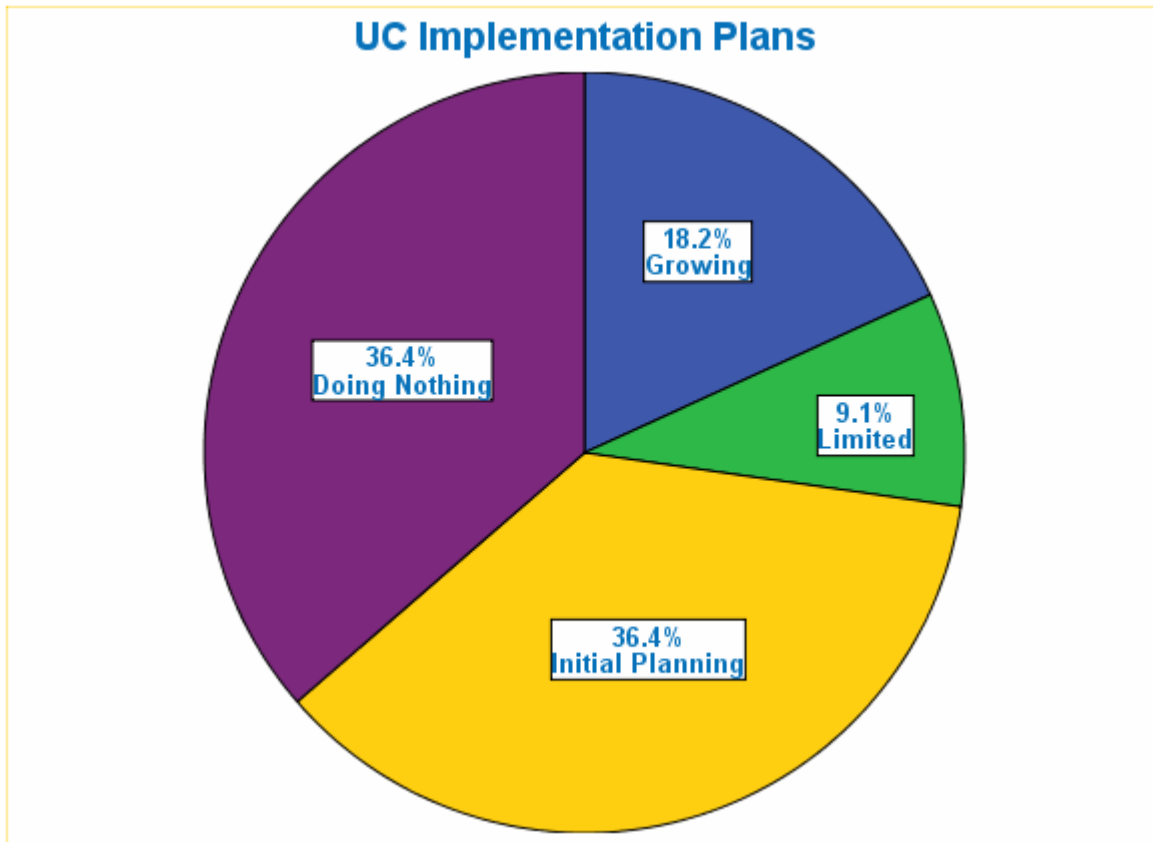


Figure 2: Unified Communications Adoption in Health Care (Source: Nemertes Benchmark: Unified Communications and Collaboration, 2008)

Still, healthcare interest in UC lags the enterprise market as a whole, with only 27% of healthcare organizations deploying UC vs. 47% of all participating industries. This means that healthcare firms that more aggressively deploy UC can realize a competitive advantage over those that do not.

Many healthcare companies already have the components of UC in place, even if they have not begun the process of integration. Nemertes finds adoption of certain UC applications such as Web conferencing, instant messaging, mobility integration, and IP-enabled contact centers is typically about 20% higher among healthcare firms than among the overall enterprise market (Please see Figure 3: UC Application Adoption in Healthcare (Source: Nemertes Benchmark: Unified Communications and Collaboration 2008), Page 8.)

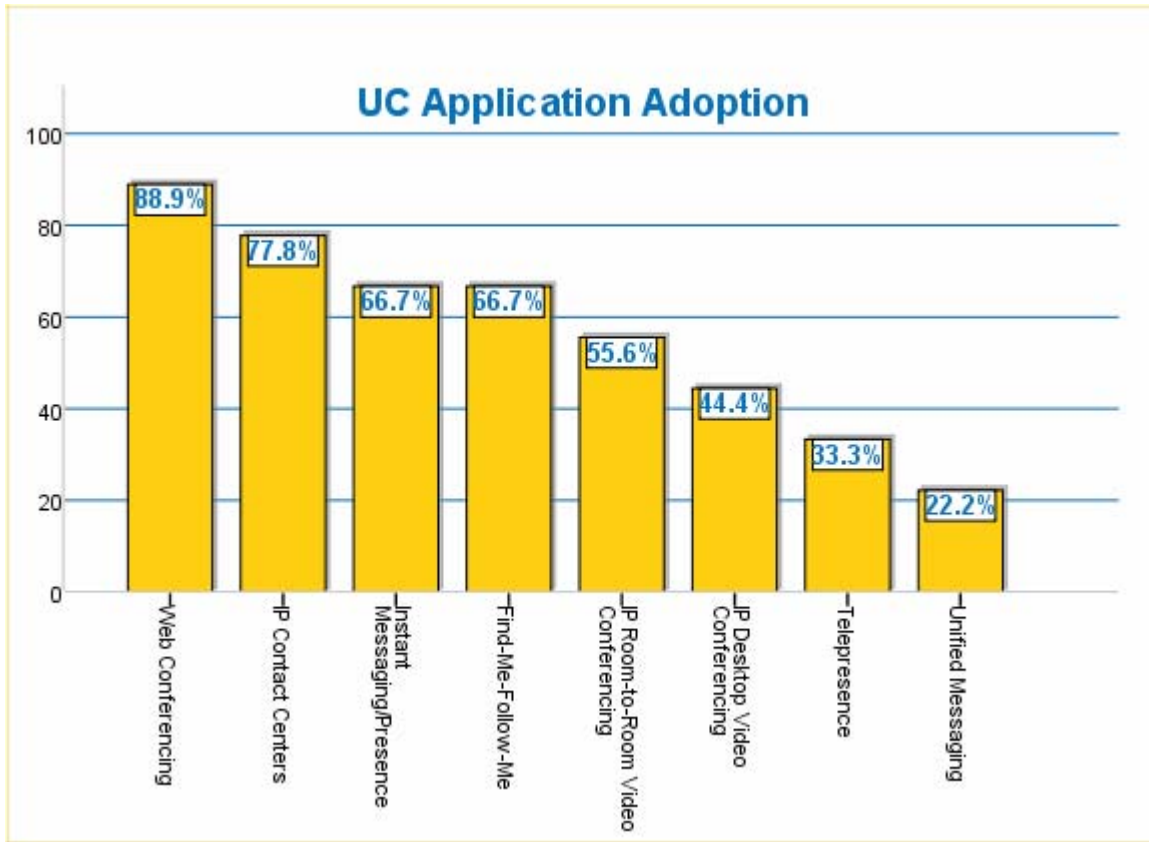


Figure 3: UC Application Adoption in Healthcare (Source: Nemertes Benchmark: Unified Communications and Collaboration 2008)

This high rate of adoption implies that the challenge for many healthcare firms is integrating applications and tying them to business processes, rather than making significant investments in new infrastructure.

Conclusions and Recommendations

Unified communications offers tangible and quantifiable benefits for healthcare organizations looking to improve operational efficiencies. Through the deployment of UC, healthcare firms can improve customer service, maximize resource efficiency, meet compliance requirements, and create new revenue opportunities. Healthcare organizations should develop specific business cases for the use of UC technologies within their particular environment, paying close attention to scenarios that reduce human latency, leading to tangible gain from faster and richer interactions.

About Nemertes Research: Nemertes Research is a research-advisory firm that specializes in analyzing and quantifying the business value of emerging technologies. You can learn more about Nemertes Research at our Website, www.nemertes.com, or contact us directly at research@nemertes.com.