



IBM zEnterprise Technology Summit

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

presenter – title

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®



FIDUCIA
Ihr IT-Partner

bbk



SIGNAL IDUNA

UniCredit

"la Caixa"

saarstahl



WELLPOINTSM



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.**



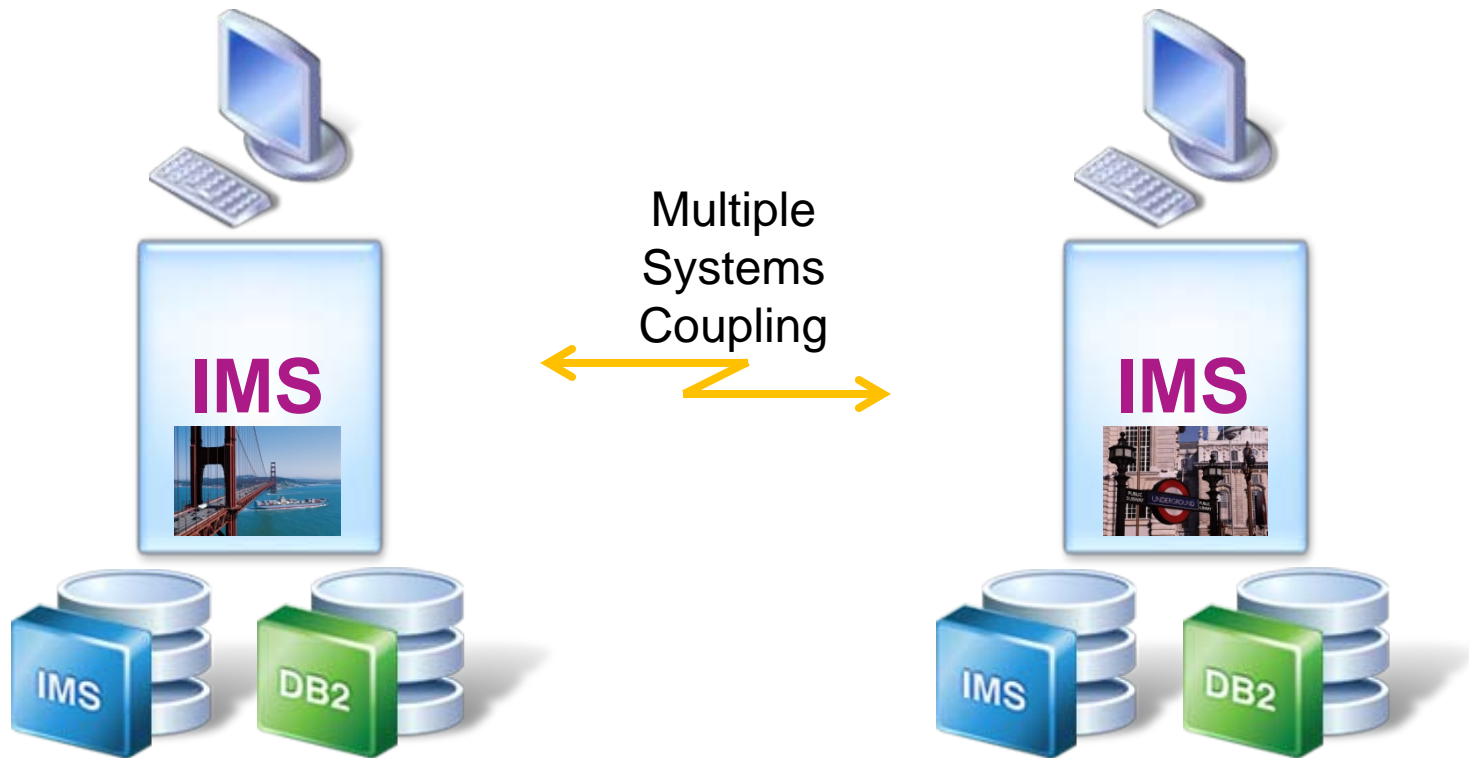
The practical implications

- **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.**

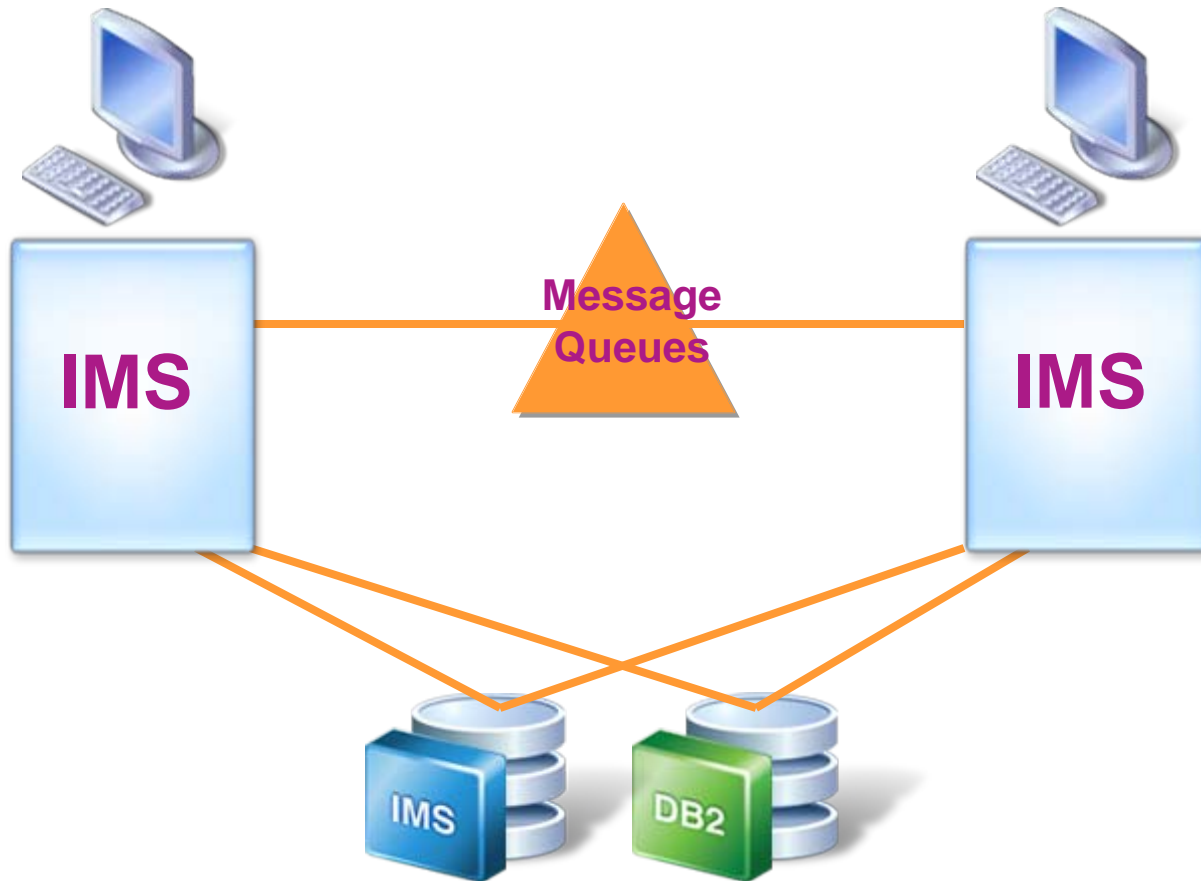
In the beginning was IMS.....



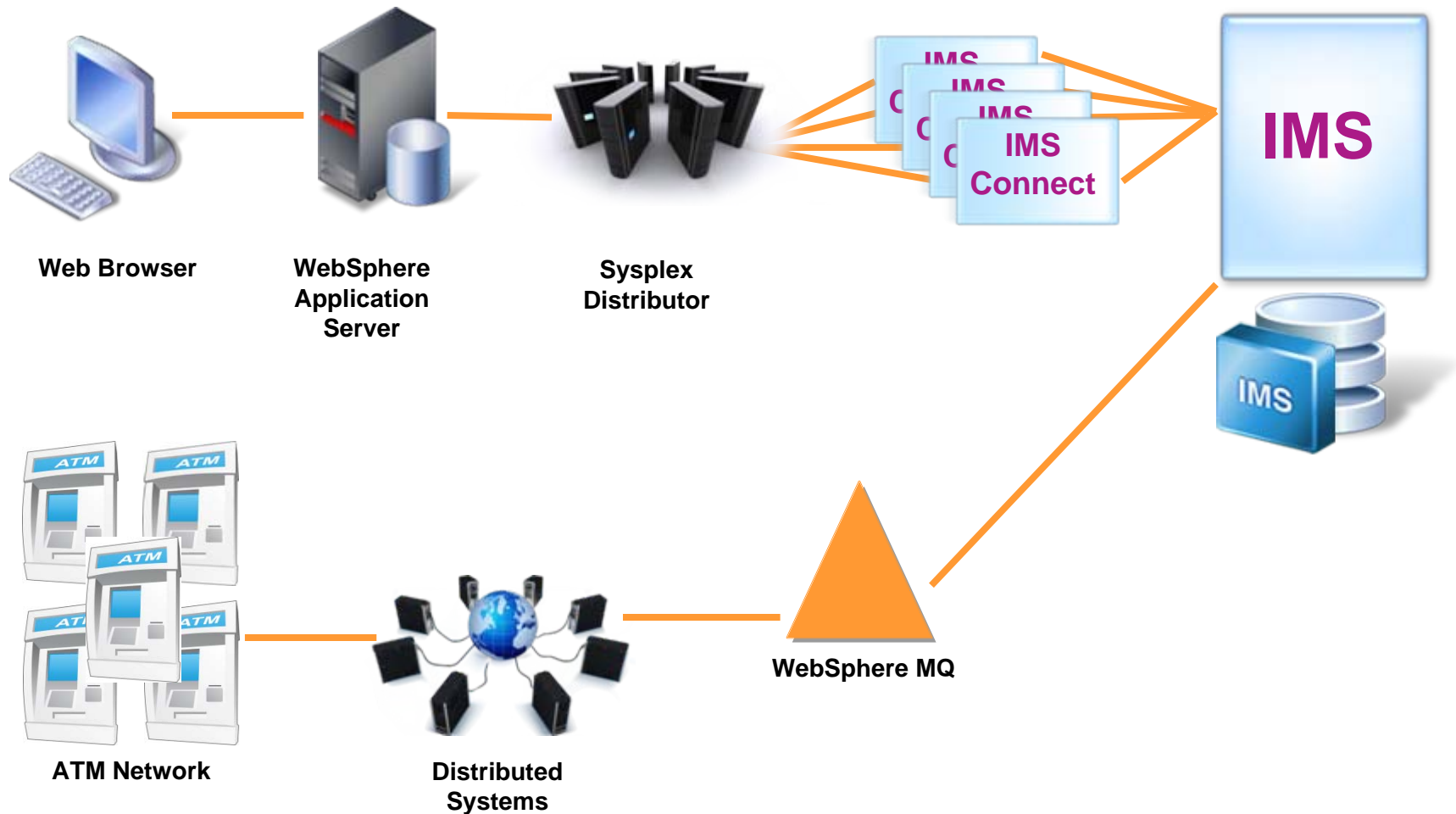
Geographically disperse connected systems



High Availability



Emergence of online – all roads lead to IMS



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

Sample large-scale IT environment [RBC Version from Betty]



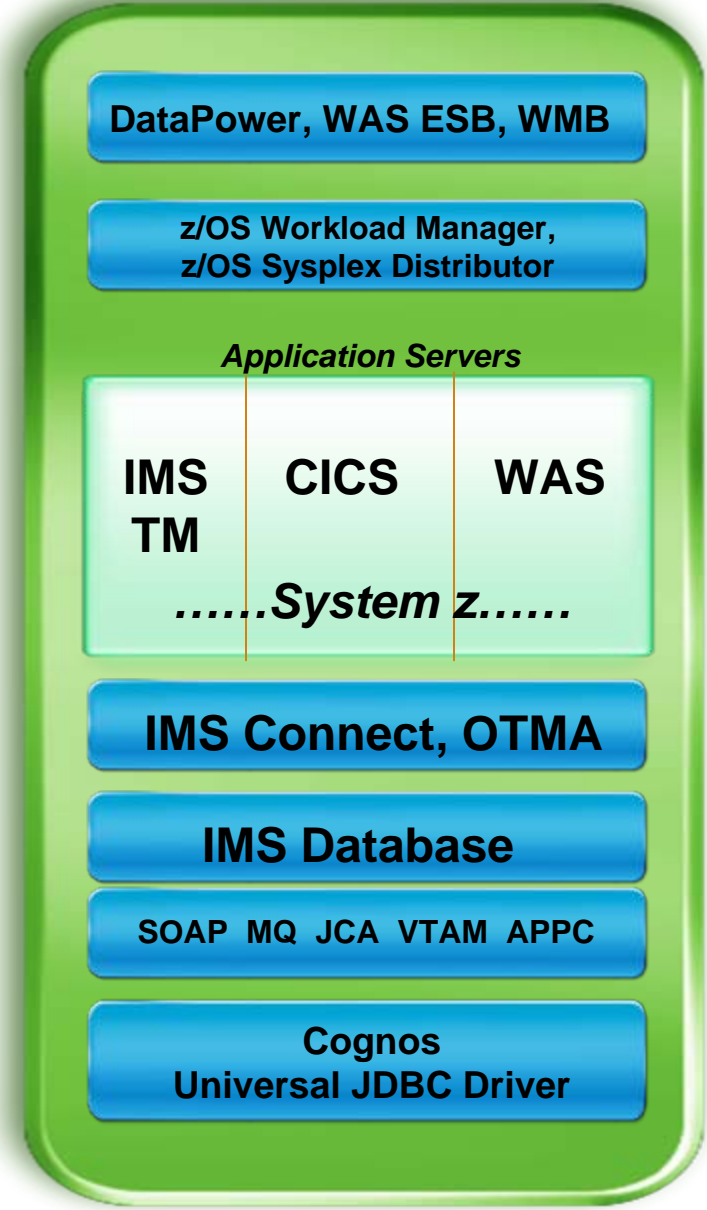
Key Considerations of the Enterprise Architect

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

Enterprise Architecture Considerations

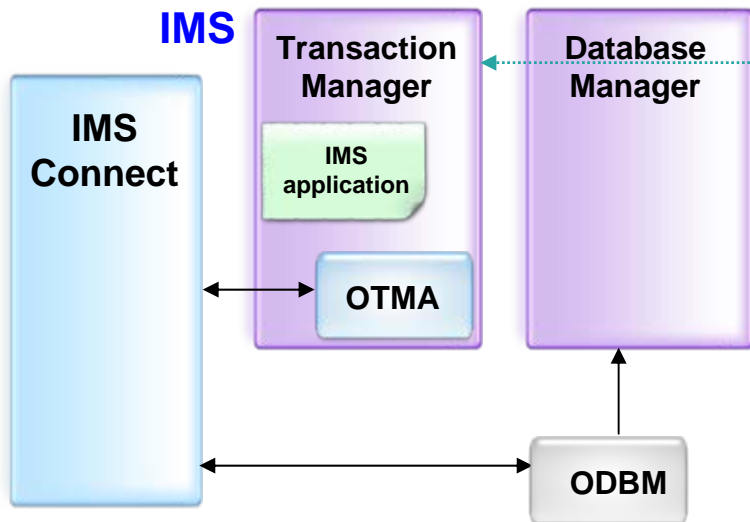


IMS Implementation / Integration



Application Containers

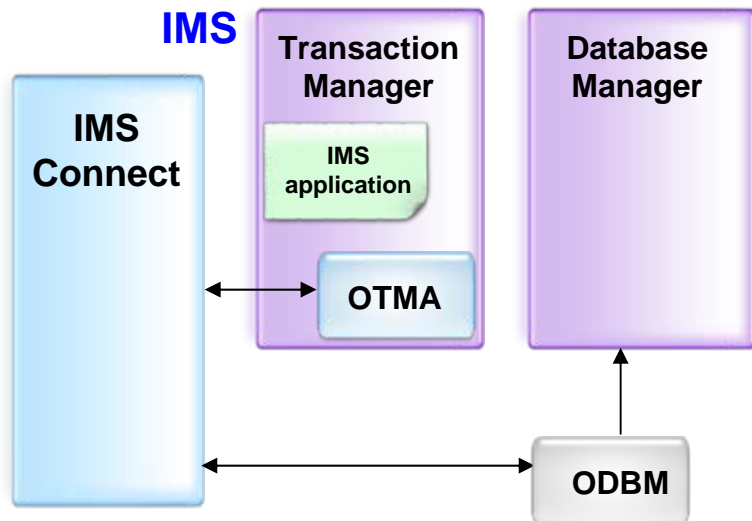
- Formerly known as Application Server
- Application “container” is essentially a host
- Software applications live in a container and take advantage of services such as security, data services, management, performance, and more.



- 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

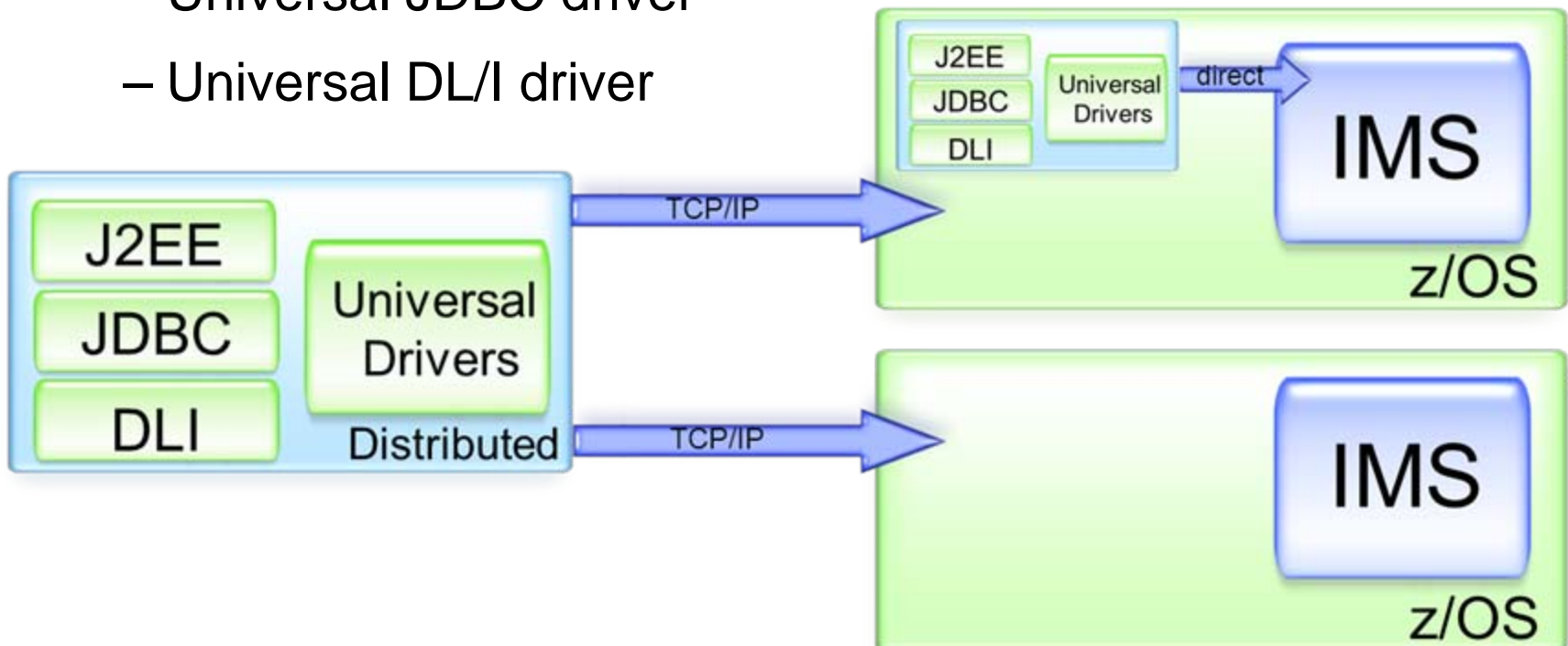
- Where does the data reside? In what language it is accessible?
- IMS DB can be standalone or share everything



- 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



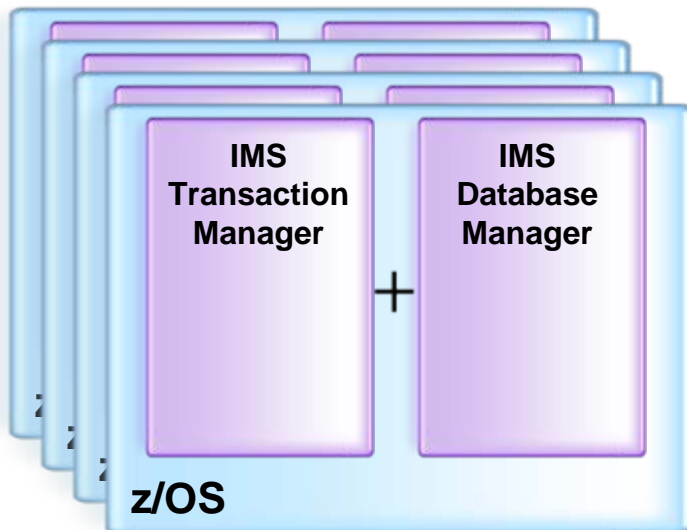


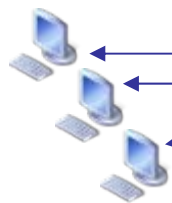
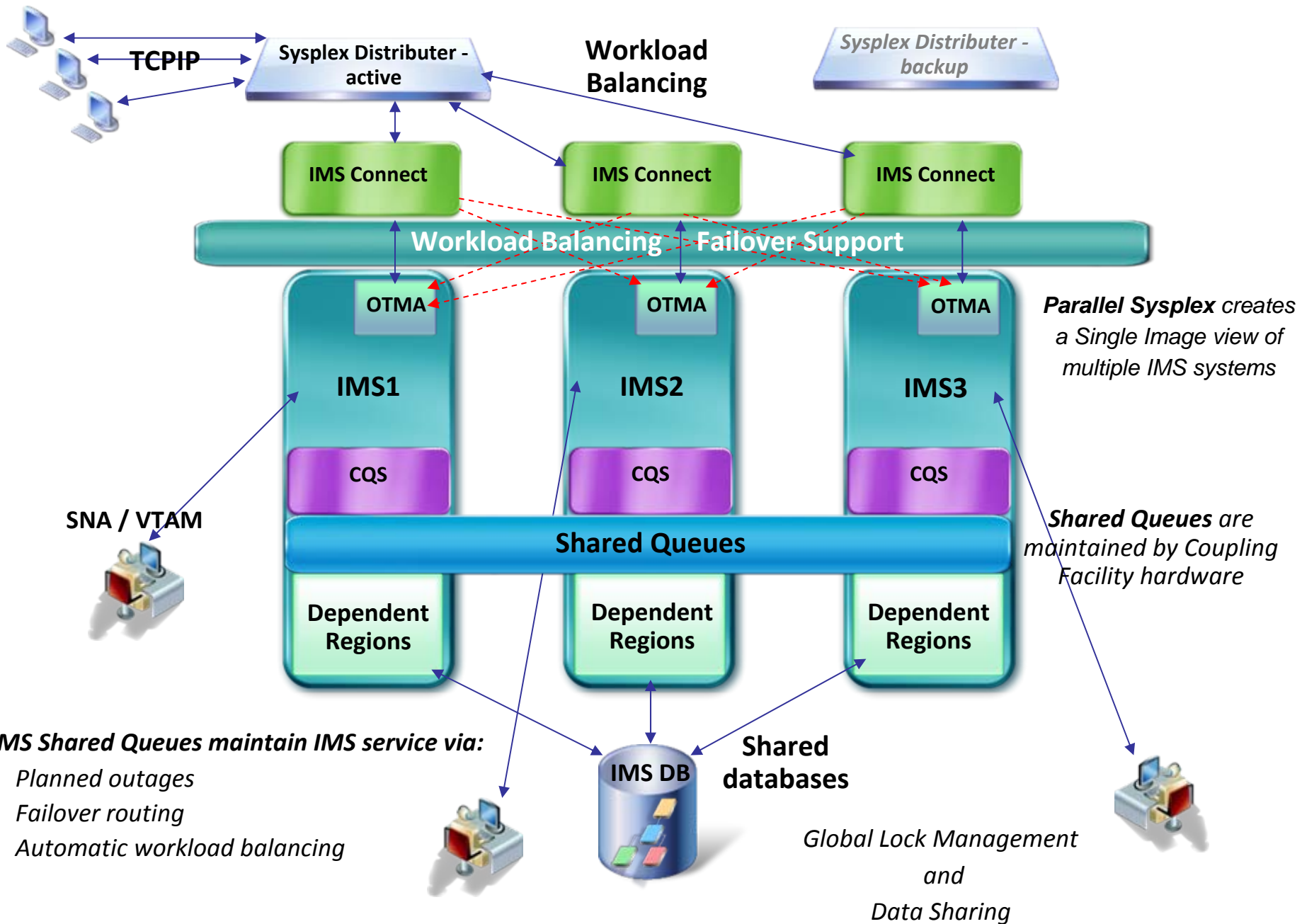
Data Protection and Security

- **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 32 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

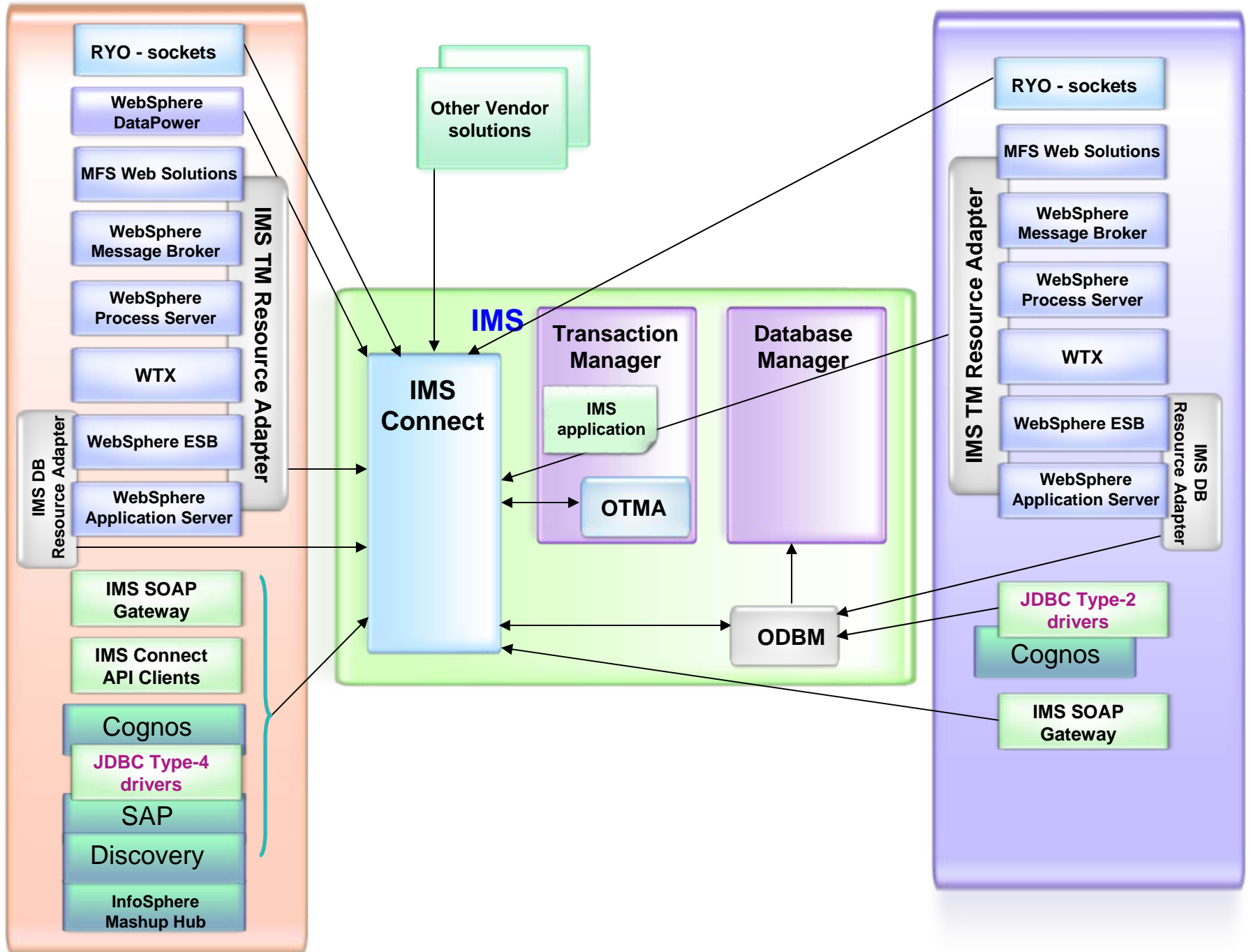


IMS Connect – the Hub

- **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

L UW / 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

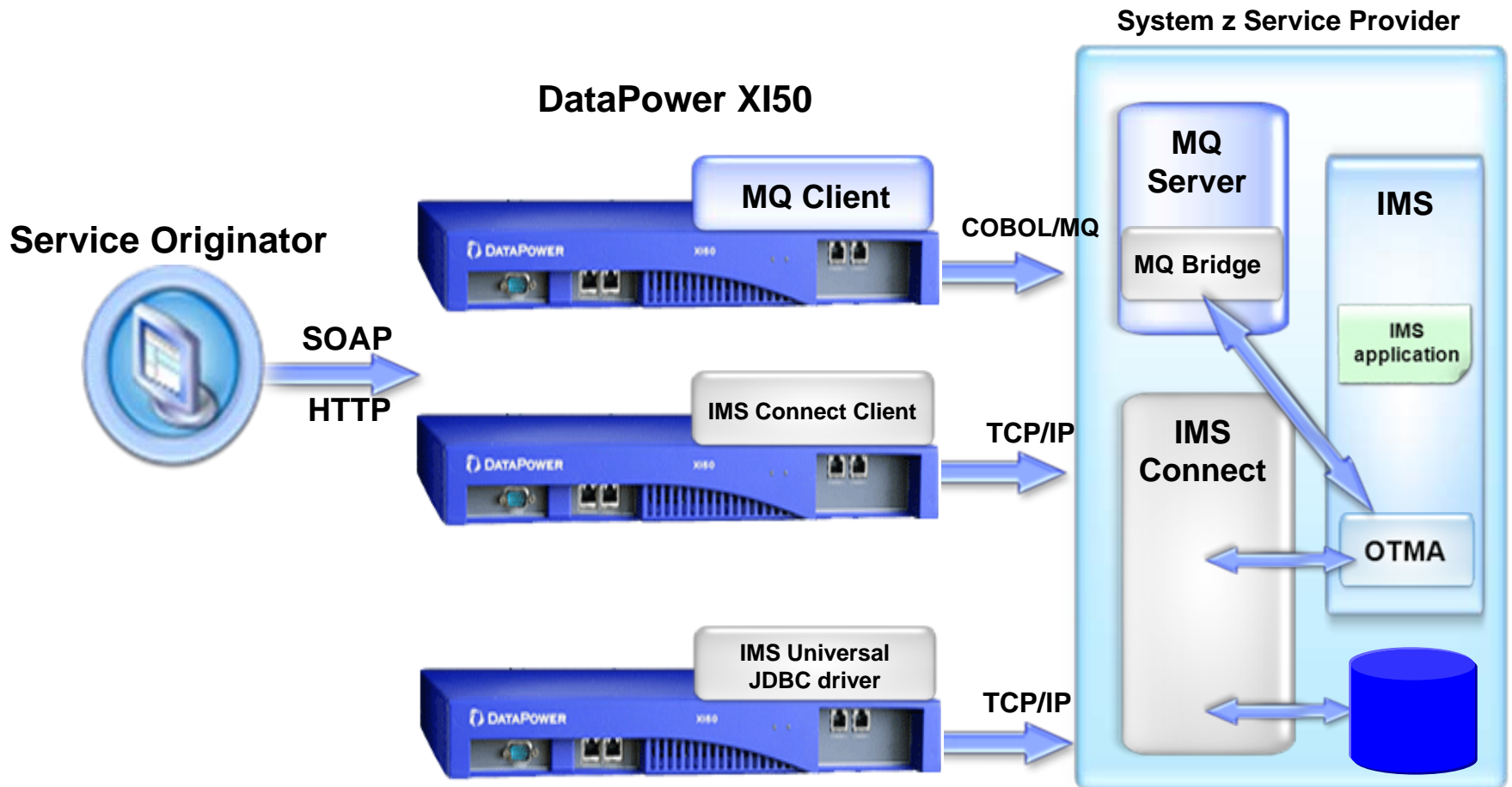




ESB+ for IMS

- **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



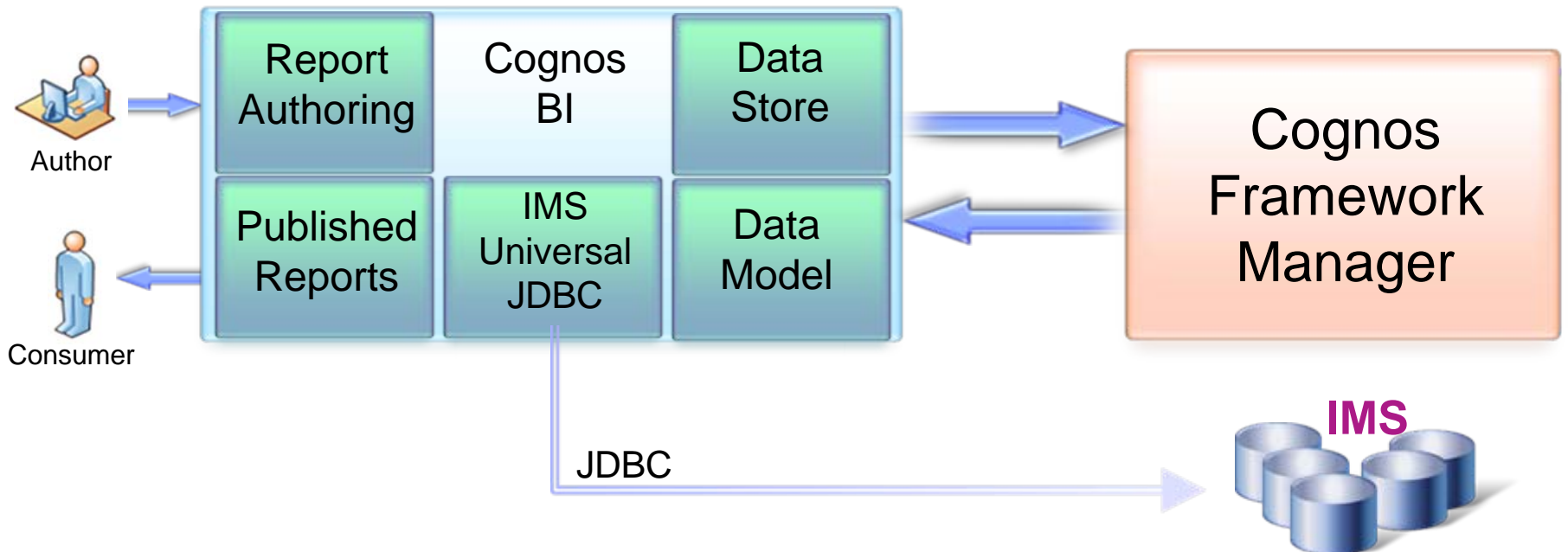
IBM Workload Deployer – Build Your Private Cloud

- 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

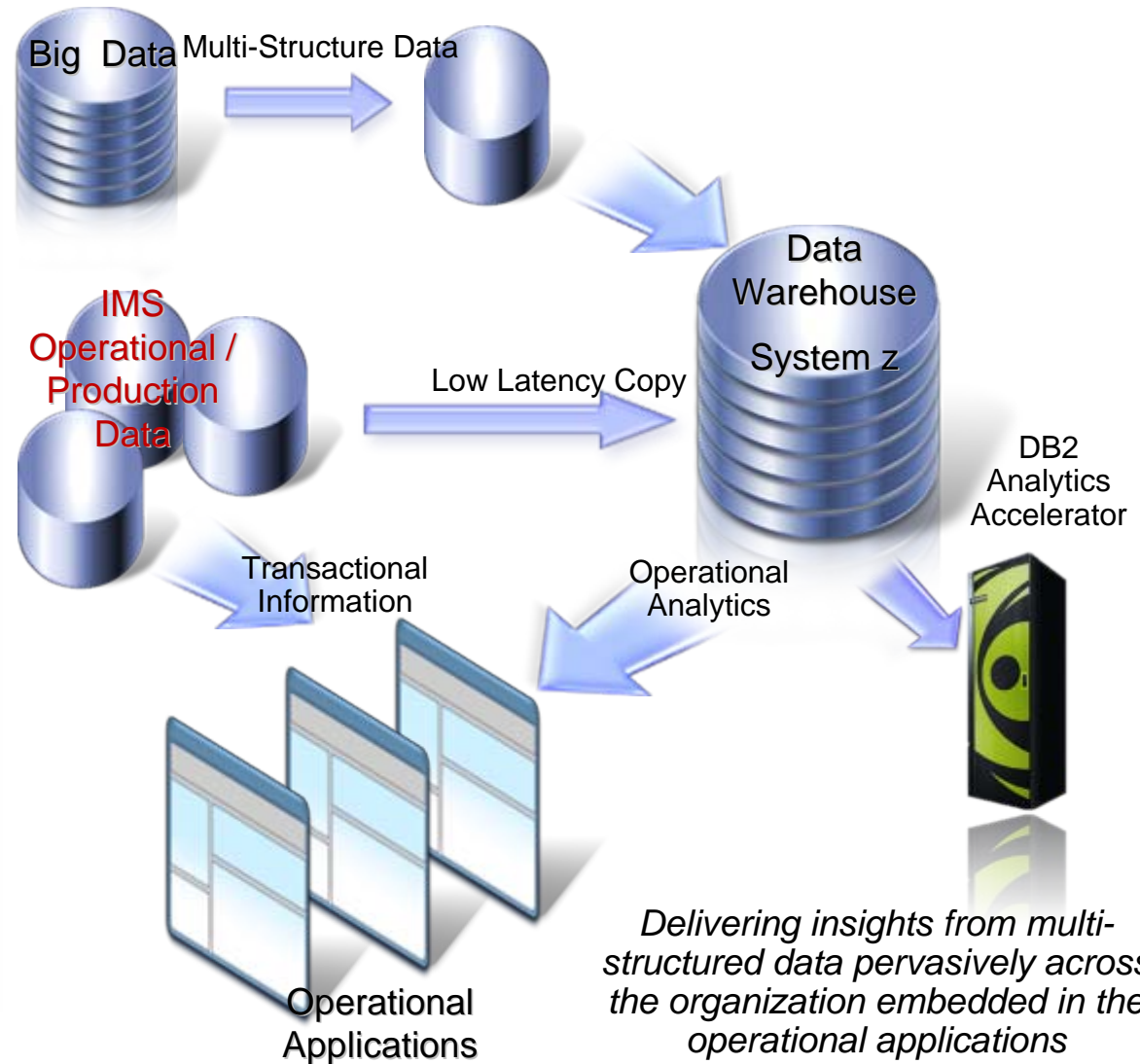
“What types of data/records are you planning to analyze using big data technologies?”



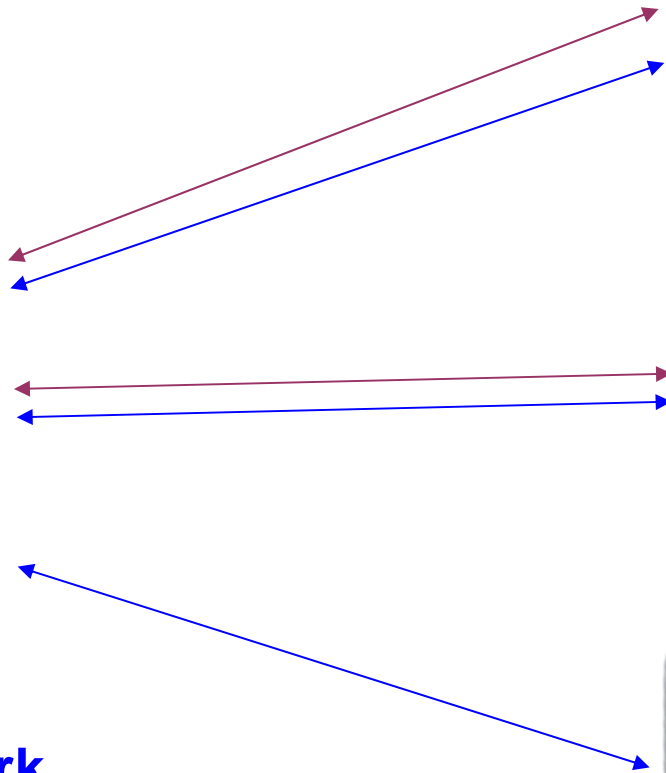
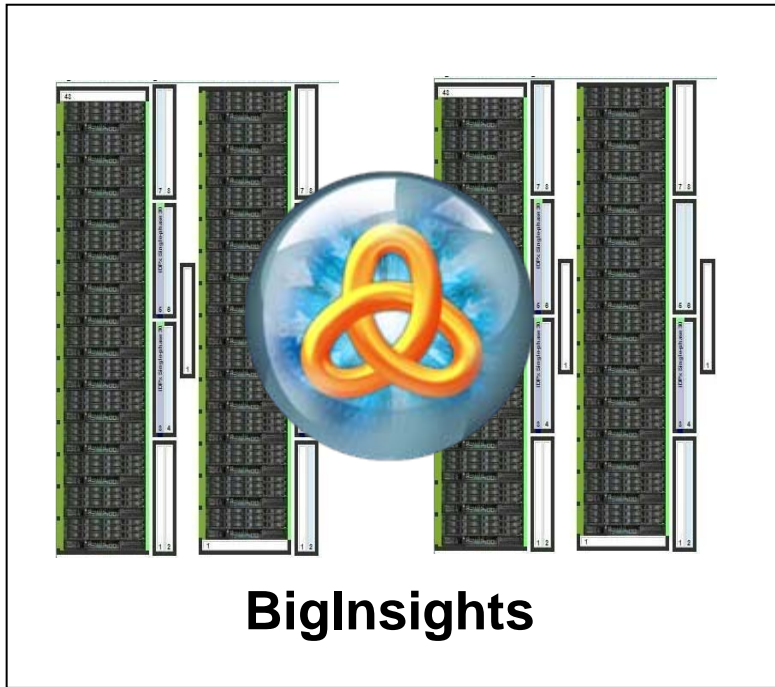
! Most big data use cases hype its application for analysis of new, raw data from social media, sensors, and web traffic, but we found that firms are being very practical, with early adopters using it to operate on enterprise data they already have.

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

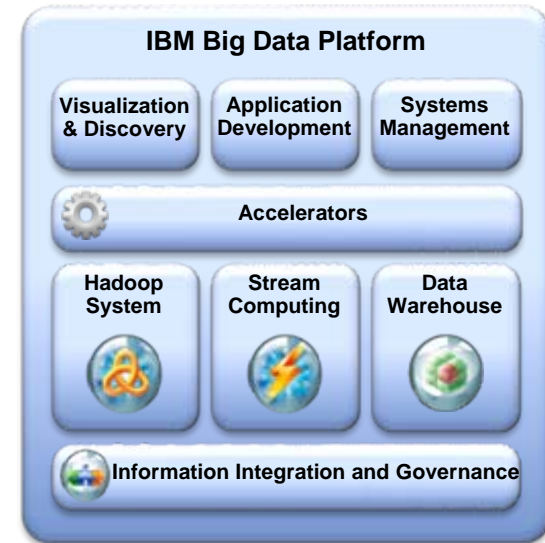


IT use cases:

- Server, performance, troubleshooting

Business use cases:

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



A cluster of colorful 3D geometric shapes, including cubes and rectangular prisms in shades of red, pink, orange, and black, is positioned in the top left corner of the slide.

WRAP UP