

## >> The Promise of Mobile Unified Communications

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Mobile unified communications allows organizations to provide employees with the ability to collaborate and communicate efficiently, as well as access information on-demand. An exclusive *Computerworld* online survey offers insight into how companies can develop cost-effective strategies for implementing or improving mobile applications and foster an efficient workplace.

### **The Mile to Unified Mobility •** By Pete Bartolik

Much of the business world is converging on mobile devices that combine the features of a cell phone with that of a small, Internet-connected computing device. Many organizations are intrigued by the productivity enhancements and new customer services they can generate from a host of mobile communications applications. But they want to do so in a single unified environment with a simplified user experience that minimizes support and training.

Wireless voice and email have dramatically enhanced the ability of organizations to provide employees with information when and where they need it. Push email, popularized by Research In Motion®'s (RIM) BlackBerry® smartphones, fueled an explosion in demand for mobile connectivity. It also spurred development of a wide range of systems from RIM and others that integrate email with cellular phone capabilities and, increasingly, with access to corporate networks and the web.

Jack E. Gold, founder and principal analyst at J.Gold Associates, predicts that within two to three years, a majority of knowledge workers will be mobile 75% or more of the time. As workers become more mobile and wireless networking becomes increasingly ubiquitous and reliable, "companies will deploy an array of new and complementary technologies that will enable better collaboration within the workforce," he states in the white paper, *Moving Beyond Mobile Data: Benefits of a Unified Communications Approach*.

Mobile devices provide a platform for mobile access to enterprise applications as well as a host of new methods of communication and collaboration. Gold, in a recent interview, notes that it's not just a matter of providing access to data, but rather, "it's about collaborating; it's about extending the organization and extending communications in the organization in a variety of forms."

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Some of those forms of communication and collaboration are as basic as providing mobile access to back-office applications such as ERP or CRM, or in integrating fixed and mobile voice communications through unified dial, voicemail forwarding and so forth. Others are more exotic, such as integrating presence and location-based applications, or providing video and whiteboarding capabilities.

In a May *Computerworld* survey of more than 150 IT and corporate managers, just less than one-quarter of respondents (23%) indicated they currently have a complete or partial mobile unified communications solution in place, while 10% are pilot testing solutions, and 35% are investigating solutions for implementation in the future.

Given that unified communications is still in its infancy, with many market leaders approaching the problem from quite different perspectives—operating system, network switch, service provider—buying an enterprise-wide solution is not yet an easy process.

In its recent *Worldwide Enterprise Converged Mobile Device* report, market research firm IDC notes: “Enterprise buyers are hampered by the complexities of the mobile ecosystem of device vendors, mobile operators, distributors, MSPs, SIs, and VARs, along with a wide array of mobile middleware and application providers (on premise and hosted).”

As director of IT operations for the Central Florida YMCA, survey participant Edil Vicenty is responsible for 29 locations

with varying telephone systems. There’s much he’d like to do to extend communications, but right now he is focused on an Oracle implementation. He figures that in 18 months, vendor solutions will be more mature.

“Unified communications is something that needs to be taken seriously,” he says. “If you don’t do it right from the beginning, you may encounter a lot of hidden costs.” Vicenty says he also worries about trying to implement unified communications with his existing network and how it might impact performance and quality of service, or create other unanticipated issues.

“Unified communications is in its infancy,” says Mark Amszej, director of software product management at RIM. “It’s something a lot of people are talking about in the industry in terms of trying to achieve some of the productivity enhancements. But we don’t see a lot of unified communications products if you will.”

### Moving Around Hurdles

In the *Computerworld* survey, respondents noted a number of barriers to implementation. More than half of the respondents reported a lack of available resources and/or time as a significant roadblock to starting/expanding mobile unified communications. Other frequently mentioned roadblocks include: implementation costs too high (40%), lack of device interoperability (36%) and legacy equipment (35%).

Mark Keating, director of platform marketing with RIM,



says organizations should focus on leveraging their existing investments and not assume they need to “rip and replace” existing infrastructure. Most organizations have multiple vendor relationships, he says, often with Microsoft, Cisco and Nortel, each of which has a valid unified communications strategy.

“The point of view of any seasoned vendor is to focus on their product and the functionality it can provide to a given customer. For most vendors, that’s an infrastructure view, and the ability that they deliver to their customers by giving them a good UC solution is probably to enhance the value that somebody gets out of that given product. Our point of view is exactly the same, only our product is mobility.”

RIM has long integrated its BlackBerry® Enterprise Solution with enterprise mail servers, and it currently provides solutions for Microsoft Exchange, IBM Lotus Domino and Novell GroupWise that deliver push-based access to email, calendar, contacts, tasks and notes, instant messaging, web-based applications and services, and enterprise applications.

More recently, as a result of its acquisition of Ascendant Systems, RIM can now provide the ability to integrate with a range of PBX systems. Its BlackBerry® Mobile Voice System (BlackBerry MVS) extends the identity and functionality of the corporate PBX to any phone. That enables organizations to consolidate multiple phone numbers—for desk and cell phone, for example—and provide one number so that all calls are made and received using the enterprise identity.

### The Mile to Mobility

RIM sees itself as providing the “last mile” to the mobile workspace. “The core of what we did, email, was a very good starting point for a unified communications strategy,” Keating says. “What we really did was to take somebody’s desktop experience and extend that out to them at any point of work wherever that happens to be.”

From that core, Keating says, “we added over time the applications layer to extend applications to mobile employees as they’re working in the field. We’ve since added voice and

have augmented in all the areas by adding things like instant messaging and presence awareness to try and really make accessible people-to-other-people and people-to-information that drives their decisions.”

A case in point is the California Transplant Donor Network, a federal organ and tissue donation organization. Transplant coordinators and transplant team members received BlackBerry smartphones equipped with the PEPID RN Critical Care Nursing Suite, an application from PEPID Medical Information Resources. The applications included more than 2,300 disease and medical topics as well as calculators for intravenous drips and dosages, which are kept up to date to ensure the coordinators have access to the latest information.

When a donor is identified, transplant coordinators are alerted via SMS message alerts about a possible donation. Email and e-fax attachments follow with case details for the transplant coordinator to review instead of time-consuming phone calls. The coordinators can order tests and medications and can check drug interactions and protocols using the PEPID RN application. The BlackBerry phone and speakerphone features can even be used during surgeries and throughout the process so doctors and coordinators can communicate and ensure the best outcome.

### Secure the Future

Making voice and data more accessible requires a secure infrastructure and management tools to make sure the enterprise is not more accessible to external and internal threats.

“Security is only as strong as the weakest link,” says RIM’s Keating. “If you try and bolt something on to an existing solution, it’s probably the seams between each of these bolt-ons that create the weak links.” He argues that many security solutions suffer from an “on/off” duality that can result in security being turned off if it impedes operations. RIM’s solution allows organizations to “establish security parameters to their level of paranoia” by providing gradations between “on” and “off.”

“Most mobility solutions probably have a dozen or maybe 15

policies if you will, that you can tweak to arm your security. We've got over 400 policies that address a myriad of security scenarios and requirements. You get a much larger pool of choices."

### Taking Control of the Environment

Despite the advantages of new communications capabilities, it may seem safer to wait things out while the unified communications field takes firmer shape. But the rapid proliferation of converged devices may well force the hands of many corporations.

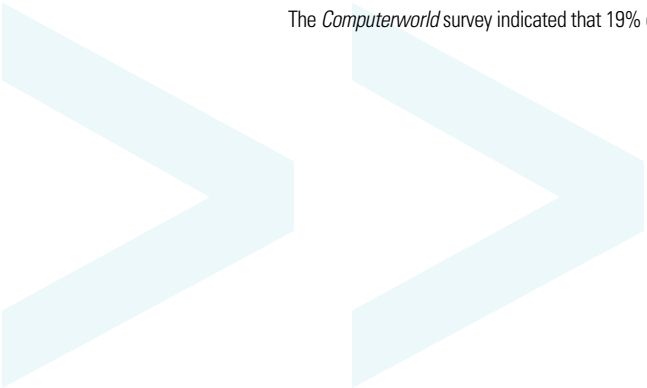
As IDC points out, "Many individuals are mobilizing themselves in the enterprise, using CMDs [converged mobile devices] for PIM and access to corporate email (both sanctioned and unsanctioned). The individuals entering the workforce are more tech savvy with mobility, and many expect to be able to leverage mobile devices for work purposes."

The *Computerworld* survey indicated that 19% of respondents said

they were under pressure from executive management to implement unified communications; but 40% said they were under pressure from end users to do so. Central Florida's Vicenty says his organization has standardized on a particular device, but he frequently is approached by end users who want to use something different.

Gold believes executive choice will ultimately be a primary driver to acceptance. "They want their phone messages, they want their phones forwarded and [IT is] going to make it happen for them. Once that is in place for those guys, it just flows downstream; once the infrastructure is in place, it's much easier to deploy for many more people."

The other primary driver, Gold says, "is going to be certain lines of businesses and services, perhaps health care, where time is a life potentially, or financial services, where time is money and where if you save 13 seconds on a stock trade, that can make you an extra million dollars." <<



## RIM: Keeping It Simple

*Wireless voice and email have dramatically enhanced the ability of organizations to provide employees with information when and where they need it. Organizations increasingly want to integrate fixed and mobile voice, email, instant messaging, desktop and advanced business applications, and more in a single unified environment that enhances productivity but offers a simplified user experience.*

*Mark Amszej, director of software product management at Research In Motion, is one of the directors responsible for the BlackBerry software portfolio. In this interview, Amszej discusses the business drivers for mobile unified communications with writer Pete Bartolik.*

### What are the business requirements that are helping you shape your strategy and product plans?

**Amszej:** We're finding that customers initially just want to do a very few simple things, but they want to do them very well. The main thing they want to have happen is, "If my desk phone rings I also want my BlackBerry smartphone to ring as well. And I want not just a simple call-forwarding solution, but also the ability for me to take that call, to hold it, to transfer it, or to conference call somebody else in. Oh, and give me that single voicemail capability too."

At the same time, they want that to be an esoteric environment. They want manageability around this solution. They want something on the voice side very similar to our BlackBerry® Enterprise Server environment, where you have the capability to set voice policy and extend it out to that environment.

The solution of tomorrow will be more complex. They're going to look at more integration between various components, between applications, and leveraging off that mobile voice unified communications platform.

### What do organizations expect the benefits will be?

**Amszej:** The first, of course, is the productivity enhancement where people are more readily reached with one phone number. Studies have shown that 70% of calls are going into

voicemail—so you're looking at mitigating that number. Another is secure authentication of calls coming in through the BlackBerry Enterprise Server architecture. More specifically, identifying who the callers are who are coming in, so you have better decision-making capabilities when you're away from the office, and you can decide whether you really need to take a call versus letting the call go into one voicemail box.

### What is RIM doing with various enterprise vendors to ensure mobile unified communications is inclusive?

**Amszej:** We know a lot of the players out there today both from an infrastructure perspective as well as players looking to come up with their own unified communications solution. We have our own BlackBerry Mobile Voice System that we're really happy with, and I think that's positioned well around leveraging the infrastructure and rapid deployment—it's not a multiyear deployment effort.

We do see that customers are looking to extend more than voice, and some of the leading applications like Microsoft Office Communicator and LCS, and IBM Lotus Sametime and Lotus Connections are at the forefront of this desire. We've done the work and we're already able to extend these applications to mobile professionals.

We've also got the Ciscos and Avayas and Nortels of the world who are looking at their own unified communications strategies from the network in. They're our partners, but at the same time, the clear customer feedback is that customers are really looking for a single phone client on the device, the BlackBerry smartphone. They want a solution where they just hit the green talk button, and through that talk button and through IP policies, they can use either the BlackBerry smartphone number or the enterprise voice number. The solution is more likely to be adopted by users if [it] is implemented with the user experience at the forefront. The BlackBerry Enterprise Solution and BlackBerry Mobile Voice System deliver that. <<

## The Form Factor • By Pete Bartolik

Form or functionality? That's the question at the heart of the long-standing debate over what makes the ideal form factor for a converged mobile device (CMD) that incorporates cell phone, email and network applications.

"The requirements coming in to us are a bit of a paradox," says Mark Amszej, director of software product management with Research In Motion. "Users want a big screen, a big keyboard type of layout, but also want it to be small enough to put in a holster, or in a pocket, and be with them for all the mobility requirements around unified communications."

Amszej says there probably will not be just one form factor that wins out. "Our view of the world, of course, tends to be more of a mobile factor with a single phone client and some integration done on the device terminal side, but a lot of integration done on the back-end side."

According to market research firm IDC, converged mobile devices combine the features of a mobile phone with the features of a handheld device and must match wireless telephony capability to evolved operating systems or application environments. "These devices must include the ability to download data to local storage, run applications, and store user data in addition to PIM capabilities. Converged mobile devices must also offer the full extent of their application-processing capability to the user, regardless of network availability," IDC states.

Meeting the needs of individual users is important because unless users have a range of appropriate choices, they are likely to bring their own wireless devices into the office, which can increase the total cost of ownership dramatically.

The ideal shape of a device depends, of course, on what an individual or organization wants to use it for. Typically, a company starts by mobilizing pervasive applications, such as email and calendar, to its most critical users. Often, the next step is to mobilize specific applications that solve business problems—such as customer relationship management—or deliver business benefits to certain groups within the organization, such as a field service application.

John Halamka is the consummate mobile device user. He's constantly juggling roles as a practicing physician, CIO and a dean at Harvard Medical School. He also writes a column for *Computerworld* and is an avid blogger.

"The Palm/Treo line of products is diminishing in popularity because they are not optimized for the web and do not have the enterprise management features desired by hospital IT departments," Halamka says. "Pocket PCs are just too challenging to use. Windows CE/Mobile on a mobile device is not easy to use since the screens are too small and the mouse/pointer support too poor to support the Windows operating system . . . Thus, with the existing devices on the market today, I can say that the combination of a MacBook Air subnotebook for lightweight web and BlackBerry smartphones for mobile email works pretty well. Neither, however, is ideal for work on medical wards where a lightweight, pocket-sized, midsized screen, and disinfectable device would be perfect."

But when it comes to unified communications, Halamka says he's all set: "My BlackBerry smartphone provides email, IM, web, RSS, voicemail and applications, so I feel very unified. I do not need mobile faxing nor do I need voicemail in my email. Video is bandwidth consumptive and not a real need. The BlackBerry solution meets all my current use cases." <<

## The World of Wireless Standards • By Pete Bartolik

The circuit-switching digital cellular technologies that are primarily in use in the world today include **GSM** (Global System for Mobile communication) and **TDMA** (time division multiple access), which is becoming less common as most TDMA carriers are moving to GSM. The other major standard is code division multiple access, or **CDMA**. GSM is currently the most widely adopted cell phone standard in the world, while CDMA is also widely used in North America and pockets of Asia.

All of these wireless wide area network technologies are ideally suited to voice. They are not ideally suited for data connections because they keep that channel open too long, which results in possible low-bandwidth situations. Each of these different technologies is constantly evolving.

**GPRS** (General Packet Radio Service) is a packet-switched data overlay that runs on top of a GSM network. It allows the network carrier to provide a world-class data service from the same basic infrastructure. Similarly, **CDMA2000 1x** or **1xRTT** provides a digital, packet-switched data overlay for the existing CDMA voice network. A third technology, **iDEN**, also provides the capability to transfer data.

Most cell phones and PDAs today use what is known as **2.5G** technology (more than 2G, or second generation, but not to the standards of **3G**, or third generation). What defines 2.5G technology is the implementation of a packet-switched domain (data), in addition to the circuit-switched domain (voice), which enabled the carriers to get faster speeds out of existing infrastructure and base station technologies.

Increasingly available are services based on 3G technologies such as **EDGE**, **1xEV**, **UMTS** and **wCDMA**. EDGE (Enhanced Data GSM Environment) enhances GSM/GPRS to provide higher data rates. 1xEV-DO (Evolution-Data Only) increases the downlink peak data rate up to 2.4 Mbps; Phase 2 1xEV-DV (Evolution-Data Voice) will integrate voice and data on the same carrier with rates up to 4.8 Mbps.

While some GSM operators have opted to upgrade to EDGE, others view **UMTS** (Universal Mobile Telecommunications System), a broadband digital packet-switched network that will deliver information at speeds of up to 2 Mbps, as the ultimate upgrade path. UMTS has experienced a slower adoption rate due to the costs of replacing base stations.

With true 3G technology, even a voice call has the possibility of being a packet. So when you're speaking on the phone, you could be using a technology like **Voice over IP** (VoIP) or one of its equivalents.

To accommodate users, you may need to support devices from different manufacturers (for example, BlackBerry, Nokia or Palm) running on various network technologies (such as CDMA, GPRS, iDEN, 802.11b, etc.). For this reason, it's important to have a middleware solution that will support a variety of devices, operating systems and network technologies. Even if an organization decides on one device as its standard, there will often be exceptions for a variety of reasons. Many companies will require multiple carrier partnerships in countries around the world. Having a solution that leading carriers support will ensure that users have the coverage they require throughout the United States and the rest of the world. <<

>> *Pete Bartolik is a freelance writer in Hopkinton, Mass.*