Introduction

Apple Inc. unveiled its latest Mobile OS iOS 8 at its World Wide Developer’s Conference event on June 2, 2014. It was made available as a Beta Download immediately and the final version was launched as an OTA update and direct download on September 17, 2014. The release of iOS 8 has introduced list of capabilities to simplify and enhance security, device management, application development, and enterprise content publishing. But the real enterprise impact of iOS 8 is much broader than its new feature set. The major updates and enhancements from a user and enterprise perspective are:

Enterprise
- A new programming language Swift, allowing application developers to easily and quickly build quality applications.
- Enhanced data, device and user security.
- Effective content management through CloudKit, allowing users to store and share content without depending on third-party solutions.
- Application management enhancements such as improved inter-app functionality.
- Improved productivity features such as setting out of office response, viewing colleague’s availability when scheduling a meeting, support for configurable Thread Notifications in mail and keyboard customization.

User
- A new photo application and iCloud Photo Library to provide seamless access to users’ photos and videos.
- An improved messaging application that allows users to capture sounds to send in conversations, including voice notes, ambient sounds or music.
- Family sharing feature that enables up to six people in a family to share purchases from iTunes, iBooks and the App Store without sharing accounts.
- A new health application that gathers data from various health and fitness applications and features a dashboard showing a user’s health and fitness data.
- Added support for third-party keyboards and improvement of its own keyboard to add predictive text.
- Hand-off, a convergence feature that allows users to continue their activity across devices, including desktops.
• Apple introduced its Payment platform called “Apple Pay” that allows users to simply hold their Apple devices with their finger on Touch ID near the payment terminal to pay for goods and services. The payment status is indicated to the user by vibration and beep. Apple does not charge users, merchants or developers to use Apple Pay for payments.

• Apple’s first wearable “Apple Watch” has been introduced in two different sizes (38mm and 42mm). It features messages, mail, fitness applications, calendar, maps, passbook, music and camera.

This white paper offers a starting point for mobility strategists and IT administrators to better understand what iOS 8 means to the enterprise and how its newest features may impact mobile initiatives now and in the future.

Following are the major updates from enterprise perspective:

1. New programming language – Swift

Apple has introduced a new programming language Swift for iOS and OS X applications. Swift does not replace Objective-C; it shares the same runtime libraries and coexists with Objective-C.

2. New screen size introduction

Unified storyboards for universal apps

A single interface with an auto layout feature is used to design applications for iPad and iPhone to ensure applications respond to orientation changes and different screen sizes. This reduces the development effort needed specifically to support multiple devices.

New screen scale for iPhone 6 Plus

The iPhone 6 Plus uses a new Retina HD display with a screen scale of 3.0. This requires new artwork design to be implemented. Now, asset catalogs can include images at 1x, 2x and 3x sizes. The iOS will choose the correct image size when loading on an iPhone 6 Plus.

3. CloudKit

A key addition to iOS 8 is CloudKit that radically changes the way iOS currently handles documents and other assets. Though the cloud APIs are not a new introduction for iOS, Apple has come up with new attractive APIs with free (with limits) access to its iCloud storage for applications by providing a common file system to store and share the content.

• Eliminates the need to write server-side application logic for content management.
• Also eliminates the dependency on third-party solutions such as Microsoft Azure, Google Cloud Platform, Amazon Web Services, Box or Dropbox to host application content.
• Major services covered are iCloud authentication, database storage, asset storage, search and notifications.
• For each Apple account, Apple allows the following usage limits:
  » 1 PB assets
  » 10TB database
  » 5TB/day asset transfer
  » 50GB/day database transfer
• IT administrators will be able to disable the use of iCloud Drive on managed devices
• Security is ensured by storing content in separate private and public storage containers/databases of iCloud.
• However, CloudKit does not feature device offline storage/sync. It is provided as only transfer system.
Does Apple enter in mBaaS space through cloudkit? The answer is “yes to some extent” because of the following considerations:

- The features offered by CloudKit are only a subset of mBaaS services, data storage services and it is completely locked with Apple eco-system. The resources (assets/databases) cannot be shared with other platforms.
- User is tied with the iCloud account; other authentication services such as LDAP, AD, and Single Sign-on are not integrated.
- Apple clearly states that CloudKit is a transport mechanism and not for persistence data. So, the applications need to handle offline storage and sync on its own.

Therefore, for enterprises that only focus on iOS specific, simple documents and database-based applications and have the road maps to continue in the same platform, CloudKit is the great choice.

For complete mBaaS services such as other authentication modes, security services, generic web-services creation and third-party technologies integration, CloudKit is NOT an interesting feature to look into.

5. Application management enhancements

App extensions
It is an inter-app functionality that allows enterprise applications to communicate by extending its functionalities for the following areas, also known as extension points:

- Share - Share content with social websites or other entities.
- Action - Perform a simple task with the selected content.
- Today - Provide a quick update or enable a brief task in the Today view of Notification Center.
- Photo editing - Perform edits to a photo or video within the Photos application.
- Storage provider - Provide a document storage location that can be accessed by other applications using document picker view controller.
- Custom keyboard - Provide a custom keyboard that a user can choose in place of the system keyboard for all applications on a device.

New application frameworks

Apple Pay APIs in PassKit
Apple Pay is used to sell physical goods such as groceries, clothing and appliances. Also, Apple Pay is used for services such as club memberships, hotel reservations, and tickets for events.
Camera and Photos APIs
Developers can enable their photo applications to edit images and videos.

Manual camera controls provide direct control to the application to adjust camera settings, such as white balance and exposure settings, to click a perfect picture.

These new APIs from photos framework can help enterprise applications to work with images without relying on third-party open/paid image libraries.

HealthKit
Fitness and health-related applications can use Healthkit to collect a user's health-related data, such as heart rate, calories burnt and sleep patterns, using dedicated equipment.

HomeKit
HomeKit is a home automation framework for communicating and controlling connected home accessories such as doors, cameras, lights and fans. It also integrates with Siri for voice commands.

CloudKit
- Developers can include cloud components in their applications, eliminating the need to write server-side application logic.
- CloudKit provides authentication, database storage and asset storage services for free with very high limits.

Touch ID
Enterprise applications can use Touch ID, an additional security option, to authenticate a user using the fingerprint sensor.

Document Picker
- Document picker is a mechanism for sharing documents between applications. It enables editing of a single document using multiple applications. It differs from the “Open In” controller available in the previous version that creates a copy of the document shared between applications.
- This calls for additional security to be implemented by enterprise applications to secure documents for insecure/unintended edits.

Hand-off
- This feature extends the user experience of continuity across devices. A user can easily transition from device to device, continuing work on the same document.
- Document-based applications can support activity continuation for users working with iCloud-based documents.

Improved e-mail client
The e-mail client from iOS 8 includes out-of-office support, free/busy scheduler, ability to minimize an e-mail, gestures such as swiping and dragging to flag, marking and deleting e-mails.

Keyboard customization
- The new keyboard features include predictive text selection, autocorrect options, quick type (suggestions based on previous conversation and writing style).
- Provides added support to install third-party keyboards.

Widgets
Applications can create widgets to handle events in Today’s view and notifications.

Enterprise imperatives in adapting to iOS 8 enhancements

1. Redesign applications to support new device sizes/scales for iPhone 6 and 6 Plus. Now, asset catalogs can include images at 1x, 2x and 3x sizes to cover all screen sizes.

2. Existing/new applications can make use of “Auto layout” feature to address new screen sizes.

3. Application views can be revisited to make use of the bigger real estate of new phone screens and to show the effective landscape views.
4. The widget functionality introduced in iOS 8 will be particularly useful on the new devices given the larger screen sizes. Developers need to focus on how to leverage this access to the main notifications center.

5. Apple claims that using Swift shows 40-50% performance improvement over Objective-C. Enterprises might want to validate this with their existing applications by porting to Swift or enhancing with additional features using Swift.

6. The enterprise can revisit their document management functionality built in applications and validate the option of using CloudKit. If the application does not require any offline storage of content, CloudKit can be a great choice.

7. Prior to iOS 8, applications used the concept of “Document Interaction Controller (Open In)” for inter-application communication to work with common documents. This created copies of documents specific to each application. This functionality needs to be replaced with “Document Picker” that is introduced in iOS 8 to avoid multiple copies. This feature calls for additional security to be implemented to avoid unintended overwrite of documents.

8. With the introduction of “Hand-off”, applications need to take care of continuity of user activities on an application, especially on documents. It is also challenging to provide seamless UI and performance experience across devices.

9. Applications can make use of “Touch ID” API to implement new/additional security for their applications.

10. Developers will need to be trained on Swift.

11. IT may need to create new policies to enhance the current data/device security implemented for enterprise user devices by using the additional security features introduced in iOS 8.

12. Since the devices are used for storing both personal and official data, enterprises need to think of managing user data while performing certain tasks such as remote wipe. Especially, introduction of features such as HealthKit, HomeKit and Apple Pay enforce selective data management on the user data.

New iOS 8 features will further help HTML5 development

The All New WKWebView

The new high performance WKWebView is a step in the right direction from a Web development perspective. It has the Nitro JS engine, which seems to have at least 4x the performance of UIWebView. This has the potential to be a huge win for hybrid applications.

HTML Templates

One of the foundational elements in Web Components is now available in the latest Android and iOS browsers. This is a big step towards making a truly modular Web and opens up a lot of potential with one less polyfill required.

Navigation/High Resolution Timing APIs

Though superficially not an extremely popular end user facing feature, having a streamlined performance timing API will allow for much better cross-platform benchmarking and performance testing.

What it means to the hybrid development platforms

Most hybrid platforms are currently working on releasing an iOS 8 compatible version. Some of them have updated their releases to integrate compatibility as soon as iOS beta 2 was ready to be used (Xamarin, Appcelerator). Others are still working on addressing some compatibility issues (Phonegap, Cordova, Ionic).
Cordova & Phonegap
An official Cordova release with iOS 8 support is expected, so users can rebuild their applications and release a 100% compatible version.

Xamarin and Appcelerator
Both Xamarin and Appcelerator had released iOS 8 beta compatible versions so that users could begin testing the frameworks and submit issues to their bug tracking systems. Both enabled advanced support for the iOS new features but are currently working on testing compatibility. There is no 100% compatible release yet.

Conclusion
With the launch of the new iOS 8, Apple has built on the new IT model for a mobile workforce. iOS 8 not only offers expanded enterprise security and management improvements but also new productivity features enhancing the overall experience of an enterprise user.

With iOS 8, we also see Apple take another step in the direction of convergence - with the Hand-off feature - enabling seamless syncing of information and application usage between desktop and mobile devices, removing the barriers between the mobile and desktop OS and enabling enterprise users to collaborate in effective ways within enterprise settings. This will mean that enterprise IT teams will have to increasingly focus on convergence as a key component of their IT strategy, and ensure that they plan, implement and manage device convergence for their increasingly connected iOS user base.