Arming Your Field Force with Mobilized Solutions: The Next Wave in Business Transformation

Mobilized computing has the potential to transform how work gets done in the field. It gives employees and remote workers the ability to interact with and connect to corporate applications and data to conduct business where they do business—away from the office, in the field, in front of customers.

A mobilized computing solution is not to be confused with mobility; there is an important distinction between the two. Mobile computing has been available for years. Notebooks, tablets, PDAs—these devices allow workers to take work with them on the road. But that doesn't mean the software that runs on the device operates without being connected to a network, or that there is a wireless network that the computer can connect with in the first place. At some point the worker must interact with a wireless network and mobile software applications in order to proceed with work.

Truly mobilized solutions are the combination of three vectors: mobile computing devices, mobilized software applications and wireless networks such as access points, hotspots, broadband, a wireless LAN, a wireless WAN or other similar connectivity method such as GPRS. The devices are capable of connecting wirelessly to a network and running applications smart enough to know whether they are connected or not. And, the applications running on that device maintain and manage network awareness. This approach extends the capabilities and productivity of every mobile user—not only traditional office workers, but also people who work in rugged environments such as oil fields, emergency response or on-the-move factory jobs such as warehouse and distribution centers.

Field Force Workers—A Largely Untapped Market

The market potential for mobilized computing solutions is tremendous. According to research from IDC, there are 99 million field and 145 million on-location workers in the world today. Currently, only a very small percentage are using mobilized solutions to conduct business. There is a vast area of opportunity for companies and ISVs to transform the productivity and performance of these workers. Figure 1 depicts the size of the potential market for both field and on-location work forces.

In the Field, On the Job

Mobilized computing solutions are being used by field force workers in a variety of industries including manufacturing, healthcare, retail, financial services, transportation, utilities and hospitality. Mobilized solutions in these industries can be grouped into two general categories: those designed for the field force workers and those crafted for the on-location workers.

Field force workers travel and conduct work throughout a workday within a territory. This group includes sales reps, service technicians, delivery services and others. On-location workers conduct work from a primary non-office location such as a hospital, construction site or warehouse. Both categories of workers have a need to send, receive and collaborate on data and information as they move through the work day—wherever they may be in the given territory or facility.

In the field force worker segment, there are numerous examples of mobilization at work, including:

- Field service technicians go to a customer site to fix a product or conduct regular scheduled maintenance on an asset or machine
- Insurance claims adjusters process claims electronically at the customer location
- Parcel or expedited delivery service drivers receive customer location pick-up instructions throughout the course of the day
- Cable or appliance installers receive customer account instructions while on the road, and can access technical data as needed to support an installation process

On-location field force automation gives workers job assignments and provides them with the interactive real-time data surrounding those assignments. A forklift truck operator in a warehouse, for example, may receive order picking instructions on a mobilized on-board tablet. Rental car return agents can process customer transactions in the parking lot. A project manager at a construction site can review blueprints and change orders to speed decision making and accelerate project timelines. Physicians and nurses have real-time access to patient records as they make their rounds, and can manage charting and record keeping activities in real-time. And maintenance personnel can execute day-to-day routines for maintaining a facility.

Field service activities traditionally have been very difficult to analyze, track and manage. Thanks to significantly improved field communications via multiple mediums (voice, text, electronic), management now has the ability to "push" alerts, information and work orders out to field force personnel. Field workers can connect to core systems, and access maintenance systems to review manuals, repair histories, work orders and other important documentation attached to a machine or asset.

Mobilized computing solutions generate a host of business benefits. They can eliminate continued paper and clipboard usage, data re-entry errors, travel time to and from offices, and other inefficiencies attached to a manual maintenance system. They can improve decision making capability by line managers, improve work order routing based on worker availability, location and specialty, and optimize production via integrated data collection and alert notification. Just how are mobilized solutions transforming business today? The following examples offer cases in point.

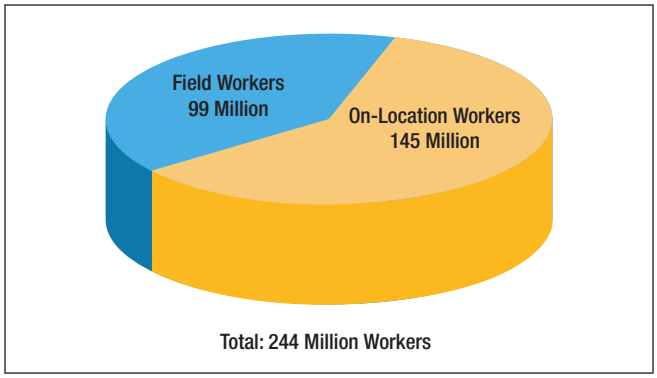

Figure 1: The Mobilized Opportunity
Source: IDC, May 2004

Designing Software Specific for Field Workers

To facilitate the exchange of information for the worker, more than 250 software applications have already been mobilized today, including those from iAnywhere Solutions*, FieldCentrix* and Everypath*. Large enterprise applications from such major players as SAP*, PeopleSoft*, and UGS* have also been mobilized.

Mobilized software contains a set of features that help insulate users from network dependencies by making data and applications available when the user is offline. Intel and other leading technology companies are working with ISVs and industry leaders to provide a comprehensive set of software tools, services, architecture specifications, and training programs to design software for mobility through the Mobilized Software Initiative. The Mobilized Software Initiative includes four capability vectors that developers must address, in addition to end-to-end security, in order to provide effective mobilized software solutions:

- Offline data management, which enables the application to provide virtually the same user experience, regardless of connection status
- Intelligent connectivity, which detects network-state changes and adapts appropriately
- Power and performance optimization, which enables mobilized applications to conserve battery life and to deliver fast computational and I/O performance
- Multiple-platform support, which allows applications to be deployed across clients and servers natively

Early Pioneers Reaping Benefits Now

Centrica*-owned British Gas*, the largest residential gas and home services supplier in the UK, equipped its 8,500 service engineers and managers with powerful, lightweight Panasonic* Toughbook* notebook PCs based on Intel® Centrino™ mobile technology and mobilized software solutions. As a result of the notebook deployment, service engineers spend significantly more time in the field and handle 250 percent more customer calls. With information at their fingertips, service engineers can deliver a better customer experience, helping increase customer satisfaction. The mobilized solution has helped British Gas turn the home services arm from a cost-center to a key business, contributing 25 percent of the company's profits.

Daqing Oil*, a subsidiary of PetroChina*, was an early adopter of converged computing and communications technology, and has gained significant business advantage from mobilized solutions which utilize this convergence. Oilfield employees use notebook computers with Intel Centrino mobile technology right at the oil well to record exploration information. This data, in turn, is transmitted in real-time via a wireless LAN to Daqing's research lab for analysis. Prior to implementing these solutions, Daqing needed 150 workers to manage 1,000 wells. The company now manages 5,000 wells with just 120 workers—a six-fold increase in employee productivity.

A major railroad company has equipped a specific group of territory managers—known as road masters—with notebook computers loaded with mobilized enterprise solutions. These road masters use their new mobilized tools to complete reports and fill out forms on the go and send them in to the network during the course of the day. They can access reference material detailing track conditions and maintenance activities, as well as managing daily train schedules, weather-related concerns and other dynamic information. Road masters can capture information more accurately and share it more quickly with others in the railroad's organization, leading to better business decisions regarding overall operations. By maintaining track in better condition, the railroad enables trains to run more efficiently, thereby boosting revenue while at the same time significantly improving customer service.

Inside a plant's four walls, mobilized computing technologies can generate equally impressive results. A major U.S. automotive company equipped maintenance technicians with mobilized notebooks to help streamline their work activities as they tend to the programmable logic controllers that run assembly line machines.

In the past, these technicians worked off of paper service tickets issued with each different job. Technicians were constantly walking considerable distances to and from maintenance offices to collect reference materials and other documents needed to make the repair and close out a ticket.

Now, equipped with mobilized technology, technicians can access work orders, design specifications, reference materials and controller software updates right on the factory floor. Having real-time access to maintenance information enables technicians to close out service tickets faster. They can deploy and debug machine controller software updates with their wireless notebooks, thus getting the factory asset online faster and improving facility output. And, thanks to Voice over Internet Protocol (VoIP), maintenance management can dispatch service technicians to their next job while the technicians are out in the plant.

Finally, the mobilized computing solution is tied directly into the automaker's maintenance inventory database. When a technician uses repair parts, consumption is noted by the system and inventory automatically adjusts. As part's stocks become low, the system automatically re-orders the items based on pre-set inventory replenishment thresholds and keeps the assembly line running smoothly for maximum output.

A Growing Trend

Mobilized computing solutions like these are gaining acceptance across all industries. According to an annual Information Technology Spending study published by AMR Research*, wireless technology ranked number two on the list of strategic technology investments for 2004[1]. Analyst firm Pyramid Research* estimates there could be as many as 700 million Wi-Fi users by 2007[2]. For many organizations, this means a build-out of wireless Local Area Network (LAN) infrastructure, AMR analyst Dennis Gaughan notes.

Security concerns continue to be an issue for companies considering more extensive wireless technology build-outs, albeit to a diminishing degree. "While security concerns have not disappeared," Gaughan says, "improvements to the standards and a much better awareness of the limitations have minimized the reluctance to deploy."

Are wireless LANs a replacement for existing wired networks? Should companies make build-outs of new space completely wireless and forego the wired infrastructure? Not necessarily, Gaughan believes. "Wired and wireless LAN technologies are complementary," he notes. "The companies that use wireless

technology most effectively overlay it with wired networks for maximum flexibility and performance."

In its most recent Intel Centrino mobile technology product enhancements, Intel has included the latest wireless LAN security solutions in its new wireless offering[3]. For enterprise users, this module supports the new IEEE 802.11[1] security standard, which offers the highest level of security currently available. Advanced auto-detection and auto-select security capabilities make it easier for wireless users to employ the highest available security settings. The technology currently supports Wi-Fi Protected Access (WPA) and Wired Equivalent Privacy (WEP) security, and is expected to support WPA2, when available.

As more companies adopt mobilized solutions, IT management must address how to manage these disparate devices and networks most effectively. What types of units do companies standardize on so they don't have 15 different model numbers? Who has which devices and what versions, and how does IT get software and hardware upgrades to the users of these devices—users who are spread all over the place?

These are the next big challenges being addressed by enterprise IT managers.

So What's the Bottom Line?

Mobilized technology solutions extend the capabilities of every user by truly mobilizing a company's field force workers. Companies today need all the help they can get in order to remain competitive and succeed in their markets. An integrated solution comprised of mobilized business applications, wireless networks and mobile computing devices delivers this help, markedly improving field force productivity.

Mobilized computing helps enable organizations to better serve their customers and run their business. How? By giving field workers real-time information at the point of work. Nothing can compete with the combination of mobilized software, wireless networks and mobile computing devices for delivering accurate information to the point where decisions are made or service is delivered.

Finally, mobilized solutions help organizations transform their business and drive down costs by mobilizing manual processes—processes that typically are paper-laden, repetitive, labor intensive and time and resource-inefficient. Strategically integrating mobilized solutions into your key business processes can lower your operating costs by streamlining information flow and resource management while improving your decision-making capability.

As a key driver in the mobilized solutions arena, Intel sees these benefits being realized first hand. Intel works with top industry players to bring together mobilized software, comprehensive wireless networking and robust mobile client architectures such as Intel Centrino mobile technology and Intel® Mobile Media Architecture to enable business transformation solutions.

Mobilized computing solutions offer a huge opportunity to drive down costs and improve service and revenue, regardless of the industry. With this in mind, then, where should a company start when considering deploying this technology? In the big scheme of things, take a look at where you have paper in your environment and replace that with mobilized solutions—this is where you can begin to reap a significant return on investment.

For more information on mobilized technology and solutions, go to: www.intel.com/go/mobilizedsolutions and www.mobilizedsoftware.com

[1] AMR Research, The IT Spending Report, 2003-2004 (August 2003).

[2] Pyramid Research, The New Wireless Road Warrior: How Business Travelers Are Shaking Up the Telecoms Industry—From Wi-Fi to 3G (April 2004).

[3] Some security solutions may not be supported by your PC's operating system and/or your PC manufacturer. Check with your PC manufacturer for details on availability.

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