Build and Connect Apps, Devices and Data: Take Your Enterprise Mobile

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Agenda

- Mobile Transformation of CICS Applications
- Worklight Overview
- Mobile Demo
- Additional Worklight Functionality
- Summary
Mobile is a mandatory transformation

10 Billion devices by 2020

61% of CIOs put mobile as priority

45% increased productivity with mobile apps
IBM Comprehensive Mobile Strategy

**Extend & Transform**

*Extend* existing business capabilities to mobile devices

*Transform* the business by creating new opportunities

**Key Capabilities**

- Strategy, planning and implementation
- Mobile-enabled solutions including analytics, commerce, and social business
- Mobile as a service

**Build & Connect**

*Build* mobile applications

*Connect to, and run* backend systems in support of mobile

**Key Capabilities**

- Multiplatform mobile web, hybrid and native app development
- Enterprise data, service, and application integration
- Iterative teamwork

**Manage & Secure**

*Manage* mobile devices, services and applications

*Secure* my mobile business

**Key Capabilities**

- Mobile Governance
- Device analytics and control
- Secure network communications & management
Mobile is a significant component in the evolution of computing

Mobile enables business:

- Premium Customer Service – hotel bookings, flight check-in, etc
- Broaden Marketing Reach – Put your branded icon on your customers’ smart device
- Increase Revenue
- Increase Operational Efficiency – extend your existing enterprise systems to the mobile platform
CICS z Enterprise Background

• CICS TS is designed to enable customers to create and maintain a competitive advantage
• CICS Transaction Server continues to deliver innovative and essential technology to enable customers to deliver on their business imperatives, now and into the future

Large scale business critical workloads, some > 1bn transactions per day
Large installations with mixed workloads continue to support core business
CICS WebServices are the most widely adopted CICS feature in the last 10 years
CICS Connectivity Options

CICS

- HTTP
- MQ

z/OS

- HTTP
- HTTP
- HTTP
- TN3270
- SNA

Web Services

Atom Feeds

REST

3270
CICS Application Overview

- CICS Catalog Manager Application
  - COBOL based CICS application
  - VSAM File
  - Separate Presentation Logic and Business Logic
  - Callable Interface - Commarea
CICS Application Walkthrough
Worklight – CICS Connectivity Options

- **HTTP**
- **Web Services**
- **Atom Feeds**
- **REST**
- **TN3270**
- **3270**
- **HATS**
- **Service Flow**
- **Web Services**

Connectivity Options:
- CICS
- z/OS
- Worklight Server
- Adapters
Existing CICS Web Service Enabled App

- 3270 Client
- z/OS
- CICS
- EGUI Main
- VSAM File (EXMPCAT)
- Browse
- Place Order
Worklight Modernizes the CICS Web Service Enabled App

Mobile Client

Worklight Server

Web Services

CICS Web Service

EGUI Main

Browse

Place Order

VSAM File (EXMPCAT)

CICS

z/OS
Features do not currently exist in the CICS application.

Enhanced Search and Shopping Cart Features are added via Worklight.

Worklight Enhances the CICS Web Service Enabled App
IBM Worklight: A mobile enterprise application platform

*Speeding the development, integration and management of mobile applications*

IBM Worklight goes beyond mobile app UI creation to deliver full mobile middleware.

### Client Challenge

Using standards-based technologies and tools and delivering an enterprise-grade services layer that meets the needs of mobile employees and customers.

### Key Capabilities

Mobile optimized middleware
- Open approach to 3rd-party integration
- Mix native and HTML
- Strong authentication framework
- Encrypted offline availability
- Enterprise back-end connectivity
- Unified push notifications
- Data collection for analytics
- Direct updates and remote disablement
- Packaged runtime skins

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Worklight Overview

**Worklight Studio**
The most complete, extensible environment with maximum code reuse and per-device optimization

**Worklight Server**
Unified notifications, runtime skinning, version management, security, integration and delivery

**Worklight Runtime Components**
Extensive libraries and client APIs that expose and interface with native device functionality

**Worklight Console**
A web-based console for real-time analytics and control of your mobile apps and infrastructure

**Worklight Application Center**
A cross-platform private mobile application store focused on the needs of a development organization or a team
Worklight Architecture

**Worklight Studio**
- HTML5, Hybrid, and Native Coding
- Optimization Framework
- Integrated Device SDKs
- 3rd-Party Library Integration

**Worklight Console**
- Hybrid Application Version Management
- Push Notifications
- Reporting & Analytics

**Worklight Server**
- Server-side App Code
- JSON Translation
- Authentication
- Adapter Library

**Device Runtime**
- Cross Platform Compatibility Layer
- Server Integration Layer
- Encrypted Storage
- Runtime Skinning
- Reporting for Statistics/Diagnosis

**Application Code**
- Direct Update
- Mobile Web Apps

**Worklight Application Center**
- Native Application Version Management
- Application Feedback
- Application Client App
Worklight Studio

- Eclipse based, most complete, extensible Mobile IDE
- Build rich mobile application using open standard technologies and commonly available skills
- Single shared code base for multiple platforms - cross-platform compatibility
- Compatible with:
  - Dojo
  - Jquery
  - Others
- Native SDK integration
- Tooling for back-end connectivity utilities (Worklight Adapters)
Studio- WYSIWYG Development Environment
Mobile Browser Emulator - Preview in browser

Perform device specific tests in the Mobile Browser Simulator: supports PhoneGap and Worklight client API

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Worklight Server

A middleware component which delivers unified notifications, version management, security features, and integration services

- Distribution of mobile web apps
- Enterprise connectivity:
  - Secure client/server connectivity
  - Direct access to enterprise back-end data and transaction capabilities
  - Authentication enforcement
- Client control:
  - Application version management and remote disabling
  - Direct update of application code
  - Unified Push Notifications
  - Aggregation of usage statistics
Worklight Server - Adapters

Universality
Supports multiple integration technologies and back-end information systems

Read-only as well as Transactional Capabilities
Adapters support read-only and transactional access modes to back-end systems

Fast Development
Defined using simple XML syntax, and easily configure with JavaScript API

Security
Use of flexible authentication facilities to create connections with back-end systems
Adapters offer control over the identity of the connected user

Caching
Caching utilized to store retrieved back-end data

Transparency
Data retrieved from back-end applications is exposed in a uniform manner regardless of the adapter type
Worklight Device Runtime

Extensive libraries and client APIs that expose and interface with native device functionality and the Worklight server

- Cross-Platform Compatibility Layer
- Server Integration Framework
- Encrypted Storage
- Offline Authentication
- Runtime Skinning
- Statistics and Diagnostics Reporting
Worklight Console

A web-based console management of mobile apps and notifications

• Application Version Management
• Remote disable
• Push management
• Administrative dashboards for:
  • Deployed applications
  • Installed adapters
  • Push notifications
Application Center – Application Management

A cross platform private mobile application store similar to public app stores but focused on the needs of an organization or a team

Key capabilities:

• Delivers distribution and management of mobile applications within a company / teams
• Easy distribution of iOS and Android apps within a team
• Provides versioning and updates
• Centralizes rating and feedback information
• Controls who can modify or install an application with LDAP-based integration to define users and groups
• Easy to install and simple to run
• Integrates with IBM Endpoint Manager for app role-out to production
MOBILE
APP DEMO
Flexible Push-Notification Framework

- Common APIs for both iOS and Android
- One application multiple devices
  Custom subscription management
- Many-to-many relationship between event sources and apps
- Multiple event sources from same back-end
- Multiple users logging into the same app
Unified Push Notifications Framework

- **Polling Adapters**
  - Back-end System
- **Message-based Adapters**
  - Back-end System
- **Unified Push API**
  - Polling Adapters
  - Message-based Adapters
- **Notification State Database**
  - Unified Push API
- **User-Device Database**
  - Unified Push API
- **iOS Dispatcher**
  - Apple Push Servers (APN)
- **Android Dispatcher**
  - Google Push Servers (C2DM)
- **BlackBerry Dispatcher**
  - BlackBerry Push Servers
- **Win Phone Dispatcher**
  - RIM Push Servers
- **Windows Push API**
  - Microsoft Push Servers
- **SMS Dispatcher**
  - SMS/MMS Brokers
- **Broker API**
  - SMS/MMS Brokers
- **Roadmap**
  - iOS Push API
  - Android Push API
  - BlackBerry Push API
  - Windows Push API
  - SMS/MMS Brokers

**Administrative Console**

**Roadmap**

**Worklight Client-side Push Services**

**Worklight Client-side Push Services**

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**Worklight Client-side Push Services**

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Worklight Security

Application Security Design:
- Develop secure mobile apps using corporate best practices
- Encrypted local storage for data
- Offline user access
- Challenge response on startup
- App authenticity validation
- Enforcement of organizational security policies

Application Security Objectives

- Protect Local Application Data
- Proactively Enforce Security Updates
- Streamline Corporate Security Approval Processes
- Integrate with User Security Solutions
- Protect From Known Application Security Threats
Encrypted Cache

- A mechanism for storing sensitive data on the client side
- Implemented using HTML5 local storage technology
- Encrypts data with a combination of user-provided key and server-retrieved randomly generated token for security
- Stores data using key-value pairs
- Like a security deposit box – it will remain open until you close it, so don’t forget to close the cache once you are done working with it
Mobile Data support

- **On-device, mobile database support**
  - **Embedded** JSON mobile database
  - **JavaScript APIs** to store, query and update the data in offline mode
  - **Encrypt** sensitive data, using a key provided by developer or obtained as user’s password
  - **Server-to-client Sync**: Retrieve, store and keep data store up-to-date using adapters
  - **Client-to-server Sync**: Simplify write actions on data while the app is offline and send these actions to the server

- **Offline available**
- **Reliable**
- **Scalable**
- **Encryptable**
- **Syncable**
Data Collection and Analytics
Direct Update – client user experience

1. Detection upon startup and foreground
2. Dialog for easy user selection
3. App download progress bar
4. Application restarts automatically
Application Management

![Application Management Image](image-url)

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A cross platform private mobile application store similar to public app stores but focused on the needs of an organization or a team.

Key capabilities:

- delivers distribution and management of mobile applications within a company / teams
- easy distribution of iOS and Android apps within a team
- provides versioning and updates
- centralizes rating and feedback information
- controls who can modify or install an application
- easy to install and simple to run
IBM Worklight addresses top mobile development pain points

Developing for multiple mobile platforms

- Highly fragmented set of platforms, devices, languages, and tools increases cost and complexity of development and test
- Choosing not to support one or more platforms reduces the reach of an application

Delivering high quality apps that engage users and meet business objectives

- Poor quality can negatively impact brand image
- Bad ratings and comments can cause other users to avoid trying an app

Integrating with enterprise systems

- Recreating instead of leveraging existing business logic increases maintenance costs and risk of inconsistent behavior
- Lack of ready back-end services slows front-end development and increases potential for last minute integration issues

Meeting accelerated time to market requirements

- Hand-off errors and delays between teams slows progress and responsiveness to features and fixes
- Misalignment of stakeholders results in late rework and increased cycle times

Customer Ratings
- Average rating for the current version: 18 Ratings
- Average rating for all versions: 1960 Ratings

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Summary

• Multiple Connectivity Options for CICS Applications

• Multiple Worklight Adapter Options

• Worklight Development Environment
References

- Learn about IBM Worklight

- Education modules and associated sample code

- Free Download of Developer Edition

- IBM Worklight Version 5.0.5 Information Center
  - [http://pic.dhe.ibm.com/infocenter/wrklight/v5r0m5/index.jsp](http://pic.dhe.ibm.com/infocenter/wrklight/v5r0m5/index.jsp)

- IBM Worklight Forums
System z Social Media Channels

• Top Facebook pages related to System z:
  • IBM System z
  • IBM Academic Initiative System z
  • IBM Master the Mainframe Contest
  • IBM Destination z
  • Millennial Mainframer
  • IBM Smarter Computing

• Top LinkedIn groups related to System z:
  • System z Advocates
  • SAP on System z
  • IBM Mainframe- Unofficial Group
  • IBM System z Events
  • Mainframe Experts Network
  • System z Linux
  • Enterprise Systems
  • Mainframe Security Gurus

• Twitter profiles related to System z:
  • IBM System z
  • IBM System z Events
  • IBM DB2 on System z
  • Millennial Mainframer
  • Destination z
  • IBM Smarter Computing

• Top System z blogs to check out:
  – Mainframe Insights
  – Smarter Computing
  – Millennial Mainframer
  – Mainframe & Hybrid Computing
  – The Mainframe Blog
  – Mainframe Watch Belgium
  – Mainframe Update
  – Enterprise Systems Media Blog
  – Dancing Dinosaur
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  – IBM Destination z
  – DB2utor
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