

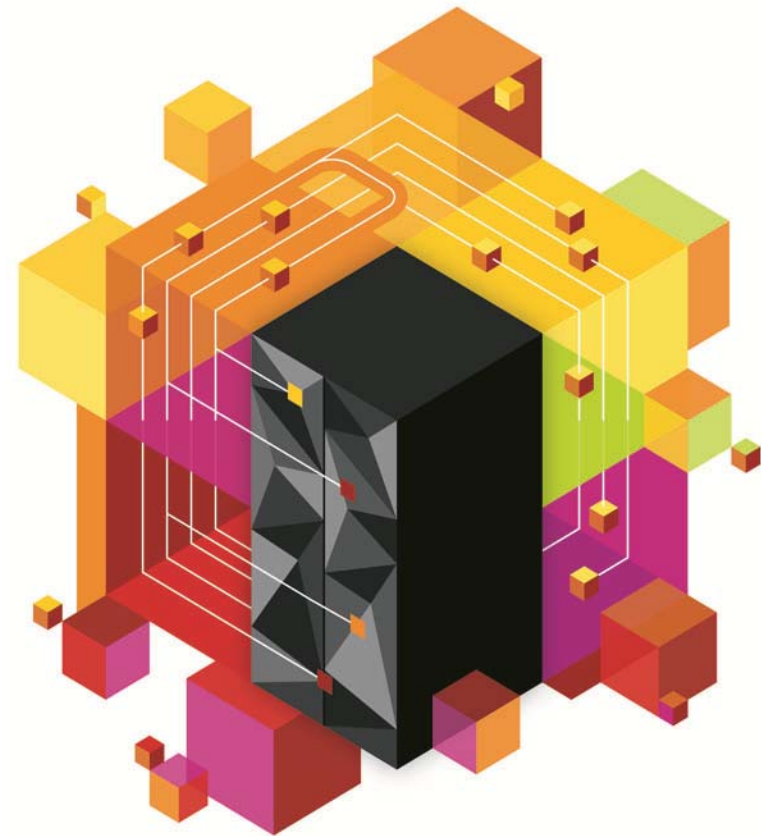


# IBM zEnterprise Technology Summit

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

Presenter –

Date:





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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

Major US  
Insurance  
Company

CREDIT SUISSE



Scotiabank



GAD

IT für Banken

CATERPILLAR®



SIGNAL IDUNA

FIDUCIA  
Ihr IT-Partner



UniCredit

"la Caixa"

saarstahl



WELLPOINT<sup>SM</sup>



# 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

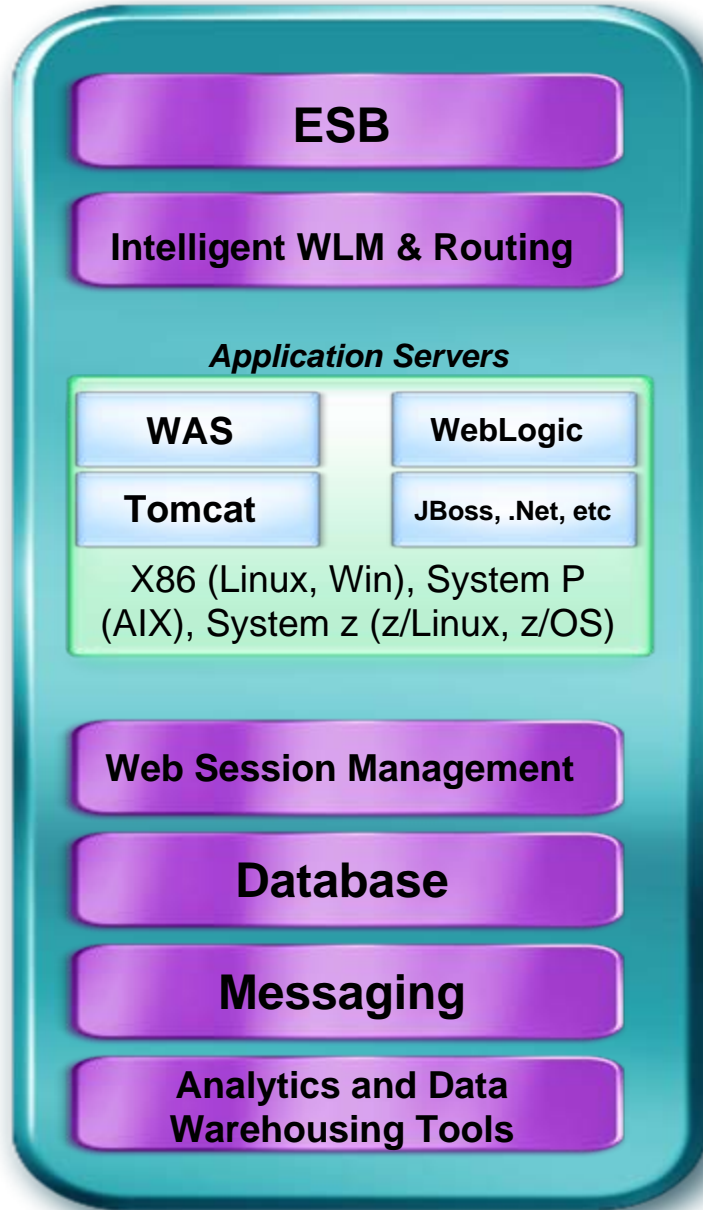
- **Employees want to use their personal devices for business purposes when necessary**
- **Employees and business processes see increased integration with partners and suppliers**
- **Customers want access to information using the technology of their choice**
- **Regulators demand more information—and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



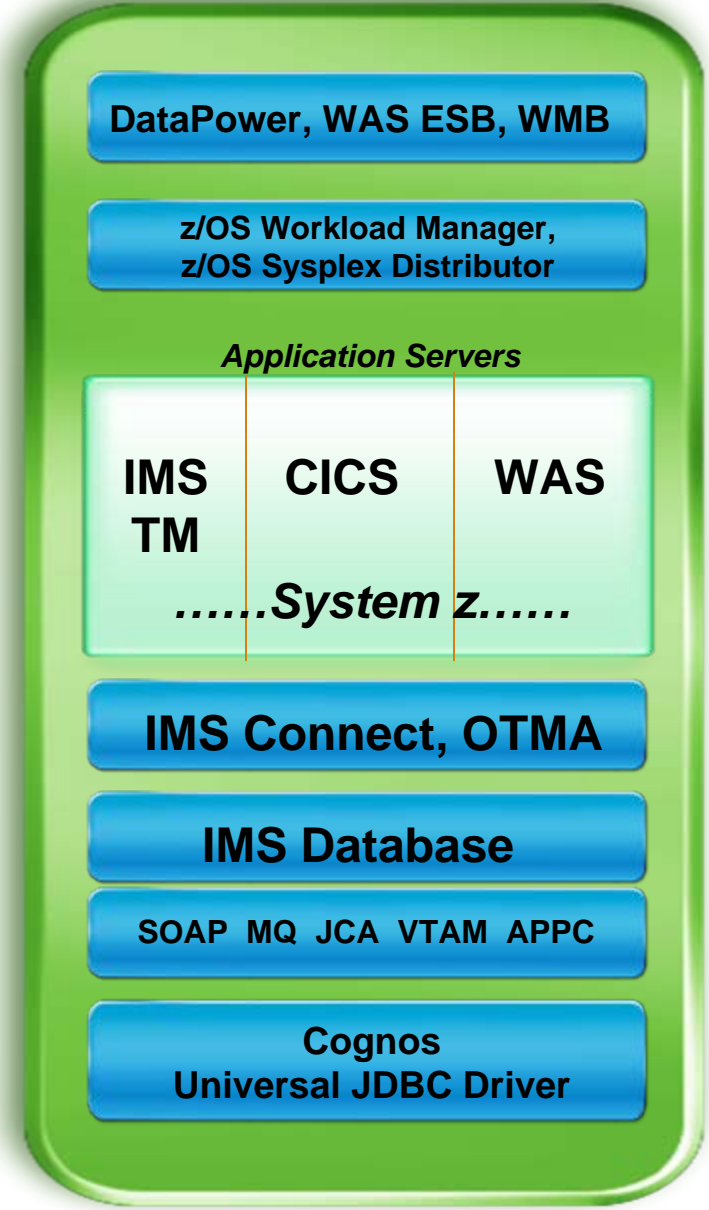
# Key Considerations of the Enterprise Architect

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

## Enterprise Architecture Considerations

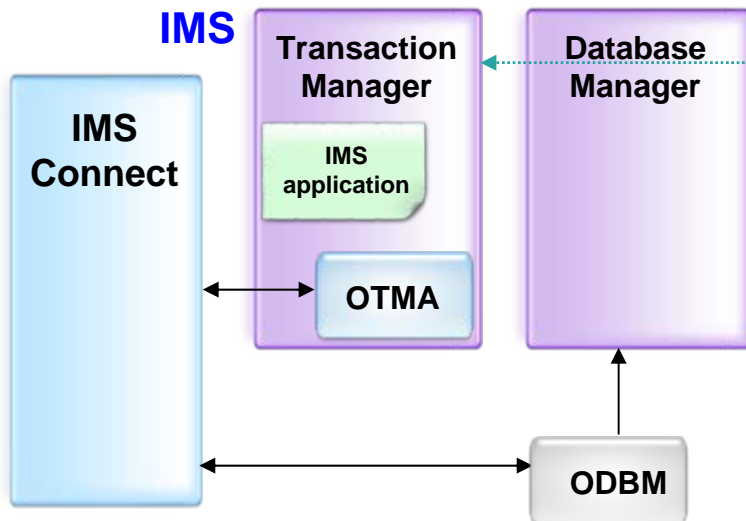


## IMS Implementation / Integration



# Application Containers

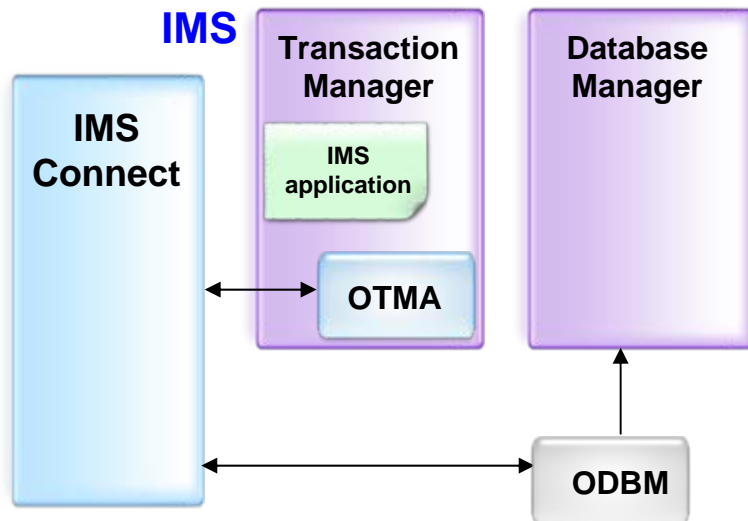
- Formerly known as Application Server
- Application “container” is essentially a host
- Software applications live in a container and take advantage of services such as security, data services, management, performance, and more.



- IMS TM functions as Application Container
- Dependent regions (up to 999) provide system services, application logic, database calls, message handling, and more.
- Dependent regions specialized for Java, batch, and their permutations

# Database Management

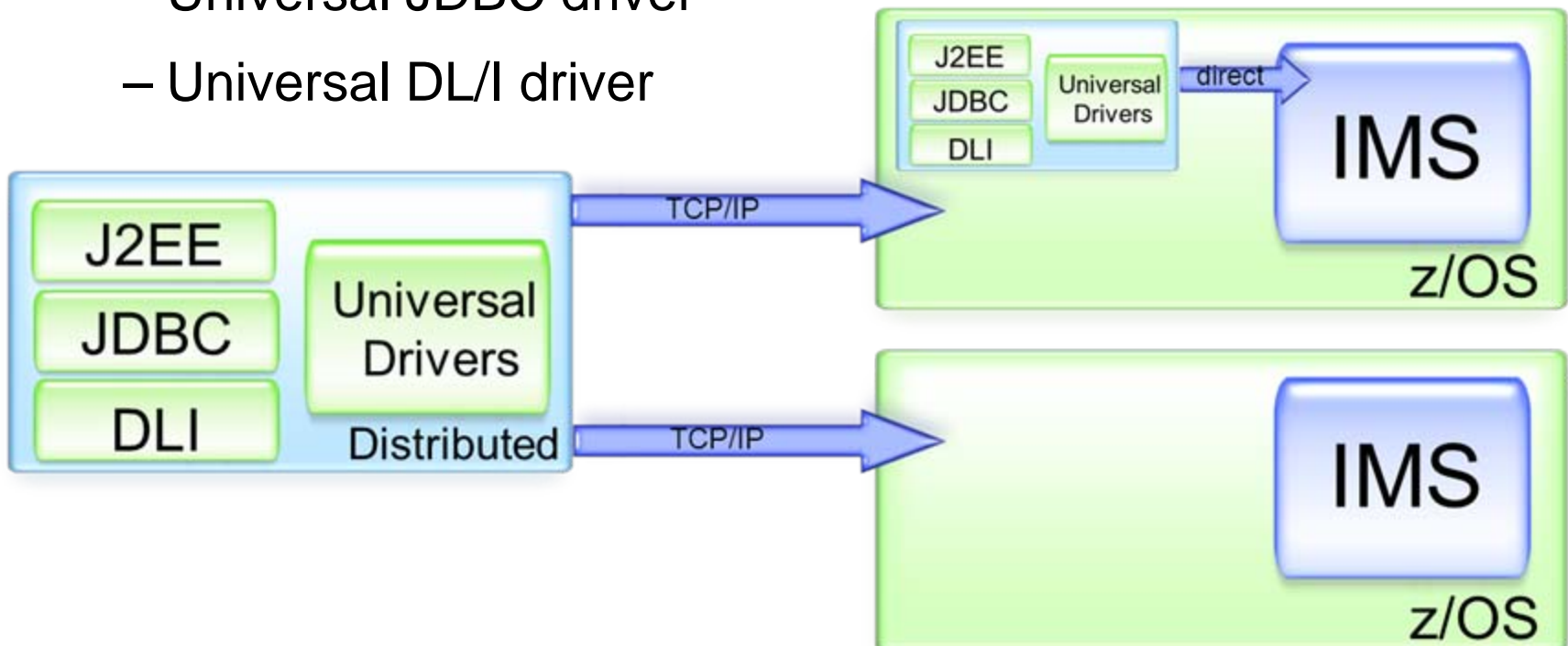
- Where does the data reside? In what language it is accessible?
- IMS DB can be standalone or share everything



- IMS DB supports DL/I, SQL, and XML
- Specialized IMS DBs provide enhanced performance (Fast Path) and scalability (HALDB).

## 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





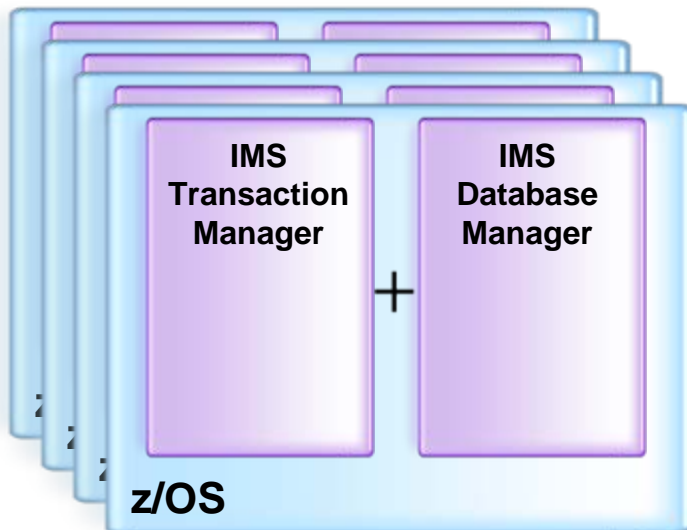
## Data Protection and Security

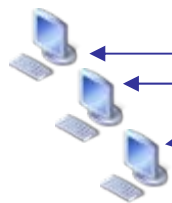
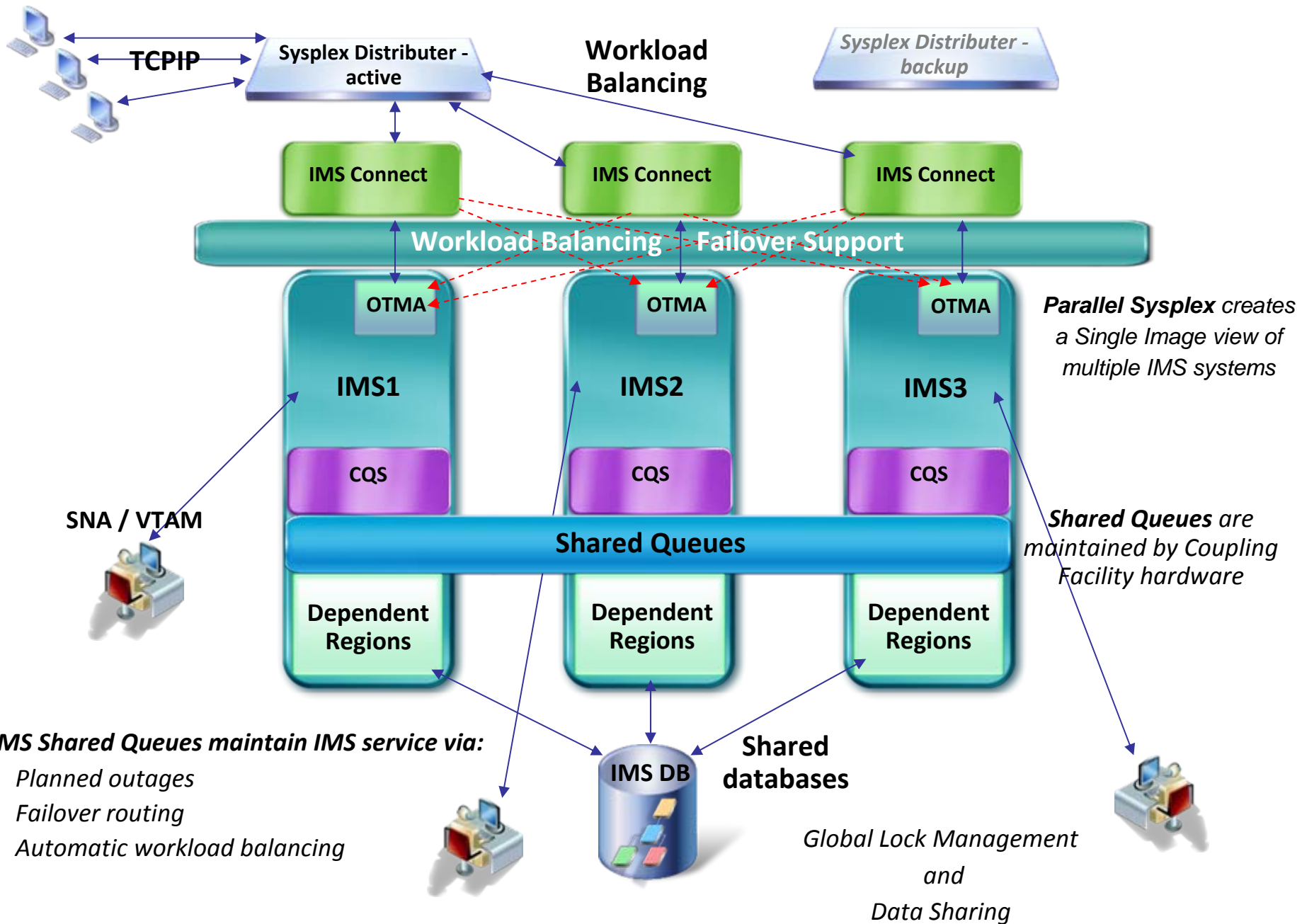
- **IMS is frequently the home of your most critical customer data**
- **Open integration makes data protection and security simple**
  - IBM InfoSphere Guardium Database Security
  - IBM InfoSphere Guardium Data Encryption
  - IBM InfoSphere Optim Designer



# 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





**TCP/IP**

**Sysplex Distributer - active**

**Workload Balancing**

*Sysplex Distributer - backup*

**IMS Connect**

**IMS Connect**

**IMS Connect**

**Workload Balancing** **Failover Support**

**OTMA**  
**IMS1**  
**CQS**

**OTMA**  
**IMS2**  
**CQS**

**OTMA**  
**IMS3**  
**CQS**

*Parallel Sysplex creates a Single Image view of multiple IMS systems*

**SNA / VTAM**



**Shared Queues**

*Shared Queues are maintained by Coupling Facility hardware*

**Dependent Regions**

**Dependent Regions**

**Dependent Regions**

**IMS DB**

**Shared databases**

*Global Lock Management and Data Sharing*

**IMS Shared Queues maintain IMS service via:**

- Planned outages
- Failover routing
- Automatic workload balancing



# IT'S ALL ABOUT THE CONNECTIVITY

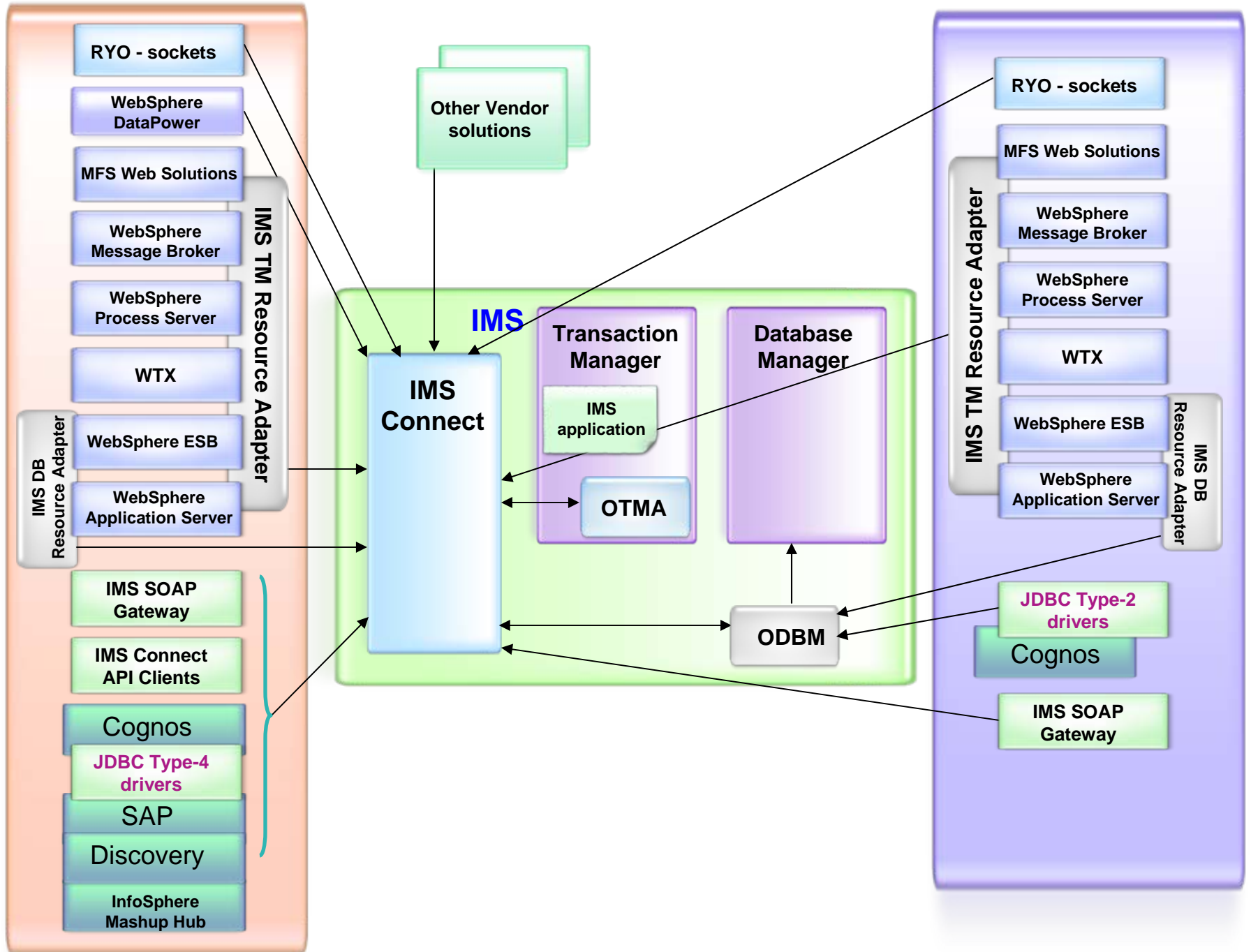


## IMS Connect – the Hub

- **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
  - APIs

# LUW / Distributed

# System z





## 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



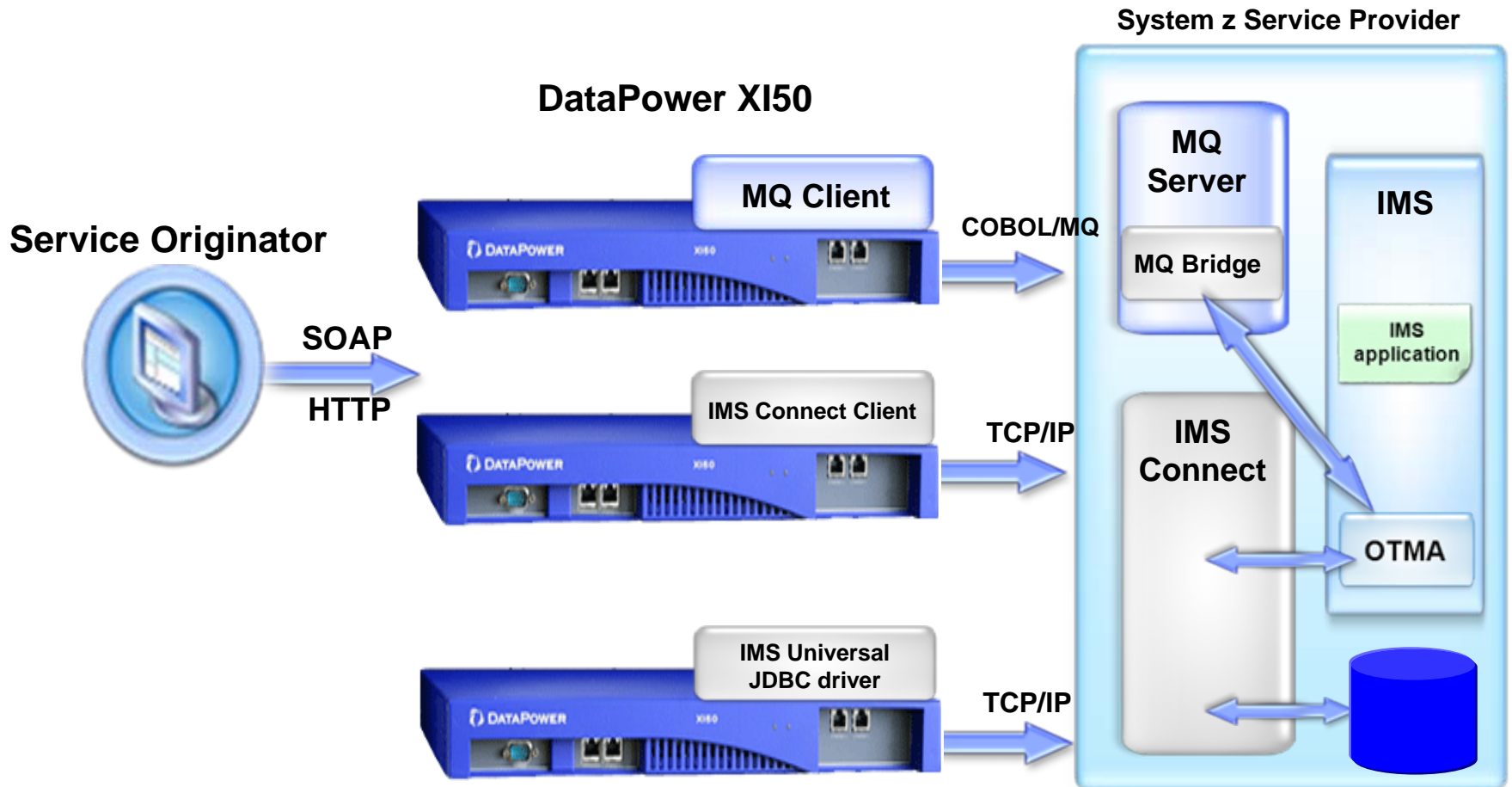




## ESB+ for IMS

- **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
  - WebSphere Process Server
  - WebSphere Transformation Extender

# Appliances – IBM WebSphere DataPower



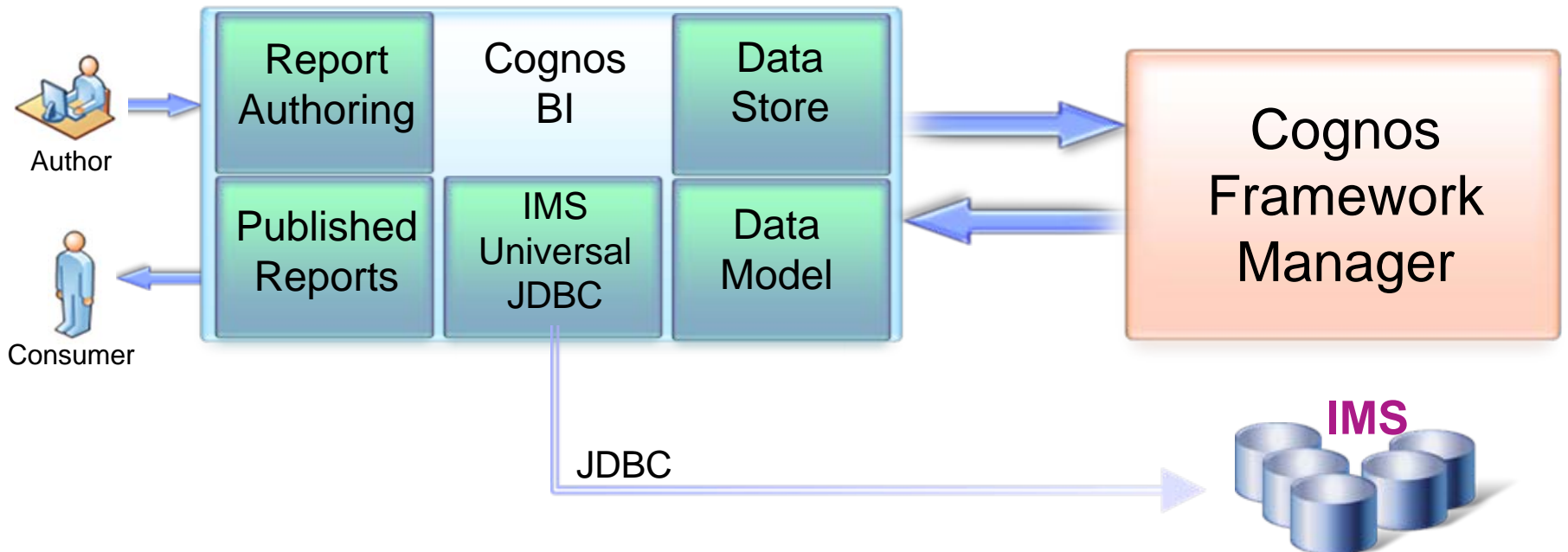
# IBM Workload Deployer – Build Your Private Cloud

- 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

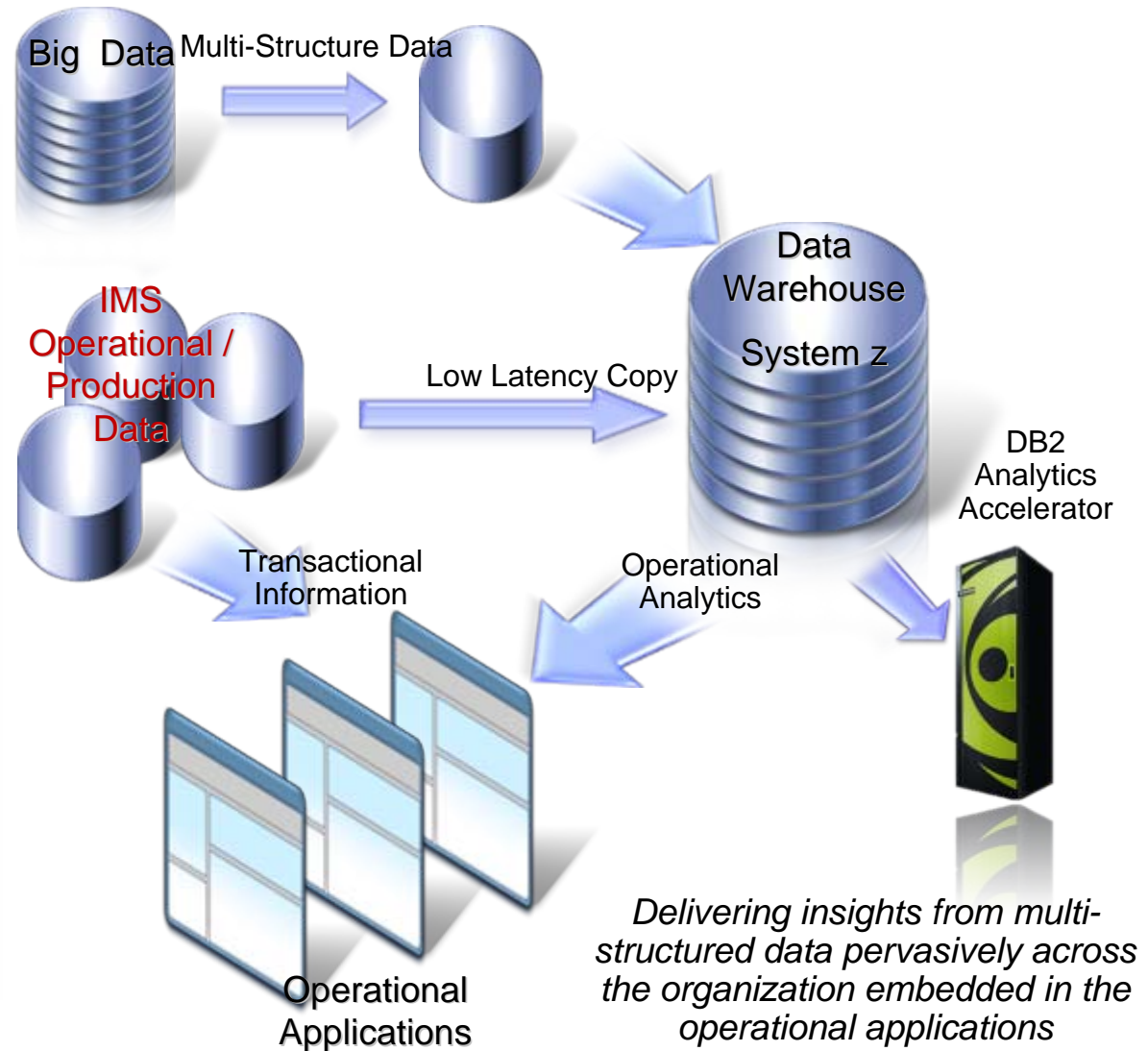
“What types of data/records are you planning to analyze using big data technologies?”



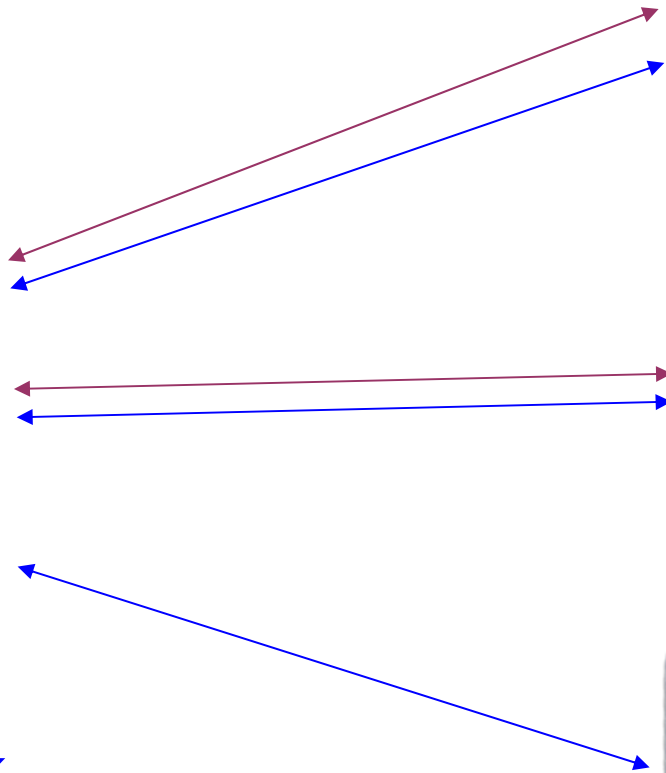
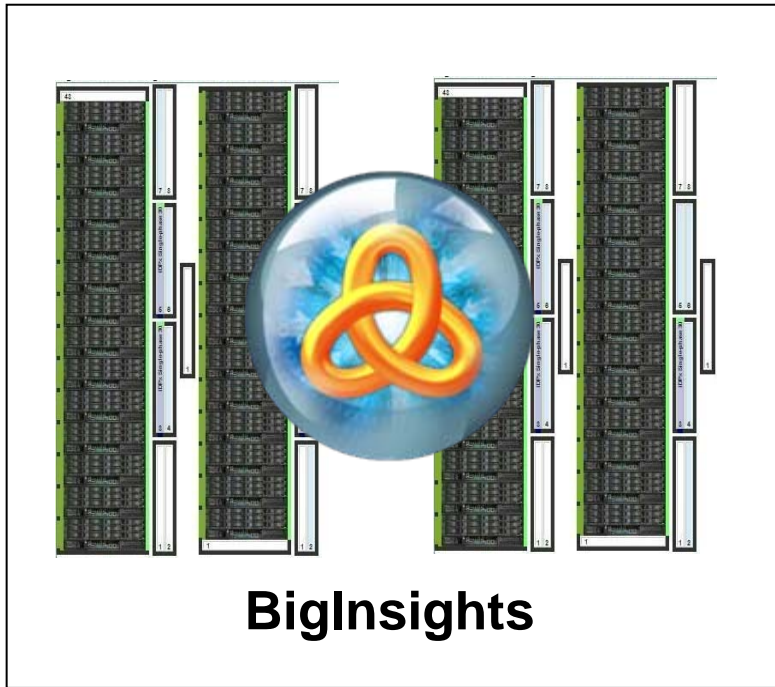
! Most big data use cases hype its application for analysis of new, raw data from social media, sensors, and web traffic, but we found that firms are being very practical, with early adopters using it to operate on enterprise data they already have.

# Big Data – the Big Picture

- Combine multi-structured data with historical data warehouse information to increase understanding
- Provide real-time operational data from IMS
- Provide analytic information at the point of decision enabling fact-based decisions
- Pervasively enable decision makers and other end users across the organization
- Accelerate long running DB2 for z/OS queries from minutes to seconds for greater business value with Analytics Accelerator.



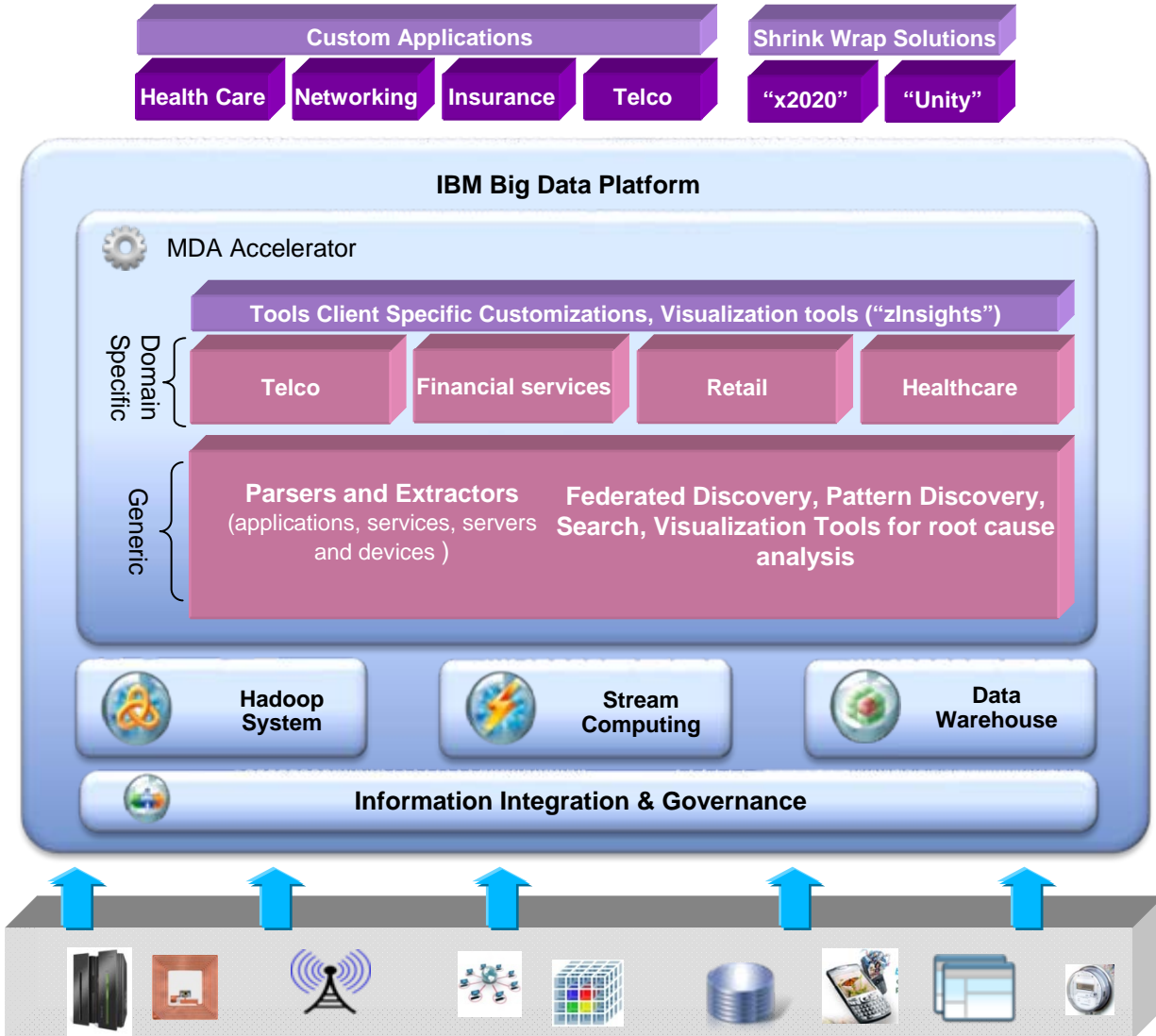
# BigInsights Connectivity to DBMS and Warehouse



- BigInsights drives RDBMS work
- DBMS drives BigInsights work



# Machine data accelerator

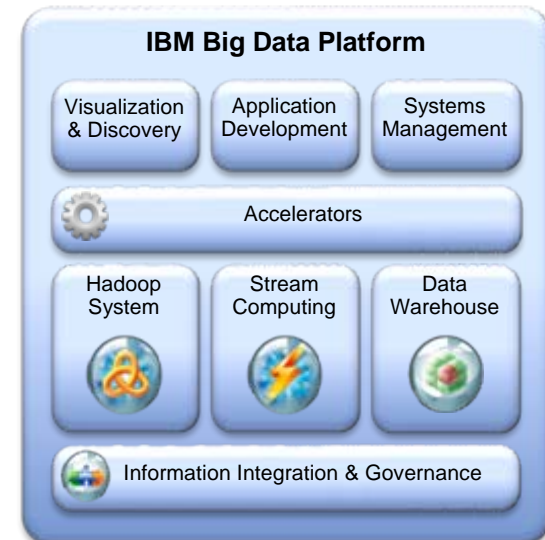


## IT usecases:

- Server, performance, troubleshooting

## Business UseCase:

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



An abstract graphic in the top left corner composed of several 3D cubes in shades of red, pink, orange, and black, arranged in a cluster.

# WRAP UP