



Tapping the Power of the Mobile Enterprise:

*A Step-by-Step Guide
to successful handheld integration*

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Introduction: Time to Mobilize?

The vision of a mobile enterprise is quickly coming into focus.

If you're still on the fence about whether to add handheld devices to your enterprise, talk to David House. As the CIO of Baptist Health, the largest healthcare provider in Arkansas, House was skeptical of the value that a physician armed with a personal digital assistant (PDA) or other mobile handheld device would bring to his hospital system. "I thought of them as toys for geeks," he says of handhelds. "I saw applications that benefited the doctors in their

private practices, but didn't seem to add value to the hospital." He also had a full plate of IT projects already occupying his time, leaving little motivation to integrate a mobile component into his enterprise.

Less than a year later, House and his IT staff were managing the deployment and administration of more than 200 PDAs to doctors and other staff within the Baptist Health system and crediting its mobile solution with improving patient care and satisfaction while saving doctors up to an hour a day on their rounds. "We're just getting started," he says. "There's a whole other level of benefit that we could appreciate."

Mobile Indicators

- A maturing market for mobile device software and enterprise management solutions
- Continuing demand for mobile handheld devices
- Increasing functionality and decreasing prices for mobile hardware
- Logical applications for professional/corporate needs
- Opportunity to evolve a strategy over time



Why the turnaround at Baptist Health? Simply, the technology for establishing, managing and building a mobile enterprise is maturing rapidly and providing value-added solutions to CIOs and IT professionals. Software developers numbering in the hundreds of thousands are creating applications for verticals such as healthcare, retail, sales and construction, among several others, while synchronization and management solutions for wireless and other data connectivity options continue to proliferate.

Fueled by increasing functionality and dropping prices, the market for smart handheld devices is predicted to top 63 million units by 2004, with 60 percent of office workers carrying at least three mobile computers or devices. Meanwhile, demand for mobile and remote systems management solutions is expected to grow from \$83.2 million in 2000 to nearly \$630 million by 2005.

Just about any job that now requires a clipboard and/or the after-hours input of any type of information is ripe for the mobile enterprise. With that, about 48 million employees, managers and executives work away from the office at least part-time. In fact, all of these folks are already mobile and part of the enterprise in some fashion; all they need now is a properly managed and

supported PDA or other handheld device, as well as job-specific software and reliable connectivity, to optimize their mobility and their value to their companies and clients.

Despite the onslaught of applications and cheap devices, not to mention the cries of frustration from IT departments trying to control data transfer to back-door personal PDAs, corporations of sufficient sophistication are taking a measured approach to a mobile enterprise — and for good reason. Not only is jumping on a fast-moving train from a standing position difficult, it is predictably hazardous. Most are choosing to run alongside for a while and look for just the right opportunity to take their leap instead of risking injury or worse, waiting for the next train.

So at what speed do you approach a mobile enterprise? A lot depends on where your corporate enterprise is now (see page 7) and what benefits you can glean today and predict for the near future given the current state and appropriateness of the technology to your particular business and industry. From there, you can place your corporate enterprise along a four-stage mobile enterprise continuum (see pages 10-18), which allows a mobile solution to

evolve as your corporate needs, budget and demands change over time.

Why the Hesitation?

Despite media hype and pressure from software vendors, corporate IT departments have yet to embrace the concept of a truly mobile enterprise. According to Forrester Research, 36 percent of companies surveyed reported that uncertainty about the appropriate mobile device has kept them from implementing a corporate solution. Other concerns, such as network problems and lack of industry and corporate standards, also made the list, as did device utility and learning curve issues. Meanwhile, 27 percent of the companies that had deployed corporate handheld applications reported no problems with their mobile strategy.

mobile stat

The number of “small form” computing devices is expected to grow from about 75 million units in 2001 to nearly 450 million units in 2007, thus outnumbering desktop and notebook PCs.

**Source:
ResearchPortal.com**



Benefits of a Mobile Enterprise?

A competitive advantage now, a competitive requirement soon.

In a small way, all you have to do is think about your last cell phone call or e-mail exchange to catch a glimpse of the benefits afforded by an enterprise that incorporates handheld devices. Of course, those benefits go far beyond simple convenience and accessibility, but a successful mobile IT strategy is rooted in those basic tenets.

Every growing company should constantly be on the lookout for ways to reduce costs, improve productivity and accuracy, and be more responsive to customers and clients. A dedicated mobile enterprise strategy offers these and several other potential benefits on every rung of the corporate ladder, including:

The Critical Benefits

- Potential to reduce costs and increase productivity and accuracy
- Anytime/anywhere access to corporate data
- Faster and more accurate responsiveness to customers and clients
- Corporate control and management; better security and support
- A competitive advantage
- Low TCO and fast ROI

1. Access. The ability to access the corporate network from almost anywhere, regardless of the connectivity option, is a primary benefit to deploying a mobile strategy. Field workers are no longer tied to desktop PCs (or perhaps even sync cradles) to check mission-critical data such as available inventory, updated contact databases, e-mail requests, or test and marketing results. Handheld access provides timely answers that lead to timely decisions.



2. Cost Savings. A mobile enterprise lowers expenditures while boosting the bottom line. Instead of expensive laptops, the bulk of mobile workers are equipped with cost-effective PDAs — perhaps even as a personal rather than corporate investment. And instead of recalling every field device for a software or memory upgrade, a synchronized data management solution for a mobile enterprise automatically troubleshoots and transfers such data remotely.

3. Accuracy. Replacing paper with PDAs reduces the potential for errors in copying data to a call report or clinical chart — and yet again from a hard-copy fax to the network database. Instead, data transfers seamlessly and quickly through the network, updating the corporate picture and others in the field without any extra keystrokes.

4. Productivity. Better access begets greater productivity, as mobile workers are able to call up data that allows them to respond faster to market conditions, provide accurate and current information, be a hero to their clients, and push for the sale. Likewise, a synchronized data management system for a mobile environment brings information from the field back to the home office, where it becomes accessible (and thus beneficial) to appropriate enterprise users elsewhere.

5. Responsiveness. Need an answer now, or at least before your competitor gets it? One of the chief benefits of a truly mobile enterprise is the ability to get accurate answers quickly, and then pass them on. Mobile workers with access to the rest of the enterprise know the status of a shipment, how much of a product is in inventory and

on order, what the lead time is for a special request, and how much a suite of optional upgrades is going to add to the final price.

6. Control and Management. Underlining all this access to corporate data is the need to create and maintain a secure, easily supported enterprise environment, especially for remote data devices not tethered to (or perhaps even owned by) the corporate office. Gaining control of PDAs allows the IT department to channel content, set corporate standards for access and use of data, establish data security measures and support a suite of approved applications. Some server-based solutions may also automatically backup and restore information and allow remote device management, saving IT dollars and time.

After E-mail

Access to e-mail is by far the most popular application used by mobile and remote enterprise users. But a census of network executives taken by IDC revealed that, after e-mail, workers wanted applications that dug into their corporate data-banks. A full one-third of the respondents also wanted access to server-based files, while the ability to download business-specific applications also garnered significant numbers. In a separate survey by Forrester Research, two-thirds of the companies in the study said they plan to expand access to (and support of) corporate data and applications by 2003.

The benefits of a dedicated mobile enterprise strategy to your company depend on how well the combination of devices and applications meets the needs of your workforce and customers ... and how willing you are to retool your IT standards to accommodate a working world where remote access to current corporate data is moving rapidly from a competitive advantage to a competitive requirement.

The first place to start is to understand your current state of enterprise mobility. The next section outlines a methodology for conducting an internal audit of your workforce, including mobile handheld devices and applications already in use, current data access standards, a total cost of ownership (TCO) analysis, and other auditing tactics necessary to properly gauge your readiness for a mobile enterprise.

mobile stat

Among grassroots, corporate and other areas of typical business operations, line workers (42%) and executives (22%) are leading the push toward handheld and mobile enterprise development.

Source:
Forrester Research



Where Are You?

An internal audit sets the stage for establishing and managing a mobile enterprise.

Step-by-Step: Audit

- Determine current state of mobile handheld usage among employees
- Determine current/existing remote access options and connectivity
- Determine scope of current enterprise data usage
- Gauge maintenance and support issues with mobile handheld devices
- Create a total cost of ownership (TCO) model
- Leverage existing IT investments and strategies to include mobile devices

You can't get where you're going until you know where you are, and an internal audit of your mobile enterprise readiness is essential to an effective and non-intrusive deployment of a mobile strategy.

With the rapid proliferation of mobile handheld devices in just the last half-decade, it's a safe bet that your company has at least a few employees already accessing corporate e-mail and contact databases on their PDAs or cell phones, often by syncing to their desktop PCs. It's also likely that you've got a library of laptops being hauled all over the globe, also connecting to the network via dial-ups that are whittling away at your bottom line. These and other indicators of an underground mobile enterprise need to be ferreted out as you devise your mobile enterprise strategy.



Fortunately, conducting an audit requires only a few basic questions of your employees to assess your current state of corporate mobility, preferably in one survey that covers the following areas of interest to the IT department and CIO:

1. Ask employees to specify the kind, brand, operating system, memory, disk capacity, battery life and other relevant specifications of any handheld devices they own or use. If an employee currently does not use a mobile device, determine a level of interest and/or time frame for when the employee plans to get one, if at all. Together, this information will provide not only a count, but a good indicator of interest in a mobile environment.

2. Ask employees if they use laptops provided by the company and/or remote access desktop PCs, and for what purposes, to determine any applications that could be better utilized on a handheld device.

3. Ask employees how and for what information they currently access the corporate database, including connectivity options and what information they glean. With that, ask them to rate or list the applications and/or data access they are most likely to need and want in their jobs, regardless of the device

or connectivity option. Chances are, you'll find that e-mail, calendars and client/prospect contact management functions top the list of desired

applications for most employees. In addition, this information will allow your IT staff to group certain employees with certain functions and help determine and control access to corporate content.

4. Ask employees about maintenance chores they've experienced with their personal handheld devices, such as viruses, application upgrades, and other issues, which will give the IT department a better handle on what to expect (and budget) for support and troubleshooting.

5. Determine a comfort level with handheld devices, perhaps on a scale of 1-10, to set general expectations for learning curves and training needs.

The IT department also has some work to do behind the scenes, dovetailing the employee survey with some analysis of its own, including:

1. Determining the total cost of ownership (TCO) of any company-provided mobile or remote devices, such

Tips for TCO

No doubt you've done this before with other IT investments, but here's a cheat sheet on determining the total cost of ownership (TCO), just in case:

- Direct software costs (licensing fees, royalties, additional seats, upgrades);
- Supporting software costs (database and server applications, among others);
- Staff and training to deploy, administer and support the devices and data;
- Hardware costs, either shared or exclusive to the company or user;
- Ongoing maintenance, operational and tech support costs;
- Data security and access control measures;
- Return on investment (ROI) calculation; "hidden" or hard-to-calculate costs, such as tracking usage, keeping up with ever-changing technological advances, and ongoing training.



as laptops and remote-access desktop PCs, cell phones or pagers. An accurate TCO of your current deployment will provide a baseline for a feasibility analysis and detailed cost scenario regarding handheld devices in a mobile enterprise. (For Tips on TCO, see box on page 8.)

- 2.** Evaluating the ability of your existing IT network infrastructure to integrate mobile devices, as well as the support they'll need. Look at existing corporate access standards, connectivity options, security and encryption, and data management and synchronization — as well as how other devices, such as remote desktop PCs or point-of-sale systems, were previously integrated.
- 3.** Considering how mobile (and perhaps wireless) data capabilities will improve core business practices and

processes, such as sales, production, distribution and customer service. The employee survey will certainly shed some light here.

- 4.** Assessing your flexibility in deploying a new enterprise device, although integrating mobile devices ideally involves little change and, in fact, leverages existing IT investments and strategies.

There will be more questions later, of course, as you add features, functionality and users along the mobile enterprise continuum. Budgeting time to gather the basic information about your current situation, however, will set the stage for how and what to deploy in a mobile solution, and allow you to strategize about how and where to direct that solution down the road.

mobile stat

“Mbusiness realizes that integration, customization, and the number of end-users are the biggest factors in determining the cost of a wireless application.”

– MBusiness,
June 2001

The Mobile Enterprise Continuum



Find the stage that best describes where you are in your mobile enterprise.

Now that you have a clearer picture of your company's current state of mobile readiness, it's time to get to the meat of deploying and integrating mobile devices into the enterprise. This grid shows four stages of mobility, each of which is described in detail in the following pages and identified with its quadrant's icon for easy reference.

Stage 1:

A Baseline Strategy

Integrating existing handheld users with existing enterprise applications and support functions.

Step-by-Step: Baseline Strategy

- Recognize the value of PIM data to the enterprise
- Integrate current mobile users first
- Make the same commitment to mobility as with other IT strategies and projects
- Build a solid foundation for adding new users and applications later
- Consider a device-agnostic, server-based mobile information management solution
- Strive for seamless integration
- Measure results

Stage 2:

Adding New Users

Integrating new users into the mobile enterprise to access existing data resources and applications.

Step-by-Step: Adding New Users

- Set broad corporate standards for new users and devices
- Integrate new users via a pilot or controlled rollout scenario
- Invest in mobile handheld device at the corporate level
- Evaluate connectivity options and preferences
- Measure results

Stage 3:

Adding New Applications

What to consider and budget for when considering the integration of custom applications specifically for handheld devices.

Step-by-Step: Adding New Applications

- Determine and prioritize mission-critical enterprise data and its value to mobile users
- Investigate vertical or industry-specific software solutions
- Integrate new applications via a pilot or controlled rollout scenario
- Optimize mobile information management solutions for IT support tasks
- Measure results

Stage 4:

An Advanced Mobile Strategy

Support of a sophisticated mobile enterprise, as well as a strategic plan to move it forward and keep it current.

Step-by-Step: An Advanced Strategy

- Integrate with back-office systems and infrastructure
- Continue to investigate and evaluate new hardware and software
- Periodically retrain and refresh employees regarding new mobile capabilities and access to enterprise data
- Measure results and strive to continually improve your mobile enterprise strategy



Stage 1: A Baseline Strategy

Integrating existing handheld users with existing enterprise applications and support functions.

The time is quickly passing when a PDA moves from a high-tech novelty to an indispensable business tool. The same basic functions used on a personal level are proving their value in the professional arena, as well. That trend can either spell trouble or opportunity for your enterprise.

With each passing day, more mobile devices are brought into your enterprise as employees look to synchronize with their e-mail, calendars, and contact list applications, commonly in a cradle tethered to their desktop PCs. To any IT professional, the risks are clear: simply, you don't know where that handheld's been ... or where it's going.

The first step of a baseline mobile enterprise strategy, then, is to recognize that the value of Personal Information Management (or PIM) data — the combined functions of e-mail, calendars, tasks, memos, and contact lists — is just as important to the enterprise as it is to the end-user. Under that premise, it becomes clear that these mobile devices, specifically “back-door”

PDA's and other handhelds, must be wrangled under control to harness and optimize that value to both parties.

The Commitment

Once you decide to take a prudent measure of control over the mobile devices used within your enterprise, that decision translates to the same commitment you've made to every piece of equipment and software in your IT strategy. Issues of management, access, security, and support will all have to be addressed as you establish a

baseline strategy for a mobile enterprise — in fact, building the foundation for how that strategy evolves over time to accommodate more users and more applications.

Perhaps the most obvious cornerstone of this strategy is to centralize the data and create a server-based point of access to the enterprise. As long as employees maintain PIM applications on independent PCs, the data can be neither truly shared nor protected beyond their personal use and responsibility. Ask yourself: do you really want a salesperson assuming IT tasks?

Creating a server-based mobile data management solution answers that question and automatically

Step-by-Step: Baseline Strategy

- Recognize the value of PIM data to the enterprise
- Integrate current mobile users first
- Make the same commitment to mobility as with other IT strategies and projects
- Build a solid foundation for adding new users and applications later
- Incorporate a device-agnostic, server-based mobile information management solution for increased control and management
- Strive for seamless integration
- Measure results



addresses issues of encryption, authenticated access, data sharing, and support. It allows the IT staff to set up each user with a specific access profile. And, once data is synced to the server (often automatically), it is available to everyone else in the enterprise authorized to access it. Tasks are sent, confirmed, and completed, contact databases are updated and current, e-mail is safe from viruses, and applications are upgraded, supported, and, if necessary, restored without loss of data.

Lastly, your server-based solution should relieve you from dictating the type of mobile or handheld devices brought into the network (though establishing a broad standard is recommended as you bring in new users, covered in Stage 2, page 13). The internal audit of your mobile workforce probably indicated an affinity for the most popular brands; though each offers a variety of devices, functionality, and usability. Simply, there's no compelling reason to rock the boat and make rogue users switch to a standard form and format. Your mobile strategy should (and can) accommodate them all.

An Easy Transition

Incorporating mobile devices into your enterprise should cause as little disruption as possible. Even switching to a server-based data management model for remote access devices is easier than it sounds. Meanwhile, the PIM data that sits on your network is what most folks want—all you have to do is let them access it, albeit under central control.

If there's one unavoidable issue in establishing your baseline strategy, it is on the support side. Sure, your IT staff is savvy to various operating systems and how to manage them, but PDAs and other mobile handheld devices will add to the critical mass of equipment that needs to be watched and repaired from time to time. For starters, you can probably get along with your existing support structure, though that may not be enough as your corporate mobility expands. And with a server-based solution versus users synchronizing to desktop PCs, IT support needed is likely to be less.

As with any stage of your mobile enterprise strategy,

build in time and resources to get some feedback on its effectiveness. In addition to tracking support requests, gather anecdotal and hard data on usability, productivity, costs, and interest among those on the mobile network.

Ready to Move On?

Establishing a baseline strategy for adding a mobile component to your enterprise will challenge your IT staff to more closely manage a remote workforce, supply access to basic yet critical PIM data on the corporate network, maintain security, and support new and perhaps varied operating and software systems.

Once that foundation is built and shows no signs of cracking, however, you can begin planning for the next step of adding more users to the mobile enterprise.

Mobile Enterprise: Healthcare

Doctors at Moses Cone Health System, a 1,100-bed healthcare provider in Greensboro, N.C., can now access up-to-date clinical information at their patients' bedsides using their PDAs. After linking to the hospital's clinical database at infrared sync stations prior to their scheduled rounds, physicians are provided with a list of patients, each current lab, medication, therapy and other clinical data previously available only at fixed, wired workstations. The time saved — up to 30 minutes a day — means more time with patients, better care and increased patient satisfaction. The hospital system estimates a very fast return on investment (ROI). "Doctors told us this is the greatest thing they'd ever had, and we were getting pressure from their colleagues to get it," says CIO John Jenkins.

mobile stat

Eighty four percent of handheld users access personal information management (PIM) data, by far the most widely used application for mobile devices.

Source:
Forrester Research 2001



Stage 2: Adding New Users

Integrating new users into the mobile enterprise to access existing data resources and applications.

Having established a baseline strategy for gaining control of and integrating rogue handheld and other mobile devices into your corporate enterprise, you can now move to the next stage of directing future users coming on board.

Armed with the lessons learned from your internal audit and the foundation of a solid mobile strategy, you now have the tools and experience to set specific, if still broad, standards for device selection, data management and access, support, and security. Whatever rumblings you might hear from employees anxious to get the newest mobile device will be offset by the value you can promise if they adhere to your enterprise standards.

Control the Rollout

Beyond those initial adopters—the same folks who took to laptops, cell phones, and digital pagers before everyone else—the bulk of your mobile workforce will be a bit phobic of being handed a mobile device to replace or augment their PCs. As a result, you may be tempted to allow new users access to the enterprise as they please, even with an “approved” device.

Resist that urge. Instead, take a look at your company and identify a division or other common group of folks for a controlled rollout, in which everyone in that crowd will be given (or supplied) a mobile device that both suits the requirements of their jobs and can be easily supported by the IT staff.

A controlled rollout accomplishes several objectives: First, it creates a critical mass of mobile enterprise users that will, in time, deliver reliable feedback on the value of mobility to your overall corporate goals, including return on investment and total cost of ownership. That feedback, can be used to refine your mobile and overall IT strategy.

Second, a rollout approach gets handhelds and other mobile devices into the hands of the people who stand to benefit most from using them. Your analysis of the initial rollout group, therefore, should consider what jobs rely upon existing enterprise data the most. And getting a PDA

to folks who pine for mobile access to the enterprise, tech-phobic or not, will show a corporate commitment to supplying the latest means for boosting productivity.

Lastly, a controlled phasing of mobile access to the enterprise allows you to dictate certain (if still agnostic) device standards that fit with your vision for a long-term and more extensive mobile enterprise strategy—such as:

- display specs
- chip and battery power
- built-in security features
- robust and supported operating systems
- room for custom applications

Step-by-Step: Adding New Users

- Set broad corporate standards for new users and devices
- Integrate new users via a pilot or controlled rollout scenario
- Invest in mobile handheld devices at the corporate level
- Evaluate connectivity options and preferences
- Measure results



Who Pays?

If employees are willing to shell out a few hundred bucks for a PDA and either tuck it in their expense accounts or write it off on their taxes, why should the company create a new budget item to buy new devices to add to the enterprise?

Simply, it pays. Not only are PDAs and other mobile handheld devices cheaper than laptops and tablets, but they can often replace that equipment and also lower loss, service and support costs in the process. Paying for a PDA also shows a commitment to the concept while ensuring those dollars go toward a device on the approved list.

The flipside is that mobile workers who foot the bill for mobility are perceived to have a vested interest in using the device and optimizing its value, and also have greater freedom to add applications for personal use, as well. Today, about 12 percent of companies surveyed share the cost of mobilizing their employees with the workforce, while a solid half of employees pay for the equipment themselves. By 2003, however, up to 76 percent of

corporations are expected to select and purchase the devices for their mobile enterprise. The choice is yours, but adding a line item in your IT budget might simply be inevitable if you expect to truly integrate handhelds.

A Word About Connectivity

In addition to meeting other IT objectives, initiating a controlled rollout of new mobile users will allow your IT professionals to offer and evaluate a variety of connectivity options for remote and mobile workers. When considering a connectivity option (or multiple options), evaluate each on the basis of its existing and potential performance, reliability, coverage and existing standards.

For instance, while current wireless bandwidth is adequate for accessing the bulk of your enterprise application, it is still somewhat unreliable in its global strength and availability. Investing in wireless and other connectivity methods, however, will build upon your experience in mobile enterprise management and help move you toward the next stage: Adding functionality with new and existing applications.

Mobile Enterprise: Sales

Already deploying PDAs to gather information about clients, prospective clients and competitors, Reuters News Service upgraded the efficiency and management of its mobile enterprise by adding a portable version of a customer relationship management (CRM) application. Field sales reps now synchronize remotely using wireless modems directly to the database to synchronize customer information, thus helping the Reuters IT staff to maintain secure control of valuable data and centralize management of mobile information and applications. Sales executives, meanwhile, easily manage client interactions, update contacts and tasks and target prospective clients. "With one click you can synchronize information on what your users are interested in, what competing products they are using and what you have to remember after a customer meeting," says Manuel Pineda, a Reuters sales executive.

mobile tip

Instead of doling out devices, consider allocating dollars to allow end-users to choose one from an approved list of supported gear, helping them get past an initial phobia about the technology.



Stage 3:

Adding New Applications

A competitive advantage now, a competitive requirement soon.

As you expand your mobile enterprise as a dedicated item of your IT agenda, it will become clear that PIM data only scratches the surface of its potential value to end-users and the company, its clients, and vendors. Initially, access to PIM data is sure to satisfy most mobile users, giving them the bulk of what they need from the network. Soon, however, they'll be asking for mission-critical information from other databases that has a direct influence on their specific responsibilities and competitiveness in the field.

The stability of the foundation and framework established in the first two stages of mobile enterprise development will be tested as you consider adding custom or job-specific applications to your handheld strategy. Are the supported devices robust enough to handle new and additional applications? Are workers ready to turn in their clipboards and paper-based processes in favor of what some might perceive as a glorified Gameboy? Is the IT staff ready (and willing) to step up and support a suite of applications designed for handheld devices?

A Test Bed

As with adding new users, the approach to increasing the functionality of your mobile enterprise should be

measured first with a pilot or controlled rollout. By examining the type of data in your enterprise and matching it to a select group of users, you can cut your teeth on a program — such as sales force automation (SFA) — that won't overtax your systems and will give you the most assurance for rapid acceptance and measurable effectiveness.

You'll also gain wisdom regarding the flexibility of off-the-shelf apps, and be able to apply those lessons to future software additions, upgrades, and development without necessarily investing in an enterprise-wide solution that ultimately falls short. You may even find that some applications and data are best left on fixed workstations or other wired systems, while the efficiency, accuracy, and productivity of other processes increases once they are installed on mobile devices.

Step-by-Step: Adding New Applications

- Determine and prioritize mission-critical enterprise data and its value to mobile users
- Investigate vertical or industry-specific software solutions
- Integrate new applications via a pilot or controlled rollout scenario
- Optimize mobile information management solutions for IT support tasks
- Measure results

Who Can Help?

To date, most companies already committed to a mobile strategy still have little clue about who will help them tap into the enterprise and optimize the technology. More than half will rely on platform vendors, while nearly one-fifth will take on the chore in-house.

An underlying source, however, appears to be developers of enterprise and vertical applications — small, aggressive firms with practical experience in a specific vertical industry that recognize



the value of mission-critical data tied up in a company's enterprise databases and seek to bring it to the mobile environment. Unlike larger developers launching cookie-cutter application packages that may be difficult to manipulate, these folks attack niches head-on with solutions that not only access specific data—such as order entry, customer relations or insurance claims—but translate display and navigation logic to the limited viewing area of a PDA.

For instance, physicians equipped with PDAs are presented with clinical data organized by patient, with diagrams and other reports appearing to them as they could on a chart or fixed workstation monitor. That kind of familiarity eases concerns about data accuracy while the PDA format puts the data at a patient's bedside.

Back-office Benefits

While the proper custom application will make your mobile workforce all the more productive, other programs can assist the IT staff in its role of efficiently and seamlessly supporting those solutions. The more sophisticated mobile data management solutions, for instance, automatically conduct diagnostics as handhelds are synced to the network, outputting status reports of the mobile enterprise while also providing data backup and restore capabilities.

Learning from these applications can provide important lessons for building in-house development expertise for enhanced mobile enterprise maintenance and innovation down the road. As a result, the company is better prepared to adjust to and support an advanced mobile enterprise strategy.

Mobile Enterprise: Homebuilding

New York homebuilder Randy Polumbo outfits himself and his field superintendents with PDAs. They use these devices to communicate via wireless e-mail and hot-sync to their home PCs to transfer data with the home office network via secure Internet access during off-hours. The technology allows Polumbo's mobile workforce to track multiple projects in various stages of completion, confirm and record materials deliveries, submit purchase orders and respond quickly to questions from clients and vendors. The company has realized increased productivity and accuracy by reducing data entry points, allowing Polumbo to build (and sell) homes faster and for a greater profit margin. "If you're serious about this business ... you have to move up to the next level of communication technology," he says.

mobile stat

In 2001, about 30% of firms reported supporting more than PIM applications, but 68% will by 2003.

**Source:
Forrester Research**



Stage 4:

An Advanced Mobile Strategy

Features and support of a sophisticated mobile enterprise, and a strategic plan to move it forward and keep it current.

If you've come this far in your mobile enterprise strategy, you have a solid commitment to making it work and seeing it grow to perhaps the key component of your competitiveness. By now, you have systems in place to accommodate and support new mobile users and applications, with mission-critical databases being tapped into and updated every time someone syncs their PDA.

The next logical step, then, is to further optimize the process by fully integrating your mobile workforce with various back-office systems. The goal is to create a seamless stream of data that routes automatically to its appropriate destination on the network and triggers other tasks without so much as a keystroke. In a professional world where the speed of information access is measured in minutes, or even seconds, it is a strategic vision that promises to set companies apart.

Imagine a scenario where an insurance claims adjuster is able to fill out a claim form on his PDA,

submit it to the home office from a remote location, and have it automatically work its way through authentication, policy compliance, approval and accounting. Within a few minutes, that adjuster knows when a check will be cut and posted (perhaps via automatic funds transfer), allowing him to pass along that information to his client. Would you buy insurance from this man? Would you invest in his company?

The same scene can, and will, be played out in every conceivable industry, from building materials to law enforcement. The combined benefit of fast access to mission-critical data and the ability to flow new data through the enterprise will greatly enhance productivity, accuracy, and profitability.

Step-by-Step: An Advanced Strategy

- Integrate with back-office systems and infrastructure
- Continue to investigate and evaluate new hardware and software
- Periodically retrain and refresh employees regarding new mobile capabilities and access to enterprise data
- Measure results and strive to continually improve your mobile enterprise strategy

Continue to Fine Tune

An advanced mobile enterprise strategy is a beginning, not an end. Sure, you've achieved a level of sophistication few can match ... for now. If the tech sector can be relied upon for anything, however, it is that it moves more quickly than perhaps any industry in history. The time will come faster than you think when your competitors will be nipping at your heels, pushing you to the next level.



The way to stay ahead is rooted in the initial work you did to develop a baseline strategy. That is, by continually evaluating your mobile and overall IT strategy, as well as the outside world, for even greater efficiencies, tools and benefits. Apply the lessons from your pilot and more extensive rollouts to every new user and new application, and retrain or refresh those initial users who may have gotten into rut with their remote access capabilities. Never stop asking how you can make it better.

At last, the transformation is complete: Those high-tech toys once considered cocktail party novelties are now dedicated application tools critical to the success of the enterprise, designed to collect and share data in a mobile and global environment.

Mobile Enterprise: Retail

Field service agents for POSSE, a set and service agency for such vendors as GE Lighting and Warner Ladder Co., use their wireless, modem-equipped PDAs to fulfill and submit daily call reports on product inventory and promotional displays at Lowe's Home Improvement stores. The custom application also allows agents to attach digital photos, send and receive e-mail, and record electronic signatures and timesheets. Agents hot-sync to the home office network server via secure Internet access to submit their call reports and other addenda, while receiving updates and device troubleshooting during the link-up. The mobile solution has reduced errors, boosted information access and reporting accuracy, and saved time. "It gives our clients an accurate picture of what we're doing and allows us to easily and accurately coordinate distribution," says POSSE president Erik Harvey.



Profile of Extended Systems

*Providing mobile
information
management
solutions to
the enterprise.*

Call it a fad, call it a trend. But the fact is that while mobile handheld devices may now rest in the realm of personal novelty, their place as the most valuable tool in the corporate enterprise shed is simply a matter of when, not if. And not because of sleek designs or even the ability to send and receive e-mail, but because being mobile is how more and more people prefer to work, without any lapse in their ability to remain connected to the enterprise.

Already, this reality is driving the development of innovative, industry-specific applications for mobile devices. And it's what telecommunication service providers are counting on as they up the ante of reliable, robust wireless connectivity. Between them, providing the means to efficiently traffic and optimize the data of an integrated enterprise, is Extended Systems.

Founded in 1984, Extended Systems (NASDAQ: XTND) is a forward-focused company with the means and experience to deliver mobile information management solutions to an ever-expanding world of enterprise customers. We were there when laser printers, desktop PCs and laptops entered the enterprise, and we're committed to moving beyond the connected network environment and into truly pervasive computing—that of anytime, anywhere access to any sort of enterprise data.

**Extended
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5777



Already, we've staked our claim as a leading provider of mobile information management solutions. Our inroads into the healthcare, retail, automotive, entertainment and telecommunications industries point to solutions that our customers rely on to deliver immediate value to their employees and customers. Extended Systems is providing a mobile information management solution for the internal IT needs of companies like Toshiba and Reuters, delivering a client/server software solution for the enterprise efforts of leading handheld device manufacturers like Compaq and Palm, enabling software developers like MercuryMD and IBM to package our products as the key component of an enterprise solution, and embedding our wireless technology into mobile solutions for companies like 3Com and Motorola. Extended Systems is expanding a global customer base that already includes more than one million installed units.

Our solutions address the gamut of issues confronting the deployment of handheld devices in the enterprise. Not only do our solutions enable the efficient management of mobile data through the network and the enterprise, they are open to an increasing range of devices and connectivity options critical to pervasive computing. Not only does our client/server software allow mobile users to move beyond access to personal information management (PIM) data, but boosts their

productivity by managing new applications and tasks in their handheld devices.

At Extended Systems, we're convinced that the mobile enterprise is fast becoming a reality for just about any type of business model and industry. While the bulk of handheld devices today are purchased for personal use, that pendulum will swing fully the other way—toward corporate purchases—we predict within the next year, as IT departments realize the value of pervasive computing and seek to offer the necessary data security and support across the enterprise. Despite a weakening economy, our revenues from mobile information management software solutions rose 37 percent in our last fiscal year, which indicated that well-managed mobile device and application deployment creates a competitive edge despite curtailed spending on other IT efforts.

Mobile computing is neither a fad nor a trend. It is a foregone conclusion awaiting a mass-market status that becomes more apparent every business day. Extended Systems, with its 16-plus years helping

enterprise customers achieve their information technology goals, is well positioned to tackle any mobile implementation for the enterprise—and deliver a solution that takes the idea of pervasive computing to stunning reality.

Maximizing “MIM”

In a world crowded with acronyms, MIM might well command the most attention from IT managers and CIOs — and hold the most power within your evolving enterprise architecture. Literally, it stands for Mobile Information Management, but its value is far more extensive. At Extended Systems, we've retooled our business model to provide comprehensive, device-agnostic MIM solutions to the enterprise. Our server software combines data storage and transfer, automated channeling and routing, encryption and other security measures, a wide range of support tools, connectivity options (including wireless and infrared), and data synchronization across a variety of file formats and operating systems. As you incorporate mobile handheld devices into your enterprise alongside desktop PCs, laptops and other hardware and software, the right MIM solution will no doubt dictate the success of your strategy and your company's ability to maximize information technology.

Glossary of Terms

Access profile — a set of parameters for an employee or group of employees that determines the allowable access to data on the enterprise.

Authenticated access — Access to data that is allowed only after the user has been identified by a password or other security measure.

“Back-door” PDAs — Handheld devices purchased and supported by employees for personal use but are also used to access corporate enterprise data.

Back-office — Internal corporate functions, such as accounting/billing, purchasing, etc.

Cradle — A stand that holds a handheld device in an upright position to allow work on a desktop and initiate synchronization with a PC.

Custom applications — Software installed on a device that was not part of its original package (or suite) of applications and that has been developed for a specific job or industry (e.g., hospital data).

Data sharing — Transferring and updating data among devices and/or the network.

Device-agnostic — Open to any brand of device or operating system.

Encryption — A security measure that “scrambles” data so it is unreadable until an approved user is authorized to access it.

Enterprise — The combination of employees, communication devices, and data available within an organization.

Handhelds — Communication devices that fit in one’s hand or palm.

Infrared — A method for transferring data between devices using infrared (line-of-sight) technology instead of cables or other wired connections.

Infrastructure — The matrix of operating systems, software, support, security measures and devices used by the enterprise.

Licensing fees — An up-front and either one-time or annual cost to install software developed by a third party onto your network.

Mission-critical data — Information critical to a particular task.

Mobile — A device that is designed for use outside the office or in the field.

Off-the-shelf applications — Prepackaged software developed to accommodate common needs and thus not typically customizable.

PDA — The acronym for Personal Digital Assistant (see below).

Personal Digital Assistant (PDA) — A mobile handheld computing/communication device.

Personal Information Management (PIM) — A suite or combination of software applications for mobile handheld devices that typically includes an address book (or contacts), to-do lists, e-mail functionality and a calendar/datebook.

PIM — The acronym for Personal Information Management (see above).

Platform vendors — Sellers of off-the-shelf software packages specific to an operating system or device data platform.

Pilot — Implementing a product or solution to a limited, representative group to gain insight and evaluate feasibility for the entire organization.

Return on Investment (ROI) — The time it takes to pay back (or recoup) the amount of money invested in a technology or strategy.

ROI — The acronym for Return On Investment (see above).

Rollout — Implementing a product or solution to an entire department, division or organization upon completion of a successful Pilot (see Pilot, above).

Royalties — Fees paid to the owner of a technology (e.g., a software developer) based on sales of that technology by a reseller or vendor.

Seats — Number of handheld users or potential users.

Server-based synchronization — Data transfer through a central server, typically via the Internet.

Sales force automation (SFA) — A generic term for software applications designed specifically for sales tasks.

SFA — The acronym for Sales Force Automation (see above).

Small form — A term used to describe handheld or palm-sized devices.

Smart handheld devices — Handheld devices with more than one function, such as a PDA with cell phone functionality.

Synchronization — Automated data transfer.

TCO — The acronym for Total Cost of Ownership (see below).

Total Cost of Ownership (TCO) — A calculation that considers all costs associated with investment in a technology.

Verticals — Industry-specific (e.g., healthcare or retail sales) markets.

Wireless — A connectivity option requiring no cables or wires to receive and transfer data between devices and/or the network (e.g., Bluetooth, Infrared, Cellular).



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Extended Systems is a global leader in providing mobile infrastructure software that extends enterprise applications to mobile and wireless environments. The company's mobile information management products include data synchronization and management software, short-range wireless connectivity products (Bluetooth and IrDA-compliant), and client/server database management systems with remote access capabilities.

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