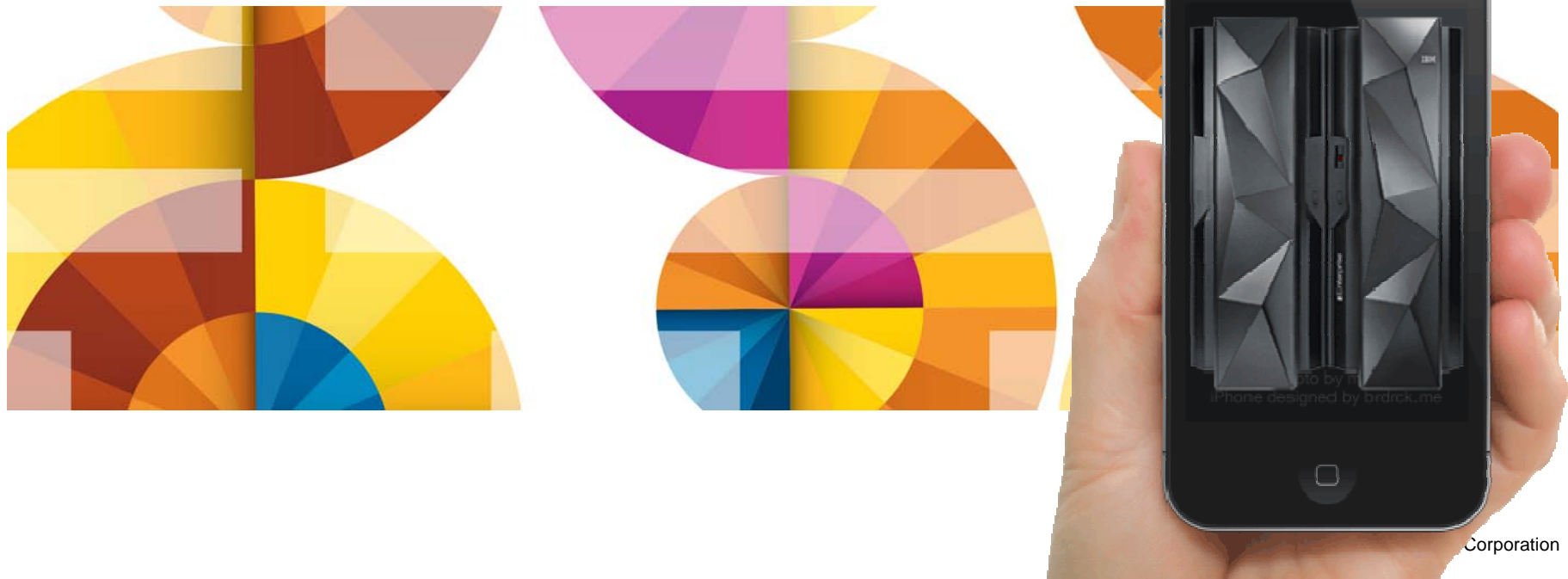


GS11- Mobile Computing with System z

October 01, 2013

IBM Deutschland R&D GmbH

Claudia Prawirakusumah – lenk@de.ibm.com



Agenda

- 2013 Global Technology Outlook – Mobile First

- IBM Mobile Strategy & Roadmap for System z

- IBM Worklight
 - Consistent Mobile End-user Experience
 - Simplified Development
 - Platform Support
 - High Level Mobile Architecture on System z – Sample
 - Worklight Server Adapter - System z Subsystem Integration
 - CICS Subsystem Integration: JSON Support, Redbook
 - CICS Mobile - Youtube Video
 - Cloud & Mobile Computing - Nationwide

- Summary - System z meets the Mobile Challenge

- Appendix – Session VS02, DeveloperWorks Worklight Free Download

IBM Research **The 2013 Global Technology Outlook**



Mobile First



- Mobile devices are emerging as **primary design point** for end-user access to IT
- Consumer access to enterprise data creates an increasing need for enterprise-level security and control
- Mobile First is about: Behavior like **consumer** applications
 - constantly connected clients
 - quickly accomplishing single tasks and then move on
- Is accelerating the integration of cloud, social, and analytics

http://www.b2match.eu/system/softwaredays2013/files/Global-Technology-Outlook-2013_IBM.pdf?1366628169

Mobile Support Trends – ‘Mobile First’ vs. ‘Mobile Also’

‘Mobile First’ – First priority in (re-)architecting/(re-designing) applications

‘Mobile Also’ – Additional projection of back-end systems

Mobile First is driving new consumption patterns

Context Fusion

Apps are used to perform a single task, based on the user's context (role, mobile event, location, ...)

App-centric

Users increasingly demonstrate a preference for apps that are downloaded from a single trusted source over mobile web browsing

Activity Bursts

Average app usage is 72 seconds

Apps Chained

50% of mobile sessions are composed of sequences of apps, manually "integrated" by the user



http://w3.tap.ibm.com/medialibrary/media_view?id=192897

Mobile First - Mobile Applications are Not Miniature PC applications...

1
m



Mobile Applications

- User may be in the middle of some other activity (e.g. shopping in a supermarket)
- Interactions are short and may be interrupted
- Users are very impatient

Usage Context



PC Applications

- Using the application is the primary activity
- Interactions are longer and more focused
- Users are impatient

Mode of Interaction

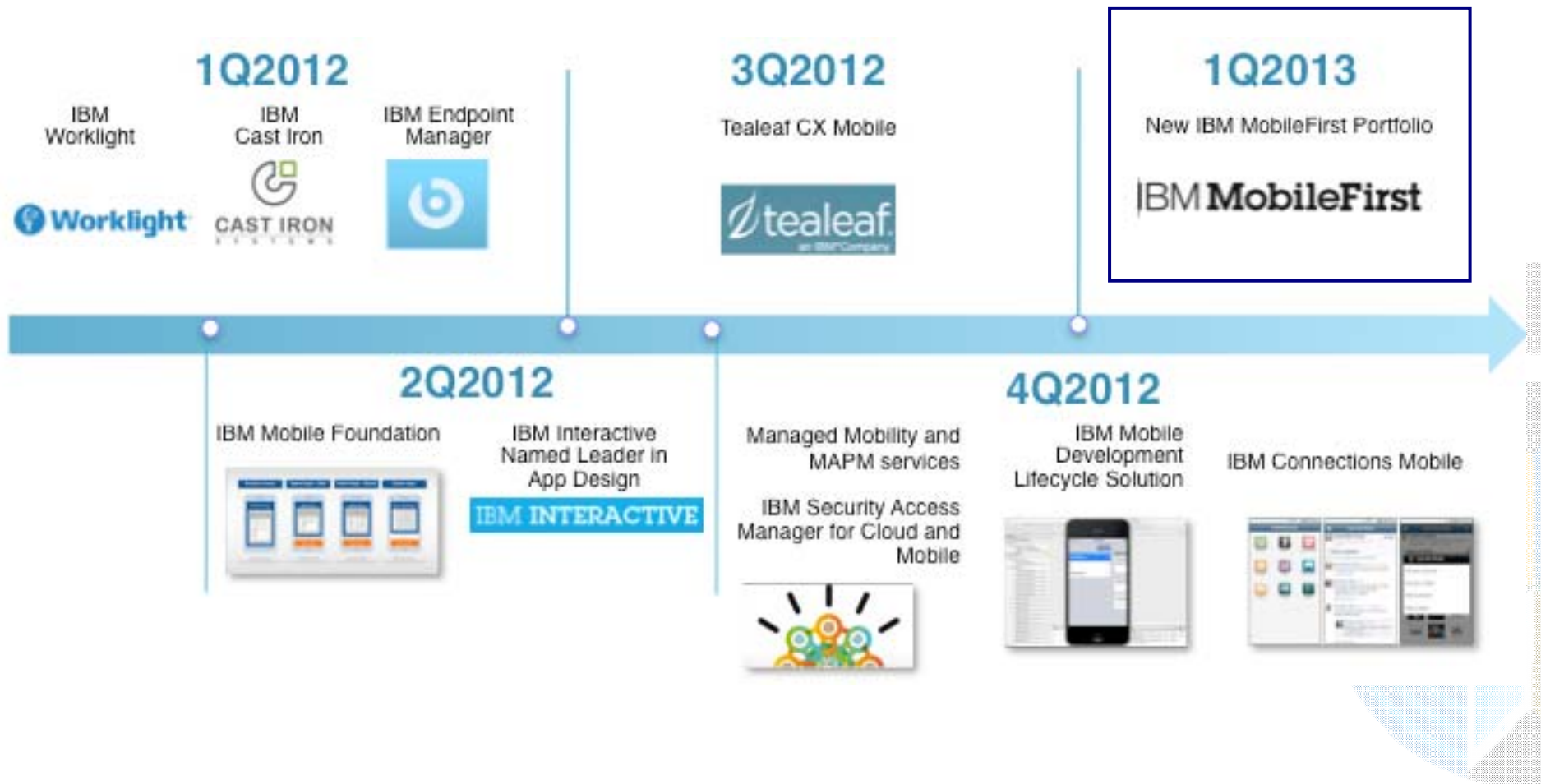
- Non-keyboard: touch prevalent, also speech
- Typing should be minimized
- Screen size/real-estate is small

- Keyboard and mouse
- Typing is okay
- Larger screen size for presenting information

Other considerations

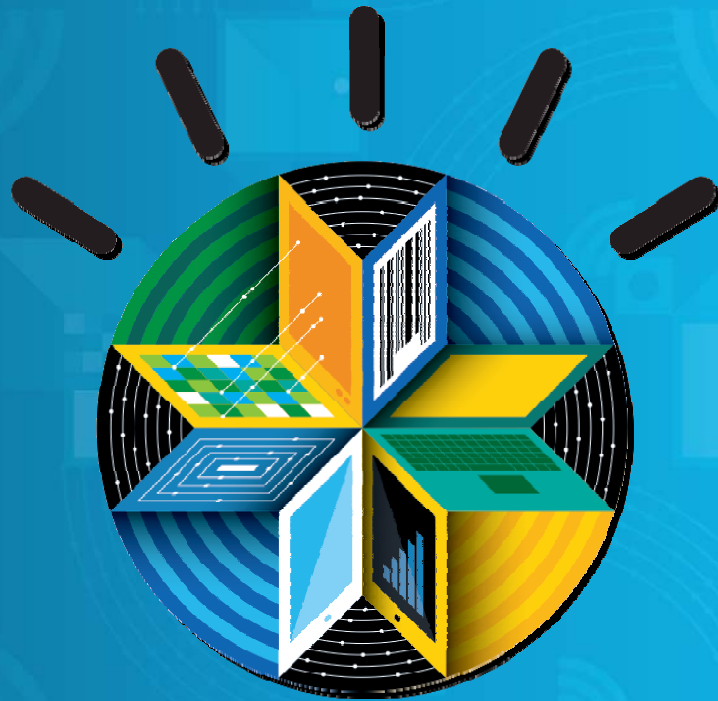
- Integration with device capabilities (e.g. camera, GPS, accelerometer)
- Offline behavior

IBM – Build up Mobile Enterprise Capabilities



IBM MobileFirst

02-2013



The Broadest Portfolio of Mobile Solutions

IBM MobileFirst Platform

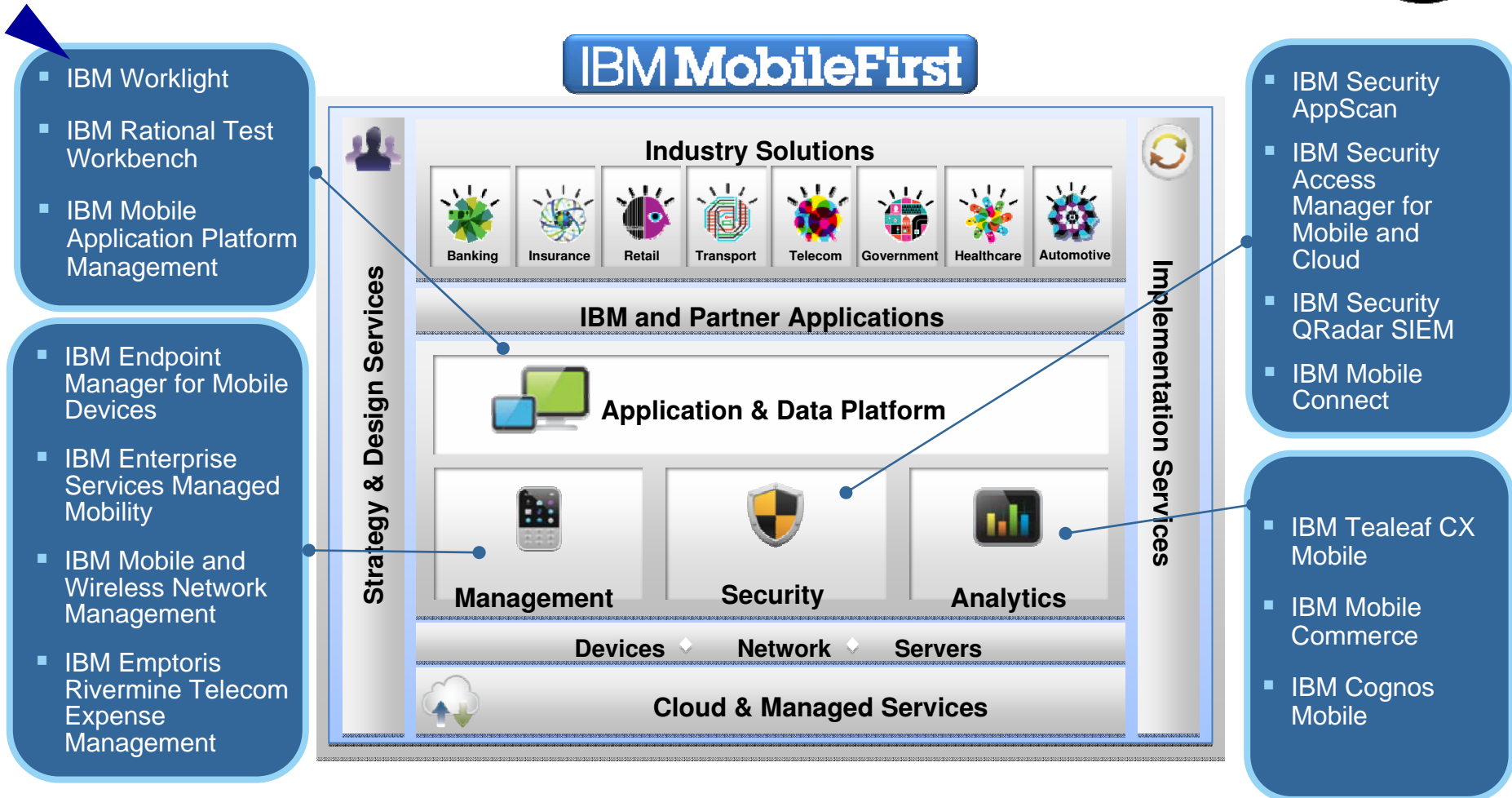
IBM MobileFirst Management

IBM MobileFirst Security

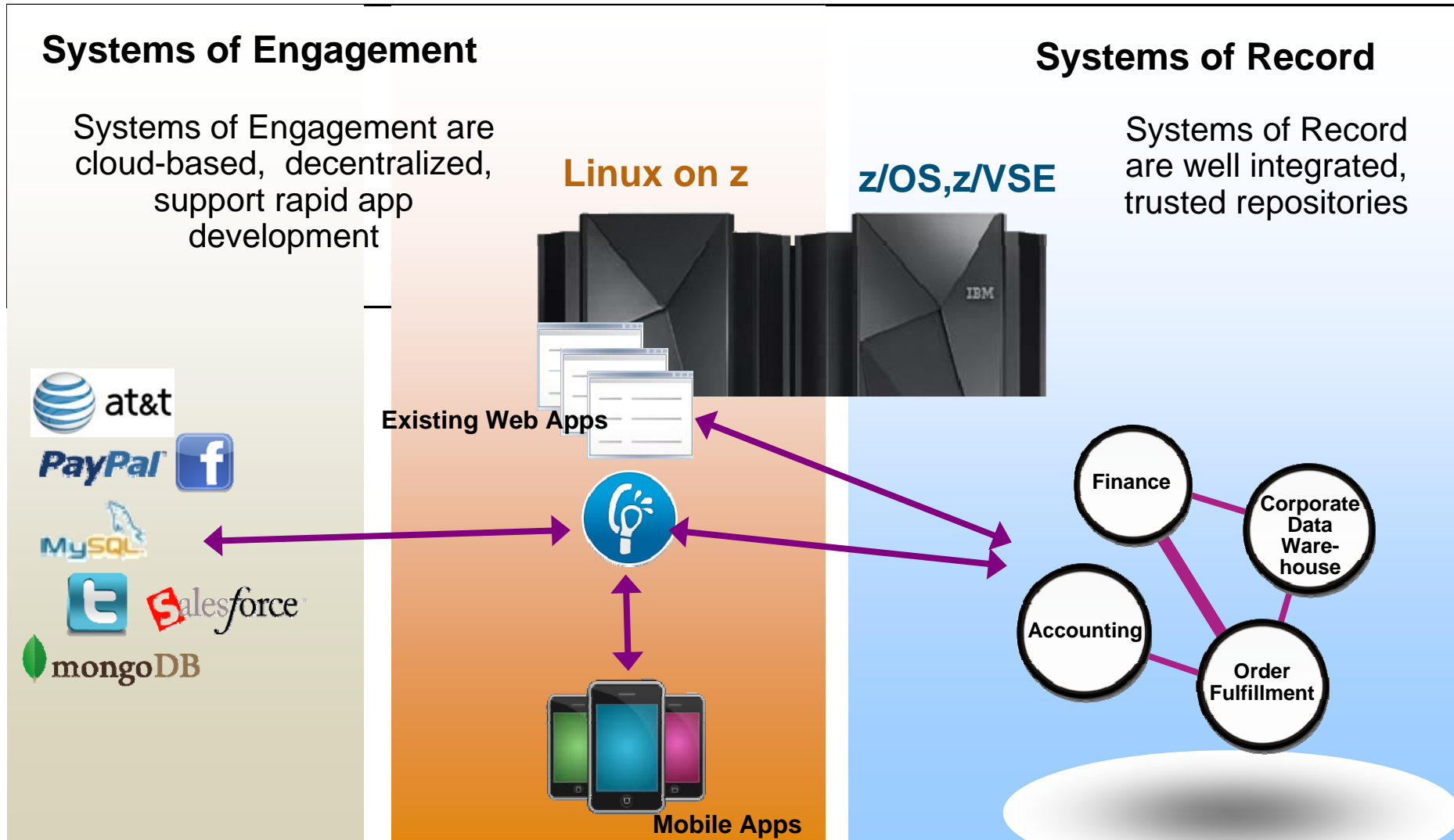
IBM MobileFirst Analytics



IBM MobileFirst



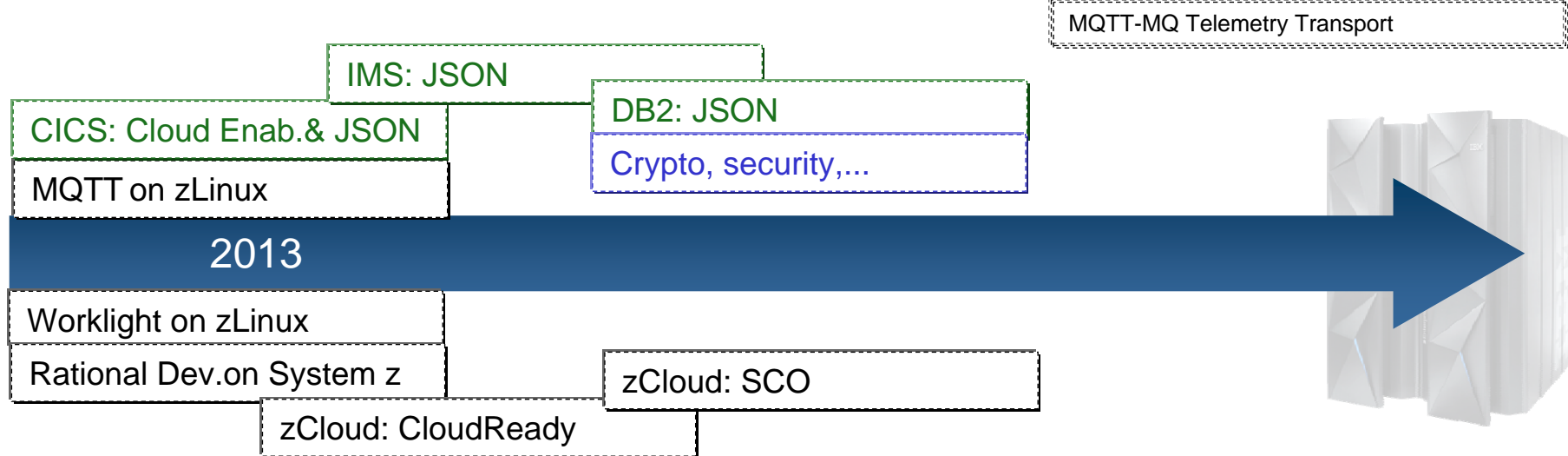
System z - Bridge Systems of Record and Engagement



IBM Mobile Strategy & Roadmap for System z

1. System of Record

- Easily consumable mobile access to z subsystems (DB2, CICS, IMS, MQ, etc)



2. System of Engagement

- zCloud as a preferred environment for mobile infrastructure
- Exploit z security and encryption for mobile apps and ensure mobile apps do not compromise z security

* SCO- Smart Cloud Orchestration

IBM Worklight - Consistent Mobile End-user Experience

Part of the IBM MobileFirst family - Mobile Application Platform for smartphones and tablets

- Simplifies the development of mobile applications ←
- across multiple mobile platforms - iOS, Android, BlackBerry, and Windows® Phone



Typical Customer Pain without Worklight:

- First mobile app was created through expensive native development by 3 parties
- No consistent user experience across mobile platforms
- No code reuse between mobile and PC environments
- User was required to install multiple apps - impossible to update existing app without redeploying the entire native app

Simplified Development – What is Difficult with Mobile Applications ?

Need to use familiar web technologies:

- HTML5, CSS, JavaScript

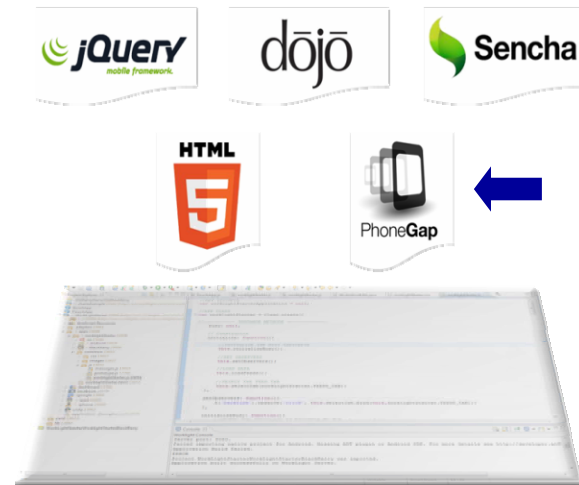
Plus (Hybrid applications)

Support all major mobile platforms with proprietary tools, languages and APIs:

- Android phones and tablets
- Windows 7 and Vista (Deprecated)
- BlackBerry 6 and 7
- BlackBerry 10
- iPad
- iPhone
- Mac OS X Dashboard (Deprecated)
- Mobile Web Application
- Windows 8 desktop and tablets
- Windows Phone 7.5
- Windows Phone 8



Leverage common HTML5 and mobile libraries/frameworks:



Libraries /Frameworks – Popular HTML5 & Mobile

Frameworks / Libraries

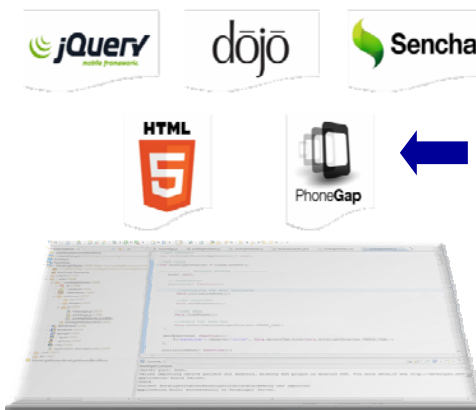
- Collection of often used JavaScript functions
 - Dojo Toolkit
 - Ext JS
 - iQuery
 - MooTools
 - Prototype
 - Qooxdoo
 - Yahoo! UI Library

Mobile Frameworks Comparison Chart

Framework	iOS (Webkit)	Android (Webkit)	Windows Mobile (Trident)	Windows Phone (Trident)	Blackberry OS (Webkit)	Accelerometer ?	Camera ?	Capture ?	Compass ?
GWT mobile webkit + qwt mobile ui*	✓	✓	✗	✗	✗	✓	✓	✓	✓
CNET iPhone UI*	✓	✓	✗	✗	✓	✗	✗	✗	✗
Apache Flex	✓	✓	✗	✗	✓	✓	✓	✓	✓
Appcelerator Titanium Mobile*	✓	✓	✗	✗	✗	✓	✓	✓	✓
JQ Touch*	✓	✓	✗	✗	✗	✗	✗	✗	✗
iUI*	✓	✓	✗	✗	✓	✗	✗	✗	✗
Jo HTML5 Mobile App Framework*	✓	✓	✗	✗	✗	✗	✗	✗	✗
jQuery Mobile*	✓	✓	✓	✓	✓	✗	✗	✗	✗
Rhodes*	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quick Connect*	✓	✓	✗	✗	✗	✓	✓	✗	✓
Phone Gap*	✓	✓	✗	✗	✓	✓	✓	✓	✓
Sencha Touch*	✓	✓	✗	✗	✓	✗	✗	✗	✗

Provides access to the device's motion sensor.

Worklight Frameworks



Mobile Framework - PhoneGap

PhoneGap is a mobile development framework from Adobe Systems

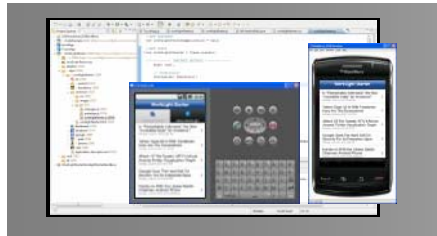
It enables software programmers to build applications for mobile devices using JavaScript, HTML5 and CSS3, instead of device-specific languages.

SW underlying PhoneGap is **Apache Cordova** which is open source software

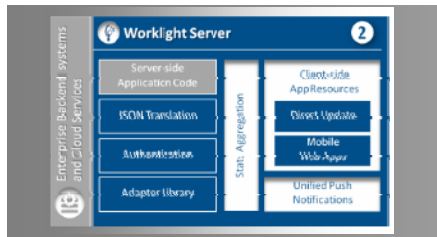
Feature	iPhone /iPhone 3G	iPhone 3GS and newer	Android 1.0 – 4.2	Windows Phone	4.6–4.7	5.x–6.0+	Bada	Symbian	web OS	Tizen
Accelerometer	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes
Camera	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes
Compass	N/A	Yes	Yes	Yes	N/A	N/A	Yes	N/A	Yes	Yes
Contacts	Yes	Yes	Yes	Yes	N/A	Yes	Yes	Yes	N/A	N/A
File	Yes	Yes	Yes	Yes	N/A	Yes	N/A	N/A	N/A	N/A
Geolocation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Media	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	Yes
Network	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Notification (alert)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Notification (sound)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Notification (vibration)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
Storage	Yes	Yes	Yes	Yes	N/A	Yes	N/A	Yes	Yes	Yes
Barcode scanner	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A	N/A	N/A



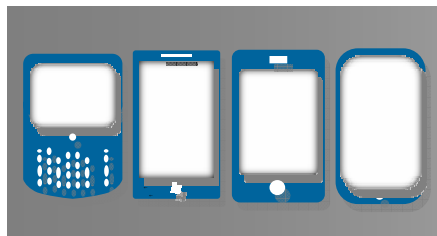
Worklight overview



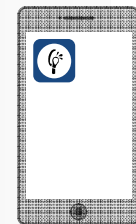
Worklight Studio
 The most complete, extensible environment with maximum code reuse and per-device optimization



Worklight Server
 Unified notifications, runtime skins, 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



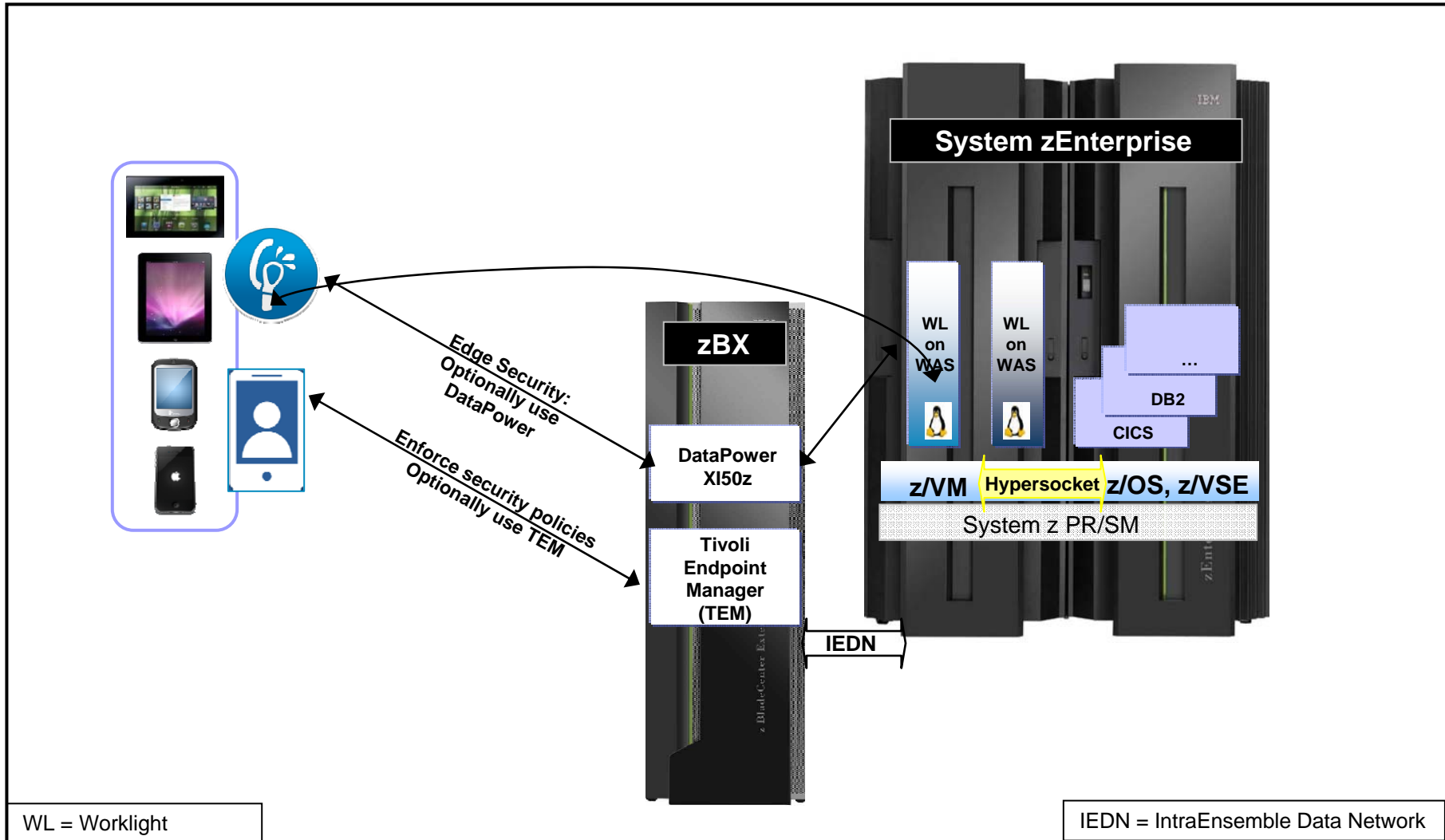
Worklight Platform Support

Worklight Server

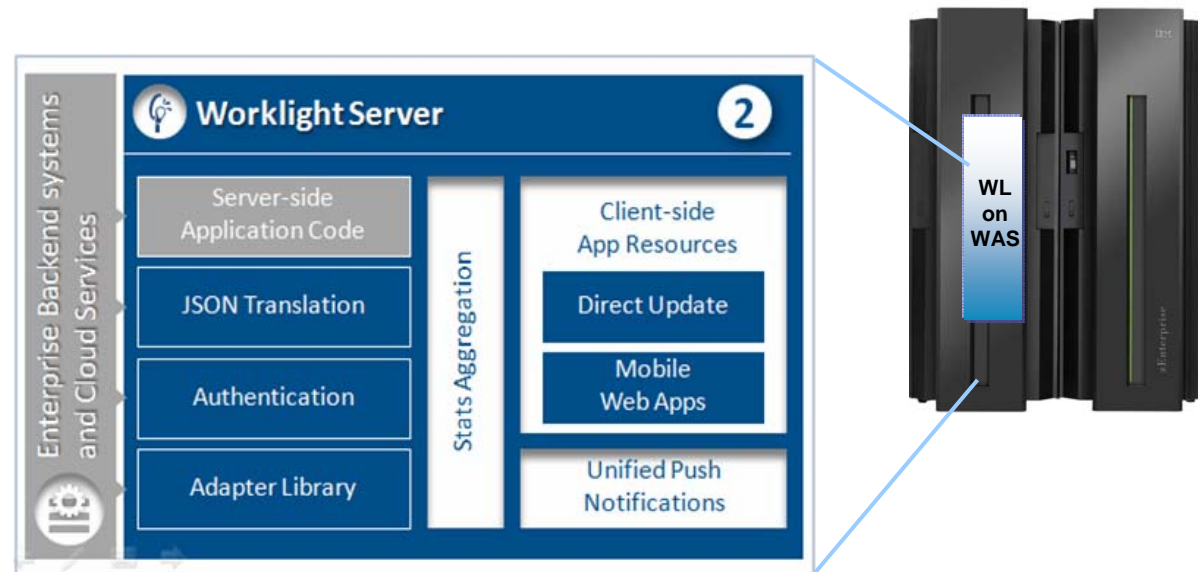
- Supported application server
 - WebSphere 7 & 8 (Distributed | zLinux)
 - WebSphere 8.5 Liberty Profile (included for Dev only), ND/Base (not included)
 - Apache Tomcat 7 (Linux | Windows | Mac OS X [development])
- Supported databases
 - DB2 Enterprise Server Edition V9.7 or later (DB2 LUW)
 - Apache Derby, SDK 10.8 (included), or later
 - Oracle 11g Database server, Standard or Enterprise Editions, release 1 or later
 - MySQL 5.1
- Supported OS
 - z/Linux SLES 10,11, RHEL 5,6.
 - See URL below for more.

<http://pic.dhe.ibm.com/infocenter/prodguid/v1r0/clarity-reports/report/html/prereqsForProduct?deliverableId=1322605181306>

High Level Mobile Architecture on System z - Sample



Worklight Server



Worklight Server is a **WebSphere Application Server (WAS)/Java application**, supported on **System z Linux** – WAS 7, 8, 8.5 on SLES 10, 11, and RHEL 5, 6

Adapters are used to communicate to back-end services like databases, transaction systems, MQ, etc.

Performs protocol mediation - [JSON](#) is used to communicate to mobile devices – translation is done to HTTP or Web Services that are used by server components.

Worklight Video: http://www.youtube.com/watch?feature=player_embedded&v=zHnFw70XXXo

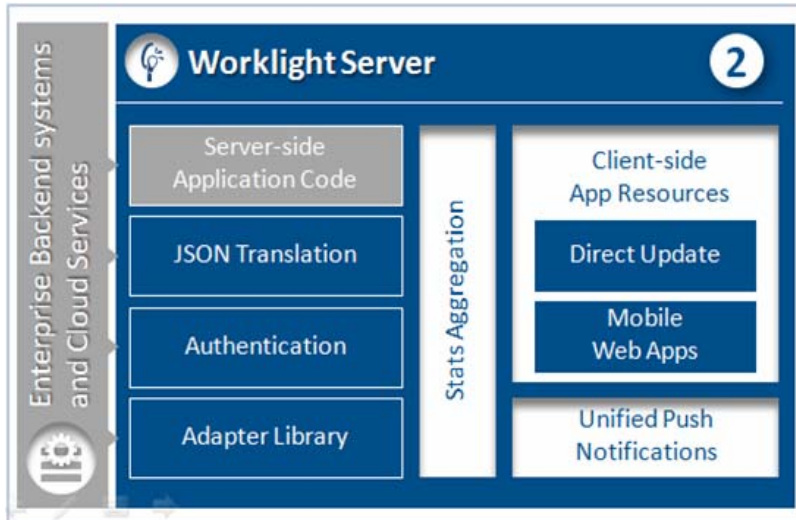
JSON – JavaScript Object Notation

<http://en.wikipedia.org/wiki/JSON>-6-2013

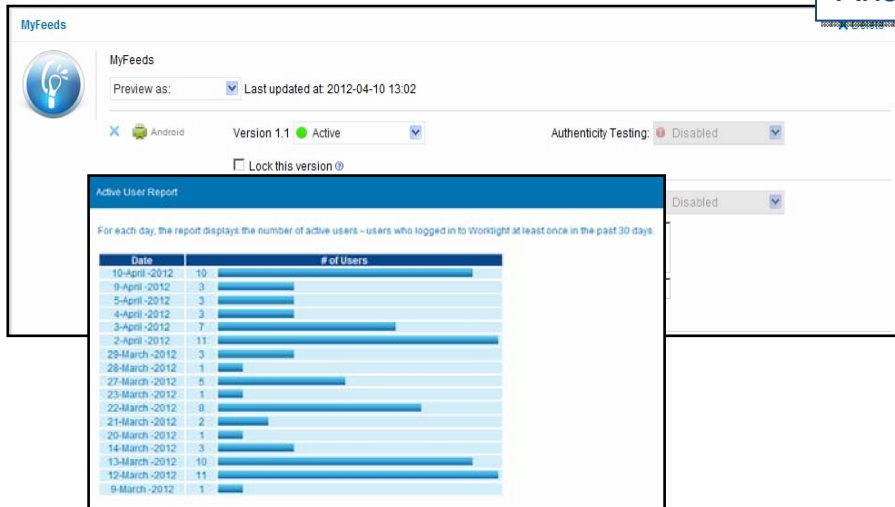
- **JavaScript Object Notation (JSON) - Human-readable data interchange**
- Open standard - derived from the JavaScript for representing simple data structures
- Used together with JavaScript on Demand (JOD), Ajax or WebSockets for transmission of data between client and server



Worklight Server - Functions



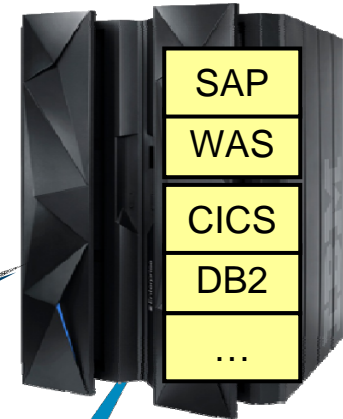
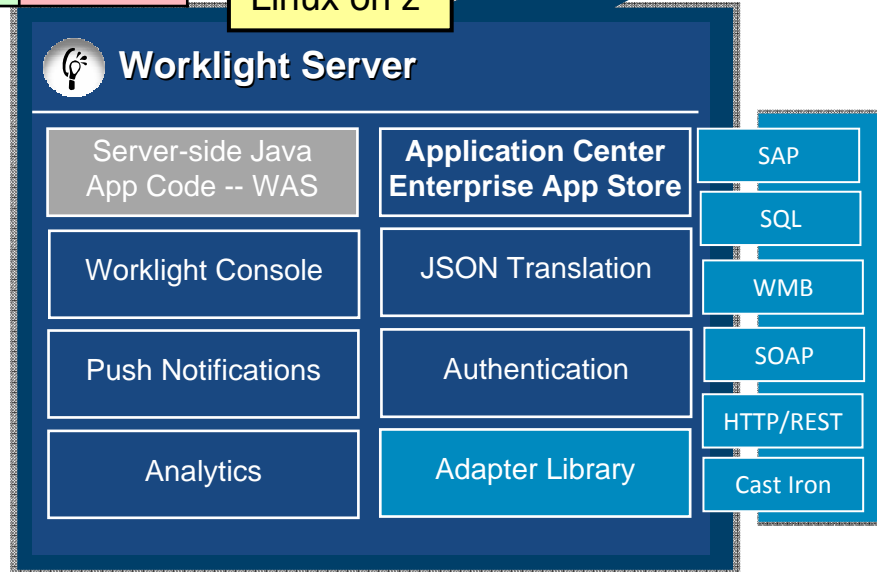
- Adapters with support for SAP, SOAP, REST, SQL, JMS, CASTIRON, LDAP and more
- Performs Data Transformation to streamline back-end data for mobile consumption
- Server and device Security control
- Controls Application Deployment and **Versioning**
- Push Notification administration
- Analytics including user adoption and usage data



Worklight Server Adapter - System z Subsystem Integration

Subsystem	JDBC?	SOAP?	JSON?
DB2	YES	N/A	Soon
CICS		YES	YES
IMS	YES	YES	Soon
TPF		YES	No

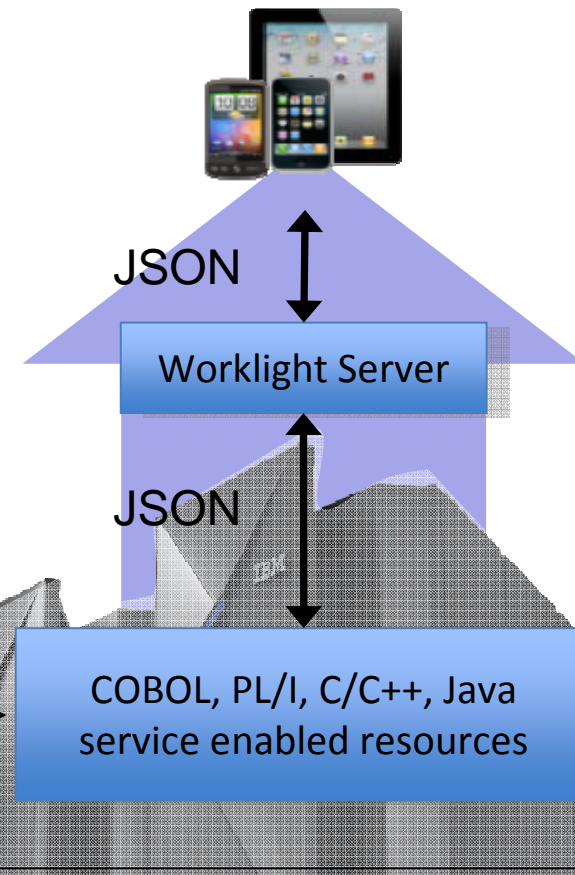
Linux on z



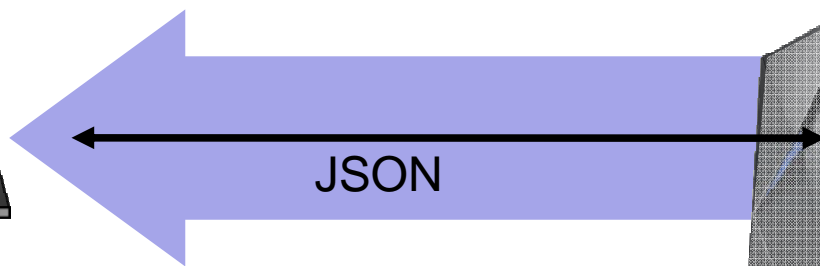
CICS Subsystem Integration: JSON Support

- Simplify delivery of CICS services to mobile devices.
- RESTful service pipeline to accept JSON in HTTP body
 - Converts JSON to COBOL, C/C++, PL/I application data for easy consumption

Worklight-CICS scenario



Direct to CICS scenario

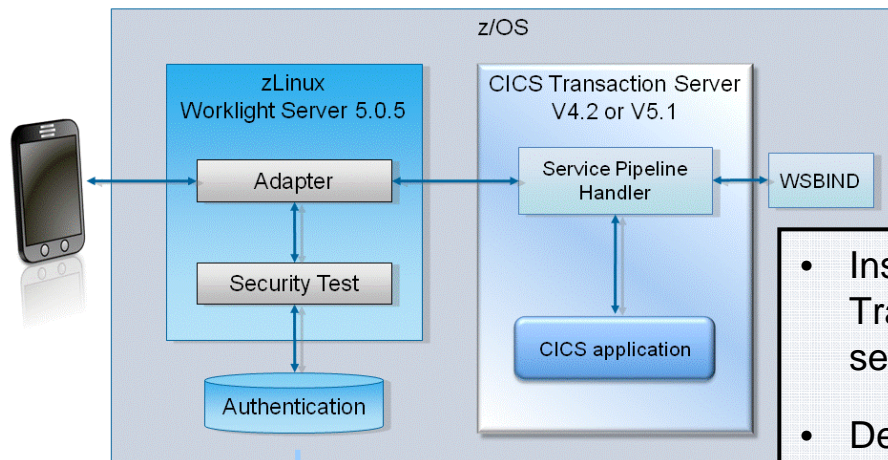


IBM CICS TS Feature Pack for Mobile Extensions - <http://www-01.ibm.com/support/docview.wss?uid=swg21634685>

Implementing CICS JSON web services for mobile applications

Includes architectural patterns and example scenarios

Integration with IBM Worklight



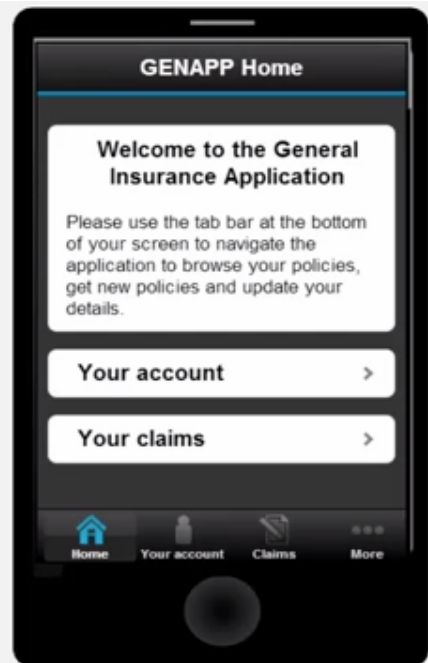
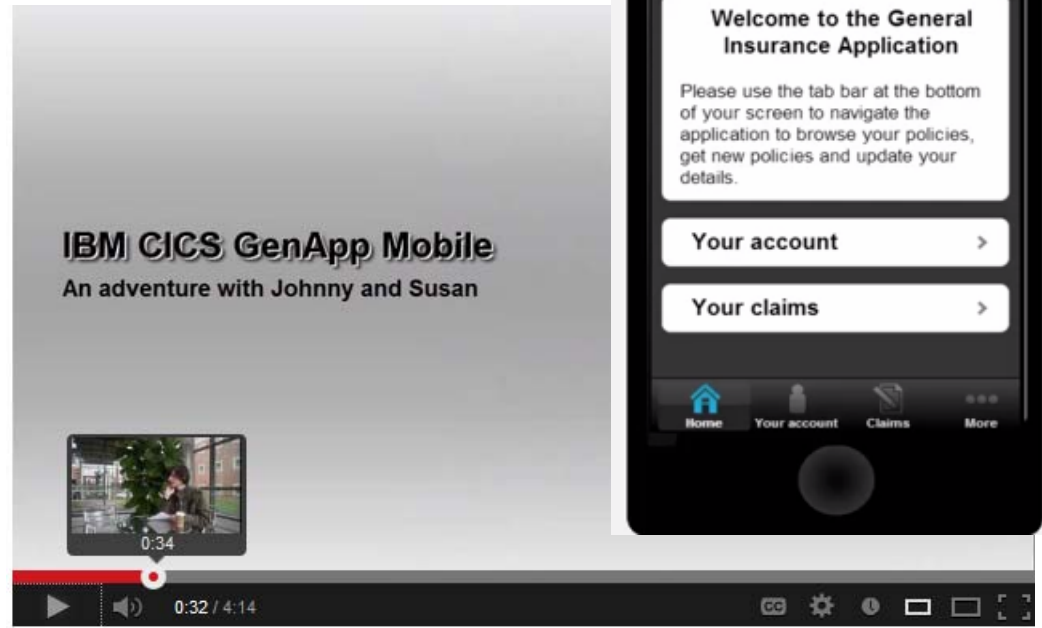
- Instructions to connect mobile devices to IBM CICS Transaction Server - **exploiting** existing CICS enterprise services
- Develop new services supporting **new lines of business**
- Develop, configure, and deploy a mobile application that connects:
 - either directly to CICS Transaction Server
 - or to CICS via IBM Worklight® Server

<http://www.redbooks.ibm.com/redpieces/abstracts/sg248161.html?Open>

CICS Mobile - Youtube Video

Home screen

- Worklight allows you to construct standard interface components that work across all mobile platforms
- Build powerful interfaces that drive existing mainframe applications written in C/C++, COBOL, PL/I, and Java



CICS Mobile

CICS Hursley - 67 Videos

Abonnieren 123

287 Aufrufe

Mag ich Info Teilen Hinzufügen

Veröffentlicht am 23.04.2013

Learn about the new CICS TS features for mobile devices in this video, made by CICS Mobile developers at the IBM Hursley Software Development Laboratory.

Mehr anzeigen

http://www.youtube.com/watch?v=jc7d1o4_gj0

Cloud and Mobile Computing

- Consolidated distributed server landscape to **Linux virtual servers running on IBM zEnterprise**
- Created multi-platform private cloud optimized for all workloads

<http://youtu.be/ZygaG7noaDE>

- If you're a Nationwide® customer, **Nationwide Mobile** can help you pay your bill, contact your agent, get an auto policy quote or start the **claims process**



<https://play.google.com/store/apps/details?id=com.nationwide.mobile.android.nwmobile&hl=en>

Summary - System z meets the Mobile Challenge

- **Mobile First** – Mobile devices enable new business opportunities
 - **System z System of Record**: sub-systems as well as system management SW are being prepared for mobile access
 - CICS TS Feature Pack for Mobile Extensions
 - Upcoming IMS JSON support
 - Rational Developer with Worklight Toolkit
 -
- Mobile Support Server will become a **business critical** application
 - **System z RAS** (Reliability-Availability-Serviceability) capabilities make business sense
 - z/VM Scalability – management of huge spikes in concurrent mobile access invocations
 - ...
- Security will become key challenge
 - Worklight Server on System z Linux runs where the business data & transactions reside
 - Leverage hipersocket, IEDN (Intra Ensemble Data Network) for back-end system communication
 - ...

60%

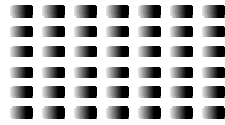
of large companies are making their internal line-of-business applications accessible to workers on smart phones and tablets.



There will be more mobile phones than humans by 2015.

The 2013 Global Technology Outlook

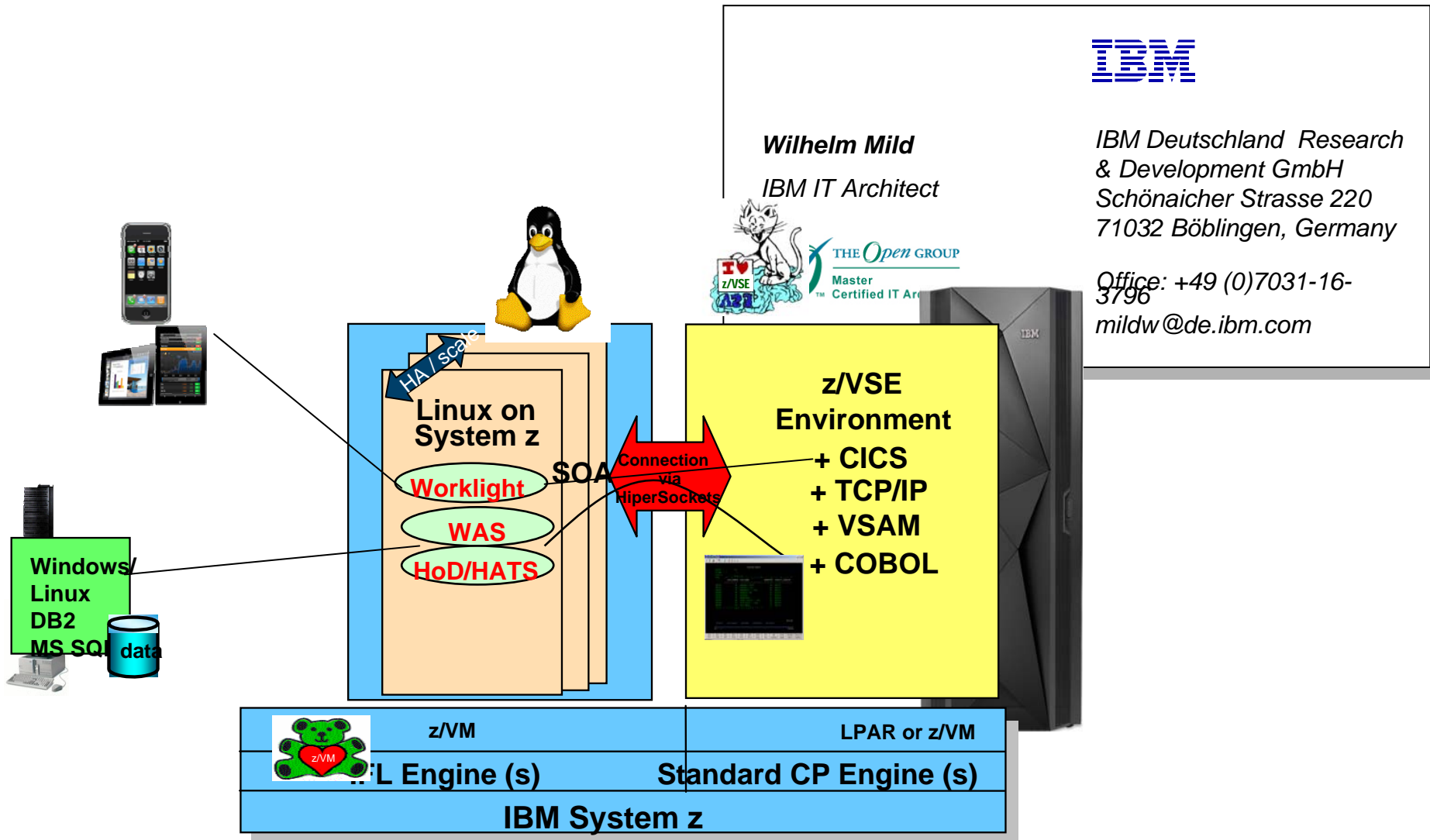
Appendix



IBM

11:30-12:15 VS02 – Mobile Computing mit z/VSE Anwendungen
 Wilhelm Mild, IBM R & D

GE



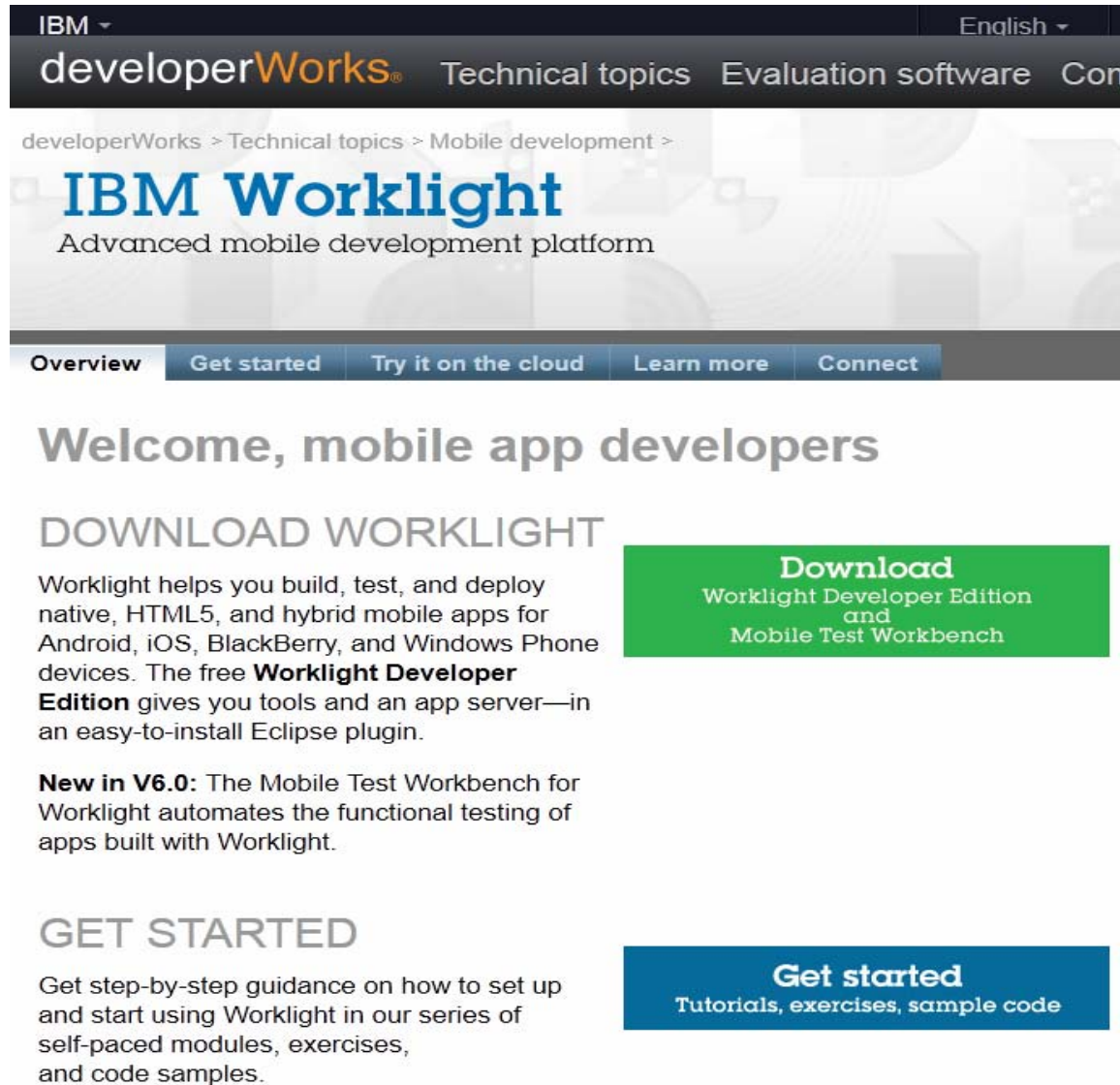
Wilhelm Mild
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 & Development GmbH
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 71032 Böblingen, Germany

Office: +49 (0)7031-16-3796
 mildw@de.ibm.com

Free DeveloperWorks Download



The screenshot shows the IBM DeveloperWorks website for IBM Worklight. At the top, there is a navigation bar with 'IBM' and 'English' dropdown menus. Below this is a breadcrumb trail: 'developerWorks > Technical topics > Evaluation software > Con'. The main heading is 'IBM Worklight' in large blue letters, with the subtitle 'Advanced mobile development platform' below it. A navigation bar contains five buttons: 'Overview', 'Get started', 'Try it on the cloud', 'Learn more', and 'Connect'. The main content area features a large heading 'Welcome, mobile app developers' followed by a sub-heading 'DOWNLOAD WORKLIGHT'. The text describes Worklight's capabilities for building, testing, and deploying native, HTML5, and hybrid mobile apps for Android, iOS, BlackBerry, and Windows Phone devices. It highlights the 'Worklight Developer Edition' as a free tool and app server. A green button labeled 'Download' offers the 'Worklight Developer Edition and Mobile Test Workbench'. Below this, a section titled 'New in V6.0:' mentions the 'Mobile Test Workbench' for automating functional testing. Another section titled 'GET STARTED' offers step-by-step guidance. A blue button labeled 'Get started' provides 'Tutorials, exercises, sample code'.

IBM English

developerWorks® Technical topics Evaluation software Con

developerWorks > Technical topics > Mobile development >

IBM Worklight

Advanced mobile development platform

Overview Get started Try it on the cloud Learn more Connect

Welcome, mobile app developers

DOWNLOAD WORKLIGHT

Worklight helps you build, test, and deploy native, HTML5, and hybrid mobile apps for Android, iOS, BlackBerry, and Windows Phone devices. The free **Worklight Developer Edition** gives you tools and an app server—in an easy-to-install Eclipse plugin.

New in V6.0: The Mobile Test Workbench for Worklight automates the functional testing of apps built with Worklight.

GET STARTED

Get step-by-step guidance on how to set up and start using Worklight in our series of self-paced modules, exercises, and code samples.

Download
Worklight Developer Edition
and
Mobile Test Workbench




Get started
Tutorials, exercises, sample code

<http://www.ibm.com/developerworks/mobile/worklight/>

DeveloperWorks - Install

Install Details

Review the items to be installed.

Name	Version	Id
▶  IBM Dojo Mobile Tools	5.0.6100.2013041601...	com.ibm.imp.dojo.tools.feature.feature.group
▶  IBM jQuery Mobile Tools	5.0.6100.2013041601...	com.ibm.webtools.jquery.tools.feature.feature...
▶  IBM Worklight Studio	5.0.6100.2013041601...	com.ibm.imp.tools.feature.feature.group

Getting started with IBM Worklight V6.0

Use Worklight V6.0 to build, test, deploy, and manage your smartphone and tablet apps for iOS, Android, Blackberry, and Windows Phone devices. The self-paced modules (PDF files), exercises, and sample code on this page will get you started.



Table of contents

1. [Setting up your environment](#)
2. [Hello Worklight](#)
3. [Client-side development basics](#)
4. [Server-side development](#)
5. [Advanced client-side development](#)
6. [Adding native functionality to hybrid apps with Cordova](#)
7. [Developing native apps](#)
8. [Authentication and security](#)
9. [Advanced topics](#)
10. [Moving to production](#)
11. [Integrating with other products](#)
12. [Developing with Dojo Mobile](#)

DeveloperWorks – Getting Started

Learn how to set up your development environment to work with IBM Worklight.

Self-paced modules

- [Setting up your Worklight development environment](#)
- [Setting up your iOS development environment](#)
- [Setting up your Android development environment](#)
- [Setting up your BlackBerry 6 and 7 development environment](#)
- [Setting up your BlackBerry 10 development environment](#)
- [Setting up your Windows Phone 7.5 development environment](#)
- [Setting up your Windows Phone 8 development environment](#)



ADT (Android Developer Tools)



Android 4.2.2 (API 17)

Android SDK Manager			
Packages	Tools		
SDK Path: C:\Users\IBM_ADMIN\android-sdks			
Packages			
Name	API	Rev.	Status
<input type="checkbox"/> Tools			
<input type="checkbox"/> Android SDK Tools		22	Installed
<input type="checkbox"/> Android SDK Platform-tools		17	Installed
<input checked="" type="checkbox"/> Android SDK Build-tools		17	Not installed
<input type="checkbox"/> Android 4.2.2 (API 17)			
<input checked="" type="checkbox"/> Documentation for Android SDK	17	2	Not installed
<input checked="" type="checkbox"/> SDK Platform	17	2	Installed
<input checked="" type="checkbox"/> Samples for SDK	17	1	Not installed
<input type="checkbox"/> ARM EABI v7a System Image	17	2	Not installed
<input type="checkbox"/> Intel x86 Atom System Image	17	1	Not installed
<input type="checkbox"/> MIPS System Image	17	1	Not installed
<input type="checkbox"/> Google APIs	17	3	Not installed
<input type="checkbox"/> Sources for Android SDK	17	1	Not installed

<http://developer.android.com/sdk/index.html>

System z – Meeting the mobile challenge

- System z – Meeting the Mobile Challenge: <http://www-01.ibm.com/software/os/systemz/mobility/>
- InfoCenter IBM Worklight: http://pic.dhe.ibm.com/infocenter/wrklight/v5r0m5/index.jsp?topic=%2Fcom.ibm.help.doc%2Fwl_home.html
- University of Florida – Helping students with mobile app based on CICS: http://www-01.ibm.com/software/success/cssdb.nsf/CS/CPAR-8Z8N47?OpenDocument&Site=default&cty=en_us&lc&lc
- IBM Remote. App you can use to manage z HMC. <http://ibmremote.com>

IBM Software > IBM Software for System z >

Meeting the mobile challenge

IBM Software for System z delivers the security, systems connectivity, and development capabilities to meet tough enterprise mobile requirements



Thank You!



Prawirakusumah, Claudia

IBM employee, Regular

IBM Deutschland RD GmbH

IBM Client Center - System z Cloud & Mobile Computing