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E-Guide

What's next for mobile application development?

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Many organizations are looking into creating *customized mobile applications to take advantage of the growing popularity of smartphones and tablets. However, deciding how to build the app and for which platforms can be daunting. In this E-Guide, discover how organizations can effectively deliver the right targeted mobile applications without breaking the bank.*

Best practices for building your company's next mobile application

By Lukas Stewart

What's your company's next mobile app project?

Along with the upswing in Web application development, many businesses are also trying their hand at creating customized mobile apps. These projects can involve creating a mobile version of a Web application or building a completely new app specifically for use on mobile devices.

Why build instead of buy?

In some cases, it's possible to use off-the-shelf apps for business. That's often the case with file sharing software for small to mid-sized businesses since file formats are fairly standardized across industries. If you can share MS Office documents and spreadsheets and PDFs, you've pretty much got things covered with popular apps like GoogleDocs or DropBox. However, there are many businesses that do have processes which require bespoke mobile apps. This is most likely to be the case for:

- Large enterprises (needs tend to be more complex)
- Niche industries (needs tend to vary from the average)
- Apps that are linked to customized internal databases
- Apps that must be integrated with an ERP
- Apps that require greater than average security and control

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What types of apps are most popular?

65% of respondents to TheServerside.com Readership Survey 2011 put business apps at the top of the list for the type of mobile application they will be developing in-house. Another 20% list finance apps as their main focus. Of course, the term "business" isn't all that specific. That's partly because there's really no limit to what an imaginative organization can create to make the most of its resources in the new, mobile era. Here are a few custom-crafted mobile apps that could add value for businesses:

Crossover financial transaction apps

The custom-built business finance apps of the future are likely to be multifunctional. This goes way beyond building a mobile cash register. There are many mobile apps already developed that allow sales reps to accept credit card information and generate electronic receipts in the field. Some can even be interfaced with accounting databases and software like QuickBooks that many companies are already using for basic A/R purposes. However, a more advanced version might also offer customer self-service and be able to pull relevant data to enhance the consumer experience. This would mean integration with the customer's past order history, the ability to handle returns and other non-standard transaction details, and perhaps even targeted marketing with coupon codes.

Other mobile finance apps might allow users to track expenses and make certain categories of purchases on behalf of the company based on predetermined parameters or interactive authorization with mobile users up the "approval path". This type of application might be useful in logistics. Truck drivers could have access to funds for emergency repairs and track fuel purchases along with mileage using their mobile device. Ideally, this type of mobile app would be interfaced with the company's logistics tracking software that keeps GPS tabs on vehicles at all times and logs trip information automatically.

Mobile ERP applications

Any app that ties into the core operations of a business is likely to be an attractive option for mid to enterprise level firms. Mobile doesn't have to mean users are far-flung geographically. Sometimes, mobile technology can

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be just as useful on-site as off-site. For example, barcoding and inventory management points of contact that are currently managed with stationary equipment might just as easily be handled with mobile devices. This actually sets the stage for strategic expansion. Rolling out a mobile app for use in production through distribution and even retail might prove simpler than attempting to standardize an upgraded electronic inventory management system throughout a supply chain. The issue, of course, is designing a custom app that is compatible with a broad range of mobile OS and hardware. Otherwise, you face the challenge of standardizing mobile devices across the supply chain.

Customer focused mobile apps

This is the area where customization really goes wild since it involves the greatest opportunities for branding and interactivity. However, smart businesses will still focus on what they're actually achieving with mobile apps rather than how flashy the experience is. Driving revenue means keeping the UI simple and giving customers what they actually want. Take industries such as direct sales where customers are expected to fill out lots of forms to get a quote or make a purchase. A mobile app that auto-populates fields from one form to the next is a real time saver and a powerful sales tool.

A somewhat riskier approach that can still pay off is the creation of business apps solely for the purpose of building brand loyalty. This might include:

- Loyalty program apps that let customers build and redeem points
- Entertainment apps (games) that create a buzz about the company
- Educational resources (free information that builds credibility and trust)

These are the types of business apps that can "go viral" or simply be a flash in the pan. One way to choose concepts that catch on is to make sure that sufficient business intelligence is collected beforehand. This is actually an area where other mobile apps (especially those that interface with social media) can shine. We're likely to see a rapid expansion in the type and functionality of mobile apps for business over the next few years as

enterprises cash in on the customer data they've been accumulating over the past decade.

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Modern mobile development techniques: The Y-shaped methodology

By Cameron McKenzie

When the end goal is creating the highest quality of user experience possible on a mobile device, there's no debating the fact that native application development is the only way to go. But with at least four major platforms to target in a Bring-your-own-device world, each with its own platform-specific development kits and APIs, how can an organization effectively deliver mobile applications that are specifically targeted to each of the mobile platforms without completely blowing the entire IT budget?

The wrong approach to mobile development

The wrong thing to do is to go all in and dedicate a team for each platform, but sadly, that's exactly what many organizations are doing. The end result is an inevitable duplication of efforts as separate teams independently develop essentially the same services and features as everything gets developed in parallel.

"Many organizations approach mobile by setting up independent teams," said Giles Alexander, lead developer and consultant who specializes in mobile application architecture and strategy at ThoughtWorks. "You'll have an Android team outsourced, your iOS team in-house, and then you'll contract to an entirely external team for BlackBerry or Windows Phone development. These teams are basically delivering the same features, but they're doing it entirely in parallel."

Anyone who has worked in the IT field knows that there's always a strong probability that any one application development project will fail. With four projects going on at the same time, your chances of any one project failing quadruples. Furthermore, with four different projects supporting four different platforms, fixing bugs and enhancing features become increasingly

untenable as time goes on. Fortunately, though, there is a better approach, and more organizations are adopting it.

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A new trend in mobile development

In what is becoming a successful trend, forward-thinking organizations are moving away from a fragmented-by-platform mobile development process and are instead adopting a feature-based approach that stresses commonality. Divergences and differences between platforms only end up coming into play as UI development issues come into focus.

This evolving approach is known as the Y-shaped development method because the development stream looks more like the letter Y than it does a bunch of independent columns or silos that stand alone independently. "The Y-shaped delivery method aligns your teams along features rather than along platforms," said ThoughtWorks' Giles Alexander. "You don't restrict your teams to just working on the mobile front end, but you also allow the team to be aligned across a feature throughout the organization."

The end result is that one team efficiently develops a feature from end to end rather than four teams duplicating efforts. It certainly sounds more like common sense than it does a revolutionary idea, but sometimes common sense gets pushed aside in the frenzy of rushing mobile products to market.

Getting started with the Y methodology

Given the sensibility of this methodology, how does an organization that's interested in getting its feet wet in the mobile development space adopt this particular approach?

"You're probably going to have to pick some boundary at the back end to start," said Giles. "Say you have a set of services that expose the data that is critical to your product, and you want to deliver a new mobile feature around this. You should be able to put together a team that can work on those services and work on exposing those services in a way that is suitable for mobile. You then have that same team work on the UI and the actual delivery of those features into your Android, iOS, Blackberry or mobile web -- whichever you feel is most suitable to support."

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Of course, you can't completely ignore the reality that there are unique differences between the three or four most popular mobile platforms on the market. Furthermore, it's inevitable that certain members of a given team will have skills that align more strongly with either Android, iOS or Windows Phone. Any good development strategy needs to embrace this reality. This is where the linear-based, feature-driven development approach branches out a bit, giving us the idea of a Y-based development methodology.

"There may be some division at the front end of the team. Some people may prefer to be Android developers as opposed to iOS developers, so you may end up with some slight division at the top -- hence the Y," explains Giles.

In the end, taking this slightly newer approach to mobile application development is going to save time and money and make feature enhancements and long-term maintenance of the applications more manageable. Organizations should start thinking about breaking down the silos and taking a more streamlined, feature-based approach to lean mobile development. "It's about focusing on features, delivering features and learning from that feature delivery."

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