

A Review of Enterprise Mobility Management: Frameworks, Benefits, and Challenges

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ABSTRACT

Enterprise Mobility Management (EMM) is one of the important part of Enterprise Mobility Ecosystem. EMM basically emphasize on security & management of mobile applications, its data & the devices that are being used. EMM also helps enterprise users to be more productive as EMM provides them with the tools that they need to perform work-related tasks on mobile devices. EMM consists of Enterprise App Store Mobile E-mail management, Mobile Content Management, Mobile Billing Management, Mobile Device Management, Mobile Application Management. It is possible that there might be some of the overlap of features between these management sub modules but can be understood differently with simple approaches which can really help the Enterprise and its users at its best.

KEYWORDS: Enterprise Mobility, Enterprise Mobility Management, EMM, MDM, MAM, EAS.

INTRODUCTION

Enterprise Mobility is a complete package that contains whole range of mobile solutions varying from mobile data to voice plans & mobile applications. Applications that are designed for enterprise users (Partners, Customers, Distributors, Contractors & Employees), which require device management, online or offline behavior, timely up gradation, data security, scalability, extensibility & multiplatform support etc. comes under Enterprise Mobility. It can be considered that all the solutions that deal with mobile devices come under Enterprise Mobility.

ENTERPRISE MOBILITY EVOLUTION

Emergence of new technologies are imperative part of our society, which grooms the society in one or another way but irrespective of these technologies, enterprises possess their own challenges & needs. Some are like data security, cost, user experience & lots more.

To cop up with these challenges there are always some new tools, frameworks, applications or solutions getting emerged. It provides an innovative way to deal with challenges. If we look at history for these solutions we will find that mobile devices & technologies always proves as boon to these challenges-

Some of them are-

1. Emergence of Personal Digital Assistant (PDA) in 1984.
2. Emergence of Global System for Mobile Communication (GSM) in 1992.
3. Emergence of Symbian Mobile OS in 1997.
4. Emergence of BlackBerry 1st 850 Device with a two way Email pager in 1999.
5. Again in 2003 BlackBerry convergent smart phones with push Email, text messaging, web browser & lot more.
6. Emergence of 1st iOS in 2007.
7. Emergence of Android OS in 2008.
8. Emergence of Windows phone in 2012.
9. In 2014 Apple iOS 8 & Emergence of Android lollipop 5.0.

Key Enterprise Mobile Solutions / Applications are:

1. Automatic billing.
 2. Payment processing.
 3. Customer Relationship Management (CRM) automation
 4. Enterprise Resource Planning (ERP) automation.
 5. Business Continuity Planning (BCP) automation.
 6. Enterprise Application Integration (EAI) automation
 7. Human Resource Management automation.
- Lots more...

APPERIAN SURVEY REPORT 2015

This survey on "Enterprise Mobility" was conducted by Gatepoint Research in the year 2015 on around 332 Professionals who are still currently engaged in using mobile technology for business development & following conclusion were being made:

1. 64% of the respondents feel that it helps in improving business processes.
2. 60% of them feel that it help in increasing employee satisfaction & hence the increase in productivity.
3. 80.8% of respondents believes that customer oriented apps are more productive and hence increased ROI.

& Rank the Apps accordingly that can increase ROI:-

Rank-1 To Productivity Application (like note taking, office docs etc)

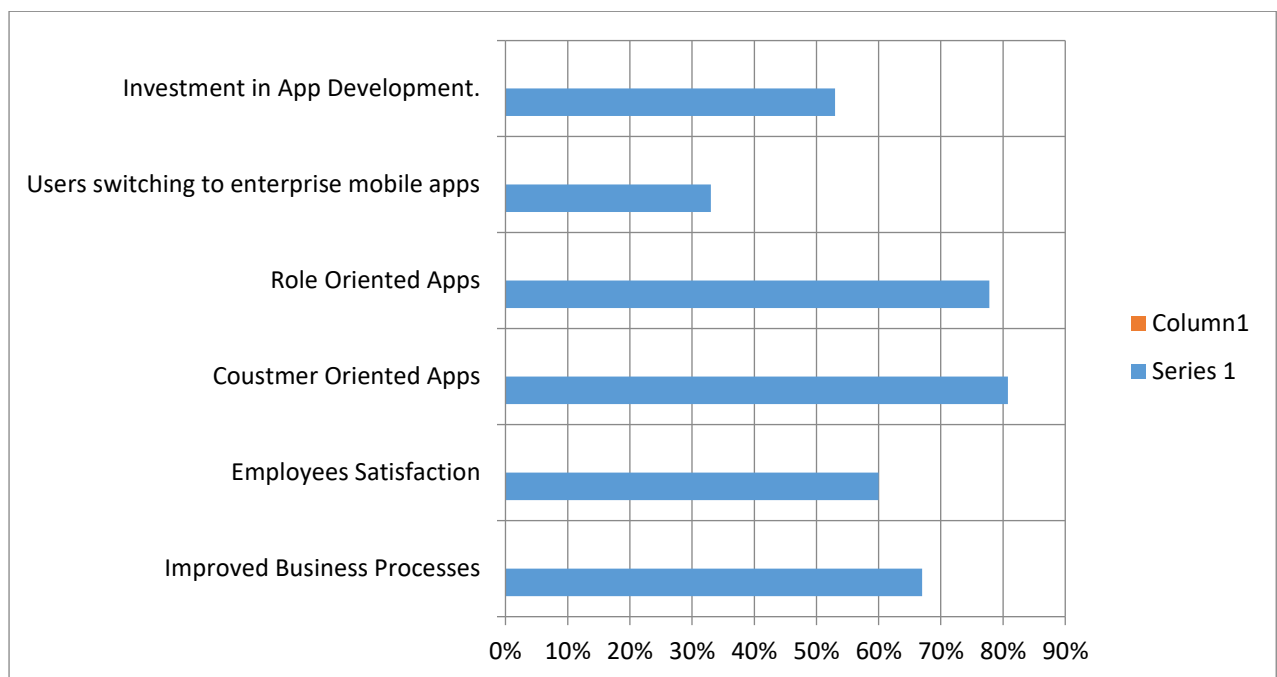
Rank-2 To Field Application (like instrument maintenance, parts inventories etc)

Rank-3 To Application for selling (like sales collateral, order processing etc)

Rank-4 To HR Applications (like time tracking, payroll automation etc)

Rank-5 To travel Application (like expence reporting 7 lots more...)

4. Whereas 77.8% believes that Role/Function Specific Apps are more productive and hence increased ROI.
5. In context to increment in number of users for Enterprise Apps, 34% of the respondents believe that in coming 2-3 years 5000+ users will switch to enterprise mobile applications.
6. 47% of respondents feel that there should investment on creating apps on core business needs.
7. 39% of the respondents believe Enterprise apps help to generate new revenue streams.
8. & about 67% of respondents voted for security issues related to Enterprise Apps as one of the remarkable challenge.



Referring the above survey data conducted on various different aspects, it can be concluded that a proper management procedure is required so, as to increase the percentage of Enterprise users for mobile applications along with the investment for the development of such apps that reduces the workload for employees which in part increases the employees satisfaction & hence, increases the productivity with increment in revenue generation. Here, this paper focuses on Enterprise Mobility Management aspects for effective utilization of resources.

ENTERPRISE MOBILITY MANAGEMENT STAGES

1. **Planning/Strategies Formulation-** To plan for any strategy a well-defined enterprise policies are required, as enterprise policies enables security & management to get engaged with desired solutions. Within these solutions mobile offering is an imperative part which should be identified before planning any further action. These mobile strategies will provide the way to go ahead on Enterprise mobility.
2. **Product/Solution-** Enterprises prefers to use catalyst according to their business nature, flow & its execution. Although it is not necessary that these catalyst have mobile offerings. But now-a-days mobile products, solutions or devices are inevitable part of these solutions.
3. **Product/Service management-** Once the strategies are formulated & product/solutions are designed and well implemented, then maintenance support is important part to deal with. Support and maintenance of the system will deal with well-structured process, security, change management and availability.

4.

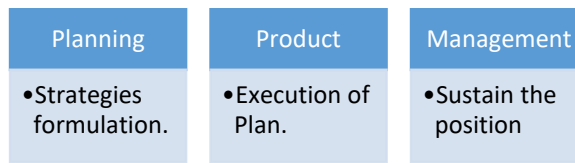


Fig: Enterprise Mobility Management stages

ENTERPRISE MOBILITY MANAGEMENT

There’s a lot of work that is done in the field of EMM but still there’s a lot of scope or untouched parts that are still need to be explored. EMM in a simple way can be considered as a package of services solutions & products. This can be understood as follow-

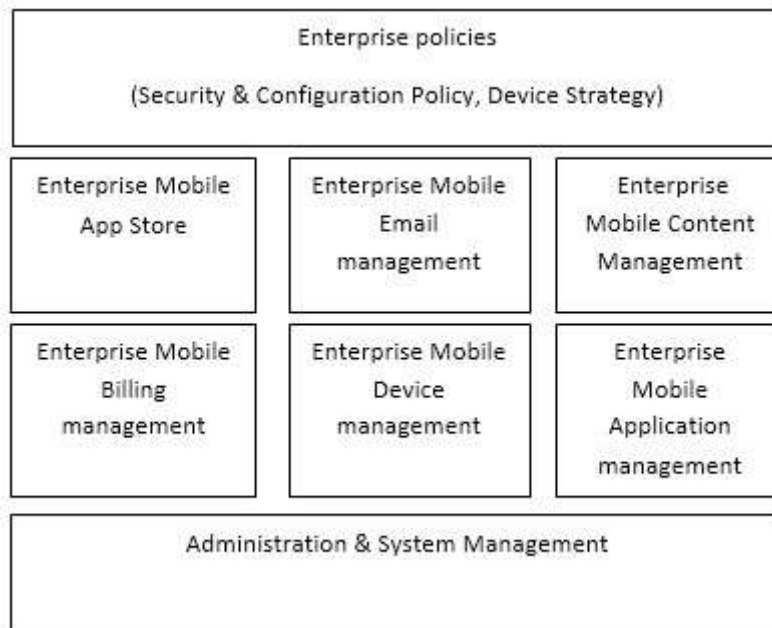


Fig: Enterprise Mobility Management

ENTERPRISE POLICIES

Every Enterprise has its own well defined & documented policies for all sorts of products & services that they are delivering to their Enterprise Users. All these policies play a pivotal role in any Enterprise Security along with its configuration management. So, it is essential for all enterprises that are relaying on mobile apps to have a well-defined security mechanism.

Some of these security mechanisms can be taken into consideration-

1. Secure communication protocol.
2. Data encryption support during storage. Etc.

This can be configured via-

1. Firewall protection.
2. Password implementation.
3. Virtual Private Network (VPN).
4. Licensing & more.

Device Strategies-

With the enhancement in technology enterprises have emerged with various device support strategies. , which can help to meet the desired solutions. Some of the most popular enterprise device strategies are as follow:

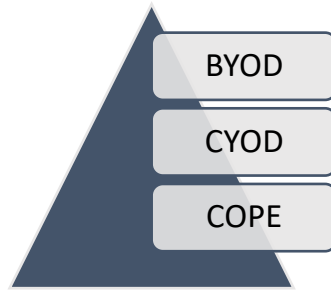


Fig: Device Strategies.

1. Bring Your Own Device (BYOD): Under this approach enterprise user are allowed to use their own personal device for accessing Enterprise applications. Because of this it require a well-defined policies & security enforcement for the protection of enterprise data.
2. Choose Your Own Device (CYOD): Within this approach enterprise users can use personal devices as listed by Enterprises for accessing mobile application; it provides the options to support/maintain limited devices by Enterprise. It is a part of BYOD only so, it also requires a well-defined policies & security enforcement for the protection of enterprise data.
3. Corporate Owned Personally Enabled Device (COPE): This approach is mostly or say widely used by the enterprises as it provides high level of security to the data or information of the enterprise. It is also one the most recommended ways for the enterprises having highly sensitive data.

ENTERPRISE MOBILE APP STORE-

All Mobile Application needs a platform for its distribution, development & installation. There are consumer stores as Google Play store, Apple store, BlackBerry etc. for managing consumer mobile application across respective mobile platforms.

Enterprise can have their own private app store for security & user access management. This Enterprise private App Store is known as Enterprise App Store. This Application Store can be hosted on cloud or in-premise as per Enterprise need. These Enterprise Application Store provides easy maintenance and reachability to users as consumers, contractors, distributors, partners and employees.

ENTERPRISE MOBILE EMAIL MANAGEMENT-

It seems that access of email account on mobile is a very basic facility for employee in any Enterprise but these mails may contain enterprise sensitive data that needs to be a secure access. So, it is required to have a well-structured Enterprise mobile email management that can help to are access mails from any place at any time & can keep all its employees in touch with each other in a well-structured way.

Some of the features that can be taken into account for Enterprise mobile email management are-

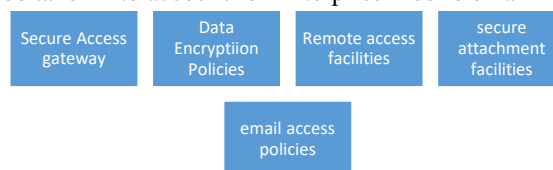


Fig: Points of considration for email management.

1. Secure access gateway.
2. Data Encryption policies.
3. Remote access facility.
4. Secure mechanism for attachment etc.

ENTERPRISE MOBILE CONTENT MANAGEMENT-

Content management is required to keep data secure while it is getting accessed from different platforms like tablets or different platforms of Smartphone as with Android, Windows, Apple iOS etc. this content management may uses different technologies& tools to keep the sensitive data secure.

Some of the features that can be taken into account for Enterprise mobile content management are-

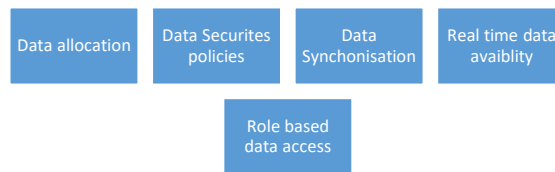


Fig:Points of considration for content management

1. Allocation of data on the basis of location.
2. Well-structured data security policies.
3. Synchronization of data available at different platform in a secure manner.
4. Real time availability of dataetc.

ENTERPRISE MOBILE BILLING MANAGEMENT

Billing can be utilized to track, analyze & optimize the consumption of mobile usage. This can further be utilized to control it & can be helpful for the Finance department for the budget formation.

It can be helpful in following manner-



Fig:Points of considration for Bill Management.

1. Budget Forecasting.
2. During Audit & Expense Sheet formation.
3. Data Plans opting.
4. Inventory management of devices.
5. Loss controlling.

ENTERPRISE MOBILE DEVICE MANAGEMENT

Enterprise Mobile Device management deals with both aspect that is server side & mobile client side handling. The Gartner research firm defines Mobile Device managementas a range of products & services that enables organizations to deploy & support corporate applications to mobile devices such as smart phones& tablets, possibly for personal use-enforcing policies & maintaining the desired level of IT control across multiple platforms.

Some of the features that can be taken into account for Enterprise mobile device management are-

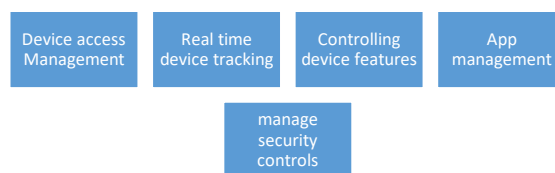


Fig:Points of considration for Mobile device management.

1. Device access management.
2. Real time device tracking.
3. Enabling/disabling device feature.
4. Management of installed application.

ENTERPRISE MOBILE APPLICATION MANAGEMENT-

The main focus of Enterprise Mobile Application management is data security & management of application. The concept of MAM has come into existence with the concept of BYOD/CYOD as employees did not prefer to carry Enterprise Device Management system in his or her own device. But the Security policies can be accepted by the employees. That is it can be said that MAM requires both server side system with admin console & its respective client side with secure communication protocol.

Some of the imperative features of MAM are-



Fig:Points of considration for mobile application management.

1. Real time monitoring of application.
2. Data security.
3. Management of application access.
4. Management of application life cycle.
5. Application suspension.

ADMINISTRATION & SYSTEM MANAGEMENT

All these aspect of mobile management ultimately helps the administration department to keep track of all direction in mobile usage that is occurring within the company & to manage them with a proper strategy & policies. Also it help them to come up with the policies that leverages the mobile usage within the company as now mobile are the imperative part of any individual.

CONCLUSION

Mobiles are now indispensable part of human life with consideration of either banking, ticket booking, bill payments, travel and work management etc. So it is no more a choice for Enterprise to consider mobile on their solutions. It has become an imperative need to consider mobile while designing enterprise grade solutions This Reach paper will help the readers to get the idea of Enterprise Mobility Management (EMM) along with important aspects to consider while Enterprise Mobility Solutions.

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