System z Premier Executive Event

IBM®

zEnterprise and System z Software Strategy and Direction

Ray Jones

Vice President,

Worldwide System z Software

IBM Software Group

System z Software Strategy

- **Capitalize on Traditional System z Strengths**
  - **Batch and Transaction processing, Data Serving, Highest Quality of Service**
  - **Optimize to the evolving System z Hardware design point**

- **Extend Value Proposition to New and Mixed Workloads**
  - **Systematic re-engineering of the software stack**
  - **Integrate with Modern Application Development Environments**
  - **Deliver extensive Data Management services**
  - **Leverage the wave of workload consolidation; zLinux**
  - **Simplify System z – make it easier to install and manage for better TCO**
    - **New faces of z**
    - **End-to-end management from a z central point of control**

- **Continue to grow the System z Ecosystem**
  - **Attract new System z customers and ISV application workloads**
  - **Enable new Hybrid and Cloud environments**
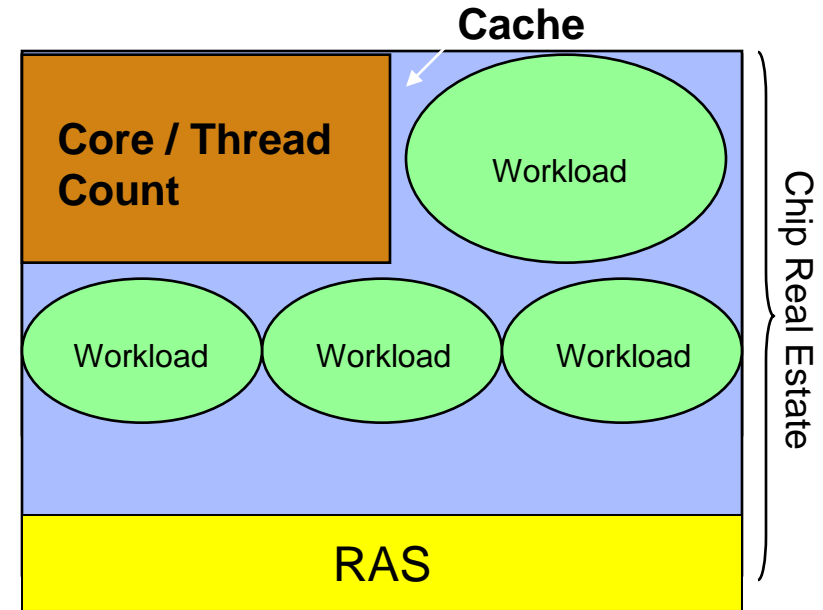 - **Make System z relevant to the new IT generation**

Chip Design Affects Virtualization Capabilities

Replicated Server Chip Design

Cache

Core / Thread Count

Workload

Workload

Workload

Chip Real Estate

RAS
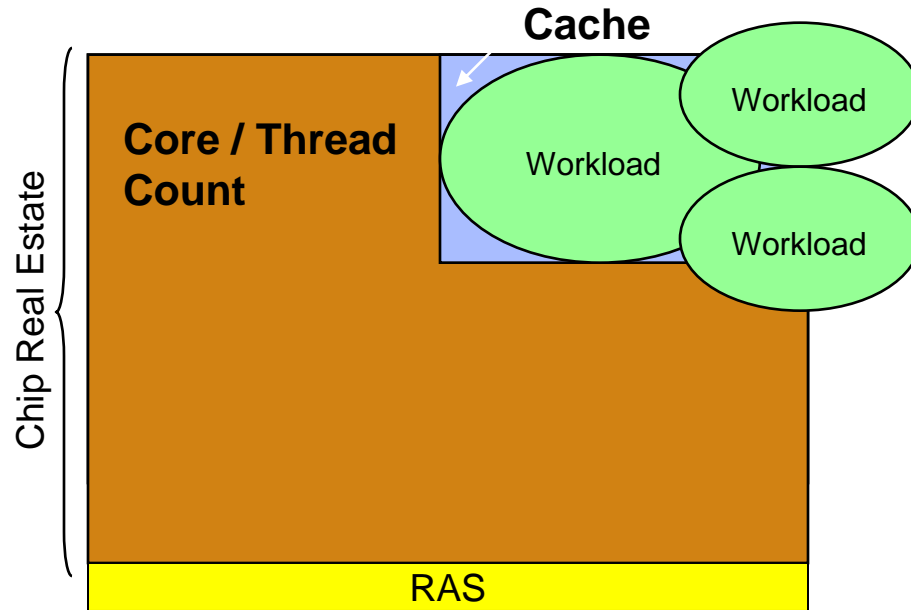
- **Mixed workloads stress cache usage, requiring more context switches**
- **Working sets may be too large to fit in cache**
- **Full processor speed is not realized due to cache misses**

Note: System representations are not to scale, proportions may vary based on generation of chip and model

Consolidated Server Chip Design

Cache

Core / Thread Count

Workload

Workload

Workload

Workload

Chip Real Estate

RAS

- **System z cache is able to contain more working sets**
- **zEnterprise 5.2 GHz Processor speed is optimized by increased cache efficiency**
- **Shared caches enable efficient dispatching of mixed-workload tasks with high processor utilzation**
- **Comprehensive Remote Access Service (RAS) design supports putting more workload in a single processor**

Smarter Software…

Knows and acts
Turn information into insight

Adapts
Increase agility

Connects
Connect & collaborate

Delivers
Enable business service and product innovation

Optimizes
Drive enterprise operations effectiveness and efficiency

Protects
Manage risk, security, and compliance

A New Release of z/OS Improves Performance and Ease of Use

z/OS Version 1 Release 12

Increased performance for enterprise applications

Increased availability for mission critical workloads

Improved ease of use with new user interfaces and automation

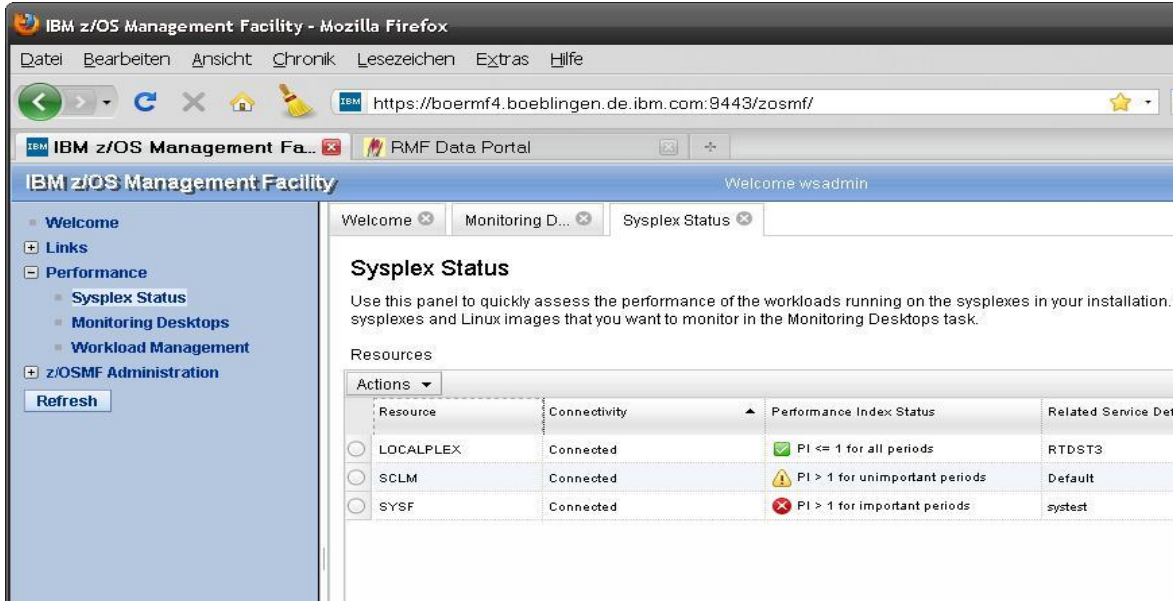*Centralized support for integrated computing, featuring*

up to **30 to 50%** *performance improvement for XML validation workloads*

up to **40%** *performance improvement for VSAM-based online and batch workloads*

z/OSMF Resource Monitoring *Benefits*

	Without z/OSMF Resource Monitoring)	**With z/OSMF Resource Monitoring**
Checking the performance status for several sysplexes	Monitor each sysplex, Manually consolidated data from different reports. (Monitoring zLinux must be done with other tools)	Cross-sysplex performance monitoring from a single point of control with color indicators. (zLinux monitor features fully integrated).)
	Up to 15 minutes to look up each sysplex and high degree of skill needed to interpret reports	Just seconds to see the health of all your sysplexes (and Linux images)
Explore & compare the processor usage of specifics jobs	Report layouts fixed as viewed - one at a time. Limited customization and filtering. Manually consolidated data from different sources	Monitoring is customizable. Specific metrics can be added. Multiple views are started in parallel Advanced filtering features allow sophisticated analysis.
	A long time, depending on data and correlations required. Generating reports may not be possible.	About 5 minutes to set up a custom monitoring desktop, 3 key clicks to view real-time statistics

Accelerating Return on Your CICS Investments
IBM CICS Deployment Assistant for z/OS

- **New Deployment perspective integrates with CICS Explorer**

- **Discovery and Modelling of CICS systems and applications**

- **Advanced Topology Visualization**

- **Automated creation, deployment, customization, and control of CICS regions**

- **Edit files, submit JCL, view output**

- **Best practice cheat sheets assist CICS version upgrades and CICSPlex® SM set-up**
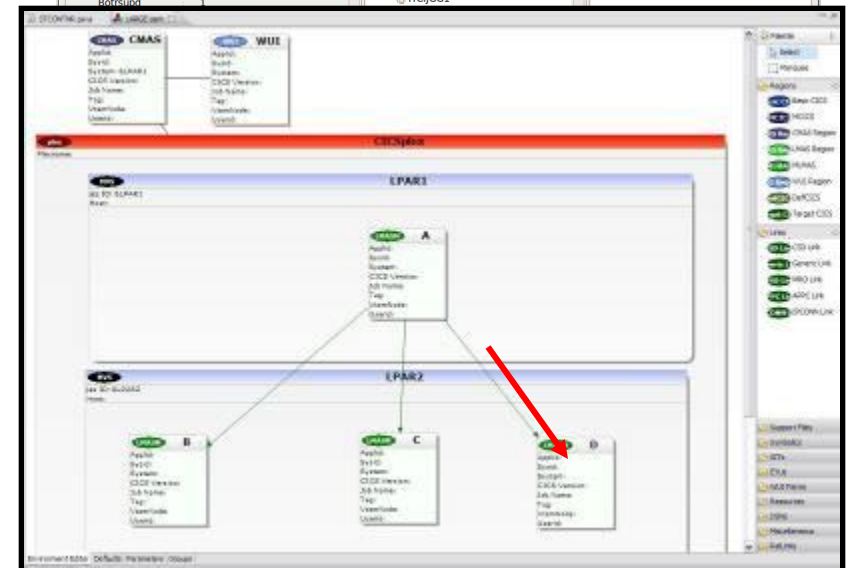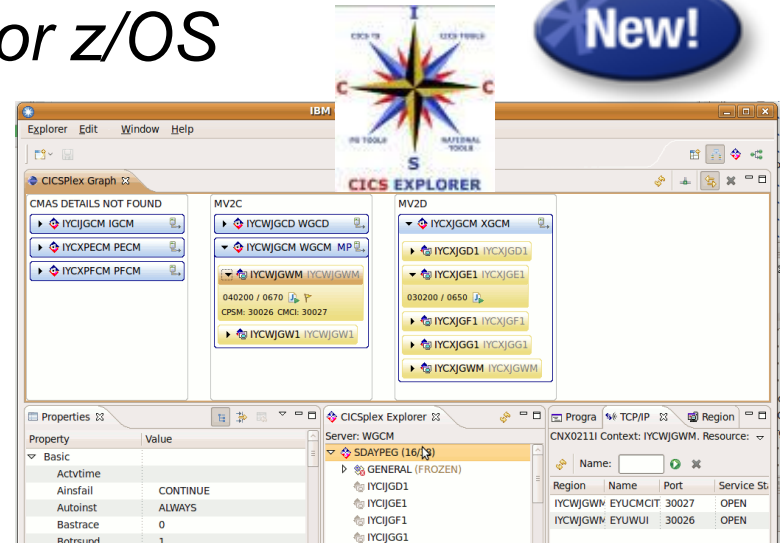
IBM Compilers Exploit System z for Maximum Performance

- Compilers exploit new hardware instructions introduced by System z

- Code generated by the compilers is highly tuned for System z

- Boost in performance of applications running on System z

z/OS XL C/C++

Enterprise COBOL for z/OS

Enterprise PL/I for z/OS

135 new / changed instructions
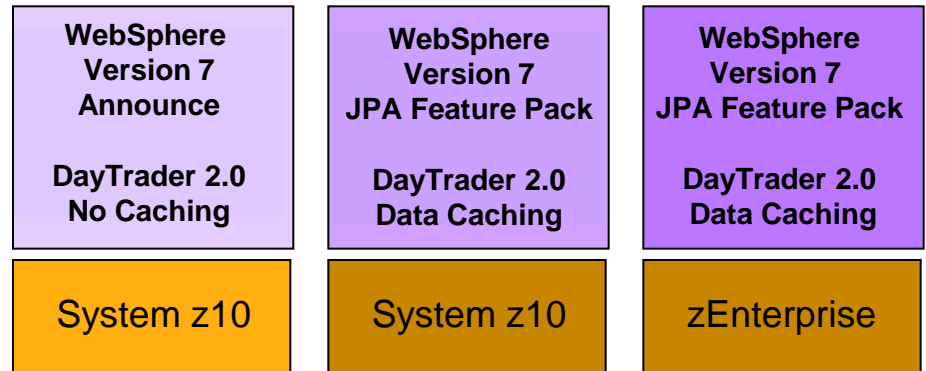
Java and WAS Performance with zEnterprise

World class per-thread performance yields outstanding results:

CPU benchmark *63%*

ILOG/CONfirm 45-62%

Multi-threaded *45%*

WebSphere V7 up-to 93%

Extensive hardware and software collaboration with deep platform exploitation:

- New out of order pipeline design
- 70+ instructions
- Java runtime environment general optimizations

System z10 Announce	Uplevel Software	zEnterprise Hardware

WebSphere Version 7 Announce DayTrader 2.0 No Caching	WebSphere Version 7 JPA Feature Pack DayTrader 2.0 Data Caching	WebSphere Version 7 JPA Feature Pack DayTrader 2.0 Data Caching
System z10	System z10	zEnterprise
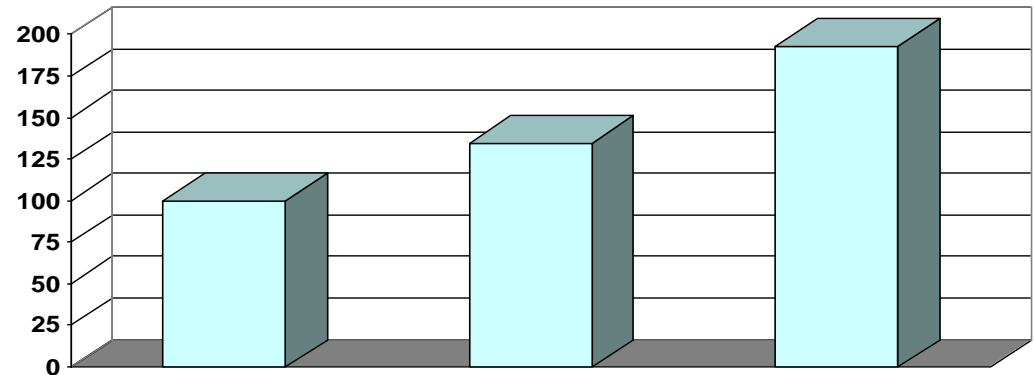
Then ⟶ Now

Collaborative Design and Build

New! **Rational Team Concert v3.0**

Rational Software Delivery Platform *powered by* Jazz

z/OS   AIX   Linux

IBM System z, zEnterprise, Power Systems and Distributed
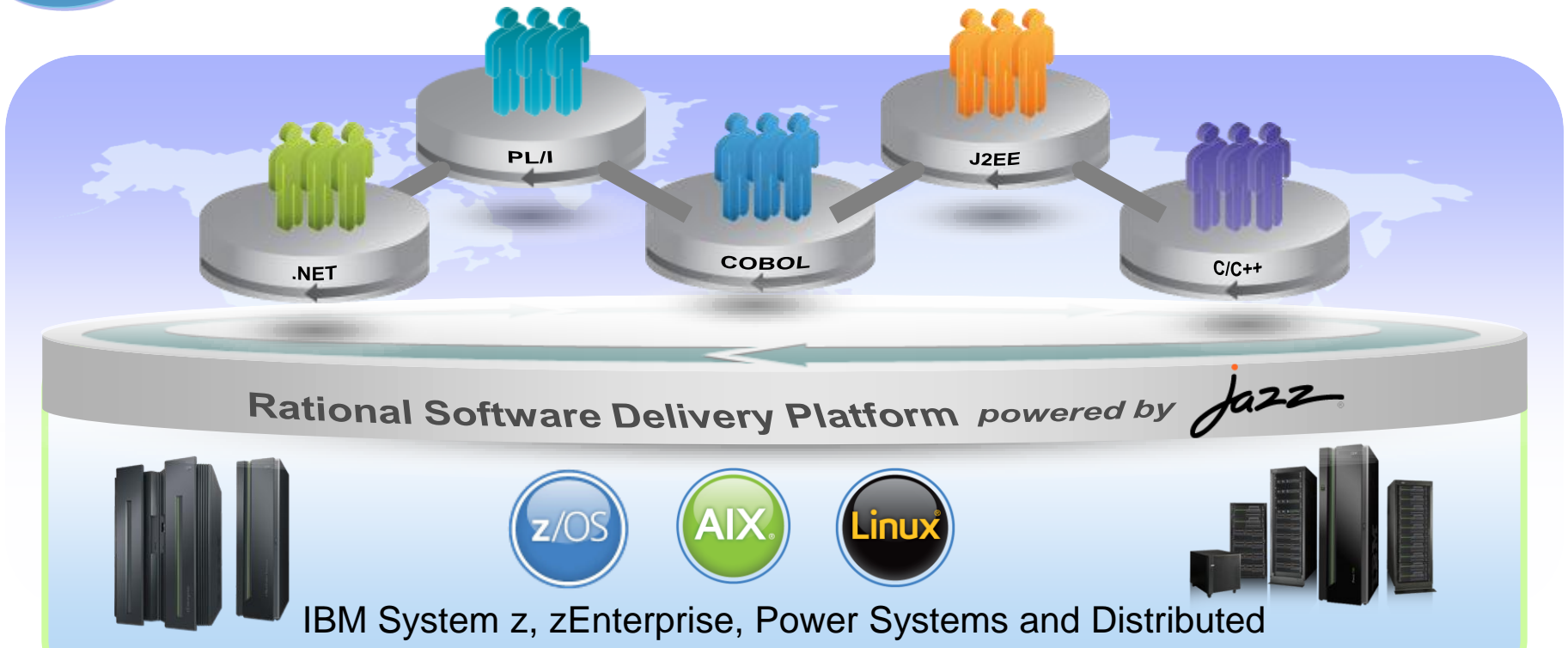
Delivering…

- ✓ Single integrated platform for managing delivery of multiplatform projects
- ✓ New support for advanced dependency analysis and build capabilities for z/OS projects
- ✓ New integrated ISPF green screen client for z/OS source edit, compile and debug

DB2 10 for cost savings and performance

- Up to 40% savings in processing costs
- Up to 6 times the number of SAP users on a single system
- Time Travel temporal capabilities built directly into the database
- Direct Row access accelerates high performance applications

"We have measured a 38% reduction in CPU for heavy insert workloads in a data sharing environment. That's a significant savings which provides immediate business benefit."
Peter Paetsch, BMW

We expect to reduce our data sharing requirements by 25%, which means less system, storage and resource expenses
Banco do Brasil

The new temporal functionality in DB2 10 for z/OS will allow us to drastically simplify our data-related queries and reduce our processing cost by having DB2 handle data movement more efficiently than our custom code

"As much as 80% of our applications can use this, which will drastically save developer time and even more importantly make applications easier to understand to improve business efficiency and effectiveness"

"In addition to the cost savings, DB2 10 for z/OS offers a far superior data server environment than Oracle"
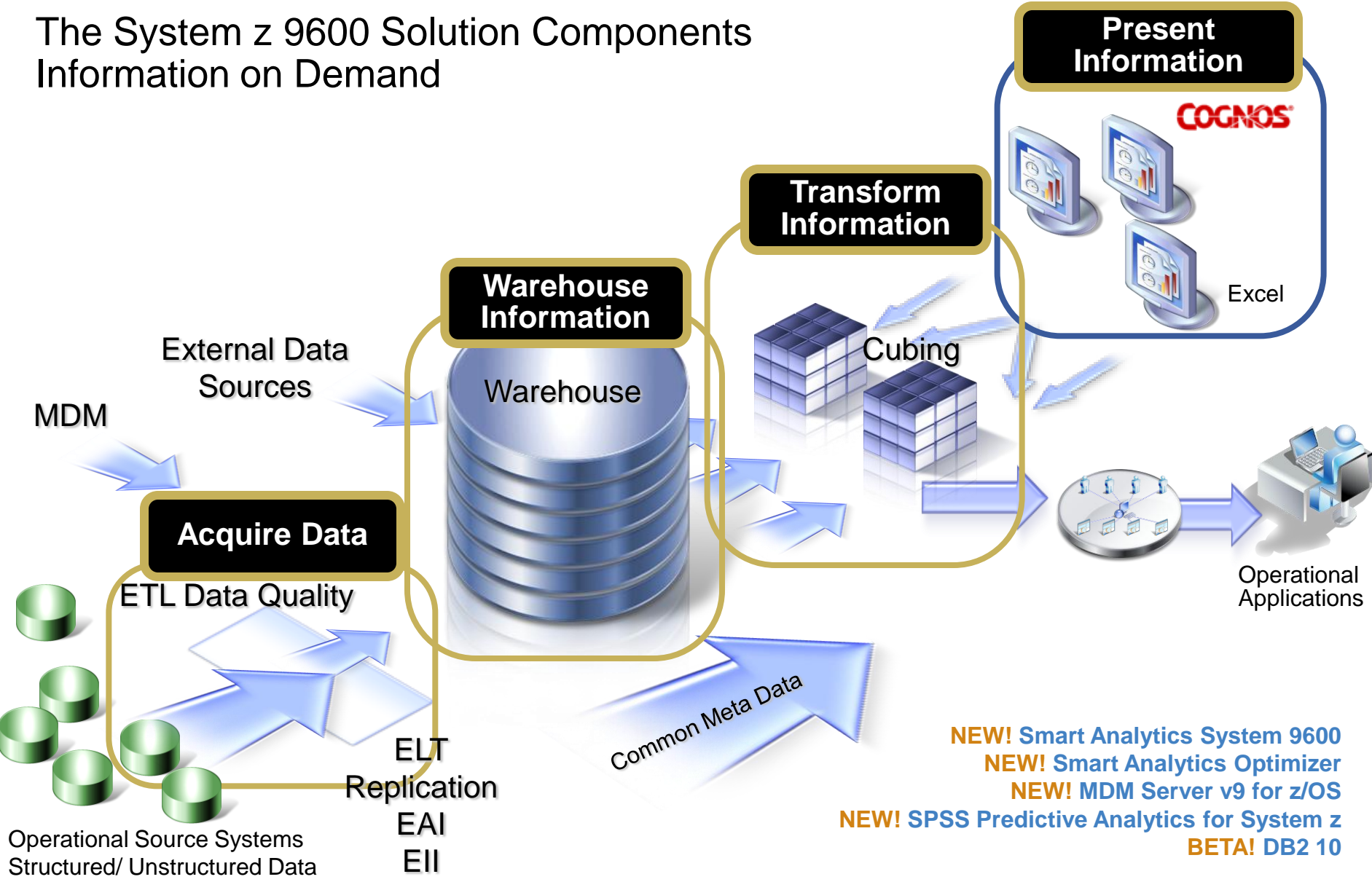*Manuel Gomez Burrierl, CECA (Spanish Bank Federation)*

As a multi-national corporation, we must adhere to strict local audit requirements. The security and administration capabilities in DB2 10 are a key driver for us to move to this version. "

The System z 9600 Solution Components
Information on Demand

Present Information

COGNOS

Excel

Transform Information

Cubing

Warehouse Information

Warehouse

External Data Sources

MDM

Acquire Data

ETL Data Quality

Common Meta Data

Operational Applications

ELT
Replication
EAI
EII

Operational Source Systems
Structured/ Unstructured Data

NEW! Smart Analytics System 9600
NEW! Smart Analytics Optimizer
NEW! MDM Server v9 for z/OS
NEW! SPSS Predictive Analytics for System z
BETA! DB2 10

IBM Smart Analytics Optimizer
Capitalizing on the best of relational and columnar databases

Workload optimized, appliance-like, add-on, that enables the integration of business insights into operational processes to drive winning strategies.

- **Performance**

- **Integration**

- **Self-managed workloads**

- **Transparency**

- **Simplified administration**

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Up to 80X performance increase
in specific queries

Empower People, Boost Productivity and Collaborate

*Connect and scale **150K+** employees, customers, and partners worldwide 24x7*

- **End-to-end Enterprise Content Management (ECM) integration in Team Places with enterprise grade reliability on Linux on zEnterprise**

- **ECM management providing imaging, digital asset management, Web content management and content integration on a multi-tier architecture**

- **24X7 presence, chat and online meetings supported on Linux on zEnterprise**

- **Expanded support of client platforms and mobile devices**

NEW! **Lotus® Quickr 8.5 for WebSphere Portal**
NEW! **Lotus Sametime 8.5.1***
Lotus Connections, Lotus Notes® and Domino®, WebSphere Portal
Other ECM solutions - IBM FileNet and IBM Content Manager solutions

Planned capability. IBM plans are subject to change

Extending zEnterprise Unified Resource Manager with Integrated Service Management

IBM zEnterprise Unified Resource Manager

- Workload-based resource allocation and provisioning for zEnterprise
- Physical and Virtual Resource Management
- Goal Oriented Management of zEnterprise resources (Availability, Performance, Energy, Security)
- Faster transaction processing with reduced network latency
- Operational Controls for Hardware/Firmware
- Service and Support for Hardware/Firmware
- Hardware configuration management

Hypervisors · Energy · Performance · Virtual Servers · Networks · Operations

Tivoli and Integrated Service Management

Visibility, Control and Automation for Applications, Transactions, Databases, all Datacenter Resources

- Integrated Operational Dashboards to monitor and manage service impacting events
- Key Performance Indicators (KPI) applied to Business Services for impact analysis
- Heterogeneous data in ONE
- Business Service Modeling for planning
- Contextual Correlation to reduce Mean time to repair (MTTR)
- Establish and automate service level agreement (SLA) tracking
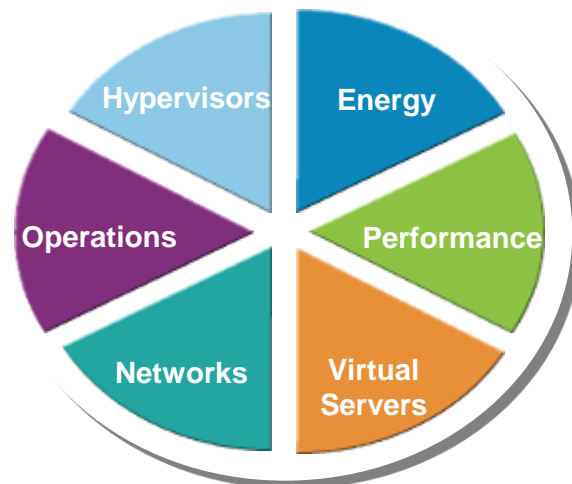
Integrated Service Management for zEnterprise - a single cross platform view for cost effectiveness

- Application Performance Management
  - Visibility into entire application infrastructure

- Asset and Financial Reporting
  - Visibility and accounting of service delivery

- Application Automation and Resilience
  - Policy-based application automation

- Security and Compliance
  - Centrally managed and protected access to web applications, business services, infrastructure and data

- Cloud Management **New!**
  - Visibility into applications and services utilizing System z as a cloud infrastructure

- Workload Automation and Batch Modernization **New!**
  - Single point of governance for batch

Integrated Service Management

for
Industries

for
Design & Delivery

for
Data Centers

Control and Compliance on zEnterprise for robust Security

Unleash the potential of zEnterprise with Enterprise Security Hub across production systems and consolidated virtual system workloads

Delivering new

- **Simplified security administration to act on multiple profiles and systems to synchronize security, reduce complexity and improve productivity**

- **Extended ease-of-use, monitoring, auditing, and alerts, including UNIX sockets and daily snapshots, to improve automated compliance and audit reporting**

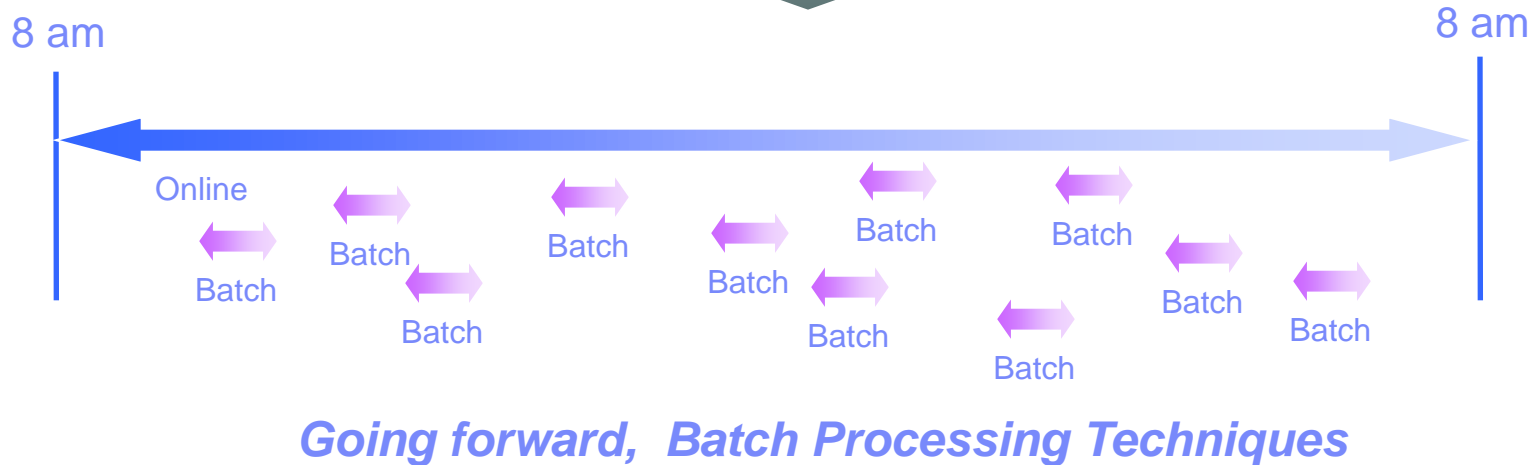- **Exploiting new zEnterprise and RACF capabilities**

IBM can save customers up to 70% in auditing overhead on mainframe

New!   **IBM Security zSecure suite V1.12**

Continuous Batch Processing

8 am   8 pm   8 am

Online   Batch

Current Batch Processing Technique

8 am   8 am

Online

Batch

Batch

Batch

Batch

Batch

Batch

Batch

Batch

Batch

Batch

Batch

Batch

Going forward, Batch Processing Techniques
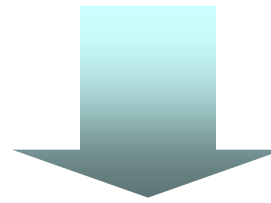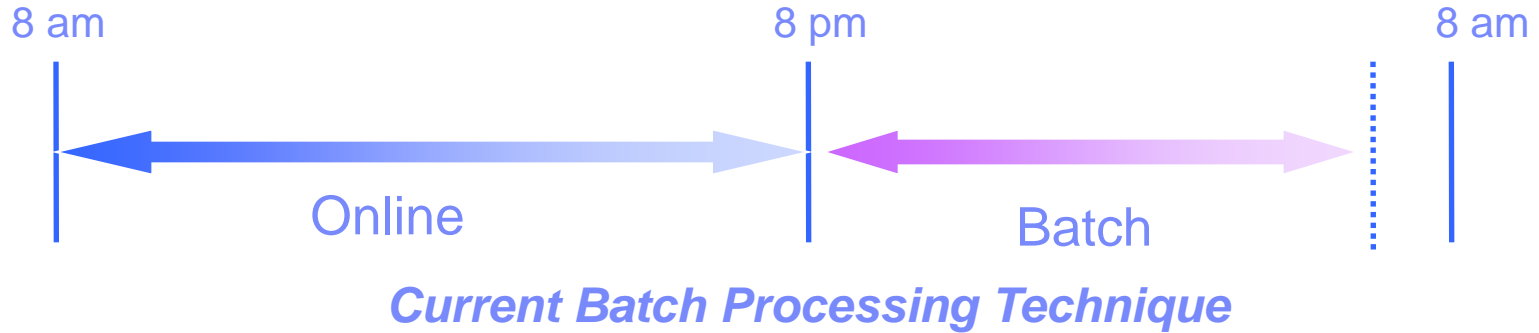
Modernize batch applications for workload optimization

Develop with Rational Application Developer for System z

Manage and schedule with Tivoli Workload Scheduler

WebSphere Compute Grid

Feature Pack for Modern batch

WAS V7

CICS TS

WebSphere Application Server AppServer

Web Container — Web Modules

EJB Container — EJB Modules

Batch Container — Batch Modules

WebSphere Application Server Foundation Services
Security, Transaction, Data Access, Logging ...

New!

- Enterprise scheduling **of web services with new executors by leveraging** *Tivoli Workload Scheduler (TWS) 8.5.1.1 and TWSz 8.5.1 SPE*
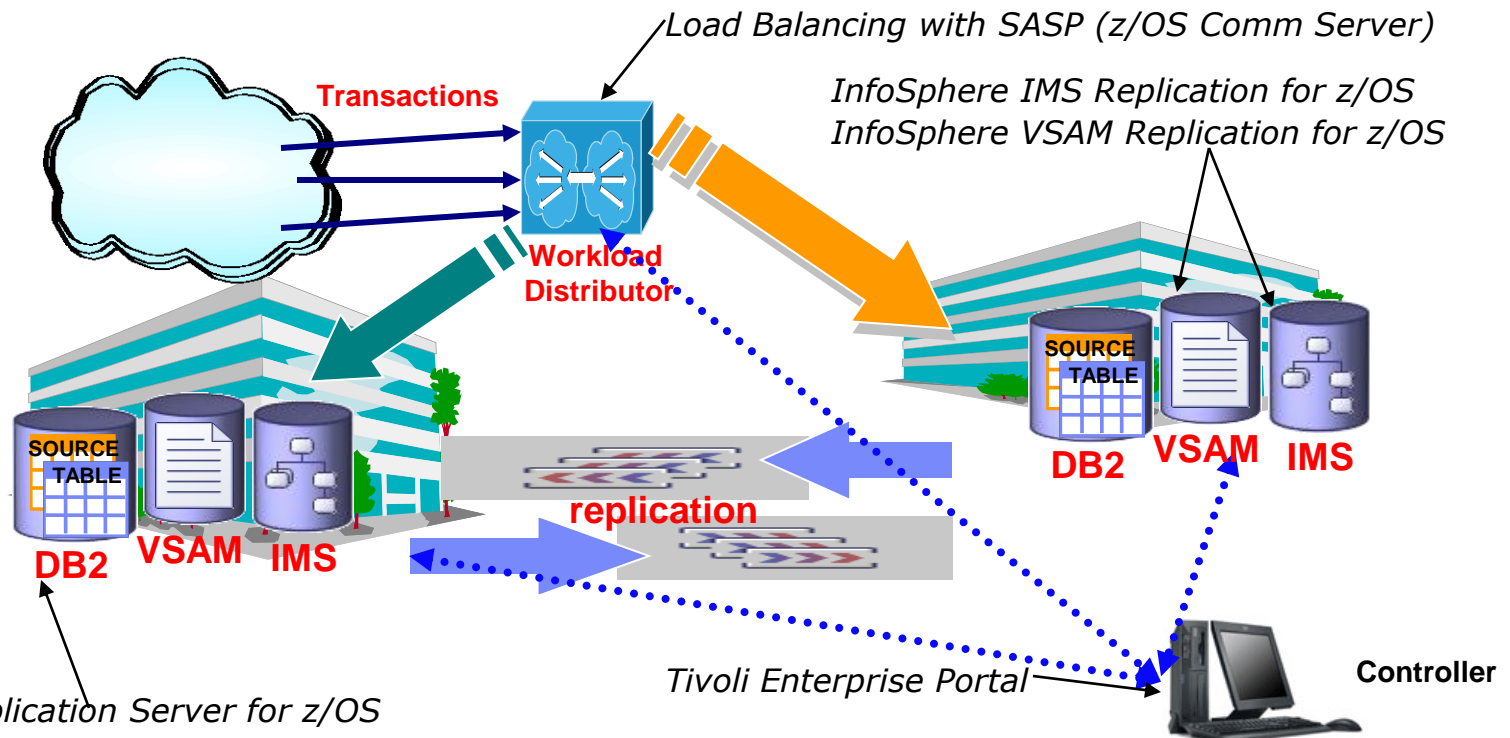
- Modernize CICS **with new ability to schedule and manage Java job steps with** *CICS TS SupportPac CN11 for WebSphere Compute Grid*

- Simplify file conversion **for faster processing with WebSphere MQ File Transfer Edition**

- Easy to use offering tools and operational controls **for Batch workload execution supporting a Java Batch programming model with** *WebSphere Application Server V7 Feature Pack for Modern Batch*

- Extends business flexibility, simplification, and growth **of mission-critical applications and data with** *IMS 12 Beta*

- Easy development of new batch applications **using enhanced creation wizards and zJCL editing with** *Rational Developer for System z v8.0*

Active/Active – What is it ?

- **Two or more sites, separated by *unlimited* distances, running the same applications and having the same data to provide cross-site workload balancing and Continuous Availability / Disaster Recovery**

- **Paradigm shift: failover model => near continuous availability model**

- **Reduction in recovery time from hours to minutes as a design point**

Load Balancing with SASP (z/OS Comm Server)

InfoSphere IMS Replication for z/OS
InfoSphere VSAM Replication for z/OS

Transactions

Workload Distributor

SOURCE TABLE

DB2   VSAM   IMS

replication

SOURCE TABLE

DB2   VSAM   IMS

Tivoli Enterprise Portal

Controller

InfoSphere Replication Server for z/OS

0 IBM Corporation

Continuing our investment in zEnterprise software

July

July – zEnterprise launch
- Smart Analytics System 9600
- Smart Analytics Optimizer
- SPSS Predictive Analytics for System z
- IMS 11, IMS Enterprise Suite 1.1
- Tivoli Security for zEnterprise
- Tivoli Access Manager Family
- Tivoli zSecure Manager for RACF z/VM
- Tivoli Federated Identity Manager for z/OS
- Tivoli Application Management for zEnterprise
- Tivoli Application Resilience for zEnterprise
- Tivoli Asset and Financial Management for zEnterprise
- CICS Transaction Server Feature Pack for Dynamic Scripting
- CICS Deployment Assistant for z/OS
- WebSphere Business Monitor for z/OS
- Rational Developer for System z Unit Test
- z/OS XL C/C++, Enterprise PL//I for z/OS,
- Eclipse EGL Development Tools project
- Lotus Quickr 8.5 for WebSphere Portal
- Lotus Sametime 8.5.1

August/September

August 9
- SupportPac CN11: CICS TS support for WebSphere Compute Grid

August 10
- IBM® Lotus® Domino® 8.5.2

August 31
- IBM® Lotus® QuickrTM for Domino® 8.5

September 16
- IBM® Customer Experience Suite V7.0

September 24
- IBM® WebSphere® Portal for z/OS and Linux on z 7

October/November

October 5
- WebSphere Application Server v7 Feature Pack for Modern Batch
- Information Management System (IMS) V12 (BETA)
- PD Tools v11
- WebSphere ILOG Business Rules for z/OS
- WebSphere ILOG BRMS 7.1.1.
- WebSphere MQ Advanced Message Security (AMS) V7.0.1
- WebSphere Process Server Hypervisor Edition V7.0 for Novell SUSE Linux Enterprise Server for System z
- IBM CICS Performance Analyzer for z/OS V3.2
- WebSphere MQ File Transfer Edition V7.0.3
- WebSphere MQ Telemetry 7.0.1

October 12
- IBM Passenger Rail Reservation Service

October 19
- IBM Mobile Portal Accelerator 7
- DB2 10 for z/OS

October 24
- DB2 for z/OS Tools
- Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS V5.1
- Tivoli OMEGAMON XE for DB2 Performance Monitor on z/OS V5.1
- IBM® Lotus® Domino® 8.5.2
- DB2 Accessories Suite for z/OS V2.1
- DB2 Utilities Suite for z/OS V10.1
- DB2 High Performance Unload for z/OS V4.1
- IBM Transaction Analysis Workbench for z/OS V1.1
- DB2 Administration Tool for z/OS V10.1
- DB2 Object Comparison Tool for z/OS V10.1
- DB2 Buffer Pool Analyzer for z/OS V5.1
- DB2 SQL Performance Analyzer for z/OS V4.1

October 24
- DB2 High Performance Unload for z/OS V4.1
- IBM Transaction Analysis Workbench for z/OS V1.1
- DB2 Administration Tool for z/OS V10.1
- DB2 Object Comparison Tool for z/OS V10.1
- DB2 Buffer Pool Analyzer for z/OS V5.1
- DB2 SQL Performance Analyzer for z/OS V4.1
- DB2 Buffer Pool Analyzer for z/OS V5.1
- QMF Classic Edition, V10.1
- QMF Enterprise Ed. V10.1
- InfoSphere Classic Change Data Capture for z/OS
- InfoSphere IMS Replication for z/OS
- InfoSphere Classic Federation Server for z/OS v10.1

October 25
- IBM® Lotus® Connections 3.0
- IBM System z Solution Edition for Lotus Collaboration

October 26
- IBM® Lotus® Forms 4.0
- IBM Security zSecure suite V1.12
- Rational Team Concert v3.0
- Rational Developer for System z v8.0.1
- Rational Developer for zEnterprise v8.0.1
- Rational Developer for System z Unit Test v8.0.1
- Rational Business Developer 8.0
- Rational Asset Analyzer 6.0
- Rational Asset Analyzer for System z
- Rational Programming Patterns for System z v8.0

November 9
- IBM WebSphere Lombardi Edition V7.1 for zLinux

November 16
- IBM® Advanced Case Manager
- IBM® FileNet® Business Process Manager (BPM) Version 5.0

IBM System z Software
Seamlessly integrated with zEnterprise for optimal cost savings and performance

We are delivering a new generation of integrated hardware and software

- Scales without complexity and delivers business process aligned infrastructure in a heterogeneous environment

- Provides real-time advanced analytics

- Unifies multiplatform development and team collaboration to work as a single, integrated service delivery platform

- Exploits the advantages of integrated service management

- Extends the value of Linux on System z with collaborative tools

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CICS*	Lotus*	System z10	
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Notes:

Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.

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