

Key Considerations for Mobile-Enabling Your Enterprise Apps

By Eric J. Bruno

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The shift to mobile app usage is not unlike the move from mainframes to PCs decades ago. That movement required huge shifts in development methodologies and practices, new tools and wholesale changes to back-end supporting systems. Today, the companies that move quickest to mobile-enable their key applications and adopt a mobile-first development approach will have the greatest advantage.

Back-End Requirements for Mobile Applications

According to a survey of software developers worldwide, 66 percent indicated that they were working on mobile application development in 2012. As of 2013, that number had grown to 91 percent.¹ When asked whether they could define the back-end capabilities needed to support their mobile development, according to the same survey, 25 percent of the developers said they didn't know. That ambiguity is cause for some level of concern.

Mobile application development requires the expertise to build the infrastructure to scale and support apps that leverage the business logic and data housed in multiple back-end systems. Because of the agile, highly iterative nature of the mobile app release cycle, having this knowledge in-house is important.

An API-Centric Approach

It's clear that back-end system architecture needs to change for mobile app support.² Real-time information processing, integration with new data sources such as geospatial location data, and efficiency in terms of bandwidth usage and performance are becoming even more important.

Given these and the security issues involved, it's best that companies don't simply open their business-critical systems to the Internet without consideration. Most organizations insert an API layer in between, but not as a simple pass-through from the mobile app to the back end. Instead, this layer adds smart data aggregation and transformation, user personalization and a richer experience that mobile users have come to expect. Some call these enterprise mashup applications.³

The Cloud for Elasticity and Reliability

Organizations continue to migrate their back-end systems, or choose to place new applications in the public cloud in order to meet fluctuating — sometimes unpredictable — user demand common in the mobile space, otherwise known as the need for elasticity. Additionally, the cloud offers a level of reliability with its built-in fault-tolerant systems from facilities infrastructure to hardware and network equipment. This is often a viable option because building and maintaining a private cloud or data center can be costly for an individual corporation.

An Application Modernization Strategy

The popularity of a diverse array of mobile platform technologies, including iOS, Android, Windows Mobile and BlackBerry, has led many organizations to adopt a hybrid approach to app development. With this, some elements of native development are combined with HTML5/Web-based development for mobile app user interfaces.⁴ Over time, as tools and techniques improve, some predict that HTML5 will become the predominant mobile app UI language.⁵

This hybrid strategy allows companies to leverage their development investment across multiple mobile platforms using a common codebase. Injecting a certain amount of native code to improve the user experience and tie into the mobile platform’s capabilities may be key to mobile-enabling enterprise apps; however, it is anticipated that reliance on native code will continue to decrease as HTML5 and related standards expand deeper into hardware functionality and mobile-specific features.

The Platform View

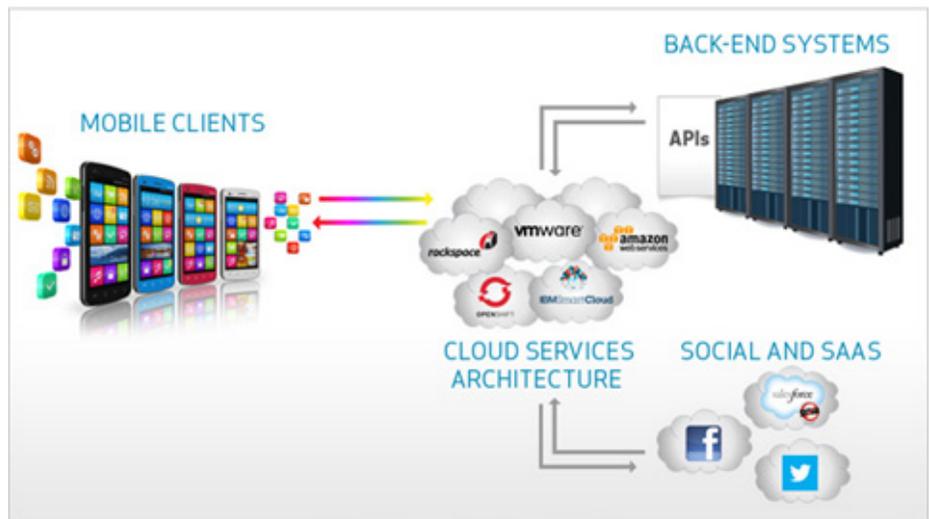
Using existing back-end systems and databases in a way that suits mobile users’ needs is another key part of this strategy. This includes the construction of a new API-centric layer that has the personalization and transactional uniformity needed to support a rich mobile experience, even when connectivity and scale are unpredictable.

Given the audience — Web and mobile users — this layer should be built with the latest Web techniques, such as REST calls with JSON objects.

Additionally, modern Web development approaches such as PHP, a Web framework and platform, and an agile methodology with a collaborative DevOps approach for deployment are also recommended. Using the public cloud for the API-centric layer helps reduce operating costs while providing for the unpredictable scalability needs of various mobile communities (see Figure 1).

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Figure 1: **The Mobile-Enabled Enterprise: Back-End APIs, the Cloud and Social Media**



Source: Zend

The Data View

Mobile apps often require secure channels of communication. For HTML5 hybrid apps, using Web-based protocols such as SSL/HTTP communicating to an API-centric layer behind a firewall (even in the cloud) is a safe approach. JSON data for both storage and communication leads to consistency in mobile apps and back-end systems. PHP tools and frameworks help enable this communication and processing in a standard way, thereby aiding organizations to quickly build new applications.

However, understanding which data resides in which location is important. For instance, user-sensitive healthcare information should be stored on mobile devices only if security can be assured. As a general rule, all sensitive data residing on mobile devices should be encrypted and/or use the devices' native facilities for security. Centralizing as much data as possible in the cloud allows users to access their data and leverage a common user experience from their smartphones, tablets or desktop Web browsers.

Conclusion

As the world of mobile devices remains diverse, the popularity of hybrid native/HTML5 Web apps is expected to grow. PHP helps organizations build the back end of Web-based solutions for both mobile and Web users quickly, securely and reliably. This, combined with its built-in support for RESTful services, allows companies to quickly build an API-centric layer to mobile-enable their existing, sometimes legacy, back-end systems. Combined with social media integration, applications should be ready for the mobile world.

PHP Addresses Top Mobility Concerns

In addition to the strategy outlined above, PHP helps organizations address the following needs of mobile app development:

- **Security** – Security best practices of common PHP frameworks such as the Zend Framework can help developers ensure that security is addressed from the start.
- **Reliability** – Solutions such as Zend Server with high-availability cluster and failover can offer users the highest amount of uptime.
- **Scalability** – The mobile world is unpredictable in terms of user demand and user connectivity over time. PHP platforms such as Zend Server deployed to the cloud help ensure that the infrastructure will scale even to extreme levels of demand.

The availability of tools, frameworks and cloud support will be pivotal in the shift to ubiquitous mobile app deployment now and in the future. Moving ahead, companies will be best served by building a set of tools, processes and expertise that supports this in-house.

1. Zend Technologies, Zend Developer Pulse, "Developers and the App Economy 2013" (infographic)
2. Venture Beat, "Three Things Development Leaders Should Focus on in 2013," <http://venturebeat.com/2013/01/04/mobile-dev-in-2013/>
3. Eric Bruno, "Programming with Reason, Enterprise Mash-Ups Matter," http://www.ericbruno.com/ericbruno/Programming_with_Reason/Entries/2010/4/1_Enterprise_Mash-Ups_Matter.html
4. Business Insider, "HTML5 vs. Apps: Here's Why the Debate Matters," <http://www.businessinsider.com/html5-vs-apps-heres-why-the-debate-matters-and-who-will-win-2012-12>
5. Andi Gutmans' blog, Andi on Web and IT, <http://andigutmans.blogspot.com/2012/10/mobile-is-cloud-and-cloud-is-mobile.html>

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The PHP Company

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