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Enterprise Mobility with Sybase Unwired Platform

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Abstract

Many organizations face the need for making an important decision of choosing the right development approach after selecting a mobile platform like SUP (Sybase Unwired Platform). While there is no best solution that works all the time, this paper attempts to bring in the pros and cons that each of the approaches carries with reference to enterprise requirements and different business cases.

Building
Tomorrow's Enterprise

Introduction

Sybase Unwired Platform (SUP) is a mobile enterprise platform for quickly developing & deploying enterprise grade mobile applications that connect business data from heterogeneous backend systems. SUP helps leverage its platform features like security, device management and develop mobile applications much faster than what it would take without a platform like SUP.

This paper highlights the solution approaches available within the Sybase Unwired Platform for mobile enabling your enterprise functions.

Development approaches

Many organizations face the need for making an important decision of choosing the right solution approach after they have chosen a middleware like SUP. Mobile application development can be done using any of the following approaches.

1) Native Applications - A native application is specifically designed to run a device's operating system and has to be developed for different devices. Native apps are developed for a specific platform and installed on the handheld. For instance, a native app developed for the iPad will only run on its proprietary iOS platform. Also within a Native OS, newer versions of operating systems sometimes can result in changes in existing applications.

2) Web Applications – A mobile web application or a browser application runs on a centralized application server and the content of the application is downloaded from the web every time it is run. This is a more generic approach and can usually be accessed from all the handhelds that support web applications through the mobile browser.

3) Hybrid Applications – A hybrid application is one which combines the characteristics of both native and web applications. It has most of the benefits of a native app such as full access to APIs, app-store etc. An example of a hybrid app would be an online banking application that typically stores some content locally on the handheld.

The characteristics of a hybrid application are

a) It can work even while the connectivity is not there.

b) Supports native features such as access to camera, GPS, microphone and other services like calendar, address book etc.

c) Supports integration with web-based services

d) It can integrate with the device's file system.

e) Uses an embedded browser to access online content.

Sybase Unwired Platform can deliver mobility either through the native development or through the hybrid applications (Hybrid Web Container). Hence this paper focuses only on these two approaches. While native and hybrid approaches have architectural differences, it is interesting to note that over the last couple of years the user experiences provided by them are increasingly blurred. This is due to the fact that most native apps use real-time connectivity and the hybrid apps provide offline capability to certain extent.

Choosing a right solution for your requirement is as important as choosing the right middleware for the following reasons.

1) Technical feasibility
2) Project timeframe
3) Implementation cost
4) Maintenance cost
5) Multi-Device support
6) User experience

Comparative Chart

The table below provides a comparison of capabilities of Native and Hybrid Applications.

Capability	Native Approach	Hybrid Web Applications
Device Agnostic (Multiple Operating Systems)	No	Yes
Development Language	Native Only	Native & Web or Web only
Access to Device Specific Features	High	Medium
Offline Support	High	Medium
Advanced Graphics	High	Medium
Code Portability & Optimization	None	High
User Experience	High (Rich User or Compelling User Interface)	Medium
Local File Access	Yes	Limited
Direct P2P Communication	Yes	No
Cost & Time to Market	High	Medium
Installation Experience	High (App Store)	High (App Store)

Selecting the Right Approach

It is evident from the chart above, there is no single approach catering to all the requirements. Choosing the right development approach largely depends on the organization requirements and is influenced by many parameters such as budget, timeframe of the project, required functionality, IT infrastructure, skillset available and so forth. For example, if an organization's strategy is to support BYOD policy (Bring Your Own Device), Native approach will not work.

The challenge is to choose the right development approach that would cater to organization's requirements with constraints such as budget and time-to-market.

Native Approach

Given below are scenarios where native approach would be a preferred solution.

1) Organizations planning to support a limited audience with a single platform and for applications, that need to have the same look & feel of the mobile operating system.

2) Applications that require strong native capabilities or those that are built around a single functionality. For example, a P2P application such as Skype.

3) Push Notifications – When an application requires push notification support. Mobile users can be reached with a "push notification", which is like a text message and appears irrespective of the app being open or not.

4) For gaming applications that require a rich user interface, native approach is more suited and web technologies do not provide adequate solution. Also the loading time is lesser in native apps when compared to web apps.

5) Enhanced Access – for applications that require access to device features such as camera or address book.

Hybrid Web Container

One of the biggest drawbacks of the Native approach is its lack of support for device agnostic capability. Organizations intending to support multiple platforms and devices need to invest time, money and effort on resources for various native languages. In a scenario like this, SUP's hybrid web container approach easily scores over the native approach.

Give below are scenarios where hybrid approach is more suited.

1) Best of both worlds – The hybrid approach provides the best of native and web application approach. Native bridge provides the capability to leverage the device features and capabilities that latest handhelds offer. Secondly, applications written using web technologies like HTML5, CSS and Javascript can work across mobile platforms.

2) If an organization wants to implement BYOD (Bring Your Own Device) policy for its employees. The hybrid apps using HTML and JavaScript can work on multiple platforms/OS and devices.

3) In-house Skills – Web development skills are more common compared to native skills. An organization wanting to leverage its in-house web development skills can choose the hybrid approach.

HTML5 and the Mobile Web

The Hybrid approach uses HTML5 for UI development, which is evolving as the open standard for mobile application development. With HTML5, the web is becoming smarter and intuitive. Features such as offline support, high quality graphics, file access makes it the future of the mobile web. HTML5 with the help of CSS3 (Cascading Style Sheets) provides a huge amount of new styling capabilities. More and more browsers are supporting HTML5 today. Google's Android and Apple iOS both support HTML5.

SAP Mobile applications based on HTML5 will have better performance than applications that need plug-ins such as Flash. Part of SAP's mobility strategy is to enable implementation of light-weight HTML5 (Hybrid Web Container) apps that have lower TCO, with cross-platform support and richer user experience. SAP is creating tools to help developers for building HTML5 apps that would enable SAP data. There is a lot of scope for widespread adoption of HTML5 across the SAP landscape.

Future trends

The mobile technology has been evolving continuously with more and more powerful devices, which in turn will increase the implementation cost and the associated complexities for implementing a mobile solution.

Smarter handhelds and technologies like NFC (Near Field Communication), Augmented Reality will result in new use cases and business scenarios.

Summary

To summarize, the two approaches in Sybase Unwired Platform, i.e. the Native and Hybrid have their pros and cons. Native approach has the following advantages.

1) Better performance

2) Works better than any other approach for offline scenarios

The Hybrid (HTML5) approach has the following advantages.

1) Provides device agnostic capability with a single application

2) Less expensive as one solution can work across devices.

HTML5 is being adopted rapidly and according to analysts that it is likely to become a default technology for developing application's front-end. By implementing solutions with HTML5 and using native approach only where required, companies can ensure that their investments do not become obsolete in the future.

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