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28, 29 et 30 août
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IBM SolutionsConnect 2013

L'IBM TechSoftware nouvelle génération

IMS Trends and Directions

Kyle Charlet

STSM, IMS SOA and modernization

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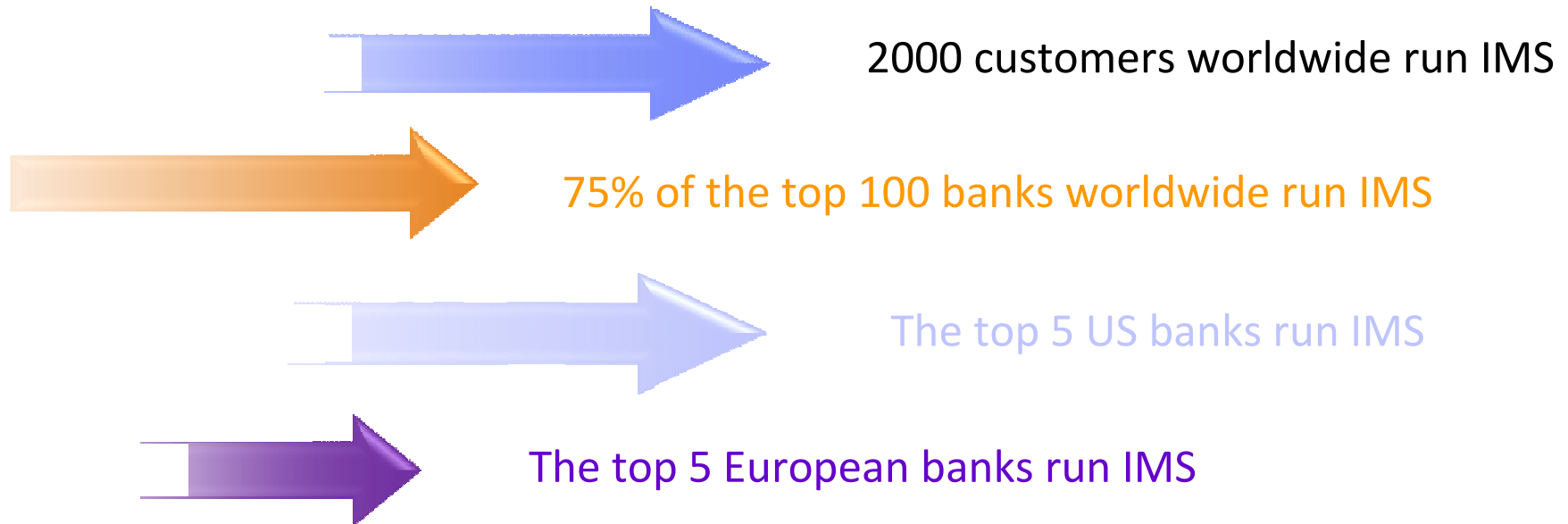
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IMS runs the world's most critical workloads



16 petabytes of production data managed by IMS

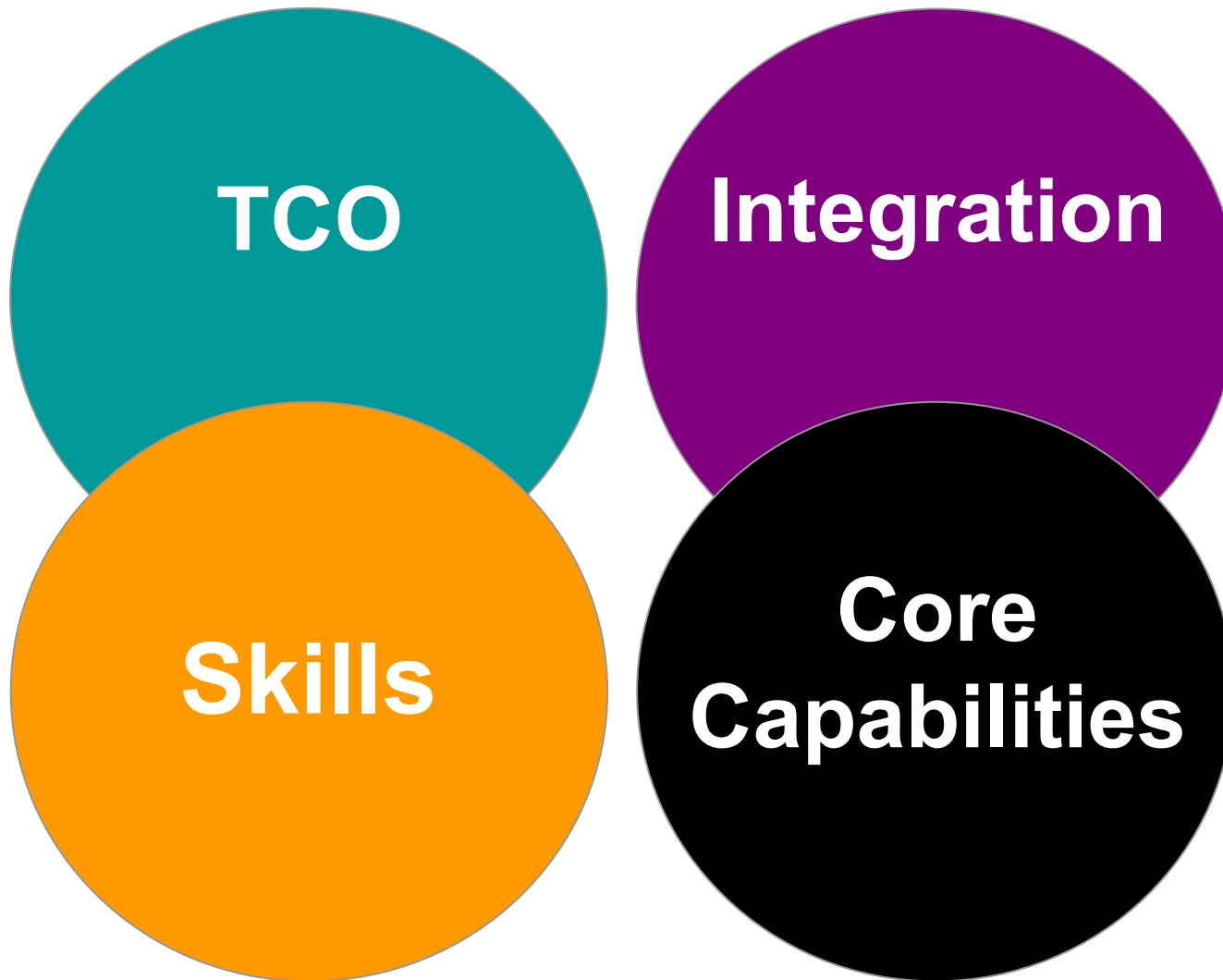
\$3.0 trillion (\$US) per day is transferred through IMS....by one customer

300+ million users served every day

500 million accounts....for one customer

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

What you're talking to us about





Time Is Money

Outages Are Costly

How much interruption can your business tolerate?

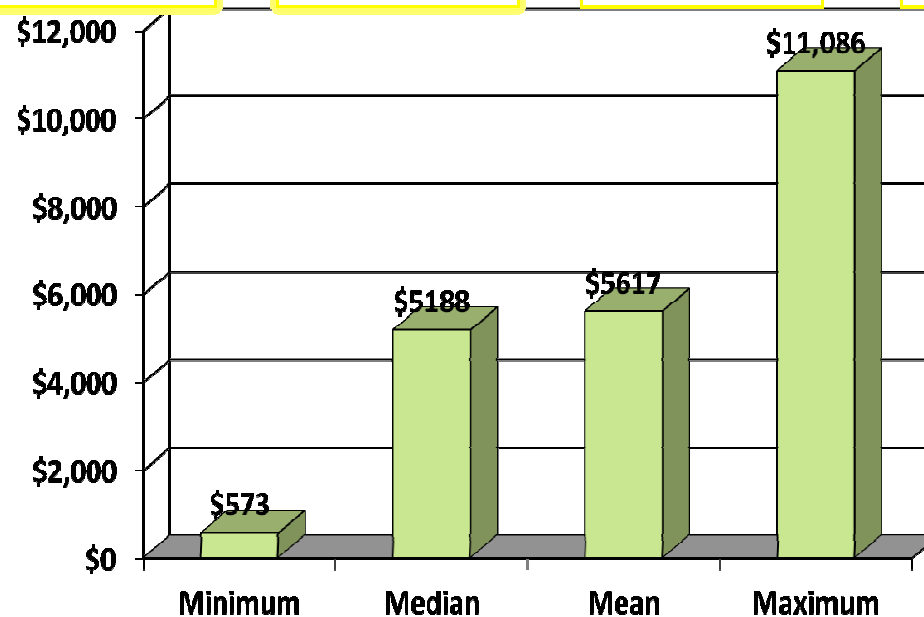
Cost of Downtime by Industry	
<u>Industry Sector</u>	<u>Loss per Hour</u>
Financial	\$8,213,470
Telecommunications	\$4,611,604
Information Technology	\$3,316,058
Insurance	\$2,582,382
Pharmaceuticals	\$2,058,710
Energy	\$1,468,798
Transportation	\$1,463,128
Banking	\$1,145,129
Chemicals	\$1,071,404
Consumer Products	\$989,795

Source: Robert Frances Group 2006, "Picking up the value of PKI: Leveraging z/OS for Improving Manageability, Reliability, and Total Cost of Ownership of PKI and Digital Certificates."

- Detection Cost
- Containment Cost
- Recovery Cost
- Ex-post Response Cost
- Equipment Cost
- IT Productivity Loss
- User Productivity Loss
- Third-party Costs
- Lost Revenues
- Consequences of Business Disruption

Total cost per minute of an unplanned outage

8 hours	\$275,040	\$2,490,240	\$2,696,160	\$5,321,280
60 minutes	\$34,380	\$311,280	\$337,020	\$665,160



IMS: highest efficiency at the lowest TCO

- Aggressively reduce MIPS
- End planned outages
- Increase zIIP offload
- Reduce contention
- Increase throughput
- Reduce pathlength
- Implement dynamic changes
- Increase autonomics

TCO



EAGLE TCO

Building next generation experts

- IMS evolves to a Gen-less system
- SQL access to IMS data
- Tooling and GUIs based on familiar SDKs, such as the eclipse-based IMS Explorers
- Free workshops – Database, SOA Implementation, Application Development/Modernization, Business Value Assessment
- System z Academic Initiative
- Customer Internship Program @ SVL



Skills

What our customer interns are saying...

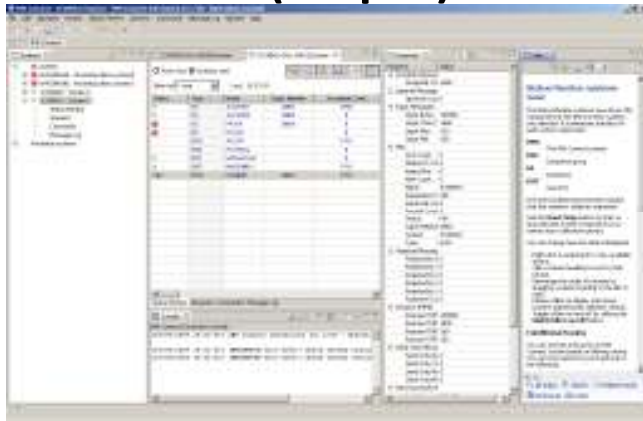
“...every subject was successfully covered by the most appropriate expert. While I was there at SVL, the program was flexible enough so we could address certain topics which I personally identified, that would benefit me at my home location...With all the knowledge I acquired in these 4 weeks, I cannot forget to mention and thank all the Lab personnel involved for their kindness and patience and the treatment I received.”

“The Customer Internship Program was a unique experience, where I was given the opportunity to meet with the IMS developers and testers at the IBM Lab, and work side by side with them...It's incredible to meet people whose work is known worldwide.”

“Caio's manager, Guto, wants to thank the IMS Team for the attention and training [that was] provided for his team. Caio and Selmar really benefited and learnt a lot from their stay here!”

IMS Explorers for Development and Administration

IMS Explorer for Development (Eclipse)

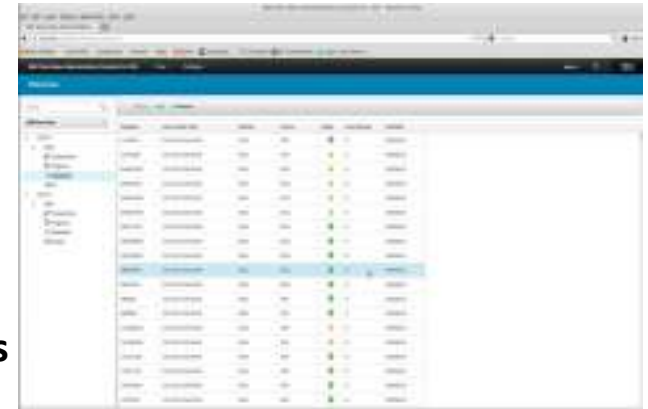


Developers



Administrators

IMS Explorer for Administration (Web Browser)



```
-----
GSEP600  IMSplex/SMplex Component List          Realtime snapshot
CORHND ***** Row 1 to 16 of 16                SCROLL **>> PAGE
-----
IMSplex . . . DLEX1                               Date:      07/09/08
SM server: . . UIS1                               Time:      09:35:46
More: >
Enter 's' to display statistics for the selected component
      'i' to display *JOB information for the selected component
      'd' to produce an SVD dump for the selected component
      'dt' to produce SVD dumps for the selected component type across the plex
-----
Cmd ID   Type  Version / JobName  JobName  DBRCName  DLICName  IRLName  Status
-----
--- IMS1  IMS  9.1.0   ECTST21  IMS1     DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- DBRC  9.1.0   ECTST21  DBRECSAJ  DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- DSAS  9.1.0   ECTST21  DLIECSAJ  DLIECSAJ  DLIECSAJ  IRLMEZN  READY
--- IRLM  2.1.0   ECTST21  IRLMEZN  IRLMEZN  DLIECSAJ  IRLMEZN  READY
--- CQS  1.4.0   ECTST21  CQSC31  CQSC31  DLIECSAJ  IRLMEZN  READY
--- OM10H OM  1.2.0   ECTST21  OM1     DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- RH1RH RH  1.2.0   ECTST21  RH1     DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- SC12SC SCI  1.2.0   ECTST21  SC11    DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- IMS2  IMS  9.1.0   ECTST22  IMS2     DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- DBRC  9.1.0   ECTST22  DBRECSAJ  DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- DSAS  9.1.0   ECTST22  DLIECSAJ  DLIECSAJ  DLIECSAJ  IRLMEZN  READY
--- IRLM  2.1.0   ECTST22  IRLMEZN  IRLMEZN  DLIECSAJ  IRLMEZN  READY
--- CQS  1.4.0   ECTST22  CQSC12  CQSC12  DLIECSAJ  IRLMEZN  READY
--- OM20H OM  1.2.0   ECTST22  OM2     DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- RHC1H RH  1.2.0   ECTST22  RHC2    DBRECSAJ  DLIECSAJ  IRLMEZN  READY
--- SC12SC SCI  1.2.0   ECTST22  SC12    DBRECSAJ  DLIECSAJ  IRLMEZN  READY
-----
***** Bottom of data *****
```

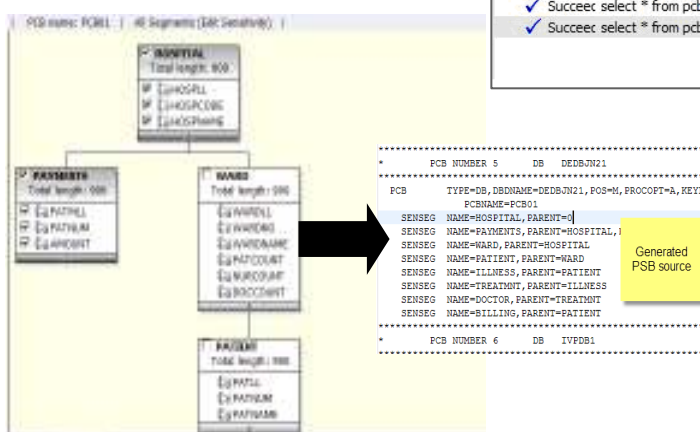
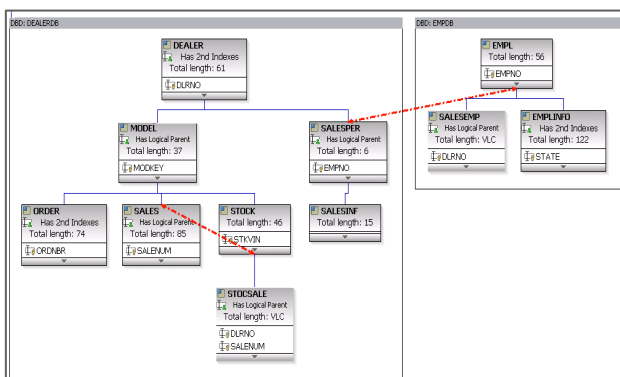
ISPF



IMS

IMS Explorer for Development

- Visualize IMS database structure as defined by the IMS catalog
- Change IMS Database and Program Definitions sources
- Graphically access IMS data using SQL
- View your mainframe datasets
- SQL -> DLI translation
- Catalog integration (futures)



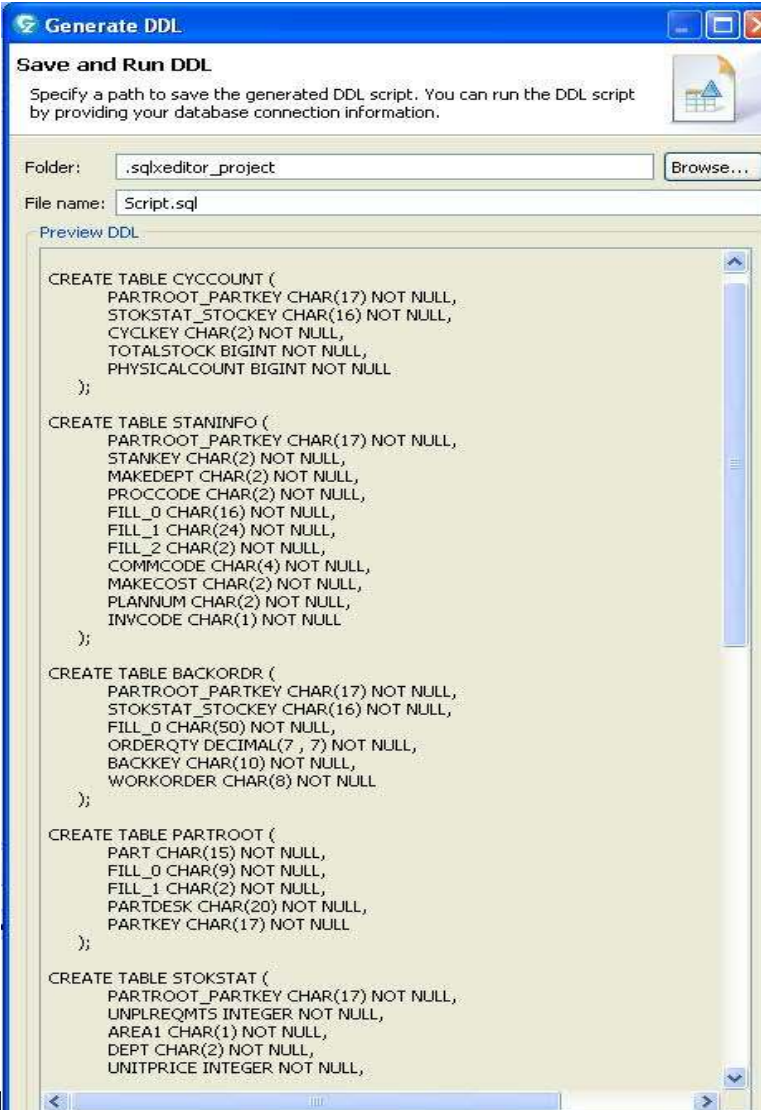
SQL Query: `SELECT HOSPNAME, HOSPCODE, HOSPLL FROM PCB01.HOSPITAL`

Columns: HOSPCODE, HOSPLL, HOSPNAME

Status	Operation	Da	HOSPLL	HOSPCODE	HOSPNAME
✓	Succes select * from pcb...	8/2	1	R.1210010000A	ALEXANDRIA
✓	Succes select * from pcb...	8/2	2	R.1210020000A	SANTA TERESA
			3	R.1210030000A	SANTA CLARA
			4	R.1210040000A	NEW ENGLAND

Dynamic database - Data Definition Language

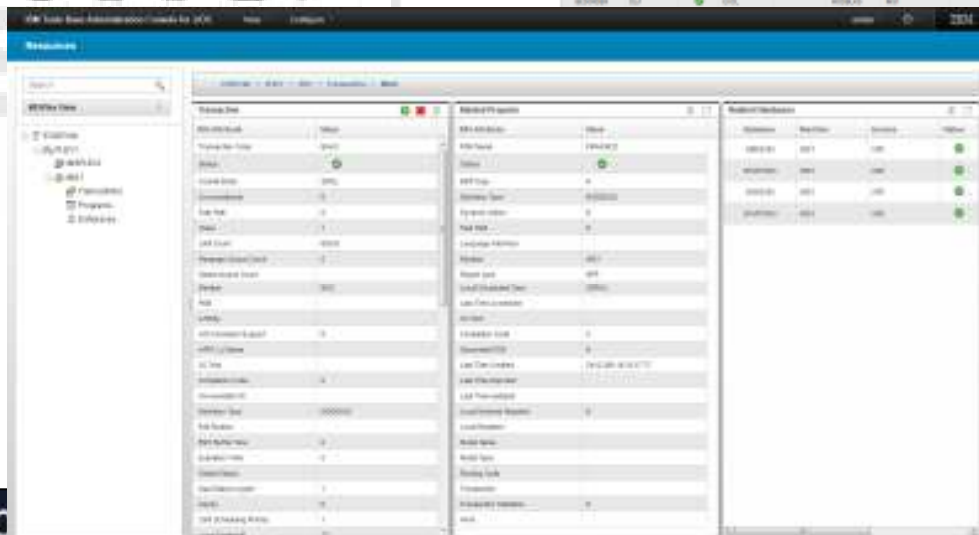
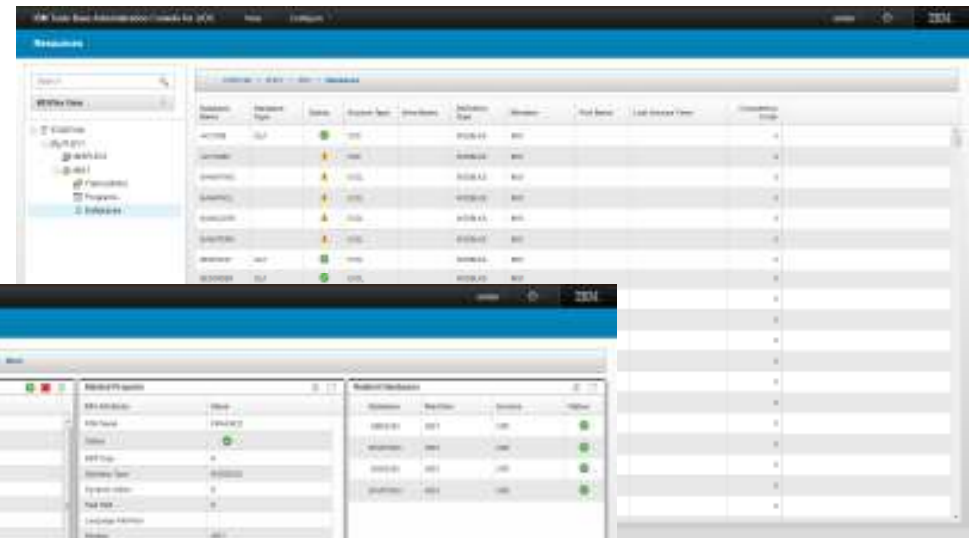
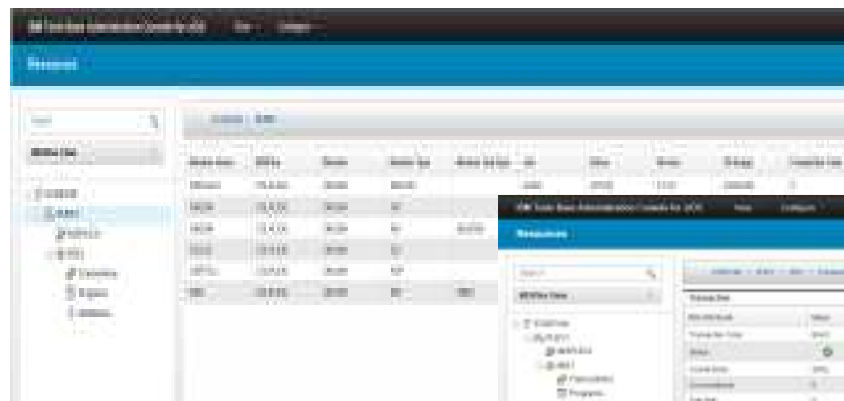
- SQL incorporates DDL to modify the schema of a database
- Authoring DDL is straight-forward with sophisticated tooling support in the industry
- SQL/DDL can be used to update/add metadata in the catalog without the need of a GEN
 - Directly update the catalog
- IMS can be notified of such an update and load the new definitions
- It is our *intention* to offer this type of dynamic definition for IMS



```
CREATE TABLE CYCCOUNT (  
PARTROOT_PARTKEY CHAR(17) NOT NULL,  
STOKSTAT_STOCKEY CHAR(16) NOT NULL,  
CYCLKEY CHAR(2) NOT NULL,  
TOTALSTOCK BIGINT NOT NULL,  
PHYSICALCOUNT BIGINT NOT NULL  
);  
  
CREATE TABLE STANINFO (  
PARTROOT_PARTKEY CHAR(17) NOT NULL,  
STANKEY CHAR(2) NOT NULL,  
MAKEDEPT CHAR(2) NOT NULL,  
PROCCODE CHAR(2) NOT NULL,  
FILL_0 CHAR(16) NOT NULL,  
FILL_1 CHAR(24) NOT NULL,  
FILL_2 CHAR(2) NOT NULL,  
COMMCODE CHAR(4) NOT NULL,  
MAKECOST CHAR(2) NOT NULL,  
PLANNUM CHAR(2) NOT NULL,  
INVCODE CHAR(1) NOT NULL  
);  
  
CREATE TABLE BACKORDR (  
PARTROOT_PARTKEY CHAR(17) NOT NULL,  
STOKSTAT_STOCKEY CHAR(16) NOT NULL,  
FILL_0 CHAR(50) NOT NULL,  
ORDERQTY DECIMAL(7, 7) NOT NULL,  
BACKKEY CHAR(10) NOT NULL,  
WORKORDER CHAR(8) NOT NULL  
);  
  
CREATE TABLE PARTROOT (  
PART CHAR(15) NOT NULL,  
FILL_0 CHAR(9) NOT NULL,  
FILL_1 CHAR(2) NOT NULL,  
PARTDESK CHAR(20) NOT NULL,  
PARTKEY CHAR(17) NOT NULL  
);  
  
CREATE TABLE STOKSTAT (  
PARTROOT_PARTKEY CHAR(17) NOT NULL,  
UNPLREQMTS INTEGER NOT NULL,  
AREA1 CHAR(1) NOT NULL,  
DEPT CHAR(2) NOT NULL,  
UNITPRICE INTEGER NOT NULL,  
);
```

IMS Explorer for Administration

- Provide IMS system programmers and DBAs a state-of-the-art user interface to manage, configure, and deploy IMS systems
- Full operational single point of control for all IMS address spaces
- Full GUI support for IMS resources
- Immediately react to and resolve issues in the system
- Cloud-style IMS system management
- Integrated with IMS Tools



New – IMS Certification exams

IMS Certified Database Administrator Exam

www.ibm.com/certify/tests/ovr548.shtml



IMS Certified System Programmer Exam

www.ibm.com/certify/tests/ovr549.shtml

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IMS' legendary hallmarks of service

- Availability
- Reliability
- Scalability
- Performance
- Security
- Integrity

**Core
Capabilities**

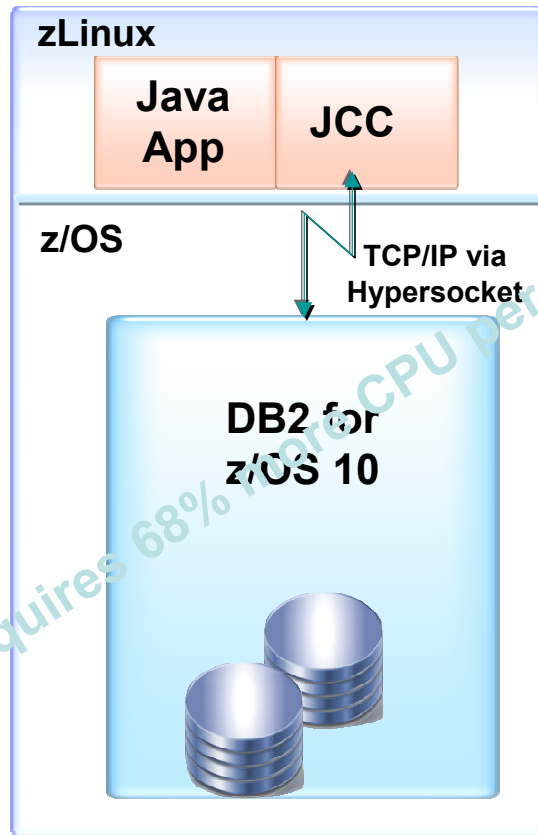
CICS - DBCTL performance improvement

- IMS DB + CICS enterprises
- Exploitation of Open Transaction Environment (OTE)
 - CICS TS 4.2+ and IMS 12
- *Significant CPU savings* and increases in throughput for threadsafe applications
- Impressive performance metrics: CICS 4.2 with IMS 12 (OTE) demonstrates:
 - 6.78 % improvement in ITR efficiency (v. CICS 4.2 and IMS 11)
 - 31.36 % improvement in throughput capability (transaction rate)
 - 43.33 % reduction in average response time per transaction
- The bottom line? *Threadsafe applications running in CICS 4.2 and IMS 12, using OTE, can save money, execute faster, and improve throughput*

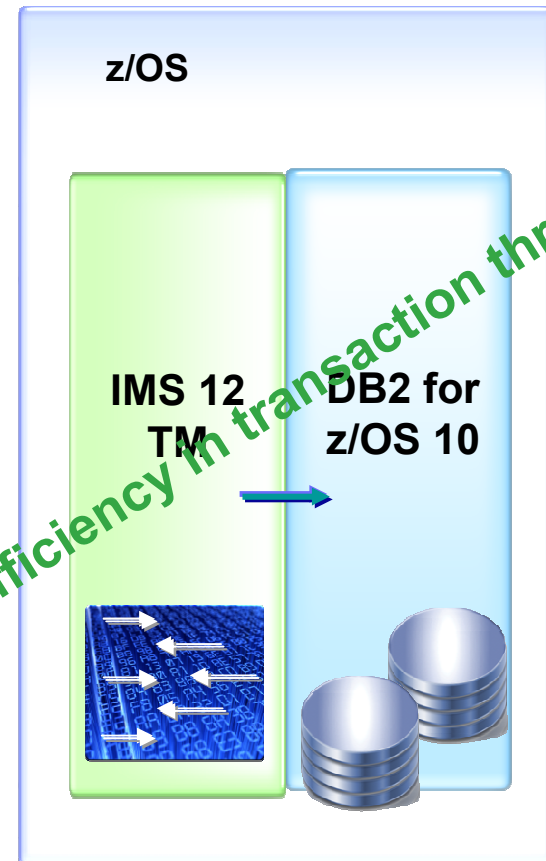
IMS resilience and availability

- **Reduces planned outages**
 - Most-used resources can be changed dynamically and do not require that IMS be recycled:
 - Databases
 - Application Programs
 - Transactions
 - System configuration settings
- **Recovers quickly from unplanned outages**

IMS TM – for superlative access to data on DB2 for z/OS



Distributed Java clients on zLinux
driving to DB2 z/OS



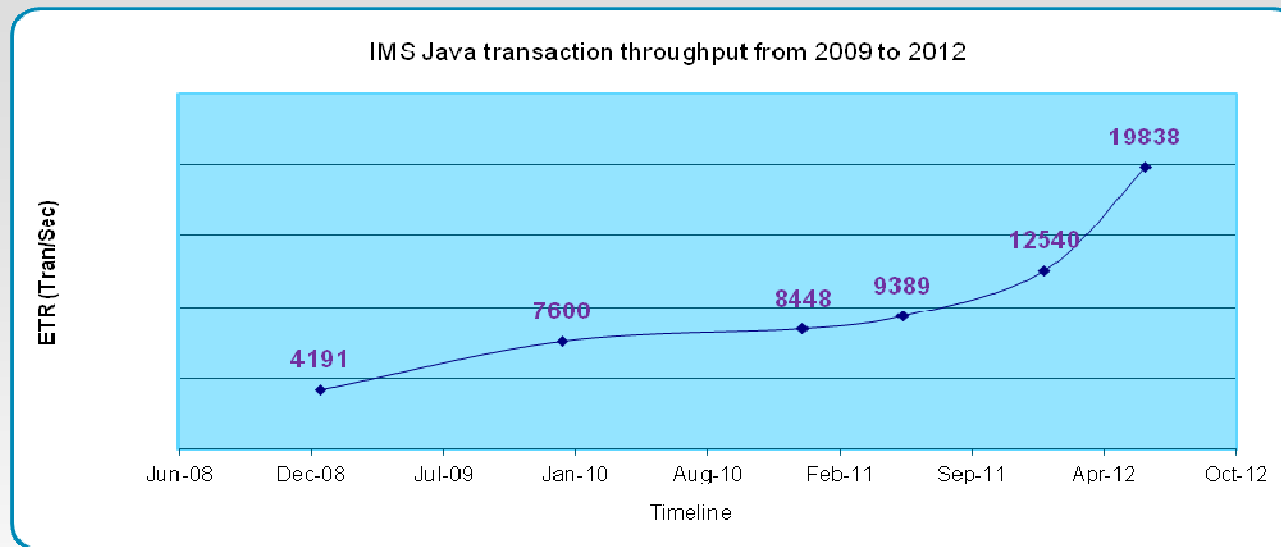
IMS 12 TM on z/OS
driving to DB2 z/OS

Requires 68% more CPU per transaction

63% more efficiency in transaction throughput

IMS JMP region performance

Aggregate SDK, software, and hardware improvements

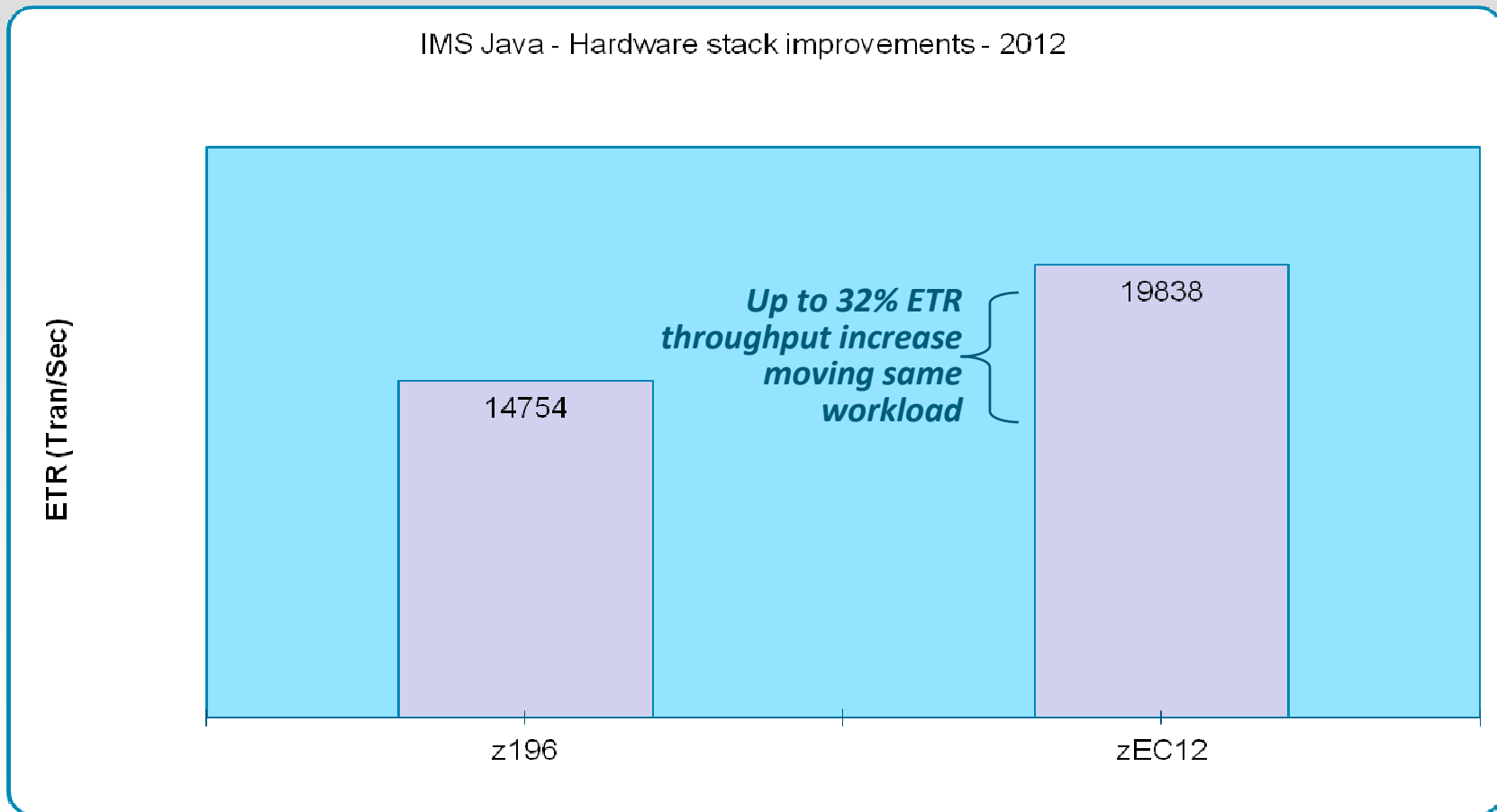


Over 4.5x aggregate throughput improvement from 2009 to 2012 due to:

- Java version-to-version performance improvements
- IMS improvements
- Hardware improvements
- DASD improvements

IMS JMP region performance

Hardware stack improvements



Controlled measurement environment; results may vary

IMS on zEC12



IMS 12 on zEC12 shows
30% improvement in transaction
rate.

IMS Java on zEC12
uses 4% less CPU to perform 35%
more transactions.

The IMS (R)Evolution Continues



Installation of IMS 12 is the most aggressive of the last 4 IMS releases – up 73% in 2Q12!



"Modernizing IMS using IMS Repository will increase our availability and simplify the process to develop new IMS applications."

Handelsbanken

- Curt Bergqvist

"We rolled out IMS 12 in our production environment before it reached GA, and there are some interesting features...we know we can rely on them to give us innovative solutions." - Andreas Wagner



WellPoint

Business

- The largest health benefits company in America by membership, WellPoint is a merger of 14 companies. One out of every nine Americans is a member of a WellPoint-affiliated health plan.

Challenge / Objective

- Modernize WGS, WellPoint's primary IMS-based administration system, to support migration, migrate to an SOA model, and enhance performance.

Solution

- Establish a Sandbox environment that includes IMS, IMS Connect, and Open Database.
- Install IMS SOA Integration Suite: IMS TM Resource Adapter, SOAP Gateway, Connect API.
- Migrate OBIS and OBUS from mid-tier AIX to Linux on System z, replacing MQ calls with IMS TM Resource Adapter and IMS Connect API.
- Evaluate use cases of inbound and outbound transactions.

Benefit

- Average 30% increase in the overall performance when using WAS/TM Resource Adapter/IMS Connect.
- 25% performance improvement for inbound mainframe transactions.

“Overall, we found that our new architecture is faster, uses less mainframe CPU, and enables mainframe transaction avoidance through configuration-based side caching.”

- Dave Holman

Enterprise Architect,
Wellpoint

Solution components:

- IMS
- IMS SOA Integration Suite
- IMS Connect
- IBM DataPower
- WebSphere eXtreme Scale



IMS: Integration at every level

- .Net Access to IMS DB (futures)
- DataPower
- Cognos for Real-time Analytics
- InfoSphere Optim Designer
- InfoSphere Discovery
- SAP and IMS Database
- Data Studio
- Big Data platform



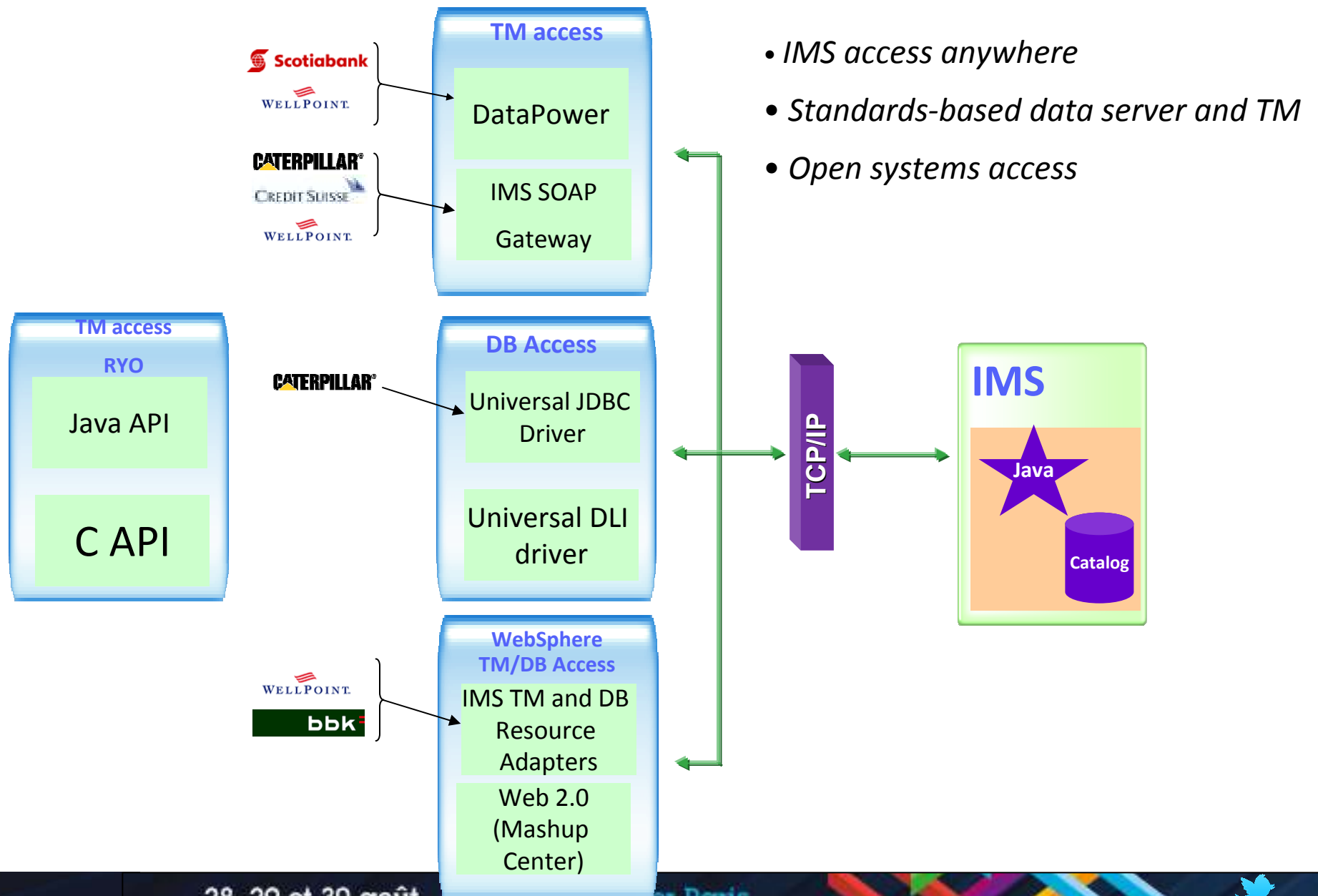
Integration

IMS middleware – all you need in one

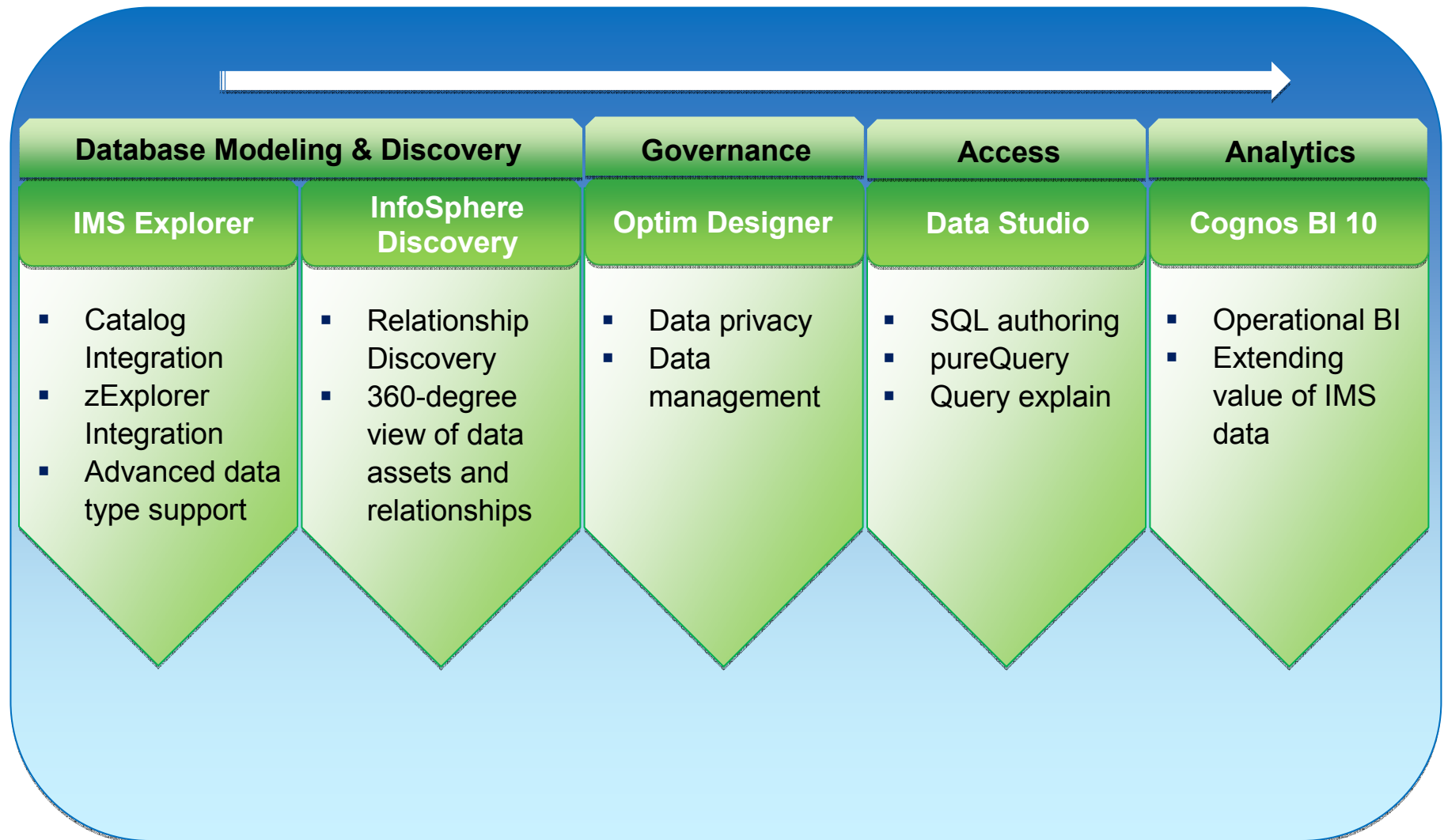
- **A z/OS middleware that inherit all strengths of zEnterprise**
- **A Messaging & Transaction Manager**
 - Based on a messaging and queuing paradigm
 - A real benefit in case of surge of traffic, or in case of unavailability of users to receive their transaction answers.
 - High-volume, rapid response transaction management for application programs accessing IMS and/or DB2 database, IMS and/or WebSphere MQ queues
 - “Universal” Application Connectivity for integration
 - Integrated with Business Rules & Business Events
- **A Batch Manager**
 - Standalone z/OS batch support
 - Batch processing region centrally managed by the IMS control region
 - Managing the batch-oriented programs — providing checkpoint/restart services
- **A Database Manager**
 - Central point of control and access for the IMS databases based on a hierarchical database model
 - Used by companies needing high transaction rates
 - Provides “Universal” Database Connectivity based on JDBC / DRDA
 - Lot of new features in this space! Stay tuned

... THE z/OS Integrated
Middleware Solution

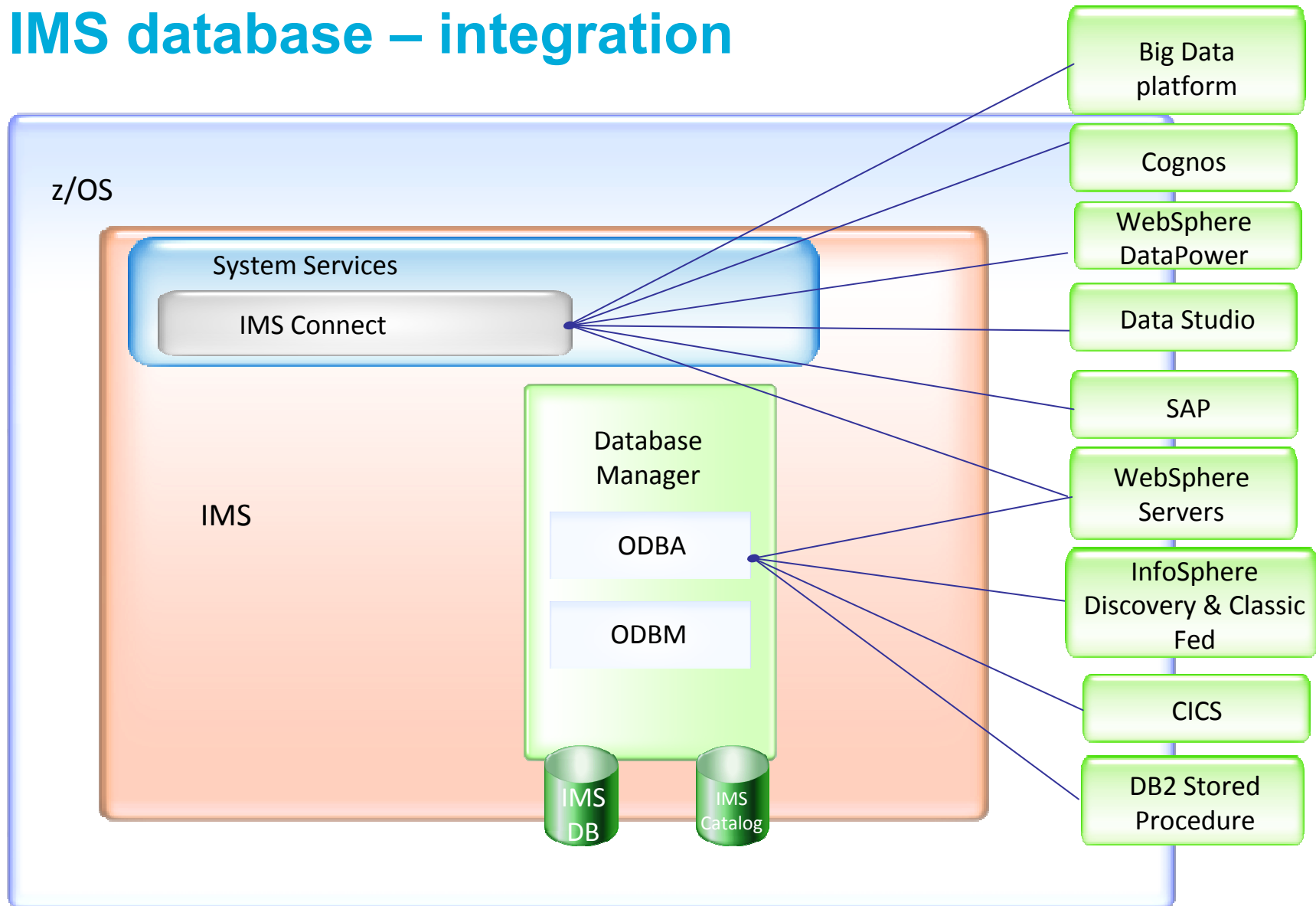
IMS integration solutions



IMS portfolio integration



IMS database – integration



Rapidly expand new workloads in IMS

Introducing IMS Database 12 Value Unit Edition

- Enables IMS 12 data sharing clients access to IMS data for net new workload
- Net new applications or workloads for Java or SQL through IMS open access capabilities (Open Database), from applications on WebSphere Application Server on z/OS or CICS TS VUE
- Cost savings by moving Java workloads for zIIP offload
- Additional new customized capabilities that address business growth based on key business initiatives, including services-oriented architecture (SOA), enterprise and mobile access strategy, and operational business intelligence.
- Leverages the unique industry-leading performance and workload management capabilities of the IMS data server.



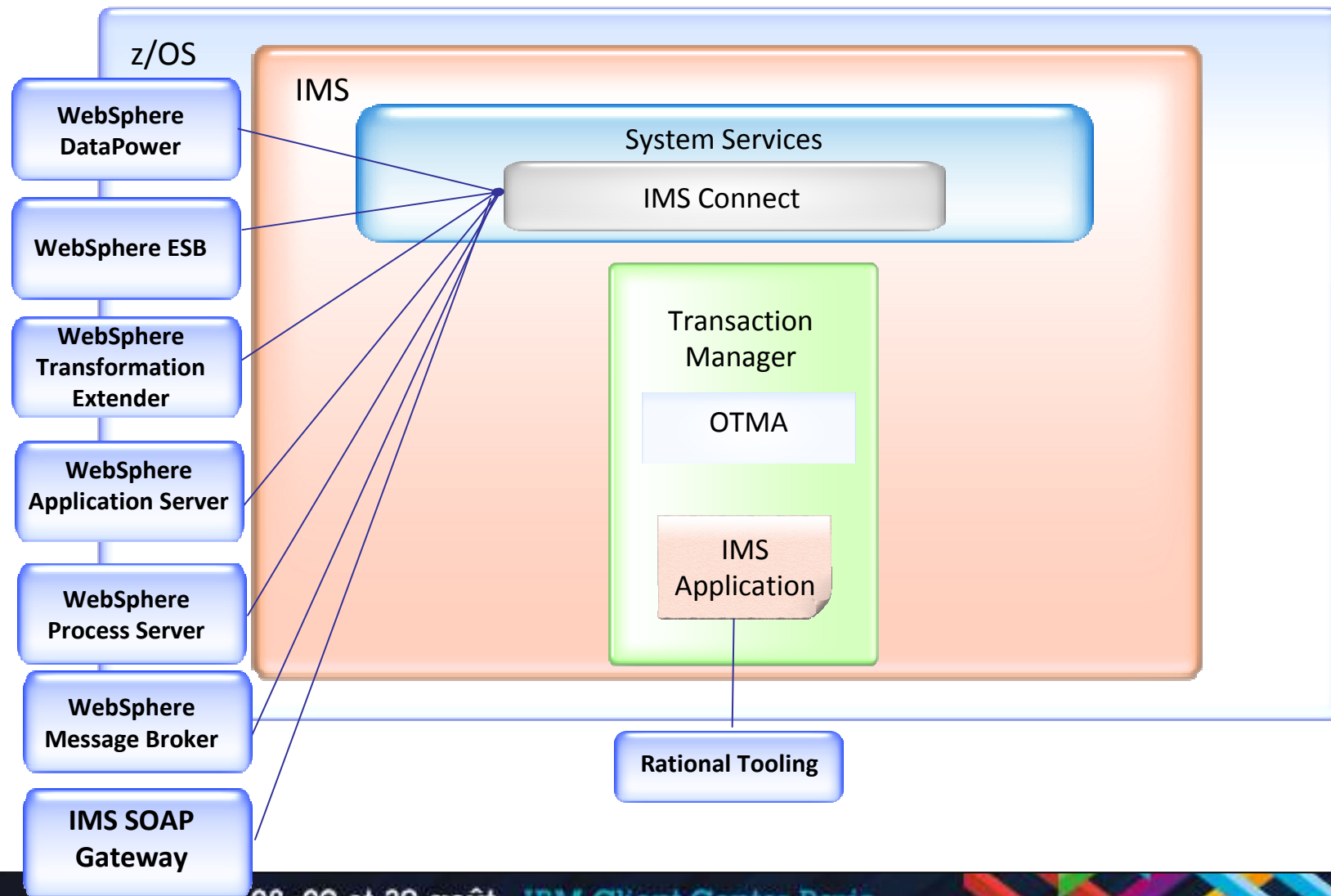
ibm.com/ims/imsdbvue/

IMS DB key differentiators

- Most efficient database model:
 - Fastest
 - Lowest TCO
 - Uses less CPU
 - Requires less DASD
- Fastest read/writes for enterprise workloads
- Most stable response time as data volumes grow
- Most efficient logging, driving the fastest recoveries with the highest integrity

IMS Database.....revolutionary in 1968...(R)Evolutionary today.....

IMS Transaction Manager – integration

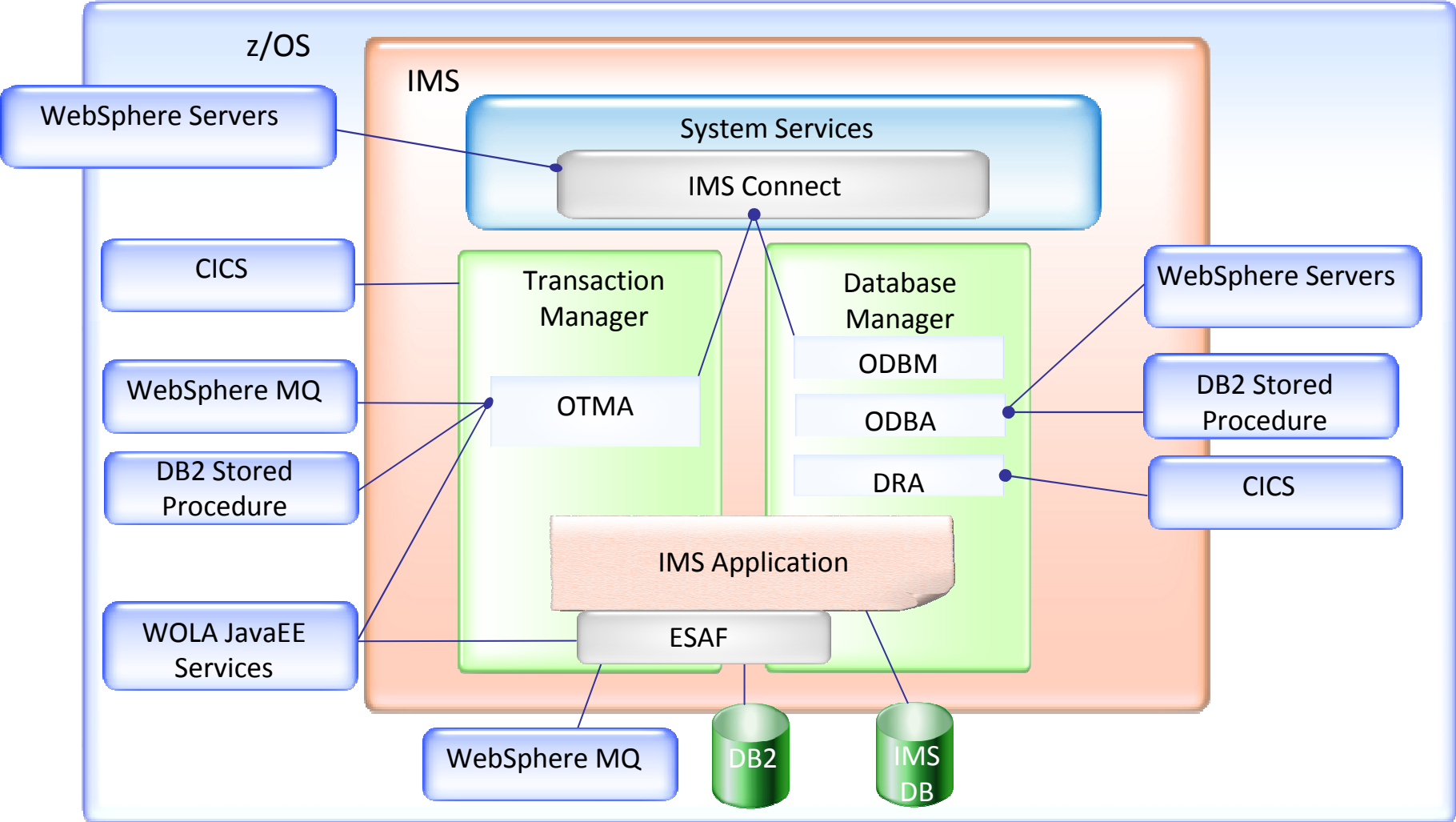


IMS Transaction Manager key differentiators

- Most efficient with highest volumes of transactions
- Lowest cost per transaction
- Unmatched speed, legendary reliability
- Simplest connectivity model
- Most streamlined scalability in the industry
- Best data recovery and data integrity
- Gold standard for batch processing

“Businesses quickly became enamored with IMS because they knew if a transaction said it was complete, then it was; if the transaction did not complete, they knew that no portion of the transaction was complete.”

IMS middleware integration



IMS Strategic Objectives

- **Reduce Total Cost of Ownership**
 - Reduce MIPS usage
 - Advanced autonomies – IMS is self-managing and self-tuning
- **Extend the lead in availability, scalability, and performance**
 - Consistently deliver IMS capacity limits that are well beyond customer needs
 - Provide IMS performance metrics that help you grow your business securely
- **Extend the lifecycle of IMS applications and transactions**
 - Pervasive integration capabilities enable reuse of trusted IMS resources
- **Enable high-volume transaction processing for next wave of applications**
 - Big Data, next gen Web Services, Cloud, and more

Two new IMS white papers



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IBM Cognos Proven Practices: Best Practices for Using IMS Data in IBM Cognos BI Reports

Product(s): IMS, IBM Cognos BI Server; Area of Interest: Business Intelligence

Richard Tran, Software Engineer, IBM
Kevin Hite (khite@us.ibm.com), IMS Solution Test, IBM
Nigel Campbell, Senior Developer, IBM
David Hanson, Information Developer, IBM

Date: 03 Oct 2012
Level: Intermediate
PDF: [A4 and Letter](#) (261 KB | 13 pages) [Get Adobe® Reader®](#)

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Summary

- 45 years of the highest levels of performance, availability, reliability and more - this is just the beginning
- Integration, expansion, stability, and lowered TCO drive our vision
- Partnering and collaborating with complimentary products, services, and tools from a variety of vendors to keep the IMS ecosystem—and your business—vital

Thank You