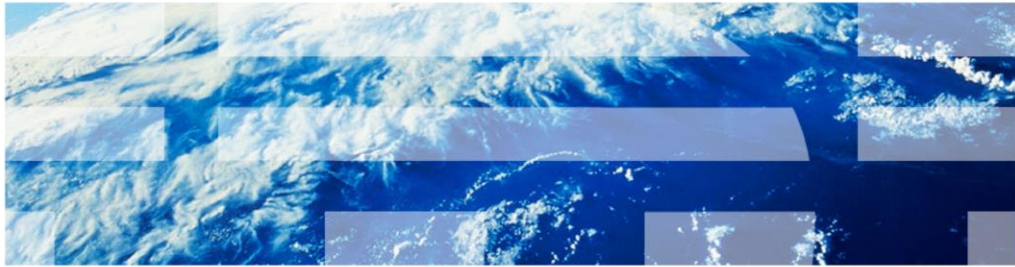


IBM Worklight 5.0

IBM Product Integration with IBM Worklight 5.0



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IBM Worklight 5.0, product integration with Worklight V5.0

Overview

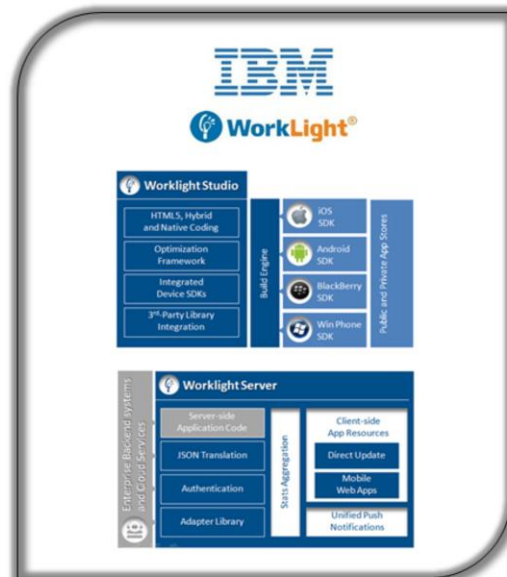
IBM is well known for its industry-proven back-end portfolio that is known for high performance, scalability, security and dependability. IBM is also well known for its leading class portfolio of Software Life cycle Development tools such as Rational® Team Concert™ (RTC). And recently, IBM released a web 2.0 and Mobile feature pack that allows you to create Web-based mobile applications based on open standards such as HTML5, CSS3 and JavaScript with SOA connectivity through JAX-RS and JSON-RPC.

In this presentation you will learn about integration of the Worklight platform with different IBM technologies to create a cohesive solution that comprises of the IBM Mobile Foundation (IMF).

The term integration has different meanings in this presentation, according to the context in which it is applied. Development Integration refers to the integration of the Worklight platform (Studio) with different development environments for mobile, including the open standards from WebSphere® web 2.0 and Mobile feature pack, mobile devices SDK, and so on. Application Server Integration is the integration of the Worklight platform (Server) with different application servers from lightweight development/testing (WebSphere Application Server 8.5 Liberty profile and Apache Tomcat) to enterprise class (WebSphere Application Server 7, 8 and 8.5 Network Deployment). Data Integration refers to the integration of the Worklight platform and mobile applications with database management systems from Apache Derby to DB2® Enterprise, and related data access technologies such as WebSphere eXtreme Scale. Security Integration is the integration of the Worklight platform (Mobile Runtime) with identify management and access management systems such as IBM Security Access Manager (ISAM) that provide controlled access to enterprise resources. IBM Endpoint Management Integration is the packaging of Endpoint Management as part of the IBM Mobile platform. This extends your management capabilities beyond the mobile application to the more broader device level. By integrating with Endpoint Manager, the IBM Mobile Foundation offering enables a best of class end to end management that customers have come to expect from IBM. Finally, WebSphere Cast Iron® Hypervisor Integration, integtating the packaging of WebSphere Cast Iron with IBM mobile technologies. This allows you to quickly and securely connect to enterprise services that are hosted both publically and privately in the cloud. Access to these services in a format that mobile devices can easily consume provides significant time to market for developing applications while reducing the total cost of ownership to access these applications.

The Worklight platform

- Open mobile application platform
 - Development
 - Runtime
 - Management
 - Connectivity
- Worklight Studio
 - End-to-end Eclipse based IDE
 - Device SDK integration
 - Open standards
- Worklight Server
 - Secure back-end connectivity
 - Data access mediation
 - Push notifications
- Worklight Console
 - App management and control



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This presentation assumes that you have a high level understanding of the IBM Worklight 5.0 platform and its architecture. However, it is good to provide a short overview of its main values specifically focusing on the covered integration aspects.

The main values of the Worklight Platform are: development productivity, enterprise delivery and dynamic control.

Worklight Studio is an end-to-end Eclipse based IDE that focuses on open standards such as HTML5, CSS3 and Dojo. Development productivity through the Worklight Studio integrates seamlessly with device-specific SDKs such as Android ADT and iOS Xcode. It also creates pure HTML5, hybrid and native mobile applications.

Enterprise delivery is provided through the Worklight Server, which provides seamless integration with the enterprise environment. The Worklight Server uses the enterprise environment's existing resources and adheres to the strictest security environment of the organization. Worklight Server provides back-end connectivity, channeling back-end systems to the end-user. It retrieves and updates data from multiple sources; supports transactional capabilities and the invocation of different services and applications. It also includes a uniform push notification infrastructure that enables the transmission of alerts originating from the back-end systems to a variety of mobile devices from one centralized interface.

Dynamic Control, achieved through the Worklight Console, provides ongoing management of deployed applications that monitors system components and remotely disables any deployed application based on preset rules such as application version and device type. Worklight Console collects statistics from running applications and displays them in a set of build-in adoption and usage reports, all available within the console and exportable to enterprise business intelligent systems.

Development environment integration

- Eclipse based development
 - Single project to build cross platform applications
 - Support for hybrid and native
- Visual WYSIWYG development
 - Rich Page Editor
 - CSS and HTML5 Editor
 - Dojo Mobile Support
- OSGi based Worklight Server
 - Deploy Adapters and Applications
 - Unit Test Framework
 - Worklight Procedures
 - Worklight Adapters
- Publish Hybrid and Native Apps directly to Application Center



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Worklight Studio is an end-to-end Eclipse-based IDE that combines native and open web technologies in one multiplatform environment. End-to-end means you can develop, test and build mobile applications for different platforms within the same development environment. Multiplatform means that it provides one single project structure to build cross platform applications.

Worklight Studio integrates with open standards such as HTML5, CSS3, and a variety of other libraries such as jQuery, Sencha and PhoneGap. It is complemented by the WebSphere web 2.0 and mobile feature pack, which provides Rich Page editing with CSS and HTML5, and support for Dojo and Dojo Mobile.

Worklight Studio also integrates with device-specific SDKs such as Android ADT and iOS Xcode for native and hybrid mobile development allowing maximum code reuse while reducing your costs.

Included with Worklight Studio is an OSGi-based Worklight Server for development and test. It allows you to deploy and test adapters and applications directly from the IDE. Additionally, it provides a testing framework for Worklight adapters and procedures. Through the embedded Worklight Server you can open an emulator for Web-based mobile applications

Finally, from the IDE you can also deploy mobile applications directly to WebSphere's Application Center, which is an internal application store for testing and evaluation purposes. With Application Center you can easily deploy applications to a controlled group of testers and stakeholders for testing, evaluation and validation.

Development life cycle integration

Rational Team Concert (RTC)

- Collaborative Software Life cycle Management
 - Iteration planning
 - Process definition
 - Source control
 - Defect tracking
 - Build management
 - Reporting
- Built-in Agile methodology
- Eclipse and web based platform
 - Combines software life cycle management and software development in one integrated environment



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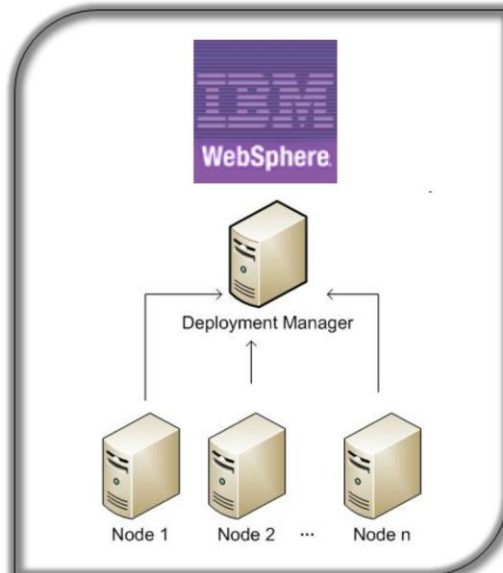
The previous slide showed how Worklight Studio Integrates cross-platform development environment with tools and plug-ins, which is essential for mobile development. When combined with Rational Team Concert, Worklight Studio becomes a highly collaborative development environment that can be optimized for development groups of any size.

Worklight Studio integrates several aspects of the software development life cycle, including: iteration planning, process definitions, source control, defect tracking, build management support, reporting.

Jazz™ simplifies the adoption of Agile methodologies through the use of several agile iteration based process templates that help software architects plan and guide development. Your project management team can use iteration planning tools to plan and monitor projects, and your development team can use the benefits of having the development and life cycle environment combined in the same integrated tool.

Application server integration

- Lightweight development and production platforms
 - WebSphere Application Server 8.5 Liberty Profile
 - Apache Tomcat 6 and 7
- Highly scalable platforms
 - WebSphere Application Server Network Deployment 7.0, 8.0 and 8.5
 - Others possible
- Wide variety of supported operating systems
 - Windows®, Linux® and UNIX®
 - z/Linux
 - Mac OS X (Tomcat and Liberty)
- Enterprise grade features
 - Highly scalable
 - Fault tolerance / failover support
- Centralized Management Console through Worklight Console



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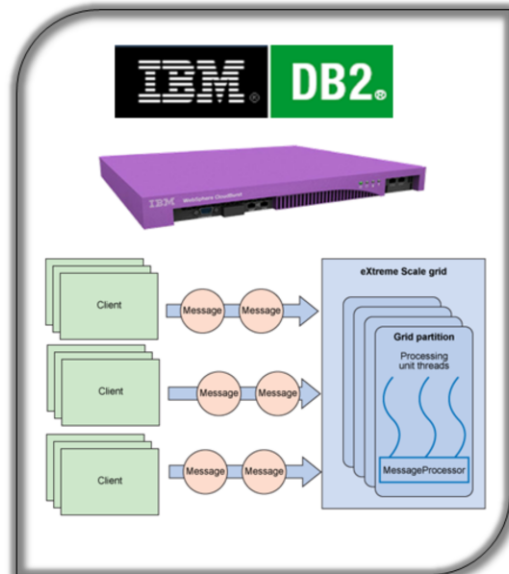
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Worklight Server can be deployed in a variety of different application servers, from lightweight development/production platforms such as Apache Tomcat and WebSphere Liberty Profile up to highly scalable platform such as WebSphere Application Server (WAS) Base and Network Deployment (ND). A wide variety of operating systems are supported, from Windows 32 and 64-bit to market leaders of both Linux and UNIX Operating Systems, including z/Linux. In addition, Mac OS X is also supported (through Liberty and Tomcat). Worklight Server uses the enterprise-grade strengths of highly scalable platforms such as fault tolerance and failover support, and a database association through data sources. Worklight Server is accompanied by Worklight Console, which provides a centralized mobile application monitoring and controlling console accessible through the web.

Data integration

- Databases
 - DB2 Enterprise Server Edition 9.7 and up
 - Apache Derby 10.8 and up
 - MySQL 5.1 and Oracle 11G (previous)
- Enterprise Caching
 - WebSphere eXtreme Scale
 - In-memory datagrid
 - Faster data access
 - WebSphere DataPower® XC10
 - Purpose-built appliance
 - Memory cache tier
 - Linear scalability



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Database management system access is essential for Worklight. Worklight Server relies on a database to persist its own data and the deployed mobile applications. Worklight Console also relies on a database to store the monitored data and reports. Worklight SQL Adapters can be used to provide server-side database management to mobile applications developed using Worklight Studio.

A wide variety of database management systems are supported, from lightweight development / testing engines such as Apache Derby through MySQL up to DB2 and Oracle. This facilitates the deployment of the Worklight Platform while reusing enterprise database systems already installed. Worklight relies on Java™ Persistence API to simplify integration between its data models and the different database systems. Worklight can be configured to access databases directly through JNDI or through data sources configured at the application server level. This provides great flexibility to access the database systems.

The backend of business-critical mobile applications can require extremely fast and scalable data access in order to support a large number of concurrent client requests. This is where speed, reliability and scalability are essential. To provide this, Worklight can be paired with IBM WebSphere eXtreme Scale, an in-memory data grid (an elastic memory-based storage grid) that can make data accesses significantly faster. For the most demanding applications, Worklight can also be paired with IBM WebSphere DataPower XC10 appliance, which provides a high performance and secure caching tier that can scale linearly according to business demand, which is extremely fast and very cost-effective when leveraging HTTP Adapters for enterprise connectivity to existing services within your enterprise. Additionally, mobile applications, developed with Worklight Studio, that rely on SQL Adapters for database connectivity can easily scale from a modest derby database to an extremely high performance setup with DB2 Enterprise database with DataPower caching tier and eXtreme Scale in-memory data grid.

Security / authentication integration

- Worklight provides strong authentication framework
 - JAAS based with realms
 - Adapter Level Security
 - Asynchronous login
 - SSO support
- IBM Security Integration
 - IBM Security Asset Manager (ISAM)
 - Complex authentication
 - IBM DataPower Security
 - Fast security appliance
 - IBM Lightweight Third Party Authentication (LTPA)
 - Single identity



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Worklight has a reputation for its strong focus on security for both user authentication and data access. It provides an authentication framework that greatly reduces overall cost and complexity of integrating mobile applications to the enterprise authentication infrastructure. The server-side architecture interacts with the backend authentication infrastructure based on JAAS (Java Authentication and Authorization Service) with support for authentication realms. The client-side framework provides asynchronous login requests on session initialization and expiration. Moreover, Worklight also provides SSO (Single Sign On) integration that uses user credentials and enables devices that can use credentials that are encrypted on the client side and transmitted securely to the server side with requests, and cannot be retrieved from a lost or stolen device. Worklight can be paired with IBM Lightweight Third Party Authentication (LTPA) to define a single identity for a variety of different IBM products.

Worklight adapters uses these flexible authentication facilities to create connections with back-end systems. This offers control over the identity of your user with whom the connection is made.

For increased security, the Worklight authentication framework can be paired with the IBM Security Access Manager for Mobile (currently known as Tivoli® Access Manager for e-business), which ensures that users and devices are authorized to access enterprise resources from specific devices that: one, satisfy complex authentication requirements, two, supports reverse proxy, authentication, authorization, and federated identity, three, supports mobile native, hybrid, and web apps, four, provide flexible authentication: user id/password, basic authentication, certificate based, or custom authentication and five, supports open standards applicable to mobile such as OAuth.

For even greater security of demanding mission critical mobile applications, Worklight authentication can also be paired with IBM DataPower Security appliances for fast and reliable middleware authentication. IBM DataPower Security is a purpose built hardware platform to perform rapid request authentication at wire speed. It isolates the application server from authentication attacks.

Device management / data protection integration

- Worklight device management
 - Application authenticity
 - Data monitoring / report
 - Remote update and partial data wipe
- IBM Endpoint Manager for Mobile Devices (MDM)
 - Centralized management
 - Enterprise application store
 - Remote update, lock, wipe
 - Password enforcement
 - Full IT integration
- IBM Security Services
 - Additional data protection



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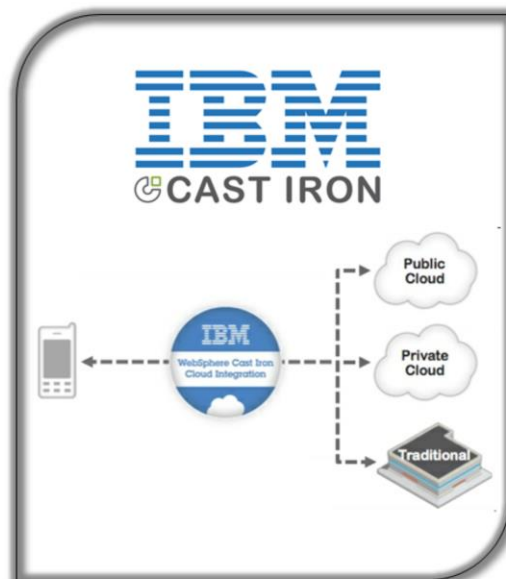
Worklight provides limited support for Mobile Device Management. Support includes allowing application attestation / authenticity, which protects code against malware manipulation and phishing impersonation. It also includes remote update for timely propagation of critical security updates and remote disable, which allows configuration of allowed application versions and can enforce applications to delete local data.

These Worklight features can be combined with the IBM Endpoint Manager for Mobile Devices. IBM Endpoint Manager for Mobile Devices provides a completely integrated approach for managing, securing and reporting devices, including employee owned devices (BYOD). The combination of the two provides you with unprecedented real-time visibility and control over all the devices your employees use in their daily job functions. A wide range of devices are supported: laptops, desktops, servers, smartphones, tablets and even specialty devices such as point-of-sale terminals. This combination is a great cost reduction, and provides enterprise data protection with advanced security and compliance features. Endpoint Manager provides you higher control and ability to secure and protect enterprise data. Secure features include remote device lock and data wipe, password enforcement, the ability to remotely install and remove applications and the Enterprise application store which is used to deploy enterprise-only mobile applications.

For an additional level of security for corporate data on company-owned and employee-owned devices accessing business apps, IBM offers the IBM Security Services that consists of a simple cloud-based service that provide security controls, malware prevention, and compliance monitoring. IBM Security Services enables enterprises to protect mobile devices without the need to implement and maintain an MSM system in-house. It also complements in-house MDM systems, for example, it provides an additionally powerful level of protection against malware threats for customers who already have IBM Endpoint Manager for Mobile Devices.

Cloud Integration

- Worklight Adapters
 - Connectivity to back-end
 - Simple design
- IBM WebSphere Cast Iron Cloud Integration
 - Connectivity to SaaS and backend systems
 - Cloud and on-premise
 - Pre-configured templates for known endpoints
 - Connects mobile apps to virtually any back-end and cloud systems



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Worklight Studio provides support for adapter development that connects mobile applications to a variety of data sources. Worklight Studio is highly customizable with a simple design that includes various templates and samples. It comes with adapters that run on the Worklight Server.

For greater flexibility mobile applications, developed with Worklight Studio, can directly consume data from WebSphere Cast Iron Cloud Integration, providing a simple and flexible integration platform for any connectivity projects. This allows rapid integration of Cloud and SaaS (Service as a Service) to on-premise applications in days, providing a centralized back-end access point for mobile applications. Cast Iron Cloud can be deployed from a dedicated hardware appliance, from a virtual appliance or from a multi-tenant cloud service. Combining the Worklight Adapters and the Cast Iron Cloud Integration extensive connectivity you can connect you mobile applications to any virtual back-end application and SaaS systems on-premise and in the cloud.

Summary

To summarize, Worklight was acquired by IBM to play a key role in its new IBM Mobile Foundation platform. This education illustrates how Worklight v5.0 is integrated with several other IBM products to build a platform that handles the complete life cycle for mobile applications. During this presentation you learned about these topics: Worklight's key values; the platform's modules, namely "Worklight Server", "Worklight Studio", "Worklight Console" and "Worklight Mobile Runtime"; Worklight's adapter capabilities; key integration points that include development environment integration, development life cycle Integration, application server integration, data integration, security / authentication integration, device management / data protection Integration, and cloud integration.

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