

MAINFRAME MEETS MOBILE

Access your Adabas & Natural and mainframe applications from anywhere



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Mobile technology is rapidly changing how we do business and engage with government, business, institutions and each other. Consumers expect to shop, get quotes, apply for goods and services, and receive real-time updates on scheduled flights, deliveries and service calls. Business users (employees and partners) expect perpetual access to resources that support them in accomplishing their jobs throughout the day. Mobile has the potential to transform employee productivity, accelerate processes and improve the customer experience.

About the author



Guido Falkenberg is Senior Vice President and head of the Enterprise Transaction Systems product marketing in Software AG. He has been with Software AG for over 20 years and has vast experience with Mainframe Modernization, Integration

Middleware, Big Data and SAP. Guido has worked in R&D and as an IT enterprise architect helping companies to align their application portfolio towards new technologies and business scenarios. He drives and evangelizes the technology strategy for Adabas, Natural, Application Modernization and Big Data.

How much has your organization embraced mobile technology? Have you looked beyond the customer experience to see where mobile could transform how you operate your business? What will be the impact on your future if you delay entering the mobile foray?

Mobile technology is one of the major forces affecting the information industry today. Learn how Software AG helps customers with applications on the mainframe extend their reach to mobile apps.

Access information anytime, anywhere

Mobile computing enables “pervasive access”—the ability to access information at any time, from any place. Today, the widespread adoption of mobile technology has created savvy users who demand that personal and business functions be available at their fingertips when they are in the office, at home, traveling and even on vacation. The need for pervasive access is a reality—a reality that presents opportunities and challenges for

those who maintain “bet your business” core applications (in COBOL, Natural, etc.) on the mainframe.

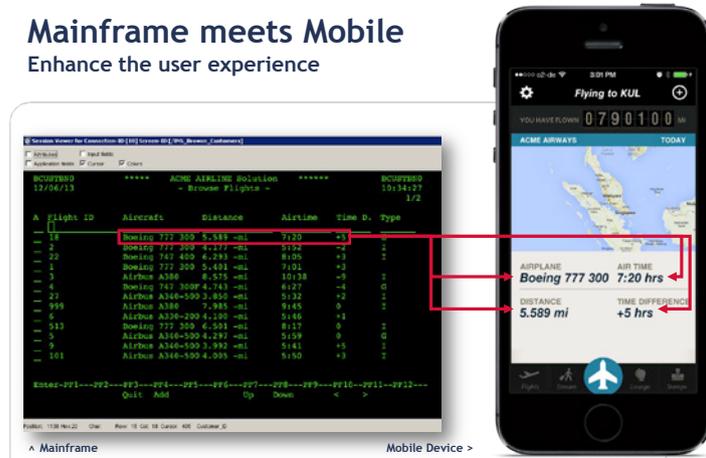


Figure 1: When mainframe meets mobile, your users benefit from the native UI design and navigation.

Before you embark on extending your mainframe applications to mobile devices, consider how you will:

- Securely connect your core applications to the mobile world
- Provide a consistent user experience across a variety of mobile devices
- Manage and control how mobile apps interact with your core applications

These considerations cannot be addressed in a silo. In order to set up a successful enterprise-class mobile platform, you must plan and execute your mobile strategy against these concerns holistically. Let's get started.

Secure integration with mainframe applications

The most efficient way to make core application information and functions available on a mobile device is to expose them as services and events. Web services offer a standardized method for communicating between mobile apps and core applications. Typically, as shown in Figure 2, mission-critical core applications can communicate with mobile apps from one of three access areas:

- User interface
- Business logic

- Data

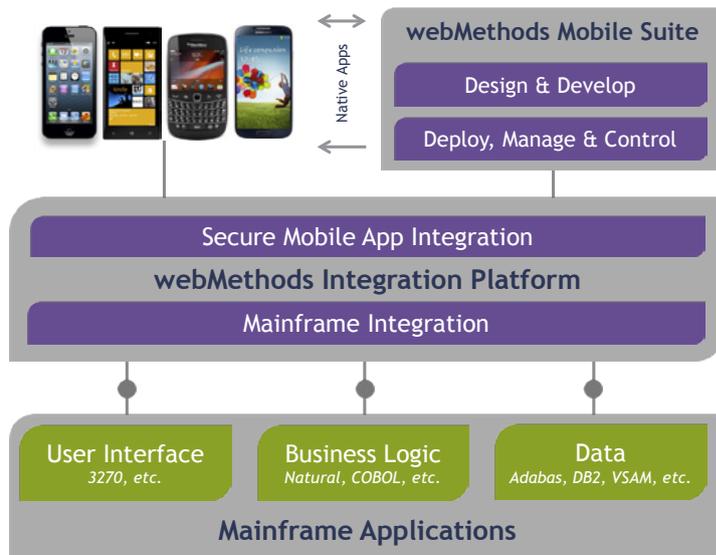


Figure 2: Unlock your core applications by creating services that can be re-used in mobile apps.

User interface access

User interface access, communicating directly with terminal screens (e.g., 3270), is a good approach when the information or transactions needed by the mobile app already exist in a core application.

Using webMethods mainframe integration technologies (e.g., ApplinX), you can expose the core application-screen functionality and external data as services. You can also combine information from different screens and data sources to improve the users' interaction with the mainframe application, improving processes while you are at it. This non-invasive approach to bringing core applications to mobile devices has no impact on the core application itself as it requires no code understanding and no changes or additions to the code.

Imagine taking your green-screen interface for existing functions like customer look up, inventory status, or flight details and turning them into an eye-pleasing, user-friendly mobile app as shown back in figure 1.

Business logic access

When you need to deliver complex business logic functions to your mobile app, business-logic-level access is your most optimal approach. With webMethods mainframe integration technologies (e.g., EntireX), developers can quickly and easily generate services (e.g., Microsoft® .NET, Java®, REST or SOAP) from a number of different programming environments (e.g., Natural, COBOL, C, PL/1, RPG, IBM® Assembler) and make them available for use by mobile apps.

webMethods is a secure, high-performance communication infrastructure that uniquely combines message-queuing capabilities with built-in support for synchronous request/reply and conversational communication. Its powerful and easy-to-use wrapping technology and flexible programming interfaces turn existing application functions into business services.

With true bi-directional service wrapping, mobile apps can access and update information in the core application and database. This level of inbound and outbound access offers advantages over other levels of access as business logic, and security functions can be applied to information before it is supplied to a mobile app and before information from the mobile app is applied to the target (core) database.

This approach is ideal for managing interactions for tightly coupled, time-critical user applications. Imagine a sales representative wanting to check a buyer's credit or a consumer looking for an insurance quote for his auto. Any activity that requires the mobile user to enter information that is sent back to the core application for processing

With bi-directional service wrapping, mobile apps can access and update mainframe application and database

then returns a result is a candidate.

Data access

Data access is ideal for mobile apps requesting information from the target database of a mainframe application. By enabling mobile apps to use standard SQL to access and/or update non-relational and relational databases, webMethods opens up many mainframe database environments (e.g., Adabas, DB2®, VSAM, IMS™) to share information with mobile devices. Using this technology, a single SQL request made from a mobile app can simultaneously access (or pull) data across any number of databases.

If you wish to push data from your core application databases to a mobile app, look at replication as an option. A replication solution proactively transforms and delivers select Adabas data based on pre-defined “subscriptions” to mobile apps in real-time.

A mobile user looking up customer account information, product information or service terms are good examples of “pull” apps. Examples of a “push” app include a mobile user receiving notifications of account transactions, schedule changes, or package/ service delivery.

Connect and manage application services

Once you have prepared mainframe-based services, where will you store and manage the life cycle of these elements?

Software AG’s best-in-class webMethods Integration Platform enables secure connectivity to your back-end applications and provides a service-based Application Programming Interface (API) to your mobile apps. With an integrated infrastructure such as this, you can manage the entire process of planning, designing and developing APIs and securely expose your APIs to mobile apps.

Along with mainframe integration and API management, the webMethods Integration Platform also covers SOA, BPM, B2B, managed file transfer and cloud SaaS integration.

Enterprises betting on a mobile-first strategy can securely provide and holistically manage the life cycle of services with the webMethods Integration Platform.

Secure and responsive mobile app integration

When your mainframe applications are unlocked through secure access points, how will you integrate your mobile apps? Pervasive access, as we mentioned earlier, also presents pervasive issues related to securing your data, transactions and business.

webMethods provides a secure gateway between your mainframe applications and mobile apps. Because mobile apps access your core applications using Web services, the gateway provides an environment where you secure your services. This ensures that only designated users, applications and/or devices can gain access to your mission-critical applications.

Through the gateway, you can also monitor where, when, how and by whom your applications are used—thus eliminating many of the concerns that accompany providing your users pervasive access to your vital mainframe applications.

While providing secure integration between your mobile app and mainframe applications, you can also provide responsive interactions by leveraging in-memory data stores. webMethods Integration Platform (e.g., Terracotta BigMemory) uniquely stores data in-memory to deliver ultra-fast access to your data. This ensures responsive interactions occur even faster between your mobile app users and your core data.

Design and develop cross-platform mobile apps

Now that your core applications are ready for mobile apps, how do you provide a consistent user experience across a variety of mobile devices? It could be a daunting task as there is an ever increasing array of mobile devices on the market, each using one of a number of different operating systems (i.e., Android®, iOS®, Windows® Phone). To compound matters, each different device utilizes its own programming language (i.e., Java for Android, Objective C/C++ for iOS; C# and Visual Basic for Windows Phone).

Luckily, Mobile Suite provides you an invaluable set of tools for developing, testing, deploying and managing mobile apps across multiple platforms. Figure 3 shows how webMethods Mobile Suite supports the full mobile app life cycle with a well-integrated suite of products. This proven solution offers best-in-class secure integration, mobile app development, deployment and management, as well as device management functionality.

Design and develop mobile apps for multiple operating systems with webMethods Mobile Suite

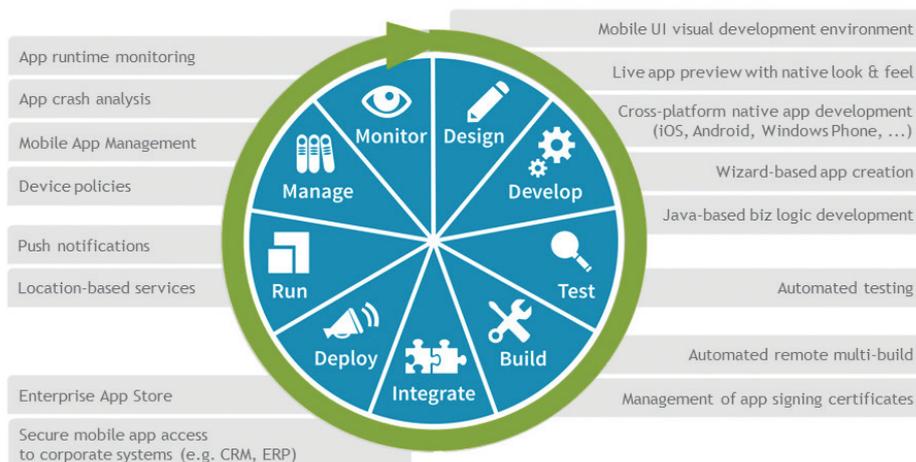


Figure 3: Develop and deploy your mobile apps to many devices with webMethods Mobile Suite

webMethods Mobile Suite provides developers a single Eclipse™-based development environment to visually build and test mobile apps for a wide array of devices and operating systems. The end-result is a native app with a familiar user interface and user experience, access to native functionality and a consistent performance across all smartphones and tablets as shown in Figure 4.

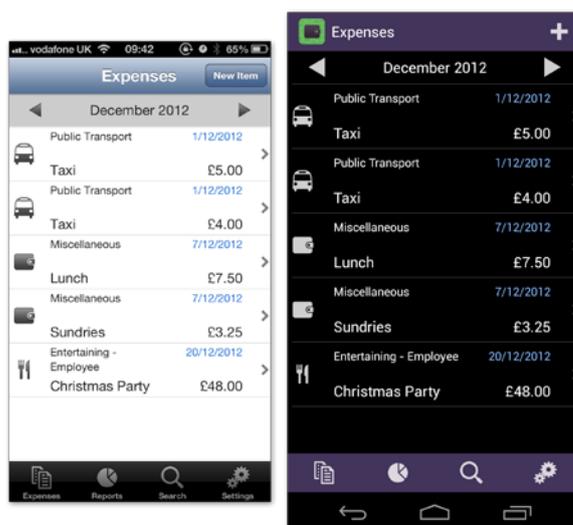


Figure 4: The mobile suite delivers a native UI design and navigation for each function, as shown here for Apple and Android devices, which provides a consistent and familiar experience for each mobile user.

For tips on how to design mobile apps, check out the following past articles by Glenn Broadway, Director of Mobile R&D at Software AG on the TECHniques blog at <http://techcommunity.softwareag.com/techniques-blog>

- “Designing Mobile Apps, Best practices for planning development with webMethods Mobile Designer,” TECHniques Issue 2, 2012
- “Developing Cross Platform Applications with Mobile Designer – A Case Study”, TECHniques Issue 1, 2013
- “webMethods Mobile Designer: Expenses Tracker—Taking an Independent Approach”, TECHniques Issue 2, 2013

Deploy, manage and monitor enterprise mobile apps

Mobile Suite comes with enhanced mobile application management and mobile device management capabilities to simplify the task of deploying and managing mobile apps and managing customer-facing apps, as well as internal apps for employees.

With webMethods Mobile Suite, enterprises can apply device policies to restrict camera usage, screen capture, in-app purchase and enforce password rules. If a device is lost or stolen, the device can be locked or wiped to protect enterprise data. In a Bring Your Own Device (BYOD) environment, companies are beginning to look to mobile app level controls to handle the most pressing security problems associated with mobile devices.

With webMethods Mobile Suite, you can:

- Apply enterprise policies to mobile apps and devices
- Distribute internal mobile apps to employees via an enterprise app store
- Manage the increasing number of personally owned devices (BYOD) by controlling which devices have access to your applications
- Ensure the security of services and data delivered to mobile devices
- Govern employee use of consumer app stores
- Monitor the distribution and usage of enterprise apps
- Automatically collect and analyze crash reports/system logs

Conclusion

Never feel locked in by your core applications. With innovative service-enablement technologies available today, there are many ways to unlock your mainframe assets and bring them to the mobile world. With the Software AG webMethods Mobile Suite and mainframe integration technologies, it is easy to move your core business functions to mobile devices and into the hands of your employees or customers.

It's time for your mainframe to meet mobile. Consider the Software AG webMethods Mobile Suite and mainframe integration technologies when you wish to:

- Maximize mobile opportunities across your business applications
- Ensure secure service integration from a variety of back-end applications
- Develop mobile apps using a common Java code base for all mobile platforms
- Manage the full app life cycle throughout development, deployment and production
- Centrally manage mobile devices and the usage of mobile apps

So now imagine how your mainframe can meet mobile to add value to your business by streamlining processes. For example, a U.S. college saves \$1 million annually by providing a student portal accessible by mobile devices that leverages data housed in its ERP systems built on Adabas-Natural. Now students can manage their entire educational experience from their mobile devices, from enrolling and selecting courses to measuring their success against goals.

Or consider how a major insurance company can improve claims reporting by deploying a cross-platform mobile app for customers that integrates to their mainframe back-end. Customers can now file a claim for damages by using their mobile device immediately. They can take photos of the damage, upload it and provide all the details in real time as shown in Figure 5.

What could you accomplish if your mainframe met mobile?

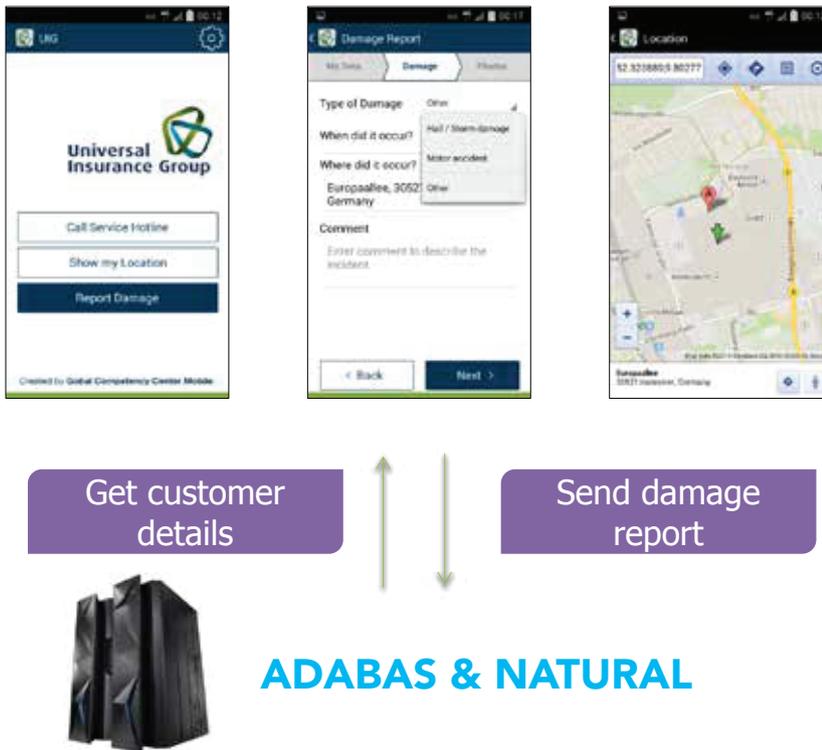


Figure 5: Imagine what is possible when mainframe meets mobile.

ABOUT SOFTWARE AG

Software AG offers the world's first Digital Business Platform. Recognized as a leader by the industry's top analyst firms, Software AG helps you combine existing systems on premises and in the cloud into a single platform to optimize your business and delight your customers. With Software AG, you can rapidly build and deploy digital business applications to exploit real-time market opportunities. Get maximum value from big data, make better decisions with streaming analytics, achieve more with the Internet of Things, and respond faster to shifting regulations and threats with intelligent governance, risk and compliance. The world's top brands trust Software AG to help them rapidly innovate, differentiate and win in the digital world. Learn more at www.SoftwareAG.com.

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