Driving End-to-End Mobile Application Life-Cycle Management

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Application deployment complexity and an explosion of business reliance on mobile applications are driving demand for targeted, collaborative, and agile application life-cycle management (ALM). Fractured approaches to areas such as requirements, quality, security, and portfolio planning are not viable where competitive pressures are fierce to deploy across complex multimodal platforms and environments. Margins are thin and software vulnerabilities are highly visible to both stakeholders and broad B2C audiences. Effective software delivery remains intimately tied to earlier life-cycle phases for both agility and consistent deployment (such as requirements, architectural design, quality, change management, and security).

The following questions were posed by HP to Melinda-Carol Ballou, program director for IDC’s Application Life-Cycle Management research, on behalf of HP’s developer customers.

Q. What are the key areas of focus for establishing an effective mobile application life-cycle management strategy?

A. One of the big challenges that organizations have in developing mobile applications is demand for both speed and velocity or quick responsiveness to changing platform and technology environments and business requirements. How is it possible to address the demands for application delivery across multiple platforms, devices, and operating systems given the lack of experienced resources and the public impact of poorly performing applications and ugly user experiences? Effective gap assessment and process evolution, coupled with automation, can help companies develop a mobile application life-cycle management strategy to enable success. Design approaches to mobile applications that enable organizations to write applications capable of running on multiple devices, addressing security issues up front and architecting appropriately for the scale needed, can be a starting point.

Too frequently, design tends to be an afterthought rather than planned for up front. However, thinking about the design and how the applications are structured is important, particularly because of the need to design the applications for both adaptability and fluidity with changing mobile environments and platforms and also for integration with back-end systems. The need to incorporate user interface and user experience designs to address usability and changing form factors is also a key consideration. (The two greatest initial barriers to mobile app usage are performance and usability.)

Up front, you must design for the requirements that will best support business needs because mobile means branding for the company. These applications are often highly visible and customer facing, driving a proactive sales process and consumer engagement with the corporation. Coordination of social media systems is another facet that needs to be thought out
from the perspectives of design and the deployment environment — for example, how you coordinate with the cloud and leverage analytics and analysis.

The next phase, from a life-cycle perspective, would be how you optimize mobile applications for performance and real user management and experience. That means both testing the applications and coordinating with change management effectively (to address ongoing impact on the mobile app). You need to look at functional testing as well as device testing, tuning the app for integration and for required network performance and user experience.

Another aspect involves security, which hopefully was planned for up front, and then distribution of the application. The device must be secured to both back-end and front-end systems (as needed), and role-based access to enterprise applications needs to be worked out.

The final piece would be monitoring and measuring what it is you’ve done with the app and then feeding that information back into the process for future design and creation of additional mobile applications. Make sure you’re able to diagnose any bottlenecks that exist end to end, and coordinate with your deployment and dev/ops strategy, which, again, needs to be thought about proactively. Then make sure you have profiled the performance for native applications and hybrid Web and mobile applications. This approach needs to evolve to be the norm as organizations make the transition to mobile.

Q. What role does end-to-end performance management play in enabling effective mobile software execution?

A. As I mentioned, organizations need to establish effective up-front approaches to the design of their mobile applications. End-to-end performance means that you’re looking at application performance not merely in a pre-production context but also in a post-deployment context — how the app functions based on actual user experience out in the field.

End-to-end performance means that you don’t merely consider performance testing as a final act before you deploy because you’re making sure the app is performing and functioning effectively. You test iteratively throughout the life cycle of the mobile app, from inception to delivery. This means that you also test after deployment — from a pragmatic, real-world perspective that encompasses actual conditions.

Q. What do you see as the greatest challenges for businesses and IT in evolving coordinated approaches to mobile application development and life-cycle management?

A. One of the biggest challenges is the fact that there’s tremendous demand to get these applications out as quickly as possible. In that context, people don’t have time to collaborate. They don’t think — they do. They’re tripping over themselves to get the software out willy-nilly, as fast as they can because of competitive and business needs.

IT requires a more thoughtful and proactive approach toward these applications, which are often business critical. Teams need to establish life-cycle management strategies and move away from ad hoc, fractured, and helter-skelter approaches. Yet, at the same time, the processes must be adaptive to give organizations the agility necessary to get these applications out in an efficient manner given the competitive pressures. The processes also need to be adaptive to deal with constantly changing platforms and emerging areas such as social media and Big Data analytics. Being adaptive also means leveraging the cloud as needed to have the infrastructure necessary to test appropriately in environments comparable to production systems.
Q. **What is the relationship between requirements, quality, and security management?**

A. Typically, requirements provide the context to help IT organizations understand what they need to do when they're delivering a mobile application. Requirements also set the stage for test cases and determine the functional relationship between what's created and what the business wanted to begin with. Essentially, how well does what IT did with the mobile app represent what the business intended and needed?

Quality represents that idea of the map between intention and mobile app delivery and also the user experience from a performance and usability perspective. Companies can look at the barriers to usage of mobile applications based on scores in the app store for emerging or recently deployed applications. Performance is first; usability comes second. If an application doesn't perform, people will quickly — within two seconds typically — go with something else. If the app is ugly, they'll go to something else immediately.

From a business perspective, how does the mobile app enable the type of innovation that a company needs in the field, competing with other companies in a tough market? This quality issue ties to security because poor security becomes problematic for customer-facing, business-critical applications. Customer data can be exposed in ways that are harmful to customers and the business; downtime can cost millions or billions of dollars for even brief periods of time in certain industries, such as financial services or retail, at core times of the year.

So, app requirements, quality, and security are all tightly linked. To have effective quality, you must have requirements that reflect what the business needs. You need to design for security, and you need to leverage static and dynamic analysis, as well as other aspects of code assessment analysis and analytics, to be sure you've minimized vulnerability and risk as much as possible. All these areas tie into creating better-quality applications, so quality is the common thread.

Q. **How important is effective project, program, and portfolio management for mobile application development and deployment, and why?**

A. Many organizations don't have enough knowledgeable and experienced resources to effectively deploy mobile applications. Therefore, it's very important that scarce existing resources are prioritized according to what will be most important for the company. We see many organizations going to outside providers to jump-start or to perform most custom mobile app development. If you don't have effective ways of collaborating with these resources, then you won't effectively deliver those mobile apps to your business.

In that context, project, program, and portfolio management is key for coordinating the complex sourcing involved with creating and deploying mobile apps. Again, you must prioritize what's most important for the business because those expenditures need to be directed to areas where competitive needs are pressing and where you will get the most bang for your buck. Effective governance and process improvement as you feed new applications into your existing portfolio are key. Understanding what you can leverage and improving on what you've done can be enabled by project portfolio management.

Too frequently, organizations do not consider this aspect of the app life cycle, even if they are aware of other areas such as performance. To be effective with a mobile application strategy, you should assess your overall mobile project and program portfolio and how to coordinate your resources to deliver for the business to improve execution.
ABOUT THIS ANALYST

Melinda-Carol Ballou serves as program director for IDC's Application Life-Cycle Management research. In this role, Ms. Ballou provides thought leadership, expert opinion, research, and analysis through comprehensive research on application life-cycle management (ALM), with specific focus on software life-cycle process configuration and management, software quality, and IT governance software. Ms. Ballou also offers competitive intelligence and consulting on key aspects of the ALM market to service providers, investment firms, and G2000 end-user companies.

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