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Carolyn Fitton
Corey Sandler
Tom Badgett



***Enterprise
Mobility***
FOR
DUMMIES®
SPECIAL EDITION

**by Carolyn Fitton
Corey Sandler
Tom Badgett**

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Introduction



You are not alone. We're all in this together — networked, connected, up in the cloud, flying through Wi-Fi and the web.

Enterprise Mobility For Dummies is your guide to application development and deployment, management, and security for all the devices on your network that aren't tied down by a power cord and data cable (including laptops, tablets, and smartphones).

Not too long ago, the only mobile devices you had to contend with were feature phones, pagers, and laptop computers. In the early days of portable computing, most of your users probably plugged into your corporate network several times a week, allowing you to run programs to configure, evaluate, maintain, and secure these mobile devices.

Today many more mobile options exist, and some of them may never darken the door of your corporate IT domain. In fact, take a moment to consider your current network: Do you know about every mobile device that is capable of accessing some part of your network? Do you know all the applications on each device? What about devices belonging to vendors and temporary contract workers? Are you monitoring and managing their remote access? Are there inactive devices languishing in drawers and briefcases somewhere? How

many of your company's smartphones are lying on the floor of a taxicab right now?

If you're not managing these devices and how they're used, you're opening a door to potential data abuse and unwarranted expense. And the problems (and benefits) are growing: According to International Data Corporation (IDC), by 2013, more than 1.19 billion workers worldwide will be using mobile technology. That would be almost 35 percent of the total global workforce.

About This Book

The whole concept of enterprise mobility is one that concerns employees at every level. The topic is gaining a lot of support and attention from major hardware and software companies, as well as system integrators and independent software vendors around the world.

We don't explain all aspects of enterprise mobility in this short book — we couldn't possibly squeeze it all in and still have room for our rib-tickling jokes and pithy asides. Instead, our goal is to provide management and IT professionals enough background and direction in mobility issues to help you make decisions about including the right technologies in your enterprise — mobile hardware, mobile applications, and the tools you need to manage it all.

Foolish Assumptions

In writing this book, we've made some assumptions about you. We assume that you're

- ✔ In business and enjoy the benefits of being able to stay connected and informed while you're on the move
- ✔ An IT manager, line-of-business manager, or business executive who needs to keep on top of the multiple devices your employees are using

How This Book Is Organized

Enterprise Mobility For Dummies is divided into six concise and information-packed parts. You can dip in and out of this book as you like, or read it from cover to cover — it shouldn't take you long!

- ✔ **Part I: The Brave New Mobility World** — Here we describe the computing environment we're most concerned with and point to some interesting statistics that will get you thinking.
- ✔ **Part II: Taking Control** — Today's business enterprise succeeds or fails based on the dedicated efforts of its team members — and the diverse tools they use to get the job done. You need some concerted management and control over how employees work with their mobile devices. We begin this discussion in Part II.
- ✔ **Part III: Zooming In On Products and Practices** — In this part, we specify what you need to do to mobilize and what solutions you can use to get it done.
- ✔ **Part IV: Introducing Sybase Solutions** — Sybase, an SAP Company, is a major player in this mobility world. We use some of Sybase's tools and

products to show you how to start managing your own mobility environment.

- ✔ **Part V: Gazing Into the Mobility Crystal Ball** — We've come a long way in networking, and mobility already is a key aspect of it. But you need to keep an eye on some key concepts and trends. We present some of these ideas in Part V.
- ✔ **Part VI: The Part of Tens** — This is our chance to bundle, into a small package, the top ten (or more) key concepts we think you need to keep at the front of your mobile mind.

Icons Used in This Book

To make it even easier for you to navigate to the most useful information, we use the following icons:



The Tip icon draws your attention to time- or money-saving advice.



The Remember icon highlights important information to bear in mind.



The Example icon indicates real-life anecdotes to illustrate a point.

Part I

The Brave New Mobility World

In This Part

- ▶ Looking at how far networking has come
- ▶ Identifying where mobility is now
- ▶ Crunching the numbers on mobility
- ▶ Seeing how mobility has impacted the lifestyle of today's worker

Mobility and networking go together like a horse and carriage. You can have networking without mobility components, but you can't have mobility without networking. In this part, we look at networking in general and talk about the rising mobility enterprise lifestyle. This subject leads us into mobility management and more.

Reviewing the History of Networking

The first data networks had one smart computer and a bunch of dumb terminals: simple text displays and keyboards that used the brains at the other end of the wire — the network.

The next step was to connect these computers to make them smarter and faster. Terminals became less and less valuable as users pushed IT departments to give them computers on their own desktops.

Computers on desktops distributed the workload and added computational flexibility, but data was all over the place. The means of communicating that data from one machine to another was haphazard. There were some makeshift cables for transferring information, ad hoc telephone and wired transfer systems, and the “sneaker net”: Paul would share information with Paula by carrying a floppy disk from his computer to her computer — not a very efficient, reliable, or secure technology.

The real solution to data sharing came with the invention of local area networks (LANs) — first wired and then wireless (WLANs). Now desktop machines could talk to each other. As the technology got better, computers could talk to each other over greater and greater distances, in what are known as wide area networks (WANs).

The widest of WANs, of course, is the Internet, which developed in parallel with other computer and network technologies. In the past decade or so, private or enterprise networks began to merge with the Internet.

At the same time, computing tools were undergoing an amazing metamorphosis, from rather large desktop machines, to portable laptops, to tablets, to smartphones. With this hardware development came network expansion. Wi-Fi and cellular access is available virtually everywhere, speed is improving, and software applications to support all this are more plentiful and easier to develop and deploy — with the right tools (which is the real topic of this book).

There was a brief time when people tried to move back toward centralized storage, an effort to get a handle on data and security management. That phase in network development was pretty brief, as smaller and more powerful computing devices gave workers increasing freedom beyond a desk in an office.

That's where we are today, and the trend is growing. Increased mobility and device diversity make for efficient business operation, but it can be a nightmare for IT professionals charged with protecting sensitive corporate data and keeping track of all this diverse hardware.

Looking At the New Mobility Reality

Whether your business has actively embraced network mobilization or fought the trend with all its might, your network is becoming a mobile enterprise. Laptop computers began the trend, but the real mobility move started when the first employee carried the first smartphone into work and began checking e-mail and running personal applications.

For most companies, the next step was to clamp down on device diversity in an effort to make IT management's job easier. That worked for a while, but employee interest in the next shiny object — and, in some cases, their blatant disregard for corporate policy — pretty much made management by policy alone a losing proposition.

Indeed, if you talk with any corporate IT manager, chances are you'll hear that employees are driving the quest for mobile applications. Over the next few years we expect that most corporations will support applications on personal devices. Increasingly, employees expect their companies to allow them to purchase their own mobile devices, and to support them with the necessary applications and access to corporate data.



The results of these changes in corporate philosophy relative to mobile computing are consistently positive. Mobile employees are happier and more productive, which is good for the company. If mobility is managed correctly, key corporate data is distributed to the field, where it can be accessed more easily and efficiently. Although there is a cost associated with proper mobility management, if employees are permitted to choose and carry their own devices, the company saves on hardware costs.

Browsing Mobility Statistics



To further put the growth of mobility into perspective, consider the following statistics:

- ✔ There are some 6 billion mobile devices worldwide.
- ✔ Mobile phones alone account for 5.4 billion mobile devices.
- ✔ Mobile workers number at least 1 billion — and that number is growing.
- ✔ The smartphone market is bigger than the personal computer market.
- ✔ By 2013, mobile devices are expected to outdistance personal computers as the most common way to access the web.
- ✔ An ABI Research study released in 2011 predicts that “the worldwide app industry is well on its way to achieving 44 billion cumulative downloads by 2016.”
- ✔ Mobility is growing five times faster than other IT shifts, such as client server or Internet adoption.
- ✔ Within a year, the majority of enterprises will deploy five or more mobile apps and 20 percent of companies expect to deploy 20 or more mobile apps.
- ✔ Fifty-seven percent of workers use their own mobile devices to make work-related phone calls.
- ✔ Forty-eight percent of workers use their own mobile devices to check work e-mail.
- ✔ Forty-two percent of workers use their own mobile devices to search the Internet or an intranet to access work-related information.

Research organization International Data Corporation (IDC) notes that mobile app growth is expanding, with 1.3 million distinct mobile apps deployed compared to perhaps 75,000 personal computer apps. On average, the 1.3 million mobile apps are installed nearly 7,000 times (some not so much, some a lot more, of course).

The Gartner Group predicts that, by 2014, most mobile workers will be using their mobile phones as their primary communication device. In fact, this prediction may already be outdated. Pew Research reports that by the end of 2010, about 72 percent of adult cell phone users were using text messaging. U.S. mobile phone users, on average, communicate with text messages more often than by voice call, according to a Nielsen study released in December 2010. Among some users, texting is a more common communication method than e-mail, even for business. In the United States, the average kid ages 13 to 17 sends and receives 3,339 text messages each month, the study shows. Nielsen also noted that 83 percent of U.S. youth use their phones for advanced data applications — usage beyond voice and text.

Already up to 70 percent of enterprise data exists in various mobile settings, from laptops to smartphones to retail and remote office environments.

A Yankee Group survey in 2010 showed that nearly 60 percent of employees were bringing their personal phones and tablets to work. This number can be expected to grow in the future, so now is the time to embrace the trend and establish a firm corporate policy on personal device use and management.

Considering the Mobile Lifestyle

This rapid trend toward corporate network mobility is changing the workplace, including employees' lifestyles and business operations.

Mobile technology can enhance business operations in many ways:

- ✔ An information worker can use his personal device to access enterprise e-mail and applications when outside the office.
- ✔ A salesperson can use a handheld device to get a customer to sign for samples received.
- ✔ A police officer with a tablet in her vehicle can access a database of criminal information while on patrol.
- ✔ A field service engineer can use a “ruggedized” tablet to find information on specific parts so that he can fix a customer's problem the first time.
- ✔ A retail salesperson can check stock levels and process transactions with a handheld point-of-sale device.
- ✔ A health worker can have up-to-date patient information, whether in the hospital or while visiting the patient at home.

Such advantages to mobile computing are real today, and they're becoming more common.

In the early part of the 21st century, however, adversity over mobile device management sometimes developed between employees and the IT staff. IT managers,

attempting to limit exposure to potential data loss, closed the security gate tighter and tighter on all mobile devices. Even though employees may have understood the need for security, they strongly resisted the loss of personal control of their laptops and phones. The typical attitude was, “I understand the need for security, but I still have to get my job done, and you’re slowing me down.”

Unlike the early days of corporate computing, today more (if not most) employees are computer savvy, and they expect to manipulate and manage their own computers — even if the company provides the device for them. When an employee’s primary office tool is locked down so tightly that he can access only sanctioned applications and procedures, he’s likely to be frustrated. As corporate computing moves away from conventional computers to very personal smartphones and tablets, this employee attitude becomes more pronounced.

Increasingly, enterprises are embracing the consumer trend and unwiring themselves. Mobility is quickly becoming a way of business life as mobile devices become the preferred interaction point to send information and applications to any device — anytime, anywhere.

It was inevitable. As employees chose and bought their own mobile devices, and work was increasingly conducted outside the office, work life and personal life — at least in terms of lifestyle — began to merge. The same smartphone or tablet you use to download grocery store coupons, top off your parking meter, order or record a movie at home, check your bank balance, or pay bills is also the one you use to contact the

office, view and edit documents, research markets, interface with clients, and prospect for leads.

Proven benefits of corporations embracing broad-based mobility include the following:

- ✓ Fast return on existing IT investment
- ✓ Increased employee productivity
- ✓ The desire to interact directly with the customer and other stakeholders
- ✓ The ability to attract the best talent from universities and colleges
- ✓ Increased reliance on mobile task and information workers — in effect, distributing the workforce

Think about this: With new and broadly distributed operating systems such as iOS and Android, coupled with more powerful handheld and tablet devices, new products are hitting the market nearly every month. A corporation that tries to establish a single standard for employee devices will be forever behind the technology curve. Providing every employee with the latest mobile device is simply too costly and time-consuming. Individuals, on the other hand, can and will upgrade and change their personal gadget almost as soon as the next one is available. Supporting this trend — and learning how to manage disparate devices across the enterprise — is cost effective for the company and empowering for employees.

Part II

Taking Control

.....

In This Part

- ▶ Identifying the benefits of mobility
 - ▶ Introducing mobility management
-

In the unwired enterprise, mobile is the new desktop. It connects the boardroom to the shop floor to the consumer across the entire supply chain. It empowers people and the companies that employ them. It changes our culture — the way we work and interact with our customers.

Enterprise mobility is a phenomenon that transcends all borders in the workplace; it's how and where we make decisions and collaborate.

That's the good news. There could be bad news for the enterprise, however, if this new technology and employee freedom aren't managed properly.

In this part, we explain the need for mobility management and security, and introduce the concept of platform application development.

Embracing the Mobility Trend

The benefits of going mobile are numerous, but the following are reason enough for any company to embrace the mobility trend:

- ✓ Increased return on investment (ROI)
- ✓ Improved employee satisfaction
- ✓ Improved ability to attract new worker talent

We cover all these subjects in the following sections.

Getting a return on your investment

Every company seeks to earn the most income from the funds it invests. A direct return on investment isn't always possible, of course, and some necessary corporate investments may be difficult to evaluate.

Encouraging, supporting, and directing an enterprise-wide move toward more mobility can provide rapid and measurable positive returns.

One reason for this ROI is improved productivity. Employees who must wait to make a management decision until they return to the office or start up a laptop simply aren't as efficient as those who can do it anytime, anywhere, from a handheld device.



Think about how your own tasks and those of your co-workers and folks you manage may go differently with and without efficient mobile connections. The productivity benefits of corporate-directed mobility include the following:

- ✓ Increased customer and business partner satisfaction

- ✓ Reduced sales cycles
- ✓ Streamlined workflow with added visibility
- ✓ Increased productivity and efficiencies
- ✓ Reduced operational costs
- ✓ Improved data collection and accuracy

Considering employee satisfaction

Work life is hard enough without employees feeling they lose their personal freedom when they come to work. Your handheld — whether smartphone or tablet — has become an integral part of who you are, what you do, and how you do it. It's your personal link to friends and family — life beyond the job — as well your corporate productivity tool.



Catching sales magic in a bottle

The Pepsi Bottling Group (PBG), the largest Pepsi bottling company in the United States, needed to provide better tools to its frontline employees to increase sales and productivity. Sybase technology — a component of many Sybase mobile management systems — helped create a more effective mobile workforce solution for PBG.

Paul Hamilton, vice president of PBG's supply chain group, and his colleagues wanted to provide PBG's sales representatives with a tool to maximize every customer interaction and to sell more effectively.

"It's all about having the information you need at the moment you need it," Hamilton says.

To achieve maximum gains, companies need to loosen the reins on employee device selection. It's that shiny object thing, again.

"At SAP, we believe strongly in device agnosticism," says Oliver Bussmann, SAP Global CIO. "Employees bring in their own expectations. Lifestyle becomes work style. So, we continue to support BlackBerry smartphones even as we roll out iPhones and iPads, Android devices such as the Samsung Galaxy Tab."

How can such a policy be successful with all the disparate platforms, operating systems, and user interfaces? It can, with proper planning and the right management tools (see "Managing Mobility," later in this part).

Attracting new worker talent

Current college graduates have grown up in the digital world. They don't know life without digital music, digital photography, digital games, and smartphones. The new term for these new entrants to the workforce is *digital natives*.

Do you think that digital natives can thrive in a work environment where *digital immigrants* (those who grew up in a pre-digital world) are unnecessarily restricting their access to the digital technology they feel they need in order to be productive? Unlikely!

A company's acceptance and fostering of a diverse and digital-rich work environment helps ensure that it will be able to attract some of the best, most desirable talent to join its team.

Managing Mobility

Why are we emphasizing the importance of corporate acceptance and active promotion of a diverse mobility environment? Because to manage such an environment successfully, you have to start early and you need a plan and direction. You can't wait until everybody within the enterprise is already using whatever mobile device they want, and then realize it's time to manage the network.

If you've gotten to this point without a plan, you need to put a plan in place now. Right now. Your task will be a lot easier and a lot less painful for everyone concerned, however, if you start early and plan carefully.



Your first and earliest decision is whether to accept the growth of an agnostic digital mobility environment. Not to decide is to decide. Your enterprise is going mobile whether you like it or not, but you can direct and guide the process if you get a handle on it early.

You can decide to sanction and support only certain devices or create an approved list and deny access to anything else. While any plan that restricts employee device selection is pre-millennial thinking, creating some plan and then implementing it properly is much better than having no plan at all. Plus, with the proper mobility management tools, you can be more receptive to diversity in your mobile networking.

Either way, get control of your mobile network evolution before it gets out of hand. There are three basic aspects to consider:

- ✓ Security management
- ✓ Device management
- ✓ Application management

As you develop a plan, you should consider *first* the issue of device and data security. That's step one.

Security management

If you've worked with computer networking at all, you already understand the need for security. We live in a world with just enough nasty and underhanded people to make things difficult for those of us who are pure of heart.

What mobile security is

You've worked with user names and passwords for network and server access. You've insisted on virus protection software on desktop and laptop computers. You probably know something about data encryption and regular backups.

All these things are valid in the mobile environment, but they may be harder to achieve and enforce. Besides, there are other issues you may not have considered so far:

- ✓ **Remote lock and data wipe:** This makes it possible to remotely lock and wipe data from a lost or stolen device even if you don't know where the device is. Some smartphone and tablet providers don't offer this feature for lost or stolen devices. As a mobile enterprise, you need the ability to remotely disable any errant device. This way, even if you lose the hardware, your data, user name, and other critical information will be safe.

- ✓ **Data fading:** A device can be configured to automatically destroy its sensitive information after it hasn't connected to the network for a period of time. This feature is useful if the loss of a device isn't discovered right away and no lock and wipe procedure is initiated.
- ✓ **Data encryption:** Data encryption prevents interception of data as it's transmitted over the air. If your data management includes credit card data or other sensitive customer information, you're probably encrypting at least some information stored on servers. But are you encrypting data in flight — information stored in packets and stretched out over the Internet or a wireless connection?

Turn to Part III for more information on mobile security.

Why mobile security matters

For one thing, although the mobile device boom has been going on for a while, the real ramp-up is just starting. Industry analysts say that, by 2013, about 75 percent of the U.S. workforce will be mobile, and those workers will use their mobile devices for at least 20 percent of their work.

Much of the information workers need to do their jobs will be stored where they use that information: on their mobile devices. That makes access fast and efficient, but it also means that a lot of sensitive corporate data is out there somewhere, potentially beyond the control of whatever system you've been using to protect server-based data.

Want another scary statistic? National surveys show that at least 36 percent of mobile phone users have either lost their phone or had it stolen. Filter that statistic with mobile worker data, and 25 percent of mobile workers are likely to lose their mobile corporate link.

According to a *FindLaw* article in February 2010, the average per-incident cost of corporate data loss in 2009 was \$6.75 million. Your loss may not be that large, but some losses obviously were a lot larger than the average.



If a stolen smartphone, tablet, or laptop somehow gives the thief access to sensitive corporate data such as customer credit card records, thousands of records could be compromised, resulting in a high cost of recovery.

Beyond the cost of recovering data or protecting whatever corporate or customer assets may have been exposed by the loss, there are indirect costs:

- ✓ Lost productivity
- ✓ Damage to the corporate image
- ✓ Loss of confidence among customers or partners
- ✓ Legal problems
- ✓ Fines for violations of compliance rules

After you've addressed the mobile security question, it's time to expand your thinking to more general mobility management.

Device management

One aspect of device management is physical security (there's that important security concept, again). You

can use various techniques and software to secure data, but if you lose physical control of a device, the data it contains may be compromised.

Physical control of a mobile device is pretty much up to the user, but corporate policy and employee training can help.

Before you can develop a proper mobile policy, you need to understand your mobile population. Security and management policies for a warehouse worker likely won't address all the management concerns for the company's CEO, nor should the CEO's policies be imposed on the warehouse worker.

Forrester Research notes that relatively few companies properly segment mobile users in this way. The result is that 80 percent of employees work under security and management policies that are too restrictive, and 20 percent of workers don't have access to the mobile power and features they need.

Another flaw in some enterprises is failure to reevaluate the user population and update policies and procedures accordingly. Your workforce is changing — you have new people, new responsibilities, new products, and new customers. Mobile technology is changing even faster. For these reasons, you need a planned reevaluation schedule for corporate policy and employee training on that policy.

Why? Recent analyst research shows that a properly implemented mobility strategy results in higher adoption rates and a 71 percent lower cost. You have to keep the strategy current to make it properly implemented.

However, humans are fallible. All the policy writing and training can't protect people from every possible act of carelessness or accident. That's why you also need to implement an aggressive security solution (see the preceding section). And you need to seriously consider the applications your mobile workers want and need.

Application management

In the beginning of this mobility revolution, employees used native e-mail and other applications to supplement their desktop or laptop tools. Today, third-party or proprietary apps are increasingly moving to hand-held devices.

Unfortunately, most companies follow a pretty predictable path:

1. Reluctantly accept the intrusion of mobile devices into the workforce.
2. Adopt one or two devices as the "official" corporate tool(s).
3. Identify the most important application mobile workers need.
4. Purchase or build this application for the one or two approved devices.

Then the process seems to repeat itself. Of course, one business application on one or two mobile devices is not enough. So, a second application is acquired or developed and the number of devices supported may be expanded, which means the first application has to be reworked to support another system.

Pretty soon, you have an application deployment and support nightmare. Existing applications must be

modified over and over to support a growing number of mobile devices (see Figure 2-1). Now you have multiple versions of the same app, and they all have to be updated and maintained.

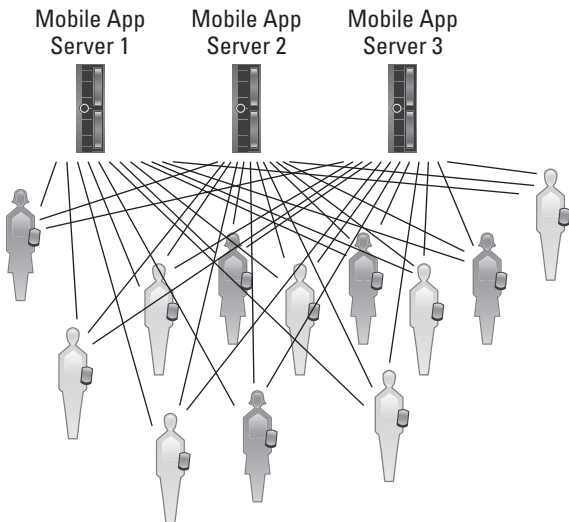


Figure 2-1: Multiple independent apps.

Remember when we said you need to plan your mobility migration? This is why. You're better off deciding early to support an agnostic mobility strategy and to design, manage, and deploy mobile apps via a Mobile Enterprise Application Platform (MEAP).

You can see from Figure 2-1 the problem with adopting mobility devices applications piecemeal.

Some organizations start with a pilot program or a department-by-department implementation. This can quickly lead to an unmanageable situation because every device or application has its own configuration and management tools.

A platform strategy allows an organization to plan for its mobility holistically, so that all devices (even new, “over the horizon” technology) can be managed from one console using one set of management tools. A platform strategy is essential for maintaining control over a mobile environment with many device types and diverse security requirements.

A MEAP approach to mobile application development

- ✔ Supports major mobile device types
- ✔ Connects mobile devices to back-end data sources and applications
- ✔ Offers one console with integrated application management

Such a development platform connects many back-end applications and data to virtually any mobile device and presents a single management console to keep it working. In this approach, you develop mobile application logic once, and the platform can interface with any mobile device in your enterprise (see Figure 2-2). The resultant development, deployment, and maintenance structure is a lot simpler.

If you think a piecemeal approach costs less, just wait until your employee demands and device diversity grow. Adopting a development platform at an early stage does require a larger initial investment, but in the long run you avoid application creep and cost explosion.

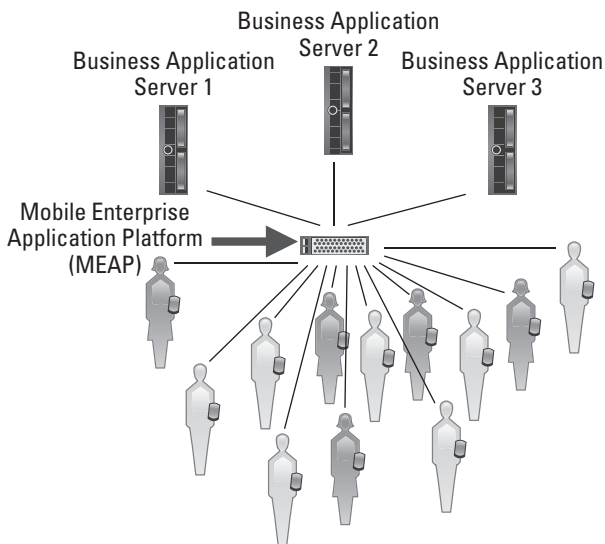


Figure 2-2: MEAP development and deployment.

In the next part, we discuss how some specific management and development products can fit into your overall mobility deployment and support plans.

Part III

Zooming In On Products and Practices

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In This Part

- ▶ Coming up with a plan for managing your mobile environment
 - ▶ Keeping track of mobile devices and apps
 - ▶ Developing mobile apps for your users
 - ▶ Deploying mobile apps to multiple device types
-

A successful enterprise mobile environment needs to

- ✓ Analyze its user base and needs
- ✓ Decide which devices to support
- ✓ Secure the network
- ✓ Write governance policies
- ✓ Implement employee training and support
- ✓ Centralize device management
- ✓ Centralize application development and deployment

This part explains how to accomplish these tasks.

Getting Things in Order

Think first about what and who needs active management. All mobile devices need to be managed, but your security plan may differ according to the job title of the user; in addition, employees with different duties likely will receive different applications.

You also need to decide whether mobile device use within your enterprise is open (virtually anything employees want to use is allowed) or restricted (where the company creates an approved list of supported devices).

We recommend an open acceptance policy, simply because controlling what devices employees bring to work for personal and professional use is pretty much impossible. Besides, as we show in this part and the following one, the right management tools make an open environment easier to manage than you may think.



Although an open device strategy (also referred to as an agnostic strategy) may seem more complex, with the proper tools in place, you can manage virtually unlimited platforms and provide users with a more flexible and personal experience.

Next, think in detail about your device management policy and write it down. Decide, for example, which mobile devices you will support, whether employees may use their own smartphones or tablets, how you will track devices and applications, and your approach to security. Make sure at least your key managers understand the direction you're taking, and devise a schedule for publishing the plan and for employee training. These two steps are key to successful mobility

deployment and management. If you and all employees know where you're trying to go and why, it'll be easier to get there.



Consider a centralized document management system for your policy distribution and other file maintenance. These systems track document versions, record details on changes, and help you manage distribution.

Finally, choose the hardware and software tools you need to achieve your goals and execute your plan. Will you need additional servers for application deployment and security management, for example? What about backup and redundancy concerns?

In general, your mobility planning should

- ✔ **Support a range of back-end systems.** Plan to mobilize a variety of back-end systems including database, legacy systems, applications, and web services.
- ✔ **Support a range of mobile devices.** Include support for multiple and major mobile smartphone and tablet device form factors in your plans.
- ✔ **Assess your resources.** Evaluate your organization's current and desired infrastructure, as well as in-house developer talent.
- ✔ **Define application priorities.** Define the types of applications your organization needs and prioritize them.
- ✔ **Strategize for success.** Determine application needs and wants, and then begin with one that will provide immediate return on investment (ROI) for internal success and support.

- ✔ **Mobilize the enterprise.** Deploy applications that connect both internal and external stakeholders to conduct better business.

Managing Mobile Devices

Managing the physical mobile devices your enterprise's workers use is basically an issue of data management. You need to keep track of the following:

- ✔ How many devices are in your mobile enterprise
- ✔ What applications are on each device
- ✔ Who owns the devices
- ✔ Whether each device security profile is up to date
- ✔ What version of an OS are on each device
- ✔ Where each device is right now

In years past, some companies could get away with assigning one employee the task of tracking this information in a simple spreadsheet. This approach existed through most of the first decade of this century and resulted in unnecessary cost, mismanagement, and dissatisfied users.



Today's enterprise should use a mobility management system, which can automate much of the manual labor of tracking mobile devices, updating device configuration, and managing ownership records and security. An automated system is more accurate and allows you to support more devices and more users than a manual system can handle.

Consider, for example, the important task of mobile data security. As your mobile enterprise expands,

user-specific data will migrate from a central, secure server to mobile devices. You need a way to track the status and whereabouts of each and every mobile device on your network.



Cox Communications saves approximately \$500,000 per year by using Sybase mobile device and application management to reduce downtime and IT man hours required to manage remote devices, according to Jim Jones, Senior IT Project Manager for Mobile Solution Services at Cox. “But the actual ROI is significantly greater than that when you factor in our ability to automate other business processes,” Jones says.

Without appropriate security, mobile devices are extremely vulnerable to security gaps. The risk of intrusion is high. Without an automated system, security controls are inconsistent and often unenforceable. Whether it’s hackers, viruses, corrupted data, or lost or stolen devices, enterprises have plenty to be concerned about.



According to a January 2010 article on eWeek.com, 800,000 mobile devices are stolen each year, and 97 percent are never recovered. The article further reports that, “[o]n a weekly basis, major corporations suffer losses of 640 laptops, 1,985 USB memory sticks, 1,075 smartphones, and 1,324 other devices from theft.” None of these numbers includes devices that are simply forgotten, misplaced, or lost. Business travelers lose more than 12,000 laptops in U.S. airports, eWeek reports. Every exposed personal data record costs companies \$258 to fix, according to The Ponemon

Institute. That adds up fast. Your CEO forgets her iPad in a taxi on an overseas trip, and your company could be looking at millions of dollars in remediation work.

Additionally, regulations regarding data privacy and encryption are becoming stricter and can result in fines for noncompliance.



Recent industry surveys show that 54 percent of companies have experienced at least one security breach in the past year.

IT and security experts must manage and protect sensitive information and enforce compliance centrally, instead of leaving the burden of security to the mobile device end-user.



Security will always be an issue — and the risk is even greater on mobile devices. The Australian Mobile Telecommunications Association (AMTA) reports that, every year in Australia, more than 200,000 mobile phones are reported lost or stolen. This equates to 4,000 each week, or one mobile phone handset every three minutes.

A centralized, automated system also supports application tracking, development, and deployment.

Managing Mobile Apps

Mobile app management also is basically a matter of good data management. When it comes to managing mobile apps, you need to track the following:

- ✓ What software and version are installed on each device?

- ✔ Is the software company supported or sanctioned?
- ✔ How many software licenses are in the mobile enterprise?
- ✔ How is each application supported (your own support center or a third-party software supplier)?

Consider the types of applications you're likely to mobilize and be tasked with managing. We categorize these apps into four broad areas:

- ✔ **Web apps:** Web apps are mobile versions of browser-based apps. The existing web application is reformatted for mobile access. Web apps have no provision for mobility-specific features, such as Internet access or push notifications. Web apps are easy to implement with existing skill sets.
- ✔ **Heavyweight apps:** Heavyweight apps are mobile versions of desktop apps (for example, the Mobile Sales app that works with SAP CRM (Customer Relationship Management) software.). They have a rich user interface and offer multistep task creation/completion. Heavyweight apps typically use device-specific functionality. They offer online and offline access. Heavyweight apps require in-depth, device-specific development skills.
- ✔ **Lightweight apps:** Lightweight apps offer simple task creation/completion (for example, travel request workflows). They have, on average, two or three screens with minimal input. Lightweight apps typically require notification. They may require some native device functionality (such as photo attachment). Lightweight apps require some device-specific skills.

✓ **Consumer apps:** Consumer apps provide services or reduce costs. Examples include mobile banking apps, insurance claim forms, and utility reporting apps. They have a simple but functional user interface. Users can be either anonymous or known. There is no on-device data storage. They typically pull data (but not always). Consumer apps have wide device support (smartphones, tablets).

Central control of the devices in your mobile enterprise lets you maintain a wide range of software and hardware settings, including device identification, network settings, connection profiles, regional settings, and alerts.



BNSF Railway Company saves \$7,500 per day on data-entry labor costs with a mobile work order management system, according to Don Dill, BNSF Director of Field Planned Maintenance.

With centralized device and application management, you can monitor memory, files, folders, and registry settings for changes. When certain parameters are reached, the management system can trigger processes such as backing up a device when the battery level drops or launching a particular application when a user signs in. A management system also can track device location and usage; by setting parameters, you can disable a device that appears to be outside the owner's control.



Peer to Peer, a publication for attorneys, reported in 2011 that 20,000 cell phones were left in Chicago taxi cabs in one six-month

period (“Smartphone Security 101” by Larry Port, founding partner of Rocket Matters, a legal software development firm.)

In a corporate environment, software licenses, software updates, and hardware maintenance often are sold in bundles. The company pays a fixed fee for a set number of installs. In a growing company, tracking the number of licenses outstanding is imperative. An application management system can track this information for you. It can even let you know when a particular device hasn’t accessed a licensed product in a long period of time; this may indicate that the license assigned to that device could be moved to another device instead.

Obviously, you want to control the applications installed on all your mobile devices. A management system can manage white lists or black lists of applications — those you do and do not want employees using.



In June 2011, mobile device users spent more time using mobile applications (81 minutes) than browsing the web (74 minutes), according to a study by Lookout Mobile Security. In addition, Lookout notes that downloadable applications that contain malware or viruses can affect hundreds of thousands of mobile devices before the problem is detected.

You can manage general device configurations from a central location as well. An over-the-air connection obviates the need for manual configuration of remote devices.

In an application management system, wizard-driven point-and-click scripting allows infinitely customizable

activities on server or client systems: file transfers, hard disk checks and changes, configuration changes, and even IF/THEN logic processes for complex tasks.

Part of application management is knowing who's using what, how they're using it, and whether it's doing the job for which it was designed. Our experience in software design and development makes us understand the high probability of a mismatch between user needs and software design. Despite app testing procedures prior to deployment, some tweaking and changes will be required. Although user questionnaires and feedback forms can identify some issues, automated data gathering is easier and more accurate. If workers aren't using the systems you have deployed in the way you expected, you need to know why.

In addition to managing and analyzing mobile apps, a complete mobility management system can aid app development by helping you support multiple mobile platforms and manage deployment.

Developing Mobile Apps

There are two basic approaches to mobile device application development: point solutions and a Mobile Enterprise Application Platform (MEAP).

Most companies likely start development in a point solutions program, where a single application is acquired or written to support a single mobile operating system. After the single app is online, of course, the company or the user community quickly identifies more application requirements. Plus, users begin pushing for broader device support.

The point solutions development plan can continue for a while, but industry research shows that when you've passed three mobile applications or you're supporting more than 150 users, moving to MEAP development is more cost effective. Also, look for costs to rise significantly in a point solutions development environment when you're supporting more than two mobile operating systems.

There are other issues to consider:

- ✔ Can you predict accurately how quickly your organization may pass one of these decision points?
- ✔ Are there productivity issues (the benefits of a broadly enabled mobile enterprise environment) that could suggest an earlier adoption of MEAP development?
- ✔ Can you afford the investment in a MEAP system today, even if the immediate costs seem higher?

Chances are, when you spread the cost over the lifetime of your enterprise, the cost savings will be obvious. You've just front-loaded some of the expense.

Whether you acquire applications or develop them in house, you also need a coordinated, centralized system for managing app deployment.

Deploying Mobile Apps

Some of the same issues you confront during app development affect your mobile app deployment strategy. In the beginning, you probably can support some number of devices with one or two applications.

However, it should be obvious that maintaining adequate security, managing software versions, tracking licenses, and commissioning and decommissioning devices becomes cumbersome and expensive as the number of apps and the user base grow.

A MEAP can help you leverage software and data facilities you already have for deployment to multiple device types (see Figure 3-1).

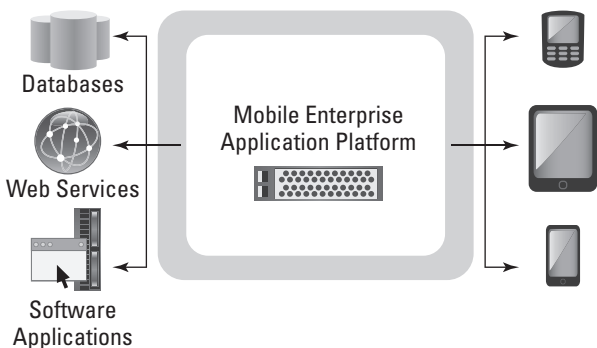


Figure 3-1: The MEAP approach simplifies multi-device app support.

A truly functional application management suite can handle the initial deployment, but it also can update and maintain the apps automatically over the air. In other words, workers shouldn't ever have to bring their laptops, tablets, or smartphones into the office to have the most current software installed. Nor should your IT staff have to monitor these devices. After the

parameters are installed onto a management system, the maintenance process should be virtually automatic.

When you have in place the monitoring and over-the-air update capability, there are other possibilities. Document files can be delivered securely to frontline workers using a forced or subscription model. Document owners have control over content and can add, delete, or update content so that out-of-date documents in the field are replaced automatically.

You can update file-based information from any source and format, including HTML, database files, documents, and other electronic content. Techniques used to replace or update a segment of a file rather than the whole file can provide significant efficiencies and cost savings.

By this point in your examination of mobility management, you have a clear picture of some of the advantages of planning, employee involvement, and training. A plan for centralized and automated management of device security, app management, and app deployment is the way to go.


In the next part, we look at some specific products you can use to help you achieve a successful mobile environment and keep it under control with centralized management.

Part IV

Introducing Sybase and SAP Solutions



In This Part

- ▶ Managing mobility for your enterprise
 - ▶ Designing and implementing an enterprise mobility platform
 - ▶ Choosing mobile applications to empower employees and elevate enterprise success
- 

The unwired revolution isn't brand new. There has been a move towards mobility over several years. However, the real push to break away from the wired office is relatively new — and it's gaining momentum with the rise of a variety of smartphones, tablets, and super-thin, super-light laptop computers.

With the rise in personal wireless computer technology has come nearly universal wireless access via Wi-Fi and cellular networks. There are fewer and fewer places where you can't access the Internet and your corporate network with some kind of mobile tool.

Another new trend that's growing: the merging of personal and business lifestyles through truly personal

mobile devices. Increasingly, companies are accepting the fact that individual employees want to choose which mobile devices they carry for their jobs — and, in many cases, it's the same device they want to use to stay in touch with home and family.

Finally, consider the plethora of new and improved business and personal software applications keeping us connected, and making business more efficient and cost effective.

That's where we are today, and we can only expect the trend to continue to grow. On the one hand, this should be encouraging to businesses, because a mobile enterprise can increase revenues, improve customer relations, and make workers more productive and more satisfied in their job. On the other hand, watching the corporate network move further and further away from the office and seeing what may be perceived as a loss of control over connected devices and corporate data could be frightening.

But that's why you're reading this short and to-the-point book, right? In this part, we investigate products and practices that can make the enterprise mobility transition easier and more cost effective.

Managing It All

The constant thread running through this book is enterprise mobility management, a concept that includes data and access security, physical device tracking and configuration, and application management. In addition, a comprehensive mobility management system includes self-service portals for employees to help themselves, enterprise app stores to manage and store apps, and telecom expense management.

In this book, we feature the products of both SAP and Sybase, an SAP Company. Together they claim to have 20,000 mobility customers and an 85 percent share of Fortune 100 enterprise mobility customers. Mobility tools offer broad-based support for the mobile enterprise and embody virtually everything we suggest in this book for successful mobile deployment and management.

Sybase and SAP enterprise mobility solutions are centered on two core products and are complimented by a large Partner Ecosystem of mobile applications:

- ✓ **Afaria:** A mobile device management and security solution for the enterprise that provides you with a single administrative console to centrally manage, secure, and deploy mobile data, applications, and devices
- ✓ **Sybase Unwired Platform:** A mobile enterprise application platform that enables enterprise developers to simply and quickly build applications that connect business data to mobile workers on any device, at any time



The goal of a mobility platform is to support business applications that look and feel as if they were designed specifically for whatever device a worker wants to use. That's one of the jobs of a comprehensive mobility management system.

First, we describe each of these components more fully. Then we show you how they fit together into an enterprise mobility management system.

Introducing Afaria

Afaria is the software engine that drives mobile enterprise security, device management, and application management. This comprehensive software suite resides within a company's own server farm or as a hosted application maintained by a third-party service company.

Afaria ensures that mobile devices are configured properly. It lets you securely define and maintain remote device attributes, preferences, and settings from a central location. Whether you're deploying personal liable (typically employee owned) or corporate liable devices, Afaria can manage setup and configuration. You can remotely configure connection settings, such as details about the network service, server addresses, and log-on information. You also can set and enforce synchronization options for e-mail, calendar, and contact information on mobile devices.



Delta Air Lines required a field engineer application to receive, resolve, and report on incidents in real time. An Afaria solution saves field engineers up to 600 hours weekly, increases productivity, reduces costs, improves service, and allows scalability and expansion into new markets, according to Rich Meurer, Delta Advisory System Engineer for Field Operations.

Mobile application management also should be an integral part of any enterprise solution. With Afaria you can

- ✓ Deliver in-house or publicly available apps to any mobile device.

- ✓ Deliver applications and updates without interrupting users.
- ✓ Optimize delivery methods and times.
- ✓ Detect unauthorized changes and reduce exposure to unlicensed software and harmful viruses.

Keeping software up to date and minimizing interruptions for users are important mobility management concepts. A centrally stored and controlled application can track application versions in the field and update them automatically via a cellular connection or during routine user Wi-Fi connections to your corporate network.

Security is a crucial part of any mobility management plan. After security parameters have been designed and programmed, you need the system to carry them out automatically. For example, you should be able to remotely

- ✓ Enforce power-on password entry
- ✓ Encrypt data on devices, including data on removable media
- ✓ Update signature files and antivirus engines
- ✓ Manage device configuration
- ✓ Initiate data fading if a device fails to communicate for a set period
- ✓ Enforce security policies such as remote lock and remote wipe



An Intel-commissioned study in 2009 showed that the average cost of a lost or stolen laptop is nearly \$50,000. If the data on the device is properly encrypted, the cost is nearly \$20,000 less.

Afaria also includes facilities to monitor incoming messages via e-mail, SMS, MMS, Bluetooth, Wi-Fi, and infrared or desktop sync to filter out virus attacks. It also can block mobile spam and unwanted calls.

Besides protecting mobile devices from data loss, you need the ability to manage remote data. Among the tasks you can accomplish are

- ✓ Automating data retrieval and delivery
- ✓ Syncing worker-specific content and data (with or without end-user involvement)
- ✓ Connecting frontline solutions to back-end legacy applications and data
- ✓ Automating electronic file distribution
- ✓ Automating pre- and post-software distribution processes
- ✓ Enhancing application self-healing
- ✓ Enforcing processes and policies, such as antivirus policies
- ✓ Backing up corporate data from remote devices
- ✓ Taking condition-based actions, such as locking down or deleting data from devices identified as lost or stolen

Today's environment provides Wi-Fi or cellular connections for remote devices nearly everywhere, but connections are sometimes intermittent. Your management software should be able to monitor connections and manage files and data, even if connections aren't continuous. If the system launches an update process, for example, and there isn't a current connection to a specific device, the

management tool should remember this and conduct the update during the next available connection to that device.

Afaria uses a graphical scripting tool designed for system administrators (not programmers) to help you design and implement device management tasks.

Finally, you need the ability to manage at some level the physical devices themselves. As your mobile device inventory fluctuates, you need to know what devices are out there, the status of each device, what applications are installed, and how those applications are being used. A software system such as Afaria can accomplish this for you.

However, software alone is not enough to allow you to support a diverse and changing mobile environment across the enterprise. You also need an application platform to do some of the heavy lifting.

Looking at Sybase Unwired Platform: A MEAP solution

A Mobile Enterprise Application Platform (MEAP) is the key to efficient application development and deployment. A MEAP is a solution that connects business data and applications to virtually any mobile device.

The Sybase Unwired Platform enables you to develop a mobile application once and distribute it to multiple mobile devices while taking full advantage of device-specific capabilities.

With the Sybase Unwired Platform, you can leverage existing tools and expertise. The development platform integrates with popular development environments, including Eclipse, and includes 4GL tooling to help simplify native mobile application development.

Sybase Unwired Platform is a platform that uses Windows Server as its operating system, Eclipse for development tooling, and Sybase database technology for data storage.

Mobilizing the Enterprise

You have two choices when it comes to designing and implementing enterprise mobile management:

- ✓ Do it yourself with tools such as Afaria and Sybase Unwired Platform
- ✓ Contract with a third party to configure and manage everything for you

Looking at managed mobility

With the rapid mobilization most companies are experiencing today, many are finding that a managed mobility solution is the right choice. Sybase and our partners, for example, can set up its management system for you, help you configure the system, and keep things running smoothly.

Mobility management through an outside source or Mobility as a Service (known as MaaS), can offer several advantages over doing it yourself. Programming, configuration, and ongoing management of an in-house system require time and attention from your IT staff and significant capital expenditure. For many companies, managed mobility offers cost savings and extended services, such as

- ✓ Focusing IT resources on the core business and preventing new head count to address mobility initiatives

- ✔ Lowering help-desk issues related to mobile device support through self-service portals
- ✔ Ongoing cost control, needs assessment, and deployment support through global support
- ✔ Optimizing telecom expenditures and renegotiating carrier contracts when necessary



One managed mobility service provider recently deployed a password update mechanism that automatically updates the user's password on the mobile device when it has been changed on the user's computer. Customers have reported a 30 percent reduction of service-desk calls as a result.

Managed mobility services usually provide help-desk support and expense tracking and management, as well as the mobility management you expect:

- ✔ **Procurement:** Selects and purchases devices and carrier voice/data plans based on workgroup needs
- ✔ **Management:** Identifies what applications and software are allowed on devices, pushes software and applications to devices, creates policies across devices or for individual users, and implements mobile policies
- ✔ **Applications:** Deploys new applications, enhances existing applications, and mobilizes business processes and desktop applications
- ✔ **Security:** Enforces PIN code access, sets lock/wipe policies, encrypts devices and data cards, delivers firewall and antivirus capabilities to devices, and introduces mobile Virtual Private Networks (VPNs)

In addition to potential cost savings, a managed mobility solution can help you get control of your mobile devices more quickly. An experienced management company has done all this before and has the required hardware and software up and running already.



Your company may be a good candidate for hosted mobility management if it is

- ✓ Small or midsized and you feel the price of a mobility platform is too high
- ✓ Lacking full in-house IT resources and application development capabilities

One possibility also is a hybrid solution: Work with a management provider to design and set up your management solution, run it, and tweak it for a time, and then move everything in-house.

Considering DIY enterprise mobility

In some situations, an organization may choose to go its own way, in a do-it-yourself (DIY) solution. Who are good candidates for this approach? Organizations that

- ✓ Are large, with a significant IT support group in place
- ✓ Have significant application development and customization resources available
- ✓ Operate within a unique IT and business process environment

Your first step in a DIY solution is to find out what you already have operating in your network — which devices are in place, who's using them, and what they're doing with them.

Next, talk to a capable and proven solutions provider. Companies such as Sybase have been through all this many times. They understand how to implement an enterprise mobility solution, and they can help you analyze your existing conditions and plan for future growth.



See Part VI of this book for a summary of the major steps you need to take toward building a mobility management solution.

In general, think about establishing a mobility platform in four major areas: connect, create, consume, and control (see Figure 4-1).

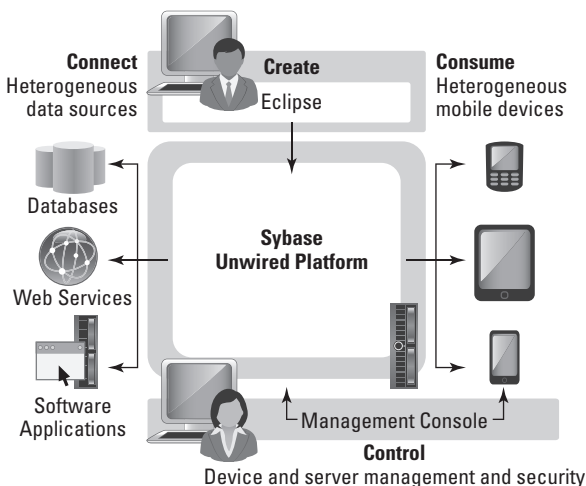


Figure 4-1: The Sybase Unwired Platform development process.

Connect

You need to establish a method for connecting your existing or yet-to-be-developed heterogeneous data sources into your system for access by mobile devices. This may include databases, web services and software applications.



The Sybase Unwired Platform can automatically discover enterprise data sources. Then you define Mobile Business Objects (MBOs) that define the data you want to use from your back-end system. The Sybase Unwired Platform then exposes the MBO to your mobile application or workflow for data transfer.

Create

The next step is to create applications that use and present the connected items to the end-user's mobile device. Create lightweight apps for simple business processes such as sales orders or vacation requests. Create native applications for processes that require the mobile device to hold a lot of data or to interact with multiple data on the server. For native applications, you can leverage the software development kit (SDK) for the target devices.

For relatively simple business processes, you may use a *hybrid web container*, a web-based app that can execute lightweight apps without requiring you to write any device code.

Consume

With the required applications developed, you can now connect various device types using Sybase Unwired Platform for secure transport. Intrinsic Sybase Unwired

Platform facilities let you deploy the same application to multiple devices and multiple users. This flexibility enables employees to use their own devices in a secure environment. The Sybase Unwired Platform device conversions make use of the mobile device's rich media and user interface features.

Control

The Sybase Unwired Platform management console supports

- ✓ Multiple entities to manage
- ✓ Server configuration
- ✓ Execution of server operations
- ✓ Subscription management
- ✓ User registration
- ✓ Cluster management
- ✓ Log viewing
- ✓ Troubleshooting

An important part of control is security, of course. The Sybase Unwired Platform environment supports security design and control at several levels:

- ✓ System security with Lightweight Directory Access Protocol (LDAP), Active Directory, Windows OS, and Remedy authentication
- ✓ Secure transport with end-to-end encryption
- ✓ Device security
- ✓ Application security

Figure 4-2 shows the general structure of a mobility security and management system.

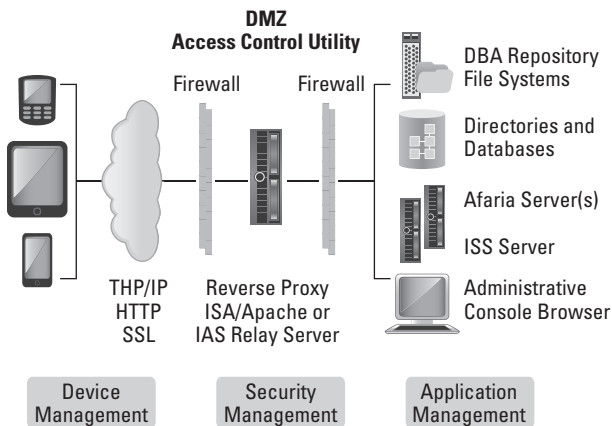


Figure 4-2: Mobility management system structure.

Considering SAP Mobile Applications

Whatever mobile devices you have in place, whatever planning you have done and regardless of how much time and money you have invested, your mobile platform is only as good as the applications running on it. The consumer app market has shown us the future and has given us a template for developing functional, dependable and user friendly apps.

Sybase and SAP have identified five basic classes of enterprise mobility apps and together with their partner ecosystem they are developing programs to fit

these areas. In this section we identify some specific applications and summarize their functions.

Process Applications

Process applications are designed to mobilize core business processes:

- ✓ **SAP CRM Sales** gives sales representatives mobile access to critical SAP CRM (customer relationship management) data, including the ability to execute lead-to-quote-to-order sales processes from virtually any mobile device. The application provides the ability to increase revenue, accelerate buying decisions, and maximize team productivity while on the go.
- ✓ **SAP Field Service** enables field technicians to access customer information at the point of action, which improves efficiency by helping to solve issues early, lowers costs, and increases ROI in SAP CRM.
- ✓ **SAP EAM Work Order** eliminates manual maintenance processes, which allows technicians to execute work assignments more efficiently, increases equipment uptime and provides more accurate visibility of maintenance and service activities.

People Productivity Apps

This software class addresses the needs of various lines of business such as human resources, procurement, finance and other foundational corporate functions.

- ✓ **Mobile HR Applications** provide the functionality for employees and managers to do their work

anytime from anywhere on any device, which improves productivity and increases the value of an HCM system by connecting works to value-generating processes and insight.

- ✔ **Mobile Finance Applications** support on-the-go corporate financial activities, such as travel requests and payment approvals, as well as access to business data and reports which increases managerial insight, improves cash flow and enables better informed decision-making.
- ✔ **Mobile Procurement Applications** let employees and managers initiate, manage and approve requests to provide better insight and speed the purchasing process.
- ✔ **Mobile Manufacturing Applications** provide the ability to report and track quality or safety issues, access relevant production data, and trigger appropriate notifications and processes within an ERP system.
- ✔ **Mobile Sales Applications** let sales reps and managers check customer or product information without running a complete mobile CRM application.
- ✔ **Mobile Supply Chain Management Applications** allow users to track, review and access reporting about orders, customers and suppliers throughout the supply chain process.

Industry-Specific Applications

Sybase and SAP and their partner ecosystem are providing mobile applications that support specific industries. Below is just a sample of applications:

- ✔ **SAP Retail Execution** provides merchandisers and promotions planners with critical insights and maximizes value from SAP CRM. Helps increase promotional compliance and monitors the success of new products.
- ✔ **SAP Electronic Medical Record** provides healthcare professionals access to patient medical records, including electronic charts, images, progress notes, diagnosis and problems.
- ✔ **SAP Citizen Connect** is available for public sector entities to deploy a mobile application for its citizens to report issues in the public realm quickly.

Mobile Analytics Applications

In today's highly mobilized workforce, the need for timely business intelligence does not end when people leave the office. Mobile analytics apps support on-the-go business research and tracking, allowing users to get analysis and critical alerts, make more informed decisions faster, and take action on decisions from anywhere.

Mobile Consumer Applications

Sybase and SAP's mobile consumer applications let organizations engage and interact with mobile consumers, such as loyalty programs, patient care and mobile banking.

Part V

Gazing Into the Mobility Crystal Ball

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In This Part

- ▶ Seeing how cloud services will grow
 - ▶ Identifying how interaction with devices will increase
 - ▶ Blurring the line between work and pleasure
 - ▶ Living a wireless life
-

As the great sage Yogi Berra may or may not have said: It's tough to make predictions, especially about the future. To which we say: It's even harder if you plan on being correct. It's so easy to be wrong, especially where your predictions involve technology.

So, why are we brave enough — or foolish enough — to presume that we can do any better? We'll be very conservative, for one thing. Besides, some of the near future of enterprise mobility is so obvious, we hope it's hard to be wrong.

Staring At Clouds

We feel pretty comfortable in making a prediction when we look to the clouds. Mobile devices already use cloud services for data management and application delivery — and they will increasingly do so.



Cloud computing is computing as a service or software as a service known as SaaS, instead of a product. Shared resources, applications, and data are offered like a utility over a network.

We've dabbled with cloud-like computing environments for some time, but the limiting factors have been bandwidth, universal availability of network connections, mobile device size and power, and security.



Corporate servers on private networks can support a cloud environment by hosting applications and data storage for mobile users. A computer cloud reduces application and data repetition, can lower costs, and facilitates updates and user management.

These issues are being dealt with almost daily as new mobile hardware and software are produced. Security hardware and software are making the cloud safe and secure. User familiarity and better user interfaces are making things easier for us humans.

The move to the cloud already has started. Short-term and long-term future growth are almost assured.

Predicting Technology

Among the things that have fueled the current mobility trend of device diversity are device size, increased power, and better user interfaces. In the not-too-distant computer past, more functionality and power often meant devices that were harder to use. Today the trend is going the other way.

Better user interfaces — intuitive screens, some standardization in operating system functionality, user-friendly features such as gesture navigation — are contributing to user acceptance and heavier individual usage. In other words, we're spending more time interacting with our mobile devices as they get more powerful and easier to use.



In 1965, Intel co-founder Gordon Moore postulated what has become *Moore's Law*. Moore first predicted that the number of transistors on a single chip would double every year. In 1975, he modified his prediction to a doubling every two years — and the industry has kept up this pace ever since. Competition, improvements in ancillary technology, and consumer demand are driving technology industries to keep making everything smaller, cheaper, and more powerful.

We've been working with computers more than 40 years, and for most of that time, designers have been touting voice recognition capabilities of their computers. The first voice recognition technologies required *dual computers* (two computers linked backbone-to-backbone to share CPU power). The systems had to be

“trained” to recognize individual voices — and even after all that trouble, they didn’t work well.

Today, though, a tiny smartphone can dial a number you tell it to. You can (or have to) navigate complex spoken decision trees on customer support systems to (sometimes) get to the right department.

We predict that the foreseeable future will bring much better voice recognition technology, which we’ll use increasingly for corporate interface, data navigation, and information delivery.

In short, the trend toward more use and deeper device penetration into all aspects of our lives will continue, driven, in part, by better user interfaces.

Merging Lifestyles

Throughout this book, we note that the number and types of mobile devices are growing in the corporate environment. An IDC study predicted 1.2 billion mobile-enabled workers worldwide — about a third of the workforce — by 2013. In the United States alone, IDC said, we’ll see nearly 120 million mobile workers by 2013 — about 75 percent of the workforce.

We believe the number of workers who now have the capability to interact at some level with corporate data from a mobile device may already have surpassed 75 percent. Look around you at the office, at the airport, or walking downtown.

By most studies, well more than half the people you deal with in the developed world have a mobile phone, tablet, or slim, trim computer on their person or nearby.

With that still-growing penetration, we expect that the growth of business systems that enable, control, and manage mobile interaction with the corporate enterprise is about ready to launch like a rocket.

The primary reason more people aren't already using their mobile devices for business is that their companies won't allow it or haven't figured out how to manage it. Of course, there always will be workers who consciously separate their business and personal lives, and there are some jobs that don't require contact with or data from the company outside the workplace.

Market researcher Flurry confirmed recently that U.S. consumers spend more time on mobile apps than they do on the Web — a steady trend for over a year. However, Sybase analyst Eric Lai notes that about 86 percent of consumer time was spent on three activities: gaming, social networking, and entertainment. Lai believes that HTML 5 will enhance the Web experience, which could lead to an increase Web app usage over mobile apps.

On the other hand, broader distribution of management systems, understanding and acceptance of lifestyle merging among business owners and managers, and improvements in mobile security and management could significantly expand the mobile workforce well beyond current, carefully considered predictions.

Stepping Over the Line

Here's one more future prediction — the only one in this part that may a bit of a reach (but only a bit).

Network access via the Internet, or something like the Internet, will become globally universal, virtually

everywhere. The advent of small and relatively inexpensive Wi-Fi repeaters already is spreading access into buildings and homes and on public streets that have been shaded from cellular signals. Multiuse devices let you use cellular or Wi-Fi connections for data access, and a few mobile phones can use Wi-Fi for voice.

This trend will continue, so the connection type will become seamless and inconsequential. Moreover, new low-orbit satellites planned for the fairly near future will offer Internet access just about anywhere on Earth. Large companies likely will be able to purchase bandwidth on these birds for private, global network coverage as well. And new mobile devices will let us grab these signals for voice and data work anywhere, any time.



For this handheld-satellite-Internet access prediction to come true, we'll need new mobile satellite technology: smaller and lighter with built-in antennae. A bit of a stretch, but not impossible!

One thing is sure: Business mobility is and will be an important aspect of doing business. And success in enterprise mobility requires corporate flexibility and planning, as well as the understanding and use of mobility management tools. If you haven't already, start now getting the right tools and technology in place so you can make the most of the advantages that a mobile workforce affords.

Part VI

The Part of Tens

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In This Part

- ▶ Managing a mobile enterprise one step at a time
 - ▶ Breaking down your goal into manageable steps
 - ▶ Working your plan
-

Humans are capable of making a complicated situation out of almost anything.

Want to raise bees? You can take advanced beekeeping courses, consult agricultural handbooks, and yes, even read *Beekeeping For Dummies*. You can spend thousands of dollars and hundreds of hours just getting ready for your first hive. Yet in the wild, these complex and fascinating creatures live quite happily in a hollow tree without any human help or intervention. The lesson for the advanced apiculturist? Start simply, and then as you learn the territory, move into more-complex beekeeping strategies.

Want to manage a complex mobile enterprise? Stop and think before you dive in. The mobile enterprise probably already exists as an organic and unmanaged entity — an electronic beehive in a hollow tree if you will. Making sense of a mobile enterprise can be a complex and potentially expensive proposition, but the

rewards in terms of security, productivity, and return on investment can be great. But, just as with a beehive, you don't have to do everything at once. Set a goal, take one step at a time, and you can get it done.

In this part, we present ten concepts to help you focus on your goal without getting bogged down in complexities.

Analyze and Plan

Any journey is easier with a plan and a map. Start from where you are. Research the structure of your mobile network:

- ✔ How many workers actively use a mobile device for business?
- ✔ What apps, devices, and corporate resources are they using?
- ✔ How will these numbers change over the next three years?

When you have at least this much information, you can outline your next steps and estimate hardware and software needs. Begin investigating mobility management options and initiate contact with providers. They can help you with planning, budgeting, and direction.

Plan also to reevaluate and revise your plan as this process progresses. The more you learn, the better you'll be at interpreting data and turning what you know into a plan.

Adopt Diverse Devices

Decide early in your planning that you'll support a diverse mobile environment. From your initial mobility survey (see the preceding section), you'll know which devices your employees are using. Research the industry to help predict which operating systems you're likely to encounter in the next two or three years.



Industry data predicts a rising trend of user-provided mobile devices in your enterprise. Employees desire individualized device selection. If you support their needs, productivity and employee satisfaction will rise.

Segment Your Workforce

As part of your analytical process, segment your workforce into logical groups based upon their various mobility needs. Each group will require different levels of access to corporate data and applications, and security needs will vary. Understanding these variations will help you design the right system corporate-wide.

Develop Mobility Policies

After you've analyzed your workplace and developed a plan, tell everyone what you've learned and where you're going. Getting everyone onboard with any changes in policies and practices upfront will ease the transition to a managed environment.

Write a short document that describes your plan for implementing mobility management, details employee requirements or restrictions you'll impose, and points out the benefits of a move to a management system.

Empower Employees through Apps

In addition to publishing details on your management plan and the transition process, schedule departmental training for everyone affected by the move. Thankfully, modern apps should require little or no training. However, corporate policies and procedures should be put in place in a formal, instructive manner to ensure that all employees understand them. You'll get better compliance and help maintain worker satisfaction if you include everyone in any new policy or changed policy implementation.

Where possible, conduct these training sessions in person with the affected stakeholders in the room with the trainer. If your mobile workforce is too scattered to meet in one location, set up a web-based conference that allows participants to interact with the trainer.

Again, you want and need stakeholder involvement and buy-in for any corporate policy or procedure changes to help make the transition smoother.



However you feel about today's public fascination with consumer applications like Angry Birds, much of your employee population likely already is using app stores and similar sites. You may want to consider designing a private corporate site that operates similarly for employee use.

Develop Aggressive Security

Make security design and implementation your first step in establishing mobility management. You don't want to start deploying apps and opening access to corporate data (with the possibility of data migration onto mobile devices) without security already in place.



Android users are two and a half times as likely to encounter malware today than they were six months ago, and three out of ten Android owners are likely to encounter a web-based threat on their device each year, according to the 2011 Mobile threat Report from Lookout Mobile Security. The report also notes that an estimated half-million to one million people were affected by Android malware in the first half of 2011. Android apps infected with malware went from 80 apps in January to over 400 apps (cumulative) in June 2011. These attacks are aimed at taking control of the phone, personal data, and money. Additionally, the report says, malware writers are using new distribution techniques, such as malvertising and upgrade attacks, phony apps that look like legitimate advertising or an upgrade for a mobile app you already have installed.

Consider Hosted Mobility Management

You don't have to do everything yourself. Start early working with a solutions provider such as Sybase. Also,

consider contracting for hosted mobility management as an alternative to doing it yourself.

Hosting companies can manage the hardware and software required, help you design the system, work with you during the transition, and most likely save you money (compared to an in-house system).

Adopt Platform Application Management

Application management can be one of the more costly and most difficult aspects of mobility management. If you decide early that you'll accept a diverse mobile environment, then an application development and delivery platform should be part of your planning.

Platform application management lets you develop mobile program logic once, and then translate it and deploy it to multiple devices.

Choose Enterprise Mobility Solutions Carefully

Review and revise your system analysis and road map. Work with vendors to learn about product features. Ask any prospective provider for customer references — and talk with them about their experience with this vendor. Ask prospective vendors to review your existing mobility structure and discuss in detail their plan for managing this enterprise.

Ask vendors to provide a long-term total cost for operating the system they design — including upfront hardware and software costs, consulting fees, monthly maintenance, and any other ongoing operational costs. Many vendors have estimates reaching out three years, which is a reasonable time frame in a fast-changing environment.



Accurate predictions on future operating costs of any system depend on accurate data. Be sure you know — as much as possible — the precise structure of your current mobility enterprise. Then work with your departmental managers and key employees, research industry trends, and solicit outside input to help you predict growth.

Look to the Future

New technology and changing lifestyles already are changing the course of enterprise mobility. When you have a handle on managing your current mobile enterprise, chances are, more of your current employees will get onboard fairly quickly. And you need to plan for future employee growth and expanding application needs.

Look to industry data and tap your solution provider's expertise to help you plan for rising technology changes and employee usage trends.



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