

## View Point



### Mobilizing SAP Enterprise Applications

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#### Abstract

In today's competitive environment, enterprise users must handle critical tasks and decision-making in real-time, irrespective of where they are. Smart organizations are focusing more on being flexible and productive by enabling their workforce access to information for critical decision-making anytime, anywhere. While the need for mobile solutions across domains or verticals is obvious, there are several parameters that need to be considered while choosing a platform or middleware to implement a mobile solution. This perspective attempts to address the benefits of enterprise mobility and how the combined approach of SAP & Sybase Unwired Platform addresses organizational needs in the present and for the future.

Please note that this paper is based on SUP 1.5.x

## Mobilizing SAP Enterprise Applications

The last decade has seen companies investing heavily in implementing enterprise solutions in general and SAP systems in particular to drive their core enterprise functions. In the coming years, with an increasingly mobile-enabled workforce that is rapidly growing in number, we foresee a pressing need for these enterprise applications to be mobile-enabled. This would enable enterprise users to handle critical tasks and decision-making in real-time, irrespective of where they are.

This paper highlights the benefit of mobile enabling SAP enterprise functions and the solution architectures that are available for different scenarios. One of the architectures, which we have discussed and recommended in this document, is based on Sybase Unwired Platform v1.5.3 (SUP). With Sybase, one can leverage the platform features like security, device management and develop mobile apps much faster than what it would take without a platform like SUP.

The following sections highlight the benefits of mobile-enabling SAP enterprise functions and the solution architectures available for different scenarios.

## Business benefits of mobilizing business scenarios

The primary benefits of enterprise mobility are

- Increased efficiency of operations
- Enhanced productivity of the workforce
- Increased customer satisfaction
- Increased flexibility

### Delivered via

- Access to key enterprise functions – anywhere, anytime
- Access to accurate and faster decision making for white collared users
- On the go operations in supply chain and field services
- Increased reach and proximity to the customer via mobility

## Key considerations for mobile-enabling enterprise applications

The real world dynamics of the traditional IT environment are far from ideal for implementing a mobility solution. Hence organizations need to consider the business and architectural aspects before undertaking this journey.

## Business considerations

### Roadmap & Strategy

- Selecting the high impact enterprise functions or business scenarios to be mobile-enabled
- Long-term strategy of the organization with respect to enterprise mobility

### Investments & Benefits

- Reducing TCO while increasing the ROI
- Where the key investments should be made

### Time to implement the solution

- Mobility Governance
- Mobility governance to include organization, policy and planning to ensure secure and responsible usage of mobility devices and services

## Architectural Considerations

**Existing landscape or architecture** – Evaluate the option of overlaying the mobile solution on existing landscape.

**Type of scenario** – Whether the business scenarios need to be online or should they also support offline mode (Disconnected mode).

**Integration with multiple backends** – Consider the different backend systems that need to be interfaced for executing various business processes.

**Support for multiple devices** – Plan for devices that need to be supported in future, beyond specific devices identified for support in the near term.

**Security aspects and criticality of data** – Based on the criticality of the data, one needs to plan for managing the device and secure the data being transmitted.

**User base and user experience** – Who are the users and what kind of user experience is needed for the mobile solution. For example, browser feel, high responsive, rich user interface, etc.

## Architectural Approaches (Solution Approaches)

At a high level there are two solution approaches:

- Non-Middleware-based approach
- Middleware-based approach

### The Non-Middleware based approach has the following scenarios

**Thin client** Point solutions where the business application is rendered over a mobile browser.

**Thick client** Standalone application is installed on the device which can provide a better user experience. For example, standalone applications that are developed in native languages can interface with enterprise systems via SOAP-based Web Services.

### The Middleware approach mainly supports the following scenario

**Thick client** MEAP (Mobile Enterprise Application Platform)-based solutions - An enhanced standalone multi-device robotic application which has real time and offline operation capabilities.

(Please note that while middleware-based solutions can also be used for building thin client apps, they are recommended for building complex, thick client or offline scenarios.)

Success Factors	Thin Client – Browser-based solutions	Thick Client – Point solutions	Thick Client – MEAP-based solutions
<b>Choice of devices</b>	Limited. Presentation focused than data focused approach.	Limited. Data access interleaved with presentation hence each device type needs unique approach.	Rapid integration with new device types. Data model is constant across various mobile types.
<b>Mobile application development and customization</b>	Costly incremental changes. Unification of a single mobile app portal is a difficult task.	Limited portability across device categories. Hence higher cost	Meta data driven approach generalizing the UIs ease support
<b>Centralized management (app/user/security/device)</b>	Based on backend	Security strategies embedded within the application. OTA strategies possible with MDMs	MDM strategies are coupled with MEAP based approach. Security strategies can be common across all apps. Production grade deployment easier.
<b>Application Management</b>	Not needed.	Less control	Application patching possible with greater control
<b>Device Management</b>	Not needed since the application is centrally deployed and accessed through a browser.	Required.	Required and is generally provided by the middleware platform like Sybase.

## SAP and Sybase the winning formula

Though there are several MEAP companies today, the obvious choice for SAP customers would be the Sybase Unwired Platform (SUP). This is because it is SAP's mobility solution going forward and SAP's roadmap includes functionalities that will make the mobile infrastructure and implementation projects easier and standardized so that customers can achieve a lower TCO (Total Cost of Ownership).

If organizations require an SAP enterprise mobility strategy that would support a wide variety of mobile applications for different business processes, departments, users and verticals or industries, then you essentially need an MEAP (Mobile Enterprise Application Platform).

Sybase technology is recognized as the industry leading technology and when coupled with Sybase's security features and device management offering Afaria, end-to-end enterprise mobility requirements can be realized successfully.

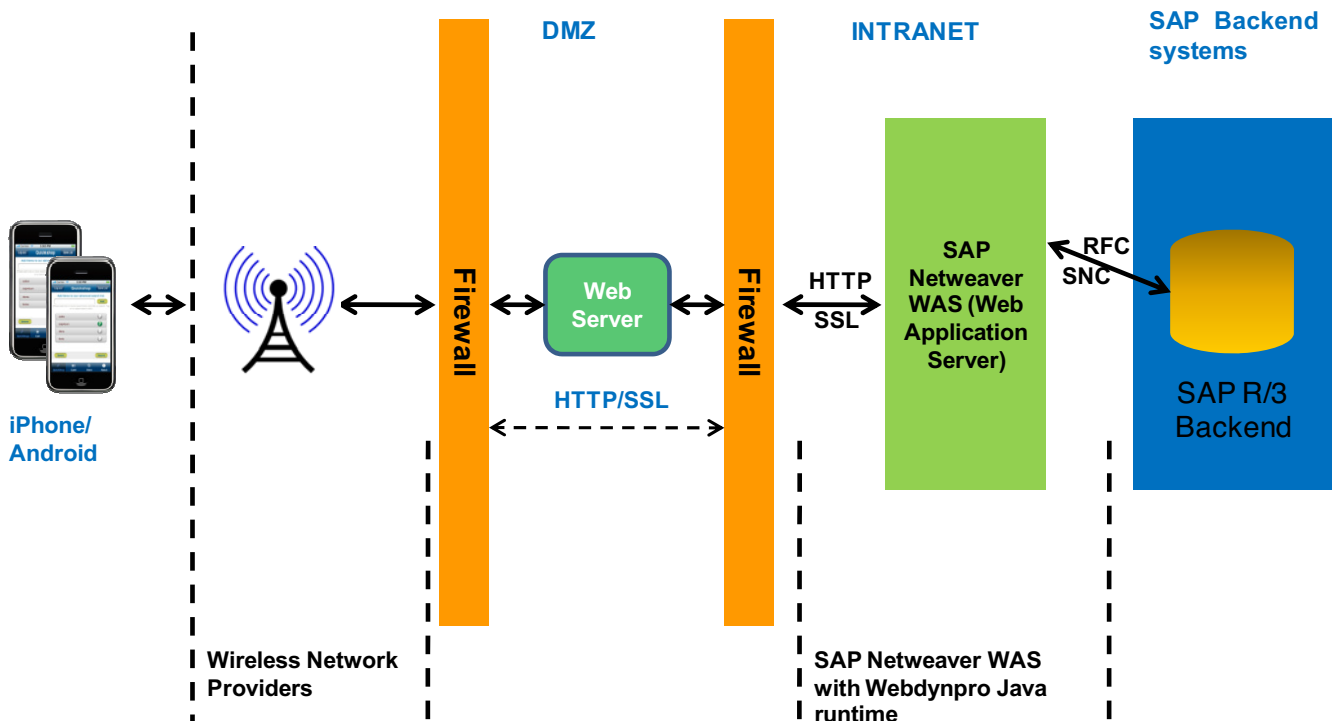
Sybase Unwired Platform is an MEAP that enables enterprise developers to quickly develop and deploy applications along with integrated carrier grade deployment capabilities.

As mentioned in the earlier sections, for SAP implementations we can have two broad solution approaches based on the requirements.

- Thin client approach for online always connected business scenarios  
[Online Applications using Webdynpro Java in Netweaver Portal](#)
- Thick client MEAP-based approach for online and offline scenarios  
[Sybase Unwired Platform](#)

## Thin Client Online Applications using Webdynpro Java

Thin client browser based applications can be developed in a short period using SAP proprietary technologies like Mobile Webdynpro Java. These are recommended for approval and reporting business scenarios. This is more suited for browser-based apps that do not require capabilities of a middleware like device independence, device management or a compelling user interface.



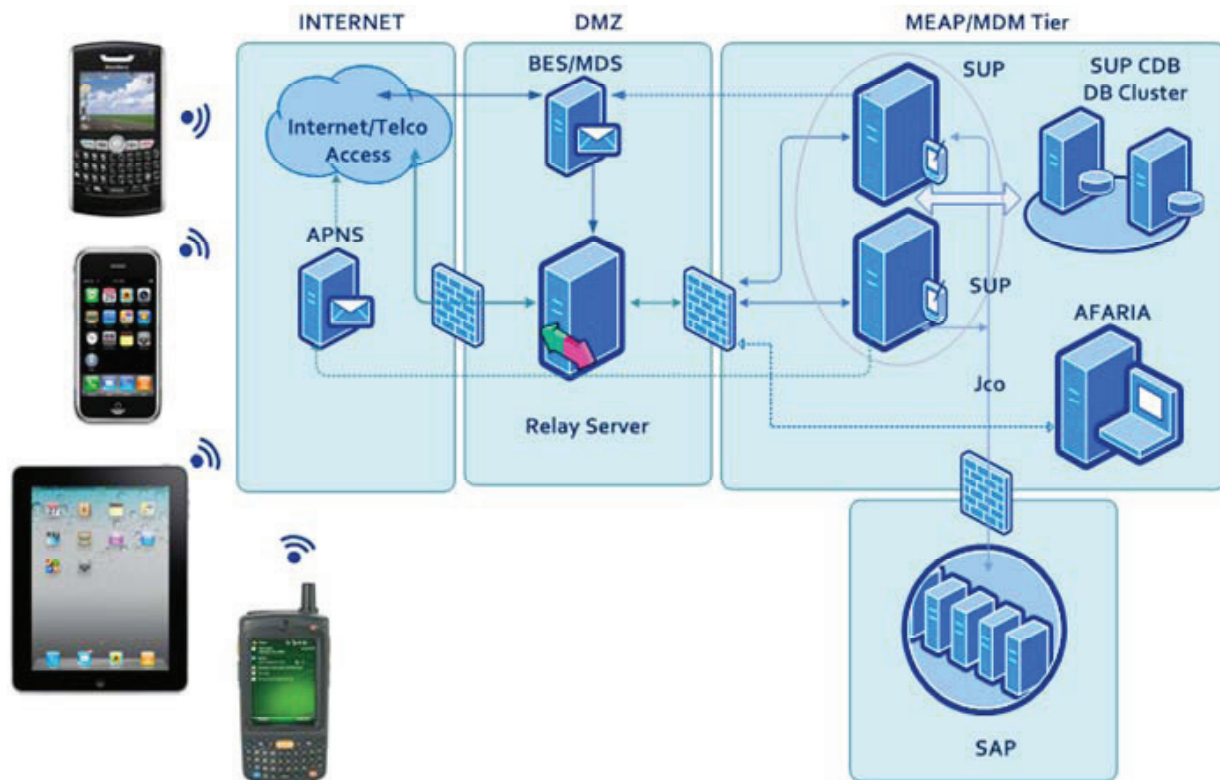
## Key Benefits

- Rapid to adapt an existing browser-based enterprise deployment to a mobile web application
- Best for single device enterprise deployments
- Best for applications that need minimal data footprint

## Limitations

- May not work well multi-device strategy
- Works only in always-connected (online) mode

## Thick client Applications using Sybase Unwired Platform



### Sybase Unwired Server

Sybase Unwired Server allows users to package and deploy mobile applications. The runtime server handles enterprise data source and application access, communication between the back-end data source and the mobile device, security, transaction processing and scheduling.

### Sybase Control Center

Sybase Control Center (SCC) for Unwired Server is a Web-based console used to configure and manage Unwired Server and its components.

### Sybase Unwired Workspace

Sybase Unwired Workspace is a development environment designed specifically for mobile application development, testing, and deployment to assist developers in rapidly moving from development to deployment.

### Sybase Afaria

Afaria is recognized as the most powerful, flexible and secure option for managing mobility across the enterprise. Afaria simplifies the complexity of managing a wide range of devices over any network. Afaria ensures the management and security of mobile devices over any network for any size of deployment.

<b>Key Benefits</b>	<ul style="list-style-type: none"> <li>• Better usability in responsiveness and seamlessness</li> <li>• Multi-device strategy</li> <li>• Works in online and offline mode</li> <li>• Low maintenance and support costs</li> <li>• Rapid feature integrations</li> <li>• Multiple EIS system integration support</li> </ul>
<b>Limitations</b>	<ul style="list-style-type: none"> <li>• Entry cost because of initial investment</li> <li>• Not suited for small scale deployments</li> </ul>

## Point Solutions and MEAP Solutions – a comparison

Point solutions are seen as a first step for a highly usable enterprise mobility strategy for most of the enterprises because of the low impact on the existing IT environment. But as the potential applications increase along with device diversity the backend complexity increases. Hence mobility needs a robust strategy for the long run.

## A deeper view into Sybase Unwired Platform (SUP)

While adapting an enterprise business process, information and data for safe and secure mobility, the strategy needs to address the challenges around:

- Device diversity
- Data partitioning and distribution of mobile applications
- Application, device security and data transport security
- Lack of bandwidth, increased latency and seamless connectivity issues
- Application life cycle management and device management

Sybase Unwired Platform addresses the complexities by giving a multi-tiered view of process, data and system. Each tier has enormous flexibility to create, update and delete entities (business workflows, data objects, backend connection profiles, etc.) and package, deploy and manage by a carrier grade framework and tools set.

## Infosys offerings in defining and realizing the road map for an organization in SAP Mobility

Infosys has vast experience in developing and deploying Enterprise applications with multiple devices and backend. The illustration below summarizes our key offerings with SAP and SUP.

Identify mobile platform	<ul style="list-style-type: none"><li>• Help you identify the best fit mobility Platform for your needs</li></ul>
Platform Design services:	<ul style="list-style-type: none"><li>• Create High level enterprise Architecture, Functional architecture, Deployment architecture</li><li>• Consider Management capabilities, back-end Integration blue-print</li></ul>
Platform Customization and build services - Implement enterprise mobility applications	<ul style="list-style-type: none"><li>• Gather requirements, refine requirements,</li><li>• Design application needs in platform - <i>integrate platform with backend</i> systems, Design device side modules</li></ul>
Platform Testing & Validation services	<ul style="list-style-type: none"><li>• Test on target devices</li><li>• SIT, UAT (Field trials)</li><li>• Load and performance testing</li></ul>
Platform Deployment services:	<ul style="list-style-type: none"><li>• Deployment Architecture review - especially on non-functional aspects</li><li>• Sizing and capacity planning, operations monitoring</li><li>• Deploy and Certify the platform readiness</li></ul>
Enhance & Support enterprise mobility suite	<ul style="list-style-type: none"><li>• Survey and analyze the efficacy of mobile app suit, refine roadmap</li><li>• Enhance functionalities of existing application, Support existing users</li><li>• Increase device support of existing applications to multiple devices</li></ul>

### About the Authors

**Suresh Santhana** is a Senior Technology Architect in the Enterprise Solutions division. He has more than 11 years of experience in SAP Mobility, SAP Portal Consulting and Internet Applications development. He is an SAP Certified Enterprise Portal Consultant and has worked on portal implementation for various customers in Europe and US. Prior to working on SAP, he has extensively worked on OOAD, Design Patterns, XML and Java/J2EE technologies. He is currently anchoring the SAP Mobility COE at Infosys.

He holds an M.Tech in Computer Science from the University of Mysore.

**Anoop Kumar P.** is a Senior Technology Architect in the Product Engineering (PE) division. He has 14 years of experience in telecom, datacom, and enterprise mobility development and testing, with a primary focus on building Enterprise Mobility, OSS, NSA, and HA systems. He has experience in defining enterprise strategies over various business verticals. This encompasses the application value prioritization for mobilization, reference architectures, solutions design, and validation, including modeling, integration and UI for multiple backend and multiple devices and solution rollout strategies. He has been playing a key role at the Infosys Enterprise Mobility CoE focusing on E2E mobility solutions using Sybase unwired platform, and Afaria with SAP enterprise systems for SFA, FFA, B2E applications in the CRM/ERP/HCM space.

He holds a B. Tech in Computer Science and Engineering from TKMC, Kerala University, and an MBA from Symbiosis, Pune.



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