



Enterprise Mobility Technology Options

Making Sense of mBaaS, MEAP, MADP, and Mobile Application Servers for Building Enterprise Mobile Apps







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Introduction

This white paper examines the enterprise mobility landscape and the different approaches and options available to the enterprise that needs to develop, deploy, and manage multiple mobile applications across various lines of business. Also included in the paper are definitions of these approaches and the corresponding challenges and benefits associated with each approach.

The “Consumerization of IT”

A Brief History of Enterprise Mobility		
1996	Palm pioneers the industry's first handheld with its non-phone PDA.	
2000	HP releases its first Windows-based iPaq.	
2003	Employees carry company-issued BlackBerrys.	
2007	The “hipster” iPhone is introduced, but it’s “not for business.”	
2010	The “Two-Phone Era” - a phone for business and one for personal use.	
Today	The birth of BYOD - user experience is so good on consumer devices that people use their personal devices for both work and personal communications.	

Ever since Palm released its first generation Pilot to the market in 1996, enterprises have understood the immense value in arming their workforces with mini-computers that keep employees connected to the job even when they are not in the office or on the clock.

However, a lot has changed since 1996 and today’s devices are more than just glorified digital rolodexes and calendar keepers. Today’s smartphone offers an entirely new level of connectivity and provides the user and the enterprise with a host of benefits. But, that’s just one side of the story. The adoption of the smartphone has also opened a Pandora’s box, so to speak, putting the enterprise at risk for a variety of disastrous consequences. Today, the enterprise needs to figure out how to balance the BYOD trend with enterprise mobility requirements.

Consumerization + Enterprise Requirements

The consumerization of IT has dramatically shifted user expectations when it comes to an application's usability. In short, today's business user wants the same aesthetics, design, and user experience he/she is used to with consumer applications. Beyond what the consumer wants and will be willing to adopt, equal weight must be given still to the enterprise requirements.

At the very least, an enterprise mobile application must run on a platform that:

1. Securely and easily integrates with corporate data sources, whether cloud-based or on-premise.
2. Meets the demands of Enterprise-grade Security, Manageability, Scalability, and Reliability.

Security – Data must be protected at all times with central enforcement of security policies and user authentication.

Manageability – IT must control, manage, and monitor app deployment and usage.

Scalability – Must be able to scale server infrastructure up or down.

Reliability – Must be compatible with various fault-tolerant and high-availability scenarios and able to monitor apps with standard tools.

Enterprise Mobile App Platforms

Navigating the enterprise mobility ecosystem is a complex endeavor. Companies have a number of commercial choices when it comes to creating, building, managing, and maintaining their mobile apps. There are mBaaS, MEAPs, MADP, and Mobile Application Servers – and each option should be considered and evaluated according to the particular business need.

Listed below are the four product categories in the enterprise mobility application development, deployment, and management market, listed along with individual strengths and weaknesses as overall solutions. The list is compiled chronologically, the oldest platforms first, and the next generation mobile infrastructure at the end.

1. MEAP (Mobile Enterprise Application Platform) / MADP (Mobile Application Development Platform)

MEAPs and MADPs are “all-in-one” enterprise app development and runtime environments for cross-platform mobile apps. They enable the development, deployment, and on-going maintenance of enterprise mobile applications, whether the enterprise needs one or several mobile apps. The platforms are proprietary technology stacks that require the developer to code in a proprietary IDE that is then deployed on the server component of the packaged solution.

Strengths:

- Built to meet enterprise requirements (security, authentication, authorization, access to backend data, session management.)
- Most support multiple device types and ecosystems.
- Mature, proven products evolved from the first seeds of enterprise mobility technology.
- A one-stop, combined, quick and effective solution.

Weaknesses:

- Proprietary IDEs/frameworks can't keep up with mobile evolution on multiple devices and OSs.
- Proprietary platforms require training and/or hiring outside resources.
- Limited flexibility in supporting native/hybrid/web apps.
- Difficult to plug into third-party development, testing, and management tools.
- Large up-front cost with ongoing and unpredictable cost of ownership.

2. Mobile Development Tools

These are front-end development tools and come as a native development kit from an operating system vendor. The development tools themselves are focused on device-specific functions. They offer the best chance of taking full advantage of a device's capabilities, but lack support for backend integration. Any relevant enterprise application needs the ability to exchange data with a backend source, so using front-end tools alone will not provide a comprehensive solution for the enterprise.

Strengths:

- Apps developed with native tools generally provide the richest end-user experience.
- Many developers are already skilled in the native language and toolkits, making development and maintenance easier and more cost-effective.
- Native tools evolve in lockstep with OS/hardware advances.
- Some development tools provide developers with a limited capability to build cross-platform apps.

Weaknesses:

- Native development tools focus solely on one operating system, making management of multiple mobile OSs difficult.
- Mobile development tools focus solely on client app and provide no deployment option so platform will have to be considered in conjunction with the developer tool of choice.

3. mBaaS (mobile Backend-as-a-Service)

The mBaaS market is a new approach to enterprise mobile application development. Vendors in this space provide a set of cloud-based services that are “consumed” by mobile apps. Services offered include data storage, user management, authentication/authorization, social, and push. Client-side SDKs (software development kits) are sometimes provided which make it easy for app developers to create applications that deliver these services.

mBaaS providers may support deployment of apps developed with native toolkits as well. It’s important to keep in mind that mBaaS was created to serve the developers of consumer apps. mBaaS vendors have pivoted to serve the enterprise, but the features needed by enterprise developers (integration with backend systems, business logic, security) are still lagging.

Strengths:

- Technology openness and choice of development tools.
- Strong focus on building and deploying a singular application.
- No need to maintain mobile back-end infrastructure internally.
- Quick and easy to get started.
- No need for infrastructure investments.
- Some offer “pay-as-you-go.”

Weaknesses:

- Ability to integrate with corporate data sources and authentication systems is lacking.
- Inability to deploy on-premise or in a private cloud.
- Data is stored solely in a public cloud.
- No guidance on workflow and integration with existing business logic.
- Integration with app development tools varies by provider.
- Security of corporate data is left to the cloud.

4. Mobile Application Servers

Mobile Application Servers are similar to web application servers (Websphere, Weblogic, et.al.), but specifically architected for mobile. They are designed to support both native code and HTML5- based applications, and aim to manage the complexity of mobile security, API integration, and both offline and online environments. They are also bundled with robust application management and monitoring features that are designed to help IT manage multiple mobile applications across several lines of business.

Strengths:

- Open standards technology enables easy and rapid integration into any back-end system.
- Open, extensible architecture enables deep integration into existing enterprise infrastructure leveraging the investment fully.
- Comprehensive set of enterprise-focused features around security, authentication, authorization, access to backend data, session management, and much more.
- Supports any combination of mobile app architectures: native, hybrid, and mobile web.
- Can be used with any mobile app development tool and/or framework.
- Compatible with all enterprise software development/configuration management processes and tools.
- Facilitates code reuse across multiple mobile apps.
- Eases development of “composite” mobile apps that integrate data from multiple data sources.

Weaknesses:

- Mobile application servers must be deployed on enterprise-grade infrastructure. Hence, the solution is best designed for an enterprise.
- Transitioning existing proprietary applications built on MEAPs can be time-consuming.
- Mobile application servers are better suited for enterprises looking to deploy and manage multiple applications in the near future rather than one application.

Which is Right for Your Business?

When building out and maintaining an enterprise mobility strategy, there are many approaches to consider. A complete strategy requires that all bases are covered: planning, user experience, development, deployment, provisioning, and management of apps going forward.

Some questions to consider when choosing the solution that is right for your organization are the following. Does my company need:

- Both offline and online access for the application?
- Native applications only or a mix of HTML 5 and native?
- To easily pull from multiple data sources to create “composite” applications?
- The freedom to deploy as needed (public cloud, private cloud, hybrid cloud, or on-premise)?
- To connect to all available data sources to support your mobile strategy?
- A platform that is open to support a broad range of development tools?
- Pricing and management costs that are predictable and progressive?

The enterprise mobile app industry will continue to grow and morph as organizations become more adaptive to their employees' and customers' changing needs and desires for how they choose to consume, share, and analyze content. To ensure that the enterprise mobility infrastructure you choose for your company will be sufficient as your organization evolves, evaluate technology on its ability to scale rapidly and securely as needs change, including the need to support more users, more applications, and hybrid deployment environments.