SAP White Paper
Mobile Applications

Mobile Applications May Be Running the Business, But Who's Running the Apps?

The Challenges of Managing Mobility at the Application Level

The Best-Run Businesses Run SAP™

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Today's enterprise mobility is a consumer-driven phenomenon. In many organizations, it is workers bringing their own devices into the workplace who are forcing the hand of IT policy makers. New devices are coming to market faster than corporate IT can formulate policies about them; companies often have no idea what software or data their employees are accessing. As enterprise mobility evolves far beyond mobile e-mail, application management is becoming a fundamental mobility management challenge.

Who's Minding the Mobile Apps?

Why is mobile application management such a big deal?

Here are several points that help illustrate what is happening in the mobile IT world:

- Many companies are allowing employees to use their own smartphones and tablets at work. These are called employee-liable devices, and it makes sense for employers to allow them because it shifts some of the burden of mobility management to employees. One company realized it didn't know how many of its employees had mobile connections to basic corporate services like e-mail. It decided to use a mobile device interrogation tool to see what business applications mobile workers were accessing. As soon as the tool was turned on, the company was surprised to discover 1,800 more devices accessing e-mail services than it realized. This had an impact on its e-mail software licensing agreement.
- Many companies get started with mobility by thinking in terms of a few mobile applications for certain kinds of business operations. However, as more and more employees push for mobile solutions, it is not always clear exactly how many mobile applications a company is supporting. Of course the bigger question is, how many will a company ultimately need to support? Large enterprises use thousands of commercial and internally developed applications to run conventional business operations.

As mobile operations spread through the organization, how is it possible to manage, support, and configure hundreds if not thousands of mobile applications for employees who use different mobile devices and operating systems requiring different versions of the same applications?

There is a way, but before we get into that, it's important to understand what application management is all about.

What Is Application Management?

There are three distinct but interdependent aspects of managing enterprise mobility.

Mobile application management involves not only acquiring, building, and customizing applications to make them suitable for use in the business but also distributing them, configuring them, securing them, updating them, tracking their usage, and deleting them from decommissioned devices.

Mobile device management is lifecycle management that includes enabling devices for use in the business, device configuration and provisioning with basic software and data, monitoring business-related device activity, having remote device controls, and device decommissioning. As the trend toward "bring your own device" (BYOD) becomes the norm, some traditional device management functions, like device and service provider selection, are shifting to workers. For more information about device management, see the SAP white paper *Managing Mobile Devices in a Device-Agnostic World* (registration required).

Mobile security includes extending corporate security practices and policies to mobile workers. Mobile security involves the use of both device and application management tools to enforce security policies. Basic device controls like remote lock and wipe, automatic data fading, activity logging, data encryption, and password protection are important tools for mobile security. The applications themselves also become tools for enforcing security, as the corporation controls who gets them, what data they access, and how they handle data.

APPLICATION MANAGEMENT CHALLENGES FOR CORPORATE IT

In a traditional enterprise IT environment, desktop and notebook computers often run the same operating system. If there are different client operating systems, they are typically used by different kinds of workers running different kinds of applications. For instance, basic business operations typically happen on Microsoft Windows client systems running a suite of office software, while creative designers might prefer Mac OS systems.

Enterprise mobility is different. When it comes to supporting mobility, most enterprises today support multiple mobile operating systems for all kinds of workers, and workers using different devices often need to run the same applications. Furthermore, there may be greater variation in the applications workers carry on their mobile devices than there is in the applications one would find on a typical desktop or laptop system. This is because the smaller form factor of mobile devices makes them ideal for smaller applications that are more specific to a worker's job functions.

Here's an example. Let's say business unit managers want a mobile budget dashboard app that gives them a real-time snapshot of their balance sheets. Others in the organization would have no need for this app and therefore would not be running it. The company might

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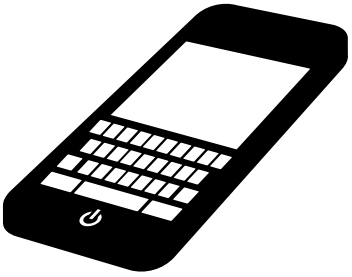


need to support five different versions of this application because the business unit managers all use different mobile devices.

Here's another example. Let's say your business hires consultants to work on specific projects under contracts that have limited duration. While they are under contract, your company needs them to run certain mobile applications that are integral to the operations they are involved in. When their contracts end, you want to wipe those applications and associated data from their mobile devices. Of course, these consultants could be using any of a number of different mobile devices.

Multiply these scenarios by the hundreds or thousands of applications needed to support enterprise mobility, and it is quickly apparent that managing mobile applications presents a different kind of IT challenge. In this environment of rapidly proliferating applications, companies must resolve the following key aspects of mobile application management.

Acquiring or Building Mobile Applications for Use in the Business

Where do mobile business applications come from? Most officially sanctioned business applications are either purchased as out-of-the-box solutions or the company custom-builds them.

Many companies have been slow to develop policies around the adoption of mobile applications because they are often specialized and touch comparatively few employees. This has resulted in IT being saddled with managing a miscellaneous portfolio of applications that require different, incompatible management tools. As the number of applications and devices increases in the organization, their management becomes a nearly impossible task.

One of the most important ways to get a handle on managing mobile applications is to enforce an application development platform standard. All applications built on a common platform can be managed with the same set of management tools.

Another key advantage of applications built on a common development platform is that they can all share data. This has significant implications for the future of a mobility strategy that is expanding through an organization. It's difficult to predict who will need what data in new and emerging operations. However, if a platform standard allows all future applications to share data, the need for data transparency among different applications (or the lack of it) ceases to be an issue.

Companies can mandate that all in-house applications be built using a standard development platform and all purchased applications come from vendors using the same development platform. This is an important first step in application management.

Distributing Applications to Employees

A fundamental task of mobility management is distributing applications to employees. This means getting the right versions of applications onto the devices of people who need to run them. It also means doing as much preconfiguration as possible so users do not become frustrated to the point of abandoning the application, and IT support is not swamped with technical questions.

Maintaining Mobile Applications

Applications and business operations change. With a large portfolio of mobile apps, there will be continuous need to revise and update apps, and it will be necessary to ensure that employees get these updates. Also, if employees change devices – for instance, if they switch from an iPhone to an Android device – they will need to be reprovisioned with the appropriate versions of their applications.

Removing Business Applications and Data from Mobile Devices

If a mobile device is lost, an employee leaves the company, or a consultant's contract ends, it will be necessary to remove business applications and data from those devices. If companies support a BYOD policy, they must be able to perform these tasks without touching the personal-use functionality of a device.

Scaling Mobile Business Operations with Scalable Application Management

Understanding what is involved in application management is one thing, but how do you pursue an effective application management strategy that is responsive to the mobility needs of an organization?

Workers are pushing for mobility because the enabling technology makes it possible for them to work in better ways. Companies are turning to mobile devices because of the efficiencies and productivity gains they realize by doing so. In many cases, a company's mobility infrastructure lags behind its mobility ambitions. An effective application management strategy needs to enable mobility rather than obstruct operations, and it needs to accommodate changing business needs as well as evolving mobile technologies.

What capabilities does an application management strategy need to support?

WHAT TO LOOK FOR IN AN APPLICATION DEVELOPMENT PLATFORM

An application development platform is the cornerstone of a scalable mobile application management strategy. Mobile applications developed on a common platform share data, and they can be managed with a common set of application management tools. These are key points in a business environment that can easily depend on hundreds or thousands of mobile applications. What makes for an ideal application development platform? An enterprise-grade mobile application platform will have these characteristics:

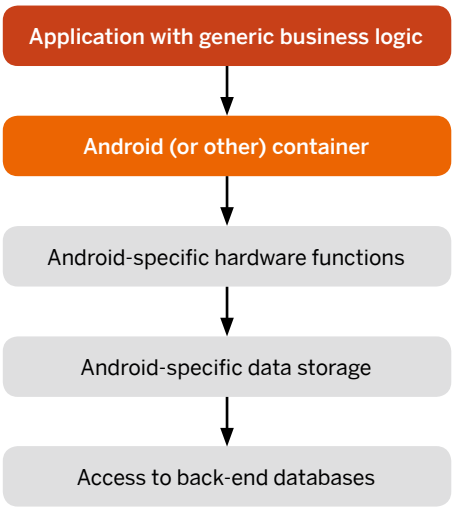
- Applications built on the platform easily port to different types of mobile devices.
- The platform supports standard application development languages like C++ and others.
- The platform also supports HTML5 and JavaScript (the standard scripting language used to create Web applications). This important capability is used to build hybrid mobile applications. A hybrid application consists of a Web app that runs in a native app "container" installed on the mobile device (see Figure 1). Hybrid applications significantly reduce the cost of mobile application development while delivering the performance of a device-specific native application.
- The platform allows you to extend your portfolio of mobile apps to new device types by adding new device-specific containers.
- All applications built on the platform tie into back-end corporate data and support server-driven events, messages, and notifications.
- All applications built on the platform support a single, consistent encryption across different devices.

Companies that mandate the use of a single application development platform for all their internally developed and vendor-built mobile applications will simplify near-term application management and help ensure long-term compatibility for all the mobile applications in their portfolio. This compatibility will be consistent across all devices, even new devices that have not yet reached the market.

DISTRIBUTING, CONFIGURING, AND MAINTAINING MOBILE APPLICATIONS

The heart of an effective application management strategy is a robust application management platform. This platform provides tools needed for application distribution and configuration, managing who

Figure 1: Container Concept

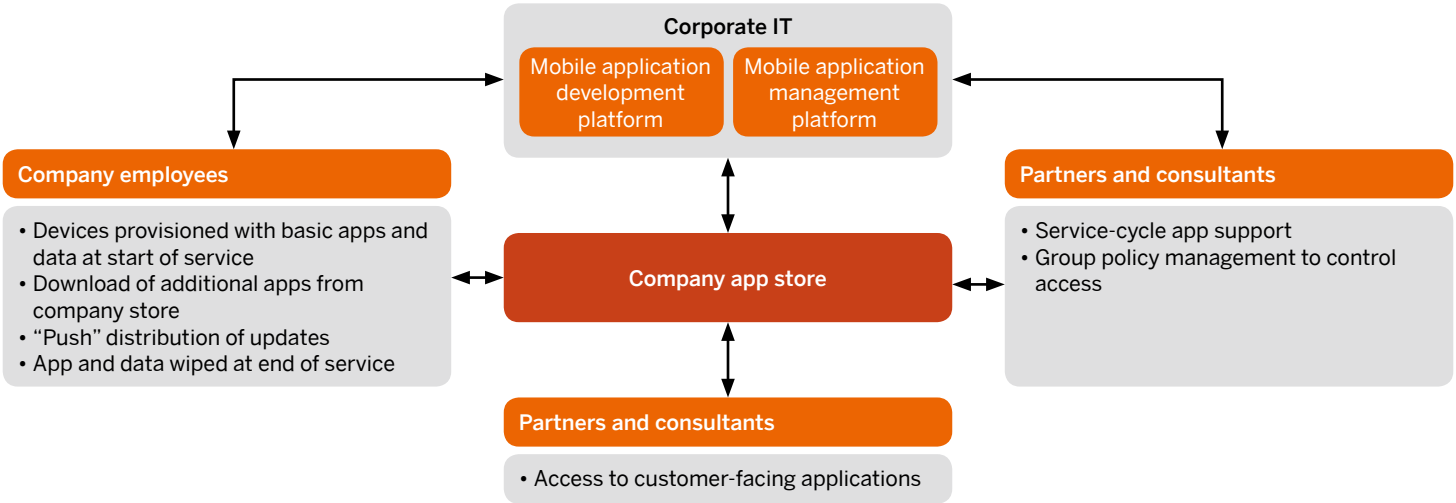


gets which applications, and managing different methods of application distribution (see Figure 2). Here are key capabilities of an enterprise-grade application management platform:

- **Compatibility with the widest selection of device types and mobile operating systems** – This is critical in that it enables an organization to support the most up-to-date mobile devices. It also gives an organization greater flexibility when creating a BYOD policy for employees.
- **Remote provisioning and control** – This enables companies to push applications to remote devices over the phone service network. It also allows companies to remotely configure devices, and it provides remote and automated security controls used to secure data on lost, stolen, or decommissioned devices.
- **Dynamic device interrogation** – An application management platform needs to provide visibility into devices enabled for business use. Dynamic device interrogation provides real-time information such as what version of an operating system a device is running so that the correct version of an application is remotely installed on that device. It can also monitor software usage for accurately managing software licensing agreements.
- **Group policy management** – An enterprise-grade application management platform enables a company to preconfigure and distribute mobile applications to users based on their device types, job functions, or other criteria. This helps ensure that the right people get the applications they need, and it reduces time spent by users configuring new applications installed on their devices.
- **Support for an "app store" distribution model** – While companies need to preconfigure and remotely install applications on user devices, many business applications are best managed through a company or enterprise app store. This enables employees, partners, and even customers to download applications as they need them. An enterprise-grade mobile application management platform will include an app store distribution model. Companies can organize their app stores so that users are only able to install applications appropriate to their relationship with the company.

A good application management platform provides maximum control to the company, minimizes user configuration headaches, and takes advantage of user self-service opportunities. This enables mobility to scale within an organization in a cost-effective way. With these application management capabilities, it also becomes possible to build and enforce an overall application management strategy.

Figure 2: Application Management Ecosystem



Service-Cycle Approach to Application Management

With solid application management capabilities, it becomes possible to create a platform-based application management strategy that is both manageable and enforceable.

There are two broad aspects of application management that are manageable through rules and technology-driven practices:

- Development and maintenance of applications
- Deployment and use of applications

MANAGING APPLICATION DEVELOPMENT

In many ways, mobile application development conforms to management rules that govern the development of other business applications. These include:

- Defining a standard application development platform that ensures device and data compatibility
- Defining an application's business objectives
- Defining the application's user base within the corporate ecosystem
- Defining version and device support for the application
- Proceeding with a normal application development process

To effectively manage mobile applications, it is necessary to build the apps to a standard that allows IT management to use one set of application management tools. This simplifies the process of configuring and deploying apps either directly to devices or through a company app store.

MANAGING APPLICATION USE

A traditional device-centric approach to IT management considers IT management tasks in the context of a device's lifecycle.

Enterprise mobility is different for several reasons. Increasingly, people bring their own devices into the workplace, and they take their devices with them when they leave. Additionally, a company may provide mobile applications to partners who manage their own devices, and companies may work with consultants who need access to certain applications for the duration of a consulting engagement.

Mobile application management is not so much about the lifecycle of devices as it is about the period when a device is in service with the company. It is in service when an employee or partner is using it. It is out of service when it is lost or stolen, an employee gets a new device or takes the device with him or her upon leaving the company, or a contract relationship ends.

In a service-cycle approach to application management, the service cycle consists of three phases.

Provision

Provisioning involves preparing a device for use in the business environment by installing essential security and business applications. It may also include installing a platform-integrated, device-specific application container. This container simplifies configuration of other business applications. It also helps separate a company's business data and applications from personal and other noncompany uses. With an application management platform, IT managers can quickly provision mobile devices over the air without having physical access to the device. Over-the-air provisioning is an essential feature of effective enterprise application management.

Production

The production phase covers that period when a device is in active service. Workers use applications appropriate to their job functions. They may download new applications from the company app store. Periodically, the company will push applications and application updates out to users over the service carrier network. An application management platform allows IT managers to do this for individuals as well as groups using group policy definitions and dynamic device interrogations. In this way it becomes possible to quickly modify business processes and worker activities that depend on mobile applications.

Decommission

Decommissioning is the process of taking a device out of service by removing all business applications and data. Devices can go out of service because an employee gets a new device or leaves the company, a consultant's contract ends, or a device is lost or stolen. An application management platform with strong security controls provides a number of ways to manually lock and wipe a device. Devices can also be configured for automatic data fading. Some of these same controls work to delete all company applications and data when a device naturally ends its service life. An application management platform enables IT management to perform decommissioning functions over the air, and to manage mobile business assets without touching personal data and applications.

ENHANCING PRODUCTIVITY AND SECURITY

Optimizing Mobile Operations Through Application Management

In the past few years there has been an enormous change in the types and capabilities of mobile devices. As exciting as these developments have been, they are merely the backdrop for an even more disruptive trend. New application development platforms and software technologies like hybrid applications are causing mobile application development costs to plummet. Companies are finding it easier to build mobile applications and easier to make the business cases for developing them.

It's not hard to see how these trends are redirecting the focus of corporate technology managers. Many companies are planning major deployments of new mobile applications. The September 2011 white paper *A Guide to Successfully Deploying Enterprise Mobile Applications*, commissioned from Yankee Group by SAP, notes, "Key factors include the evolution of higher-speed mobile networks, the explosion of smart mobile devices, users' familiarity with apps and mobile app stores, and a decrease in the costs associated with developing, distributing, and maintaining mobile applications. This has spurred companies to look beyond mobile e-mail and basic mobile access to corporate databases and consider other applications to liberate enterprise data and more directly impact key business processes." That is just a warm-up for what is coming as companies and employees aggressively pursue operational advantages afforded by enterprise mobility.

Mobility makes people more productive by placing core information, and the ability to take action, directly at the decision point in a business process. As mobile business applications become essential tools for executing business processes, they increasingly turn companies into real-time enterprises. The most successful companies will be those whose mobility implementations provide the greatest, most secure usability for workers. Mobile application management capabilities help ensure smooth mobile operations by:

- Allowing workers to use the mobile devices they prefer, which maximizes their productivity
- Simplifying the process of making workers' devices ready for business use
- Supporting a large ecosystem of business-related users, including non-employees like partners, consultants, and even customers
- Lowering the investment required to produce and deploy useful mobile applications
- Minimizing software configuration issues by enabling distribution of pre-configured applications so that they install ready to run
- Increasing worker engagement through mobile applications specific to job roles, shared data, and the convenience of a company app store
- Providing robust security controls that prevent accidental data loss, enabling workers to perform critical business operations in a "safe" mobility environment
- Enabling IT to efficiently manage a large portfolio of mobile business applications

Companies that have the best mobility implementations will be the ones that win in a world of real-time business engagement.

LEARN MORE

For more information about developing and managing mobile apps that are core to your business operations, contact your SAP representative or visit www.sap.com/mobile/mdm.

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