What Every Enterprise Architect (EA) Needs to Know about the Evolution of IMS

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IMS Modernization

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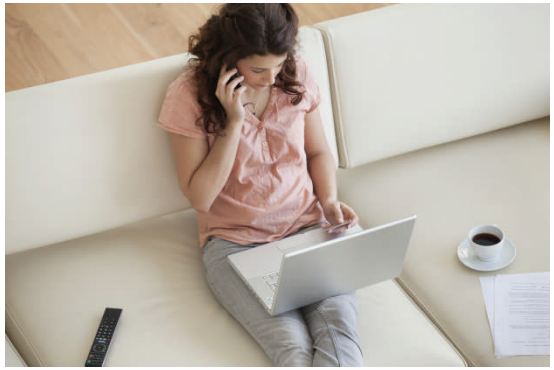
Agenda

- The role of IMS in IT History and your world
- A day in the life of an enterprise architect
- It’s all about the connectivity
- The sum is much larger than the parts
- Wrap Up

THE ROLE OF IMS IN IT HISTORY AND IN YOUR WORLD



IMS is part of our daily lives and has been for 45 years

We don't have to *think* about where the data that drives each of these scenarios resides, or how safe it is, or how quickly it's delivered, but we have *come to rely on it…..*

Handelsbanken

IBM

Major US Insurance Company

CREDIT SUISSE

BNP PARIBAS

GAD
IT für Banken

Scotiabank

CATERPILLAR®

ceco

FIDUCIA
Ihr IT-Partner

bbk

SIGNAL IDUNA

UniCredit

saarstahl

"la Caixa"

WELLPOINT

IMS runs the world's most critical workloads

2000 customers worldwide run IMS

75% of the top 100 banks worldwide run IMS

The top 5 US banks run IMS

The top 5 European banks run IMS

16 petabytes of production data managed by IMS

$3.0 trillion ($US) per day is transferred through IMS.....by one customer

300+ million users served every day

500 million accounts.....for one customer

***46,000** transactions per second.....on a single IMS system*

A DAY IN THE LIFE OF AN ENTERPRISE ARCHITECT

2009: Gartner Identifies New Approach for Enterprise Architecture

- **“Enterprise architects must adopt a new style of enterprise architecture (EA) to respond to the growing variety and complexity in markets, economies, nations, networks and companies…”**
- **First key characteristic: “Architect the *lines*, not the *boxes…”* – manage the *connections* between different parts of the business rather than the actual parts of the business themselves.**

The practical implications

- **Employees want to use their personal devices for business purposes when necessary**
- **Employees and business processes see increased integration with partners and suppliers**
- **Customers want access to information using the technology of their choice**
- **Regulators demand more information—and compliance requirements change regularly.**

In the beginning there was IMS……

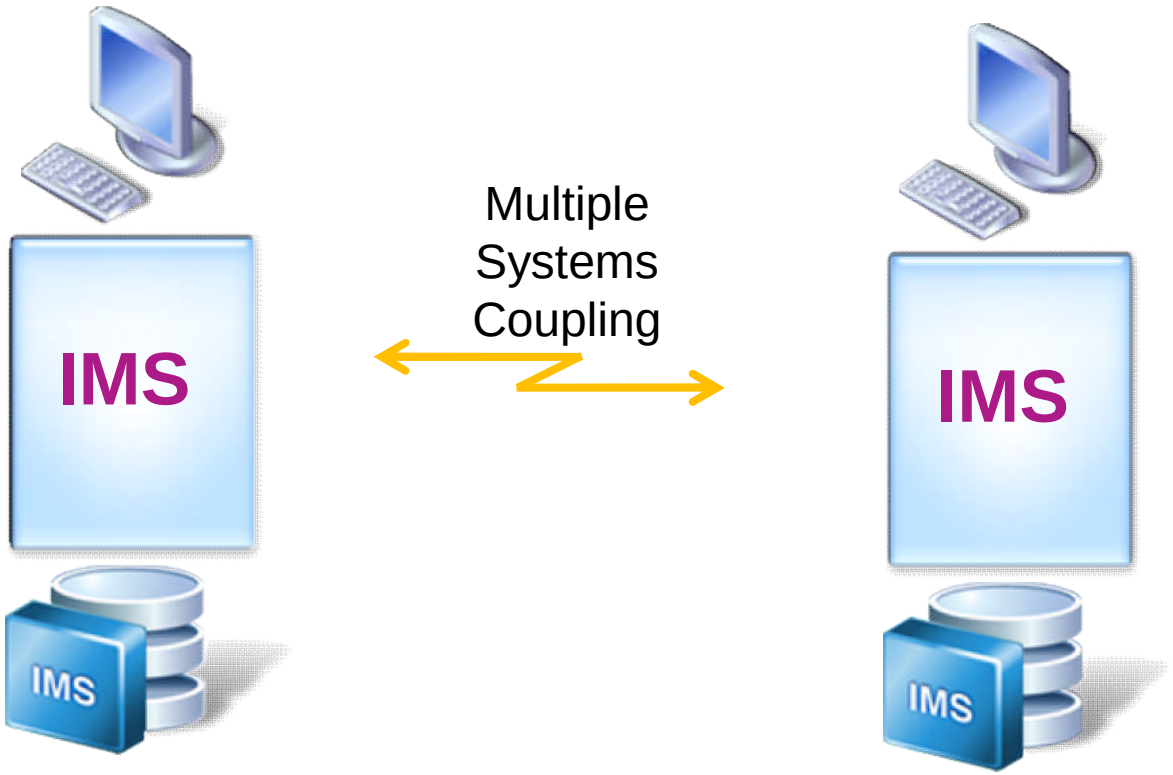
IMS is now two Products:

IMS Transaction Manager (TM) &

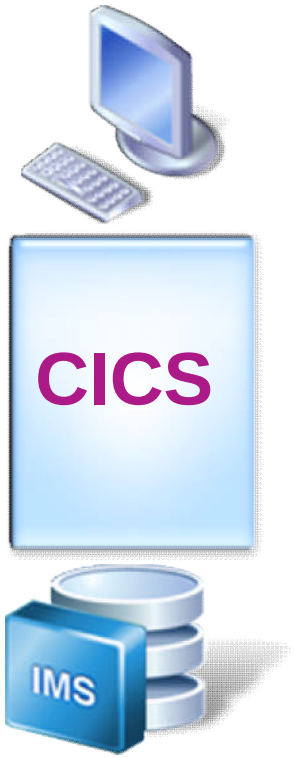
IMS Database Manager (DB)

Runs only on z/OS

Geographically disperse connected systems

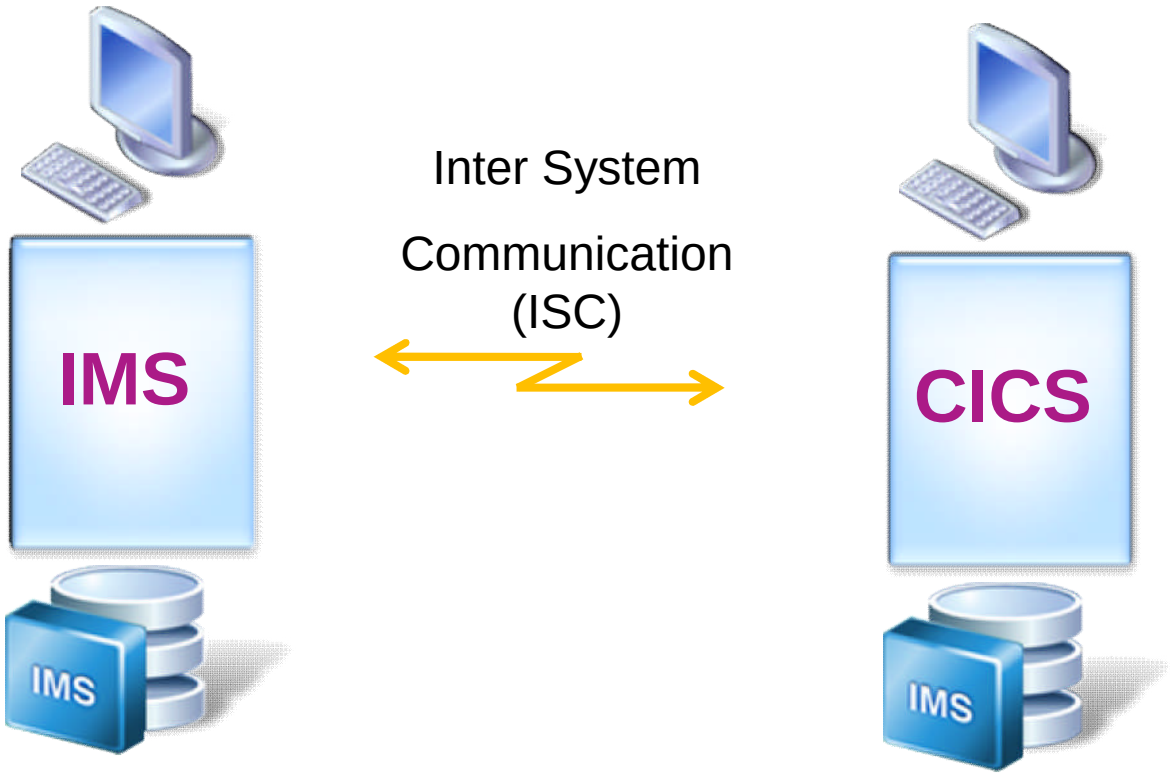


CICS began to use IMS DB …



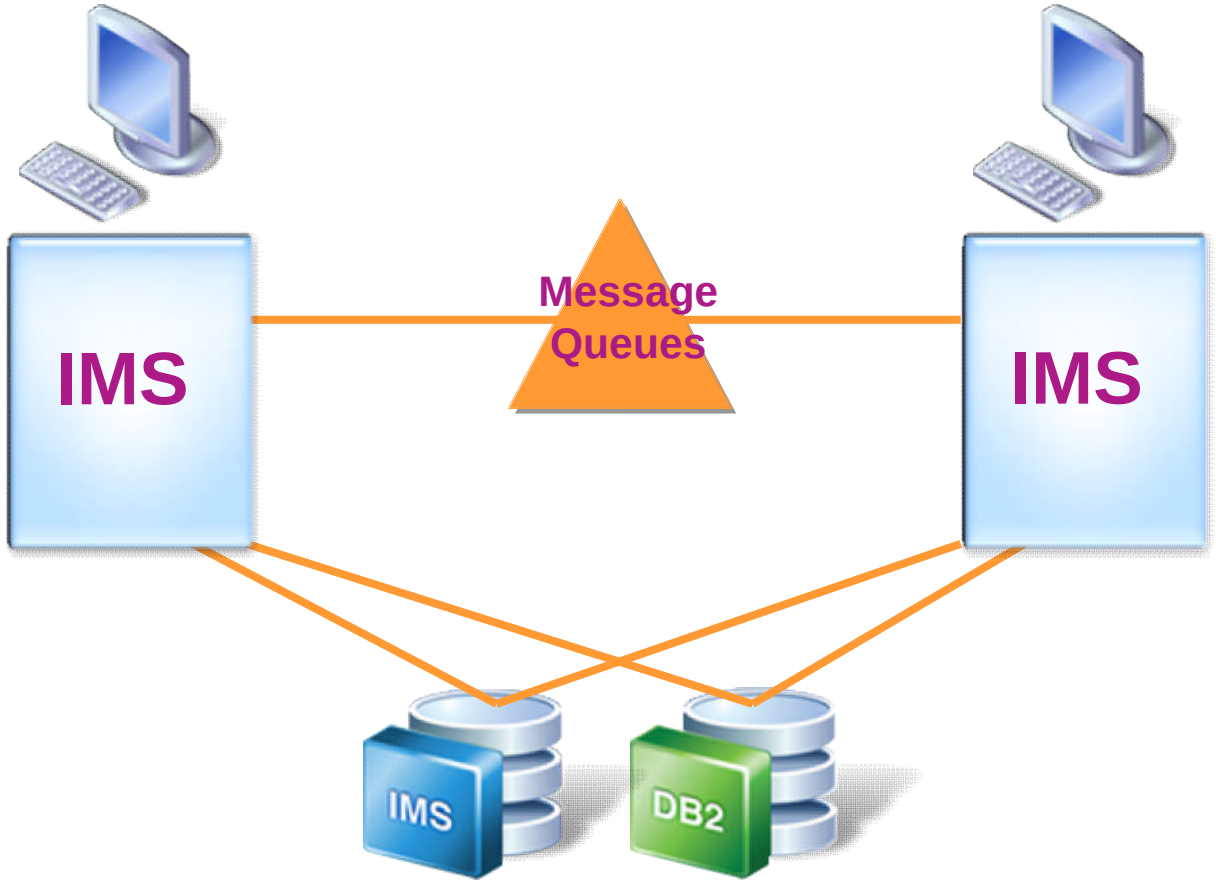
CICS can use IMS databases

Geographically disperse connected systems

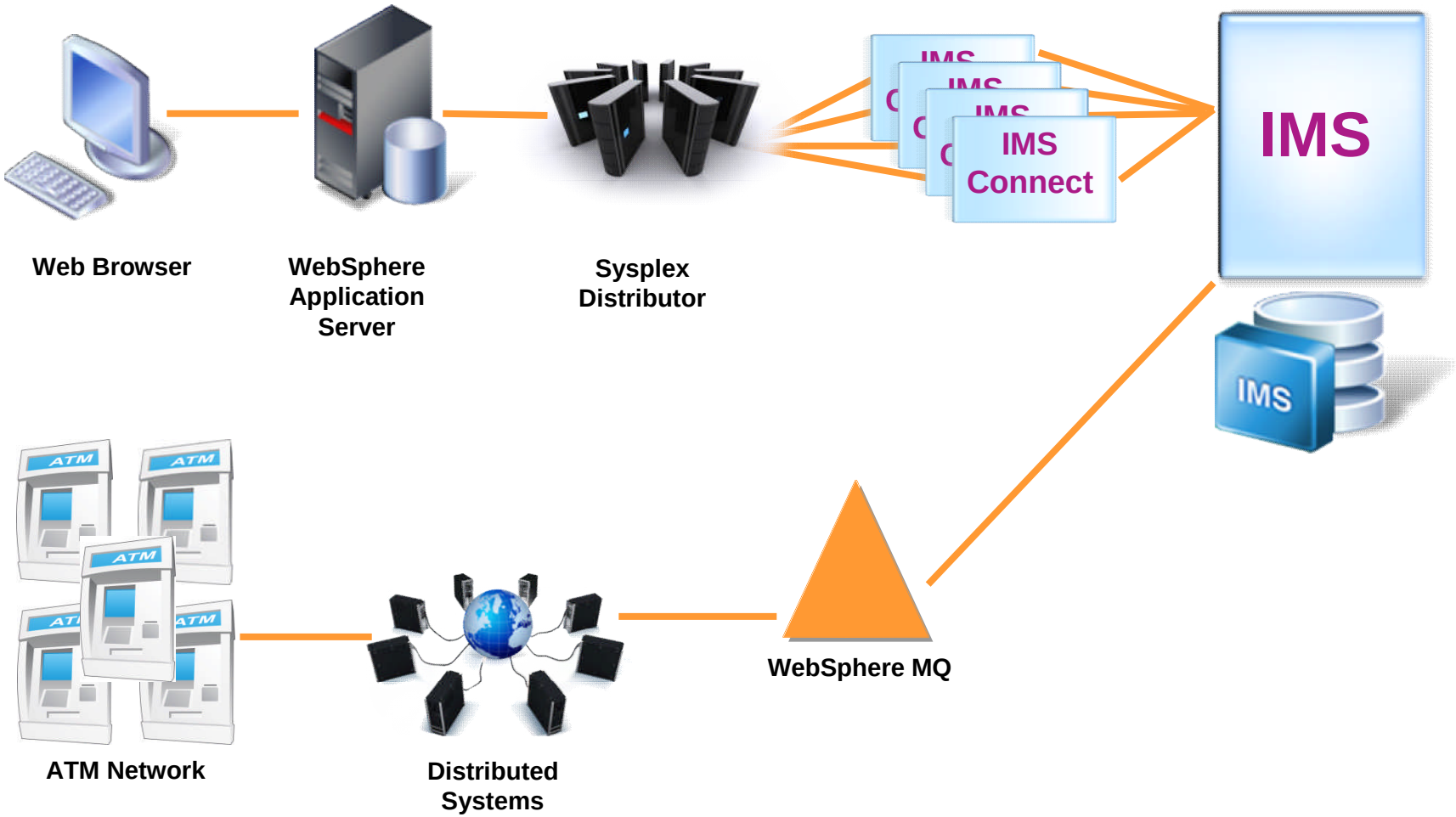


Then came that other database … DB2

High Availability

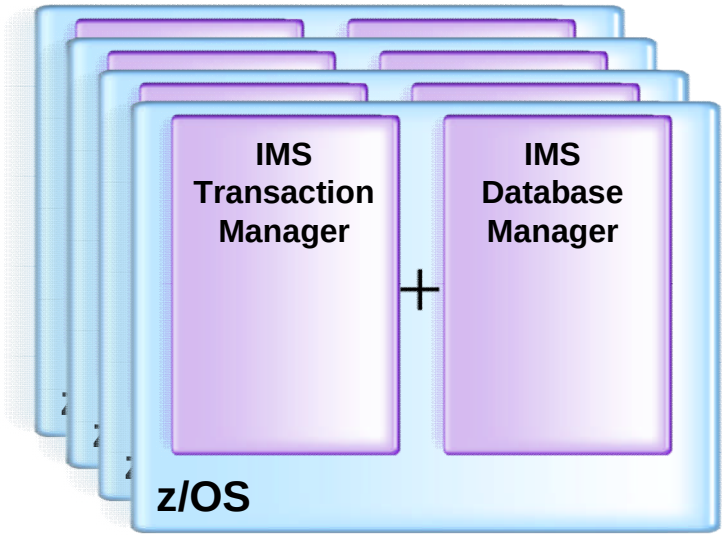


Emergence of online – all roads lead to IMS



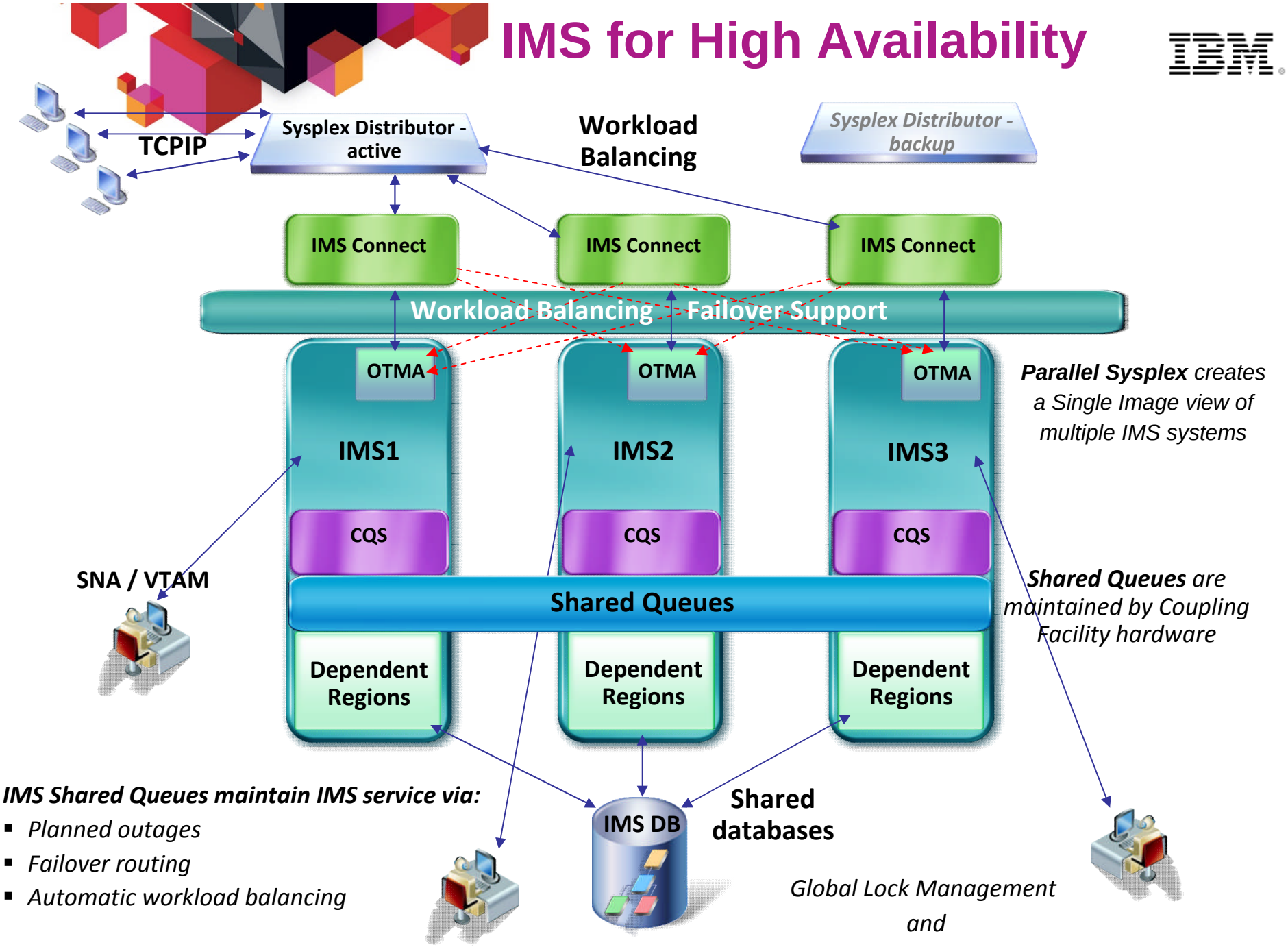
Clustering and Workload Management

- Clusters: sets of servers that are managed together and participate in workload management.
- IMS cluster = IMSPlex
- IMS images can be clustered up to 255 at a time but managed as one system



- **Share IMS databases**
- **Share IMS message queues**
- **Single Point of Control**

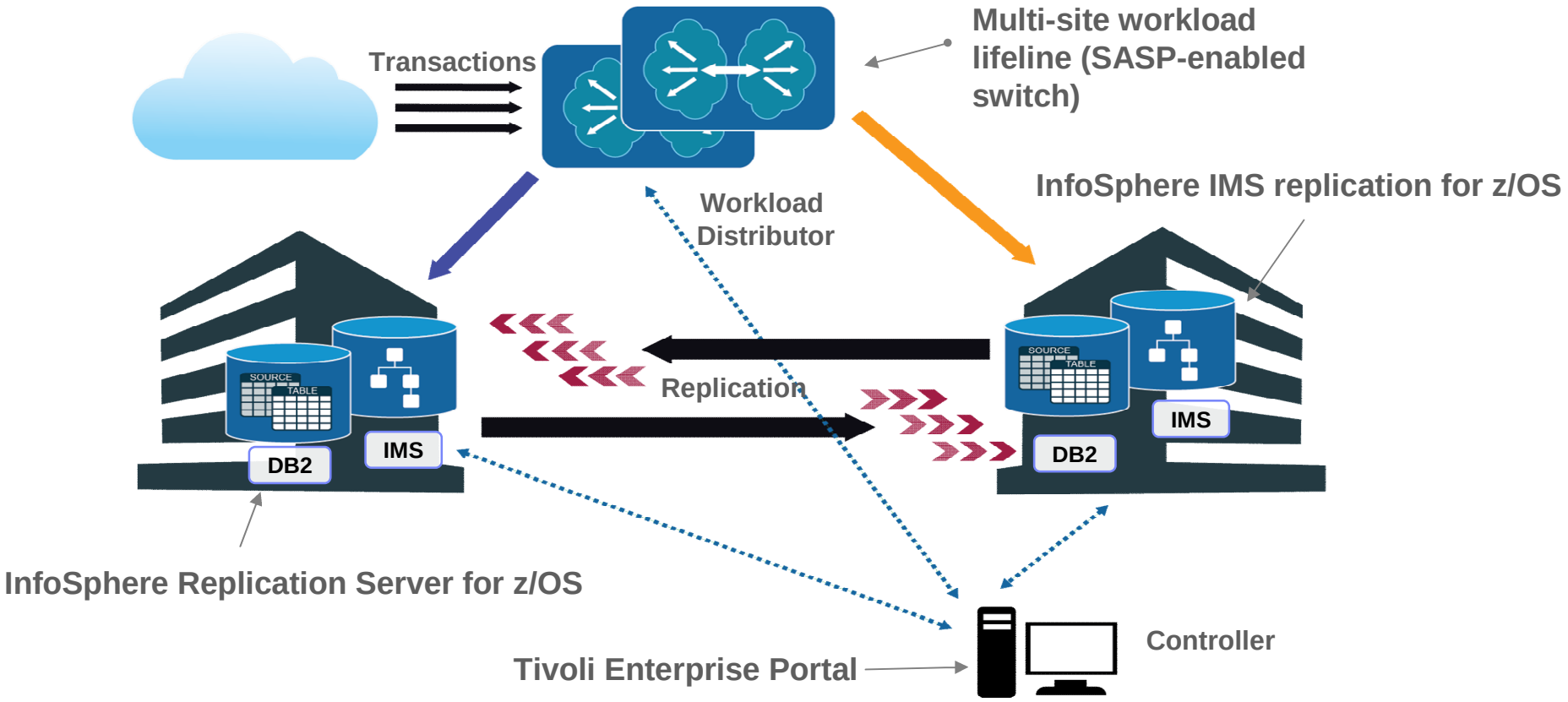
IMS for High Availability



IMS Shared Queues maintain IMS service via:

- *Planned outages*
- *Failover routing*
- *Automatic workload balancing*

Active/Active Sites



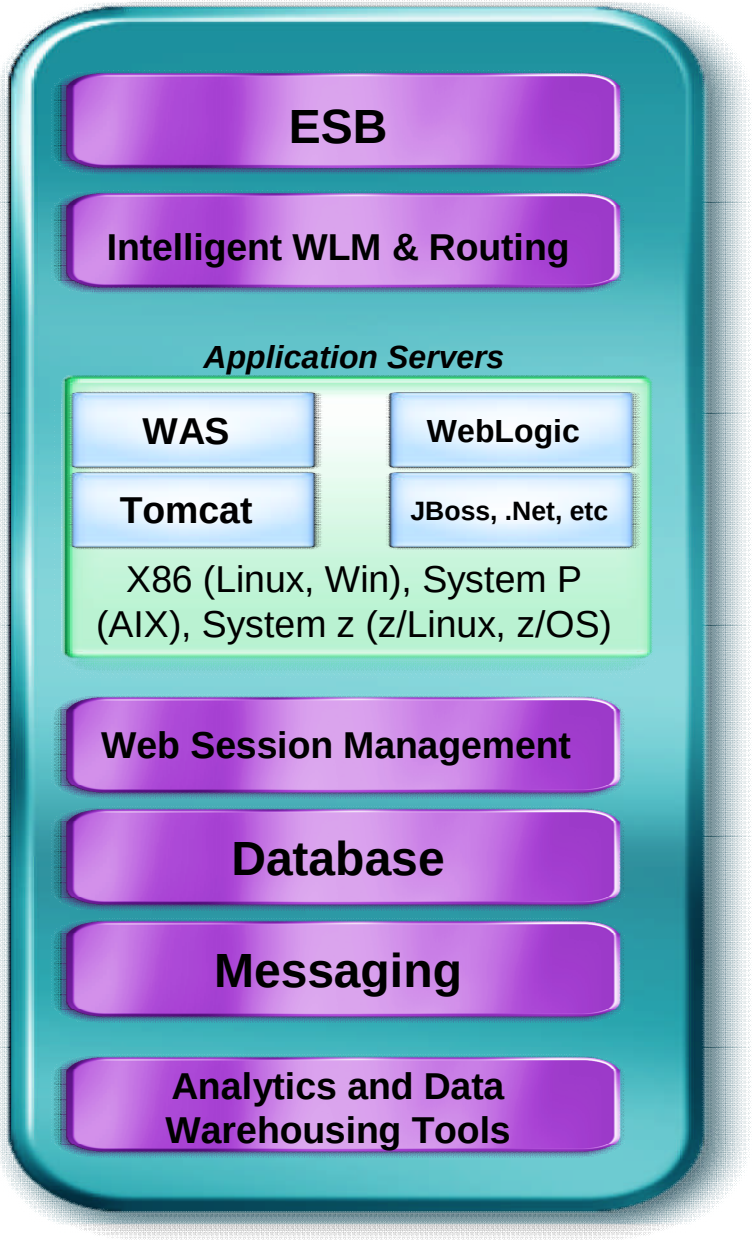
Two or more sites, separated by unlimited distances, running the same applications having the same data to provide:

- Cross-site Workload Balancing
- Continuous Availability
- Disaster Recovery
- Asynchronous Software replication

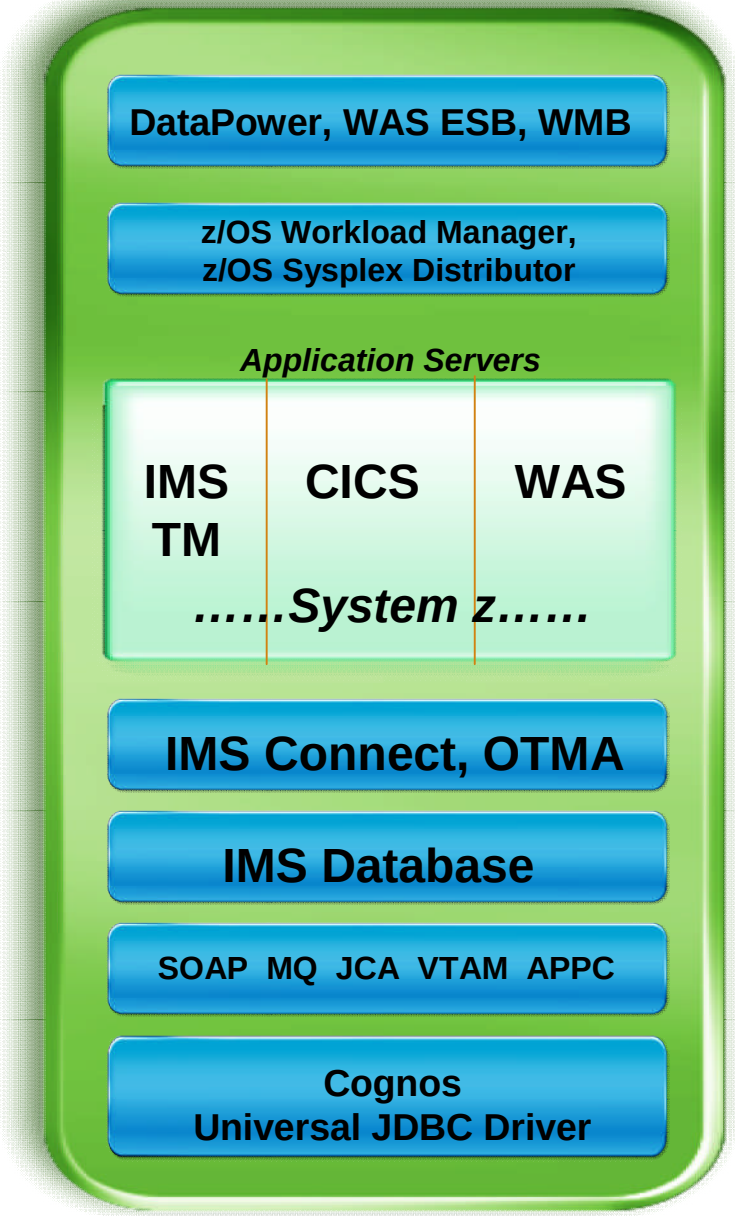
Key Considerations of the Enterprise Architect

- Application Containers
- Database Management
- SQL Communications
- Data Protection and Security
- Clustering and Workload Management
- Connectivity
- Appliances
- Analytics, Big Data, Cloud

Enterprise Architecture Considerations

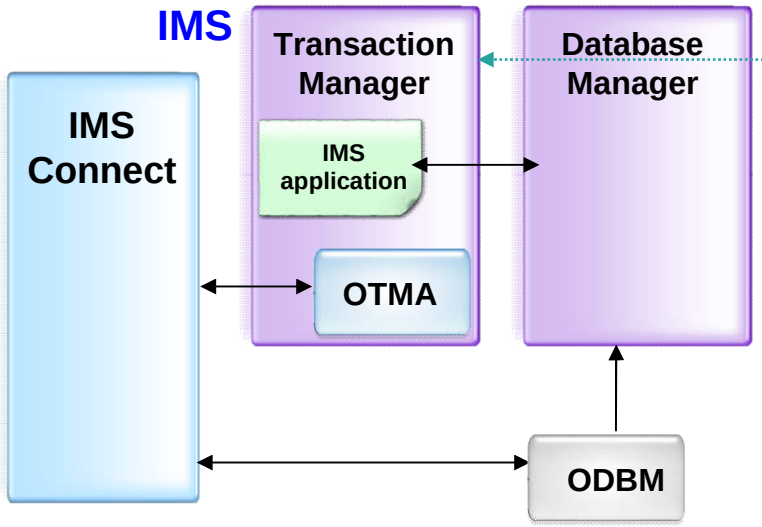


IMS Implementation / Integration



Application Containers

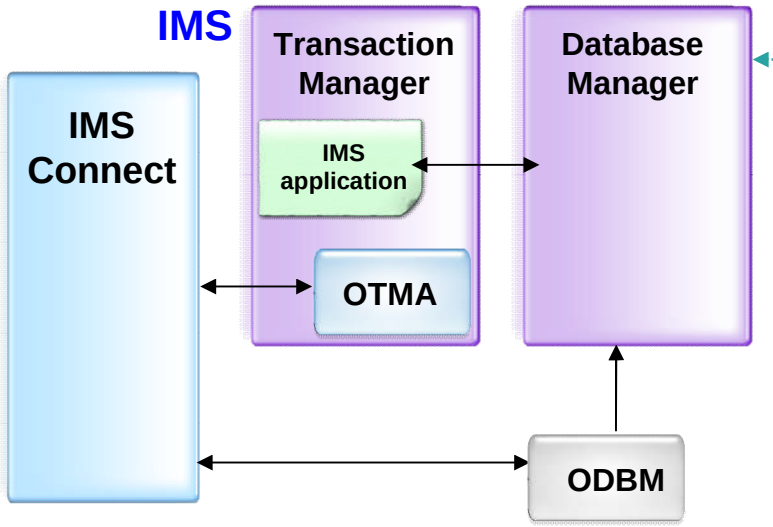
- **Formerly known as Application Server**
- **Application "container" is essentially a host**
- **Software applications live in a container and take advantage of services such as security, data services, management, performance, and more.**



- **IMS provides an Application Container**
- **Dependent regions provide system services, application logic, database calls, message handling, and more.**
- **Dependent regions specialized for Java, batch, and their permutations**

Database Management

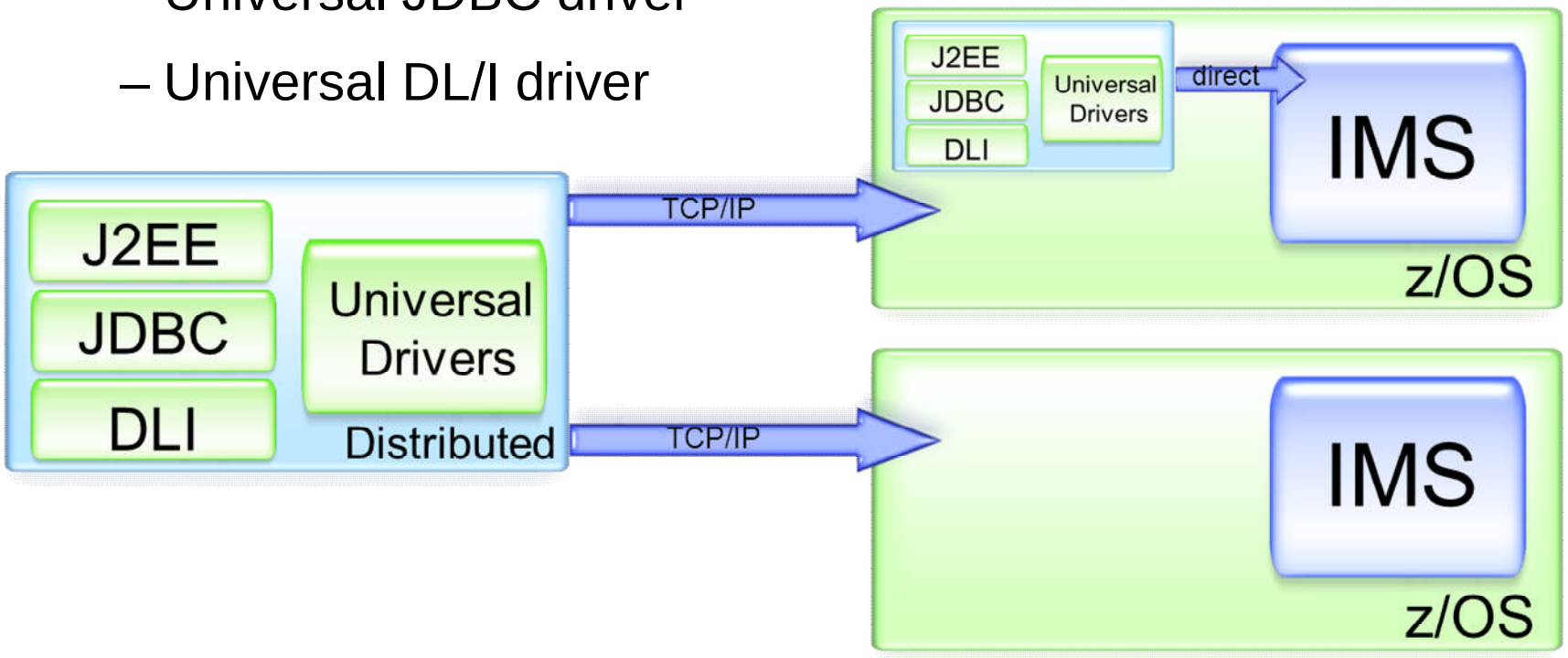
- **Where does the data reside? In what language it is accessible?**
- **IMS DB can be standalone or share everything**



- **IMS DB supports DL/I, SQL, and XML**
- **Specialized IMS DBs provide enhanced performance (Fast Path) and scalability (HALDB)**
- **Direct connections to IMS database**

SQL Communication

- **IMS Open Database introduced standardized SQL access to IMS data**
  - Universal DB resource adapter for JEE
  - Universal JDBC driver
  - Universal DL/I driver



Data Protection and Security

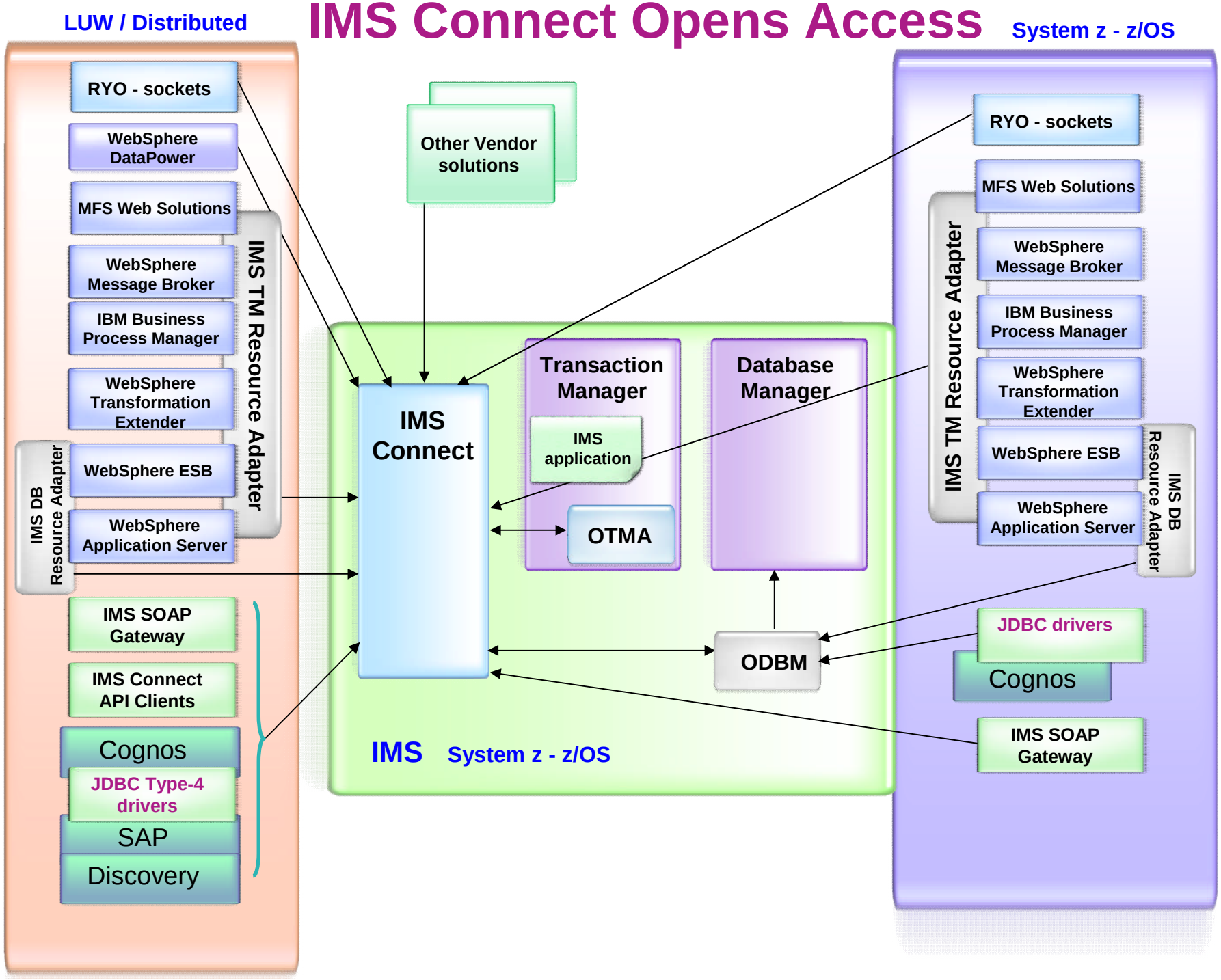
- **IMS is frequently the home of your most critical customer data**
- **Open integration makes data protection and security simple**
  - IBM InfoSphere Guardium S-TAP for IMS on z/OS
  - IBM InfoSphere Guardium Data Encryption
  - IBM InfoSphere Discovery
  - IBM InfoSphere Optim Test Data Management
  - IBM InfoSphere Optim Test Data Management – Data Masking Option

IT’S ALL ABOUT THE CONNECTIVITY

IMS Connect – the Hub

- **The TCP/IP Gateway into IMS**
- **Opens IMS systems to servers distributed across the enterprise**
- **The IMS Connect solution includes:**
  - OTMA: Open Transaction Manager Access
  - ODBM: Open Database Manager
  - OM: Operations Manager
  - APIs

IMS Connect Opens Access



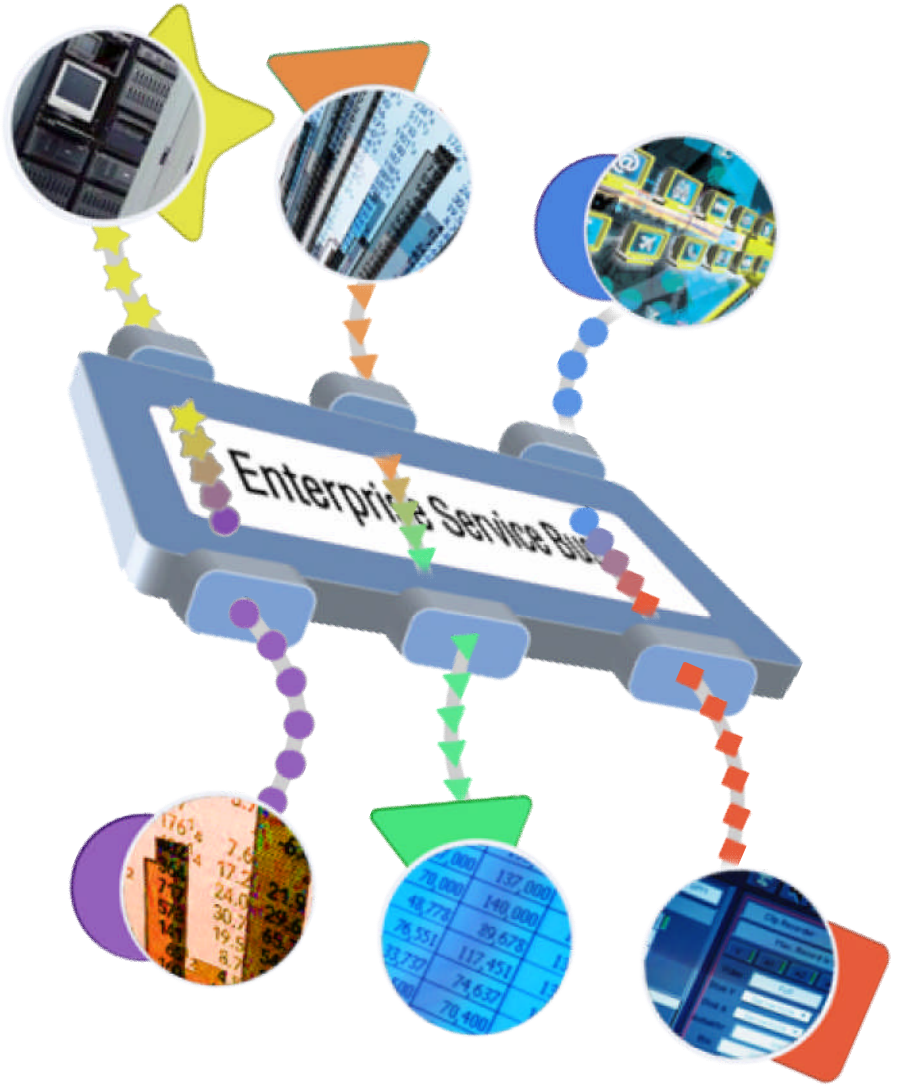
Enterprise-wide Messaging Capabilities

- **Which messaging protocols does IMS support?**
  - VTAM
  - WebSphere MQ
  - APPC
  - SOAP
  - JCA
- **Which message-passing paradigms?**
  - Synchronous
  - Asynchronous
  - Two-phase
  - Global
  - Local

THE SUM IS MUCH LARGER THAN THE PARTS

ESB Integration

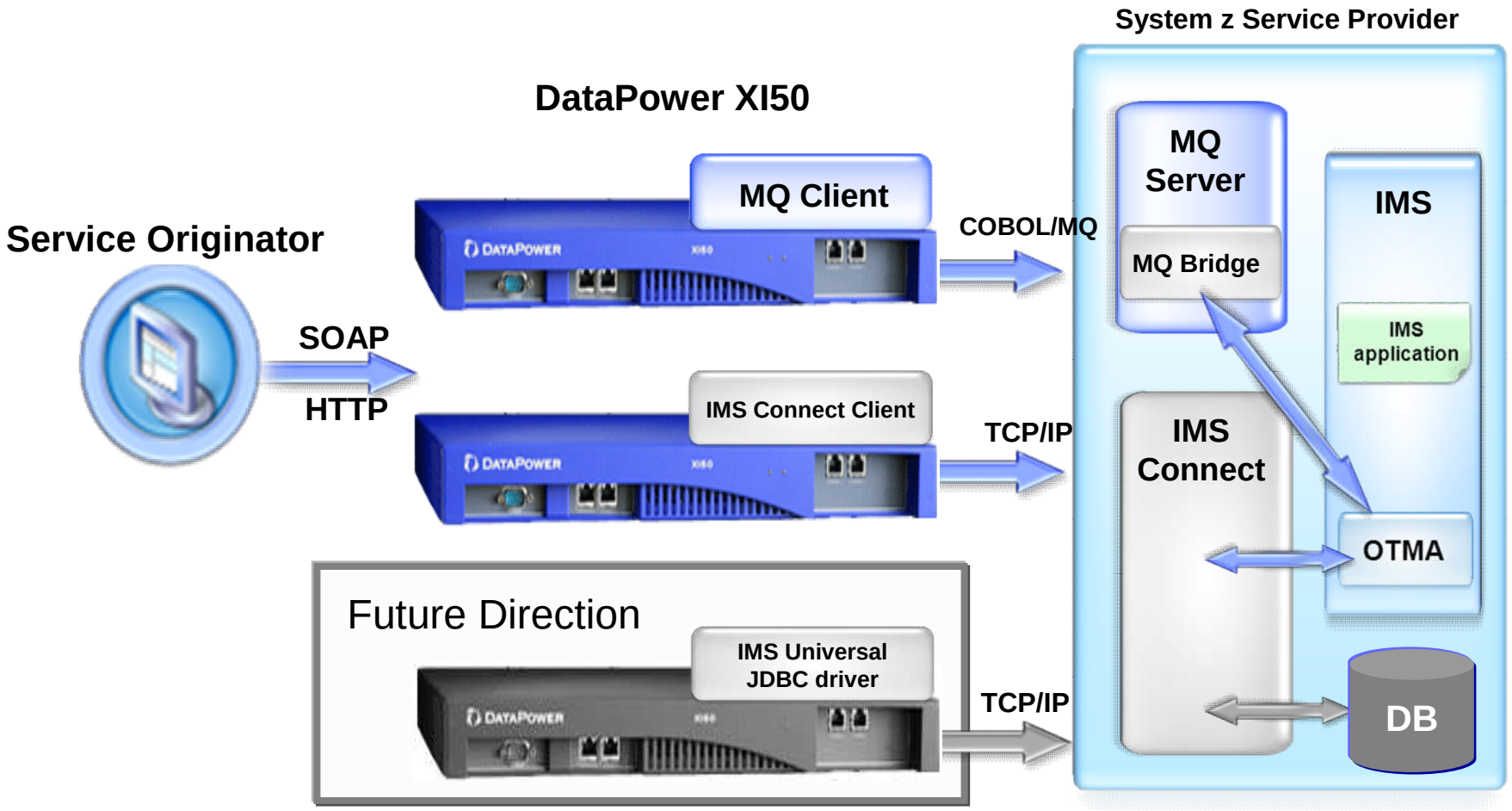
- **Enables standards-based integration between loosely coupled applications and services within and across…**
  - **SOAs**, where distributed applications are composed of granular re-usable services with well-defined, published and standards-compliant interfaces
  - **Message driven architectures**, where applications send messages through the ESB to receiving apps
  - **Event driven architectures**, where applications generate and consume messages anonymously



ESB+ for IMS

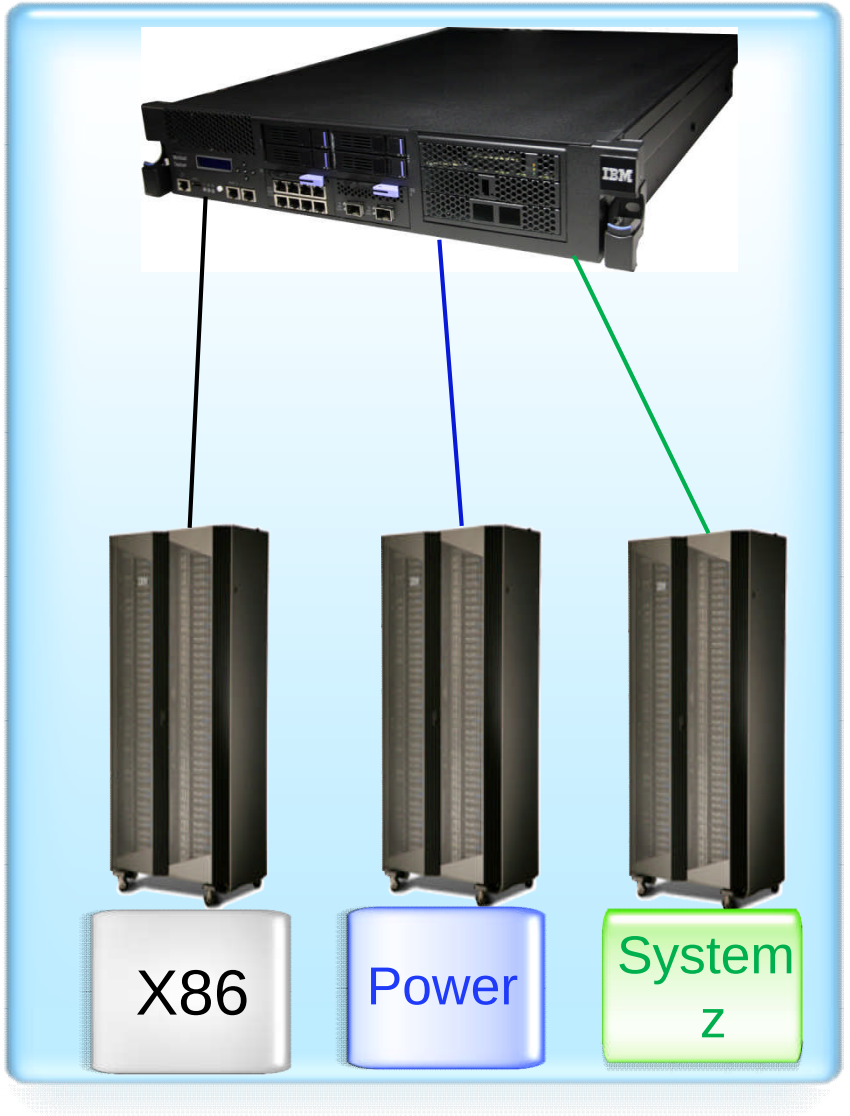
- **IBM WebSphere Enterprise Service Bus**
  - Built on top of IBM WebSphere Application Server
  - Supports common connectivity patterns
- **Use WebSphere ESB to:**
  - Create services from existing assets
  - Connect service providers with service consumers
  - Connect virtually any business application
- **Additional services available through:**
  - WebSphere Message Broker
  - IBM Business Process Manager
  - WebSphere Transformation Extender

Appliances – IBM WebSphere DataPower



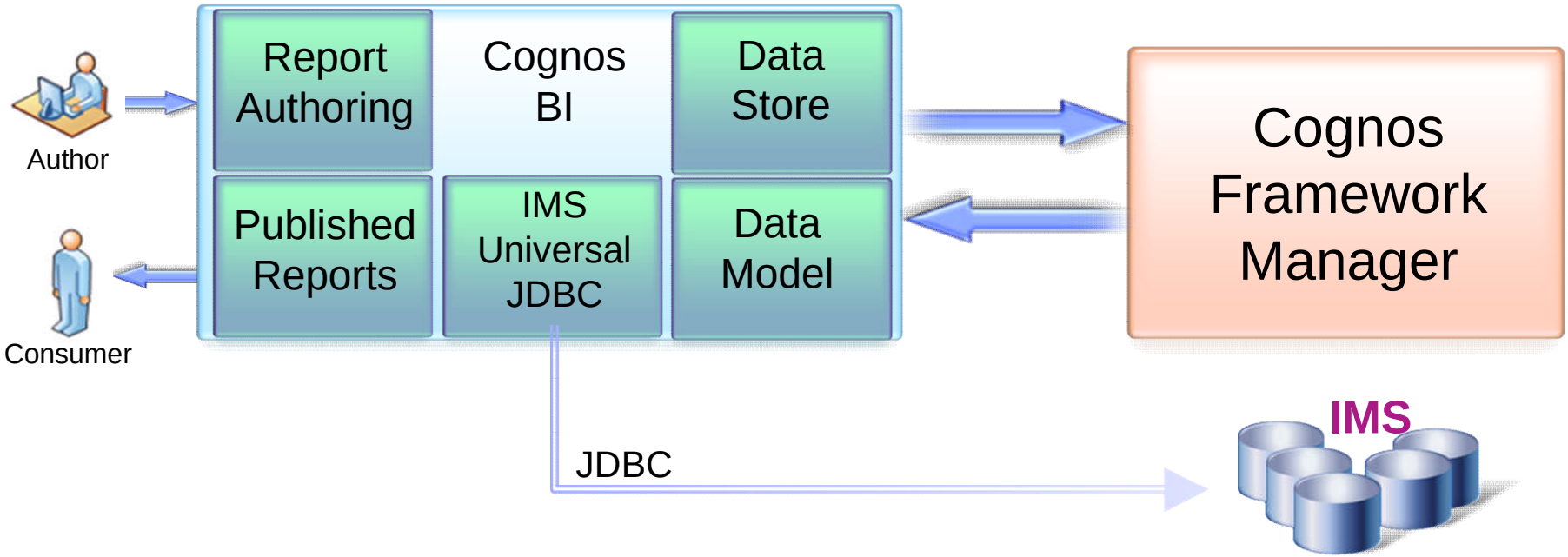
IBM Workload Deployer – Build Your Private Cloud

- Secure, self-service cloud management hardware appliance
- Design and deploy consistent and repeatable middleware patterns into a cloud of virtualized hardware running a supported hypervisor, such as VMware ESX, z/VM, and PowerVM.
- Bring your own cloud to leverage your existing underutilized hardware
- Full lifecycle management for IBM Middleware; limited lifecycle management for third party products



Analytics and IMS data

- Benefits of Cognos reporting with IMS:
  - Ad hoc reporting access
  - Report on data reflecting the most current state of the business
  - React faster to trusted data
  - Market-leading BI solution for IMS customers



System z Data – core to Big Data projects

IMS: Top 5 US Banks
Top 5 European Banks

IMS: 80% of the global life/health insurance providers

IMS: Top US Manufacturing and Shipping Companies

8 of every 10 of the largest retail banks in Australia, Germany, Japan, and the United States use IMS for their core banking

24x7 ATM

Deposits and Withdrawals

Reserves airline seats

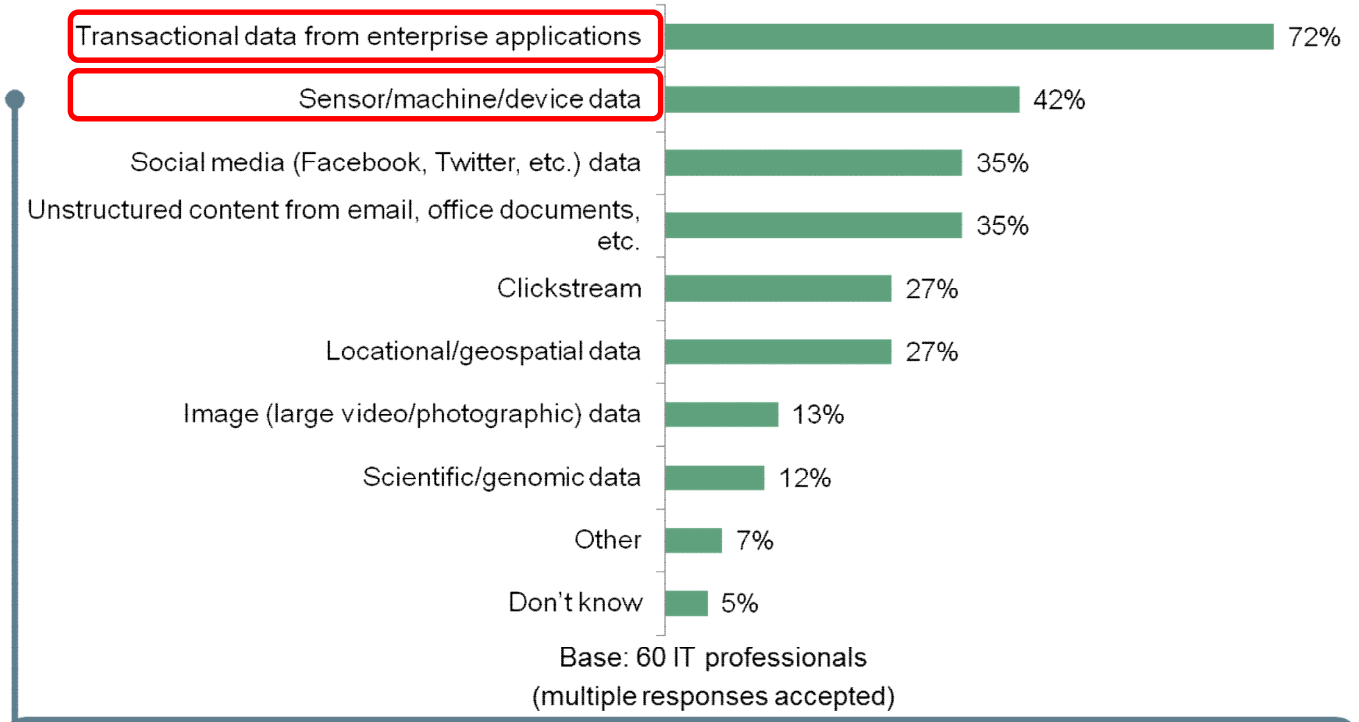
Runs the world's stock exchanges and banking networks

Tracks the world's packages

Big Data and IMS - FORRESTER research

Big data: across diverse subject domains

"What types of data/records are you planning to analyze using big data technologies?"

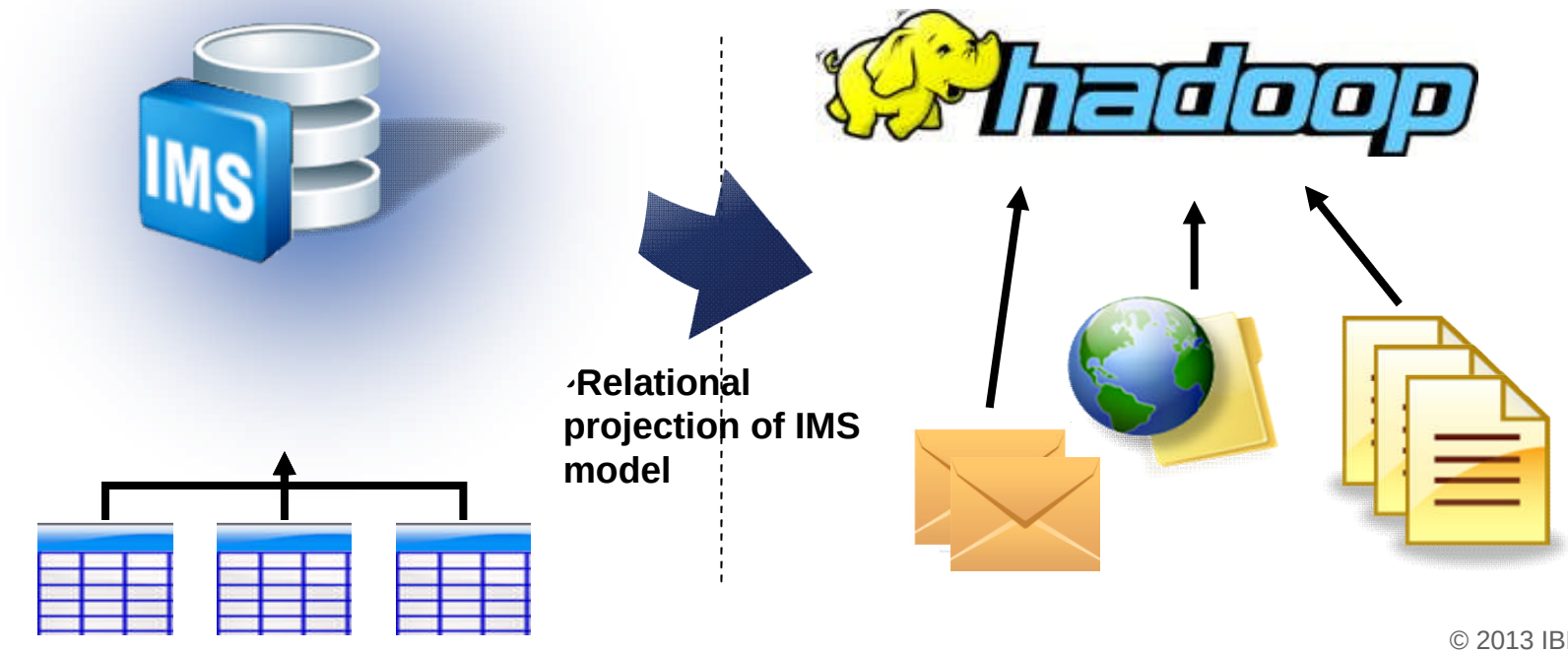


Most big data use cases hype its application for analysis of new, raw data from social media, sensors, and web traffic, but we found that firms are being very practical, with early adopters using it to operate on enterprise data they already have.

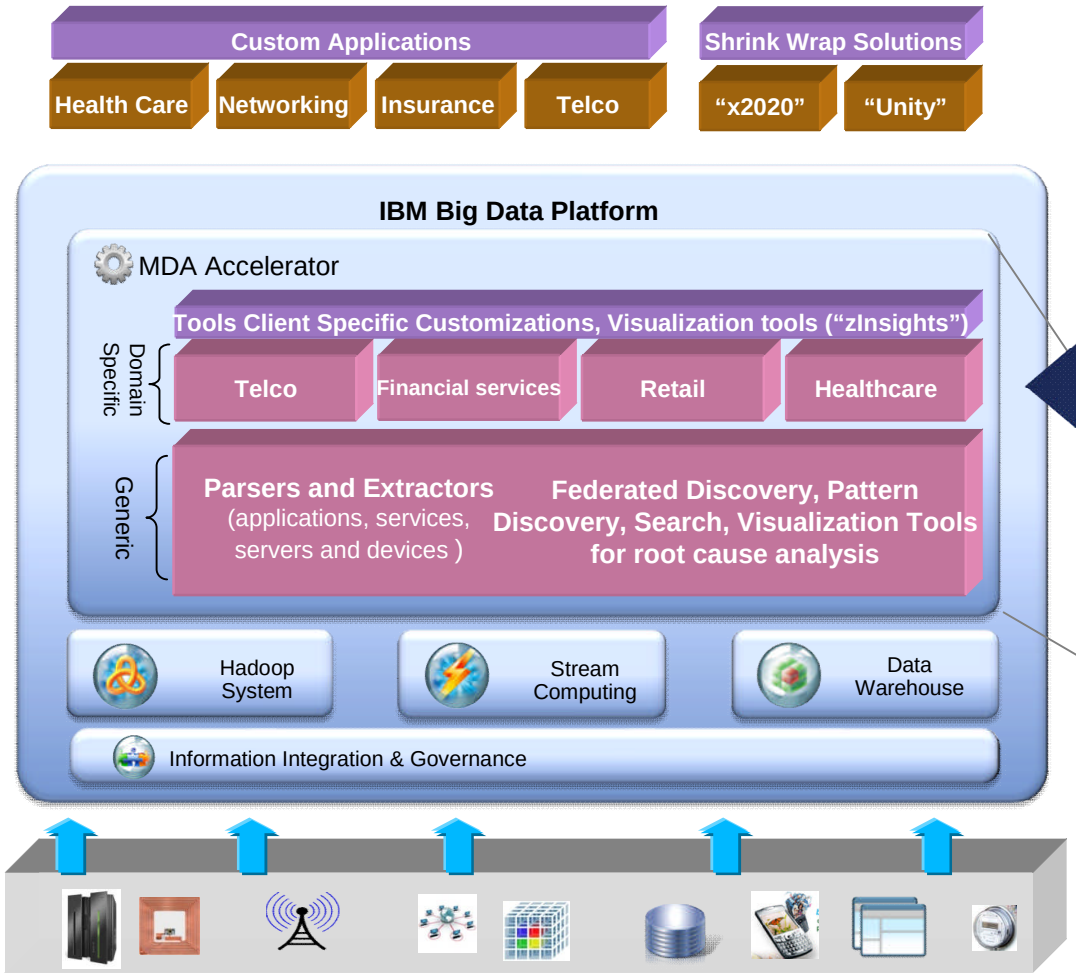
Source: June 2011 Global Big Data Online Survey

Enhancing IMS Analytics on “z” with Big Data

- Much of the world’s operational data resides on z/OS
- Unstructured data sources are growing fast
- There is a need to merge this data with trusted OLTP data from System z data sources
  - Integrate this data so that insights from Big Data sources can drive business actions
  - **Keep the data where it is**
- IMS intends to provide the connectors and the DB capability to allow BigInsights to easily and efficiently [illegible] data source



Machine Data Accelerator

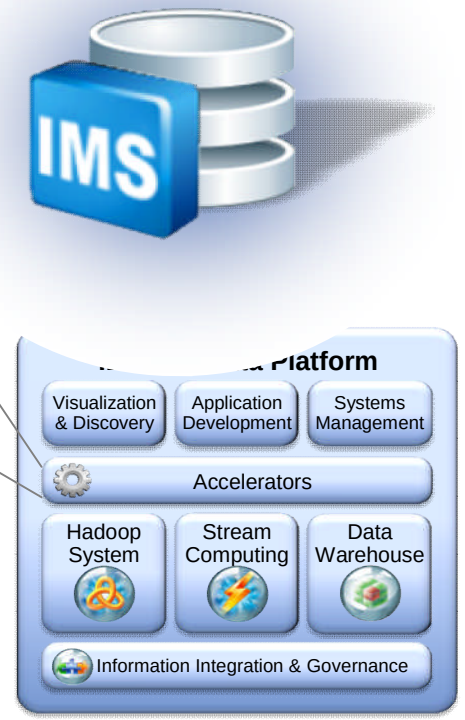


IT use cases:

- Server, performance, troubleshooting

Business use cases:

- Click stream and transaction analysis
- Optimize production, advance planning,



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