White paper

Are your Smart Phones Smart Enough?

How Development, Deployment and Management Capabilities Impact Productivity and Value

Intermec®

BlackBerries popularized the smart phone, then the iPhone revolutionized and consumerized the category. Droids are the hottest models today – but that could change tomorrow. Meanwhile, Windows Mobile models continue to outsell other handheld computers used in the enterprise. There is always plenty of buzz about what makes smart phones cool, but enterprises must focus on what makes users more productive.

Why do companies buy smart phones and rugged mobile computers? They do so to:

- Improve productivity and efficiency.
- Increase sales and revenue.
- Improve customer satisfaction.
- Lower operating costs.

Why put these benefits at risk with a fragile solution?
The ability to exchange data and run apps does not make a smart phone a true enterprise tool. There is a higher standard for smart phones that will be used as mobile computers to support merchandising, service, trucking, route sales and other professionals who work primarily at customer sites. *Software, deployment and support account for approximately 80 percent of the total cost for using smart phones in these environments.* To minimize these expenses, enterprises must understand the features and capabilities that make smart phones friendly for specialized enterprise environments.

This white paper explains how a smart phone's enterprise readiness impacts its performance and value. The paper will focus primarily on the following three areas:

1. Enterprise applications and development
2. Deployment to remote workers
3. Day- to- day device management and user support

Is the Smart Phone Ready for Enterprise Development?

Will your workers use smart phones to generate work orders, receipts or invoices, or to scan shipments to document proof of delivery, manage inventory in a store or on a truck, or complete other transactions to support enterprise operations? If so, there probably is not an off-the-shelf app for that. Applications like these need to be specifically created according to the enterprise's specific goals, work processes and information systems. Therefore, ease of application development and integration are very important considerations when comparing smart phones.

What makes a smart phone enterprise solution friendly? Key criteria include:

- A mature, stable operating system that can tightly integrate with enterprise systems;
- A development community that is focused and experienced in creating industry-specific applications;
- Development tools so organizations can customize applications for their needs, preferences and business processes;
- Support for enterprise-class wireless security and data management.

These capabilities help reduce the time required for application development and maintenance, which shortens the time-to-benefit for mobility projects and increases their potential ROI. The following sections provide more detail about smart phone application development considerations.

Operating System Considerations
The smart phone operating system is one of the most important variables in the cost and effort required to develop the initial solution, and for the enterprise to support and enhance it going forward. The operating system selection essentially dictates the choice of the solution provider, since most software development and integration firms specialize in a specific environment. For enterprise customers, the size of the OS developer community is not a true indicator of the amount of choice available in the market. Many mobile developers are focused on games and personal productivity applications (this is especially true for popular consumer products like iPhone and Android) and not on specialized enterprise solutions.

Operating system stability is important so the applications used by mobile workers will not have to be rewritten each time smart phones are refreshed or replaced. Ideally, applications will port easily when hardware is upgraded, with no or minimal software redevelopment required. The ease with which applications can be ported reflects the stability of the operating system. If the OS and development tools are well established and supported, the time and cost to upgrade and integrate solutions will be minimized.

Because enterprise mobile applications typically exchange data with inventory, ERP, CRM and other back-end systems, the requirements for exchanging data between the mobile and enterprise operating systems and applications should be investigated. Developers can create interfaces to bridge mobile and enterprise systems, but these interfaces may need to be redeveloped as mobile operating systems are updated.

Developer Resources
Whether or not an enterprise plans to use outside developers to create its smart phone solution, it should not have to depend on a third party for all application support. Businesses frequently change their mobile applications (e.g. adding a data entry field to a screen, adding an SKU file, updating inventory or customer data, etc.) to help users be more productive. Enterprises can save a lot of time and money if they can make make these routine changes themselves rather than engaging an outside service provider. If enterprise IT staff need to learn a new OS and development environment, the time and costs should be factored in to the smart phone evaluation. Available applets, developer libraries, configuration wizards, toolkits and other resources should also be considered. Windows Mobile has remained the leading operating system for specialized mobile applications because it allows enterprise IT departments to leverage their experience and development tools to support mobile applications, and offers built-in security.

Is the Smart Phone Ready for Deployment?

The faster a smart phone can be used once it's out of the box, the sooner it can provide a return on investment. Deployment time is a differentiator among smart phones. Since so many smart phones are oriented toward personal use (and are often brought into the enterprise by high-level individuals) they may lack the features and software to support large-scale rollouts. Being ready for use is more than being able to make phone calls, it means having the features that make smart phones smart – such as being able to synchronize e-mail, seamlessly connect to cellular and Wi-Fi networks, download specific applications and settings, exchange data with enterprise applications and communicate with peripheral devices.

It takes time to provision smart phones, manage their identities so they can communicate with enterprise systems and applications, configure them for use with authorized peripherals and optimize settings according to user roles, security needs and the usage environment. As with development, the time required to complete these tasks impacts the true cost and value of the device. Here are some options and features that save time and add value for smart phone deployments.

- Provisioning services from the hardware provider. Smart phones can arrive preactivated for the cellular network and with software preinstalled so they are ready to use as soon as they are received.
- Configuration assistants. Some smart phones can be configured simply by using their integrated camera or bar code reader to scan a menu of options. Scan-based configuration saves time and prevents errors by eliminating the need to key-enter settings and serial numbers.
- Utilities so administrators can perform one-to-many configurations instead of configuring each smart phone manually. This feature is especially valuable for ongoing device management because it saves time whenever there is a software update or configuration change.
- Rapid deployment software that provides end-users with barcodes to scan for provisioning, network configuration and connection to the remote host, which can push necessary enterprise applications, specific settings, and user/route specific data without user intervention. Since the entire process launches with a simple barcode scan, it eliminates expensive IT labor time for configuration, and eliminates redundant shipment costs since devices can be shipped directly to end location.
- Radio-independent interfaces so enterprises can migrate to new wireless networks without having to replace their hardware.
- Preconfigured Bluetooth profiles to support specific peripherals such as printers and scanners.

The value of these capabilities increases with the size of the project, because they save time for each smart phone that is deployed, as shown in the charts below.

Figure 1: Deployment Time Comparison for Automated vs. Manual Configuration

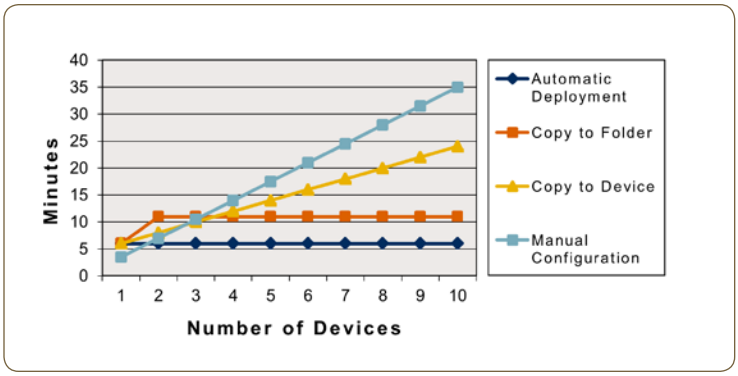

Figure 1 shows the time required to configure 10 mobile devices for deployment (within a wireless LAN). It took a total of 35 minutes to manually configure the devices individually, compared to five minutes when using software that enabled all 10 devices to be configured simultaneously.

Figure 2: Time Comparison for Automated vs. Manual OS Upgrade

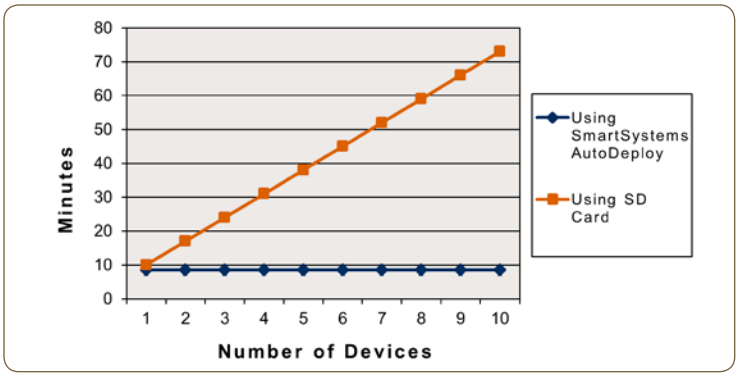

Figure 2 shows the time required to update the operating system on deployed devices. It compares a manual method of loading the OS upgrade via an SD card slot to an automated, simultaneous remote update via wireless LAN. The automated method saves more than an hour for updating a relatively small population of only 10 mobile devices. As shown in Figure 1, the cumulative time savings by automating the configuration and copying processes was also more than an hour for a 10-device deployment. In this example, using automated tools to configure and make one update saves more than 2 hours for every 10 devices deployed. Multiply that savings by the total number of smart phones in a typical deployment, and by the hourly cost for IT support, and the value of deployment friendly devices becomes clear.

Device configuration has traditionally been performed by system administrators or contracted systems integrators. A recent development has simplified the process so that even smart phone users can accurately and quickly configure their devices themselves. System administrators develop a device profile, which is encoded into a barcode. *When users receive a new smart phone, they simply use it to scan the bar code, which automatically loads the configuration settings into the device, contacts the remote host for applications and specific configuration and application data.* This feature can be used for initial configuration and to change individual settings later.

Is the Smart Phone Ready for Daily Management?

A smart phone is not a set-it-and-forget-it device. After initial deployment the smart phone will likely need several security and application updates over its lifetime. Administrators frequently need to access smart phones for routine maintenance and support, such as uploading price file changes and new customer records. Ease of use doesn't only apply to the people who will be carrying smart phones, it should be considered for IT support staff too.

The basic challenges that supporting smart phones creates for IT organizations are well documented. There are new challenges and specific support requirements when smart phones are used in emerging enterprise environments. Uptime becomes more critical, as gray collar workers often cannot do their jobs if their smart phone isn't working. There are also security, software and integration issues that differ when phones are used to support remote workers in new business operations instead of office-centric professionals. By recognizing these differences, organizations can specify smart phone features and device management system capabilities that will significantly reduce integration and support costs and contribute to longer lifecycles and lower TCO.

Some smart phones are more receptive to efficient management than others. The important differentiators are the phone itself, its available utilities and management tools, and their compatibility with enterprise mobile device management systems.

Remote management is the key requirement for cost effectively supporting smart phones and maximizing their uptime. It is expensive for the enteprise every time a help desk employee physically has to handle a smart phone. The cost is even higher when phones are used in field sales, service, delivery and other remote enterprise operations, because the user loses productivity while the phone is being delivered for service. These losses greatly exceed the actual cost of the help desk time needed to repair the device. Therefore, the smart phone should be compatible with robust mobile device management systems that can do more than check the device status. Help desk staff should be able to remotely diagnose and correct problems, change configuration settings and recover data. The solution should also be able to manage other peripherals that characterize smart phones used for specialized enterprise operations, like Bluetooth printers.

Increased interaction with enterprise system requires increased smart phone security. When traditional smart phone users lost their phones, often the only data they lost was their contacts. Now customer records, pricing information, promotional plans, patient records and other sensitive information are at risk if phones are lost or stolen. To address this vulnerability, system administrators need the ability to remotely disable phones and erase stored data. Other valuable device management features include the ability to remotely wipe the smart phone's memory, and to block access to files and applications.

Many fundamental device management requirements and best practices also apply to enterprise smart phones. Because they are designed for large deployments (rather than for sale to individual consumers) the best ruggedized mobile computers often have built-in support for enterprise management and security systems. Features that streamline provisioning and deployment, enable remote, no-touch troubleshooting and configuration changes, and otherwise allow proactive management are extremely valuable because they save administrative support time and improve device uptime. Device management systems that can provide this functionality for smart phones as well as other enterprise computing devices are most cost effective, since a separate, phone-specific solution would not be required. Intermec's white papers *Lowering Total Cost of Ownership Through Mobile Device Management* and *How Ruggedness Reduces TCO for Mobile Computers* provide more information on the role and value of mobile device management solutions.

Because remote enterprise workers are not constantly connected to wireless networks, the smart phone communications server needs the ability to manage store-and-forward communication and to synchronize data exchange with enterprise applications. Wireless communication itself can be optimized by supporting seamless roaming, load balancing and automatically rerouting communications when servers are experiencing technical problems, and by allowing simultaneous voice and data communication. Supporting an occassionally connected workforce also requires the device management solution to automatically retry performing regularly scheduled maintenance if no connection is established.

Outsourcing the smart phone support function is another option. Some enterprise smart phone providers offer comprehensive services that cover hardware and software maintenance for smart phones and communications servers, tech support, regular software and security updates plus comprehensive implementation and training services.

Conclusion

Smart phones used for specialty enterprise operations have different development, deployment and support requirements than general-purpose models used for voice, e-mail and contact applications. These needs complicate the smart phone selection process, because enterprises must not only evaluate the smart phone itself, but also the development resources, deployment support and management capabilities available for it.

How well a smart phone meets the functional and support needs of the blue- and gray-collar workforce – and the IT administrators who support them – determines the value the enterprise can gain from its mobile initiative. Smart phones should be ready to work in these environments right out of the box, and be supported with deep solutions and support capabilities. Otherwise, deployment and management costs will offset the value.

About Intermec

Intermec offers a complete range of ruggedized computing, communication and data collection devices to meet enterprise needs. Intermec has been developing ruggedized mobile computers and data collection equipment for more than 40 years and have successfully integrated hundreds of thousands of devices into demanding industrial, field service, healthcare, delivery, logistics, retail and other environments. Our offerings include the CS40, a rugged handheld computer with complete smart phone functionality, and a range of development resources, mobile management solutions plus deployment and support services so customers can use it in demanding enterprise environments.

The Intermec CS40 combines mobile phone, bar code imaging, digital camera and Windows Mobile computing capability into an IP54-certified handheld that is one of the smallest and most rugged 3G Universal Mobile Telephone System (UMTS) devices on the market. The CS40 is rated to withstand multiple four-foot drops to concrete, has an accelerometer, internal antenna, GPS and 2D bar code imager, strengthened touch panel and durable keypad, but weighs just 196 grams. The CS40 was engineered for the enterprise. It runs the Windows Mobile 6.5 operating system, is Cisco CCX 4 certified and has native support for remote device management. It was designed specifically for use in challenging enterprise environments, where Intermec has years of experience and thousands of successful installations.

Intermec also offers Skynax, a comprehensive, integrated solution for implementing and centrally managing mobile communications, managing data exchanges and server-side data processing, and device management. Skynax supports remote monitoring, device configuration and management, and manages voice and data communication between mobile devices and the enterprise. It provides a secure gateway through multi-level authentication and encryption and also performs routing, load balancing and other communications server functions.

Intermec SmartSystems™ Foundation is an easy-to-use software platform that provides IT administrators and integrators a single, integrated portal for hands-free provisioning, deployment and management of Intermec devices. It helps minimize the effort spent on software upgrades, equipment monitoring, maintenance and troubleshooting. Administrators can change device settings, configure OS upgrades, update software applications, and execute other changes directly from the console to save time and significantly cut costs. Through One-Step Provisioning, these updates can be provisioned to multiple devices in a single-step via software bundles. The ScanNGo feature enables devices to be configured by users in the field simply by scanning a bar code. SmartSystems Foundation can also be integrated with other management solutions.

Intermec Inc. (NYSE:IN) develops and integrates products, services and technologies that identify, track and manage supply chain assets and information. Core technologies include rugged mobile computing and data collection systems, bar code printers, label media, and RFID. The company's products and services are used by customers in many industries worldwide to improve the productivity, quality and responsiveness of business operations. For more information about Intermec, visit http://www.intermec.com or call 800-347-2636.

North America
Corporate Headquarters
6001 36th Avenue West
Everett, Washington 98203
Phone: (425) 348-2600
Fax: (425) 355-9551

North Latin America
Headquarters Office
Mexico
Phone: +52 55 52-41-48-00
Fax: +52 55 52-11-81-21

South Latin America
Headquarters Office
Brazil
Phone: +55 11 3711-6776
Fax: +55 11 5502-6780

Europe/Middle East &
Africa Headquarters Office
Reading, United Kingdom
Phone: +44 118 923 0800
Fax: +44 118 923 0801

Asia Pacific
Headquarters Office
Singapore
Phone: +65 6303 2100
Fax: +65 6303 2199

Internet
www.intermec.com
Worldwide Locations:
www.intermec.com/locations

Sales
Toll Free NA: (800) 934-3163
Toll in NA: (425) 348-2726
Freephone ROW:
00 800 4488 8844
Toll ROW: +44 134 435 0296

OEM Sales
Phone: (425) 348-2762

Media Sales
Phone: (513) 874-5882

Customer Service
and Support
Toll Free NA: (800) 755-5505
Toll in NA: (425) 356-1799