RESEARCH ARTICLE

Mobile Web – Enterprise Application Advantages

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Abstract— This paper enlightens the benefits offered by enabling web applications on Mobile devices and also addresses the current business challenges in developing Mobile Web applications. This paper is intended for all business domains irrespective of application portfolios. Mobile enterprise application platform solutions are the core technology offerings that enable mobile enterprise applications and are the basis for organizations that are building, deploying, and supporting mobile enterprise applications. Mobile enterprise application platform solutions bring tremendous value to organizations and end users in the form of enhanced productivity, improved organizational efficiency, increased revenue, and better customer care. Technologies for mobile enterprise application platform are vastly improved with an opportunity for cloud-based or on-premise solutions; native, hybrid, or mobile Web applications; and B2E, B2B, and B2C deployments. In addition, the promise of faster time to market and lower initial costs for mobile applications has allowed organizations to embrace mobile enterprise application platform solutions in a way they never have before.

Indexed Terms: - Mobile computing, Mobile Web, Mobile Internet, Enterprise Mobility, Mobile Solutions, Mobile Web Solutions, Mobile Web Services.

I. INTRODUCTION

Mobile enterprise application deployment is strategic for organizations today. The need for a mobile enterprise application platform (MEAP) has been brought to the forefront as companies seek a trusted advisor to assist them with the design, building, deployment, management, and ongoing support of their mobile applications. The following market trends characterize the MEAP market:

(1) Consumerization of IT and the growing adoption of consumer applications have raised awareness among organizations to deploy applications to internal employees, partners, and consumer-facing customers at an accelerated pace and with expanded design with improved user interfaces.

(2) Cloud-based computing provides customers an opportunity to deploy MEAP solutions more rapidly, without the large up-front cost barrier, yet creates a solution that is scalable for future expansion.

(3) MEAP solutions are not just about software; rather, they have many moving parts. Customers seek a trusted advisor that can deliver solutions and partner with best-of-breed providers that can address important software, hardware, and services requirements.

Mobile Enterprise Application Platforms are pre-built environments that allow an individual to fabricate a mobile application with the intended purpose of deploying the application to multiple mobile operating systems. The development environments are usually fairly straightforward, and require minimal programming experience to develop functions for the application. A lot of the higher end MEAP environments utilize a WYSIWYG UI, allowing for features such as "drag and drop" for developing functions for the application. MEAP environments are great for device-agnostic solutions that span multiple types of devices. Because they're agnostic, they don't

cover the unique elements of a particular device but for 80% of the generic business applications, a MEAP environment should do the trick. The average IT-savvy user can typically develop and turn around an application with roughly 4-5 days of training, and deploy to any platform within a company.

Today, enterprises need to align their technology practices and to instill the right composition of mobile technologies, platforms and disciplines in order to consistently execute ahead of their competitors. With such goal in mind, Mobile Web Solution acts as a key enabler to help customers in reducing operational costs, improve customer service and achieve a new velocity by providing real time visibility & monitoring into their operational processes with better data granularity.

It is also observed that Mobile Web access continue to grow with increased penetration of emerging mobile platforms, devices (like larger form factor Smart-phones, tablets) and continuous richness of micro browsers. Developing and deploying Web applications for different mobile devices is not as straightforward as it might sound. Due to proliferation of mobile devices, Mobile Web applications would have to be supported on a most of these devices running with different browsers. There is little or no coherence between different browsers supported by different Mobile platforms.

II. ENTERPRISE MOBILE APPLICATIONS

Enterprise mobile applications become "role-based applications," as companies design them for specific roles and functions in the organization. These role-based applications provide simple features and functionalities and are pre-populated with data and fields that make it easy for users to complete a specific task. Here's how this could work within the manufacturing enterprise. In their daily jobs, service technicians might perform dozens of tasks, but they could probably identify just six or seven of these tasks that are crucial for performing on the road - confirming an order is complete, for example, or ordering a spare part for a repair job. They don't need an entire "field technician application" involving complex navigation schemes and requiring hours of training. They just need highly purposeful, single-function applications that are aligned with their role and intuitive to use, to ensure quick adoption. Looking across the organization, role-based applications can be identified for virtually any function within the enterprise. For instance, outbound logistics could realize huge advancements in productivity through the use of a single-function dispatch scheduling app, route optimization app or track-and-trace app. The operations team could become more effective and efficient by using an app for scheduling visibility, plant utilization and throughput analytics or order tracking. Now, imagine if all business functions throughout the organization could download these role-based applications from a repository that can be created, after careful analysis of the applications that would enable the highest worker productivity and adoption. Employees - as well as customers, suppliers and business partners - would use the mobile applications that make most sense to them, based on which ones apply to their situation and make them most productive. When these applications are properly chosen and designed for simplicity, even traditional, non-millennial employees would be inclined to download and use them to do their jobs more effectively. Figure depicts an enterprise mobile apps approach for a typical manufacturing company, with dozens of applications available to various functions across the enterprise. The key to creating enterprise mobile apps is following a structured process to analyze an organization's manufacturing-related processes and systems in order to prioritize and aggregate the features and functionality of the role-based apps. This structured process allows businesses to rationalize what is important and create a roadmap for various apps that drive maximum benefit and adoption. More importantly, the process needs to consider the existing ERP/legacy landscape and leverage this back-end infrastructure. The well-designed enterprise mobile apps repository will combine a variety of technologies, including native applications (custom apps built for the device), the mobile enterprise application platform (MEAP), HTML 5 (rich, cross platform) and mobile Web applications. Mobile versions of existing software packages will definitely be featured in the enterprise apps repository, as well, but this will not be the answer for all opportunities available for mobility in the organization. Companies will also have to build their own app distribution infrastructure or leverage a partner's - that allows users to easily download the applications through wireless or wired means.

Majority of Mobile Applications contain some level of common functionality that spans across layers and tiers. It is customary to examine the mobility functions required in each layer, and then abstract the functionality into common components to address cross-cutting concerns. And, such common components can be configured depending on the specific requirements of each layer of the mobile application. The figure below shows different Mobile Application Models - Native Mobile Applications, Mobile Web Application and Hybrid Mobile Applications. Such Model helps architects and developers to take right design decisions for cross platform strategy.
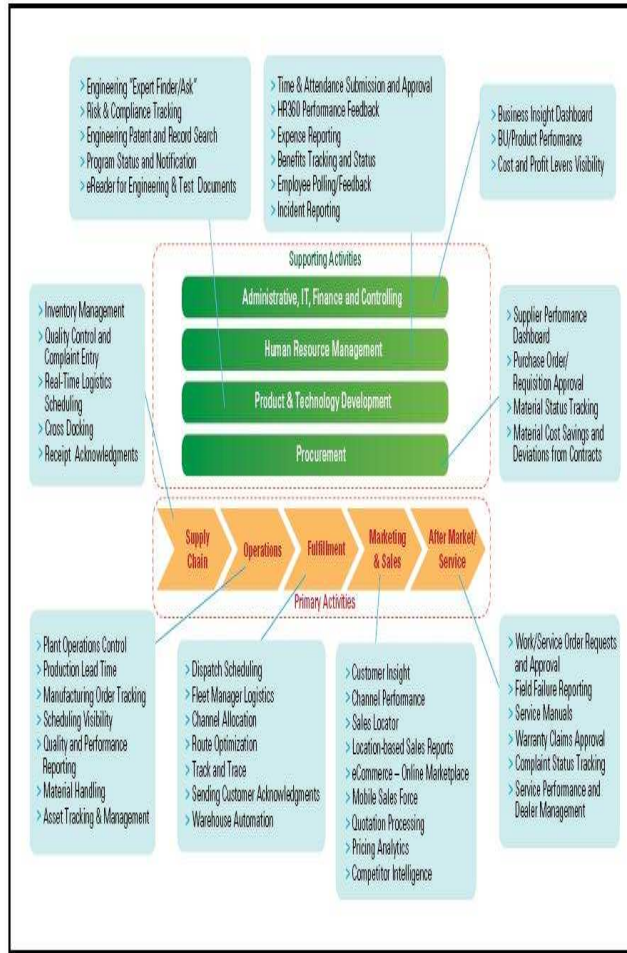
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Fig.1 Example of a manufacturing company's enterprise mobile applications
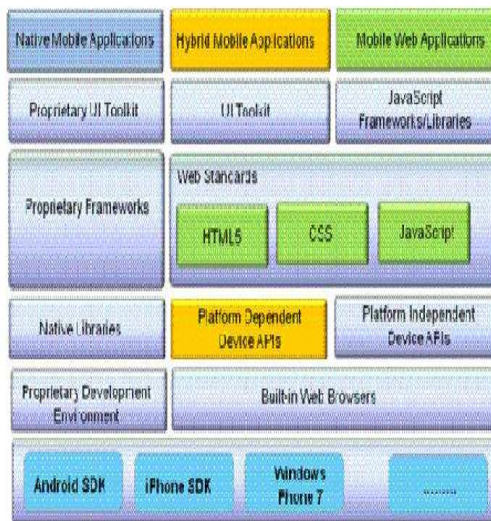

Fig.2 Mobile Application Models

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III. PRIMARY BENEFITS OF MEAP

According to IDC, the MEAP market is expected to grow tremendously over the 2010-2015 forecast period — increasing to more than $3.0 billion in 2015, representing a compound annual growth rate (CAGR) of 26.0% (see Figure 3).

A MEAP solution provides customers with a robust offering that enables valuable gains in a more affordable and faster time-to-market scenario than if organizations were to build their own offering. Recent survey data from IDC demonstrates that the key benefits from deploying such a solution include improved/enhanced worker productivity, increased sales/revenue, improved field service response time, and improved competitive advantage/market share (see Figure 4).
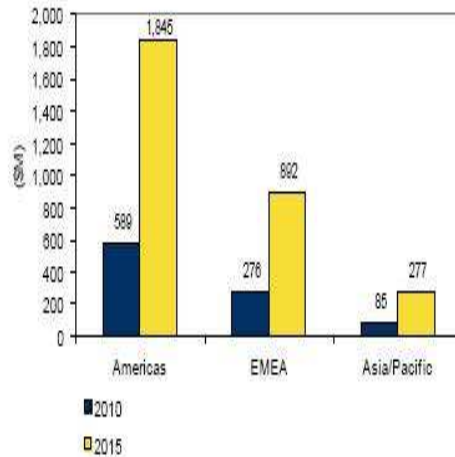

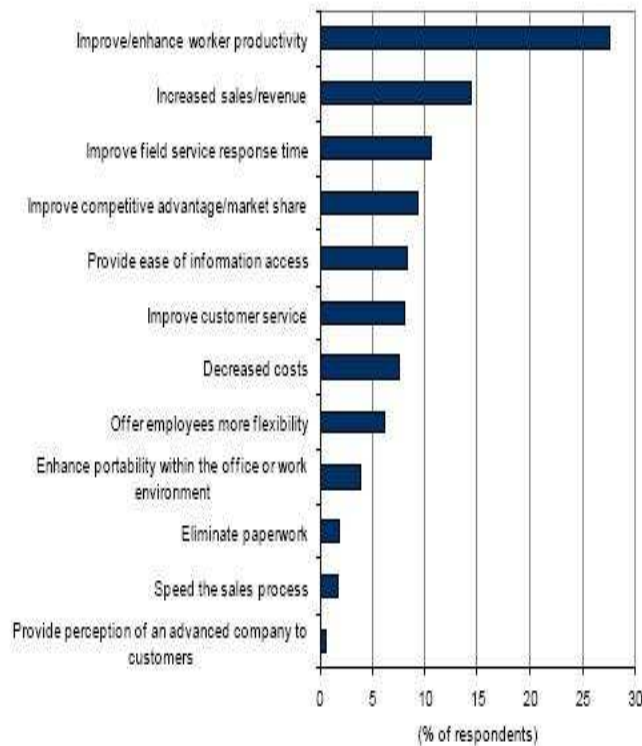Fig.3 Worldwide Mobile Enterprise Application Platform Revenue by Region, 2010 and 2015

Fig.4 Benefits Expected from Mobile Solutions

IV. BUSINESS BENEFITS

The key business benefits of Mobile Web Solutions are given below:-

• Cross-platform Support - Cross platform mobile Web solution would bring enormous benefits to business users to write-once-run-anywhere applications for a wide variety of mobile devices. By using HTML tools and a mobile application development platform, developers can write once and deploy to multiple platforms instantly.

• Low upfront development cost - Thin client approach and Web standards help to achieve high ROI from the mobile application, as there is only server side component development and testing of application on different browsers. In case of thick clients, there exists a need to have application development efforts both at the server side and client side; thus increasing the overall development and deployment cost.

• Improve customer service and operational efficiency - Mobile Web solutions address the typical business use-case to improve operational efficiency of mobile workforce by automating job scheduling, assignment, approval workflow and intelligent reminder/alerts triggered on cross platform devices.

• Easy maintenance and Low TCO through Standards-based development – Applications developed using Web standards are easy to maintain and update, resulting in low TCO for mobile Web applications in a long term. Offering would help developers to leverage existing Mobile Web standard tools that would rapidly integrate mobile applications with back-end and legacy applications and maximize the usability and flexibility of mobile applications.

• Always Available Mobile Applications - Always available mobile Web applications generate a higher rate of return due to the fact that users spend more time being productive with the application. Such Solution would be using "always available architecture" which clearly meant that users can access databases, applications and Web content quickly and easily on their mobile devices all the time.

• More sales lead through interactive Mobile Web applications - Interactive mobile web app development would make potential customers, interested and connected, leading to increased sales. Collaboration tools would give them the feeling that they are a part of business eco-system.

• Mobile Web offers a seamless user experience - Using smart caching and advanced synchronization techniques, mobile Web Solution would deliver a seamless user experience across a variety of public and private wired and wireless networks

V. CONCLUSION

MEAPs can support more than one type of mobile device and operating system without having to maintain separate sets of code. MEAP typically contains a mobile middleware server where integration connectivity, security, application management are supported. Writing a custom application extension is very easy with most MEAP solutions because they use 4GL techniques that do not require writing code. This toolset comes in the shape of plug-in for an industry standard IDE, such as Eclipse. Integrate with multiple server data sources for leverage SOA services from backend systems. Centrally manage mobile applications can enhance existing business platforms by making them accessible to users anywhere, at any time. MEAPs Can also be run on the clouds.

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