



Enterprise Mobility for IMS Access

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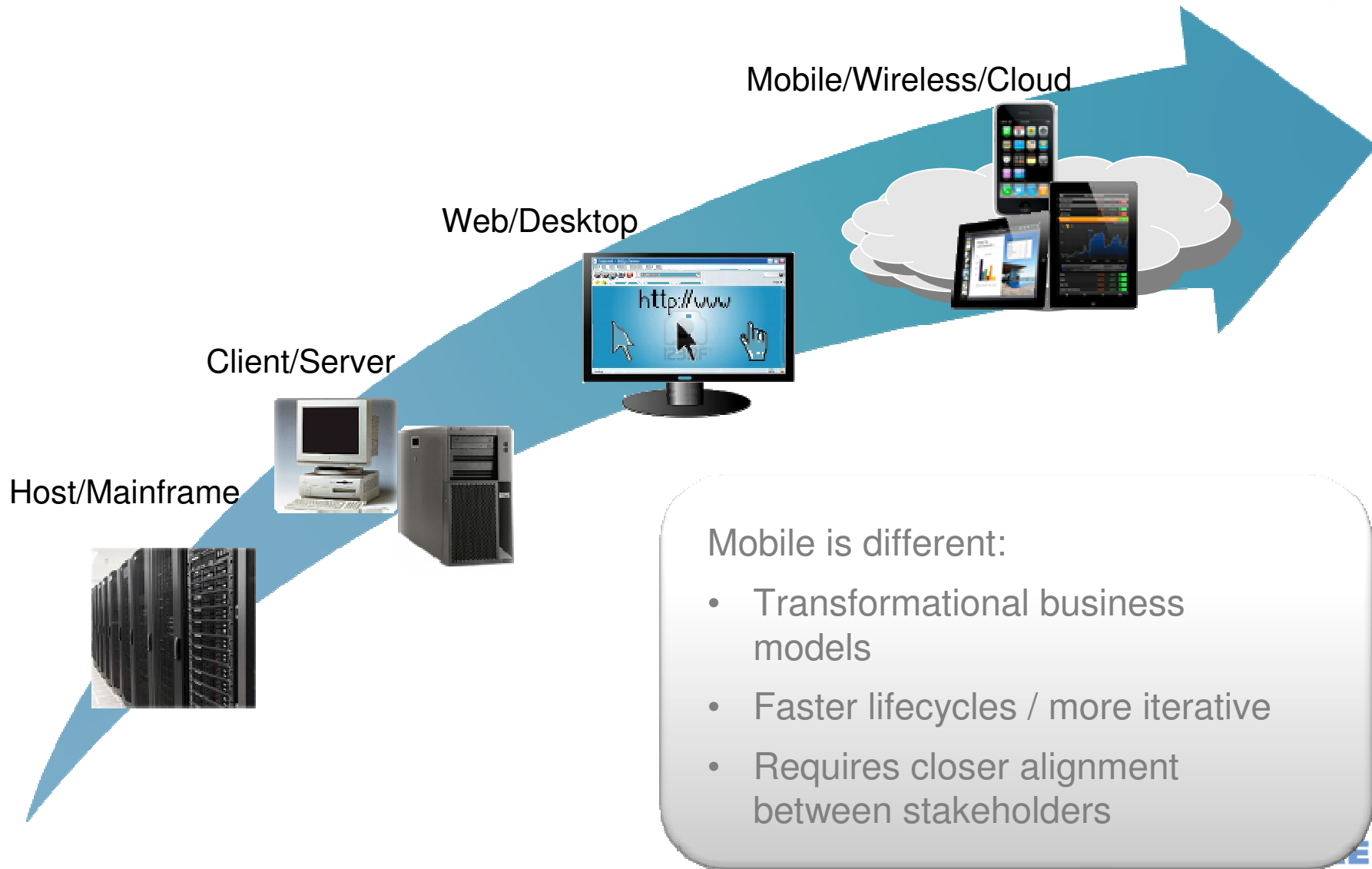


Topics



- Enterprise Mobility
- The IBM Mobile Foundation
 - IBM Cast Iron
 - Worklight
- IMS Impact
 - Transactions
 - Databases

Mobile is a significant component of the evolution of computing



Enterprise Mobility



- Evolving trends
 - 2011 - 850K Android activations per day, over 372M iOS devices sold with 62M alone in Q4,
 - 2012 – shipment of smartphones and tablets was expected to exceed that of traditional personal computers including laptops
 - 2013
 - Employee smartphones will account for 62 % of business-use
 - 8 out of 10 businesses will support tablet use in the workplace
 - ...
 - 2016 - the estimate is that there will be 1 billion+ smart phones in market, 375 million+ tablets
 - 2020 - By 2020, the number of mobile devices worldwide will exceed *24 billion*
- Expanding marketplace and explosive growth due to:
 - Increasing business requirements for enterprise mobile applications or “apps” for mobile device connectivity
 - Constant introduction of new capabilities that inspire new opportunities
 - e.g., global positioning system (GPS) functionalities and cameras
 - Businesses everywhere are now strategically employing enterprise mobile apps to support business objectives.
 - Industry recognition of the importance of strategically deploying new enterprise mobile apps to support business objectives.

Enterprise Mobility...



- Mobile Devices provide new end points
 - Business to Enterprise
 - productivity tools for employees
 - Business to Consumer
 - Customer engagement channels
 - Consumer to Consumer
 - Transfer data to/from mobile device

Enterprise Mobility



- Application types
 - Native Mobile only Application
 - Mobile Web access Application
 - Hybrid Application
 - Mobile only + Web access

Enterprise Mobility ...



- The Mobile lifecycle
 - Strong demand by lines of business
 - Higher expectations of user experience with mobile apps
 - Lack of best practices guidance on how to deliver mobile applications
 - More direct involvement from users/stakeholders in design
 - Native programming models are not portable across devices
 - Highly fragmented set of mobile devices and platforms
 - Very large number of configurations of devices, platforms, carriers, etc. to test
 - Evolution at a much faster pace
 - More frequent releases and updates for apps with more urgent time-to-market demands

Enterprise Mobility Challenges

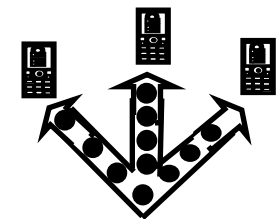
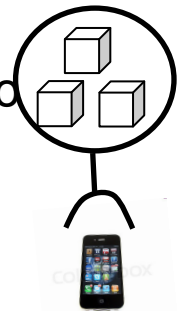


- Changes to the business model
 - New business opportunities based upon geolocation
 - Anytime, anywhere business transactions
 - Importance of social business interactions
- Application Development complexity
 - Multiple device platforms with fragmented Web, native, and hybrid model landscape
 - Connecting to enterprise back-end services in a secure and scalable manner
 - Unique mobile requirements (UI, connected/disconnected use, version upgrades, etc.)
- Mobile security and management
 - Protection of privacy and confidential information
 - Use of client-owned smartphones and tablets
 - Visibility, Security & Management of mobile platform requirements

Enterprise Mobility ...



- IBM solutions address these needs through architectures and product solutions that
 - Build and Connect
 - Build mobile applications that run on multiple devices
 - Connect to, and run enterprise back-end applications and information systems
 - Manage and Secure
 - Manage mobile devices and applications
 - Secure the mobile business environment
 - Extend and Transform
 - Extend existing business capabilities to mobile devices
 - Transform the business by creating new opportunities



Access to IMS

- What's been available
 - IBM Mobile offerings
- What's new
 - IBM Mobile foundation

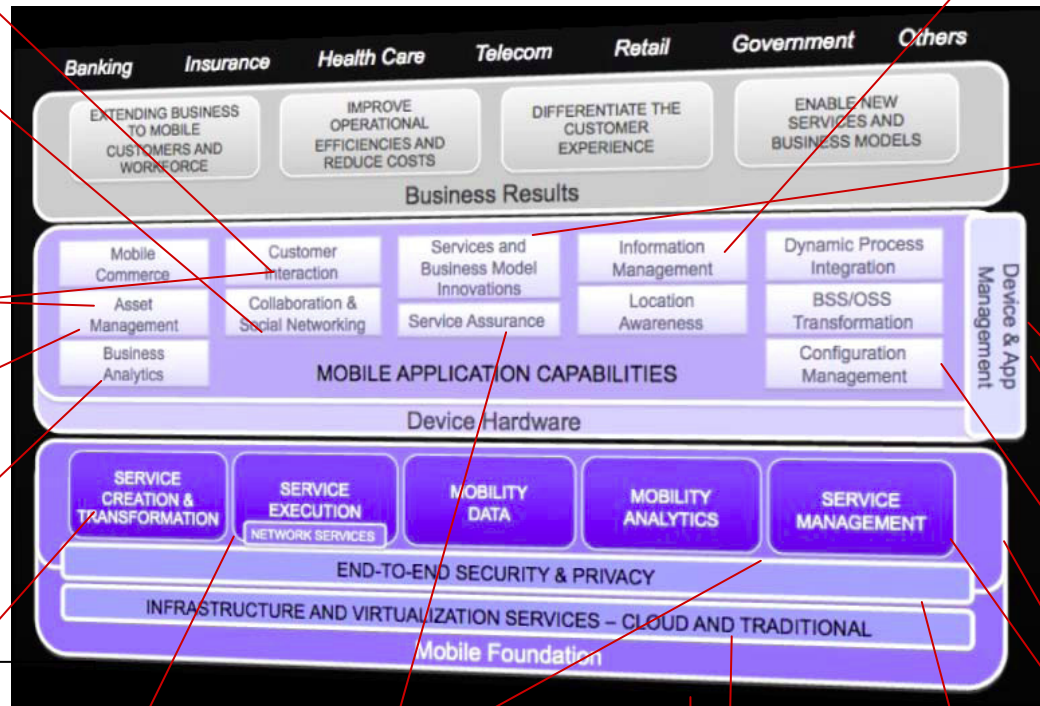
- What's coming

- Requirement for enhanced support of mobile applications by implementing **WAS Liberty Profile** support with integrated **REST** endpoint, which will enable use of the lightweight data-interchange format JavaScript Object Notation (**JSON**)
 - Mobile application development
 - *Target is IMS administration*
 - Mobile enablement for IMS transactions and data



Enterprise Mobility ...

IBM Mobile Offerings



WebSphere Portal

Mobile Portal
Accelerator

Lotus Quickr

Lotus Notes Traveler

Lotus Sametime

Lotus Connections

Lotus Mobile Connect

Mobile Portal Accelerator

LotusLive meetings

Lotus Expeditor

WebSphere Commerce

Tivoli Maximo Everyplace

Cognos Go! Mobile

Cognos BI

Cognos Now

SPSS

IBM Smart Analytics System

Rational DOORS

Rational Software Architect

Rational Modeling communications

Applications plugin for RSA

Rational TeamConcert

Rational SDL Suite

Rhapsody

Mobile Mashup

WebSphere Application Server

WebSphere sMashIMS connector

WebSphere Presence Server

WebSphere XDMS Server

WebSphere Telecom Web Services Server

Smart Business Dev & Test Cloud

Smart Business Storage Cloud

Smart Analytics Cloud

IBM CloudBurst

DB2, Informix, solidDB

Optim, Guardium

InfoSphere Foundation Tools

Telecom Data Warehouse

InfoSphere MDM

InfoSphere MDM for PIM

ECM / FileNet

InfoSphere Streams

ILOG

WebSphere Dynamic Process Edition

Telecom Content Pack

Lombardi Blueprint

Content Manager OnDemand

Optim Data Growth Solution for Amdocs

Mobile Enterprise Services

Rational FocalPoint

Rational System Architect

Rational Software Architect

Rational Modeling Comm

Appl plugin for RSA

Infosphere Business Glossary

SPDE

Tivoli Access Manager

Tivoli Federated Identity Mgr

Tivoli Security Info & Event Mgr

Rational Clear Case

Intelliden R-Series

Tivoli Monitoring

Tivoli Business Service Mgmt

Tivoli Composite Application Mgr

Tivoli Service Automation Mgr

Tivoli Usage and Acctg Mgr

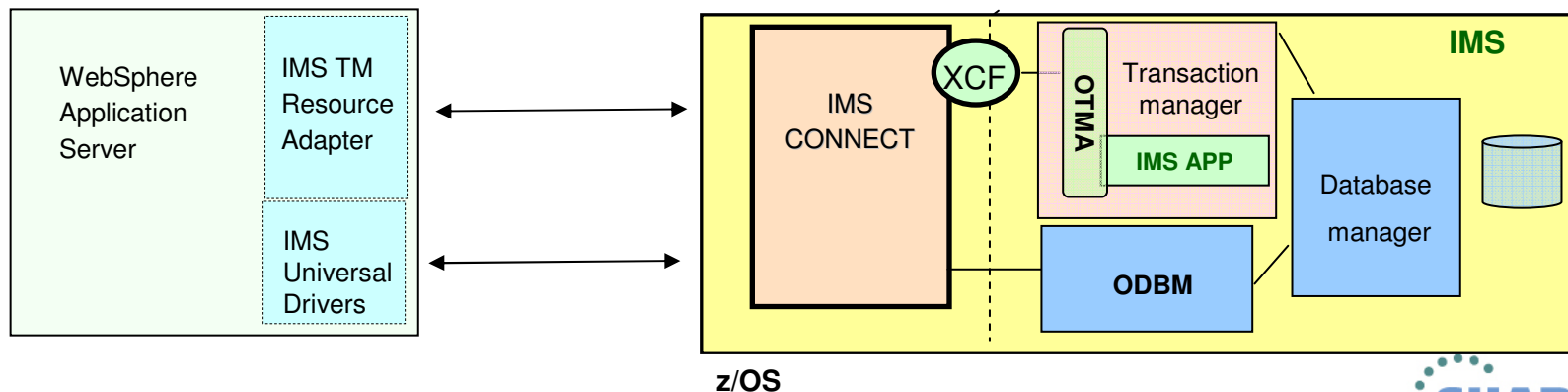
Tivoli Provisioning Manager



Enterprise Mobility ...

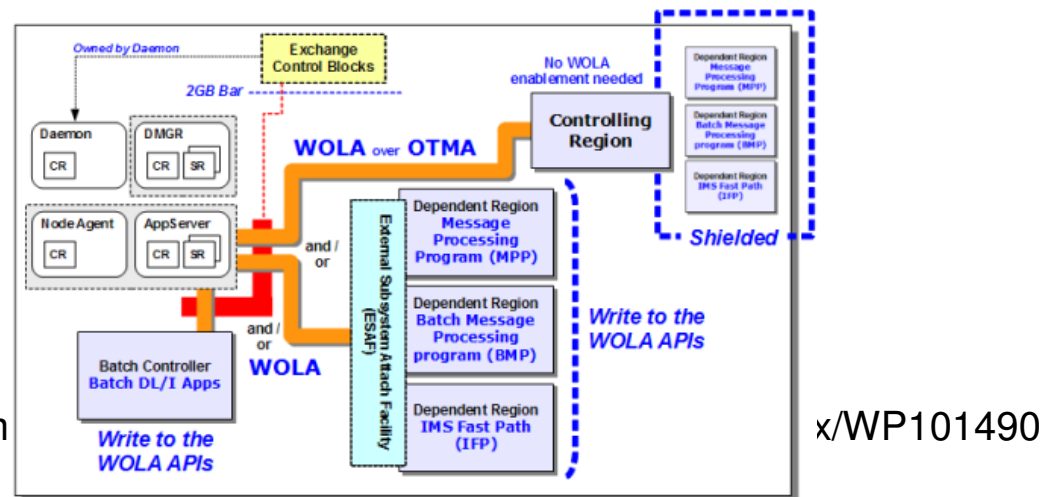


- IBM Mobile framework
 - Connectivity to back-end IMS resources
 - WebSphere Application Server solutions
 - *IMS TM Resource Adapter for transactions*
 - *Full capability adapter (JCA connector)*
 - *IMS usage experience is mature*
 - *Supports connectivity to IMS Connect from any platform on which WAS can run*
 - *IMS Universal Drivers*
 - *Full access to IMS databases*



Enterprise Mobility ...

- WAS connectivity to back-end IMS transactions ...
 - WebSphere Optimized Local Adapter (WOLA)
 - Useful when WAS and IMS are in the same LPAR
 - *High speed Local Comm function accessible by address spaces outside the WAS z/OS cell*
 - WAS to IMS transactions uses the OTMA CI
 - IMS to WAS uses WOLA APIs and ESAF

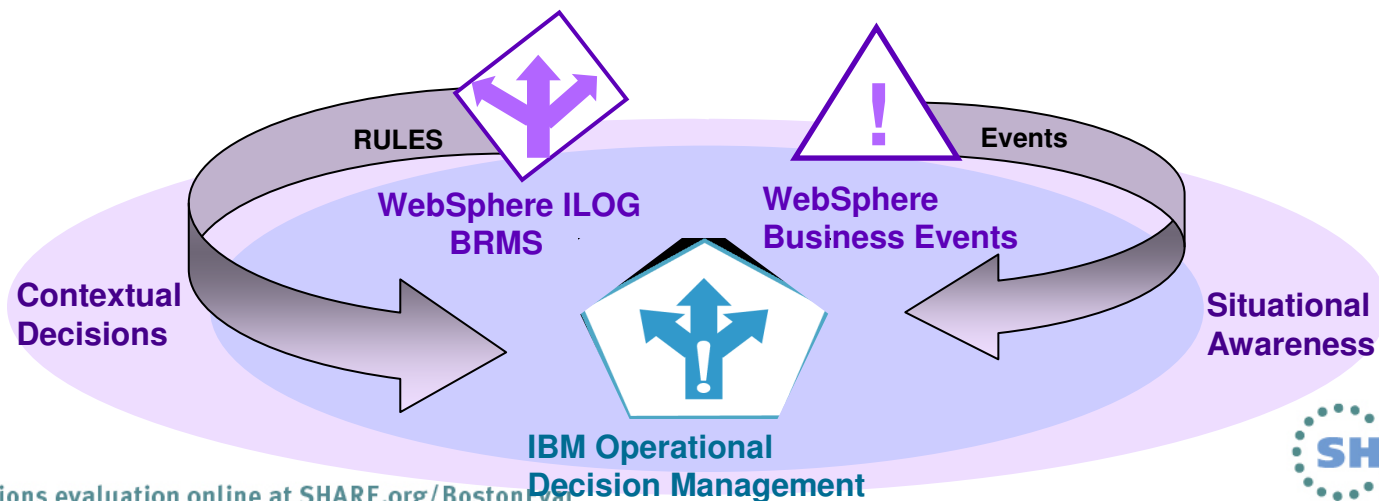


- <http://www-03.ibm>

Enterprise Mobility ...

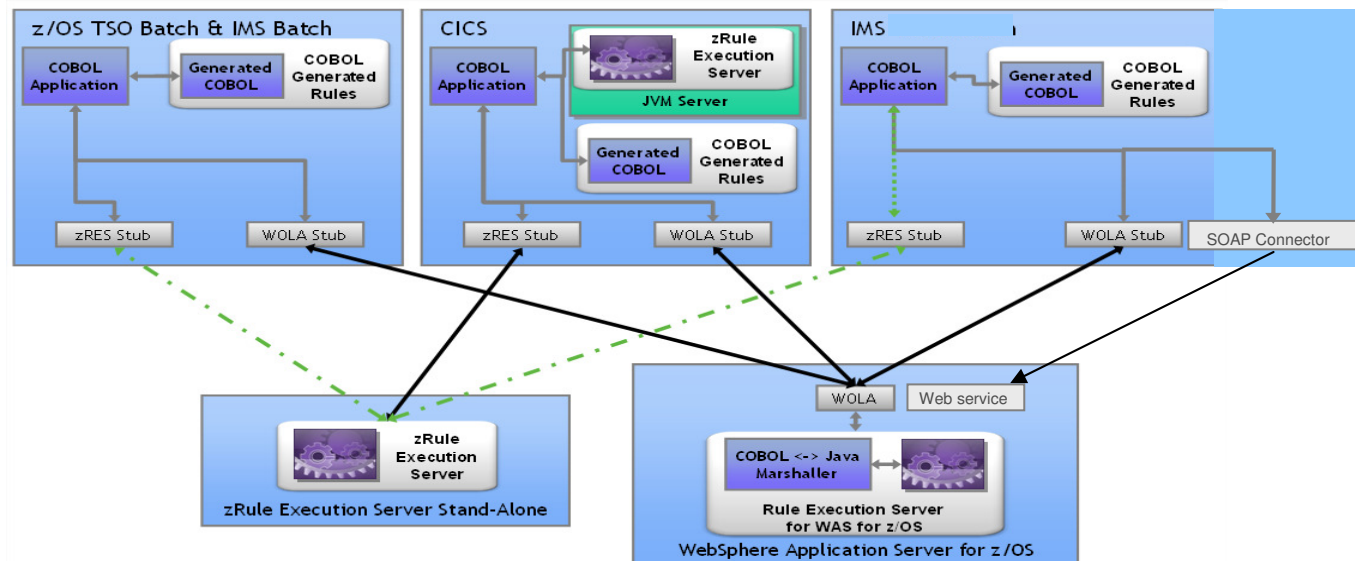


- WAS connectivity to back-end IMS transactions ...
 - IBM Operational Decision Management (IBM ODM)
 - *Previously WebSphere Operational Decision Management on z/OS (WODM)*
 - *Business rules management system (BRMS) and Business events Processor (BEP)*
 - *Detects events and event patterns in real-time to enable situational awareness and response of actionable situations*
 - *Automates the response of highly variable decisions based on the specific context of a process, transaction, or interaction.*
 - *Manages and governs rules-based decision logic separately from application code in order to provide better visibility, understanding, and maintainability compared to traditional application development*



Enterprise Mobility ...

- Business Event Processing
 - **Detects** when events or patterns of events occur to notify people or systems to take action
 - **Decides** business outcome through execution of business rules against available data
- IBM ODM and IMS



<http://www.redbooks.ibm.com/redbooks/pdfs/sg248014.pdf>

http://www.gse-nordic.org/2012/s310_ims%20ad_2012.pdf

Enterprise Mobility ...

❖ *DataPower integration to IMS as a Service Provider (XI50, XI50B, XI50z, XI52, XB60, XB62...)*

• *Three interfaces to get to IMS transactions:*

• *IMS Connect Client*

- *Access to IMS applications using a DataPower embedded IMSClientConnect handler to IMS*

Connect

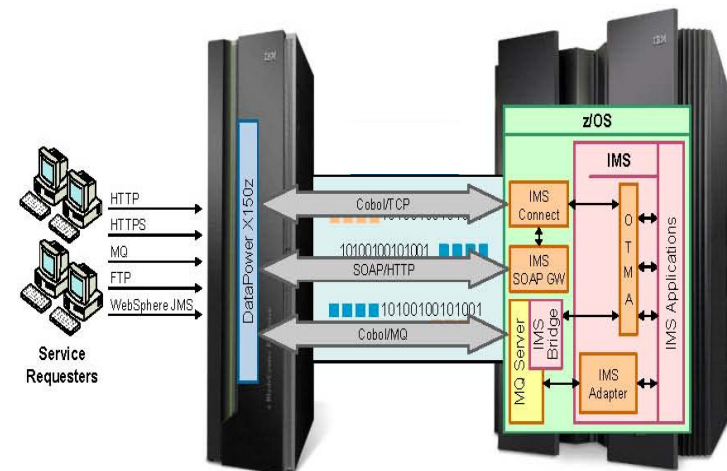
- *CM1, Sync=none (Firmware 3.6.1)*
- *Support for >32k with LLLL (3.8.0)*
- *CM1, Sync=confirm (3.8.1)*

• *Soap*

- *Access to IMS web services via the IMS SOAP Gateway*

• *MQ Client*

- *Access to IMS applications using an MQ server on system z and the MQ Bridge for IMS*



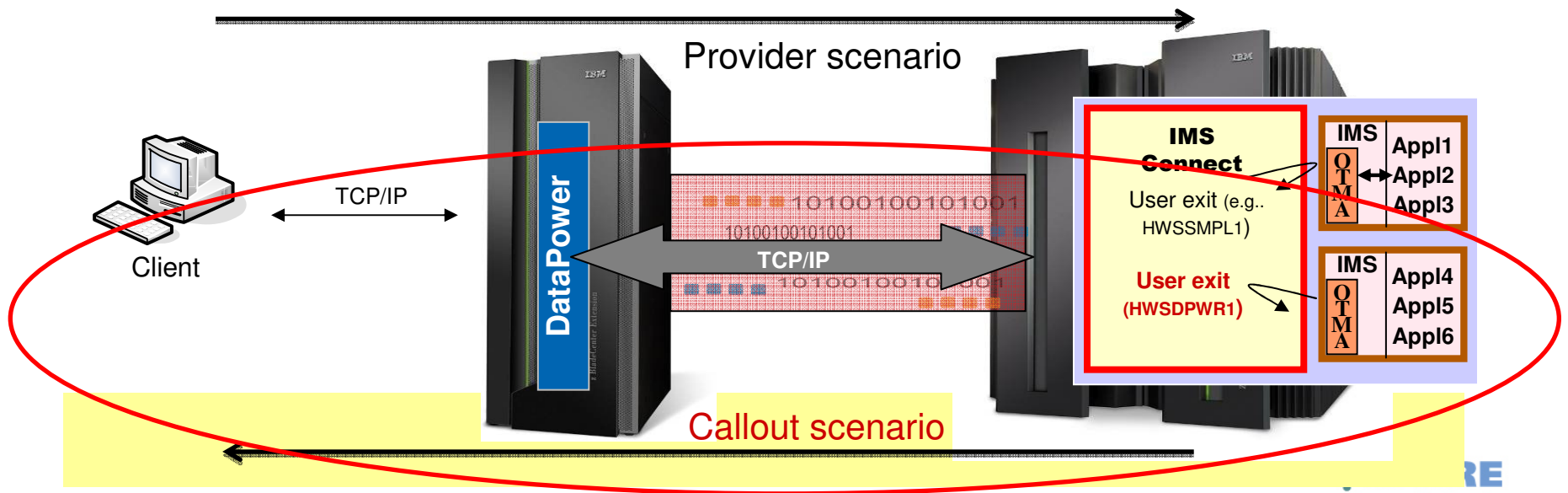
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- **Newly announced support for IMS Callout and for the IMS Universal Drivers for DB**

Enterprise Mobility ...



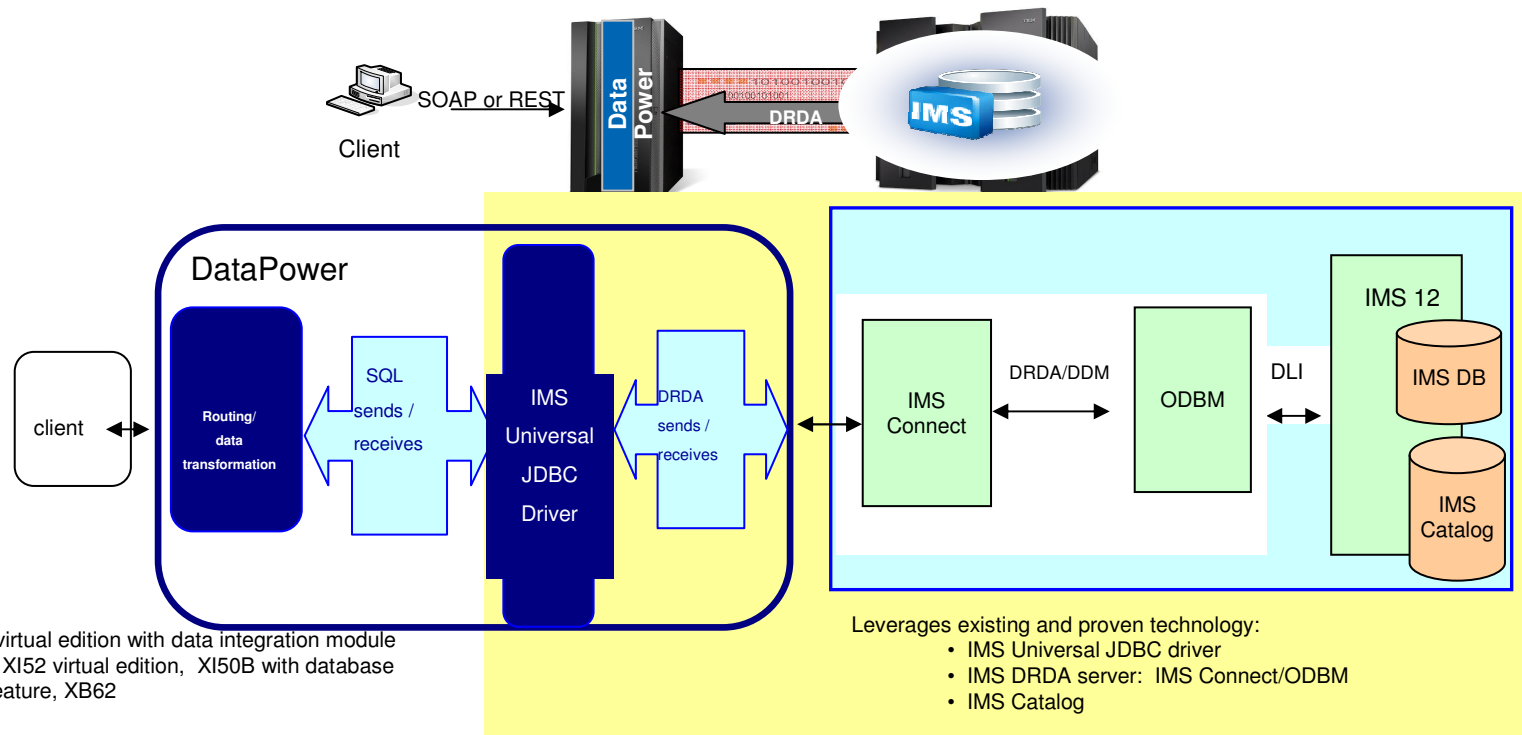
- DataPower ...
 - **Enhanced** capability with Firmware V6.0 (electronic availability 6/28/13) with XI52, XI52 Virtual Edition, XI50B, and XB62
 - An “IMS Callout” front-side handler that natively connects to IMS Connect as service consumer



Enterprise Mobility ...

- DataPower ...

- **Enhanced** WS access to IMS DB with Firmware V6.0 (electronic availability 6/28/13)
 - SOAP or REST call is mapped to a JDBC (DRDA) invocation
 - Leverages extensive Web Services security and management capabilities of DataPower to more securely expose critical data to the enterprise

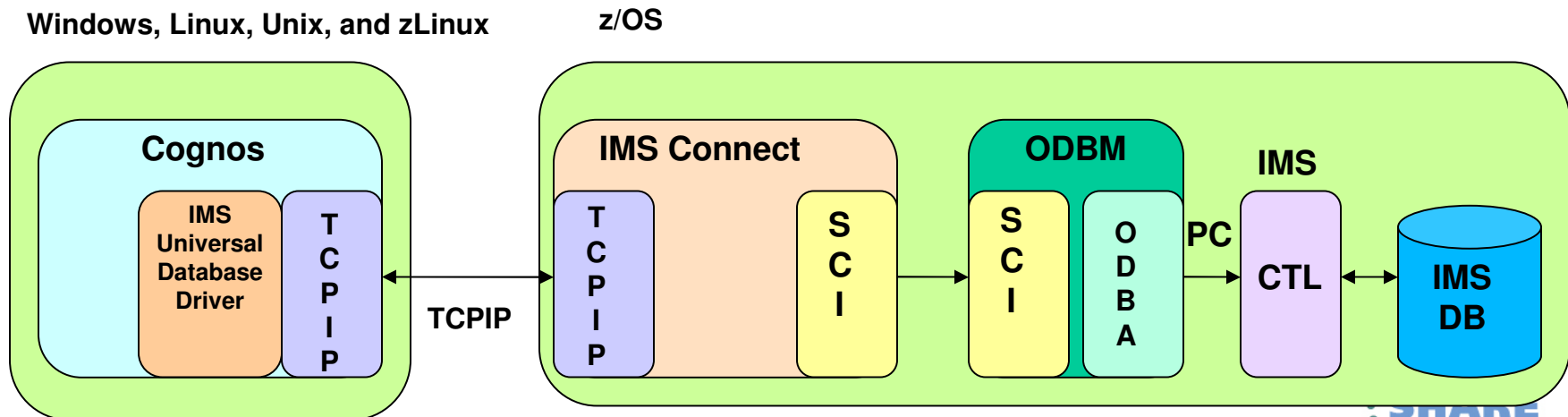


XG45, XG45 virtual edition with data integration module feature, XI52, XI52 virtual edition, XI50B with database connectivity feature, XB62

Enterprise Mobility...



- Cognos 10.2
 - Facilitates business decisions through the implementation of **business intelligence (BI)** and **financial performance management (FPM)** software
 - Allows decision makers to aggregate data from transaction systems (SAP, Oracle,... **and now IMS.**) along with other sources across the organization to create a single, integrated business performance management framework
 - **With IMS**
 - **Allows IMS data to be integrated into this environment using the IMS Open Database solution and the IMS universal drivers**
 - **Using the Cognos generic JDBC driver interface**



SO ...



IBM has been investing in the mobile space for more than a decade

BUT

In April of 2012, IBM announced a new portfolio that expanded IBM's strategy to provide clients with a mobile platform that spans application development, integration, security and management.

www-01.ibm.com/support/docview.wss?uid=swg21590856

IBM Mobile Foundation



Includes

- IBM WebSphere Cast Iron
- IBM Endpoint Manager for Mobile Devices
- IBM Worklight

Plus New Services

- IBM Mobile Services

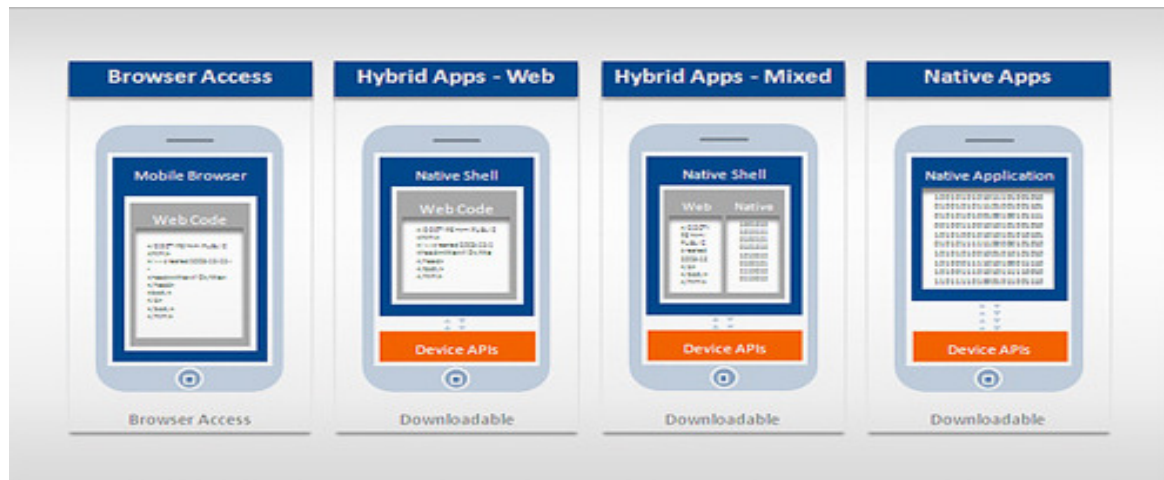
Complementary C

- IBM solutions for Social Business
- IBM Smarter Commerce
- IBM Exceptional Web Experience
- IBM Rational Collaborative Lifecycle Management

IBM Mobile Foundation ...



- Packaging of several existing IBM tools and the new cross-platform mobile development and integration capabilities of Worklight
 - A mobile product family that allows organizations to:
 - Develop HTML5, hybrid and native apps once and deploy to multiple mobile environments without manual porting
 - Manage and secure network-connected devices, including mobile endpoints
 - Integrate mobile applications to enterprise systems and cloud services



IBM Mobile Foundation ...



- Supports the development of mobile apps in four ways
 - Web Apps - Quick and low-cost development effort
 - Written entirely in HTML5, CSS and JavaScript code
 - Executed by the mobile browser and therefore cross-platform by default, but less powerful than native apps.
 - Hybrid Apps (Web) - The app's source code consists of web code executed within a native container that is provided by Worklight and consists of native libraries.
 - Hybrid Apps (Mix) - The web code is augmented with native language to create unique features and access native APIs that are not yet available via JavaScript, such as AR, NFC and others.
 - Native Apps - Platform-specific requiring unique expertise and knowledge
 - Pricy and time consuming to develop but delivers the highest user experience of all approaches.

IBM Mobile Foundation ...



- **WebSphere Cast Iron** (for IT Departments)
 - Hybrid cloud technology that links mobile applications to clouds as well as back-end infrastructure and enterprise resources
- **Worklight** (for developers)
 - A set of development and integration tools
 - Allows developers to write applications and other mobile software just once
 - *For deployment across Apple iOS, Google Android and Research In Motion's BlackBerry platform*
- **IBM Endpoint Manager** (for administrators)
 - Software that spans servers to mobile devices and can carry out critical tasks such as wiping the data and applications off a mobile device when those resources could be at risk
 - Supports managing all types of endpoints on a network and making them secure

IBM WebSphere Cast Iron



- Deployed using
 - A physical appliance (WebSphere DataPower Cast Iron Appliance XH40)
 - A virtual appliance (WebSphere Cast Iron Hypervisor Edition)
 - Can be installed on existing servers using virtualization technology
 - A full cloud service (IBM Cast Iron Cloud)
- Supports a variety of secure communication protocols:
 - HTTPS (HTTP over SSL)
 - SOAP/HTTP over SSL
 - Secure FTP (FTP over SSH) and FTPS (FTP over SSL or Implicit FTPS)
 - Secure Databases (SSL): Supports secure mechanism for database access

IBM Worklight

- **Apps Development**

- Build once. Run anywhere.
- Android, iOS, Blackberry, Microsoft, iGoogle, Facebook app, Adobe AIR
- Runtime Skins for different resolutions
- Standards based language
- Application Lifecycle Management
- Centralized Build Process

- **Security**

- Secured offline access
- On device encryption of user data
- Single sign-on mechanism
- SSL encryption
- Protection against reverse engineering vulnerabilities
- Multi-factor authentication

- **Enterprise Integration**

- Direct access to back-end systems
- Leverage existing SOA services
- Server-side caching
- Adapters with support for SAP, SOAP, REST, SQL and more

- **Application Management**

- App distribution
- App Version management
- Remote disabling apps
- Direct Update
- Push Notification service management
- Analytics and Usage report

- **Middleware**

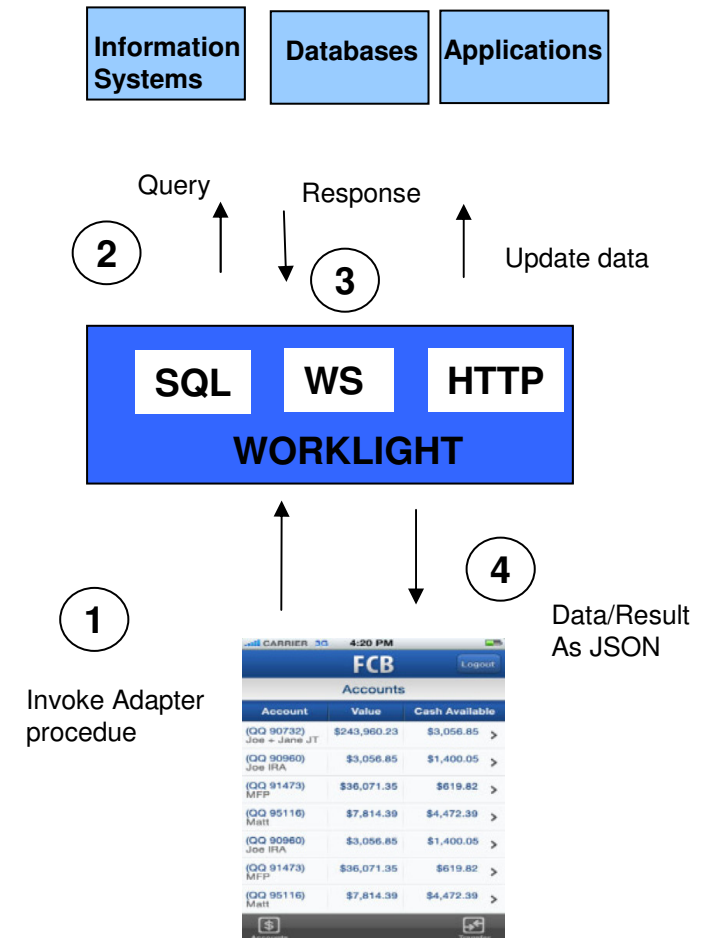
- WebSphere Application Server ND
- Reliable, Highly Available and Scalable



IBM Worklight



- Includes Integration Adapters which
 - Allow the Worklight platform to connect to back-end systems
 - Retrieve information and Perform actions
 - Are provided with the product
 - HTTP adapter (supports REST and SOAP)
 - Cast Iron Adapter
 - SQL adapter
 - Supports data retrieval as either raw or preprocessed



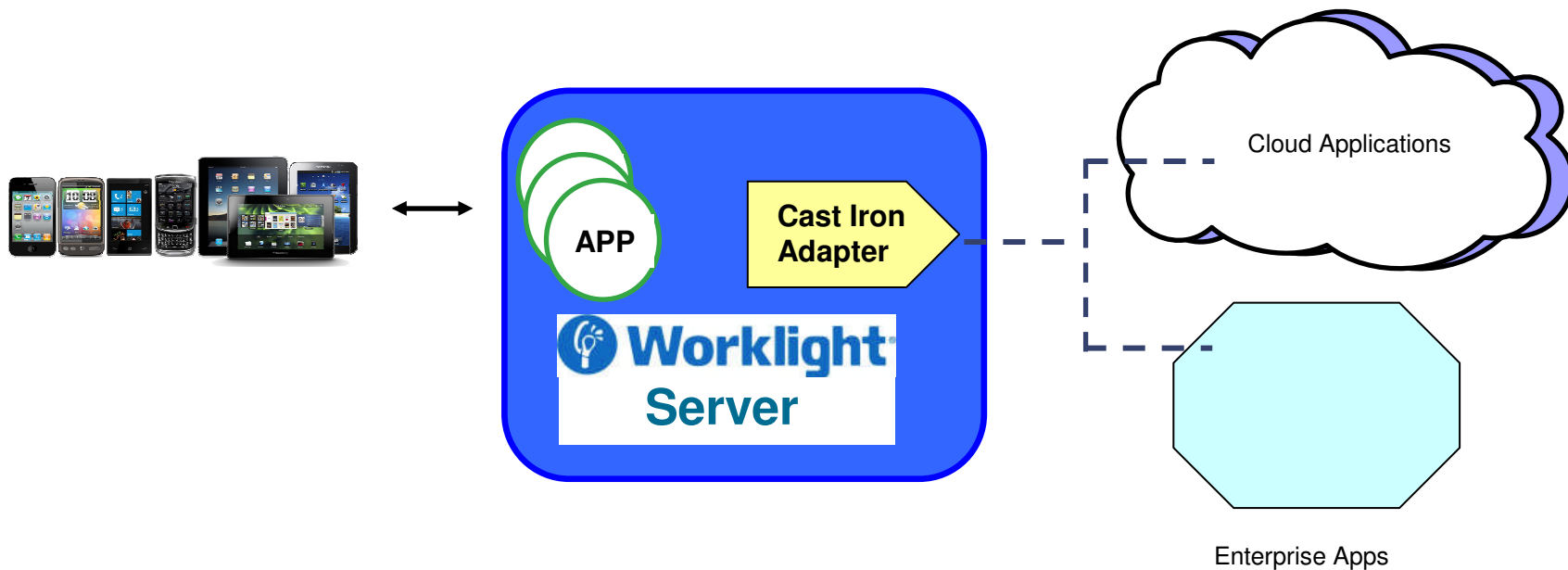
Worklight Adapters ...



- Worklight HTTP Adapter
 - Works with RESTful and SOAP-based services
 - Can read structured HTTP sources, for example RSS feeds
 - Allows sending a GET or POST HTTP request and retrieves data from the response headers and body
 - Easily customizable with simple server-side JavaScript
 - Optional server-side filtering
 - Retrieved data can be in XML, HTML, JSON, or plain text formats

Worklight Adapters ...

- Worklight Cast Iron Adapter
 - Initiates orchestrations in Cast Iron to retrieve and return data to mobile clients
 - Takes advantage of Cast Iron implementations



Worklight Adapters ...



- Worklight SQL Adapter
 - A Worklight® SQL adapter is designed to communicate with any SQL data source
 - Both plain SQL queries or stored procedures can be used
 - Supports MySQL, Oracle 11g and DB2® databases
 - Supports a JDBC connector driver for specific database type must be downloaded separately by the developer and added to the lib\ folder of a Worklight project
 - *E.g., IMS universal driver*

Tooling (IDEs)



- Rational Application Developer 8.5 (RAD)
 - Includes mobile web development tools for a pure web deployment
 - For developing applications, include mobile web applications, and deploying to WAS or WebSphere Portal
 - Programming models include JEE, OSGi, SCA, and Web 2.0
- IBM Worklight Studio 5 (IWS)
 - Includes tools for “mobile hybrid” development within a multi-channel architecture
 - For developing apps and deploying to smart phones and tablets
 - Programming model is HTML5 and JavaScript
 - *Uses a JavaScript-to-native bridge called Apache Cordova (formerly PhoneGap) so hybrid apps can access device capabilities without having to write in native platform languages*
 - Multi-channel architecture covers mobile devices, mobile web, desktop web and desktop widgets

Enterprise Mobility Workload



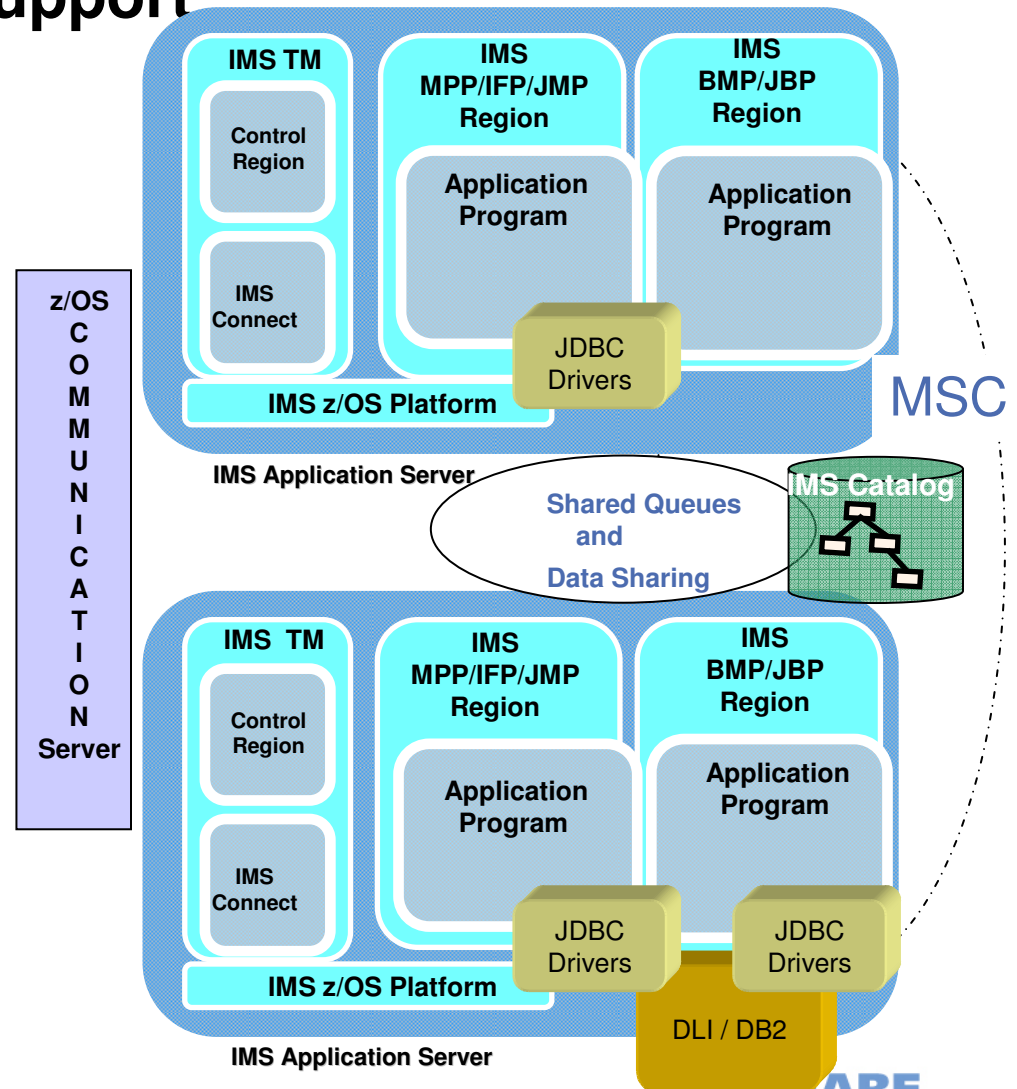
- Business to systems programmer
 - Scale using z/cloud and IMS Parallel Sysplex
 - Event processing for workload and error notification
 - IMS Monitoring tools
 - Current IMS security does not change
 - Just another endpoint

IMSplex – Parallel Server Environment Cloud + Mobile workload support

- IMS is a dynamic and configurable platform
- Provides standard interfaces to access resources



- Does not require application program recompiles even if the IMS release is changed
- Does not require application program changes even when the network or db structure changes



Accessing IMS Transaction Resources

MQ Telemetry Transport - MQTT

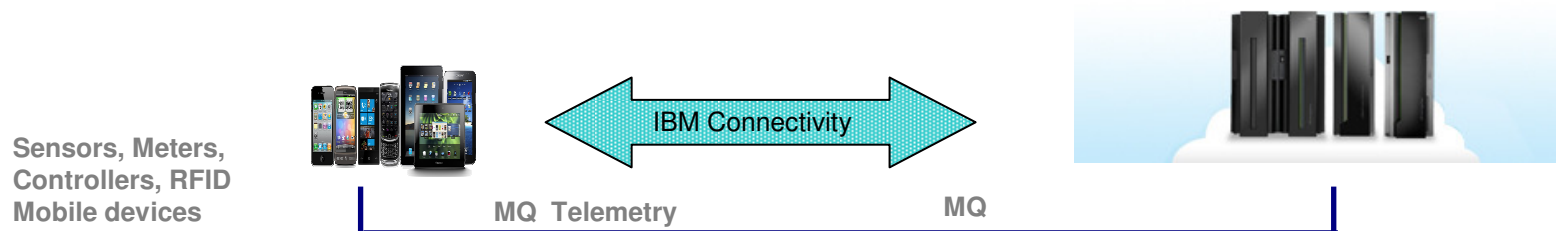


- Optimized messaging for smart sensors and telemetry devices
 - Enables intelligent decision-making based on remote real-world events
 - Supports remote resource management of static or moving assets
 - MQTT is an open message protocol
 - Examples of usage includes: Facebook Messenger, iPhone, Android, and Windows apps

Telemetry can be used to extend the enterprise to mobile devices

- Direct device integration into back office
- Tiny messaging optimized for resource-constrained devices & gateways (RTUs)
- Terse protocol & compact header for fragile & pay-per-byte networks
- Advanced device level data buffering

- Event-driven publish-and-subscribe delivery of only significant information
- Open protocol encourages widespread device enablement
- Last Will & Testament for automated handling of device failures or outages



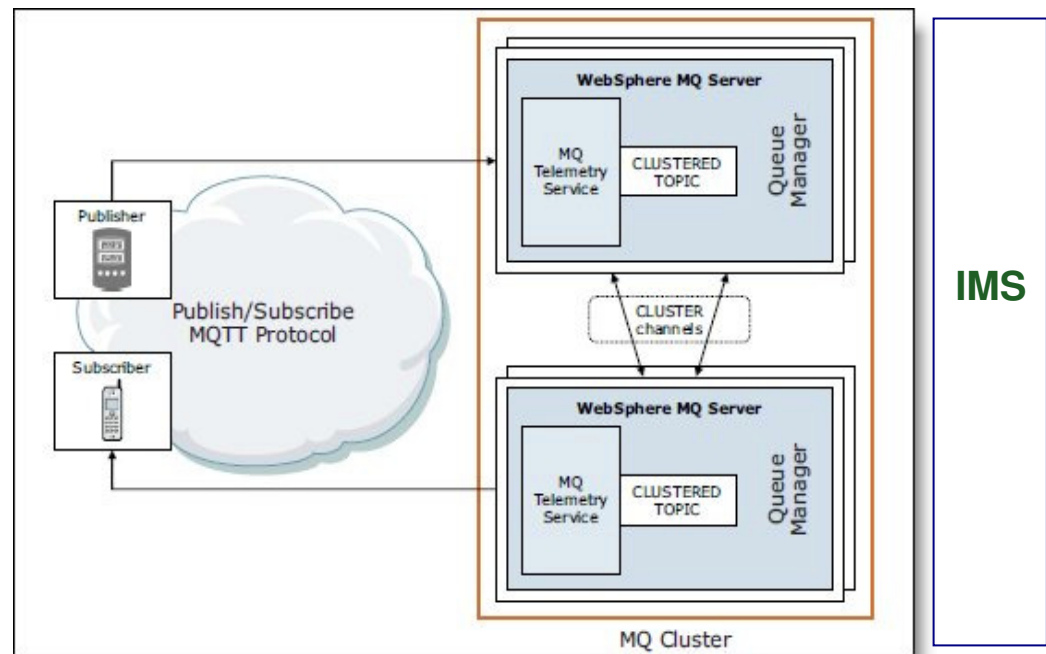
MQ Telemetry Transport – MQTT ...



- With WebSphere MQ Telemetry, instrumented devices that are located anywhere in the world can connect to each other
- And with WebSphere MQ, they can connect to enterprise applications and web services
 - MQ Telemetry uses the MQTT protocol to send and receive messages between devices or applications and the WebSphere MQ queue manager
 - From the WebSphere MQ queue manager, messages can be exchanged with other messaging applications

- Access to IMS transactions from WMQ
 - IMS MQ Bridge
 - IMS Adapter

- Other IBM products that have applications and devices that communicate using the MQTT protocol
 - WebSphere Message Broker
 - WebSphere Application Server
 - IBM Operational Decision Management (IBM ODM)

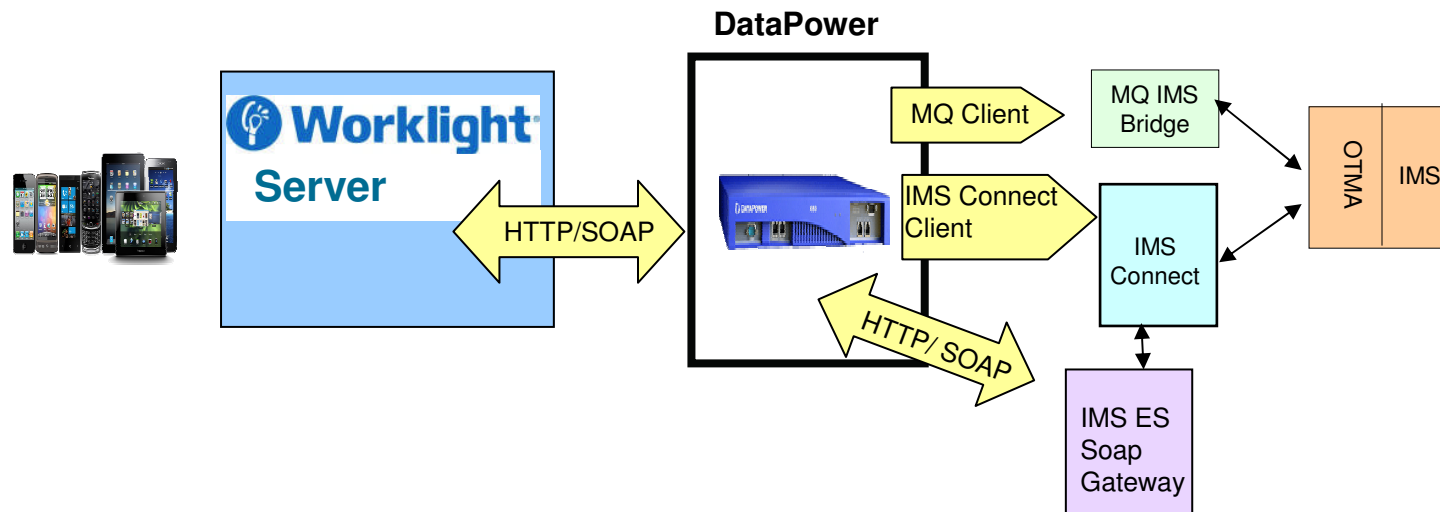


<http://www.redbooks.ibm.com/technotes/tips0876.pdf>



Accessing IMS Transactions – SOAP/HTTP ...

- WebSphere DataPower
 - Supports
 - Access to IMS web services via the IMS SOAP Gateway
 - Access to IMS applications using an MQ server on system z and the MQ Bridge for IMS
 - Access to IMS applications using a DataPower embedded IMSClientConnect handler to IMS Connect

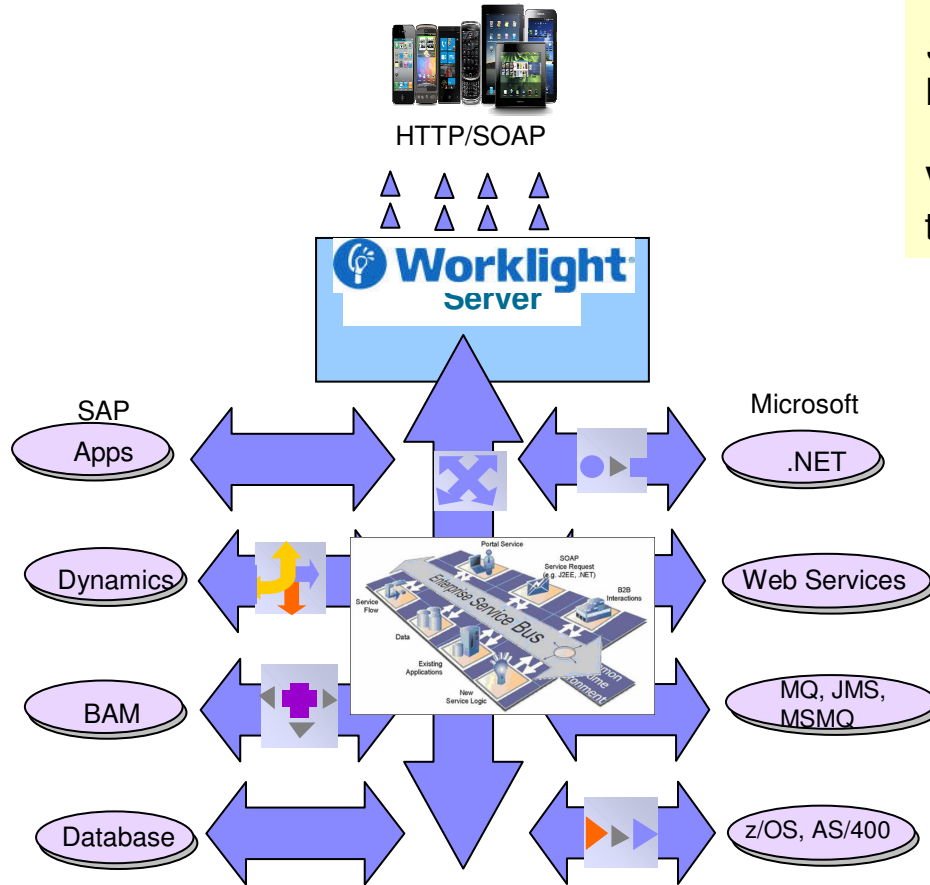


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Accessing IMS Transactions – SOAP/HTTP ...



- WebSphere Message Broker



Connect *FROM* anywhere, *TO* anywhere

Simple & Easy –to Install, Learn, Develop, Deploy and Manage

Visually Map and Transform between any two message or file formats

Connect everything to everything



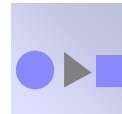
Matches and routes Communications Between services



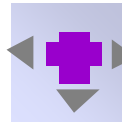
Transforms Between different Data formats



Converts Between different Transport protocols



Identifies and distributes Business events



<http://tinyurl.com/9fyudba>



Accessing IMS Transactions – SOAP/HTTP ...

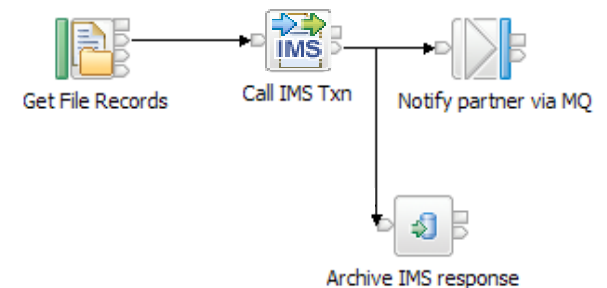


- WebSphere Message Broker ...
 - A powerful broker solution driven by business rules
 - Messages are formed, routed, and transformed according to the rules that you define
 - **Allows diverse applications to exchange information in dissimilar forms**
 - *With brokers handling the processing required for the information to arrive in the right place in the correct format*
 - *The applications do not need to know anything except their own conventions and requirements.*
 - Implementation of an enterprise service bus architecture
 - Nodes
 - *Communication points to external resources*
 - *Points in the message flow which define a set of actions*

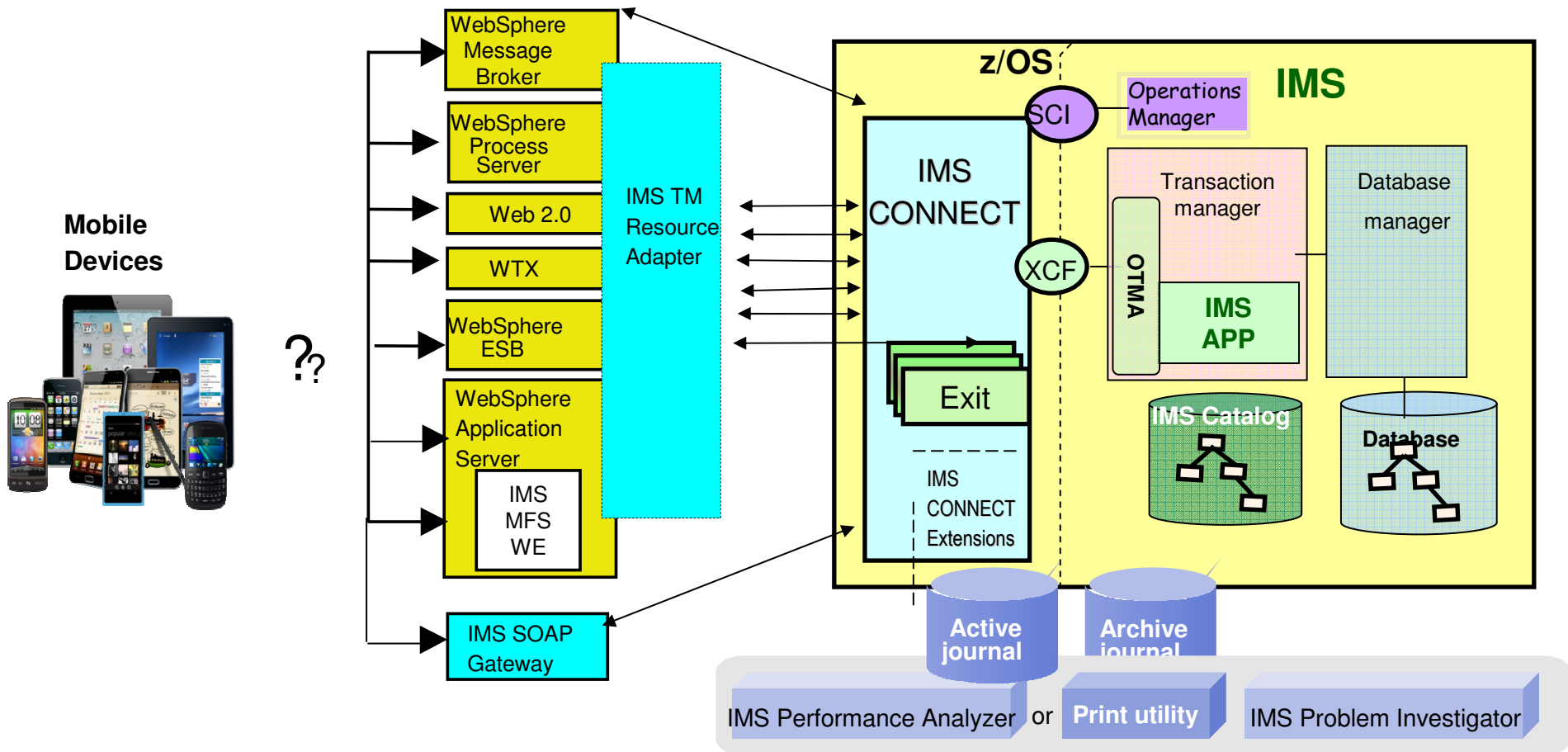
Accessing IMS Transactions – SOAP/HTTP ...



- WebSphere Message Broker ...
 - Provides two nodes to access IMS
 - MQ Node
 - *Takes advantage of the WMQ support - MQPUT / MQGET*
 - **IMSRequest Node**
 - *Takes advantage of the IMS TM Resource adapter*
 - *Accesses IMS through IMS Connect*
 - *Delivered/ built into WMB*
 - *Supports WMB Configurable Services which allow operational control of IMS connection configuration*
 - *Supports a broad range of IMS facilities*
 - *MPP, BMP and FP transaction regions*
 - *Commit mode 0, 1*
 - *SyncLevel NONE, CONFIRM*
 - *Single and multi segment IMS messages*



IMS Connect and IMS TM (Supports Mobile Devices)



Accessing IMS Transactions – SOAP/HTTP

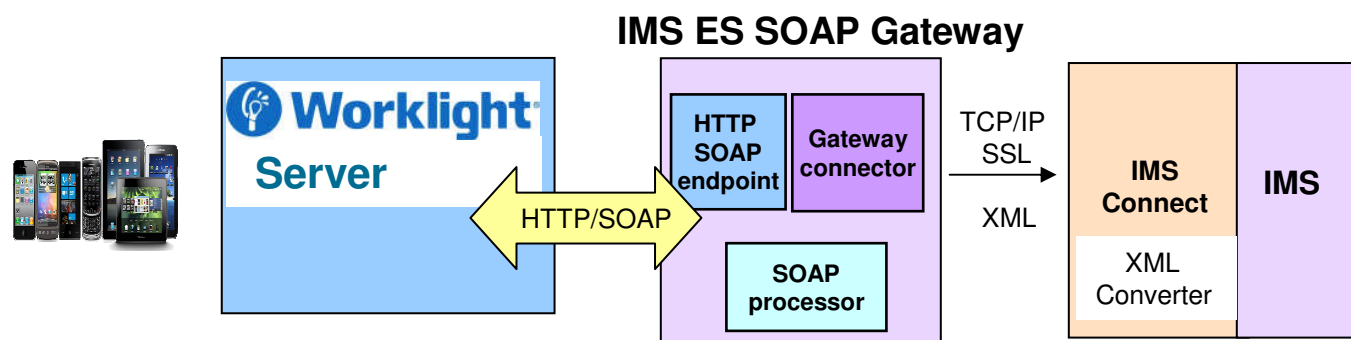


- Enterprise Mobility means more transactions
 - Using communication mechanisms and interfaces that are already there for IMS
 - SOAP/HTTP adapters in Worklight or through Cast Iron
 - *Can send messages to IMS through*
 - *IMS ES Soap Gateway*
 - *WebSphere Application Server*
 - *WebSphere DataPower*
 - *WebSphere Message Broker*
 - ...

Accessing IMS Transactions – SOAP/HTTP ...



- IMS Enterprise Suite Soap Gateway
 - A web services solution that enables IMS applications to interoperate outside of the IMS environment
 - Compliant with the industry standards for web services, including SOAP/HTTP 1.1 and Web Services Description Language (WSDL) 1.1.
- By using the Worklight Server's HTTP/SOAP adapter, Mobile applications can interoperate with the IMS environment



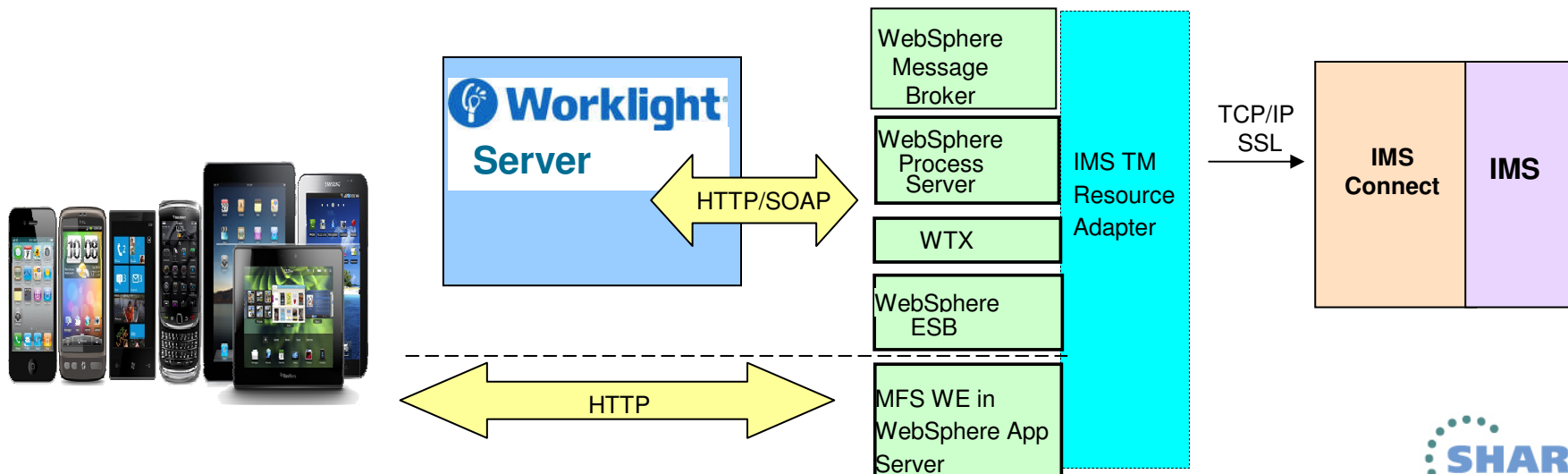
Supports:

- IMS non-conversational transaction:
- CM1 (Send-then-Commit), sync_level=None protocols
- Single-segment or Multi-segment messages
- WS-Security

Accessing IMS Transactions – SOAP/HTTP ...



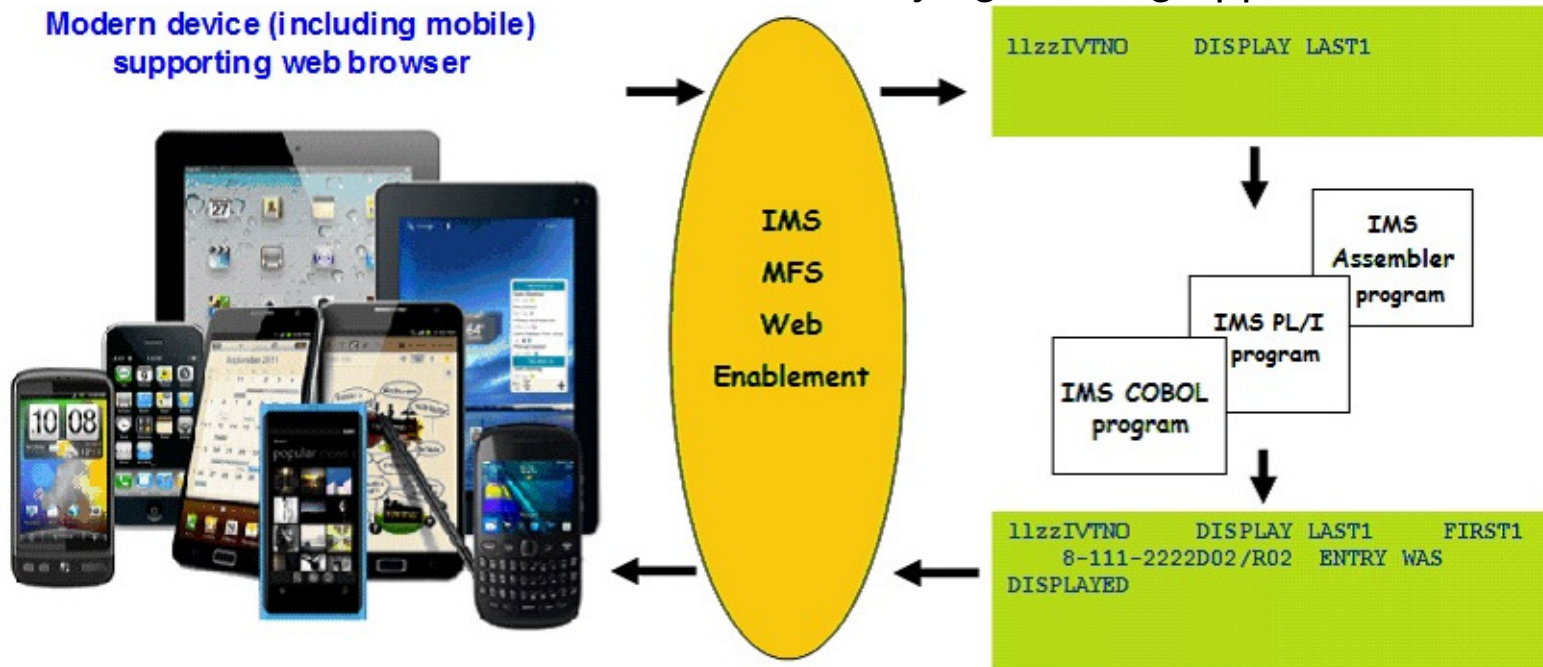
- WebSphere solutions
 - Take advantage of the IMS TM Resource Adapter
 - Based on J2EE Connector Architecture (JCA) 1.5
 - Leverages existing IMS assets in an SOA environment
 - Supports development of applications that can submit transactions to IMS Transaction Manager through IMS Connect



Modernize MFS based IMS transaction

- Business values offered by IMS MFS on demand
 - Embedded command-line tooling
 - 3270 emulator and VTAM are no long required
 - Render displays for web browser and mobile devices, e.g. iPhone, iPad, etc.
- Modernize MFS transaction without modifying existing applications.

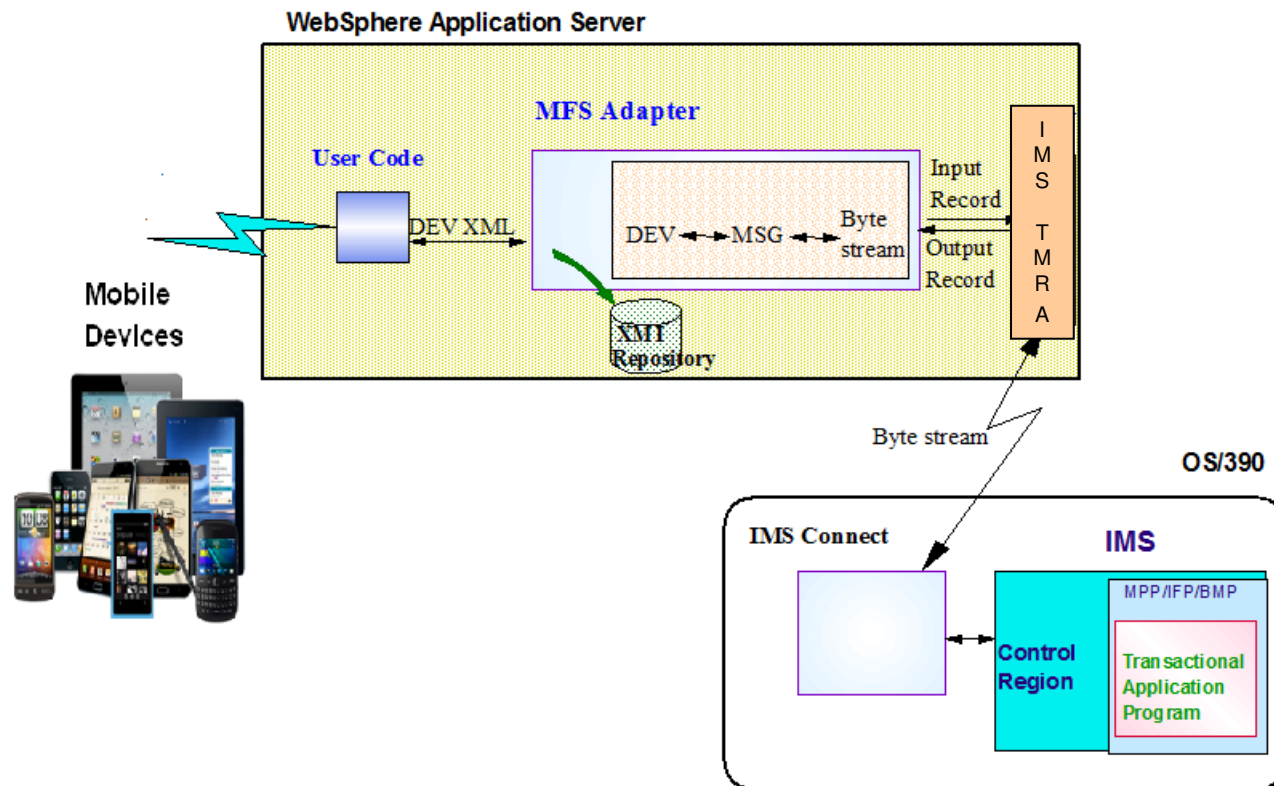
Modern device (including mobile)
supporting web browser



Accessing IMS Transactions – IMS MFS WE

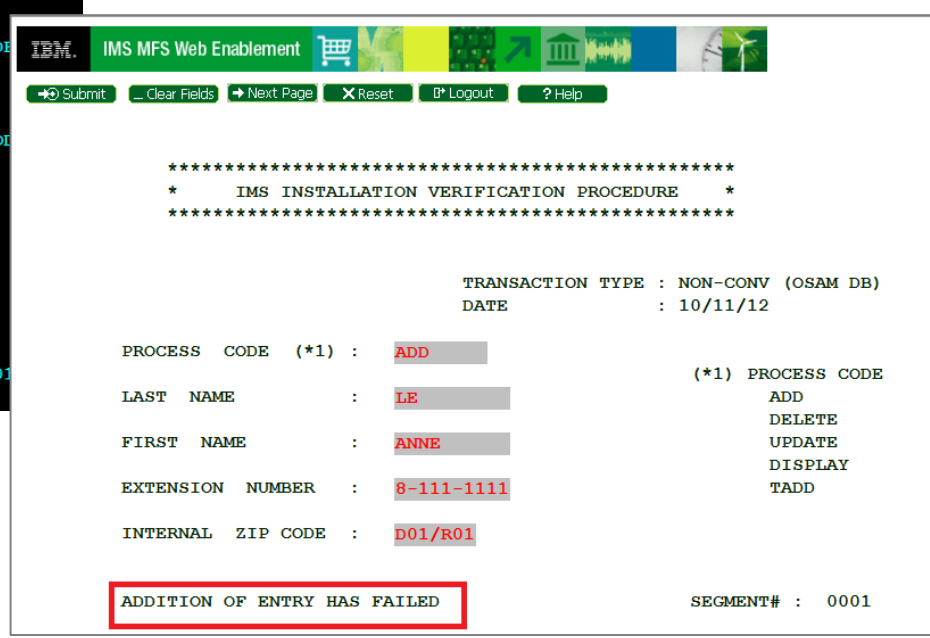
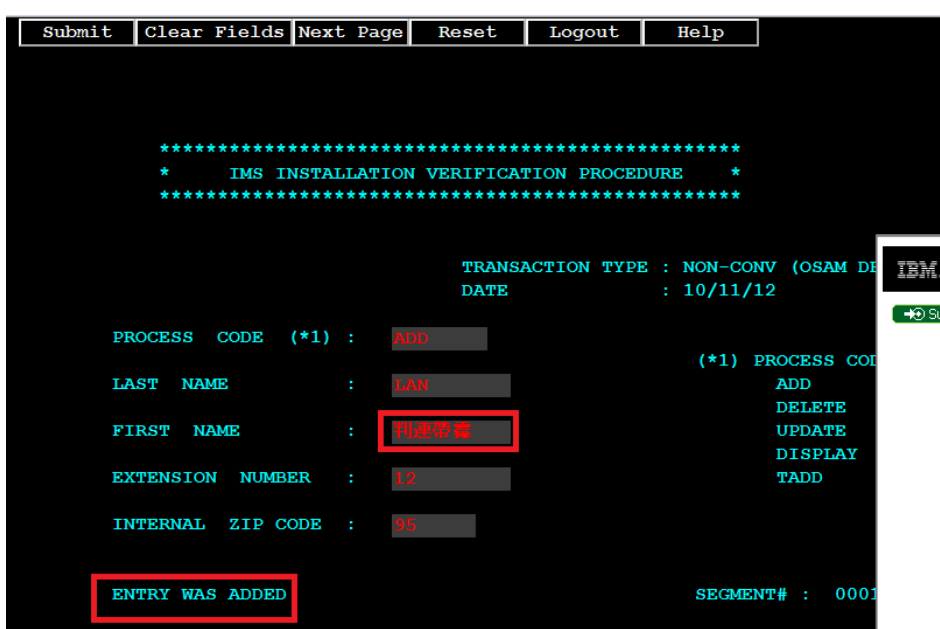


- Style sheet is used to transform a MFS XML document into dynamic HTML pages that render data on mobile browser
- MFS XML Utility is tool that generates XMI files based on MFS source file. It also generates WAR file for deploying to WebSphere Application Server
- IMS MFS Adapter translates MFS XML document into a byte stream that IMS application can understand



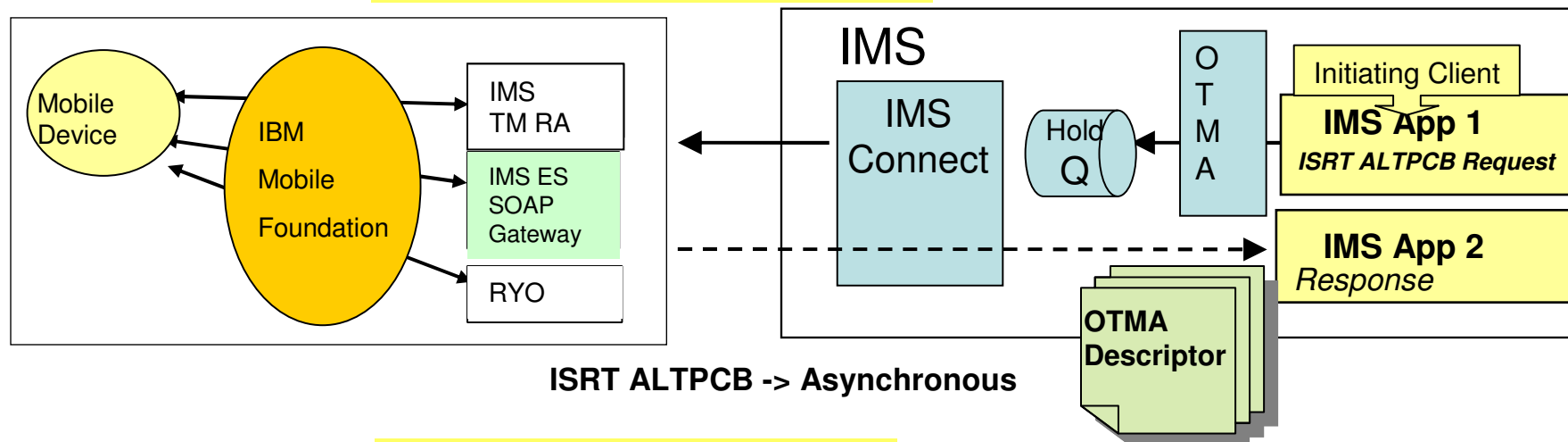
Examples – IMS MFS WE

- A demo showing access to IMS MFS transaction from the web browser on a mobile device



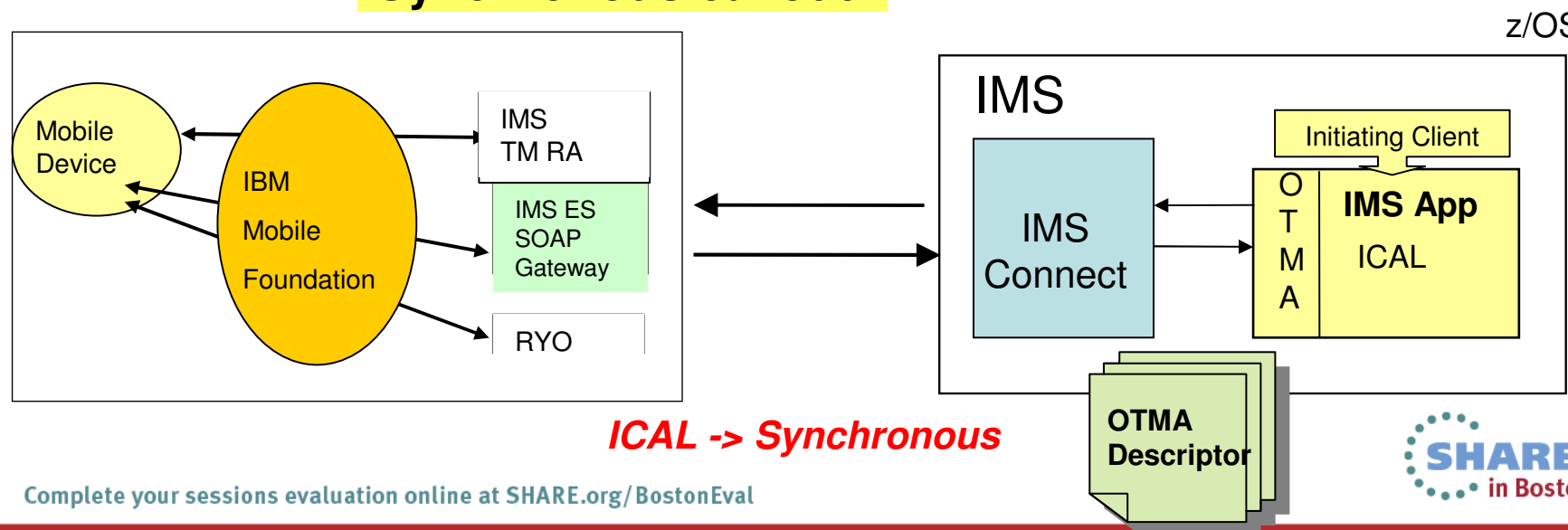
IMS Application Event notification

Asynchronous callout



ISRT ALTPCB -> Asynchronous

Synchronous callout

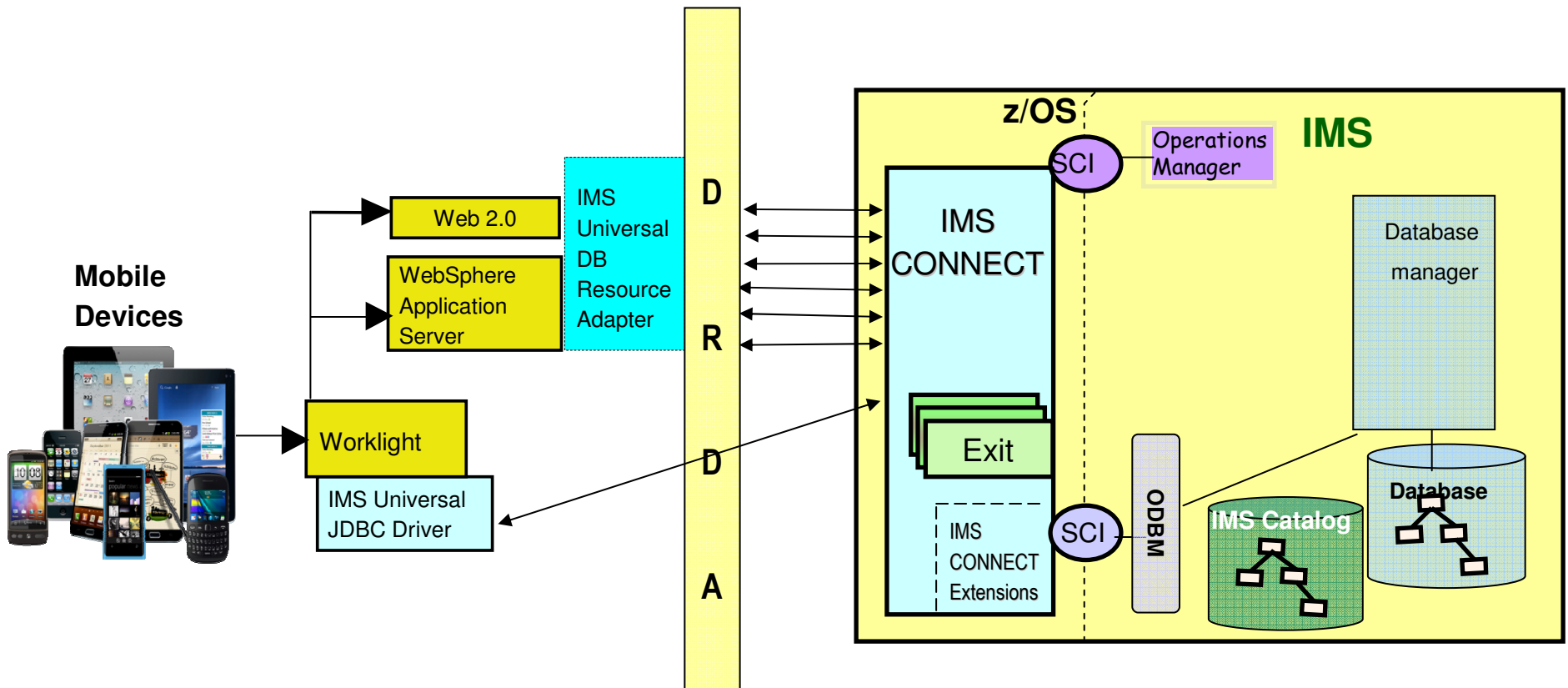


ICAL -> Synchronous

How About Data?

IMS Connect and IMS DB

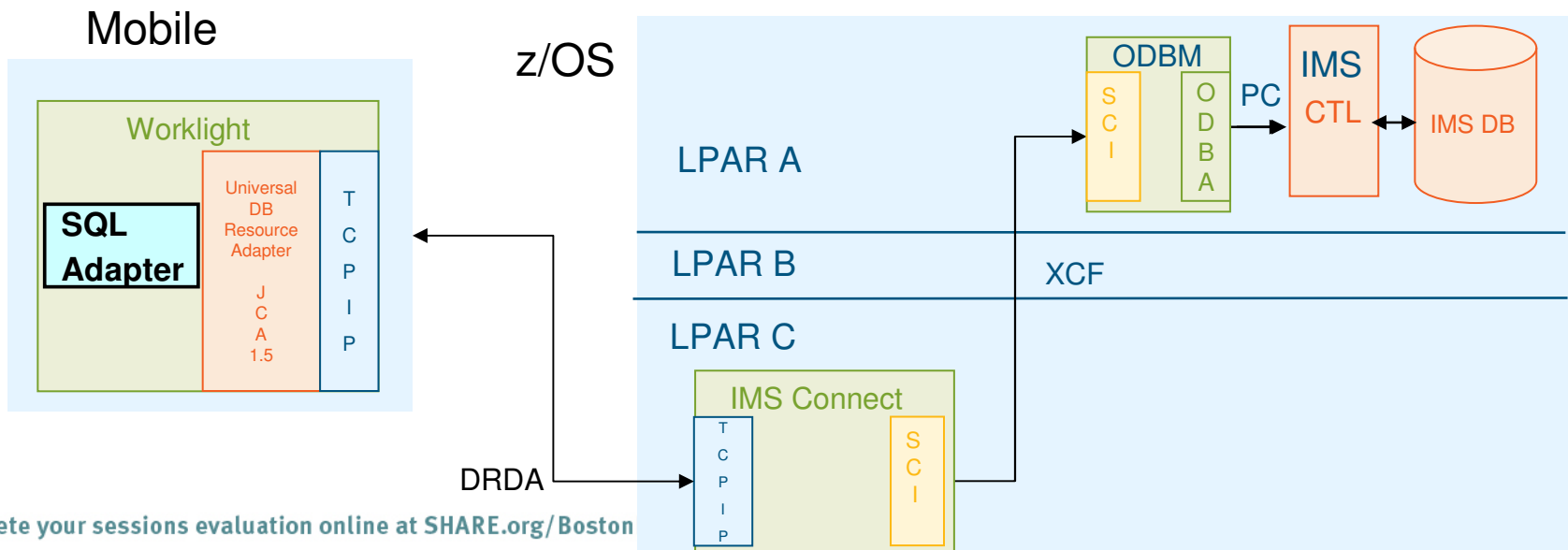
(Supports Mobile Devices)



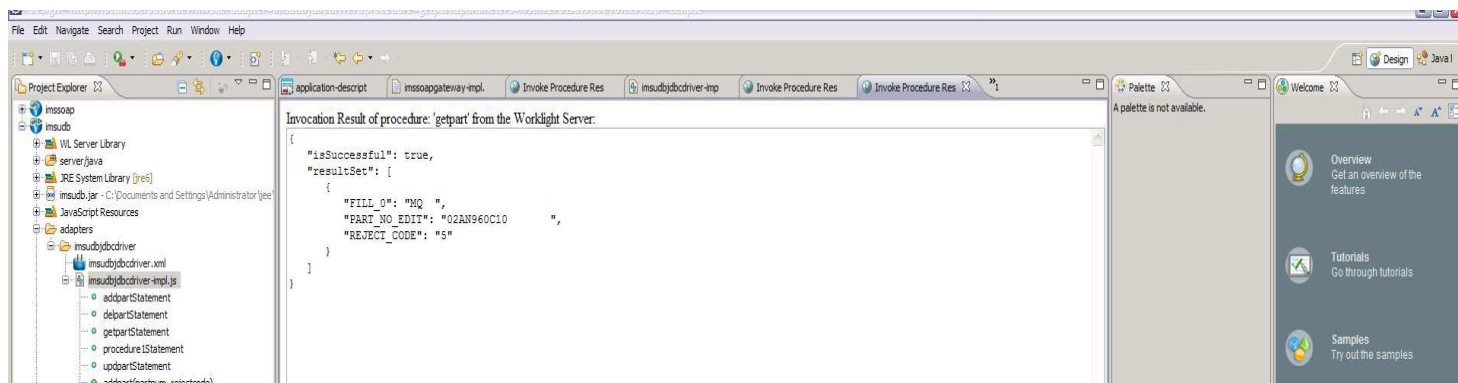
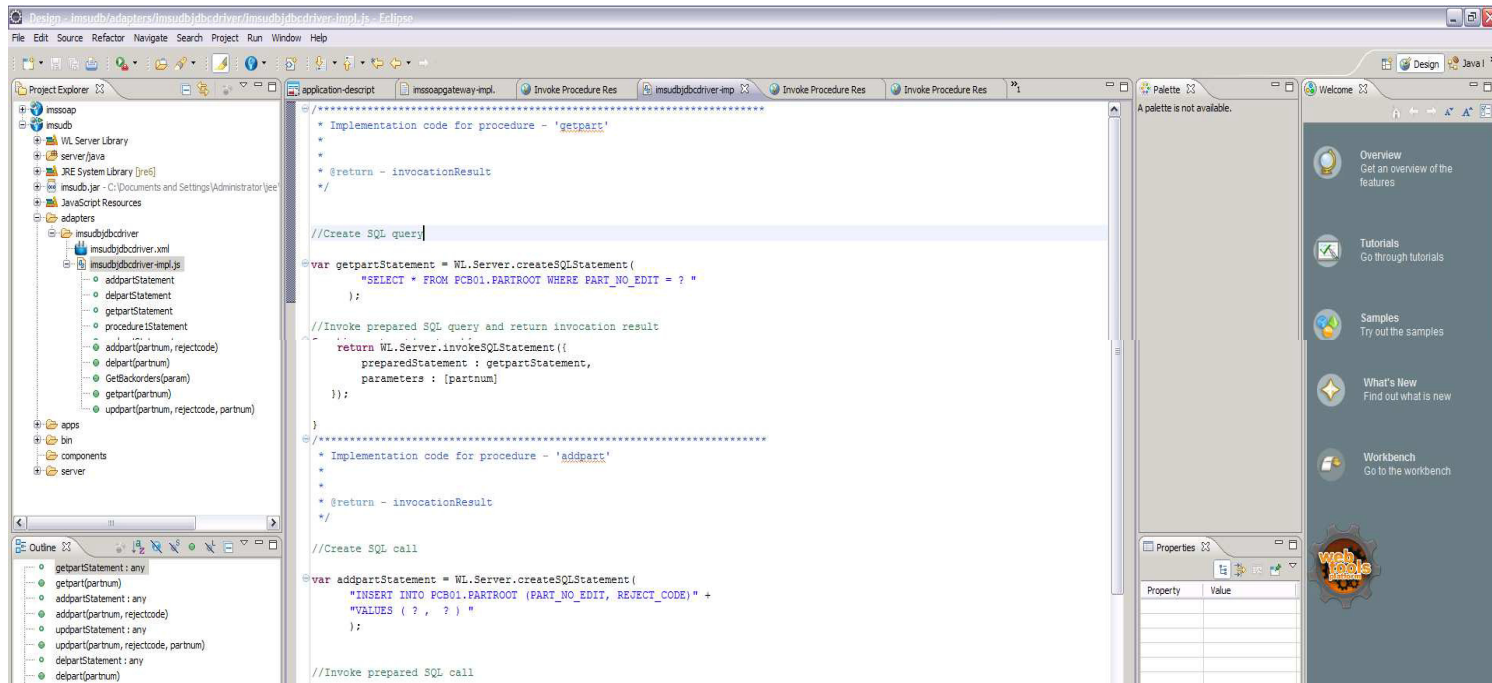
IBM Worklight SQL Adapter



- Development Studio
 - A Worklight® SQL adapter is designed to communicate with any SQL data source
 - Both plain SQL queries or stored procedures can be used
 - IMS Universal JDBC connector driver can be to the lib\ folder
 - Access IMS DB via Type 4 Connectivity



Worklight Sample screen shots



Examples

- Access to IMS data from a mobile device

IMS Mobile Navigator Reload

Backordered Parts

Backorder ID	Part ID	Stock ID
30PR237942	02JAN1N976B	0025509126
30PR265943	02250236-001	0025900326
30PR347921	02250236-001	0025900326
30PR426134	02250236-001	0025900326
30SO536609	023003806	0025900326
30SO536610	023003806	0025900326
30PR149329	027618032P101	0025900326
30PR149376	027618032P101	0025900326
30PR153096	027618032P101	0025900326
30PR153098	027618032P101	0025900326

Feeds About

10:34 3G