Telerik Platform

5 KEY FORCES SHAPING NEXT GENERATION OF ENTERPRISE MOBILITY

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OVERVIEW

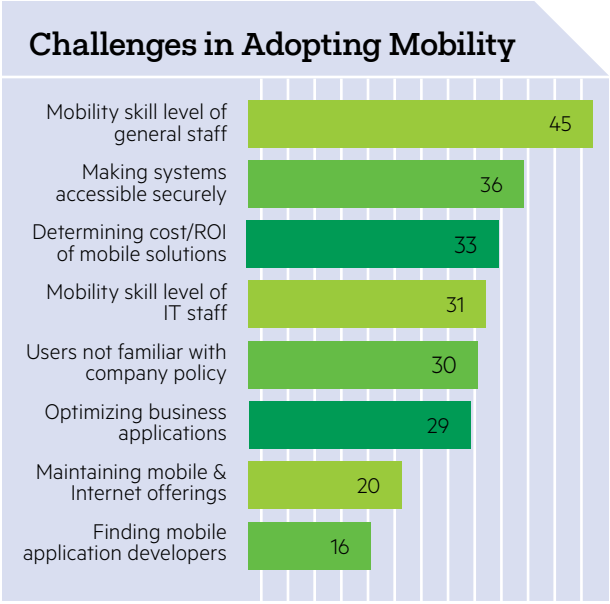
Mobile apps are creating a higher return on investment than ever before for enterprises. However, a number of challenges slow down the speed of enterprise mobile adoption. This whitepaper provides a detailed view of the five major factors in enterprise mobility: security, investment costs, mobilizing existing data, cloud and multi-platform mobile development. Read on to learn more about these factors and discover how to prevent them from slowing your mobility strategy.

THE MOBILE SHIFT IN TECHNOLOGY

Of all mobile users, 30% now use smartphones. In 2013 alone, mobile data traffic grew by 81% over the prior year. Page views from mobile devices show the same trend, growing from 14% to 25% year over year.[3] These numbers substantiate the technology shift we see around us, a shift transforming the way we bank, shop, entertain, travel, learn and work.

Consumers aren't the only ones affected by the mobile shift. CIOs have consistently ranked "mobile technologies" as one of their top 3 priorities for the past three years.[4] This is likely fueled by employees demanding mobile access to desktop applications, and customers expecting optimized mobile device access to a wealth of services.

However, enterprises face many challenges when trying to embrace mobility, such as legacy infrastructure, a lack of mobile development skills and the significant hidden costs from building and maintaining applications. Together, these challenges make it difficult for companies to execute on mobility roadmaps. Consider that the average company has 400 custom and packaged applications, but only 22 percent of enterprise applications can be accessed from mobile devices.[2] According to CompTIA's Third Annual Trends in Enterprise Mobility study[1], security, resource constraints and organizational policy hurdles were important factors preventing enterprise mobile adoption.



Mobile technology innovation is accelerating at a fast rate. Unfortunately, IT departments are burdened by an overwhelming array of constraints that considerably limit their ability to drive innovative mobility projects.

Of all of these constraints, there are 5 major forces shaping enterprise mobility. Enterprises able to use these forces to their advantage will achieve the desired result—rich, robust, scalable and secure cross-platform mobile solutions.

Enterprises failing to adapt to the realities of today's technologies will lose their relevance in the age of mobile devices, social software and cloud computing.

The 5 Enterprise Mobility Forces

1. SECURITY

Challenge

Adopting the latest technologies presents a wide set of challenges for enterprises due to security considerations and compliance requirements. Data is critical to all organizations, and unauthorized access to this data threatens successful project deployment. According to a 2014 Trustwave Global Security Report, 96 percent of applications scanned by Trustwave harbored one or more serious security vulnerabilities. A full 100 percent of tested mobile applications contained at least one vulnerability.[7] With these numbers in mind, it's no surprise that security is one of the most important items on the agenda when enterprises evaluate a mobile strategy. Nonetheless, enterprises are being forced into mobile fray, risking internal information security at a time when news of US corporate data breaches is seemingly a daily occurrence.

Solution

While there is no single way to completely secure mobile apps against every attack, there are certainly a number of security measures that can and should be taken to minimize exposure to cyber threats:

- **Data Transport Security:** Make sure your data is encrypted across all transactions between the device and the server. Transport Layer Security (TLS) and its predecessor, Secure Sockets Layer (SSL), are cryptographic protocols designed to provide communication security over the Internet.
- **Physical Security of Data:** Ensure your data is stored in a safe location with on-site staff, alarm systems, card key access, CCTV archived video and environmental security measures. Additionally, your servers should be reinforced with redundant power supplies, backup generators, and an early smoke detection system.
- **User Authentication and Password Security:** Only authorized users should be able to access your mobile application, and proper access levels should be put in place to ensure that users can only access data appropriate for their required tasks. In 30% of instances, attackers gain unauthorized access because of a weak password. More restrictive data access and better password protocols can minimize this risk.[7] Implement and enforce strong authentication policies consisting of a minimum of seven characters and a combination of upper and lowercase letters, symbols and numbers.
- **Backup:** Choose an enterprise backup solution that covers a vast range of data sources such as mobile devices, desktops, laptops and enterprise applications to prevent loss of sensitive information that could negatively impact your customers. While enterprise backup solutions can recover and restore lost, damaged data, they also work to prevent data loss and misuse before it occurs.

2. INVESTMENT

Challenge

According to a recent survey of 300 CIOs and IT executives, the biggest barrier to mobilizing the enterprise is mobile development costs. Sixty-five percent of surveyed CIOs indicated cost as their primary challenge to their mobility projects. The cost of re-engineering enterprise apps as mobile apps is high because of the ballooning marketplace platform fragmentation.[2] Developing and maintaining rich native apps for iOS, Android and Windows Phone requires a vast spectrum of both knowledge and resources.

Solution

The best option for enterprises looking to deploy cost efficient rich mobile apps across multiple platforms is to adopt one of the leading cross-platform mobile development solutions. A majority of these solutions enable developers to code in a single language—usually JavaScript—and deploy across multiple platforms. Gartner's annual Magic Quadrant for Mobile Application Development Platforms is a great place to start evaluating your options.

Cloud-based services are another technology enterprises could and should take advantage. The flexible nature of cloud services is attractive to enterprises, who can start mobility projects without any major up-front investment, then scale up or down as business needs require. That need, coupled with the continuous cost decrease of cloud-based technologies, is leading to widespread enterprise adoption of cloud services. In fact, cloud-based backend service solutions have seen a surge in the past few years. According to a Gartner prediction, by 2016, 40 percent of mobile application development projects will leverage cloud mobile backend services.[5]

3. EXISTING DATA

Challenge

One of the biggest challenges to mobile app development is repurposing existing enterprise data in this new context. Enterprises have a large amount of data across a number of applications, including CRM, ERP and other internal databases. To mobilize internal data, some organizations have recreated their data systems in the cloud to make the data available to mobile applications. Others keep data in-house, and instead build integrations and connections enabling them to mobilize internal data without cloud technologies. Both of these approaches have proven to be insufficient given performance, security and cost issues.

Solution

The best solution for mobilizing existing enterprise data is to choose a mobility vendor with pre-built data connectors and a flexible backend service offering. Ensure your vendor supports on-premise and private cloud deployment, in addition to the commonly used public cloud deployment option. Thoroughly review the list of pre-built data connectors available from your vendor to ensure they support the data integrations you need.

4. CLOUD

Challenge

Historically, Enterprises had to build and maintain the networks, servers, storage and other services required to host their applications. Apart from the significant investments, this approach required hiring highly skilled staff that was well versed in technology and required hours of work for infrastructure maintenance. To secure the data within the internal infrastructure, significant efforts needed to be put towards building enterprise grade firewalls, establishing lengthy policies and procedures.

Solution

Today, the rise of cloud technologies has stimulated a number of innovations that greatly benefit enterprise mobility. Enterprises no longer

have to build and maintain the networks, servers, storage and other services required to host their applications. The flexibility, scalability and cost-effectiveness of cloud-based mobility offerings enable enterprises to base a successful long-term mobile strategy on these solutions.

The biggest advantage of cloud-based solutions is undoubtedly the ROI they provide. Enterprises can maximize their investments in cloud solutions by accelerating time to market, offering high performance applications and providing business service access across all major platforms—all while avoiding maintenance and infrastructure costs. Due to this advantage, cloud technologies are changing the enterprise mobility architecture to a model that relies on cloud services as a middleware layer between the enterprise infrastructure and mobile apps.

A number of cloud solutions have captured the attention of enterprises in the recent years. Below are the key cloud solution categories enterprises should consider when planning mobility projects:

- Software as a Service (SaaS) is a delivery model where software is licensed on a subscription basis and remains centrally hosted on the cloud by independent software vendors.
- Platform as a Service (PaaS) is a way to rent hardware, operating systems, storage and network capacity over the Internet.
- Infrastructure as a Service (IaaS) is a provision model in which an organization outsources the equipment used to support operations, including storage, hardware, servers and networking components.
- Mobile Backend as a Service (MBaaS) is a cloud computing service that simplifies the process of setup, maintenance and operation for mobile app backend.

5. MULTI-PLATFORM MOBILITY

Challenge

A lot has changed in the mobility industry. Just in the past few years, we've witnessed the rise of Android as a leading platform ahead of iOS, the decline of Blackberry and the birth of Windows Phone. This list doesn't even include the disappearance of Palm OS, the birth of a new HTML5 based Firefox OS and Amazon supported Fire OS or countless others too small to mention.

However, these changes do not alter one truth about customer expectations: they want the latest and greatest experiences across all devices, regardless of the multiple platforms and screen sizes they use. Mobilizing internal apps for employees and creating engaging customer experiences across platforms is extremely complex. Standardized tools buy us little to nothing when it comes to developing for mobile devices with different operating systems.

Extending diverse enterprise applications to mobile devices—including many based on a hodge-podge of legacy technologies—is especially challenging. Each brings unique complexities to the table. Native app development requires a team well versed in the latest mobile technologies and development languages. To develop rich native applications for iOS, Android and Windows Phone, a developer would need to know Objective C, Java and C# (with .NET). Just recently, Apple introduced a new programming language called Swift, for developing iOS and OSX applications. Locating developers skilled in all these technologies can be a monumental challenge.

Solution

Luckily, the market has seen a surge in cross-platform mobile app development solutions that allow enterprises to significantly reduce development efforts and get to market faster. Enterprises are adopting cross-platform solutions as the cornerstone of successful mobility projects. To ensure you adopt the right technology for your organization, consider the following factors:

- **Skills:** Will the solution leverage existing development resources for mobile app development without a significant investment in training?
- **Developer Community:** Is there a large community developing applications using these tools?
- **Scalability:** Can the provided solution easily scale up or down based on business needs?
- **End-to-End:** Does this tool provide a complete development solution, or is it only a point solution covering a small piece of the puzzle?

- **Flexibility:** Can this solution support web, hybrid and native app development? Will it adapt to existing systems and services?
- **Support:** Can the vendor support development efforts both now, and into the future? Can it support larger efforts?

In addition to multi-platform development, many other moving variables must be considered when choosing the ideal approach for mobile application projects. Here is a quick look at all three approaches and the best applications for each:

Native Apps should be chosen when enterprises are aiming to develop rich apps that provide a functionality, user experience and performance beyond the capabilities of hybrid and web apps. However, native apps require significant resources to build and are not cross-platform compatible. Developers need to know platform specific languages (Objective C, Java, .NET, etc.) to create mobile apps that optimize native performance for each approach.

Hybrid Apps should be chosen to develop native-like apps across platforms. Hybrid apps are web apps wrapped in a native shell. They are cross-platform and can be distributed to multiple app stores without the extensive development efforts needed for native apps. The market is seeing increasing interest in hybrid application development. In fact, Gartner has predicted that by 2016, more than 60% of enterprise apps will be built based on hybrid technologies.[6]

Web Apps require the least amount of resource investment of the three. Web apps are cross-platform and ideal for information, search and shopping applications. The biggest disadvantage of the web approach is the lack of public app store access.

CONCLUSION

Extending enterprise applications to mobile devices and engaging customers through mobile channels are top priorities for many organizations. However, there are a number of forces and challenges enterprise IT Managers need to address when implementing mobile technologies. Security is one factor. Cost is another consideration, and particularly so when planning enterprise mobility projects. IT Managers need to leverage the latest technologies and cross-platform mobile app development solutions to deliver projects on time and under budget. This is best accomplished by mobilizing existing data by taking advantage of pre-built integration technologies and cloud services. Enterprises who are able to stay ahead of these forces will lead with innovation, employee collaboration and customer engagement.

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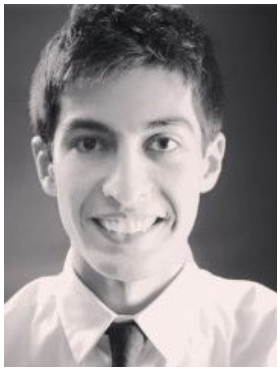

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Prior to Telerik, Ruslan worked as a Product Marketer in the mobility industry to communicate the value of mobile applications for Fortune 500 companies. He also worked as a Product Manager in the financial services industry creating software solutions for financial institutions.