

The Ever-Evolving Impacts of Cloud & Mobility on Enterprise Growth

Session A05

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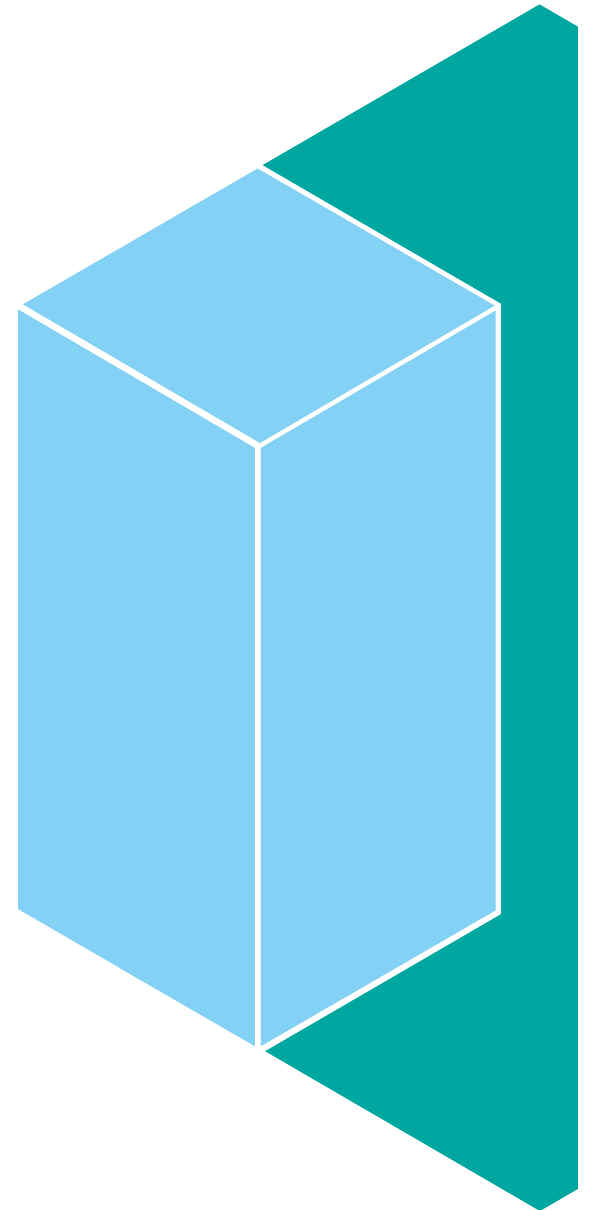
Sharpen your competitive edge

2016 IMS Technical Symposium

March 7 – 10, 2016

Wiesbaden, Germany

www.ims-symposium.com



Consumption and Delivery Model for CCloud

Cloud Computing



Five Essential Cloud Characteristics:

1. On-demand self-service
2. Broad network access
3. Location independent resource pooling
4. Rapid elasticity
5. Measured Service

*National Institute of Standards and Technology

Common Cloud Terms

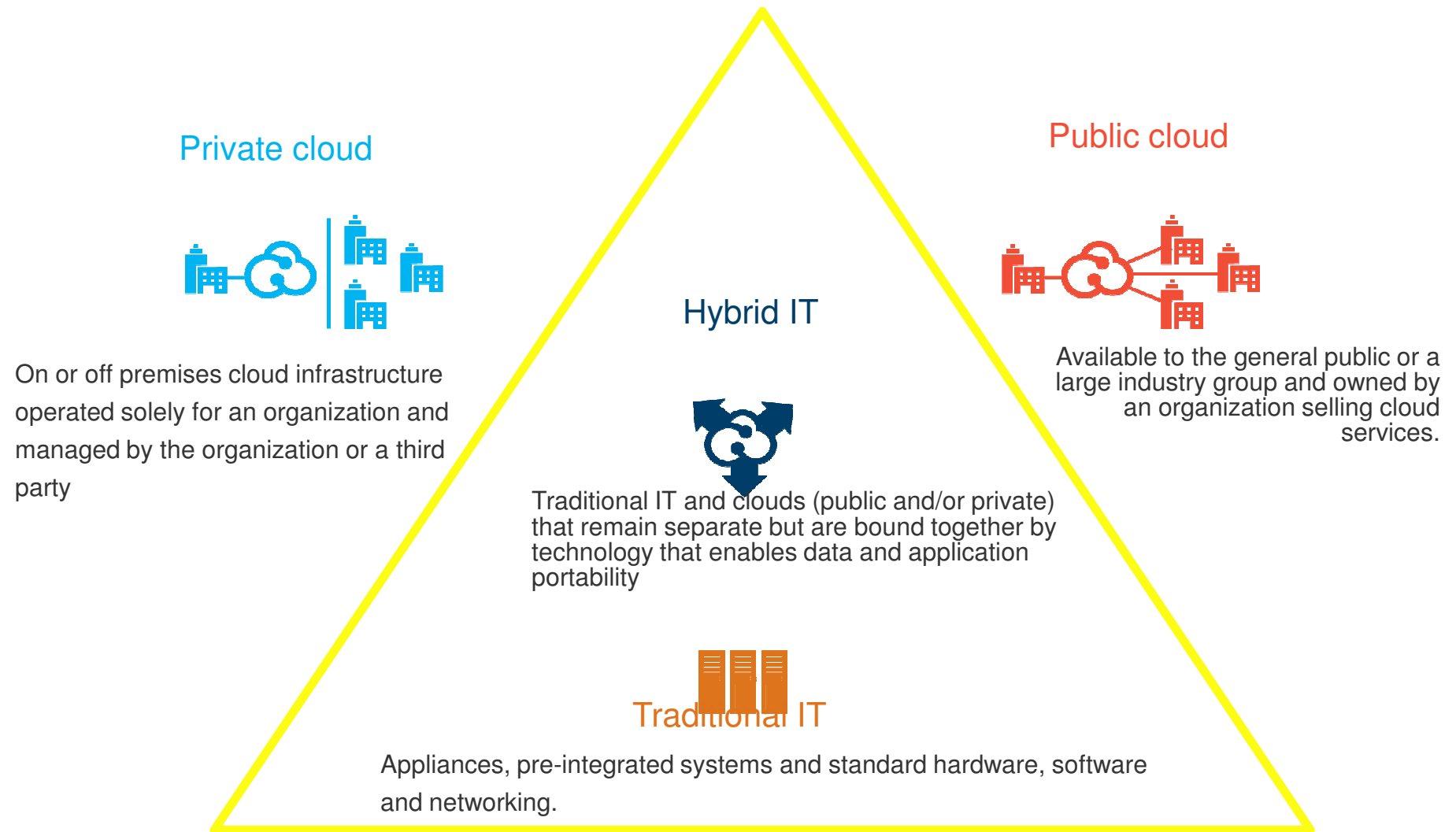
Service Models

- **Infrastructure as a Service - IaaS** (layer includes server, storage, data center fabric, networking)
- **Platform as a Service - PaaS** (layer includes middleware, databases, development tools, service management, runtimes, security)
- **Software as a Service- SaaS** (Some examples of SaaS solutions are CRM, Collaboration, Financials, ERP, HR, etc)
- **Business Process as a Service – BPaaS** (Some examples are Payroll, Benefits Management, Travel Expenses, etc)

Deployment Models

- **Public Cloud:** Client leverages a third party cloud either to use their infrastructure (e.g., AWS, IBM SCE) or to access SaaS (e.g., IBM Smarter Commerce, salesforce.com)
- **Private Cloud:** Client builds a cloud on their site using HW, SW, Svcs. Often used for highly mission critical workloads or compliance reasons
- **Hybrid Cloud:** Integration of cloud to legacy systems or private to public (IBM Cast Iron helps here)

Clouds



The IBM Cloud

Softlayer Global Cloud Infrastructure **(IaaS)**
Powers the most demanding cloud applications with modular services utilizing a single self-service portal and one powerful API.

Catalog with best-in-class software-as-a-service **(SaaS)** applications and business process-as-a-service **(BPaaS)** capabilities, all delivered with the enterprise-grade security,

an open standards-based Platform as a Service **(PaaS)** environment for building, running, and managing web and mobile applications in the cloud.

Enterprise-grade sandbox for developers

IBM Cloud marketplace
Growing cloud ecosystem tha allows marketplace users to discover the most advanced **cloud offerings** from IBM and business partners

Globally distributed database-as-a-service **(DBaaS)** for operational application data, Cloudant enables developers to quickly create next-generation apps. Cloudant runs on our SoftLayer cloud platform today and is available in the IBM Business Partner marketplace.

When Building a Cloud

- **Organizations choose a cloud model based on their business model requirements**
 - **I**nfrastructure **as a service** (**IaaS**)
 - Dynamically shared set of virtual computing resources
 - (analogous to **zEnterprise**)
 - **P**latform **as a service** (**PaaS**)
 - Builds on IaaS to provide application middleware
 - (analogous to **IMS**)
 - **S**oftware **as a service** (**SaaS**)
 - Provides higher levels of service delivery
 - (analogous to **integration capabilities including the IMS Enterprise Suite capabilities**)
 - **B**usiness **p**rocess **as a service** (**BPaaS**)
 - Customer-written applications or business processes

Cloud (Public, Private, Hybrid) Trends

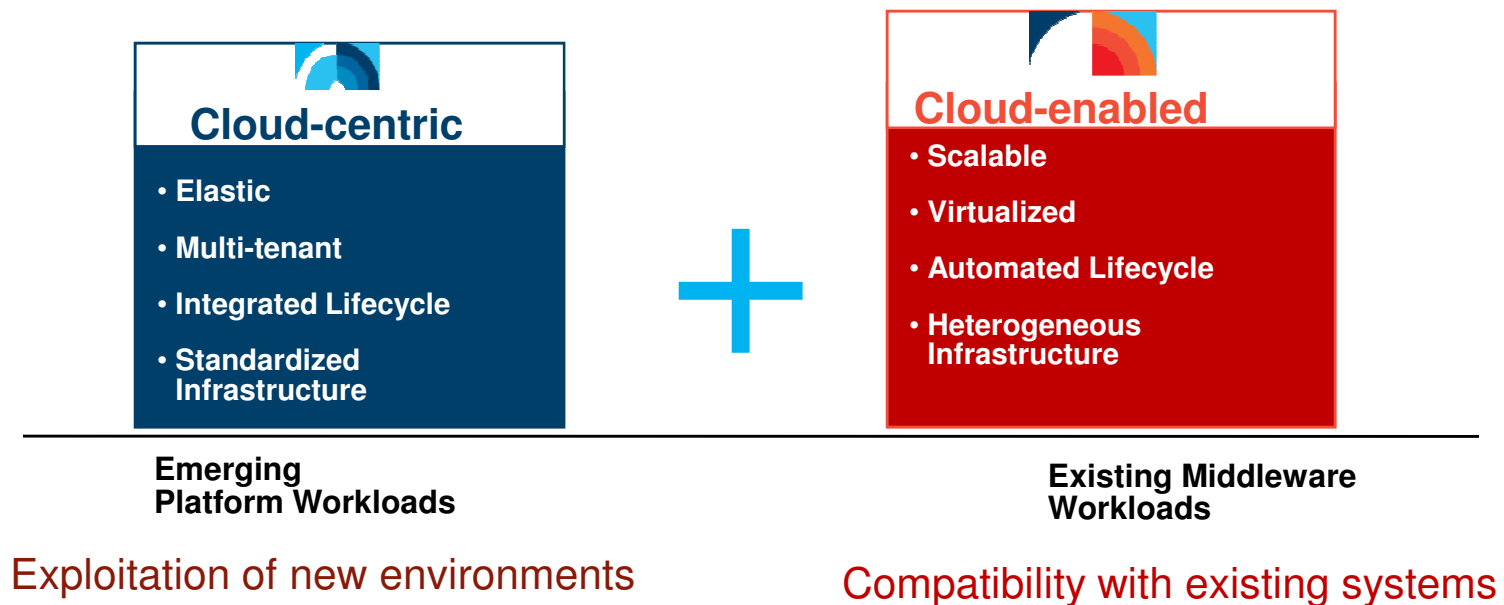
▪ Addressing New and Legacy Workloads

Cloud -Enabled

- Integration of traditional, mission-critical and operational applications with cloud solutions and increasing business agility

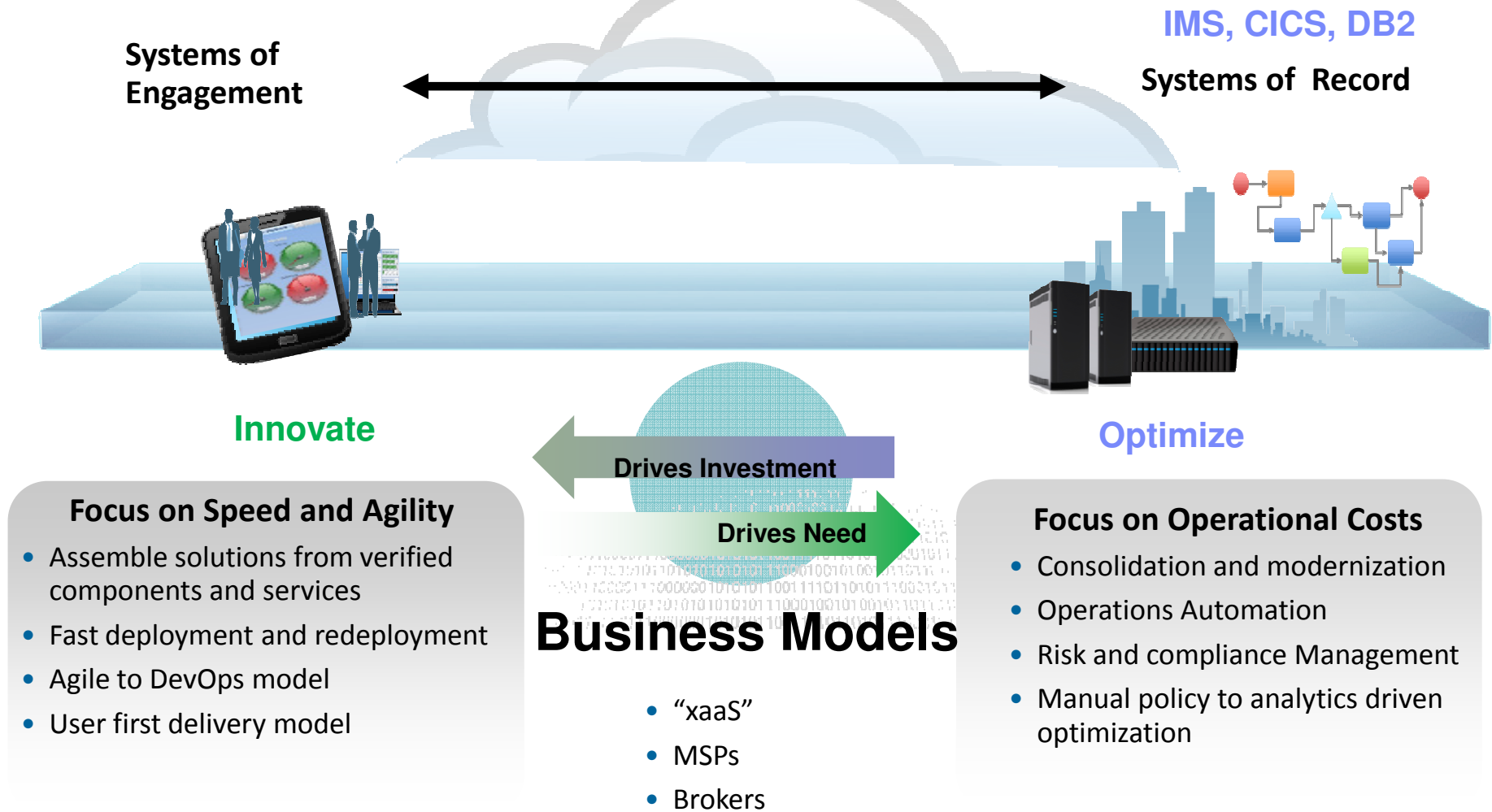
Cloud –centric

- Created to run in the cloud without any ties to infrastructure configuration



Cloud (Public, Private, Hybrid) Trends...

... Through the integration of business models



Systems of Engagement meet Systems of Record

▪ Systems of Engagement (SoE)

- Social, Mobile, People, Distributed applications and service consumers, ...

▪ Integration capabilities

- *DataPower, IMS Soap Gateway, WebSphere Application Server, etc...*

▪ Systems of Record (SoR)

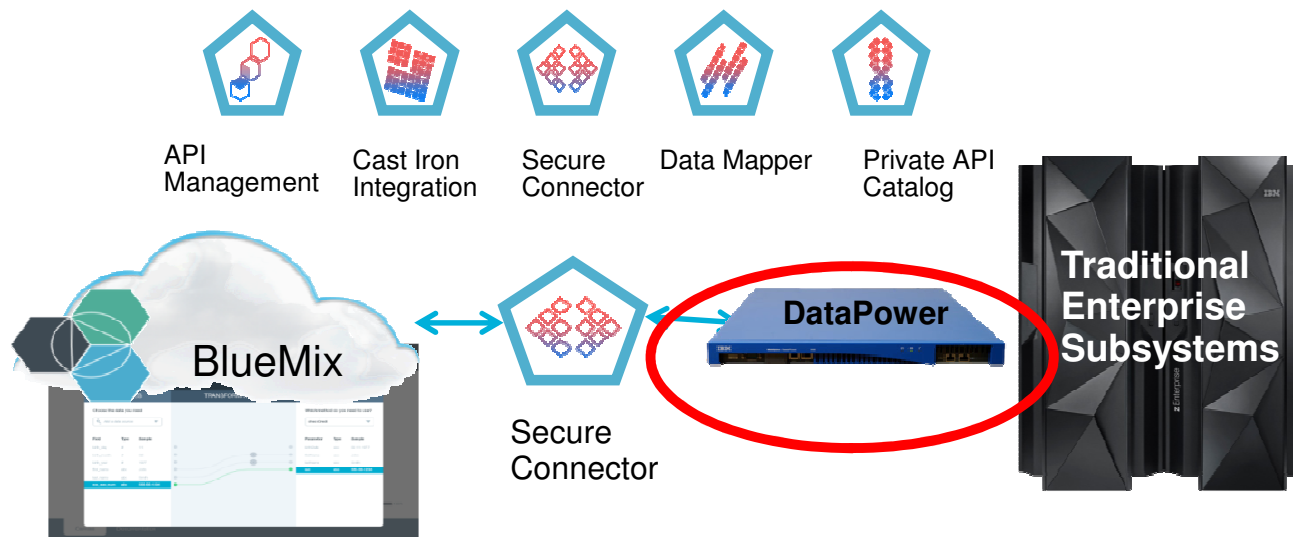
- Data, Process, APIs, Service providers
 - IMS, CICS, DB2,...
 - zOS Connect (WAS Liberty Profile z/OS)
 - *A service that encapsulate calling z/OS target applications using REST calls*
 - *Supports JSON payloads for calls from external cloud or mobile-based*

Goal: Combine SoE with SoR using private and hybrid cloud infrastructure capabilities to build secure and scalable systems

Systems of Engagement meet Systems of Record ...

■ Integrating into existing Applications

- *Combine mobile and cloud for best of both* – mobile applications in the cloud linked to the enterprise is your competitive advantage
- *Fast time to market of cloud based applications* – combined with the trusted transactions of traditional mainframe systems
- *Securely connect* – leverage data from your existing enterprise systems

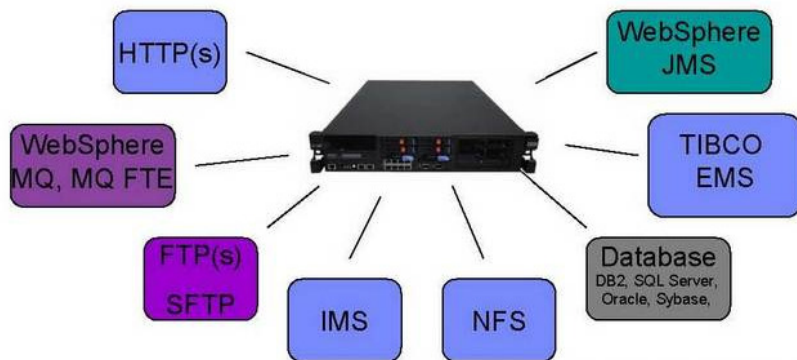


DataPower

• Supports Enterprise Integration

– Provides a Multi-Protocol Gateway (MPG)

- Connects client requests that are transported over one or more protocols to a remote destination that uses the same or a different protocol
 - *Supports the FTP, HTTP, HTTPS, IMS™, MQ, NFS, SFTP, TIBCO EMS, and WebSphere® JMS protocols*



WebSphere DataPower Family

Service Gateway XG45

- Entry-level device, slim footprint (1U)
- Security gateway (AAA, XML threat, etc)
- Service level management and monitoring
- Intelligent load distribution & dynamic routing
- Lightweight ESB functions (optional module)



Integration Appliance XI52

- High density 2U form
- Consumable hardware ESB Optimization
- "Any-to-Any" conversion at wire-speed
- Bridges multiple transport protocols
- Mainframe integration & enablement



Integration Blade XI50B/XI50z

- Functionally equivalent to XI52
- Form factor flexibility
- XI50B: BladeCenter form factor
- XI50z: zEnterprise BladeCenter Extension (zBX) form factor



B2B Appliance XB62

- High density 2U form
- B2B Messaging (AS1/AS2/AS3/ebMS)
- Trading Partner Profile Management
- B2B Transaction Viewer

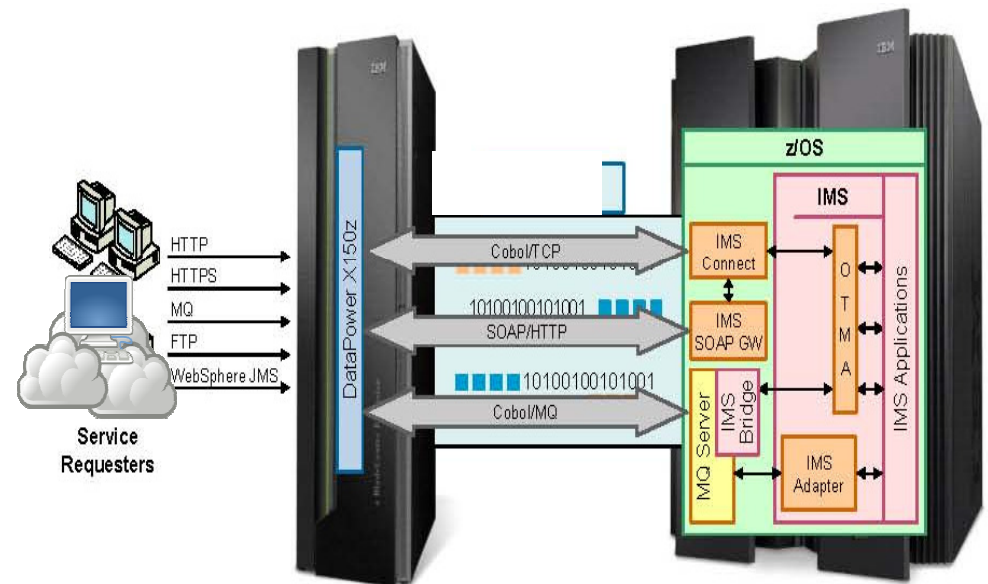


DataPower ...

❖ *IMS Integration (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
- **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

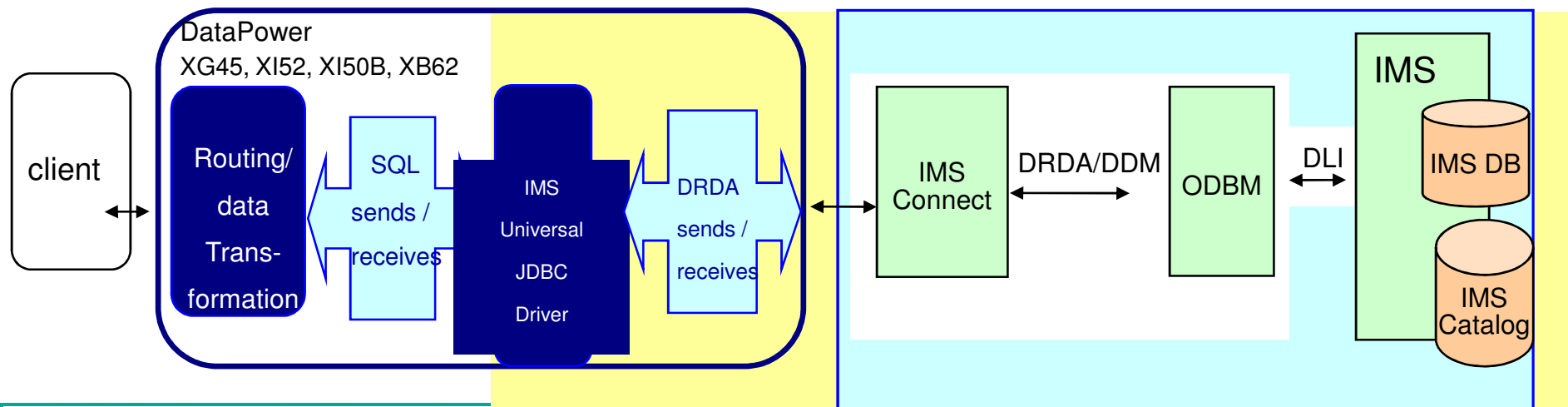


<http://www.redbooks.ibm.com/redbooks/pdfs/sg247988.pdf>

DataPower ...

❖ IMS DB feature

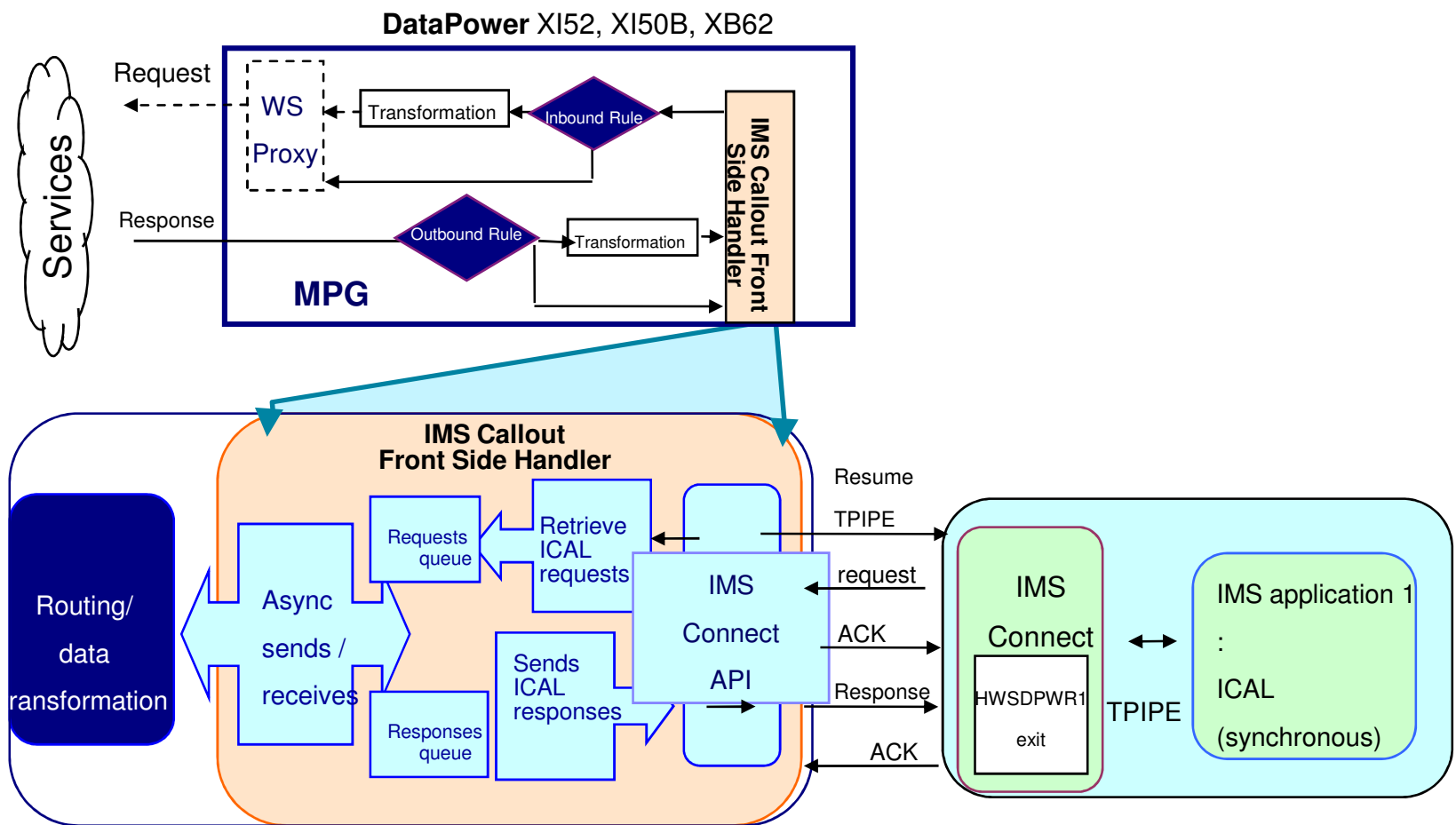
- Firmware 6.0 provides a standard WS façade to IMS
 - SOAP or REST call is mapped to a JDBC (DRDA) invocation
 - Exposes database content (information) as a service
 - Leverages extensive Web Services security and management capabilities of DataPower to more securely expose critical data to the enterprise
 - Access to IMS DB leverages existing and proven technology
 - IMS Universal JDBC driver
 - IMS DRDA server: IMS Connect/ODBM
 - IMS Catalog



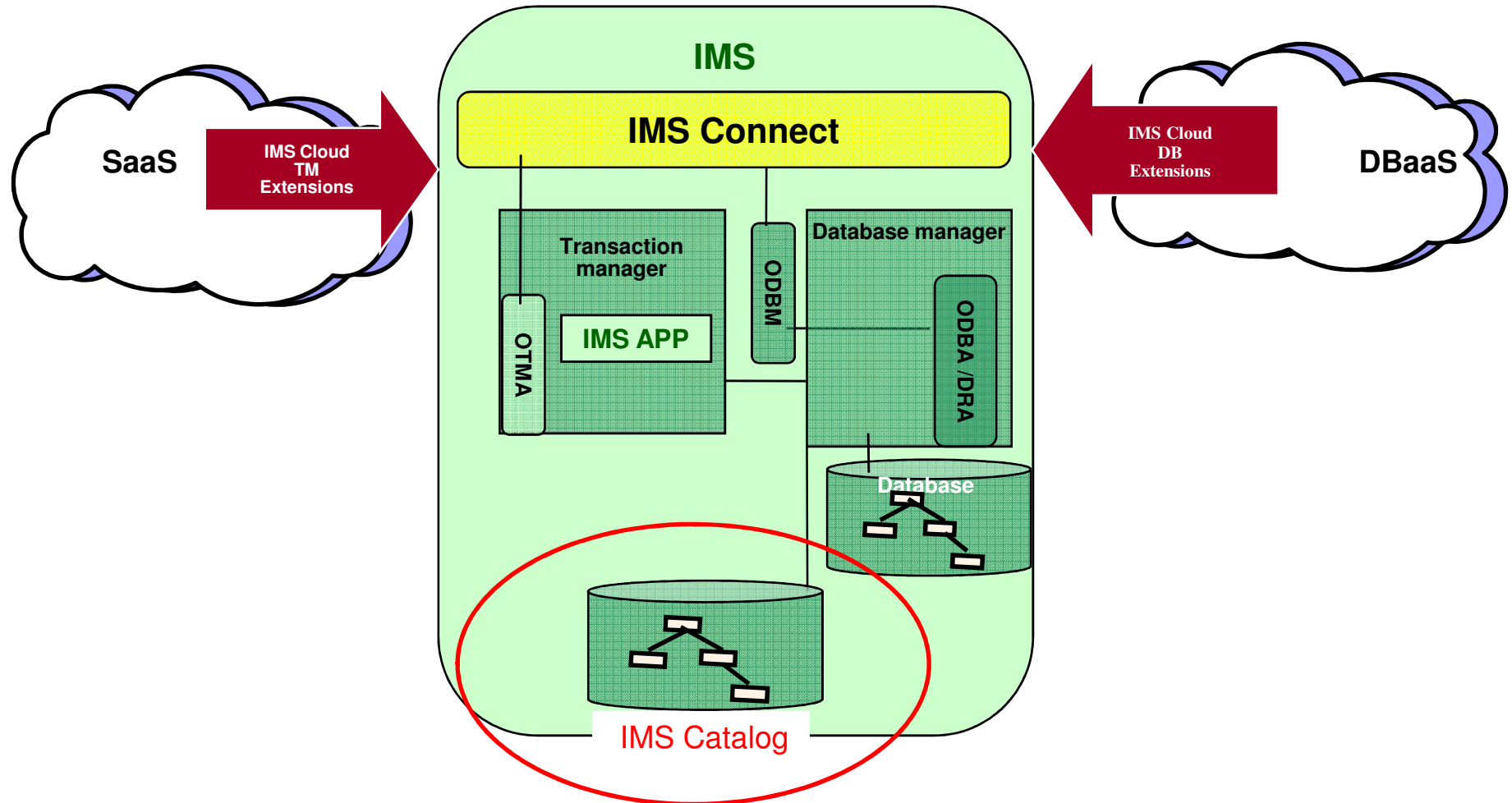
DataPower...

❖ IMS Callout support

- Allows IMS applications to call a web service in the cloud
- Firmware 6.0



IMS Cloud Parts

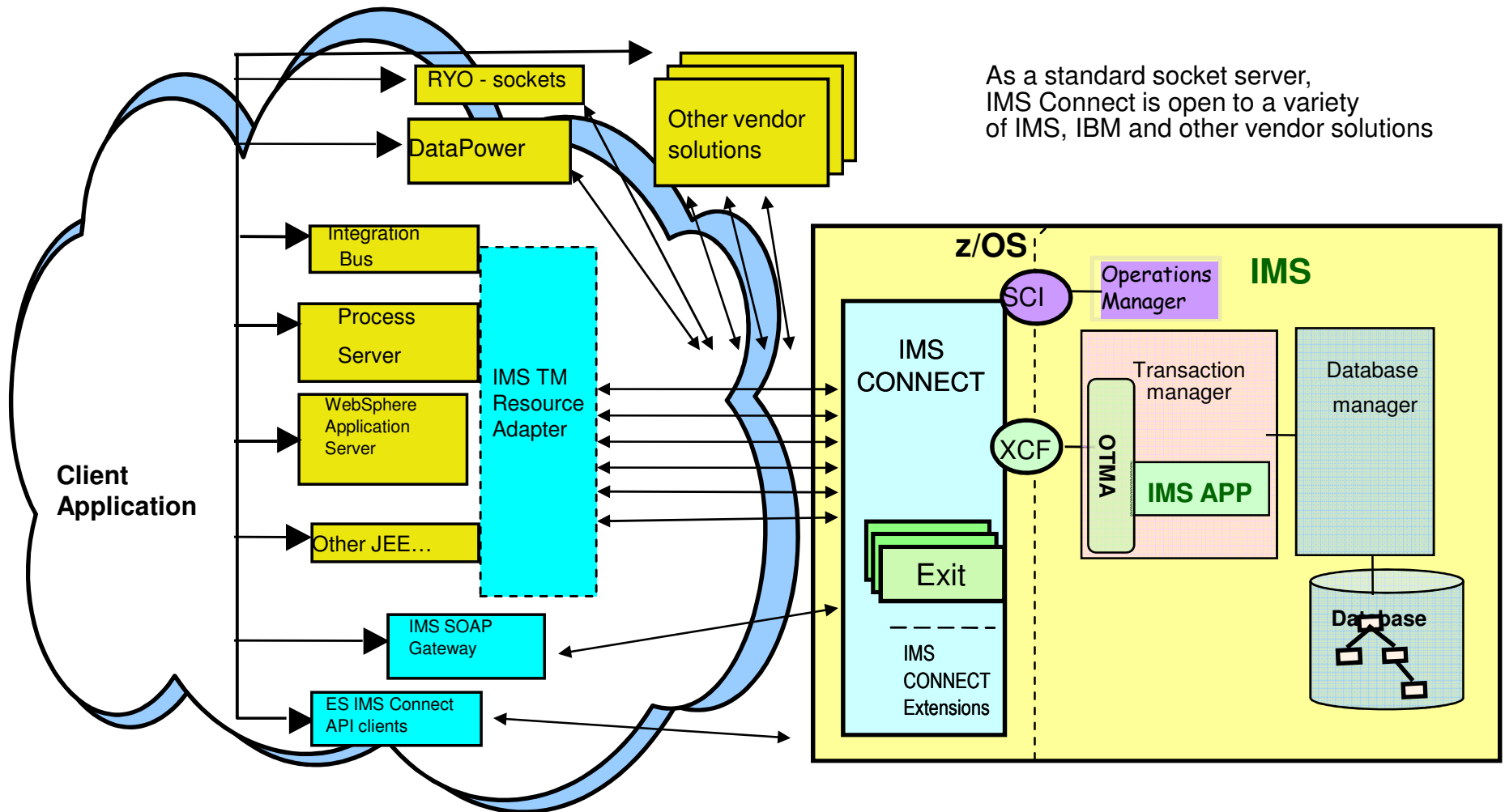


Specifically

- IMS provides interfaces that can be deployed in the cloud to access IMS
 - IMS SOA Enterprise Suite – SaaS (Software as a Service)
 - IMS Enterprise Suite Connect API for Java
 - IMS Enterprise Suite SOAP Gateway
 - IMS Enterprise Suite Data Provider for Microsoft .NET
 - IMS Enterprise Suite Explorer for Development
 - IMS Enterprise Suite Java Message Service (JMS) API
 - IMS Mobile Solution
 - IMS TM Resource Adapter
 - IMS MFS SOA Support
 - IMS solutions for Java development

WWW.IBM.COM/IMS

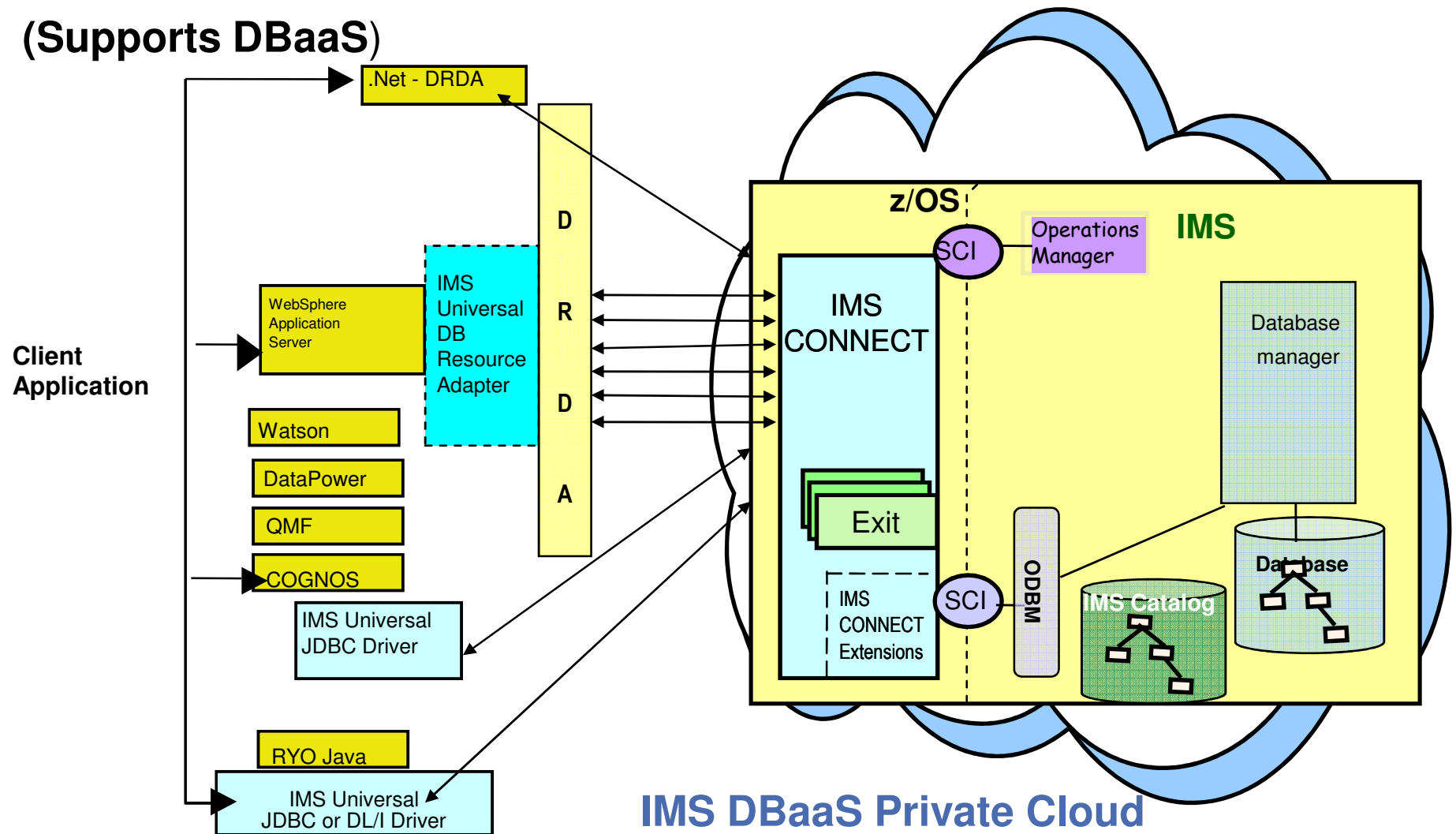
IMS Connect and IMS TM (Supports SaaS)



IMS Components that can be deployed in a cloud

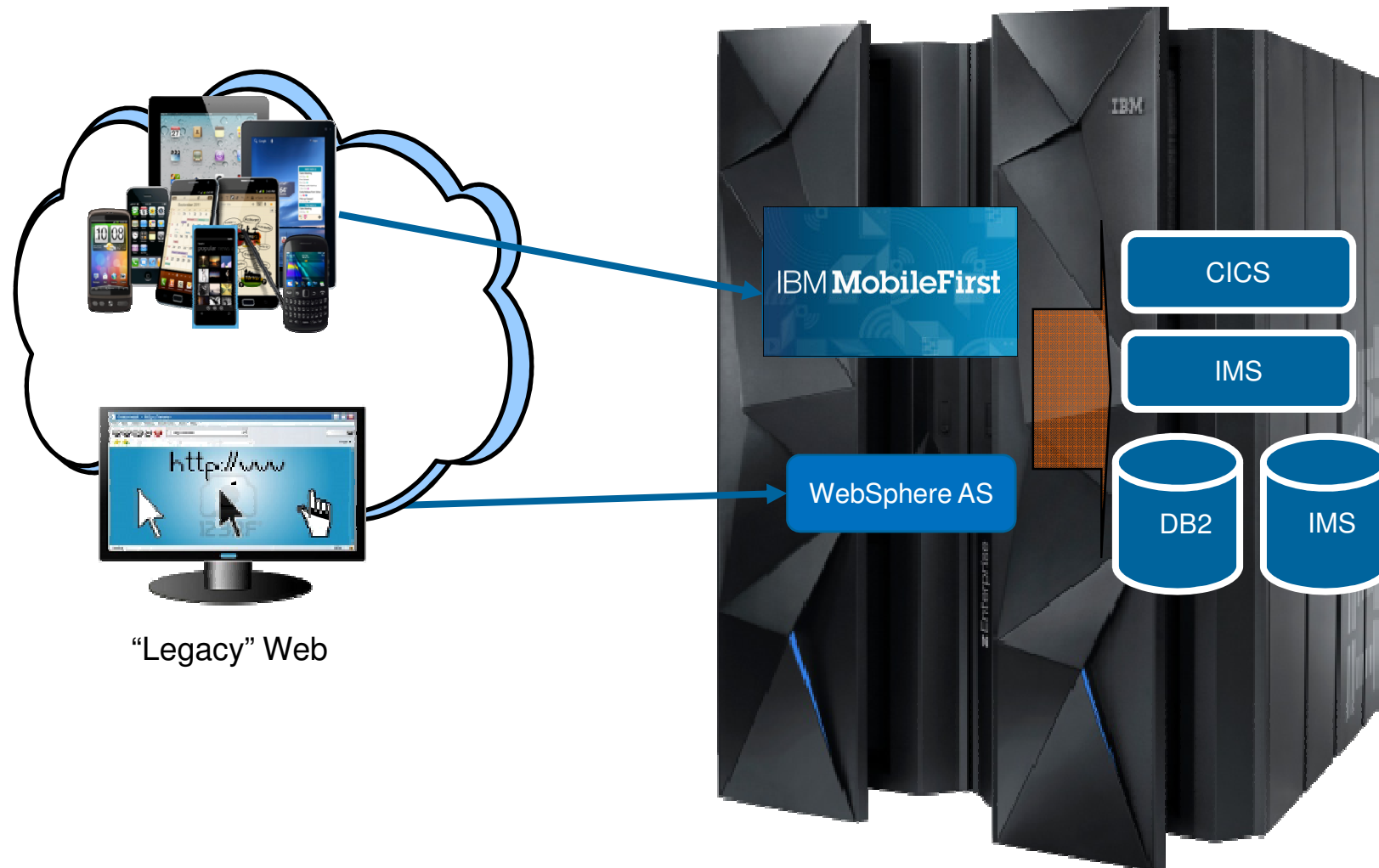
IMS Connect and IMS DB

(Supports DBaaS)



IMS DBaaS Private Cloud

Mobile is simply a new channel into the enterprise



With the zEnterprise as the Premier Platform for Mobile

1

Mobile protocol connectivity to System z applications

z/OS Connect
API Management

2

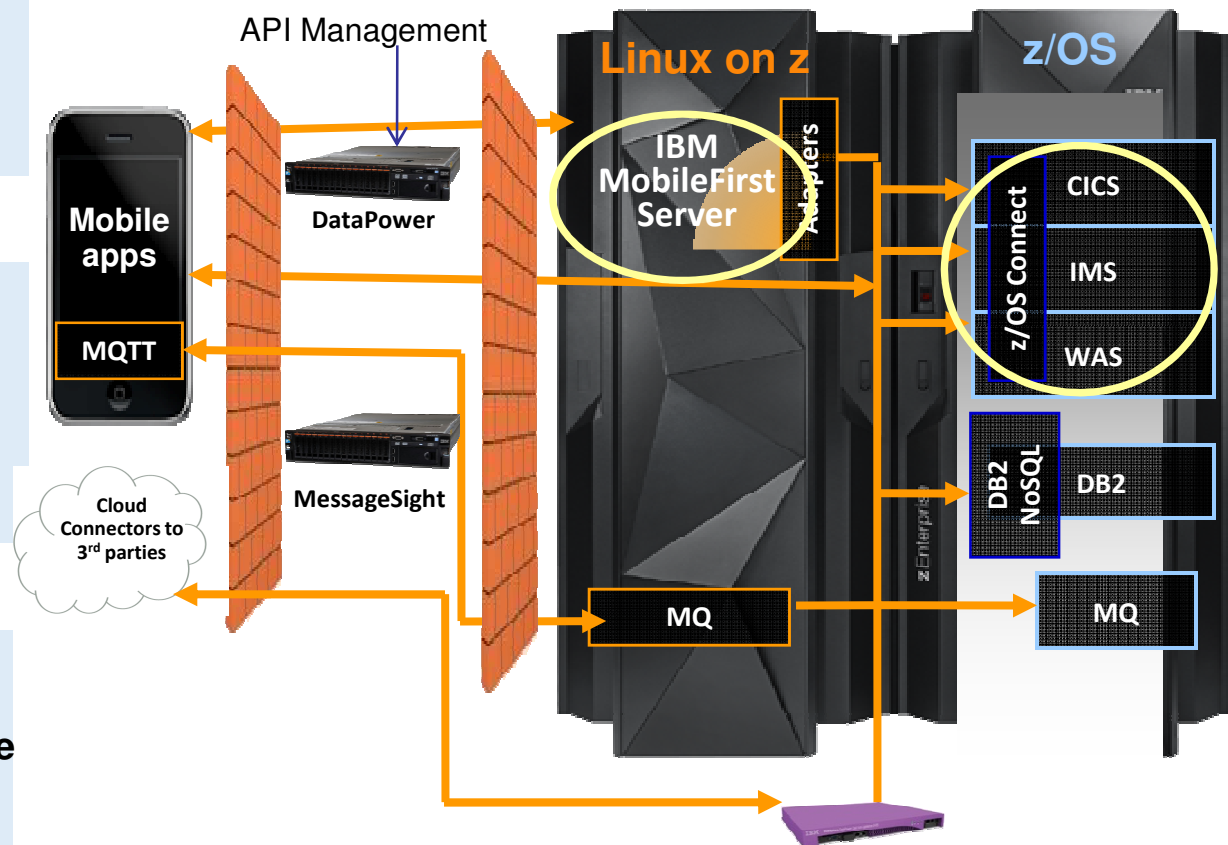
Extending enterprise apps to mobile

IMS Mobile Feature Pack
CICS Mobile Feature Pack

3

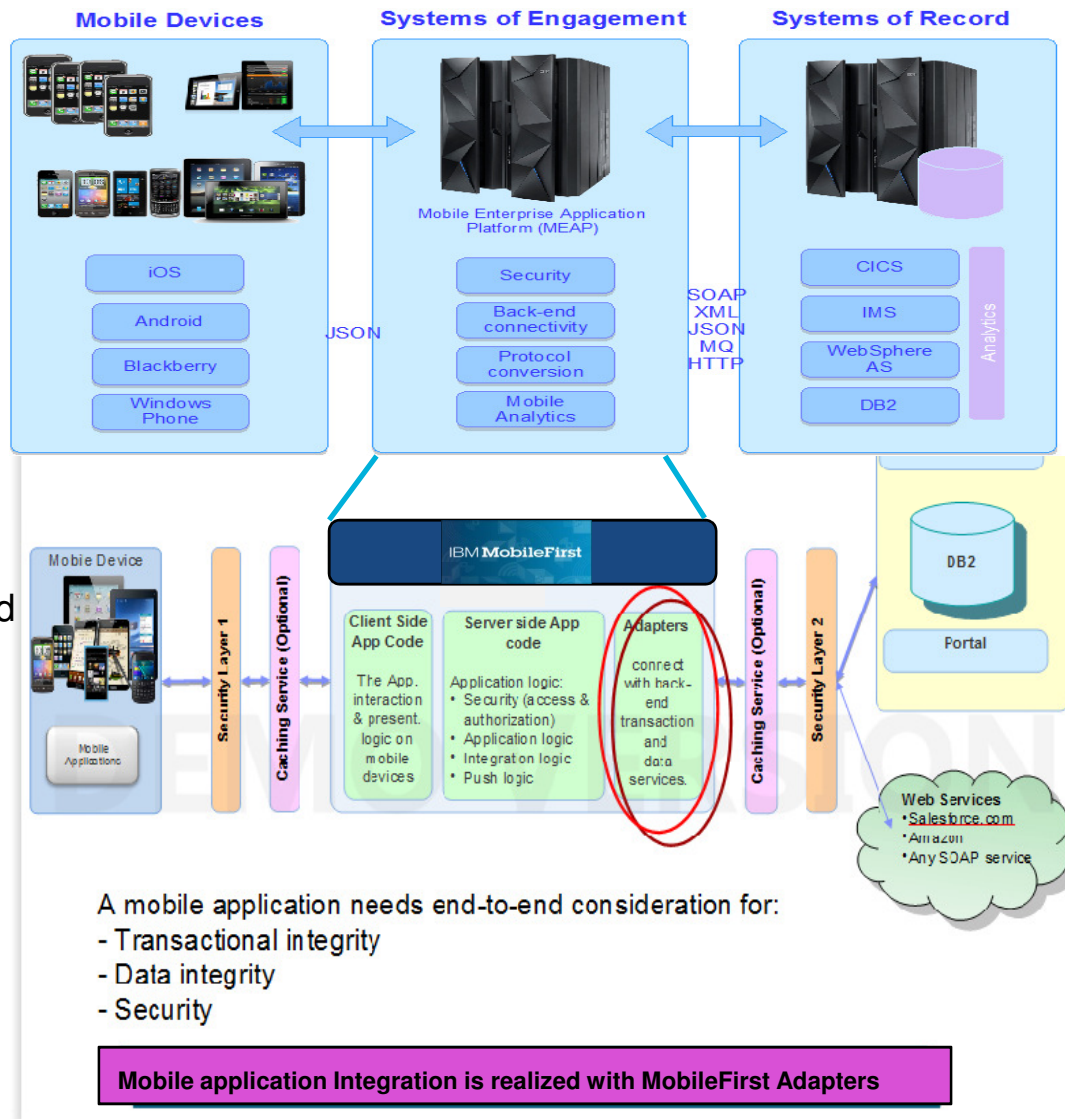
Scalable services to accelerate and enrich mobile apps

IBM Bluemix Mobile Cloud Services



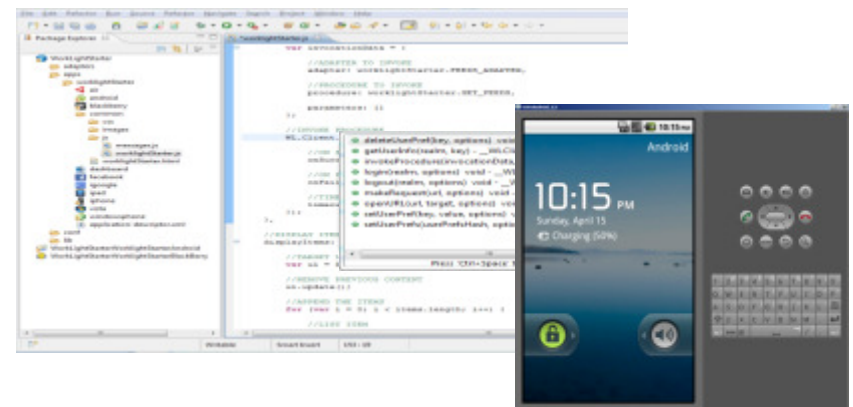
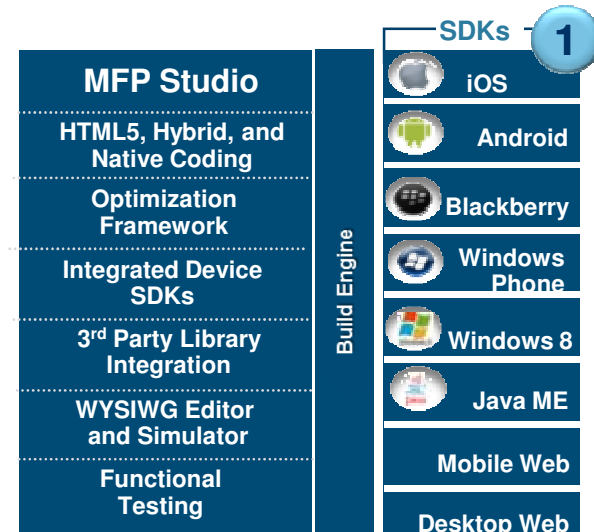
IBM MobileFirst

- Provides tooling and server support
- Includes integration adapters
 - Which allow the MobileFirst platform to connect to back-end systems
 - Retrieve information and Perform actions



MFP Studio: The IDE for hybrid app development

- Eclipse-based IDE
- Code assist tools with auto-complete and validation
- Application scaffolding and componentization
- Mobile OS-specific optimization
- Device-specific optimization with Skins
- 3rd-party library integration for HTML5 and native components
- Quick access to simulators, emulators, and debugging tools



MFP Server: Adapters

Run time

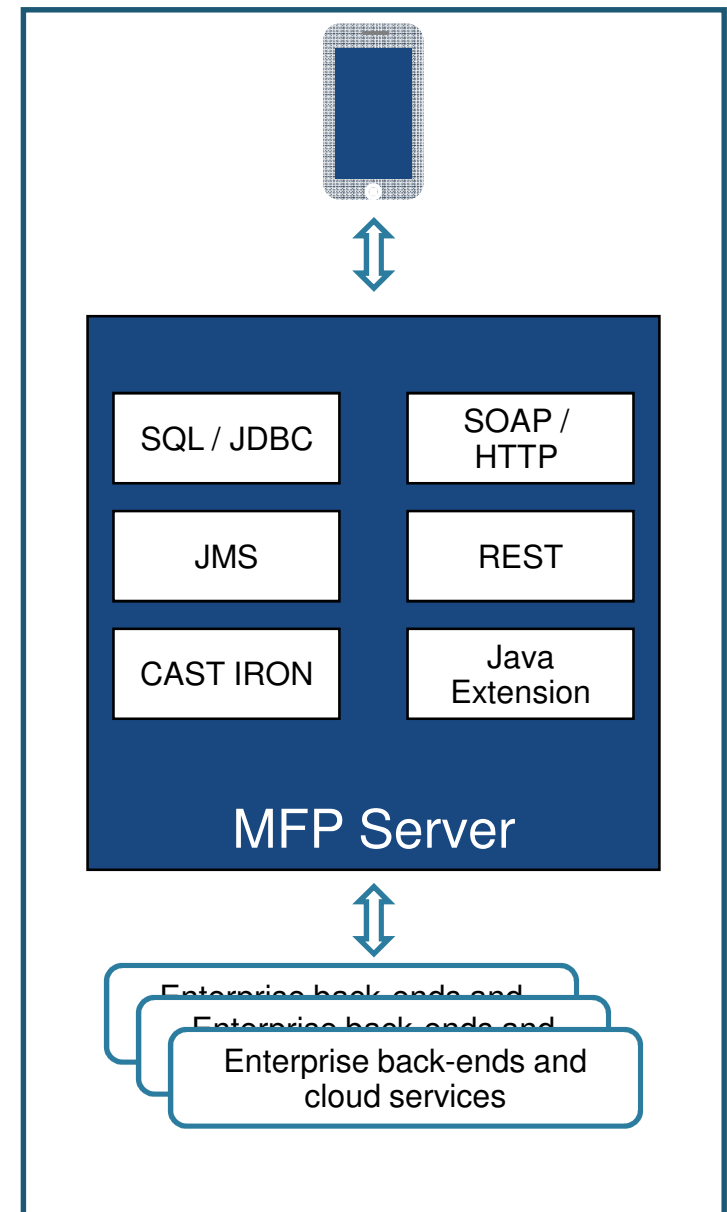
- Lightweight server-side logic to expose systems of records in a mobile-friendly way
 - Automatic JSON transformation of enterprise data for quick transport and ease of consumption by mobile developer
 - Server-side service composition to reduce number of requests over slow mobile network
 - XSLT to reduce fat SOAP responses
- Security
 - Automatic enablement of server-side authentication control and audit
- Analytics
 - Automatic collection of user actions and device and app properties
- Data sync
 - Enables synchronization with on-device JSON Store
- Mobile user engagement
 - Push notifications and geo-based event management

For the server developer

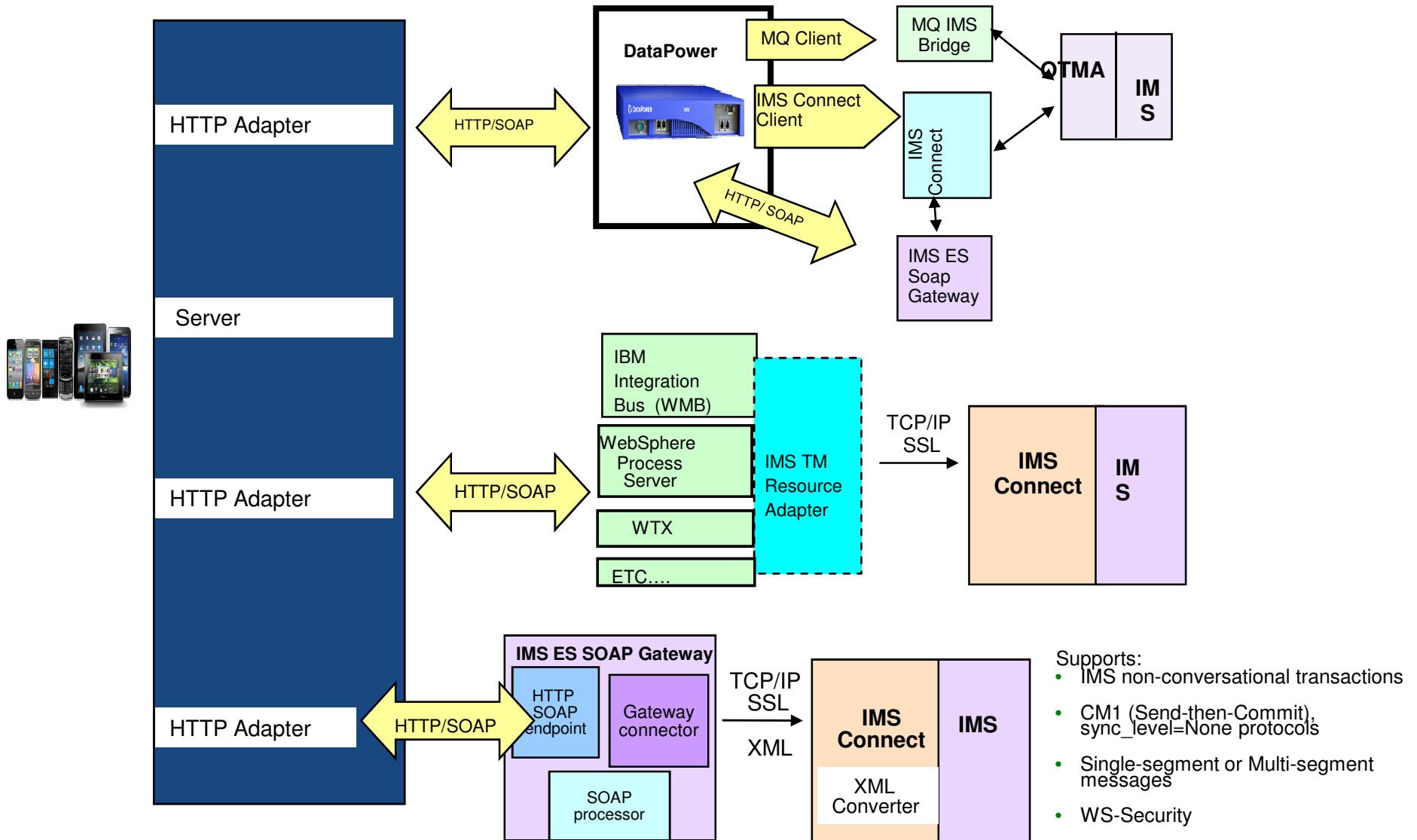
- JS anywhere: Simple APIs for server-side JavaScript development
- Extensibility: Java API for custom adapters

For the client developer

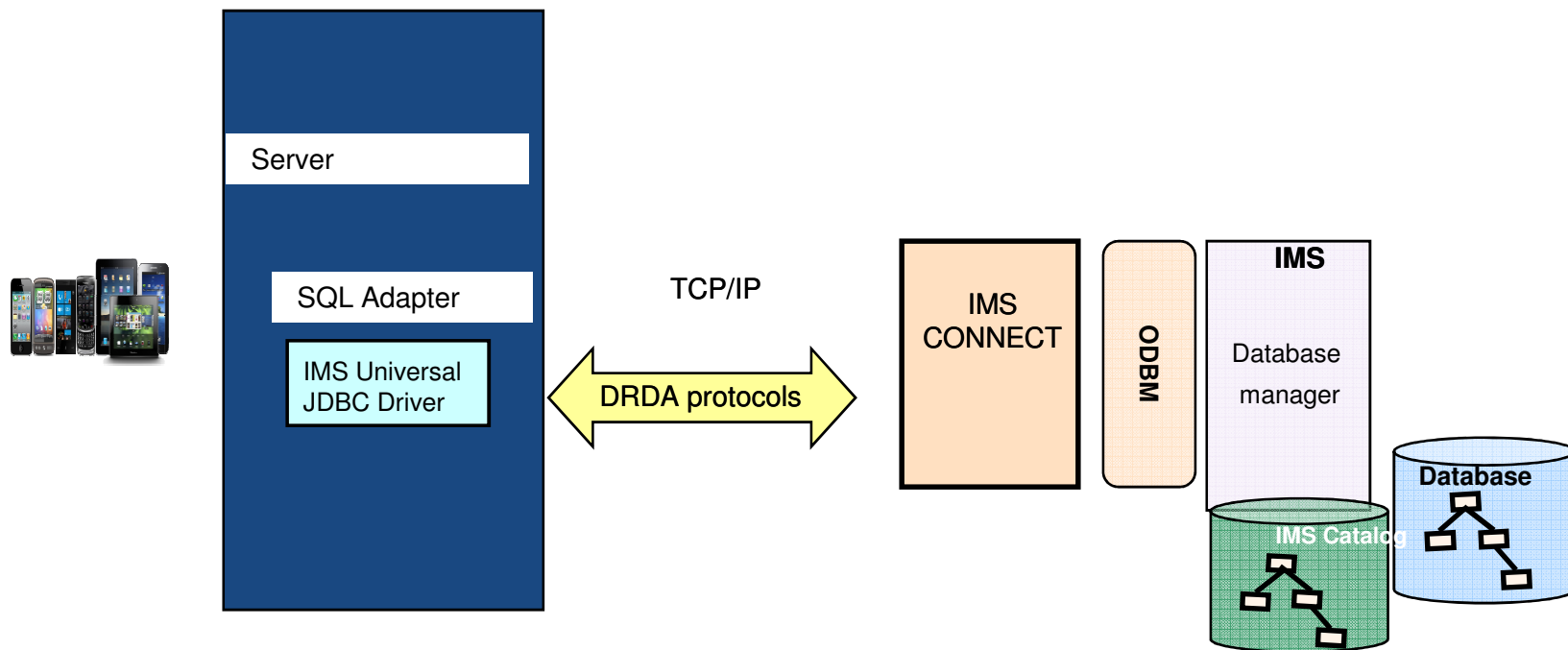
- Easy-to-use, consistent client-side API to call any back-end system



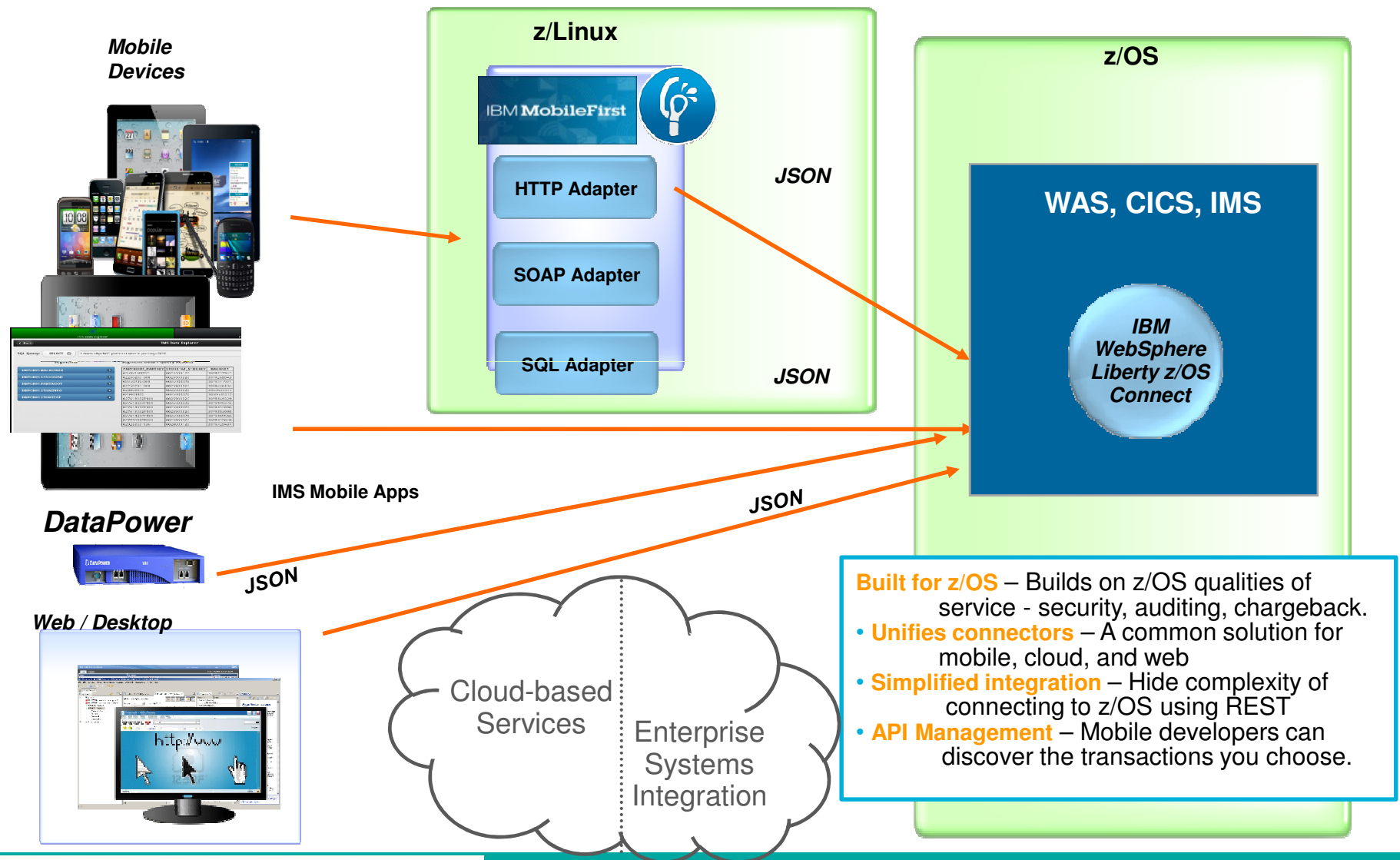
IBM MobileFirst Server and IMS transactions



IBM MobileFirst Server and IMS Databases

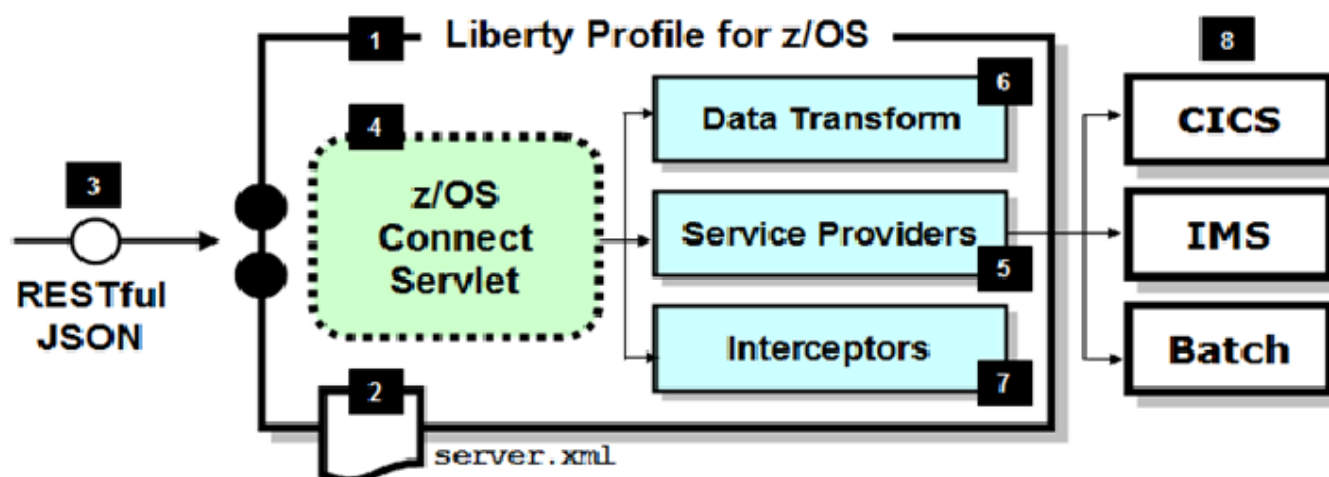


And a new strategy - IMS Mobile Enablement with z/OS Connect



z/OS Connect

WebSphere Liberty Profile z/OS that provides a REST and JSON Interface (or a “gateway”) to z/OS programs and applications



1 z/OS Connect is software function that runs in Liberty Profile for z/OS.

2 z/OS Connect is described and configured in the Liberty `server.xml` file

3 z/OS Connect is designed to accept RESTful URIs with JSON data payloads

4 One part of z/OS Connect is a servlet that runs in Liberty Profile z/OS.

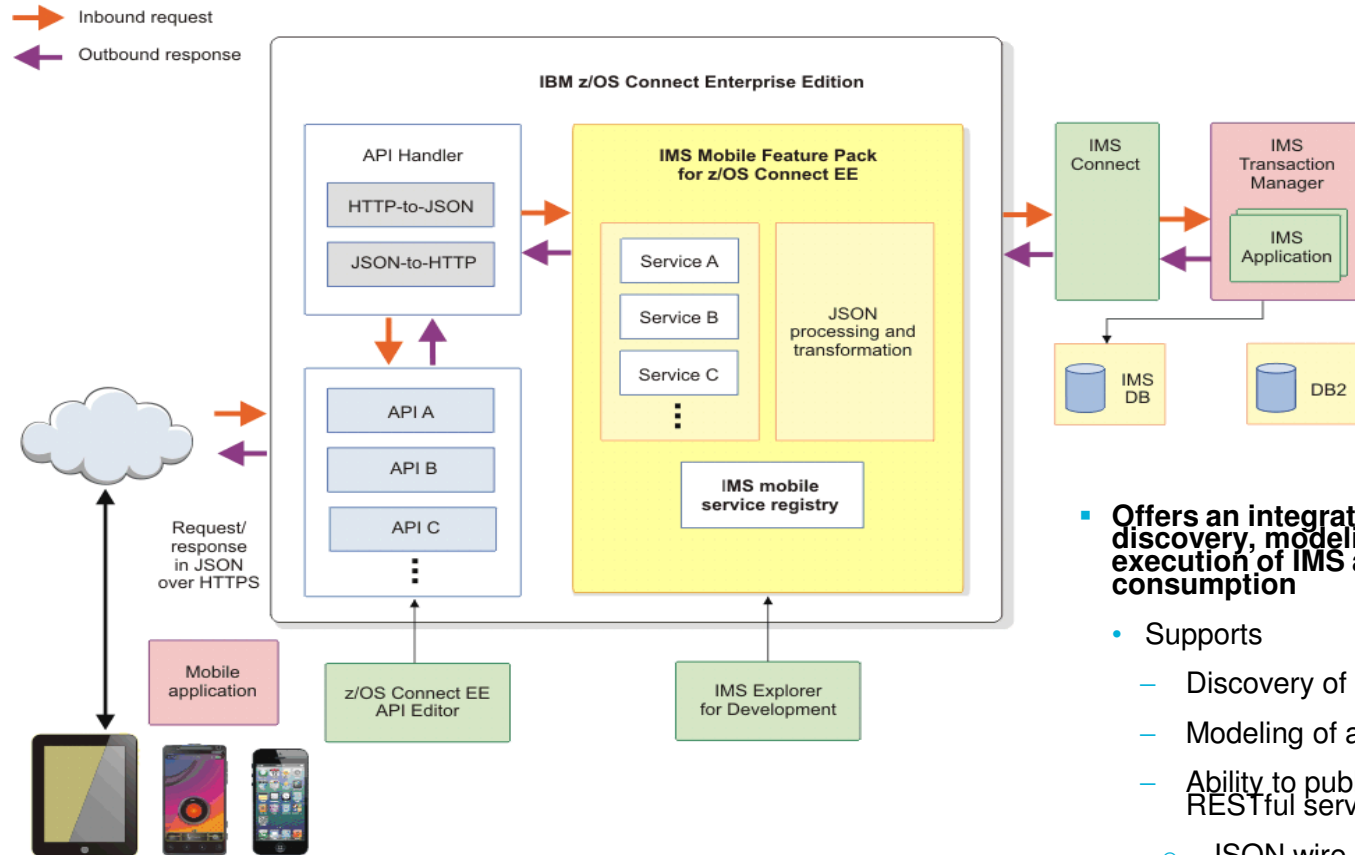
5 A 'Service Provider' is software that provides the connectivity to the backend system

6 z/OS Connect provides the ability to transform JSON to the layout required by backend

7 'Interceptors' are callout points where software can be invoked to do things such as SAF authorization and SMF activity recording

8 Initially the backend systems supported will be CICS, IMS and Batch

The IMS Mobile Solution

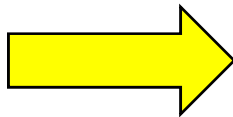


- **Offers an integrated platform for full discovery, modeling, deployment and execution of IMS assets for mobile consumption**

- Supports
 - Discovery of IMS assets
 - Modeling of asset metadata
 - Ability to publish those assets as RESTful services
 - JSON wire protocol
- Once published, those services are hosted by IMS Mobile for discovery by mobile and cloud Application Developers
- Associated tooling is delivered via IMS Explorer for Development.

The IMS Mobile Business

- To address the challenge of expanding mobile workloads
 - IMS provides **a comprehensive offering** for different phases of mobile development
 - Addressing skills, TCO, continued ROI on their IMS investment, and System z qualities of service
 - An OTC pricing model that provides flexibility in managing costs
 - IMS Value Unit Edition (VUE) offerings
 - » IMS TM VUE (announced on May 20, GA May 23, 2014)
 - » IMS DB VUE (announced and available in 2013)
 - IMS TM VUE and IMS DB VUE are included in the Mobile Workload Pricing (MWP) Defining Programs – MWP was announced on May 6, 2014
 - » **AND ...**



IMS as a Private Cloud

- **Leverages the z environment for infrastructure (IaaS)**
 - Dynamically shared set of virtual computing resources
 - zEnterprise platform
 - Parallel Sysplex adds new instances of IMS control regions
 - *Shared queues and data sharing*
 - Dynamically defined IMS resource

- **Provides the platform as a service (PaaS)**
 - IMS provides the application middleware environment for high-performing applications
 - DL/I and JDBC interfaces to get to resources

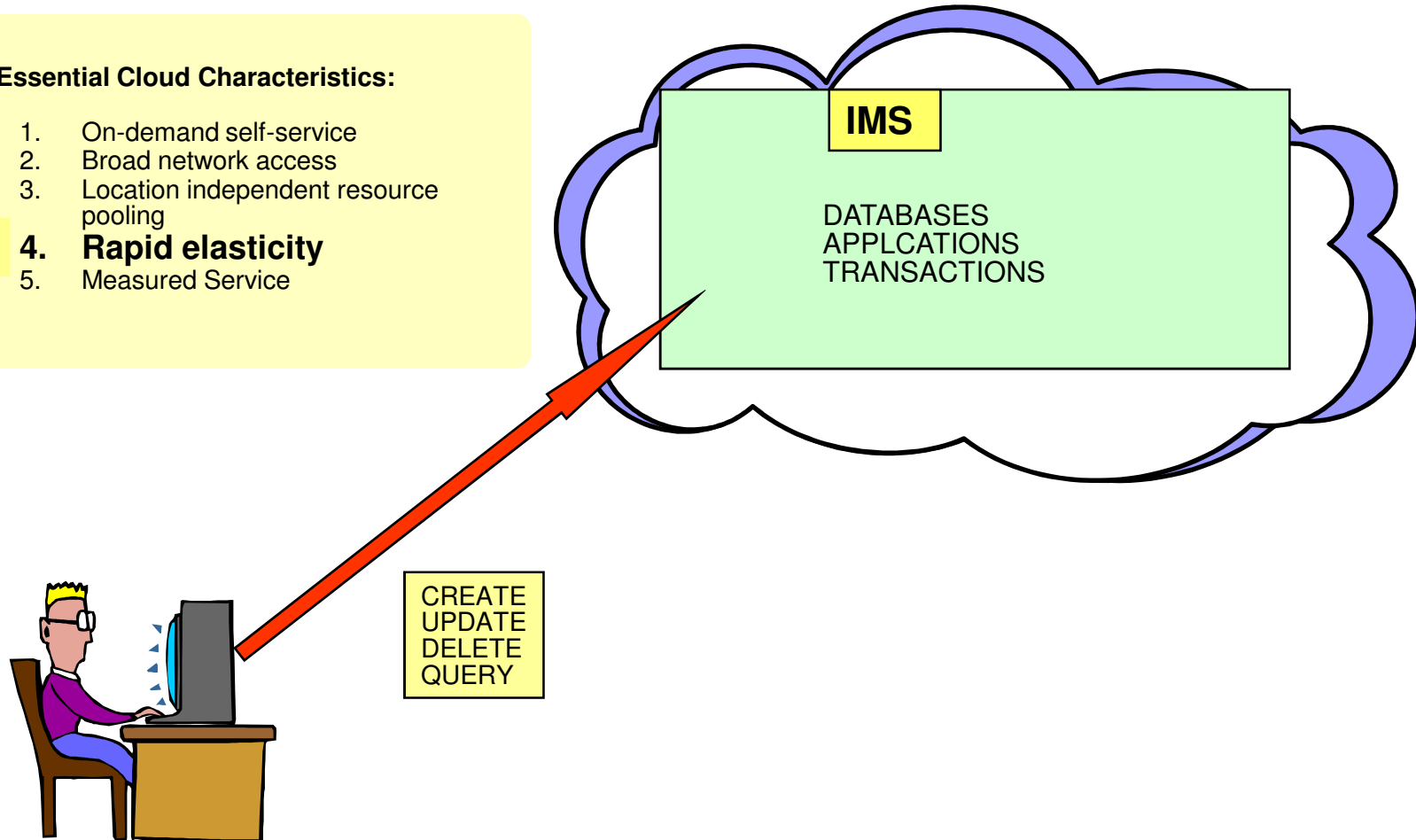
IMS As a Private Cloud ...

- Provides service delivery to access software as services (SaaS)
 - IMS Enterprise Suite
 - Inbound – expose IMS transactions and data as services
 - Outbound – Callout to web services
- Supports business processes as a service (BPaaS)
 - Customer-written applications or business processes
- Hybrid Cloud-Enabled
 - Integration of traditional IT, mission-critical applications with clouds
 - Public Cloud + IMS Private Cloud = the Perfect Hybrid “cloud”

Dynamic Definition of IMS Resources

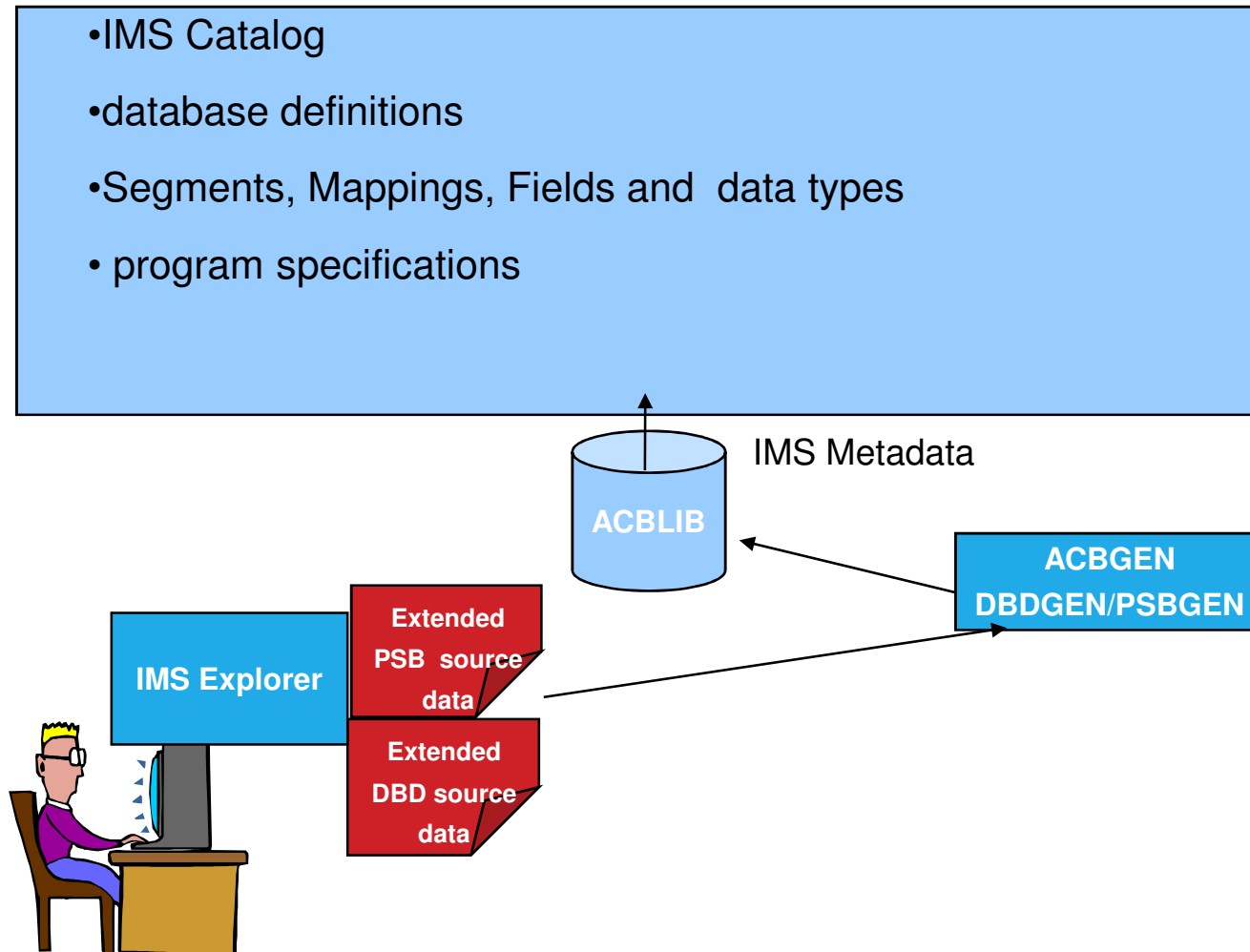
Five Essential Cloud Characteristics:

1. On-demand self-service
2. Broad network access
3. Location independent resource pooling
- ✓ 4. **Rapid elasticity**
5. Measured Service



Dynamic Metadata Management

- Database and Application Program resources are managed by IMS



And moving onwards to ...



IMS 14



Delivering the highest levels of performance, availability, security, scalability and connectivity in the industry

- **CPU reductions up to 62% for Java Apps**
- **SQL access to IMS data from both .NET and COBOL applications**
- **IMS Catalog – SQL DDL interface**
- **Greater flexibility and faster deployment** for new applications with database versioning
- **Big data exploitation** of Hadoop / Big Insights, MDA, Watson Explorer...
- **Simplified mobile access** with JSON, JDBC, IMS Connect....

- **Enabling the self-service Cloud provisioning of IMS Systems**
 - Using workflows for IMS
 - Session: Self-service Cloud Provisioning for IMS Made Easy with z/OSMF Workflows

IMSplex – Parallel Server Environment

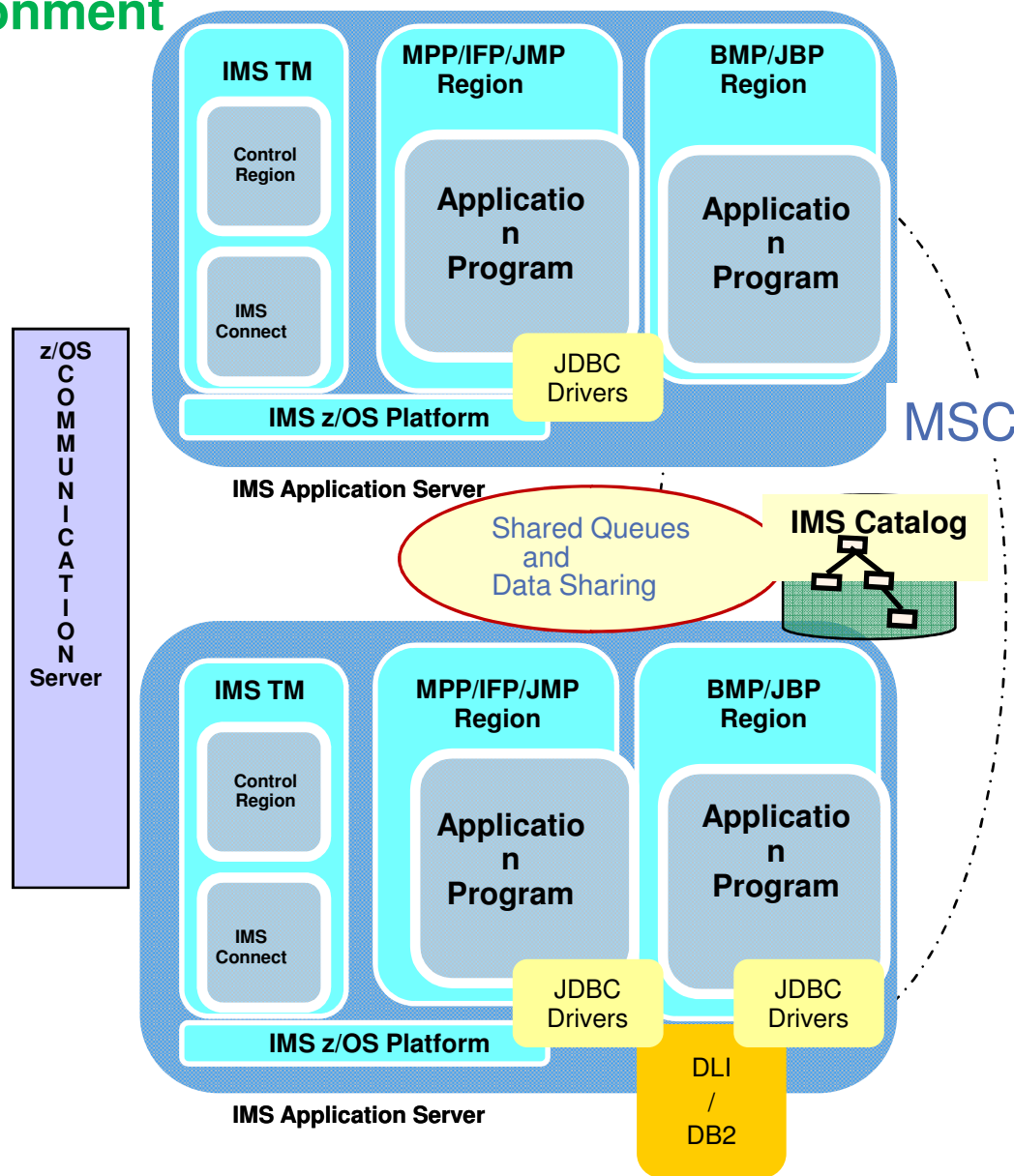
IaaS and PaaS

- 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

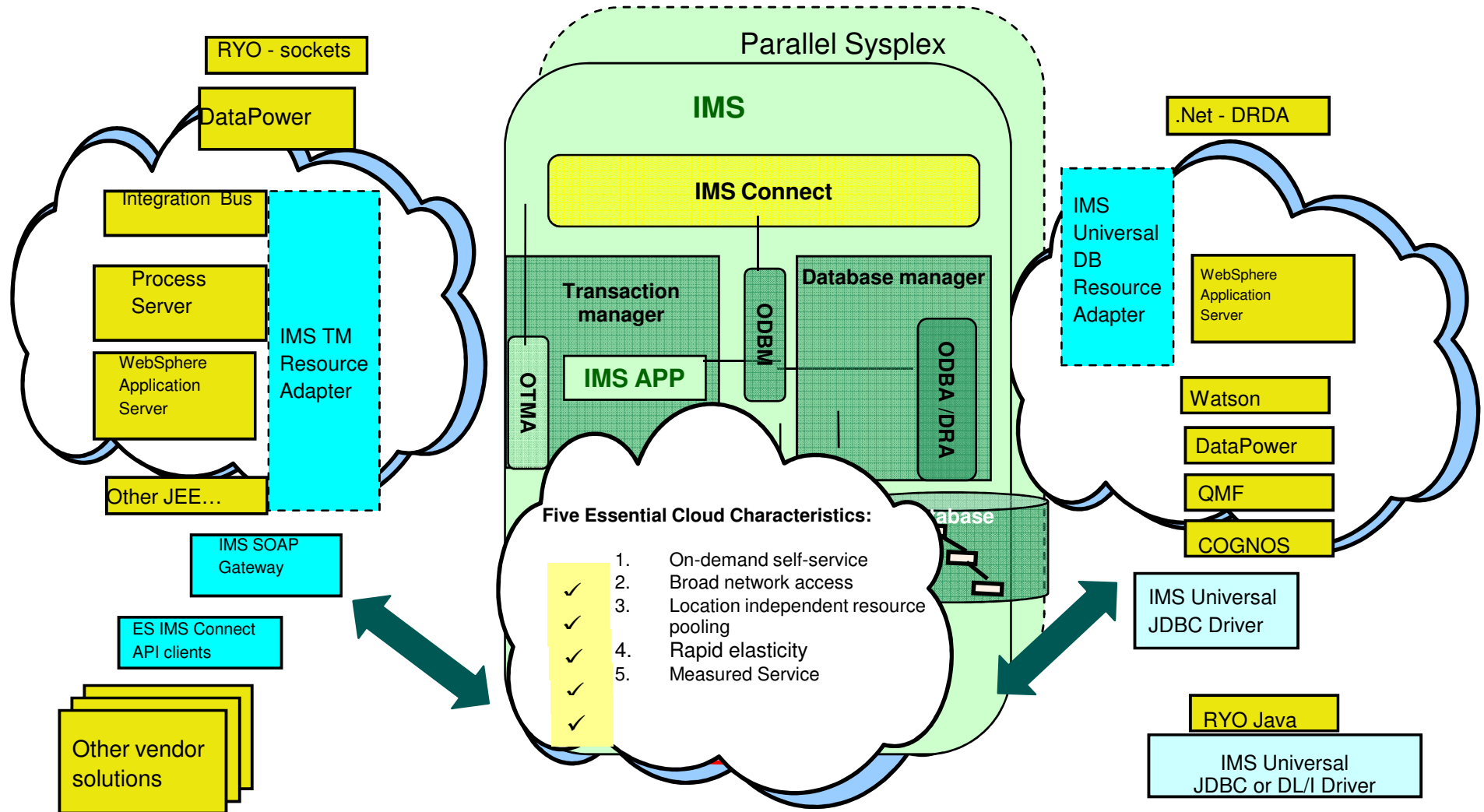


Five Essential Cloud Characteristics:

- ✓ 1. On-demand self-service
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- ✓ 4. Rapid elasticity
- ✓ 5. Measured Service



The Perfect Cloud



Public Cloud + IMS Private Cloud = the Perfect Hybrid "cloud"