What Do Users Want From Converged Multimodal Communications?

Art Rosenberg

When you can be reached any time, anywhere, by any means, will you be more productive?

Migrations from legacy enterprise technologies are never fast, and IP-based converged communications is no exception. We have been talking conceptually about end user needs for unified messaging (UM) and unified communications (UC) for several years, but the technology has not yet made its way into the hearts and minds of enterprise end users.

Part of the reason for this is that providers and enterprise managers have focused on the technology infrastructures and the related question of whether these new technologies offer "hard" cost savings over the installed base. With the economic downturn, it has become mandatory to focus on potential cost savings in areas such as centralization of resources and easier moves, adds and changes (MAC).

However, even though there may be potential return on investment (ROI) and total cost of ownership (TCO) benefits in using enterprise phone systems or hosted services with IP-based technologies, that apparently has not been a good enough reason to justify major enterprise expenditures—at least so far.

But, as IP telephony technology has started to mature, it has opened up new potential for progress in gaining "softer" cost savings. Specifically, IP telephony is enabling the convergence of voice and visual user interfaces to support communications on both wired and wireless devices. The benefits of this kind of convergence are not for simply reducing technology costs and administrative overhead. Instead, the new magic word for technology investment is efficient collaboration and end-user "productivity."

Productivity And Collaboration

This shift is an acknowledgement that "hard dollar" cost reductions are not the only ROI that needs to be evaluated. It also means that "soft dollar" benefits should be correlated with revenue generation, which can contribute more for the company bottom line when compared with limited cost reductions. While technology managers are comfortable with figuring out operational cost savings, they typically have little understanding and no means of measuring what user productivity is all about.

There have been several attempts in the past few years to determine the "communication productivity" of users via surveys that asked how much of their time they might be saving, on average, because of some specific improvement in their means of communication. However, just because an individual might save 30 or 60 minutes a day of their own time in performing specific communication chores—e.g., retrieving messages—does not necessarily mean that specific time-critical communication with others has been efficiently or successfully completed.

For this reason, we have referred to such personal time savings—that 30 or 60 minutes you shave off the time you devote to messages and other communications—as being "micro-productive." Though it's important to include this micro-productivity gain when considering the benefits of new communications interfaces, it may or may not have any direct or significant benefit to group tasks in enterprise operations.

Not everyone will reap identical benefits from the new interfaces and functionality. Furthermore, we have to look at the big picture: The new two-way communication benefits will improve every aspect of initiating, receiving and responding to all forms of communications across an enterprise workforce. For this reason, it will be even more important for managers to fully understand what end users really need to make them more "productive" in their business environment (see "Asking The End Users," pp 46–47).

This leads us to another term that is gaining greater currency from communication technology providers: Collaboration. For IT folk, this seems to mean an emphasis on exchanging data while communicating person-to-person; for traditional telecommunications people, it may mean an

Art Rosenberg is principal of The Unified View (www.unified-view.com

emphasis on real-time voice- or videoconferencing for remote group discussions and decision-making. In truth, all forms of person-to-person contact are collaboration, including asynchronous messaging, information exchange, voice- and videoconferencing, instant messaging and face-to-face conversations.

From this discussion we can develop the notion of collaborative "macroproductivity"—an enterprise metric for how quickly a business task or decision can be completed by two or more people who need to make timely contact to communicate, regardless of the modality of the devices used. The problem is that collaborative "macroproductivity" is not easy to measure, except by looking at how quickly a definable group task is completed and what the associated costs are.

Mobility For Everyone?

Let's put the notion of collaborative "macro-productivity" in a historical context. When we surveyed enterprise organizations several years ago, the consensus of technology managers was that unified messaging was valuable primarily for users who were away from their office desktops but who had to always be communication accessible—e.g., "road warriors," traveling executives and field service personnel. It was estimated that unified messaging/communications would therefore be important to only 20–30 percent of a typical medium- to large enterprise organization. Even though everyone in an office environment is not always at their desks, we didn't worry about being able to contact them in real time; after all, we had voice mail.

Responding *to* others is important. Getting a response *from* others is critical

Today, with Wi-Fi networking and the rapid growth of handheld "smart-phone" and PDA usage, carrying a wireless device is no longer just for important decision-makers or those who work away from the office. Now, everyone in an organization needs to be more accessible and responsive, even when away from their desks. And, as more and more people telecommute and don't even have a permanent desk, wireless devices are becoming the primary means of contact for many enterprise users.

Wireless communication mobility has several implications for converged user needs. These include:

- It must be multimodal, i.e., able to provide real-time connections and asynchronous messaging, with speech and visual interfaces.
- It must be able to seamlessly integrate with desktop communications to provide "one-number" contact accessibility, which is not necessarily just a phone number.
- It must provide dynamic, personalized user control of accessibility and availability. It's not just about pre-programmed, rules-based call/message screening, but personal decision-making.
- It must also support the need for both "intelligently" initiating and receiving contacts with all types of communication devices, both wired and wireless, whether owned by the enterprise or provided through a wireless carrier.

As users move around in the course of the day, their connectivity needs may change—from wireline voice and data while at their desk, to wireless voice while in their car, etc. Thus, they require media conversions for messaging exchanges and to synchronize their diverse endpoint devices.

Contact Initiators vs. Recipients

A few years back, I suggested in a white paper that the metrics for macroproductivity should include measures of urgent message responsiveness and real-time accessibility by the recipient(s) of a given communication. In other words, most users' greatest concern most of the time is how quickly they can get a response to communications they initiate—not how quickly they can respond to others' communications to them.

It's not that managing personal accessibility isn't important to an individual user's time priorities, but the responsiveness of others is even more critical. Although communication initiators can't control a recipient's time and priorities, they will waste less time if they can make a successful contact with a single attempt. After all, there are no guarantees that others will be available when you happen to need them most, but being able to ensure immediate delivery of an urgent message is a reasonable "second prize."

The New Importance Of Outbound Contacts

Person-to-person communication contacts are becoming easier to initiate, as contact information becomes embedded in the message. It started with the power of the messaging "reply" function in both email and voice mail. Because voice mail systems were connected at the hip with phone systems, the "reply" soon became an immediate, more responsive "call return" option. With unified messaging, email messages are able to use the phone for retrieval by voice, including the option to "reply" with a voice message attachment to the originator's email in-box, or to initiate an immediate "call return."

Microsoft's Office Live Communications Server will play an important role

With IP-based presence and availability management, email contacts can now allow an immediate response to an email through an instant messaging connection. A key benefit to this approach is that there will be an implicit recognition of the respondent for "buddy list" priority access.

Personal address books became another source of convenient contact initiation for both calls and messages, particularly for handheld mobile devices. They also enable the contact initiator to select the preferred medium for contact required by the recipient. However, personal address book information is not dynamic enough to be sensitive to the recipient's situation; there needs to be constant synchronization between the recipient's presence/availability/modality management information and the originator's address book function.

Convenient real-time and messaging contact initiation also became very popular with information objects on websites. These included Web-based on-line documents, presentations, advertising, etc., where clicking on a link could display an email form, an instant message text/voice/video connection, a traditional phone callback connection or even a VOIP connection.

Microsoft's Greenwich Real Time Communications Server 2003, now renamed Office Live Communications Server 2003, will provide links for instant messaging exchanges and voice calls through IP-based call servers, using on-line information objects such as documents, presentations, and messages (see *BCR*, October 2003, pp. 18–22). Such convergence of on-line information and real-time contacts will facilitate and expand outbound communication activities from the desktop, making it even more important to provide contact initiators and mobile recipients with more intelligence for effective presence/availability/modality management.

Outbound contacts also include the ability to initiate remote conferences, typically voice-based, since teleconferencing has proven to be

Asking The End Users

We have started to survey enterprise organizations and their end users about the impact of various new pieces of unified communications technology. In preparation for the annual conference of the International Association of Messaging Professionals (Oct.19–22, Scottsdale, AZ), we surveyed enterprise members of the former Octel voice mail users group on their migration towards converged communications. We also surveyed a group of individual mobile end users in one member organization that had started to use Avaya's Advanced Speech Access product for providing a speech interface for existing call/message management functions.

Preliminary results from the IAMP enterprise survey show that in almost half the responding organizations, more than 20 percent of the employees carry cell phones, and indicate that wireless voice calls (80 percent) and wireless text messaging (62 percent) are becoming more important to their users. Instant (text) messaging is also becoming more important to end users in 40 percent of the responding organizations.

Management responsibilities for messaging and phone services are starting to converge in 43 percent of the organizations, but a whopping 75 percent of the technology manager respondents said they are not really familiar with the concepts of managing converged communications. The users are equally untutored; 70 percent of the organizations reported that less than 20 percent of their end users are aware of converged, unified communication capabilities, while only 22 percent of respondents indicated that more than 20 percent of their end users were actually asking for such capabilities.

Finally, less than 8 percent of the respondents are currently considering outsourcing enhanced unified communications capabilities to service providers for their mobile users, but 28 percent allow their users to subscribe to wireless services independently.

The survey of end users dealt with employees who were primarily cell-phone users who also wanted to listen and reply to their emails while on the road. More than 50 percent of the respondents indicated that they spent less than half their time at their office and more than 20 percent of their time in their cars. They wanted to use speech commands to control outbound calling, using names or numbers, and to manage their calendar information over the phone. The biggest benefit reported after usage had commenced was in using the speech interface to control outbound phone calls from their cell phones.

The respondents had used the new features for only a few months and reported no dramatic change in their communication activities. However, many felt that their speech-enhanced mobile communications were now more effective, responsive and efficient for themselves and the people sending them email. Most of the users indicated that the people they communicated with who benefited the most were primarily within their company—either their managers or their peers. But the respondents also thought some of their customers benefited from the enhancements as well.

most natural, efficient and universally accessible. Voice conferencing is also a keystone for collaborative work—not to mention the fact that the ability to interrupt someone happens to be a very practical means of controlling participants' time and focus. As communications become more mobile, the opportunity to initiate *ad hoc* voice conferences will contribute significantly to outbound contact activity.

"Unified" Presence/Availability/Modality Management

The public Internet enabled the idea of "always on" access to information and messaging contacts. Rather than sending asynchronous email, being aware of a recipient's existing (Internet) connection enabled a user to start a "chat" or immediate text message exchange.

This capability is expanding to real-time voice message exchanges (e.g., wireless push-to-talk) and, with IP Telephony, will change the way we use telephones to both initiate and receive real-time communication.

Today's "buddy list" concept of instant messaging is a way for users to selectively control immediate access to themselves by specified people or vice versa—or, in the future, even by specified application processes. It works hand-in-hand with "presence" awareness (network connectedness) to let the initiator know whether to start an instant message exchange, or simply leave a message. The buddy list is an extension of the directory function, which can provide personalization information for automatically managing all personal communication.

"Buddy lists" will work hand-in-hand with presence capabilities

From a contact initiator's perspective, the availability and status information can become the logical first step in selecting the most practical mode of location-independent communication at the moment, rather than guessing and wasting time with different contact attempts. Selecting a name from an address book or other document can

Some users even indicated a willingness to pay extra for the new speech interface capabilities, although they also felt that it saved their company money. While some users thought that converged voice mail and email through a speech interface was somewhat more complicated to use, they didn't consider it necessary to get special training.

What Has To Change?

Wireless mobile devices and IP connectivity offer new flexibility for merging real-time communications and messaging. The benefits of such convergence mean rethinking the traditional telephony mechanisms for voice communications, while adding speech interfaces to traditional text messaging and information access.

Clearly, the biggest payoff and therefore the biggest challenge will be found in extending the benefits of convergence to personalized mobile, handheld devices, rather than to the traditional desktop. Because such devices are not as controllable as wired desktop PCs and phones and require the use of wireless carrier services, enterprise technology managers will have to reconsider what enterprise responsibilities to mobile user communications will be practical for the future. (Also see *BCR*, October 2003, pp. 66–65.)

Presence/availability/modality management technology will have to expand to become more than a desktop connectivity function. With "always on" connectivity, the emphasis will shift to availability and modality. It will have to support all end user situations, both mobile and at wired desktops, and exploit both speech and visual interfaces. Because the user information it deals with will be both personalized and dynamic, it must be easily and fully controllable by the end users through interfaces, not by enterprise administrators.

Availability and modality management information will also be important for contact initiators, whether within the enterprise or outsiders, to "intelligently" enable the most effective form and modality of contact for all parties. Such capabilities will prove valuable not only for individual collaborative contacts within the enterprise organization, but also in routing customer-facing contacts to and from enterprise personnel and application process. We expect IP standards such as Session Initiation Protocol (SIP) to play a key role establishing endpoint-to-endpoint device coordination for dynamically establishing person-to-person contact modalities.

Finally, the division between enterprise email and voice communications management has to disappear, because it is all part of unified "communication applications." It's not going to be about the network that is already converging voice and data on IP-infrastructure. It's not going to be about server platforms that are "open" and commoditized. It's going to be about the "communication applications" software that will have a single point of convergence: The end users and their device interfaces. Such convergence will be controlled at the top by presence/availability/modality management software. The question now is, who will be in charge of all person-to-person "communication applications" within the enterprise□

How will we deal with the explosion of features?

trigger the availability management query/response across an IP network.

If the recipient's "availability" priorities are not pre-established for the contact initiator, the recipient can be prompted to accept or defer a contact, also determining preferred modality (voice, messaging) by which that recipient wants to receive that piece of communication. The same mechanism can be used for "urgent" message notification and delivery from a business or communication application.

Various products and services have started to provide this kind of "front-end" for personalized access. Called by various names such as "auto-attendants," "virtual secretaries," "find me/follow me," etc., they are primarily telephony and voice-oriented, now using improved speech recognition rather than DTMF input, and they focus on real-time call screening, with the option of sending the caller to voice mail. With devices and the flexibility of IP networking, the options for both connecting in real-time and for leaving messages are no longer restricted to voice. This will make two-way communications in the future more flexible and useful for both contact initiators and recipients.

So What Will Matter Most?

We have set the stage for this question by looking ahead with regard to changes in the way communications will work. We expect that enterprise users will appreciate the new alternatives for converged and mobile communications, but until they use the new technology, they really won't know what they want.

The simple answer to the question of what end users want is to fix all the old problems and annoyances of legacy voice communications and messaging systems. However, since their business communications in the past were usually tied to a wired desktop, they now will want to exploit the benefits of wireless communications mobility with both handheld devices and portable laptops and tablets.

While enterprise management worries about communication technology implementation and support costs, users have different perspectives. These include both familiar needs and some relatively new concerns:

- Personalized communication management—incoming and outbound.
- Ease of response to messaging.
- Wired and wireless portability of communication devices.
- Privacy control for end-user access and communication content.
- Initiating successful outbound contacts.
- Dynamically initiating conferencing.
- Automated "intelligence" ("smart" devices and services).
- Dynamic modality management.
- Integration of communication contacts with information.

Many of the above items depend on new device and user interface design, client software and server functionality. But with mobile, converged communications, there is another layer of interface design complexity and modality control that will need attention, as discussed earlier.

We are all familiar with the "80–20" rule for PBXs, where 80 percent of the end users use only 20 percent of the features. The problem with communication features is that the convergence of telephony and messaging features will increase the ever-mounting collection of useful functions. If we consider that traditional digital PBXs have more than 700 features just for telephony and voice, then adding new message management, imaging (fax), video and wireless mobility options will make the total feature/function set even more extensive for a "unified communications" user interface.

Of course, end users will not directly see or control many of these options, and most of the individual feature conveniences won't have any significant impact on user needs and productivity. So what will be really important to users?

Conclusion

The vision of "unified messaging" and "unified communications" has had to wait for the practicalities of a converged voice/data network infrastructure to make implementation possible. The market movement towards IP telephony and instant messaging is now helping make this vision a reality. In the meantime, wireless handheld mobility has also become a "must-have" capability for more and more enterprise end users, and this, too, has reinforced the need for converged communications.

Mobile users will need the ease and flexibility of changing modalities to match their situation and those they are communicating with. The necessary intelligence to minimize the confusion in making contact with others will be found in a cross-network, multimodal capability that dynamically coordinates the needs and priorities of both parties.

What end users really want from converged communications will be flexible, easy-to-use, mobile and remote communication services that will save them time and effort in communicating with others, and, sometimes more importantly, will save others' time in contacting them. Of course, the technology should be relatively cost-efficient, but, unless it does what they really need, end users won't bother with it even if it is free!□

Companies Mentioned In This Article
Microsoft (www.microsoft.com)