UC For All Employees Transforms The Enterprise

Tony Rybczynski

Workers will need more integration between communications and business apps.

IT convergence, which brings together telecom and IT technologies, represents an industry inflection point. It will require enterprises to rethink the way they invest in IT in order to align with business objectives.

This inflection point creates increased choice, openness and flexibility in leveraging technology for business advantage. Central to the transformational opportunities associated with IT convergence is unified communications (UC), delivered as an application within a standards-based software application framework. In this new world, business processes can be accelerated through embedded real-time communications.

Unified communications may be described as the unification of presence, real-time communications (instant messaging, telephony, video and application sharing) and near-real-time communications (email, voice mail, short message services) into a single user experience. With such a description, one could conclude that UC is primarily of value to knowledge workers.

Take, for example, a company that has become one of the first enterprises to deploy UC across its entire employee base: Goldsmith Agio Helms, a U.S.-based private investment banking firm providing sophisticated financial (including M&A) advisory services to middle-market businesses. With more than 100 employees, largely based in five cities in the U.S. and UK, Goldsmith Agio Helms addresses the needs of clients on a worldwide basis; in fact, staff are away from the office, most often on the road, 80 percent of the time.

The company's staff includes a range of knowledge workers, such as financial dealmakers, M&A specialists, business professionals, accountants and lawyers. These employees require effective communications and collaboration tools, including presence and personalized session routing, centralized unified messaging with voice mail notification to BlackBerries, comprehensive call logs, and desktop videoconferencing.

In embracing UC, the key metric was 30-minute closure on client calls via instant access to the required personnel, anytime and anywhere in the world. Goldsmith Agio Helms was able to develop a financial payback model which demonstrated a payback period of less than a year.

The key UC capabilities were business telephony features coupled with IM and presence, conferencing and personal routing (i.e., allowing a user to control session request handling based on originator, media used and time of day). The business case was based on enhanced customer responsiveness and personal and business effectiveness; a financial sensitivity analysis anticipated potential employee time savings in the range of tens of minutes per day per employee. Some of the key benefits from UC included:

- Clients now have one-number access to all deal team members across the firm, creating a more dedicated and personalized method for client communications.
- Peak load handling: When the call capacity at the main reception desk is reached, the next calls can be automatically diverted to remote-office receptionists for handling.
- Ability to notify users of voice mail via an email to BlackBerry.
- Ability to simultaneously ring several members of team when a client calls; end user control can be based on schedule and client preferences.
- Ad hoc audio conferencing capability.
- SIP interoperability with the firm's Polycom room videoconferencing system.
- Ability to use multimedia Web clients to expand virtual teams to clients, without client needing new software.
- Secure direct access to the UC system and network resources from virtually any Internet connection using a standard browser.
- Peer networking file transfers.

It's not surprising that the early adopters of UC in large enterprises have been this sort of community of knowledge workers (e.g., mobile executives). The purpose of this article, however, is to explore the application and implications of UC for other types of workers across various industries.

You're One In Three

When in China on a recent holiday, I visited Xian, an ancient capital city, and its famous Terracotta

Tony Rybczynski is director, strategic enterprise technologies at Nortel.

TABLE 1 Definitions Of Three Types Of Workers		
Type of Worker	**Primary Function**	**Examples**
Knowledge worker	Engaged in cognitive and collaborative work creating knowledge	Researchers Financial analysts Business executives
Information worker (aka mixed mode workers)	Uses information as part of a work-flow process (Some coginitive work, but not primary focus)	Contact center agent Bank teller Nurses Teachers
Service worker	Engaged in routine tasks and may be part of a process	Mechanics Store clerks Factory workers

Warriors. The Terracotta Warriors on display number in the thousands and represent only a small portion of the estimated 8,000-strong underground army, buried more than 2,000 years ago in front of the tomb of the first emperor of China. Each of the Terracotta Warriors is unique in appearance and dressed for his specific role (general, charioteer, archer, infantry, cavalry)—just as every enterprise is made up of many individuals in a number of defined roles.

While there are literally hundreds of roles in any large organization, it is helpful to divide workers into three general categories as shown in Table 1. What is clear about these categories is that roles in the real world are not neatly pigeonholed this way, so that a specific role may in fact combine the attributes of Knowledge and Information Workers, and Information and Service Workers at different times and in different proportions. For example, doctors are primarily Information Workers applying their knowledge and the knowledge available to them to diagnose and treat patients, but they become Knowledge Workers when they are consulting with other clinicians.

Table 2 illustrates the distribution of workers across six important industries and illustrates that the proportion of Knowledge to Service Workers can range from 80:20 to 20:80 across different enterprises. The premise is that unified communications systems should be designed to fit the needs across all roles in an enterprise, regardless of the mix for a particular job category.

No matter how we define the different categories, they are not static; the nature of work itself is changing. This is illustrated in Figure 1 (p.32), which is based on some research by Gartner Group. This chart shows that the amount of work that relies on group input is increasing significantly. We estimate that more than 51 percent of the U.S. workforce will be Knowledge and Information Workers by 2014 (Figure 2, (p.32). There is no reason to believe that these trends aren't common across enterprises in many developed countries. One of the reasons for this shift is the trend to move work to where it can be done more effectively, often in the form of outsourcing.

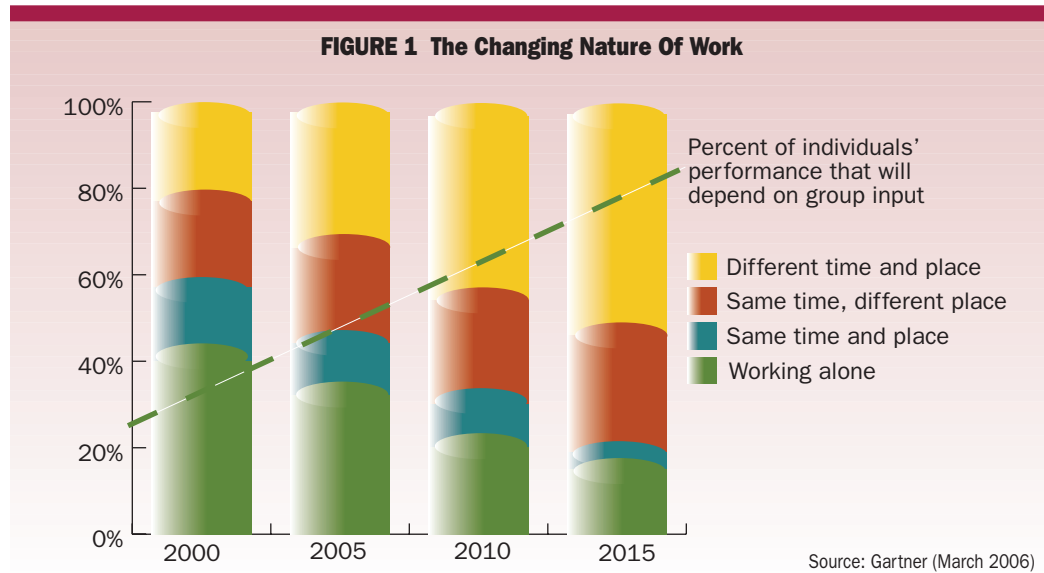| TABLE 2 Distribution Of Knowledge, Information And Service Workers Across Select Industries			
Industry	**Knowledge Workers**	**Information Workers**	**Service Workers**
Brokerage	75–90%	5–20%	0-5%
Retail banking	10-20%	60-80%	5-10%
Healthcare	10-20%	40-60%	20-50%
Government	10-20%	40-60%	20-50%
Transportation	5-10%	5-10%	80-90%
Retail trade	5-10%	5-10%	80-90%

And we are in for more change over the next decade. Thomas W. Malone, founding director of the MIT Center for Collective Intelligence, has observed that the most important innovation in the next decade will be new ways of organizing work. In *The Future of Work* (Harvard Business School Press, 2004), he wrote: "Imagine organizations where bosses give employees huge freedom to decide what to do and when to do it."

Malone argues that "convergence of technological and economic factors—particularly the rapidly falling cost of communication—is enabling a change in business organizations as profound as the shift to democracy in governments. For the first time in history, it will be possible to have the best of both worlds—the economic and scale efficiencies of large organizations, and the human benefits of small ones: freedom, motivation and flexibility." None of this would be possible without rich and cost-effective multimodal UC.

Applications And Implications For UC

Generally speaking, Knowledge Workers have been more PC-centric, while Service Workers have been more telephony centric, with Information Workers somewhere in between. There are a number of implications when UC is applied to different categories of users. UC allows Knowledge Workers to collaborate more effectively anytime and anywhere over any device. Information Workers can reach out to subject matter experts to accelerate decision-making; and Service Workers

Knowledge
workers need
to be able to
personalize
and control
session handling

FIGURE 1 The Changing Nature Of Work

Percent of individuals'
performance that will
depend on group input

- Different time and place
- Same time, different place
- Same time and place
- Working alone

Source: Gartner (March 2006)

can address issues more quickly. In all cases, UC must be intuitive for the user and must require minimal training—since as a rule, Knowledge Workers are more technically savvy than Service Workers.

Your people are your key strength, but what percentage of the collective knowledge across your organization is being shared? Very likely it's closer to 20 percent than to 80 percent. One major impediment is that our increasingly mobile workforces, with multiple phone numbers, email addresses and in-boxes, actually make communications more cumbersome instead of simpler.

UC simplifies the end user experience by bringing these communications modes together and enhancing them through presence and location services, multimedia conferencing and personalization. That is the "classic" benefit statement of UC for the Knowledge Worker—providing productivity enhancements at both the personal and group levels. Figure 3 shows how all of the functionality of UC can be brought to bear to enhance the Knowledge Worker's environment.
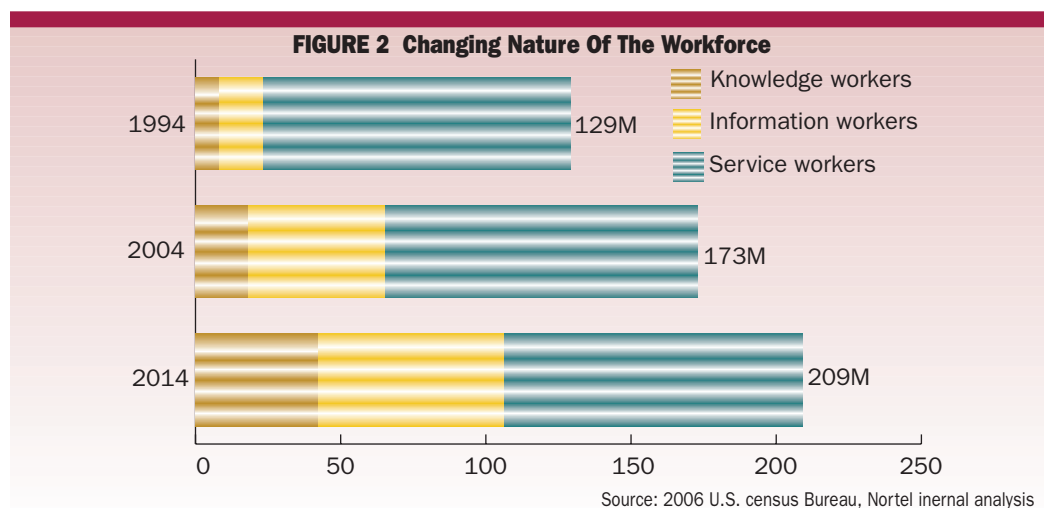
A key requirement for this category of users is

the ability to personalize and control communications environments. Examples include the ability to control how the network handles a session request from various sources, which communications mode is to be used (voice, IM or messaging), and how these might change as a function of time of day, day of week or context. Context covers basic presence (e.g. "on the phone" or "away from my desk") as well as rich presence, which provides insight to location and application use.

Customized UC

In some cases, Information Workers may be quite comfortable with rich UC functionality. However, the desire to optimize business processes by tailoring functionality to the role of the worker, combined with requirements to manage the worker's environment for optimized productivity and meet compliance/policy standards, drives the need for UC to be embedded in the applications most used by these workers.

For example, an insurance agent working on a client's file with the customer notices that the pol-

FIGURE 2 Changing Nature Of The Workforce

- Knowledge workers
- Information workers
- Service workers

1994 — 129M
2004 — 173M
2014 — 209M

Source: 2006 U.S. census Bureau, Nortel inernal analysis

icy has been changed by an associate. To get clarification on this change, the agent instantly sees that the associate is on-line and available—presence information has been embedded in the insurance application. The agent then initiates a call or sends an instant message to the associate directly from the application and can therefore respond rapidly to questions raised by the customer.

Another example is a nurse using a clinical application. The nurse can easily check the availability of a patient's doctor and can initiate communication, eliminating lost time associated with voice mail tag and missed calls.

On the other hand, full UC functionality is generally inappropriate for Service Workers because their degree of connectivity and device usage may be limited. That said, customized UC can deliver significant business value, particularly in accelerated exception handling. For example, a clerk in a retail store may be doing a price check using his handheld device, and may run into a problem based on a customer query. Presence and IM built into the price check application on the handheld device could accelerate resolution.

Pragmatically and as discussed around Figure 2, more Service Workers are becoming Information Workers, and more Information Workers are becoming Knowledge Workers. With this kind of migration, it is critical to have an easy transition to facilitate or even accelerate this trend for competitive advantage. Achieving this requires UC systems, which can be personalized and customized for different workers as their roles evolve.

UC-enabled Business Processes

In the legacy environment, human delays often slow down business processes, affecting customer service, ship dates, new product development and problem resolution—which, in turn, harms both the top and bottom lines. Time to decision is critical, whether applied to new product introduction, crisis management or customer service. In fact, Gartner estimates that 85 percent of business processes are affected by human delays.

In an attempt to limit or eliminate these delays, enterprises are looking toward communication-enabled business processes. The consensus is that this will be accomplished through Service Oriented Architecture (SOA)-based solutions.

Communications enablement can take the form of person- and application-initiated interactions. The former was discussed in the previous section. In the latter case, the application itself can initiate alerts and notifications or schedule conference calls based on presence and calendar information. For example, a supply chain application, on detecting a shortfall in supply, could send notifications and relevant data to key stakeholders and even schedule collaboration for faster resolution.

This general approach can benefit a broad range of industries, including manufacturing, hospitality, retail and health care. When combined

FIGURE 3 Application Of UC Functionality Across Knowledge And Service Workers

Unified Communications Capability	Knowledge Worker	Information Worker	Service Worker
Integration w/ desktop apps	Y	Y	
Unified Messaging	Y	Y	
Conferencing	Y	T	
IM	Y	Y	f(industry)
Corporate directory access	Y	Y	f(industry)
Presence	Y	Y	Y
Business-grade Telephony	Y	Y	Y
Information access	Y	Y	f(industry)
Campus mobility	Y	f(industry)	f(industry)
General mobility	Y	f(industry)	f(industry)
Video	Y	f(industry)	
Application sharing	Y	f(industry)	

Note: The application of UC functionality across Information and Service Workers is highlighted in the two right hand columns: which UC functionality carries the most business value is a function of industry and role, labeled as f(industry)

with sensor networking, including location tracking and RFID, this approach will result in new environment-aware applications and enriched context (e.g., identifying personnel in close proximity of an asset or hazard).

More broadly, communications enablement can add real-time collaboration to document handling and project management. A broad range of document types could be included here, such as curriculum formulation in education, design documentation in high-tech or in engineering firms, and copying in a publishing company; in short, virtually any deadline-driven environment in which people need to collaborate.

For example, a clinical emergency room admissions application could route admission forms and electronic patient records to the next available clinician, recognizing their roles, presence and location information, and could handle exceptions through distributed consultation with specialists wherever they may be, all to speed up the delivery of timely patient care.

UC In The Front Line

The contact center agent represents a form of Information Worker, specialized to customer service. In many ways, state-of-the-art contact centers are precursors to unified communications, though the terminology may be different. Skill-based routing is a specialized form of personalized call routing in the UC space, while skill sets and agent activity tracking are effectively context-rich presence. CRM portals and advanced speech self-serve applications leveraging Web Services and different forms of XML are examples of communications-enabled business processes.

The opportunity with unified communications is both to improve the operations of the contact center—whether in one location or virtualized across many sites through the power of SIP

—and ultimately to allow end customers to engage with the enterprise over their preferred self-service or agent-assisted channel (e.g., Web, telephony, email, chat and video).

For example, a customer relationship management application could maintain the context of the customer's experience, as a customer moves from an interactive self-service voice response or kiosk environment to a live agent to a dialogue with an expert, anywhere across the enterprise. Such capabilities are of paramount importance to financial service institutions, which are targeting to up-sell and cross-sell financial services while meeting customer preferences. It would also be critical in any number of service/help desk environments, such as those run by system integrators in support of service level agreements (SLA-based contracts) with enterprise customers.

The bottom line is that UC based on SIP, and communications-enabled business processes based on SOA, will significantly add to the agility and flexibility of next-generation contact centers.

Conclusions

UC and UC-enabled business processes can deliver productivity enhancements on personal, group or enterprise levels. Over time, the distinction between Knowledge, Information and Service Workers, at least from a communications perspective, will blur as they all become UC-enabled workers. Much as the business value of network connectivity increased with the number of networked users and devices (referred to as Metcalfe's Law), the business value of UC is the product of the benefit received and the adoption rate of UC across the enterprise.

Looking at UC this way requires an expanded definition of this term. We must think of UC as being proactive and engaged so as to automate contact; presence-enabled and multi-modal to enhance individual, workgroup and organizational productivity; and implemented to streamline and optimize business processes. In fact, when one explicitly addresses the comprehensive set of needs across all categories of employees, then the definition of UC as "communications integrated to optimize business processes" (see ucstrategies. com) takes on added significance.

This broader view of unified communications addresses the needs of three key stakeholders in the enterprise environment:

1.) The end user, whether a Knowledge, Information or Service Worker, through multi-modal communications capabilities that are personalized and customized for his/her role.

2.) The business decision maker, through communication-enabled business processes across the enterprise and with partners, to minimize human delays and accelerate time to service, time to product, time to resolution, and time to revenues. It also addresses these stakeholders' needs through UC-enabled contact centers, transforming the contact center into a more effective up-selling and cross-selling vehicle.

3.) IT, through optimal use of capital and operational resources, by delivering SLA-based UC services and capabilities.

However, enterprises looking to accelerate the implementation of UC-based systems should consider the following five areas when defining their requirements in RFIs/RFPs.

First, business telephony is at the heart of real-time communications today. At the same time, the new generation of Knowledge and Information Workers is increasingly turning to IM and email as their preferred mode of interaction. Unified Communications must bring these together from a user experience perspective, across devices, media and geography. Identify the user groups (e.g. executive team, field sales and support, contact centers) that would reap the highest business benefits from UC.

Second, many electronic and human processes can be accelerated via UC. In addition, Information and Service workers must be able to invoke UC feature functionality from within the environment they use every day. Creating a plan of user groups and business processes targeted for UC can help you make the right technology, architecture and partnership decisions.

Third, the UC platform needs to be scalable and reliable, have operational characteristics that will minimize TCO, and be part of a large, open ecosystem to offer optimal agility in communications-enabling business processes. The path to lowest TCO is a common software-centric platform for UC, integrated into enterprise directories and datacenter environments. You need the flexibility to pace your evolution to unified communications and to communications-enabled business processes in line with business strategies.

Fourth, the risks around reliability, security and user quality of experience associated with rolling out UC over the enterprise IP network must be eliminated. This therefore drives the need for intelligent application-aware wide area, campus and datacenter networks. You need to do due diligence on your current network infrastructure, as well as understand any incremental network requirements (e.g. power over Ethernet, extended WLANs and multimedia security).

Finally, in accelerating the realization of the business benefits of UC, enterprises may need to complement in-house skills and resources with a trusted partner who can assist in such tasks as transitioning an existing telephony system to IP, incorporating the latter into a UC system, setting up an SLA-driven management environment, and integrating UC into business processes.

Unified communications should be viewed as a strategic investment that transforms many aspects of the business: How customers are engaged, how employees work and collaborate across the enterprise and with partners, and how business processes can be accelerated□