Mobile Strategy

How Your Company Can Win by Embracing Mobile Technologies

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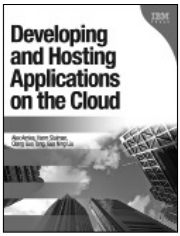


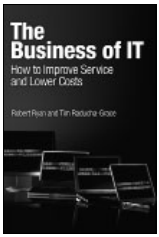
Developing and Hosting Applications on the Cloud

By Alexander Amies, Harm Sluiman, Qiang Guo Tong, and Guo Ning Liu

ISBN: 0-13-306684-3

The promise of cloud computing is that centralization, standardization, and automation will simplify user experience and reduce costs. However, achieving these benefits requires a new mind set. *Developing and Hosting Applications on the Cloud* covers these aspects of application development and operation and provides practical guidance, giving numerous code examples and demonstrations of system utilities for deployment, security, and maintenance.

This title makes special reference to the IBM SmartCloud Enterprise, but the principles explained are general and useful to anyone planning to automate management of IT infrastructure using the cloud. Developers using cloud management application programming, architects planning projects, or others wanting to automate management of IT infrastructure will value this end to end story for why they would want to develop a cloud application, how to do it, and how to make it part of their business.



The Business of IT

How to Improve Service and Lower Costs

By Robert Ryan and Tim Raducha-Grace

ISBN: 0-13-700061-8

Drive More Business Value from IT…and Bridge the Gap Between IT and Business Leadership

IT organizations have achieved outstanding technological maturity, but many have been slower to adopt world-class business practices. This book provides IT and business executives with methods to achieve greater business discipline throughout IT, collaborate more effectively, sharpen focus on the customer, and drive greater value from IT investment. Drawing on their experience consulting with leading IT organizations, Robert Ryan and Tim Raducha-Grace help IT leaders make sense of alternative ways to improve IT service and lower cost, including ITIL, IT fi nancial management, balanced scorecards, and business cases. You'll learn how to choose the best approaches to improve IT business practices for your environment and use these practices to improve service quality, reduce costs, and drive top-line revenue growth.

These functional patterns generally fall into four major categories that are relevant in both B2C and B2E situations as described in the following list. Most apps focus on a combination of these categories. This forms a set of common patterns that works across a variety of apps and prescribes the underlying set of mobile capabilities.

- **Mobile operations—improve workflow and operations:** Improved workflow is about making the task of the employee or customer more efficient. This is foundational to mobility and is at the heart of the value that mobile offers. Having the mobile device with you to supply the contextual information when needed to help you complete a task is a core value proposition.
- **Mobile commerce—efficient transactions and commerce**: At the end of the day, there needs to be a final action. It may be a business decision, a purchase, or a flight check-in. A mobile transaction can be a meaningful exchange of anything of business value (money, information, and so on). The improved access to information and the improved workflow can lead to a final action.
- **Mobile collaboration—information management and social collaboration:** Mobile gives individuals more efficient access to information from enterprise data systems and insight from others at the moment they need it. Social collaboration pulls in insight from peers in social networks or from other employees in an organization (in the form of social business). This enables the individual to make better decisions and take the best next action. Information management is not just digesting and receiving information but also collecting data and information from the environment around the end user. The mobile device enables the individual to take measurements and collect data of assets or the environment, which can then be fed into the existing business processes.
- **Mobile marketing—effective marketing and campaigns:** Marketing capabilities speak to the way you influence customer behavior through communicating a set of messages. Primarily focused on the business-to-consumer situation, effective marketing is primarily focused on communicating a particular message or perception to the end user in the form of campaigns, programs, or advertisements. Delivering, tracking, and managing the marketing efforts for mobile requires a unique set of capabilities. Unlike web marketing, mobile marketing offers functions such as in-app advertisements, QR code campaigns, SMS campaigns, and marketing analytics.

These functional patterns help you think through the aspects of a mobile app that provide value. These patterns do not necessarily operate in a vacuum, but instead, come together to form the basis for the mobile app. For example, improved *collaboration* can lead to improved *operations*, which then manifests in a better *commerce*. Each functional pattern has a set of signature functional elements. As you build your mobile strategy, bringing together these key solution patterns can help to structure the capabilities needed to execute on a mobile strategy. Table 4.2 outlines reusable functional elements that would support the key functional patterns.

Table 4.2 App Capabilities in Context of Key Functional Patterns

Improve Workflow and Operation	Efficient Transaction and Commerce	Information Management and Social Collaboration	Effective Marketing
Device Management	Pricing	Dashboards	Campaigns
Social Networking	Search	Data Lookup	Social Networking
Signature Capture	Purchase	Comparisons	Customer Experience
Check-In	Shipping	Search	Segmentation
Approval Workflow	Quote	Browser	Advertising
Near Field Communications	Contracts	Social Networks	Action Clusters
Tracking	Orders	Analytics	Analytics
Receiving	Workflow	e-meetings	Inference Engine
RFID and Asset Capture	Segments	SMS , Texting, and IM	Augmented Reality
Supply Chain	e-mail Integration	Sensors	Churn Management
Workforce Management	Chat	Asset Tracking	Recommendations
Analytics	Guided Selling	Email	Location-Based Services
Inventory Management	Accounts	Team Rooms	Loyalty
Collaboration	Service	Video Conferencing	Ratings and Reviews
Point of Sale Interaction	Product Catalog	Augmented Reality	Brand Management
	Shopping Cart		Location-Based Services
	Billing		Presence
	Checkout		Products
			Proactive Messaging
			Events

Mobile Development, Security, Management, and Business Transformation

The value of mobility starts with the customer's needs and tasks at hand. The mobile app should enable end users to perform the task efficiently and achieve their goals quickly and with less effort. We walked through the core functional patterns seeing how they relate to the functional elements of a mobile solution and how they support overall value. These functional patterns then come together in the form of solutions that solve specific industry challenges.

However, the next question becomes, "How can you deliver the mobile app?" You need a framework by which the mobile app is developed and defined. As you consider the mobile strategy you have to move from "Why should I build a mobile app?"or "Can I leverage an existing app in the industry instead of building my own?" to "What capabilities should be within the app?" and "How do I build my mobile solution with appropriate security and management?" Ultimately, you must define a strategy that answers the question, "How can the app transform my business by getting closer to my customers, improving employee effectiveness, and growing the bottom line?"

Fundamentally, the mobile strategy requires a framework for thinking through the key capabilities required to deliver on a mobile strategy. Mobile is a fast-changing space with many new technologies and constantly changing market players and functionality. The value of a framework is that it helps to define the major functional elements needed and how the solution can be delivered. Even as specific technologies change, the framework remains consistent as it creates an overall construct for defining a solution. This helps with vendor selection, skills, organization structure, functional definition, and execution—even in a fast-changing market place.

Mobile Development

Unlike the web era when you could build a web site that would run across a ubiquitous web browser with generally standard interfaces, the mobile market space is characterized by lots of fragmentation and incompatibility. There are many devices on the market today with their own unique characteristics; and even within a particular mobile platform, there is variation in platform versions. You need an approach to reduce the cost and complexity of building a mobile app that supports a variety of platforms. Mobile app development should also support the latest device capability while leveraging

existing skills such as HTML, CSS, and JavaScript. The mobile development environment must fit within the existing enterprise development process and have the appropriate governance and management. The supporting mobile infrastructure must also connect to existing systems (both on premise and in the cloud) quickly and easily. It must also enable rapid development and continuous customer experience feedback. Continuous feedback is critical because the mobile app, in many respects, may never be complete because user feedback drives new versions and updates. Also, testing becomes a major challenge because your customer and employee will use many types of devices, and you need to test across a wide variety of platforms.

Building and Connecting Imperatives

Building and deploying a mobile app must address a set of key imperatives. These imperatives fall into three major categories:

Mobile development: How do you develop, build, and deploy high-quality mobile apps across a variety of platforms and channels?

- **Cross-platform and multichannel support:** It is clear there will be a diversity of devices and back-end systems that need to be part of a mobile solution. There will be a wide variety of mobile devices in the market that will be unique in functionality and capability. Although standards such as HTML5 are an important part of an overall mobile cross-platform approach, you must address the specific function of a device.

  The mobile strategy must also consider multiple channels as well. As the end user works to complete his task, he will work across multiple channels from web, kiosk, mobile device, and more. There needs to be a way to maintain consistency and state across these different interaction interfaces. Any enterprise will have a wide variety of back-end applications and systems that are cloud, traditional, new, and legacy. In addition, mobile applications must be maintained across all these platforms, and the code must be optimized and reused across all the platforms. The development environment must be open and be flexible utilizing readily available skills in the market.
- **Enterprise agile development and team collaboration:** The mobile project needs to be delivered quickly and with high quality. The development teams must move fast and collaborate effectively. The development teams need the tools and infrastructure to ensure that they can execute

effectively and with the highest quality. The mobile project also must be aligned with existing enterprise development and governance process.

Mobile life-cycle management, quality, testing and continuous improvement: How do you manage the life cycle of an app from requirements to test to deployment while delivering continuous improvement?

- **Complete mobile application life cycle development from requirements, design, development, build, quality assurance, test, and deployment:** To achieve the speed and quality you need to deliver a world-class mobile solution, you need integrated application life cycle management. The process, from requirements to deployment, needs to be integrated and delivered so that it becomes part of an overall iterative enterprise development process. The application life cycle management process must consider the diversity in devices and platforms, which must be addressed within an integrated development process.
- **Test automation and planning:** One of the biggest challenges with mobile development is testing. The mobile app likely requires access to multiple physical devices to fully test it. This means that you need to rethink the testing process and ensure that devices are available (possibly virtually through a device cloud) and that much of the testing is automated to streamline the process. You can use emulators and simulators to validate functionality early in the development process. Finally, throughout the process, you should constantly test functionality with end users to ensure you are on the right track.
- **Continuous improvement and quality:** One thing is clear with mobility—user expectations are high. The market expects a five-star app, and employees will not be satisfied with a mediocre app. Building a mobile app requires lots of end user feedback before, during, and after development. In many respects the mobile app is never complete because you must have continuous feedback and input on the mobile app. The app must be instrumented to gather usage data as the end user interacts with the app. You want to do playback of user activity to look for issues or challenges the end user may encounter. You may want to understand what happens when an app crashes and collect information as to the possible root cause. There is also a need to monitor and understand user feedback as it occurs within the app store, or out in social networks such as Twitter.

Mobile connectivity and integration: How does the app integrate into existing systems?

- **Flexible and fast system and data integration:** Because mobile projects move so quickly, you need to quickly integrate and connect to back-end and cloud systems.
- **Manage back-end events:** You need a centralized and common mechanism that enables back-end events that send notifications to the mobile device. Each device has its own notification protocols. Therefore, this mechanism needs to capture back-end events and route them to the appropriate device using the correct protocols and push/SMS service.
- **Service access and integration:** A variety of services are available from within and outside the enterprise. These services must be managed, metered, and monitored for quality of service.

Mobile Development Steps

You must get a sense of the major activities and flow of the activities within the category of building and connecting mobile apps. Although not exhaustive, the following sections provide a step-by-step overview for building and deploying mobile apps as well as incorporating data access and integration.

Building and Deploying Mobile Apps

1. **Plan:** Plan the project scope and goal, and ensure there is a defined return on investment with appropriate success criteria.
2. **Requirements:** Collect user requirements and feedback. Use story boards and wireframes to perfect the user experience early in the development process.
3. **Design:** Define user experience for mobile, and use latest device features and UI to optimize the user experience.
4. **Build:** For cross-platform and manageability, building the setup and configuration for each device environment will be different. As such, a centrally managed build environment can reduce development complexity and cost.
5. **Simulate:** Use of a simulator during the development process can speed up the process. Simulators are often browser based and can be spun up quickly to help developers check how their app looks and functions.