Mobile Connectivity Architectures and Design Alternatives for System z

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The business environment is shifting…

…and a new era of computing is emerging

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Mobile is Changing Conventions for Industries

Healthcare

From:

Traditional health institution

To:

Seamless interactions among physicians and providers, improving quality of care, patient safety and efficiency improving patient experience

Financial Institutions

From:

Traditional ATMs

To:

Mobile payment opportunity

Government

From:

Sitting in traffic jams

To:

Real-time re-direction to optimal routes using mobile info

Community with Customer Apps on Worklight

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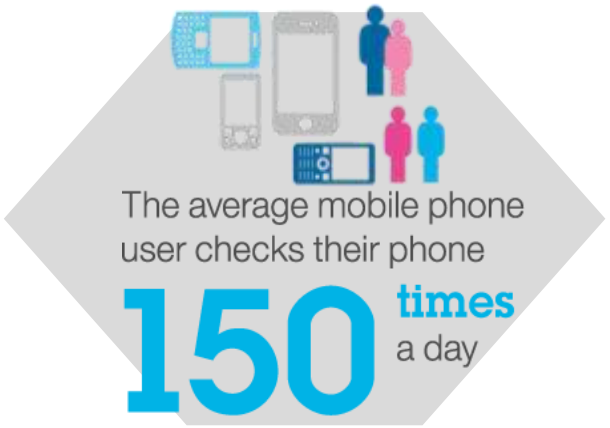
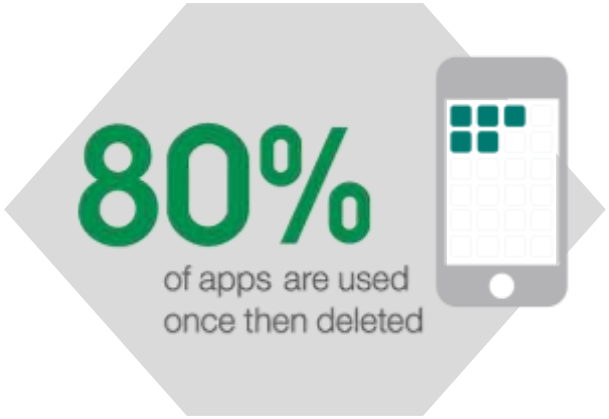
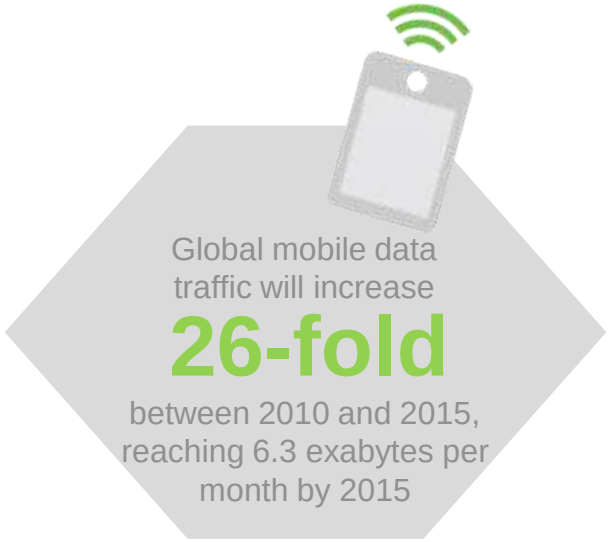
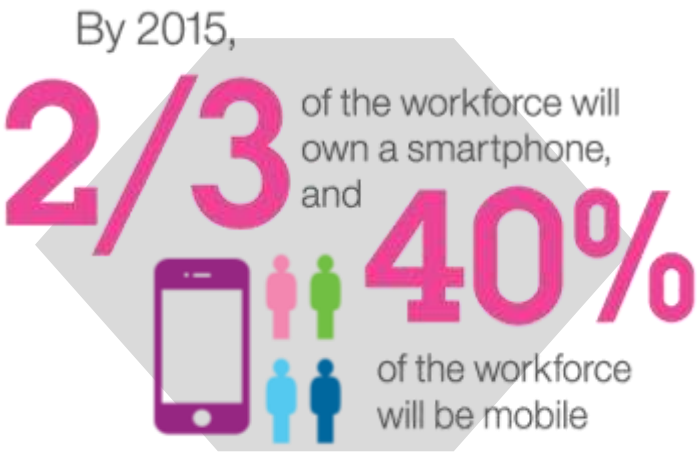
Mobile is Changing Interactions and How Work Gets Done









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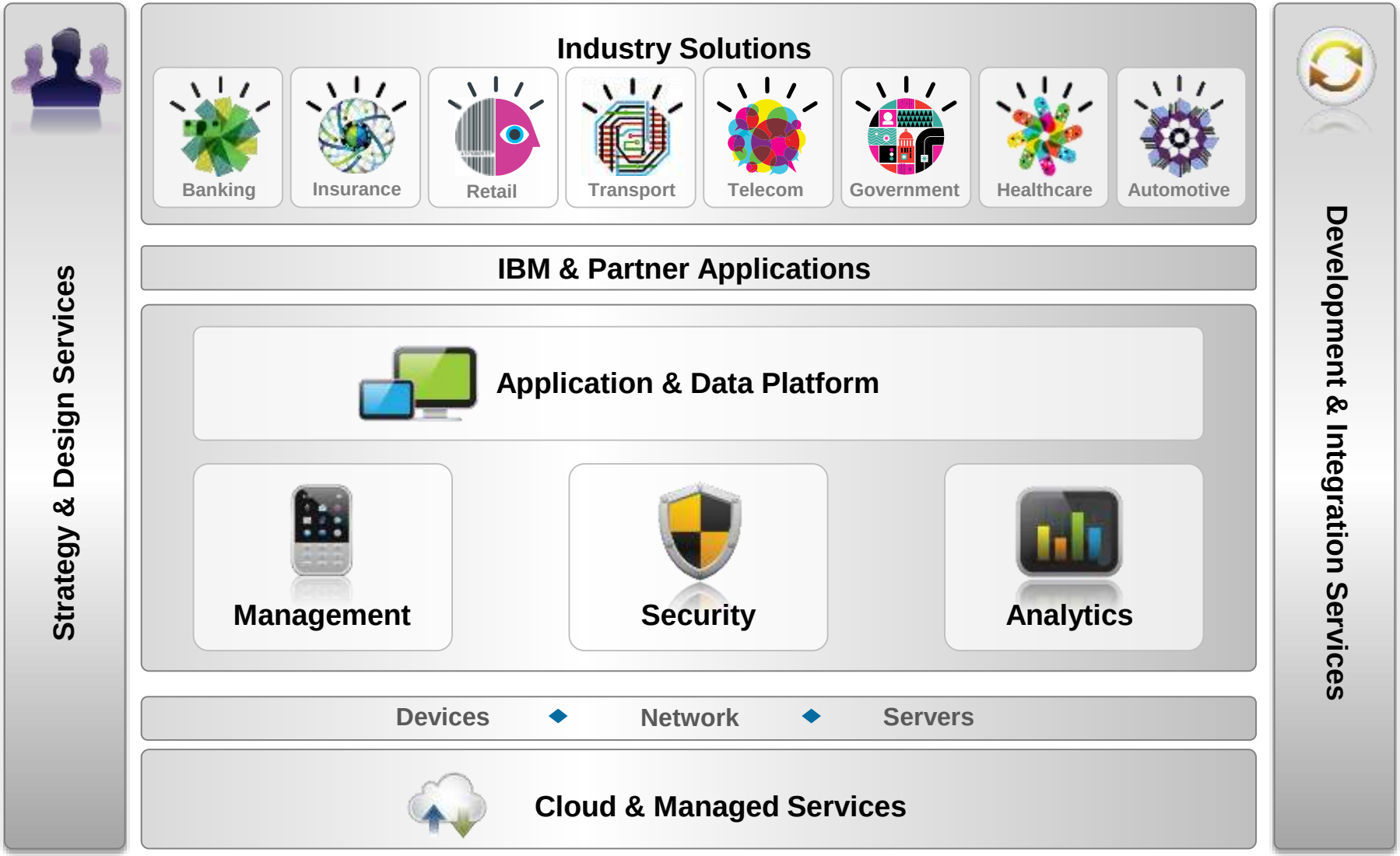
IBM positioning to solve the Mobilizing challanges

MobileFirst Platform – An Enterprise Blueprint

A rich portfolio for Mobile industry solutions and strategy



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What about the mainframe?

The mainframe…

- Home to business critical applications and data

- How do we bridge the gap?

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IBM MobileFirst Platform and System z

Infrastructure matters:

Scaling to meet mobile, Availability and Reliability

Integrating Mobile:

What's old gets new interface

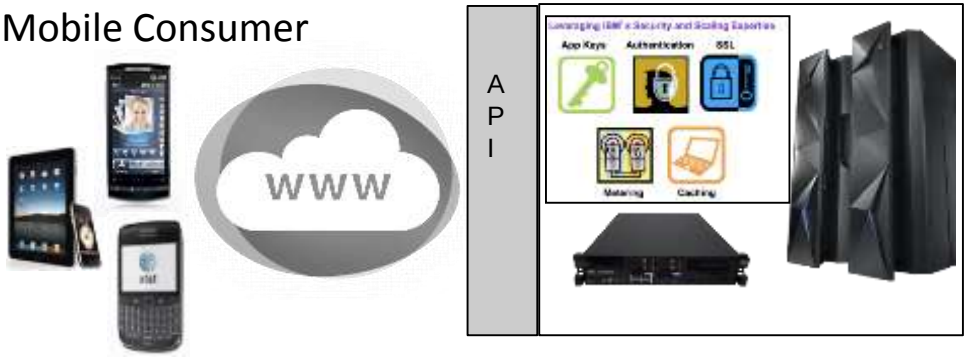
Security:

Mobile is different

End-to-end security for every transaction

Public Exposure:

Introducing your new services and a new business model



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System z - Bridge Systems of Record and Systems of Engagement

Systems of Engagement

Systems of Engagement are cloud-based, decentralized, support rapid app development

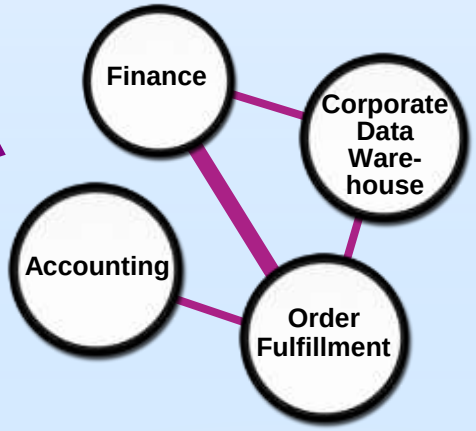
Systems of Record

Systems of Record are well integrated, trusted repositories

Existing Web Apps

Mobile Environment
- Worklight -

Mobile Apps



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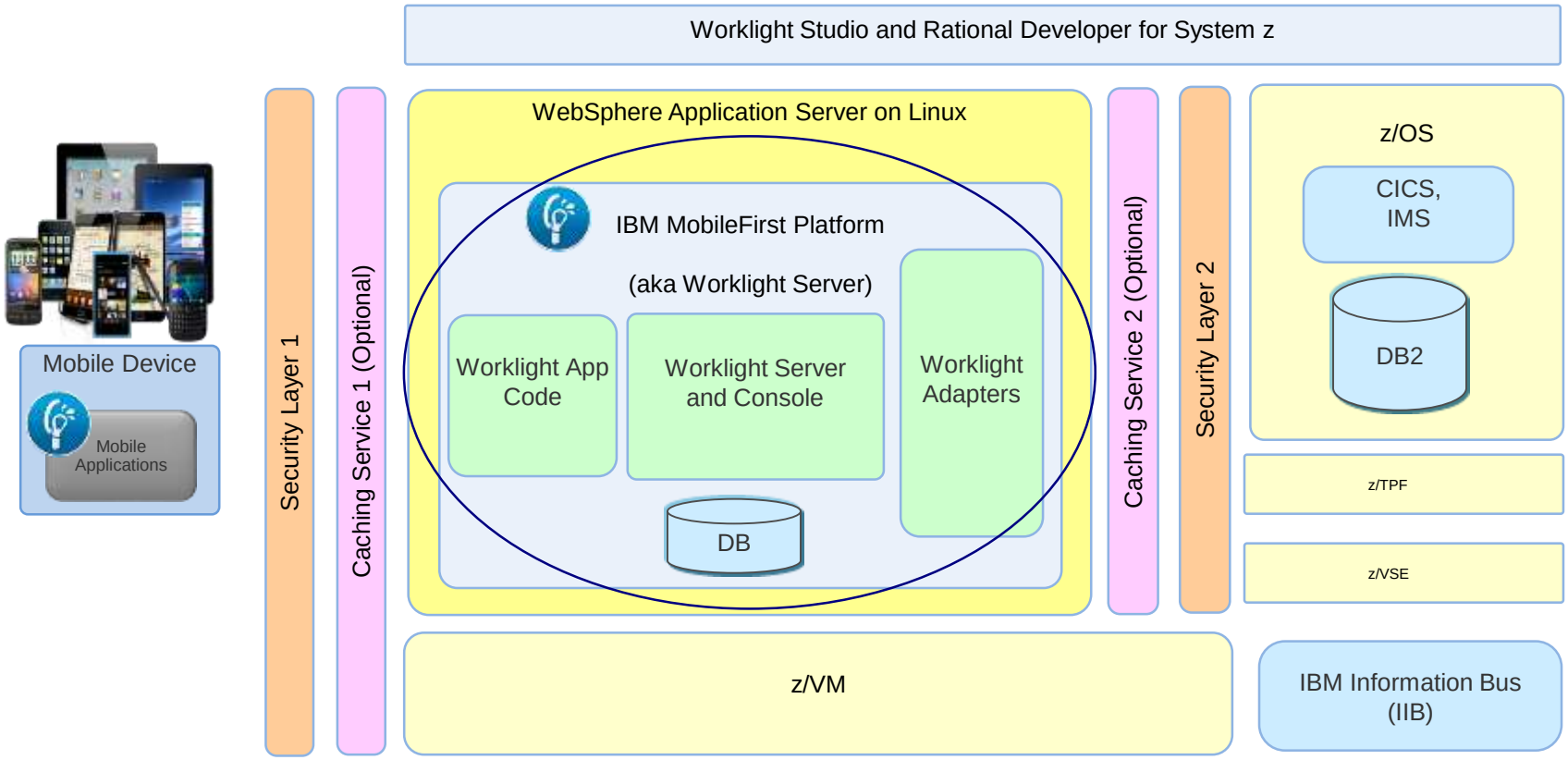
Mobile Reference Architecture Overview for System z



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IBM MobileFirst Platform

A rich portfolio for mobile industry solutions and strategy

New Product Release and Rebranding Announced 11.11.2014

Announced Availability:
- December 5, 2014: Available for download
- December 12, 2014: General availability

MobileFirst Platform - formerly *IBM Worklight* includes following components:

- MobileFirst Platform Foundation
- MobileFirst Platform Quality Assurance
- MobileFirst Platform Application Scanning

The core capabilities of the MobileFirst Platform Foundation are also available on SoftLayer through the MobileFirst Platform Foundation Private Cloud. **IBM MobileFirst Platform**

MobileFirst Platfrom Foundation for iOS
An objective of the Apple and IBM partnership is to transform enterprise mobility through MobileFirst for iOS solutions

http://www-01.ibm.com/common/ssi/cgi-bin/ssialias?subtype=ca&infotype=an&appname=iSource&supplier=897&letternum=ENUS214-344

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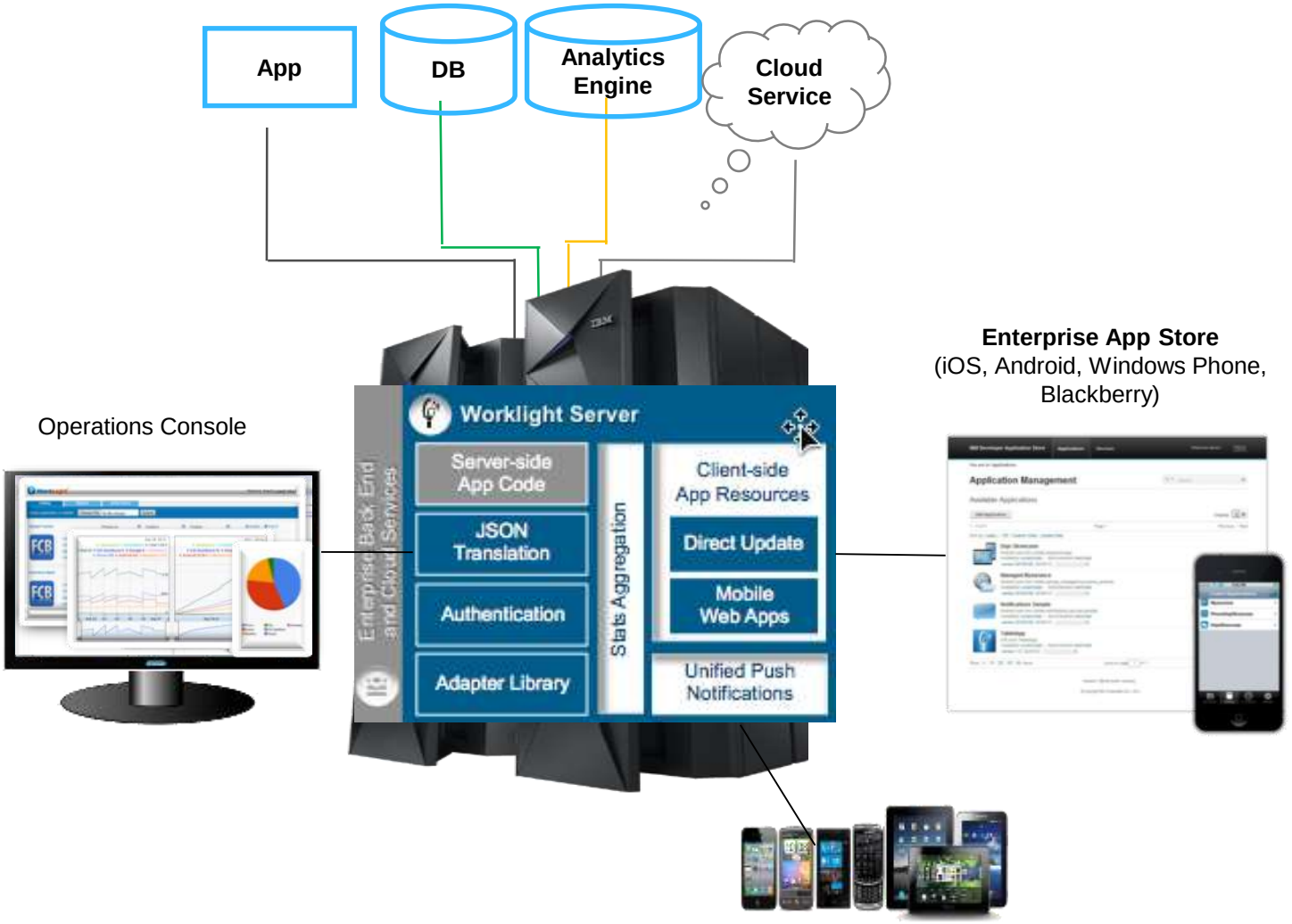
IBM MobileFirst Platform, the control point for mobile access to enterprise transactional and data services

Caching, authentication, mobile application management and push notifications



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IBM MobileFirst Platform on System z

Mobile Devices

- iOS
- Android
- Blackberry
- Windows Phone

Systems of Engagement

MobileFirst Platform
Worklight

Mobile Enterprise Application Platform (MEAP)

- Push updates
- Security
- Back-end connectivity
- Mobile Analytics
- App Center

Systems of Record

- CICS
- DL/I IMS
- SOA / WMQ
- DB2
- Analytics

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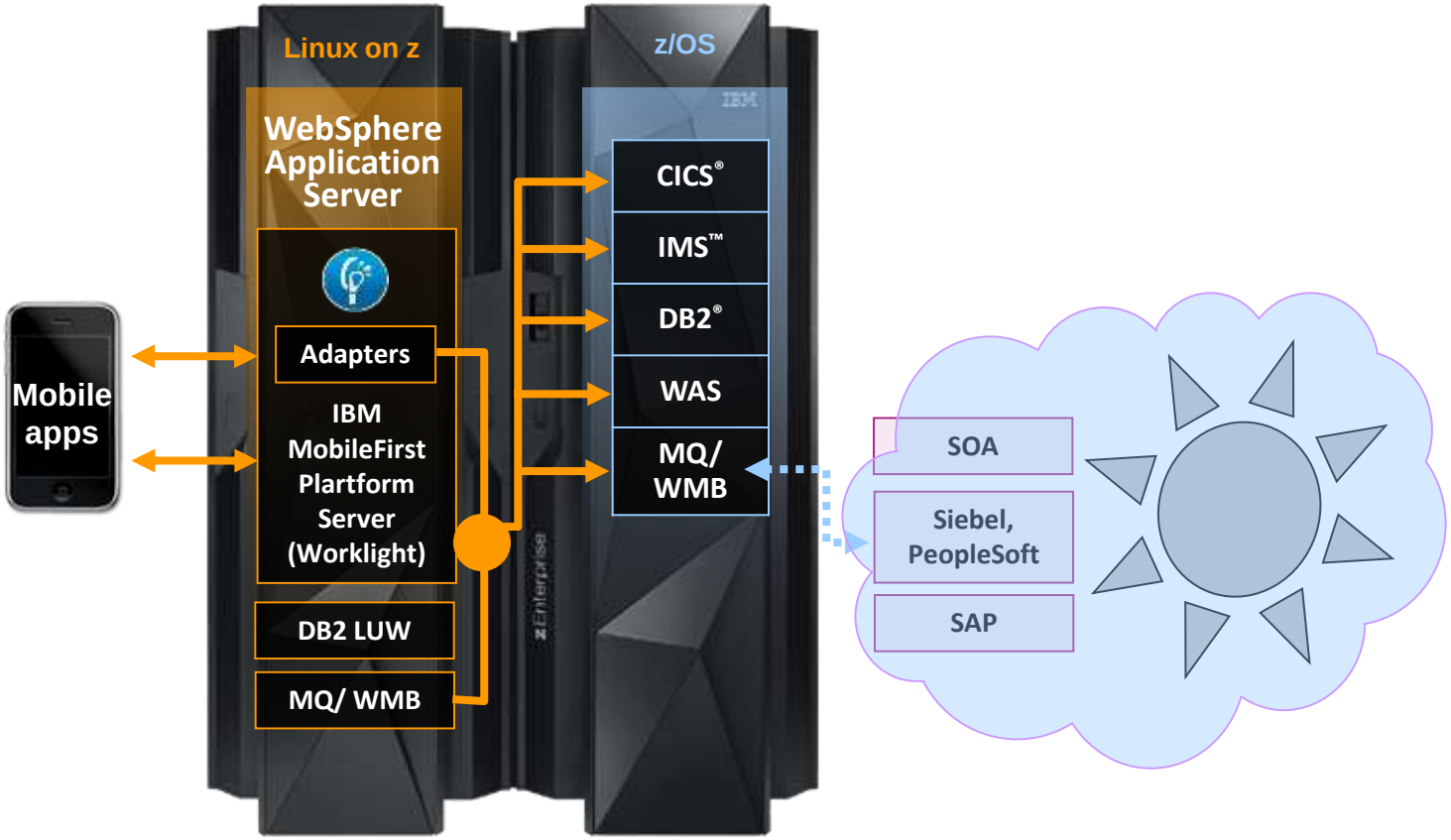
Mobile Environment on zEnterprise connecting to core Systems



IBM zEnterprise®

- **Server side software components and adapters for channeling System z to mobile devices** with IBM Worklight Server
- **Mobile application support** with WebSphere Application Server on System z
- **Mobile protocol connectivity with core System z applications** including CICS, IMS, TPF, MQ, WMB and DB2

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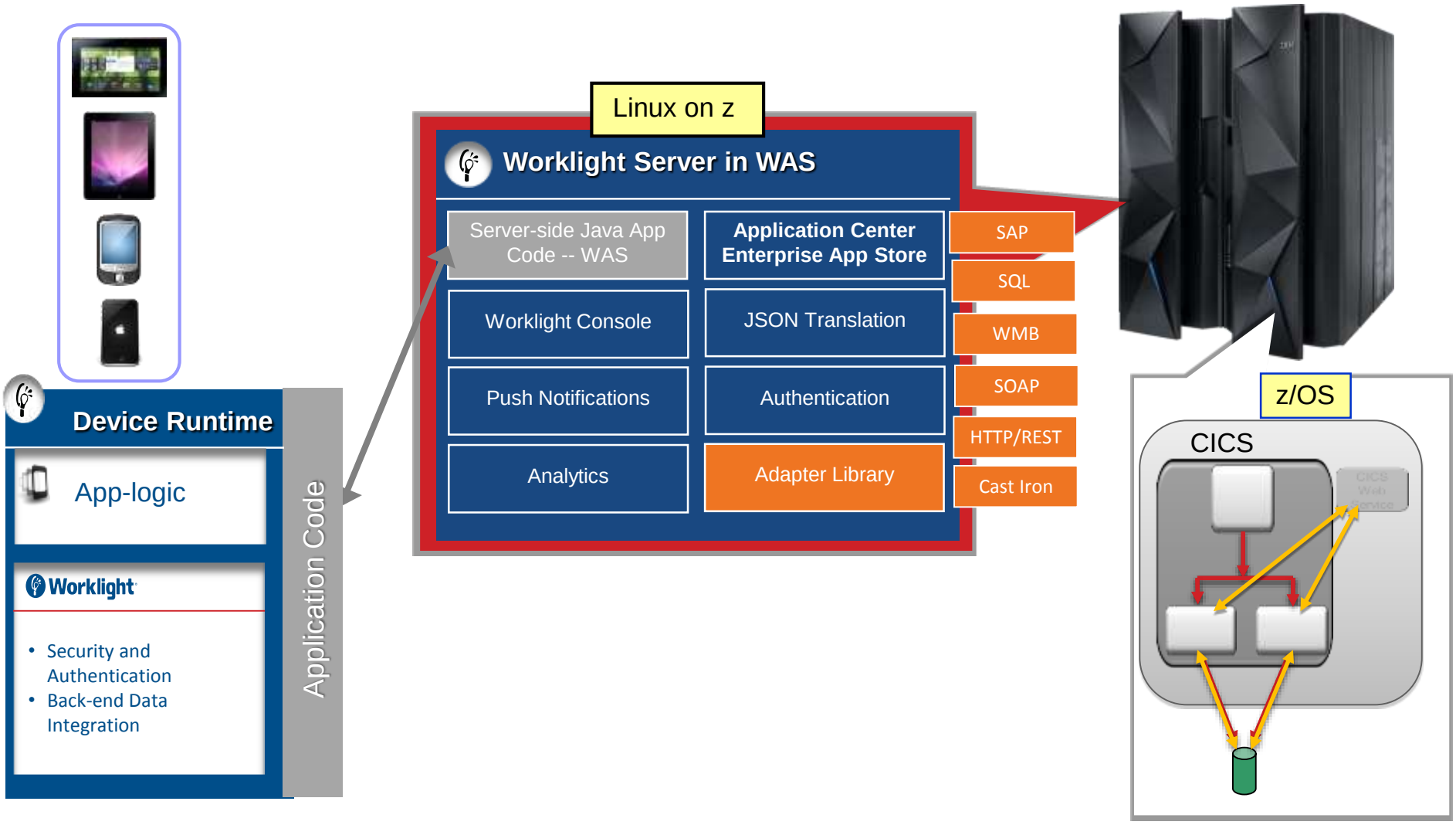
IBM MobileFirst Platform Server in WebSphere



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

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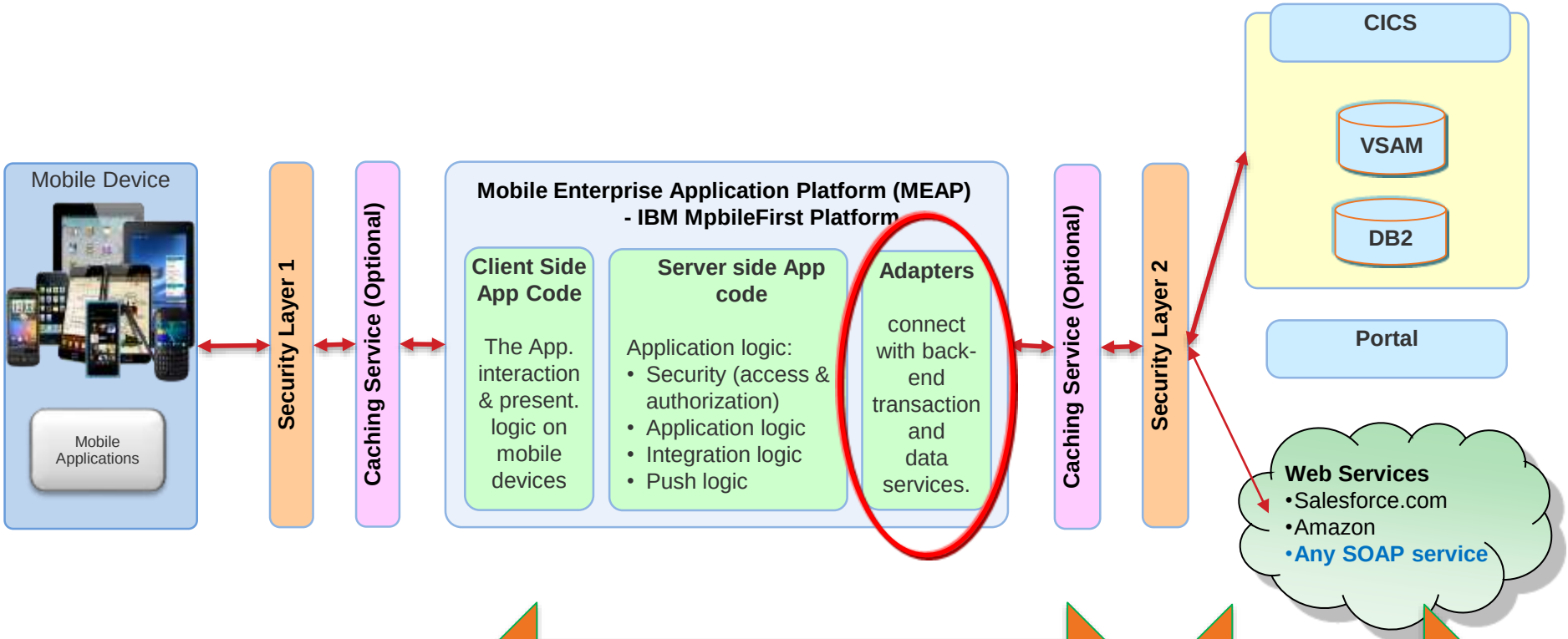
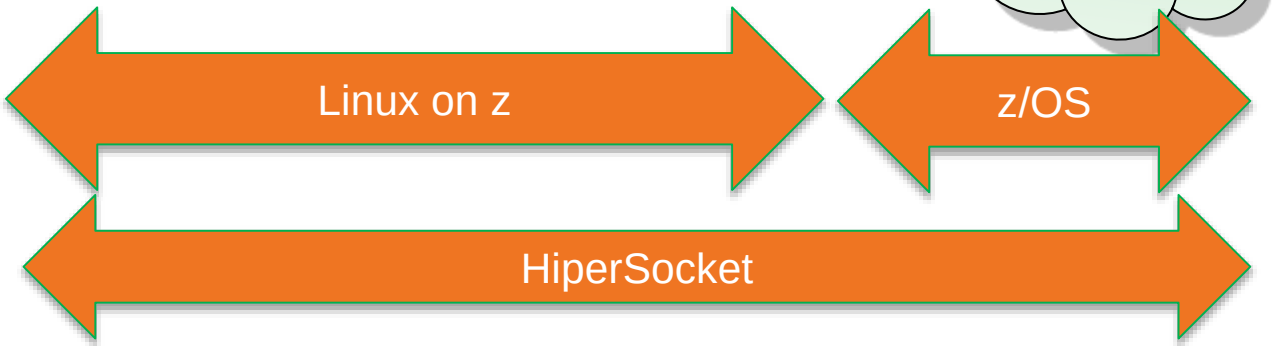
Mobile application overview diagram

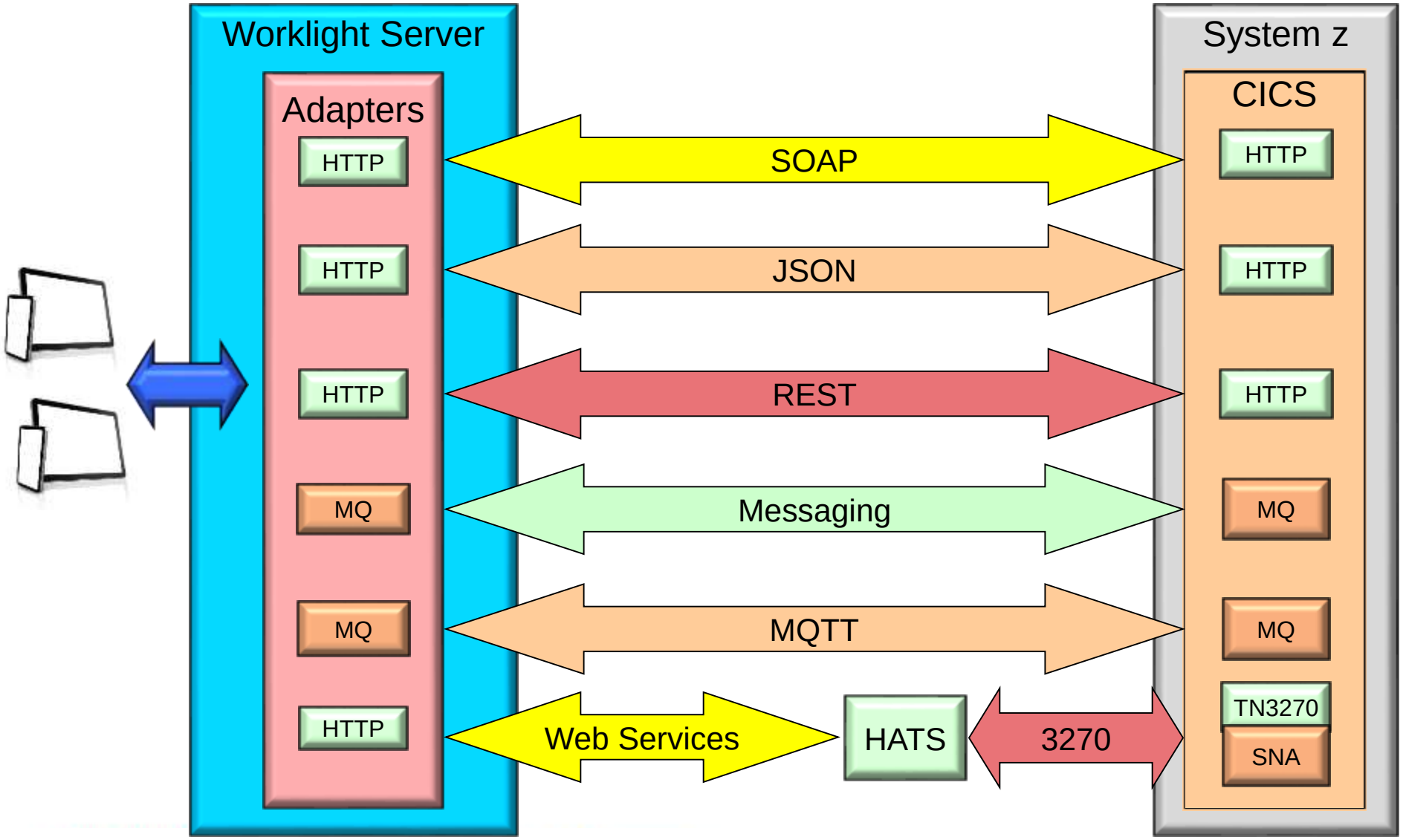


A mobile application needs end-to-end consideration for:
- Transactional integrity
- Data integrity
- Security



Mobile application integration is realized with Worklight Adapters

CICS Connectivity Options with IBM MobileFirst Platform



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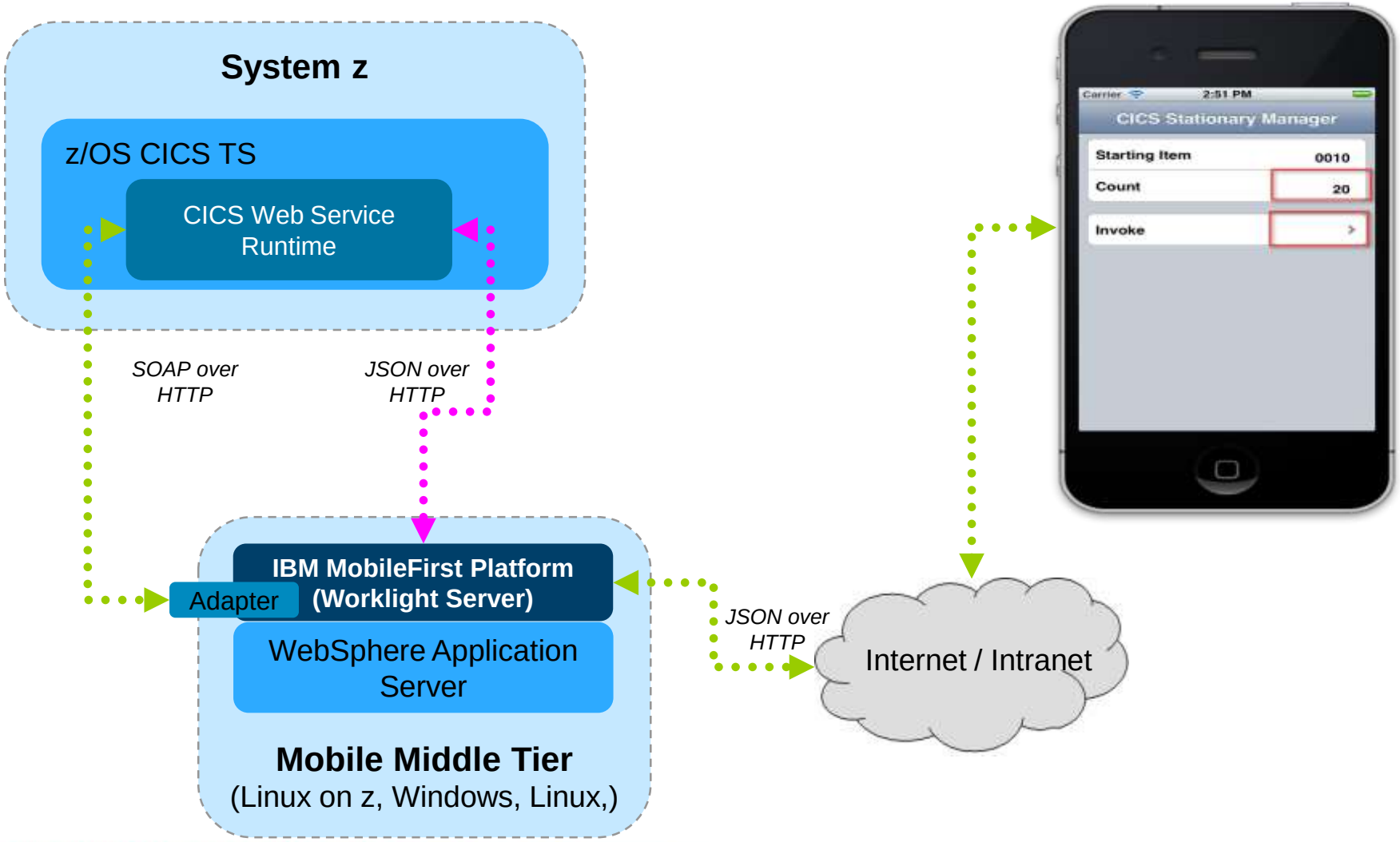
CICS TS – Easier Communication via JSON (JavaScript Object Notation)



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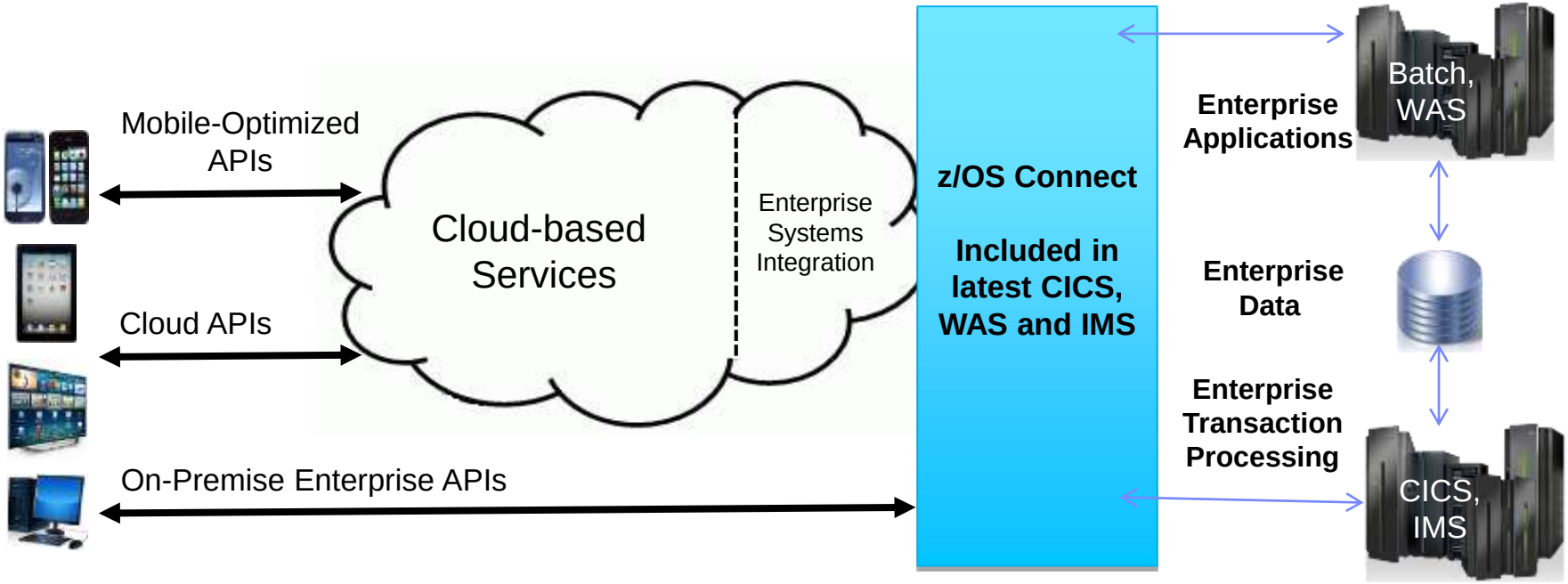
New IBM WebSphere Liberty z/OS Connect

- ***A unified, shared component shipping with the latest levels of WAS, CICS and IMS***
- ***Suitable for both on-premise and off-premise access***
- ***Hides complexities for connecting with z/OS applications and data using REST services.***
- ***Integrates tightly with z/OS qualities of service – Security, Auditing, Chargeback, Metering, Workload balancing.***



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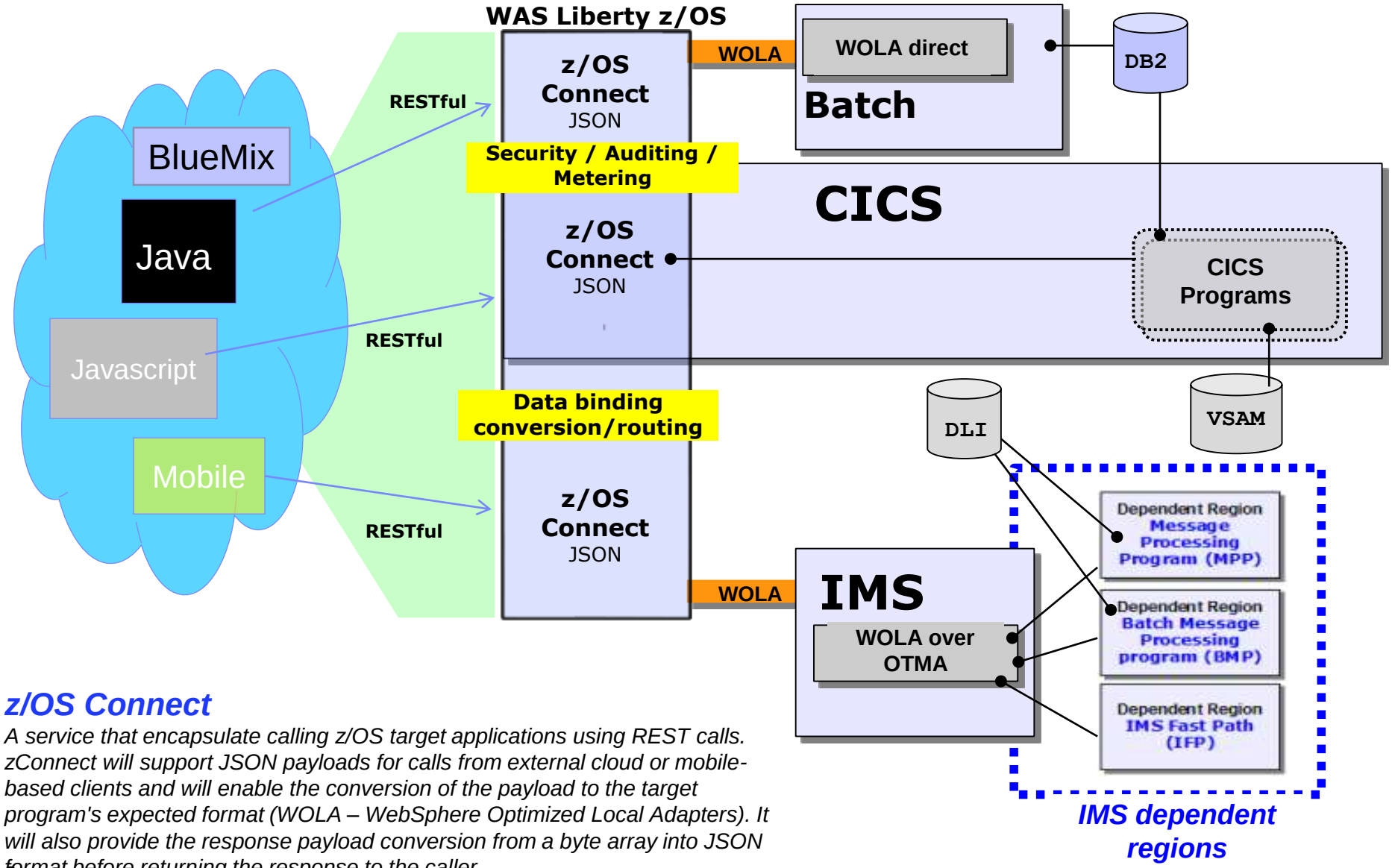
Access to z/OS via z/OS Connect with increased security



z/OS Connect

A service that encapsulate calling z/OS target applications using REST calls. zConnect will support JSON payloads for calls from external cloud or mobile-based clients and will enable the conversion of the payload to the target program's expected format (WOLA – WebSphere Optimized Local Adapters). It will also provide the response payload conversion from a byte array into JSON format before returning the response to the caller.

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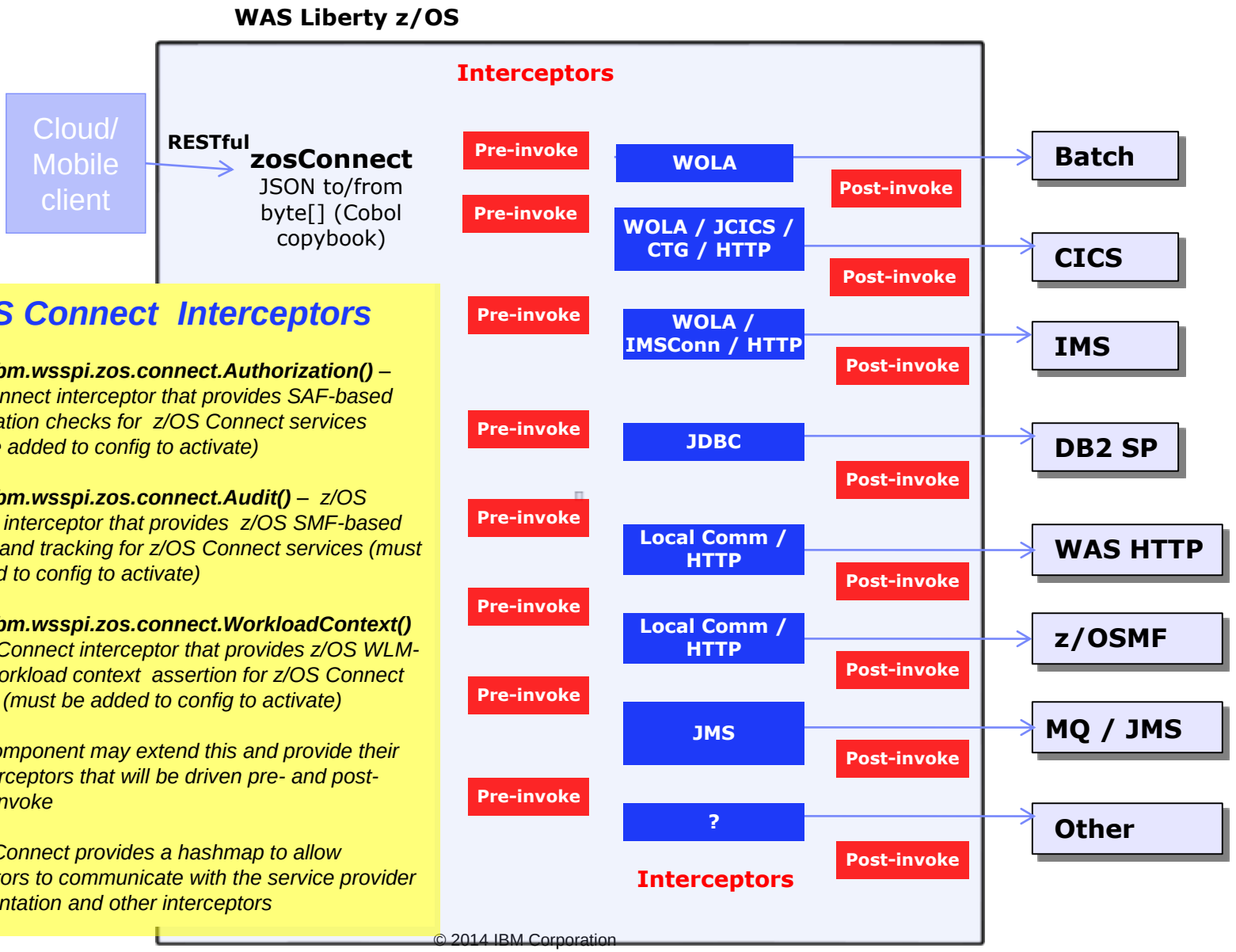
z/OS Connect - Security Interceptors



z/OS Connect Interceptors

- ***com.ibm.wsspi.zos.connect.Authorization()*** – *z/OS Connect interceptor that provides SAF-based authorization checks for z/OS Connect services (must be added to config to activate)*

- ***com.ibm.wsspi.zos.connect.Audit()*** – *z/OS Connect interceptor that provides z/OS SMF-based auditing and tracking for z/OS Connect services (must be added to config to activate)*

- ***com.ibm.wsspi.zos.connect.WorkloadContext()*** – *z/OS Connect interceptor that provides z/OS WLM-based workload context assertion for z/OS Connect services (must be added to config to activate)*

- *Any component may extend this and provide their own interceptors that will be driven pre- and post-service invoke*

- *z/OS Connect provides a hashmap to allow interceptors to communicate with the service provider implementation and other interceptors*

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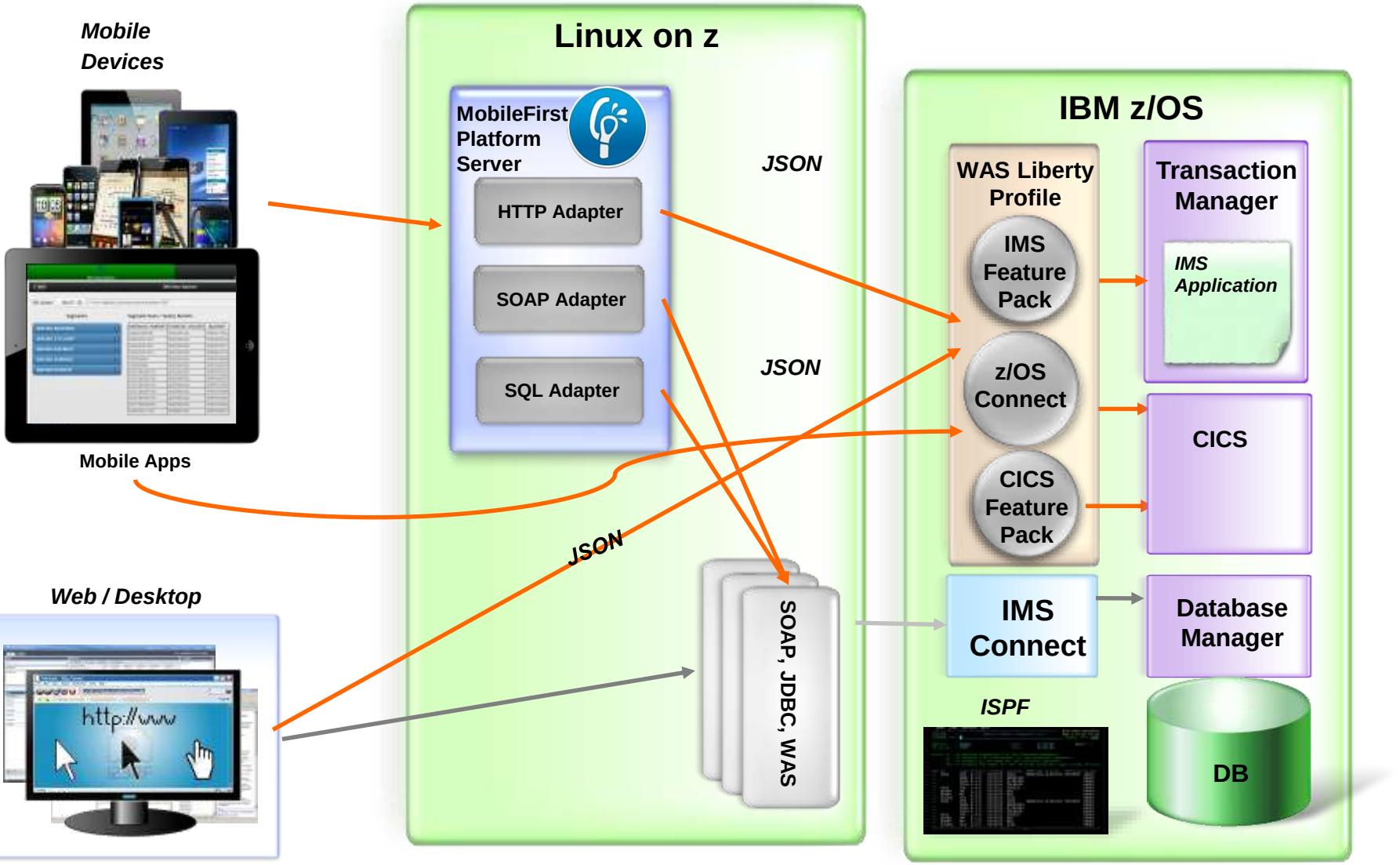
Mobile Enablement with z/OS Connect and Feature Packs



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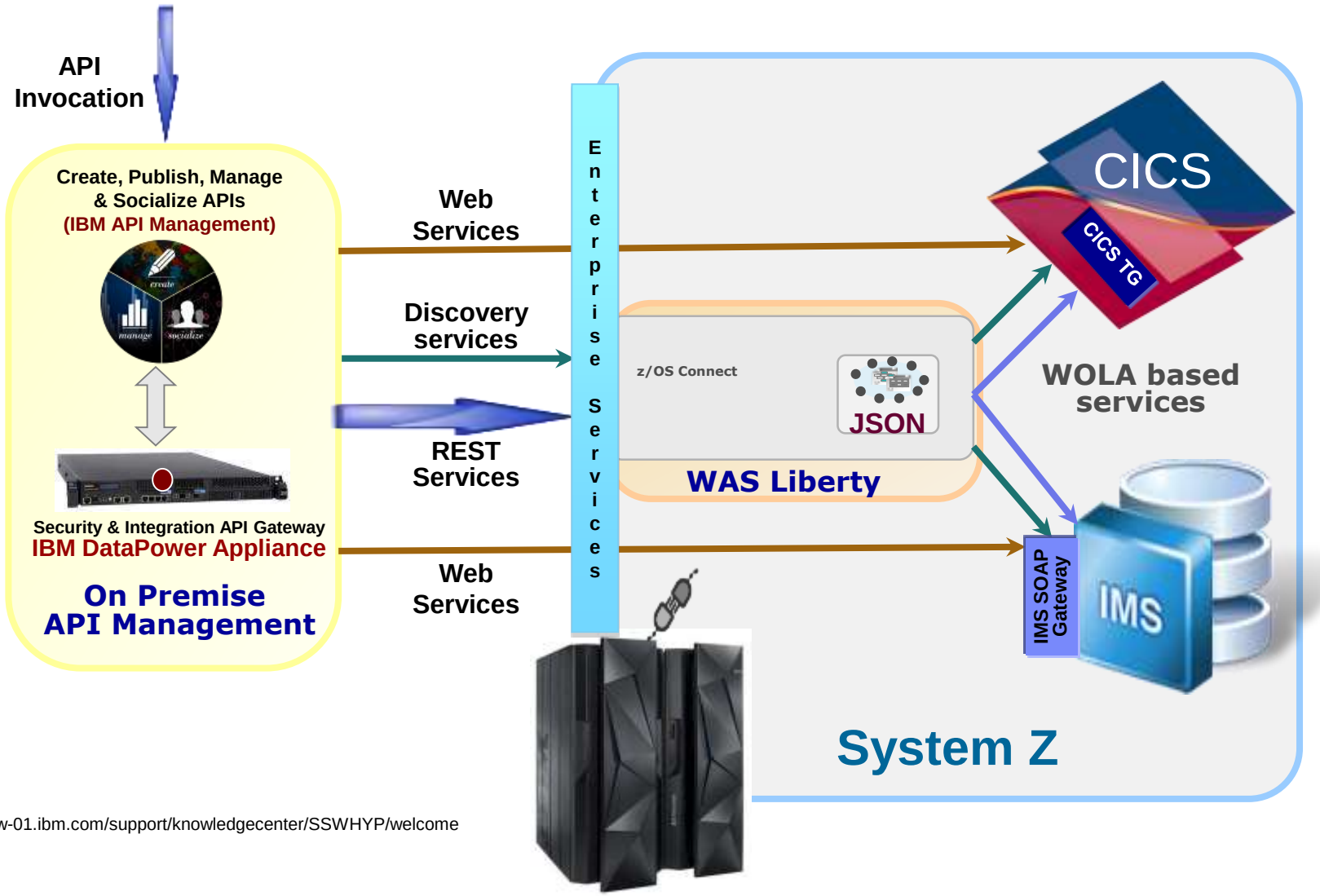
IBM API Management

Discovery and invocation of System z based Services



http://www-01.ibm.com/support/knowledgecenter/SSWHYP/welcome

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IBM End-to-End Security capabilities for the mobile enterprise

Device Security	*Content Security*	*Application Security*	*Transaction Security*
• Solutions to manage a diverse set of mobile devices from corporate owned assets to BYOD, all from the cloud	• Solutions to help secure file and document sharing across devices and SharePoint	• Solutions to develop applications with security by design • Protect enterprise data in both the applications you build and the applications you buy	• Solutions to help protect mobile transactions with customers, business partners and temporary workers that are not part of your enterprise mobile

Security Intelligence

A unified architecture for integrating mobile security information and event management (SIEM), log management,
anomaly detection, and configuration and vulnerability management

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End-to-end Security for enterprise mobile workloads

Device Security	Content Security	Application Security	Transaction Security

powered by…

Worklight

IBM Security AppScan

IBM Security Access Manager

Trusteer an IBM Company

IBM Security zSecure

MaaS360 by Fiberlink, an IBM company

ARXAN

Arxan Application Protection for IBM Solutions

IBM RACF
IBM Distributed Identity Data

IBM InfoSphere Guardium

Security Intelligence

QRadar

IBM QRadar Security Intelligence Platform

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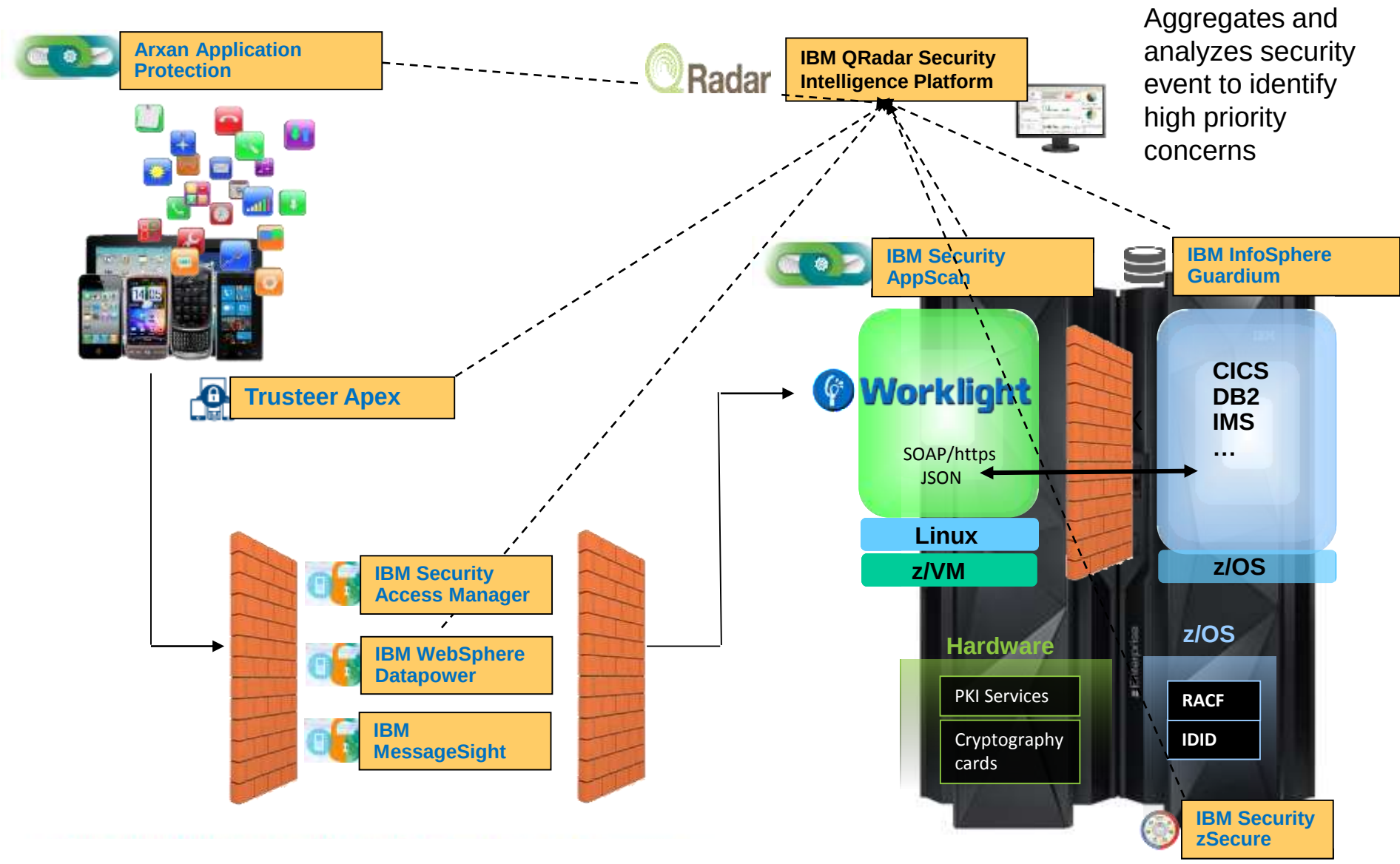
Real-time security intelligence for the Mobile Enterprise



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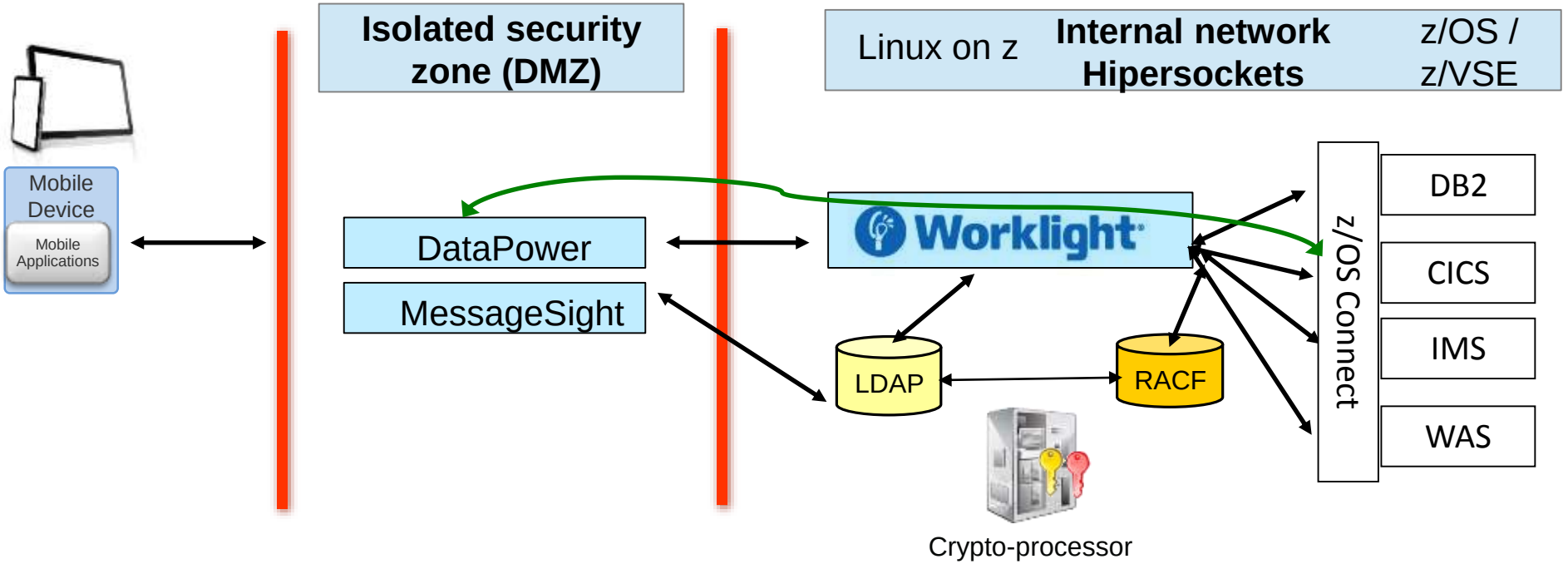
Topology – DataPower as a reverse proxy for MobileFirst Platform

Capabilities	Deployment scenarios	System z benefits
• Combined capabilities of Worklight and DataPower • Datapower in an isolated secured network zone DMZ – DeMilitarized Zone	• When hybrid mobile apps use a combination of web and Restful interactions • High volume or internet mobile access	• Additional benefits of DataPower as a mobile security gateway for Worklight on zLinux • LDAP user registry shared between DataPower and Worklight



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28 February 2014 Last updated at 15:03 GMT

Share

Mobile banking apps recover from glitches

The mobile banking apps of several big banks have been affected by glitches.

RBS, Barclays and Santander all acknowledged problems after complaints by their customers.

RBS, which includes NatWest, said the problems with the apps were due to too many people trying to check their accounts to see how much they had been paid by their employers.

All three banks apologised but said their mobile services were now working as normal.

RBS explained via its Twitter feed that "high traffic" had been responsible for the logjam.

"We are currently experiencing record usage of our mobile banking app. Over 5,500 customers are logging on every minute," it explained.

NatWest told customers: "If you're having difficulty with our mobile app, online banking, telephone banking and ATMs are all working normally."

Santander said its mobile banking app had stalled but was now back to normal: "We apologise for any inconvenience caused while we worked as fast possible to fix the problem."

Personal Banking

- The emergence of the counter-free bank branch
- Can supermarkets take on big banks?
- What the new TSB means for customers
- Q&A: Switching bank accounts

Scalability and security is crucial !!!

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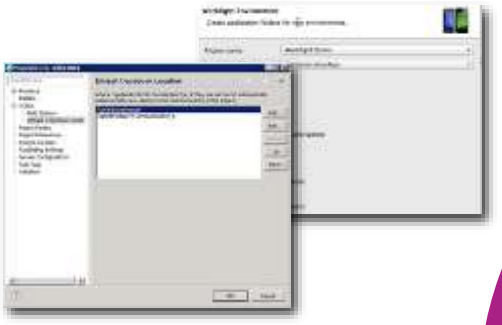
Cloud based Mobile solution with zEnterprise



System z applications

Core CICS, IMS, DB2 and other applications and databases cloud and mobile ready

Mobile Devices

developed for the Cloud through web-based shared apps using Worklight

Infrastructure

Cloud orchestration, provisioning and automation with IBM solutions

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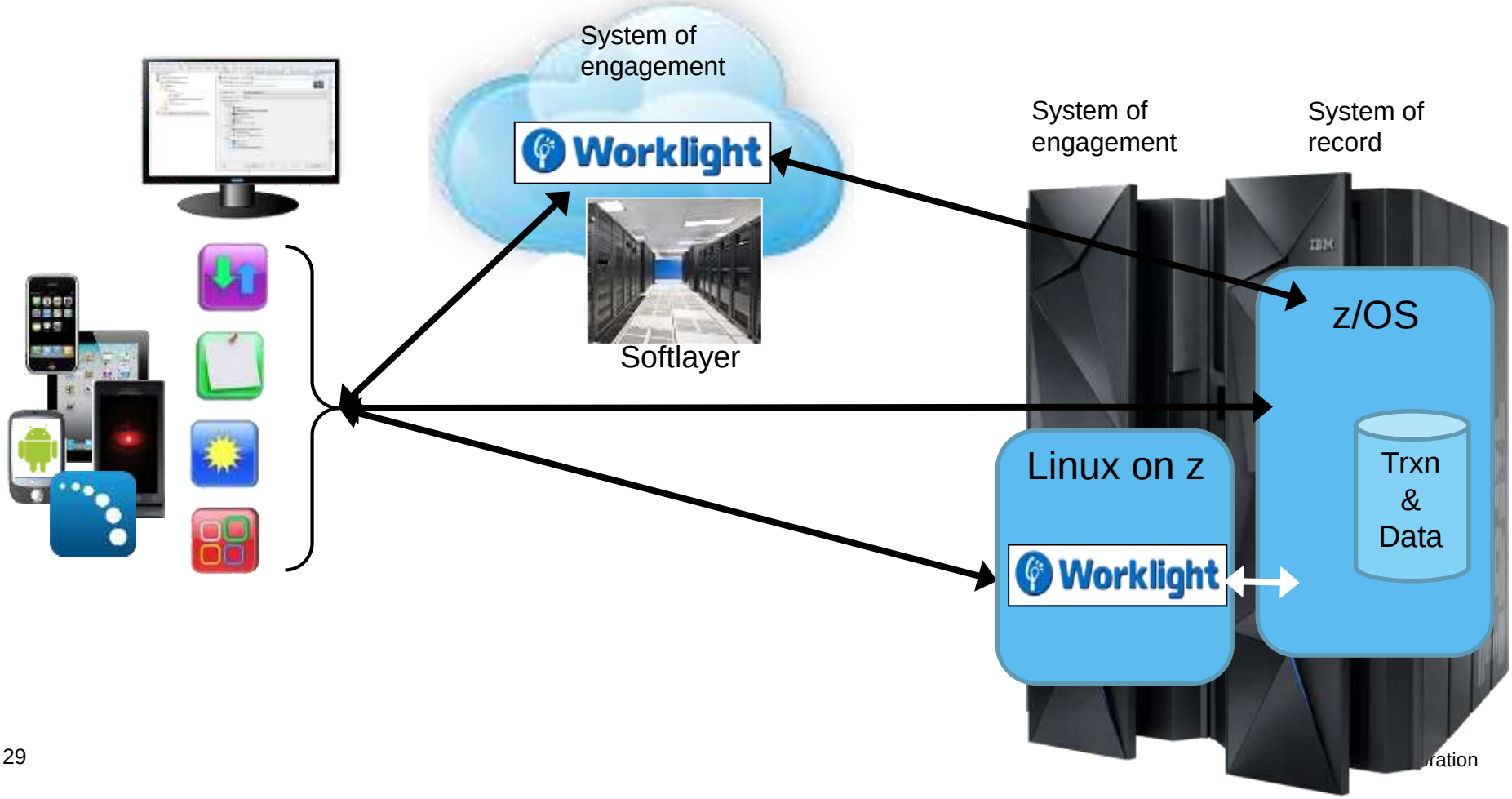
Key Mobile Solution scenarios

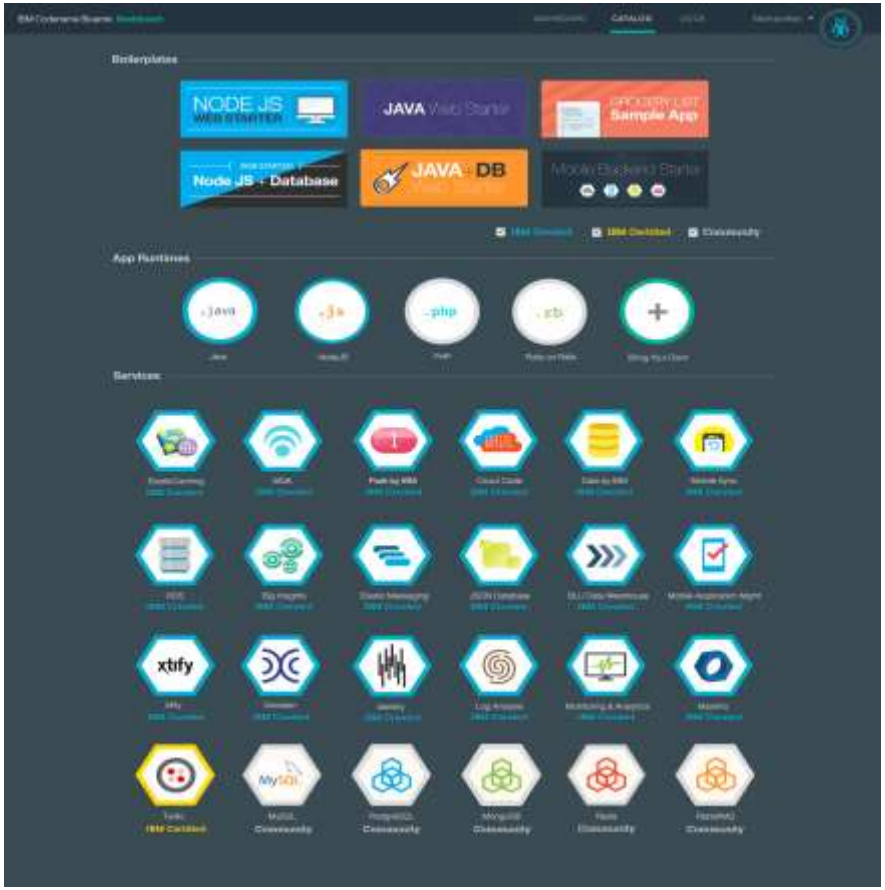
- on premise – with the System of engagement on System z
- off premise – with the System of engagement offsite – i.e. in IBM Softlayer



BlueMix Development environment in Softlayer

Delivering a Composable Services development environment including Mobile

- Softlayer – the off premise distributed cloud platform with secured access to System z resources
- BlueMix – development environment for new applications using composable services



API Catalog

A catalog of developer friendly APIs (IBM & third party) with mobile SDKs, that can be composed into new and existing mobile apps. Configure and manage through the BlueMix portal.

Run Code

The developer can chose from multiple language runtimes or bring their own. Just upload your code and go.

Store Data

The developer can store data in the cloud as a service easily without needing to administer the databases.

Cloud Integration

Build hybrid environments. Connect to on-premises systems of record plus other public and private clouds. Expose your own APIs to your developers.

Built on IBM SoftLayer

Runs on top of IBM's leading infrastructure as a service.

Categories

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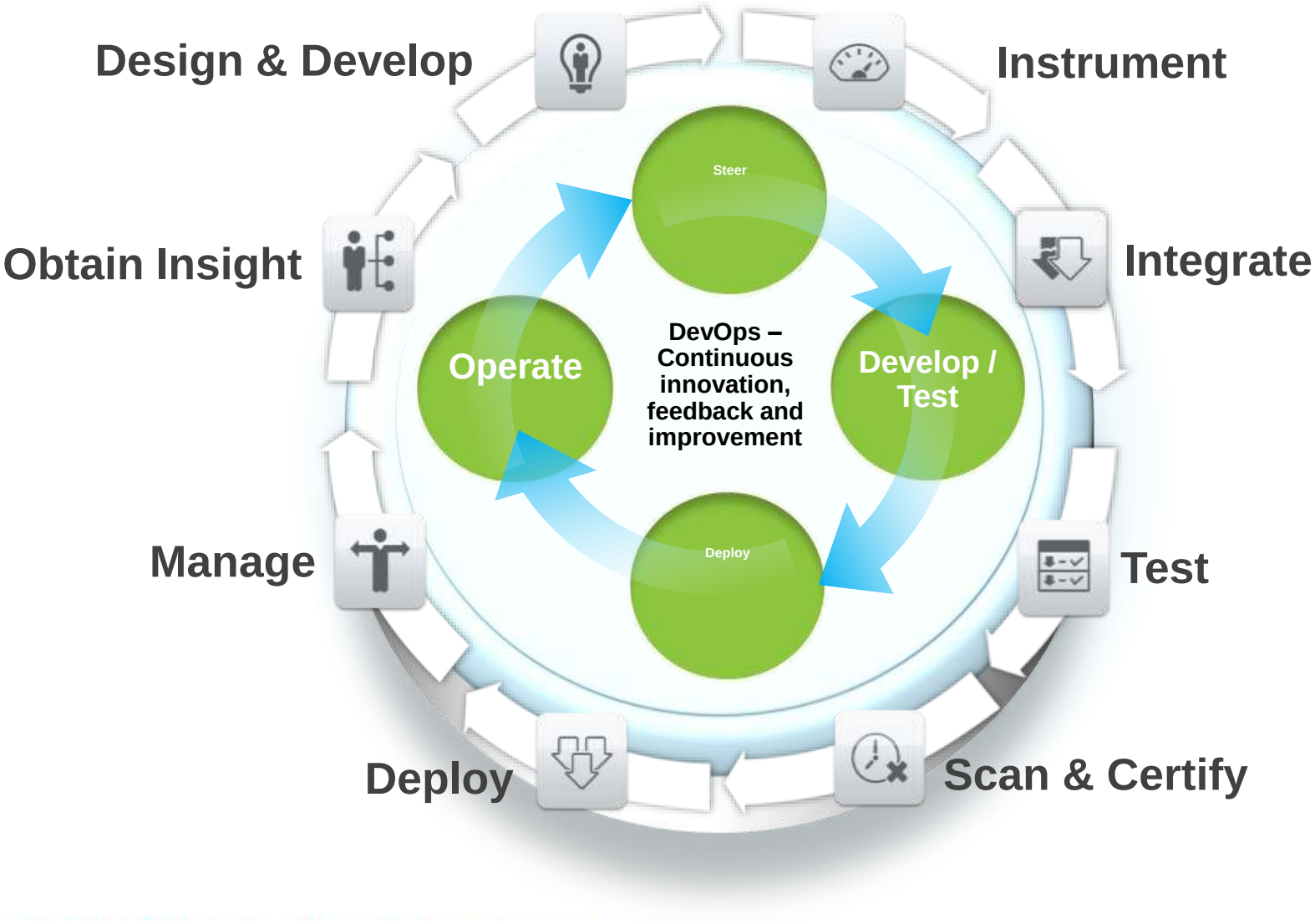
Enterprise Mobile Development Lifecycle



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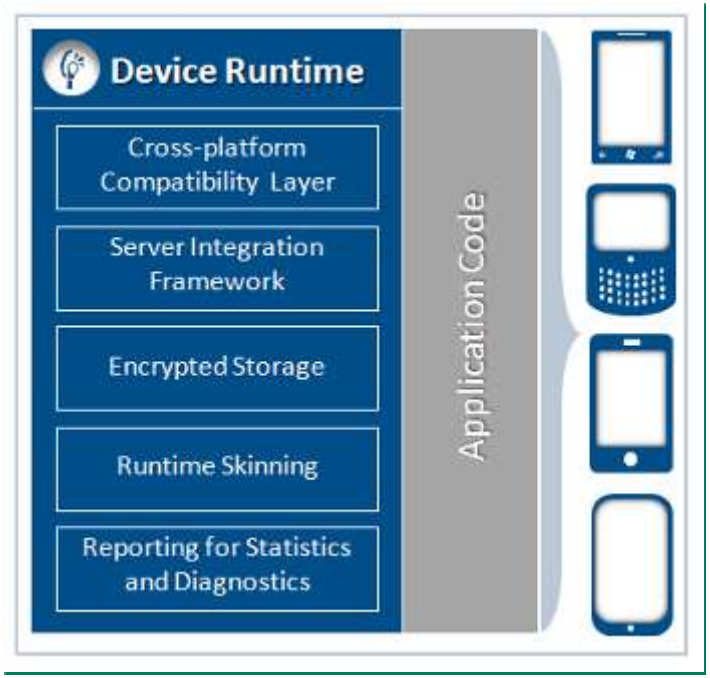
IBM Worklight Studio & Device Runtime



Eclipse based mobile **Integrated Development Environment (IDE)**

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Worklight Studio with RDz a complete set of System z and Mobile Development capabilities

- Built on Eclipse
- Common tool set for end to end development
- Build, preview, and deploy within the IDE
- Mobile simulator (for unit test)
- End-to-end debug
- Integrate with third-party SDKs (e.g. Android Development Tools)

Access to typical System z sub-system functionality in z/OS, z/VSE, CICS, IMS, DB2, WAS

Integration for flexible access to System z environment (i.e. COBOL, JCL…)

Robust Mobile Development in conjunction with Worklight

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2nd Largest Retailer Worldwide

Worklight environment deployed on zLinux in 7 days

- 2 day software Installation on site
- 5 day Worklight App development (2 days) and integration with CICS (3 days)

Application is currently deployed on a test Linux on z server on z/VM

© 2014 IBM Corporation

Published on 4 Apr 2014

"Running our mobile banking service on Linux on zEnterprise is another step forward in our continual evolution on the mainframe. The key value for our business is that the most important services can be managed together on a consistent, stable and highly secure platform that offers enormous scalability and performance."

Daniele Cericola, ICT Governance Manager, Banca Carige

Customer

Banca Carige

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University of Florida goes mobile

Enabling 50,000 students, 5,400 faculty members and staff access to online features anytime, anywhere

Data provided to students real time
Mobile formatted information of class schedules, textbooks, academic dates, grades, emergency information and campus map

IBM Solution
Accessing CICS with System z information via smartphones

Up to 1M transactions/day

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Gartner has recognized IBM as a leader in the Magic Quadrant for Mobile Application Development Platforms

Magic Quadrant for Mobile Application Development Platforms
Ian Finley, Van L. Baker, Ken Parmelee, David Mitchell Smith, Ray Valdes, Gordon Van Huizen
Aug 7, 2013

"As unprecedented numbers of enterprises build mobile applications, the mobile application development platform market continues to grow and evolve rapidly."

This Magic Quadrant graphic was published by Gartner, Inc. as part of a larger research note and should be evaluated in the context of the entire report. The full report is available at http://ibm.co/13TU2Dm

Figure 1. Magic Quadrant for Mobile Application Development Platforms

Source: Gartner (August 2013)

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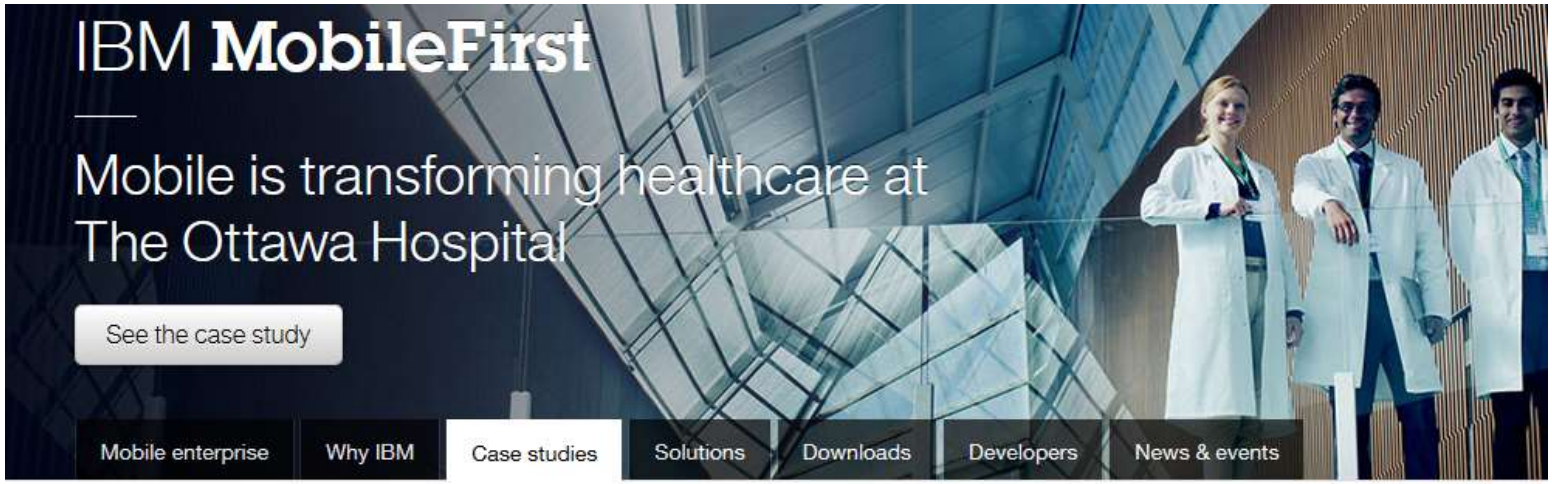

View case studies by:

All business needs or All industries

Travel and transportation

Air Canada

New mobile travel services cut processing transactions 80 percent

Watch the video

Insurance

American National Insurance

Saving time in the field with rapid, highly secure access to data from mobile devices

Read the case study (562 KB)

Telecommunications

Avea

Cutting deployment problems almost 30 percent and reducing deployment time for middleware services from four hours to ten minutes

Read the case study (659 KB)

Technology

Cincom Systems

Projecting a 20 percent reduction in

Technology

CenterBeam

Delivering 98 percent policy

http://www.ibm.com/mobilefirst/us/en/see-it-in-action/

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Strategic Alliances

Developer Garden
IBM – Deutsche Telekom

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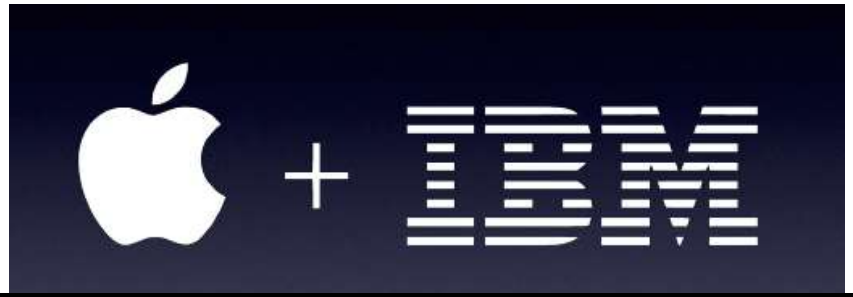
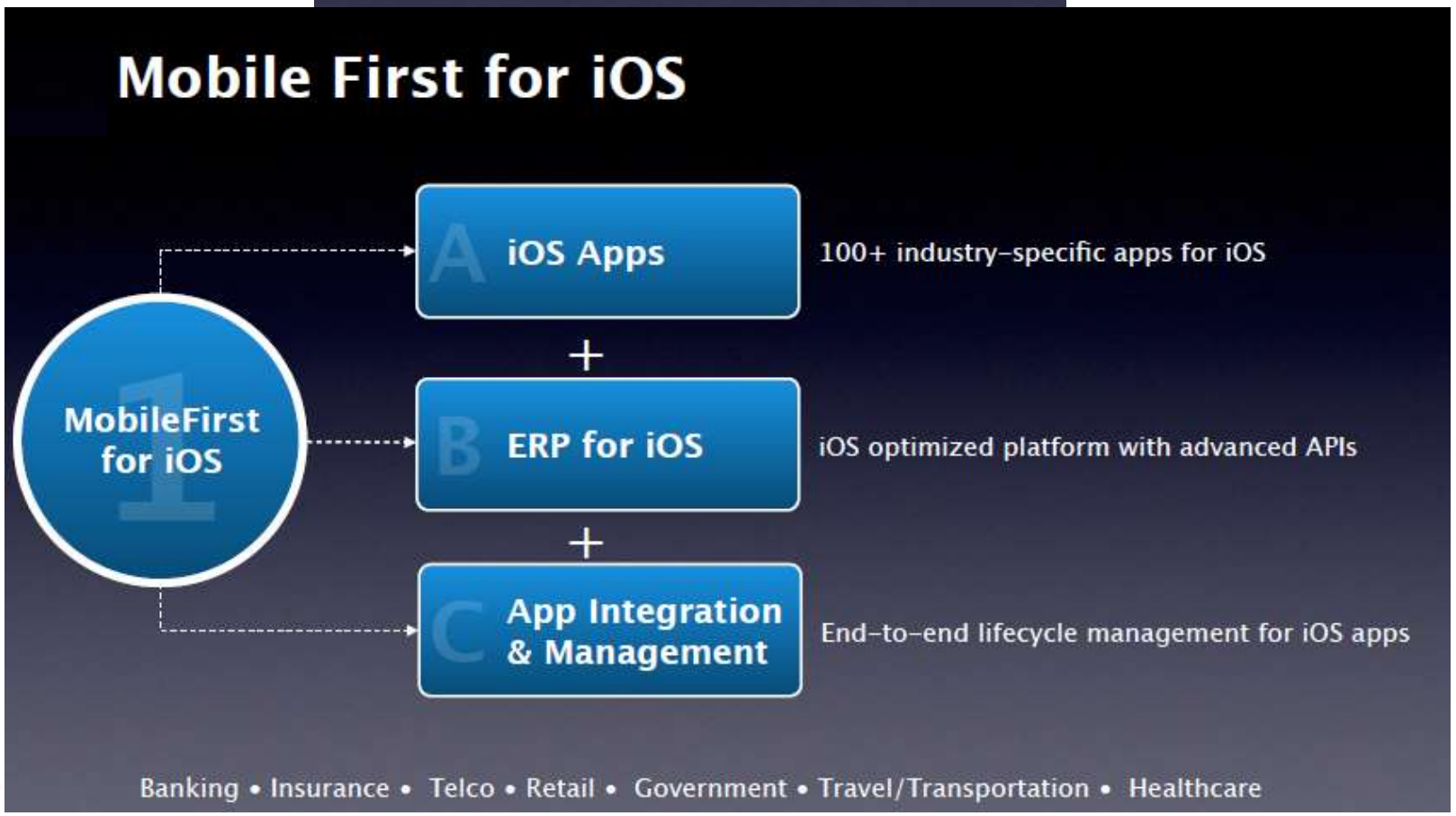
IBM and Apple cooperation announced 07/2014





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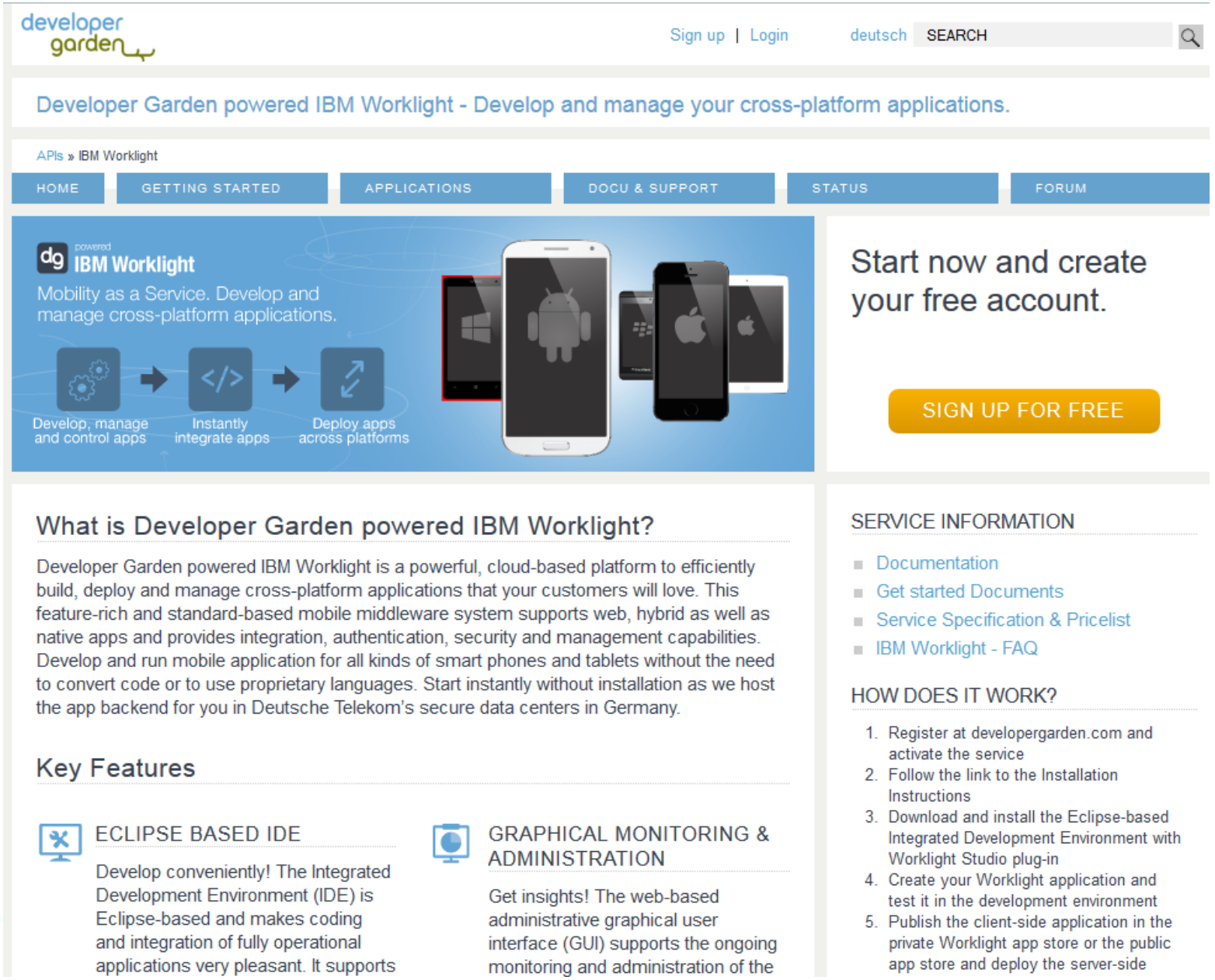
New Mobile initiative: IBM – Deutsche Telekom



IBM & Twitter

Twitter and IBM Form Global Partnership to Transform Enterprise Decisions

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SAN FRANCISCO and ARMONK, NY - 29 Oct 2014: Twitter and IBM (NYSE: IBM) today announced a landmark partnership that will help transform how businesses and institutions understand their customers, markets and trends – and inform every business decision. The alliance brings together Twitter data that distinctively represents the public pulse of the planet with IBM's industry-leading cloud-based analytics, customer engagement platforms, and consulting services.

The collaboration will focus on three areas:

Integration of Twitter data with IBM analytics services on the cloud: IBM plans to offer Twitter data as part of select cloud-based services, including IBM Watson Analytics, a new cognitive service in the palm of your hand that brings intuitive visualization and predictive capabilities to business users; and a cloud-based data refinery service that enables application developers to embed data services in applications. Entrepreneurs and software developers will also be able to integrate Twitter data into new cloud services they are building with IBM's Watson Developer Cloud or IBM Bluemix platform-as-a-service.

New data-intensive capabilities for the enterprise: IBM and Twitter will deliver a set of enterprise applications to help improve business decisions across industries and professions. The first joint solution will integrate Twitter data with IBM ExperienceOne customer engagement solutions, allowing sales, marketing, and customer service professionals to map sentiment and behavior to better engage and support their customers.

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Quick Reference mobile app

for IBM System z

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Mobilize the Mainframe
Take advantage of unique Characteristics

- Massive scalability in a single footprint, to handle the workload of millions of devices and sensors
- Workload Management to provide a quick reaction to sharp spikes in demand
- High Availability with Worklight and WebSphere Clusters in a highly virtualised Linux on System z environment
- Co-location of the Worklight server application with data and transactions on z/VSE and z/OS reduces the latency of access to System z data.
- Hipersockets provides the best communication between Worklight apps and System of Record.
- Hardware encryption speeds SSL applications
- Business Resiliency for critical mobile apps

Infrastructure matters for mobile applications. The System z platform's scalability, security, and resilience can enhance critical mobile applications.

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Interested in mobile and System z ? Next steps…

- **Boeblingen is European Center of Competence (CoC) for Mobile**

- Read our Point-of-View paper.
- Read the Mobile Solution Guide
- Request a Demo.
  - Banking, Retail, Government, Insurance
  - Deploy Worklight on Linux for System z
  - Reuse z/OS transactions
- Try the System z Mobile demo apps
  - CICS GENAPP
  - CICS EGUI
  - IBM Remote. Sample App you can use to manage z HMC
- System z Mobile home page
  - Customer case studies
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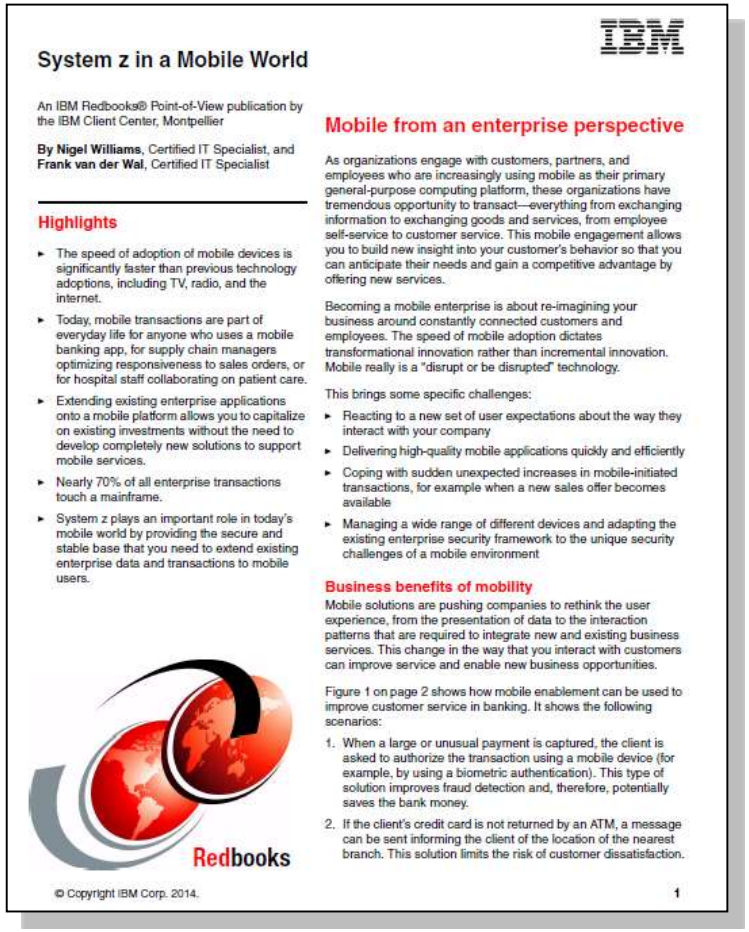

System z in a Mobile World

An IBM Redbooks® Point-of-View publication by the IBM Client Center, Montpellier

By Nigel Williams, Certified IT Specialist, and **Frank van der Wal**, Certified IT Specialist

Highlights

- The speed of adoption of mobile devices is significantly faster than previous technology adoptions, including TV, radio, and the internet.
- Today, mobile transactions are part of everyday life for anyone who uses a mobile banking app, for supply chain managers optimizing responsiveness to sales orders, or for hospital staff collaborating on patient care.
- Extending existing enterprise applications onto a mobile platform allows you to capitalize on existing investments without the need to develop completely new solutions to support mobile services.
- Nearly 70% of all enterprise transactions touch a mainframe.
- System z plays an important role in today's mobile world by providing the secure and stable base that you need to extend existing enterprise data and transactions to mobile users.

Redbooks

Mobile from an enterprise perspective

As organizations engage with customers, partners, and employees who are increasingly using mobile as their primary general-purpose computing platform, these organizations have tremendous opportunity to transact—everything from exchanging information to exchanging goods and services, from employee self-service to customer service. This mobile engagement allows you to build new insight into your customer's behavior so that you can anticipate their needs and gain a competitive advantage by offering new services.

Becoming a mobile enterprise is about re-imagining your business around constantly connected customers and employees. The speed of mobile adoption dictates transformational innovation rather than incremental innovation. Mobile really is a "disrupt or be disrupted" technology.

This brings some specific challenges:

- Reacting to a new set of user expectations about the way they interact with your company
- Delivering high-quality mobile applications quickly and efficiently
- Coping with sudden unexpected increases in mobile-initiated transactions, for example when a new sales offer becomes available
- Managing a wide range of different devices and adapting the existing enterprise security framework to the unique security challenges of a mobile environment

Business benefits of mobility

Mobile solutions are pushing companies to rethink the user experience, from the presentation of data to the interaction patterns that are required to integrate new and existing business services. This change in the way that you interact with customers can improve service and enable new business opportunities.

Figure 1 on page 2 shows how mobile enablement can be used to improve customer service in banking. It shows the following scenarios:

1. When a large or unusual payment is captured, the client is asked to authorize the transaction using a mobile device (for example, by using a biometric authentication). This type of solution improves fraud detection and, therefore, potentially saves the bank money.
2. If the client's credit card is not returned by an ATM, a message can be sent informing the client of the location of the nearest branch. This solution limits the risk of customer dissatisfaction.

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Technology Preview App: z/OS Event and Performance Management

- Access to z/OS performance data from mobile devices
- Receive push notifications from z/OS on mobile devices
- Single point of control for the enterprise
- Developed with IBM Worklight Studio
- Prototype operational for Android OS
- Current availability target is 1Q 2015
- Supported Monitoring Facilities:
  - RMF Performance Data Portal
  - z/OSMF Resource Monitoring

Robert Vauperl
Harald Bender
IBM Lab Boeblingen, Germany
z/OS Performance Management Development

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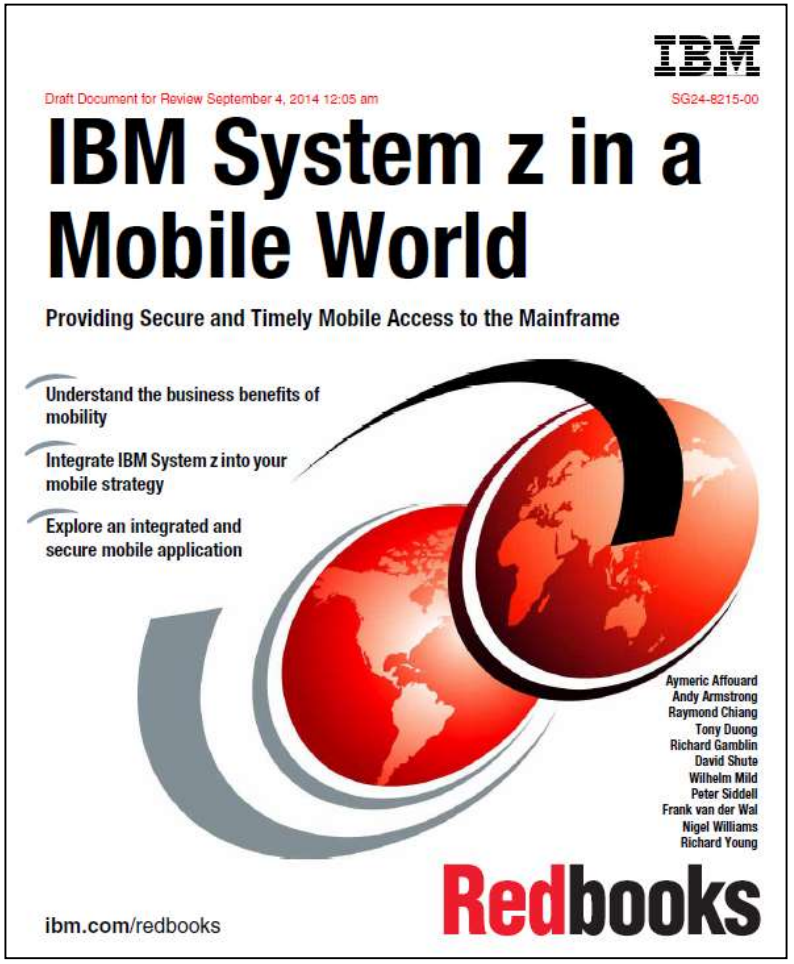
IBM System z in a Mobile World

Redbook – draft available

- **Understanding the business context in a mobile world**
  1. Business drivers
  2. IBM MobileFirst
  3. SoE and SoR
  4. IBM Worklight
  5. Industry use cases

- **Architecting and planning the solution**
  6. Deployment models
  7. Enterprise architecture
  8. Designing for resilience
  9. Designing for security

- **Customer scenario**
  10. Overview of scenario
  11. Agile approach to deliver applications
  12. Deploying to a HA infrastructure
  13. Enabling E2E security
  14. Mobile analytics



http://www.redbooks.ibm.com/redpieces/abstracts/sg248215.html?Open

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Additional information in Mobile Redbooks

- ***Transform Your Organization into a Mobile Enterprise with IBM Worklight***, *Solution Guide,* published 9 October 2013
- ***Extending Your Business to Mobile Devices with IBM Worklight***, SG24-8117-00 ***Red****books,* published 12 August 2013
- ***IBM MobileFirst Strategy Software Approach***, SG24-8191-00 *Draft* ***Red****books, 5* December 2013
- ***IBM System z in a Mobile World***, *Solution Guide,* published 21 February 2014
- ***System z in a Mobile World***, REDP-5088-00, *Point-of-View,* 24 January 2014
- ***Implementing IBM CICS JSON Web Services for Mobile Applications***, TIPS1066 *Solution Guide,* 9 September 2013
- ***Securing Your Mobile Business with IBM Worklight***, SG24-8179-00, 7 October 2013
- ***Enabling Mobile Apps with IBM Worklight Application Center***, REDP-5005-00 ***Red****papers,* 1 June 2013
- ***Responsive Mobile User Experience Using MQTT and IBM MessageSight***, SG24-8183-00 *Draft* ***Red****books,* last update 18 December 2013
- ***Mobilizing Employees with IBM Notes Traveler***, *Solution Guide,* published 19 February 2013

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Questions?

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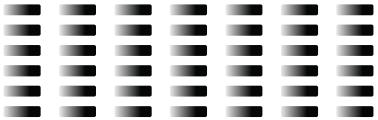

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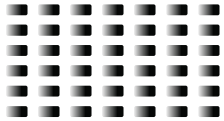
Wellcome to the Mobile era !



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