March 2014, HAPPIEST MINDS TECHNOLOGIES

Enabling Enterprise to Implement Mobility Strategy Using an Unorthodox Approach

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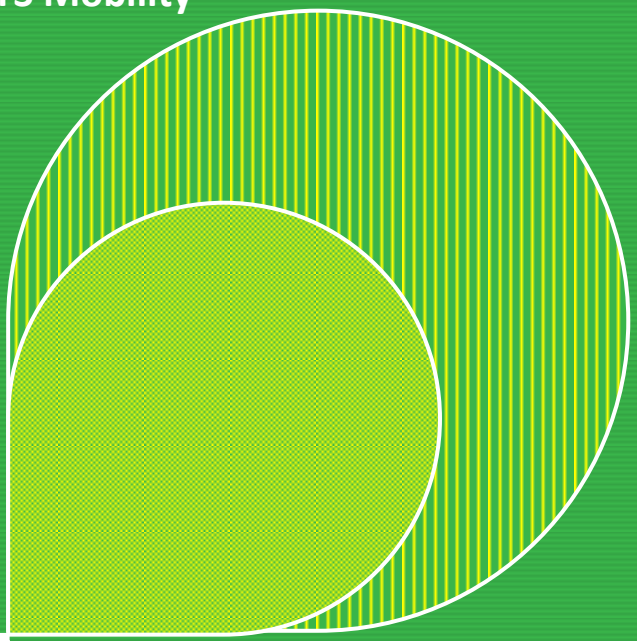

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Abstract

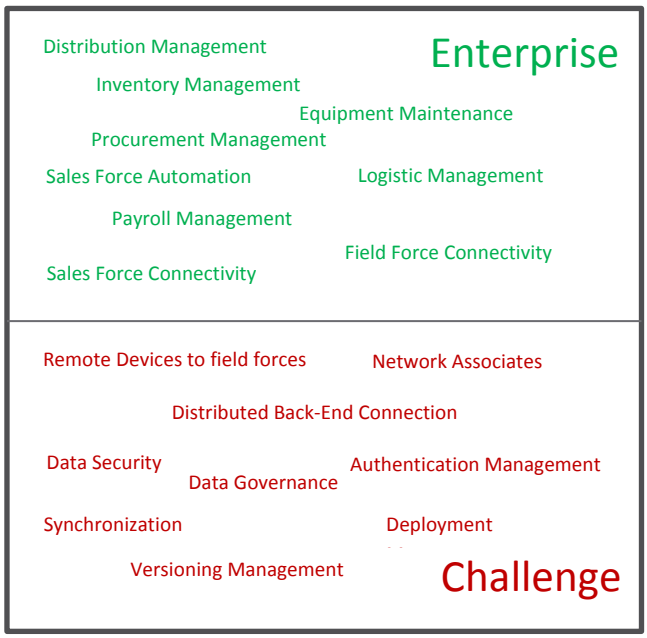
Business Enterprises continue to increasingly focus on finding innovative IT solutions or approaches to improve Return on Investments, operational efficiency and employee productivity in order to deliver significantly higher Service Responsiveness. With the proliferation of numerous smartphones at work place, enterprise mobility has become a core strategic imperative to deliver higher productivity by enabling enterprise workflow and unique experience. The role of MEAP (mobile enterprise application platform) has become very critical. Mobile Middleware enables connecting enterprise's heterogeneous legacy systems with mobile devices while taking care of enterprise security governance with data. This paper describes the need analysis of a service based approach to mobile middleware that helps to maximize the value from MEAP.

Introduction

Mobile technology advances, in reality, has opened up numerous possibilities. Clearly, enterprises recognize that mobility provides them with an opportunity to introduce new business strategies, and reshape the business dynamics that will evolve new business practices and strengthen the offering to their customers. The mobile revolution has got people more connected and moved beyond traditional communication boundaries. Information flow is transforming, enabling faster work flow and increasing productivity of the work force. Mobility is clearly seen as a business changer. Analysts estimate more than 50% business applications will be accessed via mobile devices in next 2-3 years.

Challenges of Enterprises in Implementing Mobility

Adoptions of mobility by Enterprises have challenges too. Organizations need to understand, implement and maintain mobile middleware solutions that will enable efficient integration with enterprise systems and support multiple mobile devices, mobile operating systems and mobile applications.



Developing field-force automation and remote data access solutions have in particular been very challenging for the Enterprises in implementing mobility. Opportunity, on the other hand is very compelling. Major addressable areas in enterprises are in distribution management, sales force automation, inventory management, logistics management, payroll management etc.

Challenges are in terms of application development, privacy and data security, data governance, distributed back-end systems, synchronization, deployment, authentication etc.

With regards to application development, organizations have to make fundamental choice on the strategic roadmap between starting with custom solutions or big bang platform-based solutions. While point solutions are custom-specific catering to a specific need, it is not scalable nor is based on

standards. Platform-based applications are characterized by a single platform that integrates with multiple back-end systems. The platform offers enterprises with standard functionalities like user experience, security, reporting and are more applicable to enterprises with a clear mobility road map. Enterprises will also have ability to make best use of the technology advancement if the development strategy is based on mobile application development platforms (MADP).

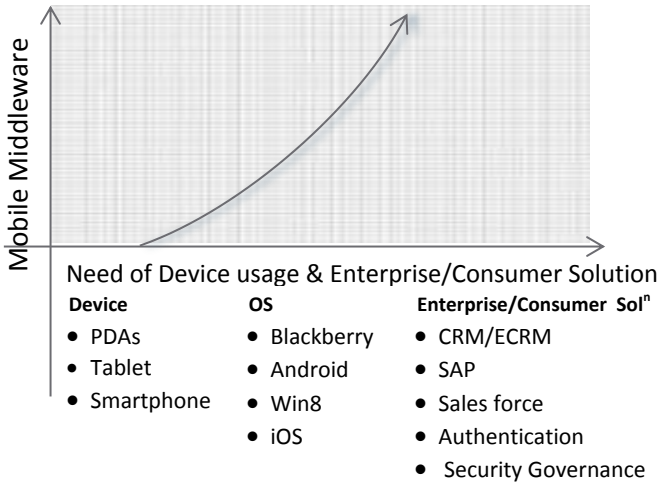
Mobile Middleware Evolution & Trends

Early in the last decade, mobility meant people just connecting with each other by calls and messaging. By the mid of last decade however, the number of devices became smarter and so did their usage possibilities. Since then consumer application started proliferating and the technological advancement found its way into the enterprise solutions. The initial focus was to bridge the communication gap between the head office or branches and the field force. Today, the major focus is to balance between the enterprise cost to serve and customer delight. Enterprise solution demands for data security and remote control of data. Middleware provided several important features even when technology was advancing in response to LAN connectivity and desktop solution, but enterprise businesses were still facing difficulties in data restriction and therefore providing seamless access to critical data to the people on the move like sales force.

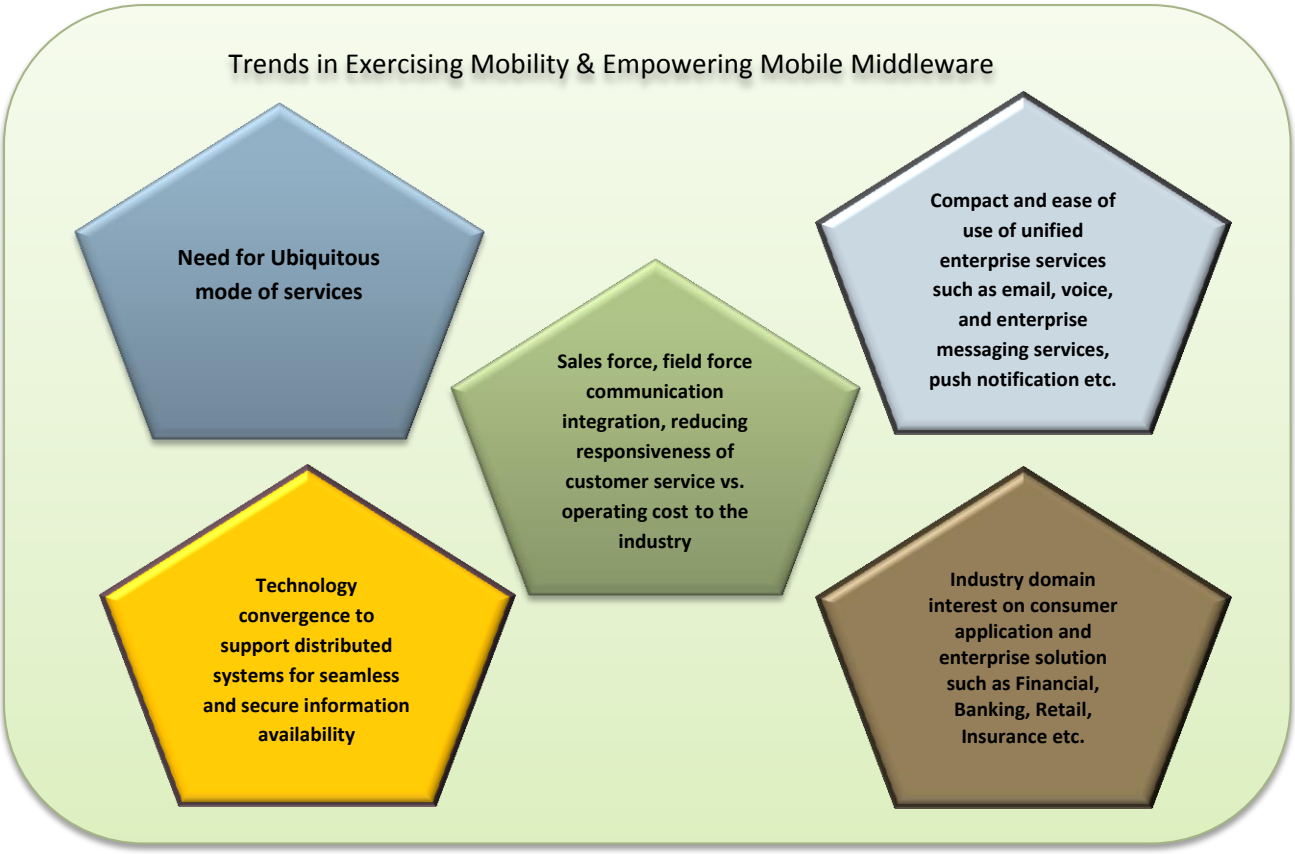
Following artifacts depict the value of mobile middleware and its incremental usage & trends:

Mobile Middleware:

- Enabling intermediary functionality ubiquitous
- Data unification of distributed systems
- Cross platform device management
- Cross application management
- Security governance
- Seamless data enablement
- Quality of data control
- Value added services



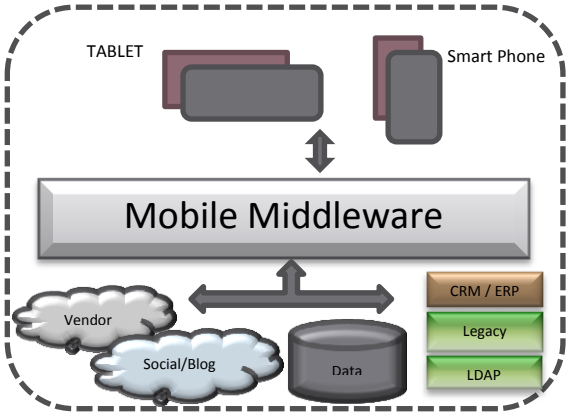
Mobile Middleware addresses the challenges associated with the secure access to information by field forces and reduction in enterprise cost-to-services with ease. It also addresses the challenges in data handling, data security, data quality and data support. This technology advancement would enable enterprises to develop a mobile application strategy and meet the needs of effectively integrating the field force with the back office systems.



Mobile Middleware – Out-of-the-Box & Custom Middleware

Mobile Middleware helps connecting distributed back end legacy and enterprise owned system to enable data to mobile devices. Overall mobile middleware provides:

- Connecting Distributed Systems
- Connecting Disruptive Technologies
- Mobile Device Management (MDM)
- Mobile Application Management(MAM)
- Component Aggregation
- Central communication of all third party integration



Out-of-the-Box

In Out-of-the-Box, Mobile Middleware is bundled with the platform by several vendors. Functionality wise Mobile Middleware is divided into two segments: Mobile Consumer Application Platform (MCAP) and Mobile Enterprise Application Platform (MEAP) whereas, all together these platform solutions are named as Mobile Application Development Platform (MADP).

Mobile Consumer Application Platform (MCAP)	Mobile Enterprise Application Platform (MEAP)
IDE - SDK support for cross platform development support	IDE –SDK support for cross platform development support
External Component Aggregation	External Component Aggregation
External Vendor Connector, Mobile Application Management	Mobile Device Management (MDM), Mobile Application Management (MAM) , Mobile Email Management (MEM)
Connecting back end Legacy Systems (Data Storage), Existing Content Management etc…	Back End Enterprise Solution connector- SAP, Legacy System (Data Storage), Messaging Queue etc.
Management Console	Management Console

Custom Middleware

Custom Middleware is an intermediate phase in order to ease transition to Platform support. Custom Middleware helps in bringing a mobile middleware layer with the existing solution. It helps providing required component aggregation such as Analytics, Sync Management, Context Awareness, Mobile Application Management, Mobile Device Management etc. Custom Middleware would help boosting up the existing application solution to the next level, which would be ready to avail the functionality of Mobile Consumer Application Platform or Mobile Enterprise Application Platform. This provides a moderated approach to the transition of the existing application systems to eventually transform to make best use of a full MEAP or MCAP.

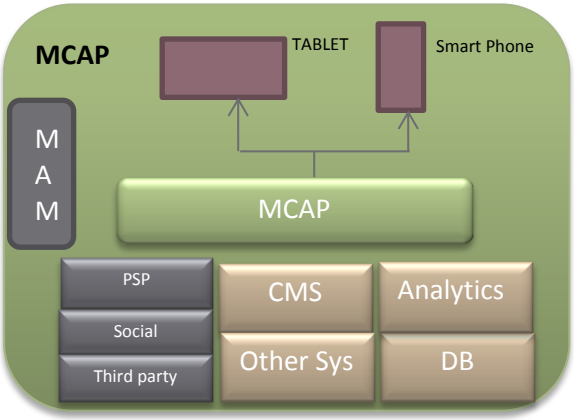
Custom Middleware helps moderate level transitions of the existing application solutions to MEAP or MCAP.

It enables Mobile Middleware approach added with MEAP/MCAP based business component functionality.

Mobile Middleware Business Use Cases Sample Use Case for MCAP

Requirement

- Product availability in Store and competitive price differences with store
- Virtualization of product
- Mobile online shopping
- Aisle shopping and guidance
- Users preference and guidance
- Community and social blog
- Offline support



Benefit

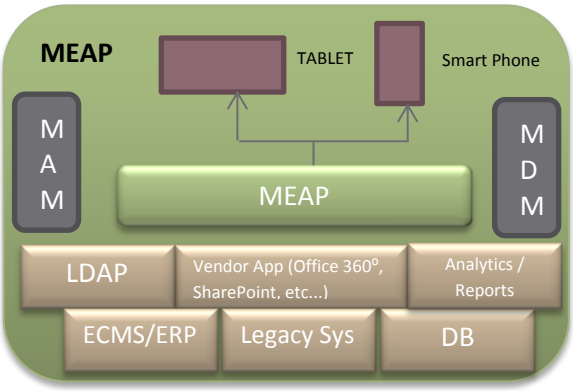
- Native light weighted application
- Minimal native storage usage
- Quality of data transfer
- Customer awareness about the product availability gets synced with the personalized interest

- Simplified authentication process.
- Increase in tendency to buy
- Seamless online/offline capability leveraging network availability
- Eliminating data redundancy, Faster execution
- Device Agnostic Logic Build

Sample Use Case for MEAP

Requirement

- Purchase process management
- Stock replenishment & physical inventory
- Authentication
- Goods movement in store
- Inventory management
- Sales process optimization
- Sales/field force automation
- Operational analytics
- Offline support



Benefit

- Exposing complex ERP system to mobile devices
- Information storage is not via fixed desktop system
- Information accounting is readily available even while the users are on move
- Native/Hybrid light weight application
- Optimal local device storage
- Minimal device memory usage
- Maximum native feature usage
- Faster execution
- Reduction of cycle time in lead generation
- Hygiene of data
- Corporate governance & data security

Happiest Minds Unorthodox Approach in Mobile Middleware

Enterprise Solution Existence->Custom Middleware-> MEAP

MEAP requires mandatory "rules of 3" to port the solution. Often organizations are reluctant to move to the Platform services due to increase in capital expenditure, abrupt change in technology and implementation challenge, therefore have less confidence on overall success factors.

It would be advisable to step through the procedure in timely fashion adopting the custom middleware approach injected with the required middleware component.

We can help analyzing the present application solution with the business requirement in middleware component. We can build or aggregating third party tools in optimal time frame. We can also help in progressive convergence to port the solutions with intended Platform services and provide expert support. The convergence would use the reusable components built for the custom middleware.

Enterprise Applications were designed for desktop consumption. But the immense advancement of mobility, analytics, SaaS, enterprise collaboration technologies; a large percentage of business processes and scenarios need to address in the "new evolving mobile context".

To enable the momentum with mobility, existence of Mobile Middleware is inevitable. Several platform vendors are getting into its maturity level factoring enterprise level challenges. Drawing a parallel to the SOA wave in last decade where "consumption of Business services" was enabled by ensuring consistency in design / architecture and there was no "one size fits all" outlook. The necessity therefore is for customized Mobile Middleware approach by a trusted partner to meet difficult objectives of: managing architectural complexity, data / security / access governance, delivering faster time to market, accomplishing ROI, and enriching solutions iteratively.

Benefit of Custom Middleware Approach

Early Entry to Solution Approach	Lower Risk in Transition
Correct Evaluation & Right Convergence with	Performance based progressive solution
Engagement of Solution Approach aligning with Corporate	Reusable Component (Adapter/ Connector/ Solution Block) to MEAP (upto 30%)
Stable & Steady Transition flow	Methodical, Centralized,
Accelerated & Stable Go to Market (upto 20%)	

Reference

- The State of Mobile Enterprise Software in 2011: An IDC Survey of Applications, Platforms, Decisions, and Deployments
- Gartner Reports - Critical Capabilities for Mobile Enterprise Application Platforms
- Gartner Reports – Mobile Application Architecture 2012
- Gartner Reports – 2013 Planning Guide : Mobility
- Harnessing Mobile Middleware By Rysavy Research
- SAP Sybase Unwired Platform - Selecting the Right Middleware for the Mobile Application
- SAP Sybase Unwired Platform – Sybase Unwired Platform Version 2.1
- A Survey of Middleware Paradigms for Mobile Computing By Abdulbaset Gaddah and Thomas Kunz
- IDC - The Power of Mobile Enterprise Application Platform: Capabilities and Advantages By Stephen D. Drake & Rona Shuchat
- Mobile Middleware: The Next Frontier in Enterprise Application Integration By Tamar Kanoc, Director Marketing Nettech System Inc.
- Optimizing Service Delivery through the mobile channel by Puneet Gupta, Infosys

Abbreviation

ERP – Enterprise Resource Planning
IDE – Integrated Development Environment
MAM – Mobile Application Management
MCAP – Mobile Consumer Application Platform
MDM – Mobile Device Management
MEAP – Mobile Enterprise Application Platform
MEM – Mobile Enterprise Management
LAN – Local Area Network
ROI – Return of Investment
SLA – Service Level Agreement
SDK – Software Development Kit

About Happiest Minds Technologies:

Happiest Minds, the Mindful IT Company, applies agile methodologies to enable digital transformation for enterprises and technology providers by delivering seamless customer experience, business efficiency and actionable insights. We leverage a spectrum of disruptive technologies such as: Big Data Analytics, AI & Cognitive Computing, Internet of Things, Cloud, Security, SDN-NFV, RPA, Blockchain, etc. Positioned as "Born Digital . Born Agile", our capabilities spans across product engineering, digital business solutions, infrastructure management and security services. We deliver these services across industry sectors such as retail, consumer packaged goods, edutech, e-commerce, banking, insurance, hi-tech, engineering R&D, manufacturing, automotive and travel/transportation/hospitality.
Headquartered in Bangalore, India; Happiest Minds has operations in USA, UK, The Netherlands, Australia and Middle East.

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Subir is Enterprise Mobile Architect engaged in Design and Architecture of mobility specific solutions including Application and Middleware. He is currently working on designing solution for Plant Maintenance and Response Mobile Experience approaches.