



IBM System z Software Premier Executive Briefing Event

Yvonne Perkins

Maximizing the value of your data and
applications and managing your
business processes

May, 2011



Today's world is presenting new challenges for the IT infrastructure, requiring smarter computing

1 trillion things connected to the net

68% report that **integration challenges** impede relationships

85% of CEOs require more **visibility** into their businesses

78% of CIOs want to improve the way they use data

79% expect high or very high levels of complexity over the next 5 years

45% higher ROI for agile businesses that actively converge business and IT

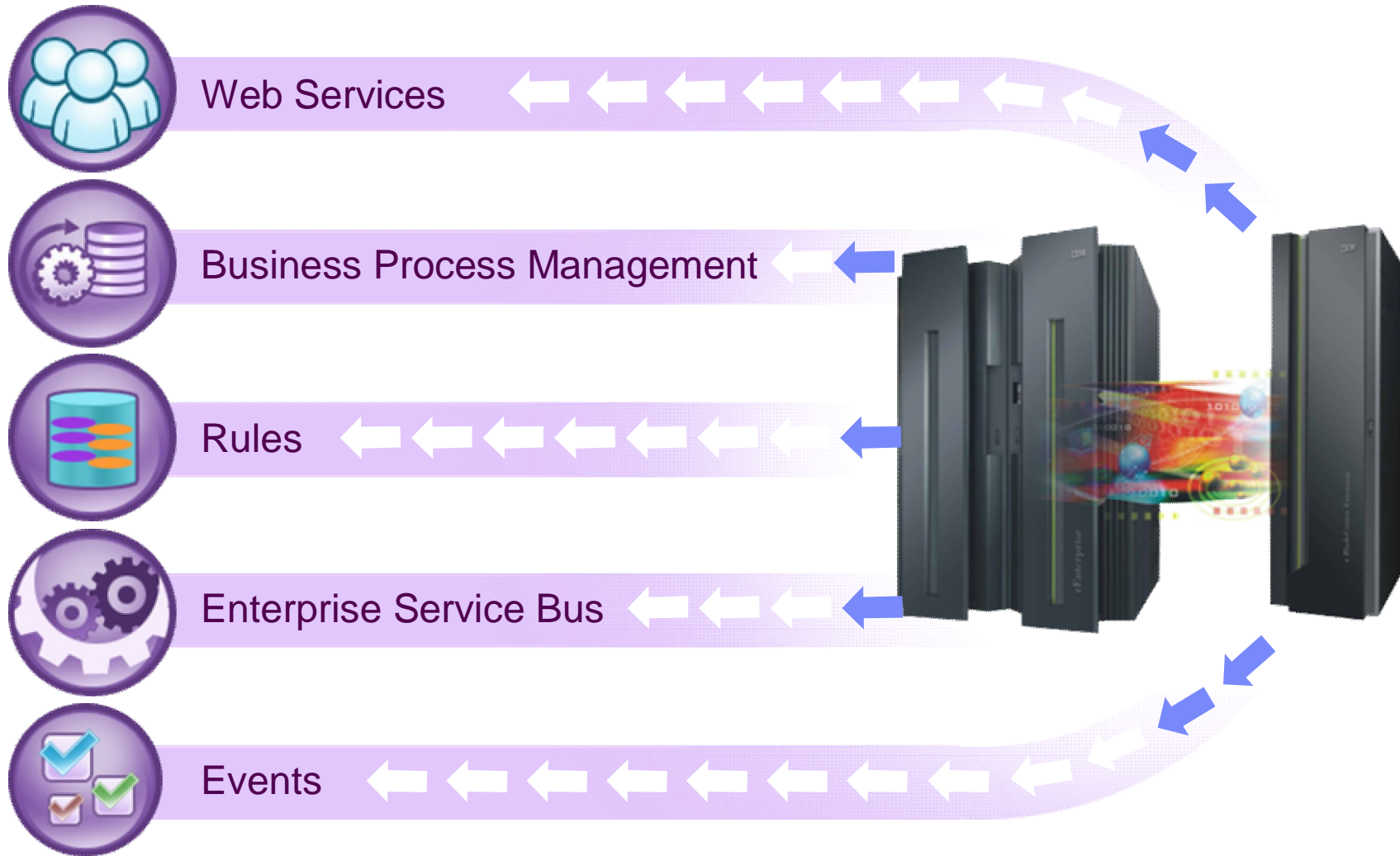
Today's online business cycles are **3-7X** shorter



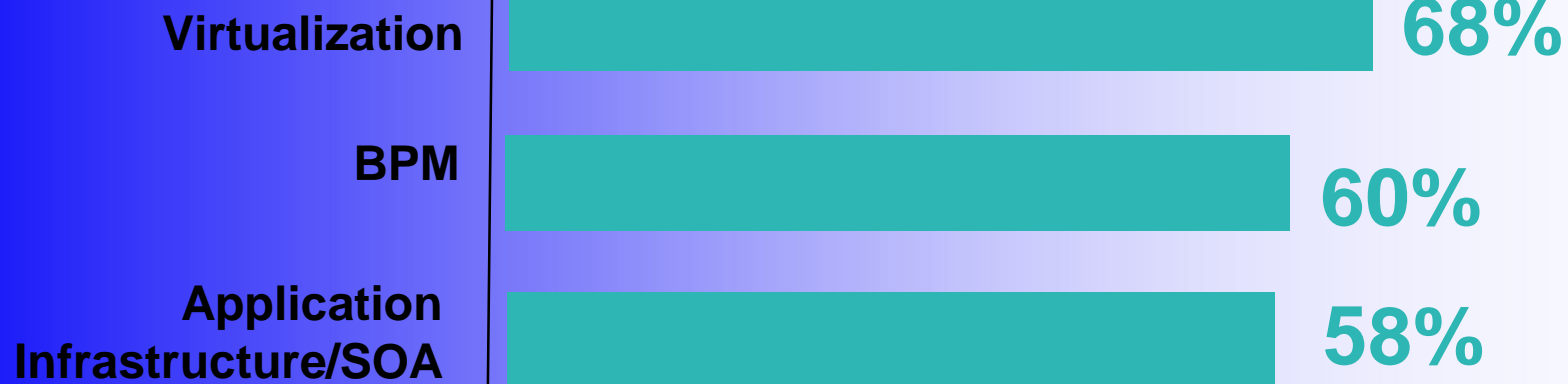
70% of budgets spent on maintenance

445% growth in Internet usage in past decade

Smarter Computing means extracting maximum business value from existing assets



CIOs have identified their most important initiatives to address IT infrastructure challenges



IBM CIO Study 2011: <http://www-935.ibm.com/services/c-suite/cio/study.html>

New workloads on System z match the top CIO priorities, accelerated by the capabilities of zEnterprise

Strategic workload

- ▶ Transaction Processing
- ▶ Virtualization
- ▶ Application Infrastructure/SOA
- ▶ BPM/BRMS

Why zEnterprise?

- ▶ Qualities of Service
- ▶ Capacity
- ▶ Efficiency
- ▶ Flexibility
- ▶ Leverage existing System z assets



Scalable, dependable transaction processing supports hundreds of millions of end users

Transaction Processing

Today's challenges

- ▶ Thousands of simultaneous users
- ▶ Infrastructure overload
- ▶ Data inconsistency

Why zEnterprise

- ▶ High volume reliable processing with sub-second response time
- ▶ Maintains the integrity of the transaction against all types of failures.
- ▶ Intelligent, automated error processing

SOLUTIONS

WebSphere Application Server
IBM Transaction Processing Facility
CICS Transaction Server

"Visa relies on System z for global transactions processing-- and confirmed the ability to handle the 2010 Christmas peak of almost 11,000 transactions a second."



Transaction processing capabilities can be combined to meet the changing demands of the business



Extreme Scale-Out

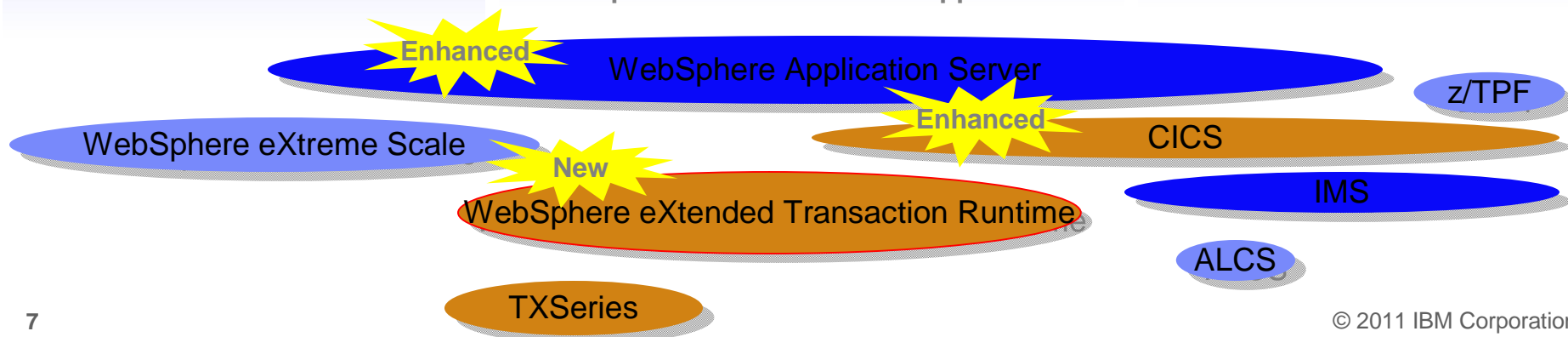
- Elastic distributed caching, in-memory databases, and XTP/Data Grid applications
- Performance and QOS focused

Broad Applicability in the Center

- Extensive standards and language support
- High ISV, application, and skill availability
- Broad platform and database support

Extreme Scale-Up

- Optimized for centralized data
- Database options affect scale
- Performance & QOS focused



Drive modernization and operational efficiency of COBOL Applications on AIX

WebSphere eXtended Transaction Runtime V1.0 for AIX

- Create modernized distributed COBOL applications and extend into WebSphere Application Server
- Effectively reuse time-tested COBOL applications and skills within a modern enterprise, using CICS transactional services
- Simplify integration, administration and management of mixed language workloads in a modern SOA environment increasing operational efficiency

- New capabilities with WXTR:
 - Create a highly responsive & tightly integrated application serving infrastructure for COBOL and Java workloads
 - Capitalize on enterprise wide skill sets to effectively optimize and modernize COBOL assets while consolidating your infrastructure around WebSphere Application Server
 - Increase operational efficiency by using the simplified, unified administration capability to centrally manage multi language workloads
 - Simplify your integration complexity and improve agility of your SOA enabled application infrastructure to support growth
 - Extend your existing distributed transactional COBOL business applications into IBM WebSphere Application Server to leverage the portfolio's capability



New!



Tighter integration of Java and COBOL workloads on distributed platforms for modernization and operational efficiency

Virtualization on System z offers superior scalability and manageability

Virtualization

Today's challenges

- ▶ Unable to share resources efficiently
- ▶ Simple workloads on single platforms can cause virtual server image proliferation
- ▶ Initiatives for hybrid applications are daunting

Why zEnterprise

- ▶ z/OS offers multiple levels of virtualization on a single machine
- ▶ Linux on System z virtualization even stronger in hybrid computing environment
- ▶ Cost-effective to run Java and Linux-based applications on the same platform

SOLUTIONS

z/OS
 Linux on System z
 WebSphere Application Server
 WebSphere Virtual Enterprise

The z IFLs in the ELS deliver up to 40 percent more capacity at a 50 percent lower price – a price-performance improvement of up to 65 percent.



zEnterprise helps to simplify the hybrid environment while reducing ongoing costs

Application
Infrastructure/
SOA

Today's challenges

- ▶ Siloed resources prevent sharing
- ▶ Massive data movement causes network bottlenecks
- ▶ Complexity increases security exposures and downtime

Why zEnterprise?

- ▶ Robust and highly available solution
- ▶ Qualities of Service extended to other platforms
- ▶ Reduced points of failure through private network
- ▶ Unmatched scalability and 85%-100% utilization

SOLUTIONS

- WebSphere Application Server Family
- CICS Transaction Server
- WebSphere Compute Grid
- CICS and PD Tools



Highmark's SOA investments...help to provide a flexible environment..that can be reassembled rapidly and cost-effectively into new services. .



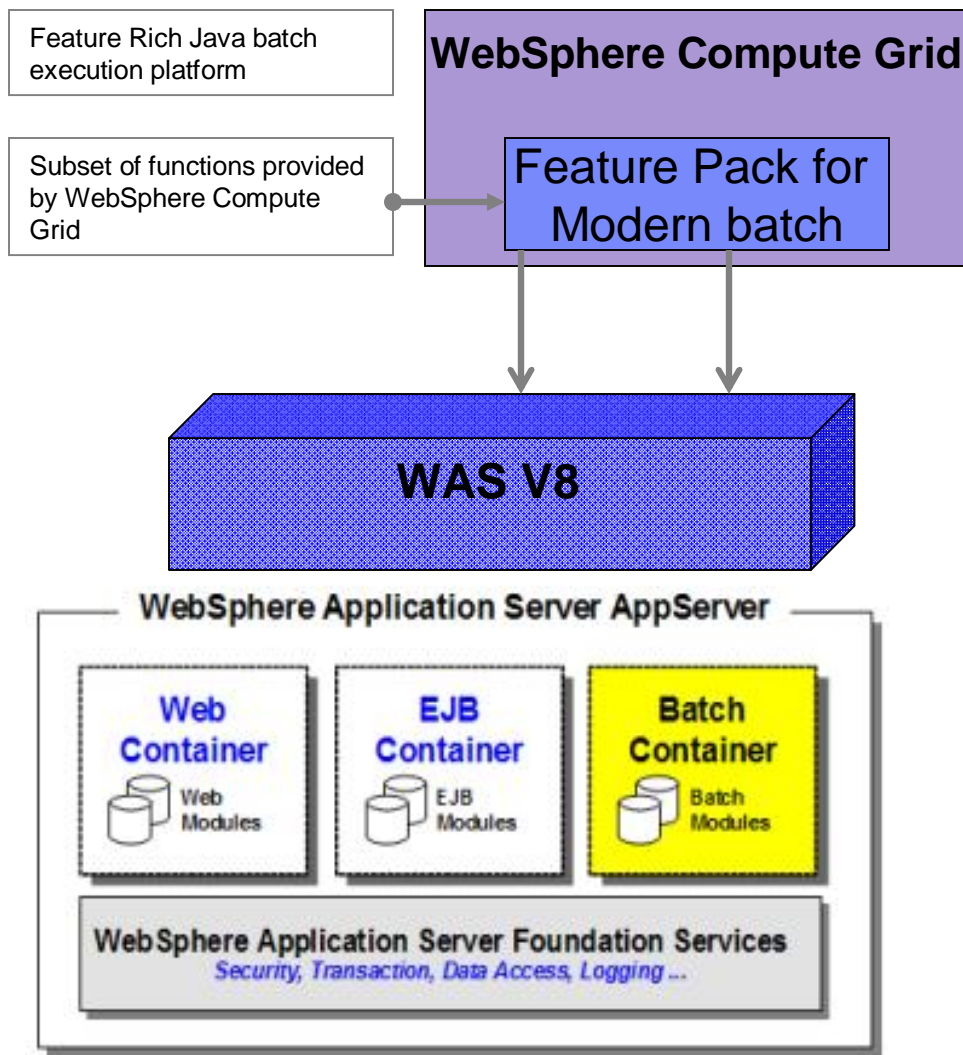
WebSphere Application Server offers unique capabilities for z/OS now and in parallel with business needs

- Expanded support for productivity enhancing programming models
- Faster time to value through a simplified and centralized product install
- Faster time to application development completion
- Enhanced security and governance capabilities
- Improved administration and migration capabilities
- Performance improvements
- Enhanced collocation

New!A graphic featuring a dark blue background with a pattern of glowing binary digits (0s and 1s) in a lighter blue color. A large, light blue oval is centered over the image, containing the text "WAS V8" in white, bold, sans-serif font.

WAS V8

Deploy concurrent execution of Java batch and OLTP for faster output and cost savings



What is it?

- Pre-integrated application framework to help increase developer productivity and time to value for Java batch applications allowing sharing of business logic between batch and OLTP applications

Benefits

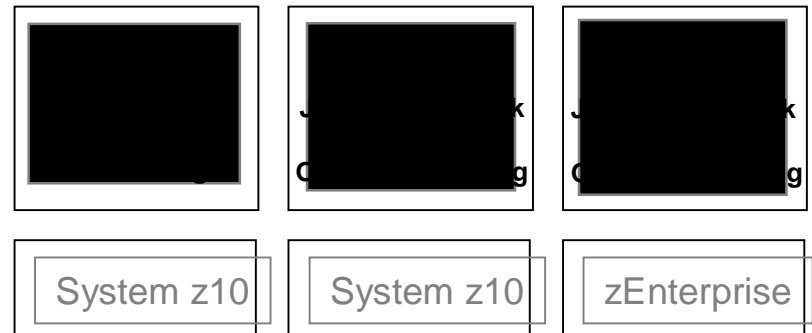
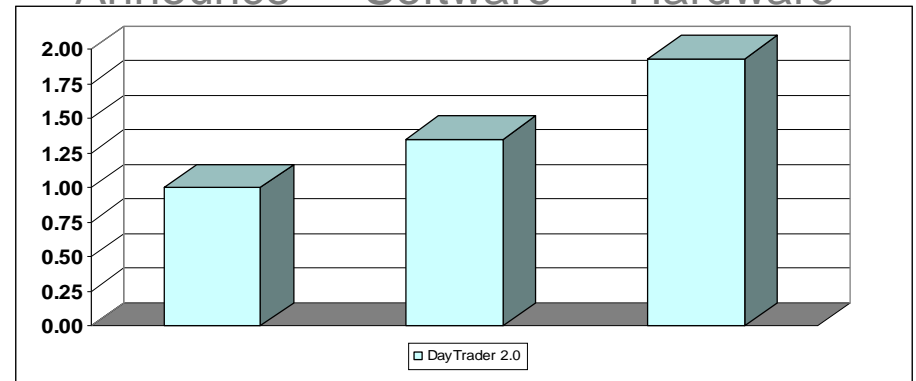
- Reduce cost of infrastructure due to concurrent execution of batch and OLTP workloads using shared business logic on a shared infrastructure integrated with WebSphere Application Server
- Reduced operational cost due to integrated administration of OLTP applications and batch jobs
- High throughput and low resource consumption on z/OS for Java Batch when collocated with data subsystems

WebSphere Application Server performance is enhanced and optimized on zEnterprise

Continued investment to optimize WebSphere software for z/OS environment

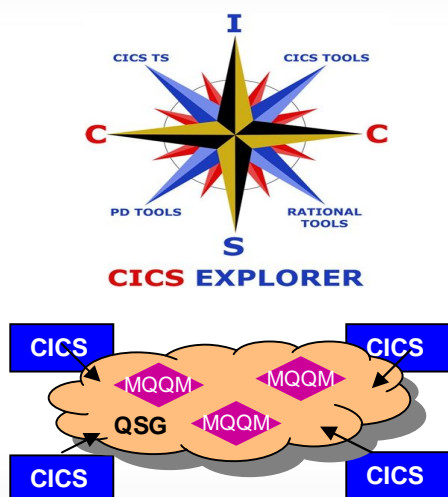
- 1.35 times performance improvement for JPA 2.0 applications that exploit the OpenJPA caching facilities available in the WebSphere Version 7 JPA Feature Pack.
- Up level to zEnterprise hardware produces 1.43 times performance improvement
- Combined hardware and software - **1.93 times performance improvement**

System z10 Up level zEnterprise
Announce Software Hardware



CICS is at the heart of smart business for modern architectures and development models

Integrated Tool Solutions



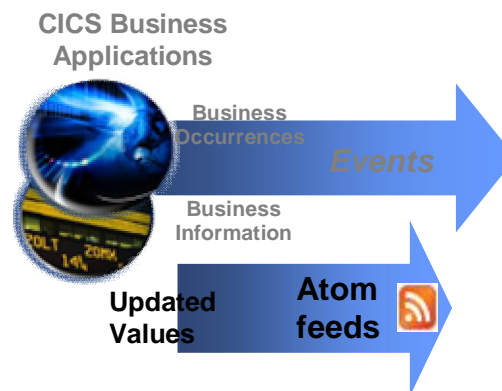
Tighter MQ Integration

Revitalize Business

“Real-time visibility for smarter decisions and actions”



Event source for Dynamic Business Networks



Integration for LOB and COBOL business rule mgmt.

Revitalize Infrastructure

“Greater efficiency and reduced costs”

Revitalize Applications

“Faster and easier to respond to change”

CICS Transaction Server V4.2 enhances events, Java development, connectivity, management, and scalability

- Events: including system health events to warn of potential problems
- Java: including 64-bit, multithreaded JVM, optimized for zEnterprise
- Connectivity: including option to offload Web services parsing to zAAPs
- Management: including cross system transaction tracking capabilities
- Scalability: including threadsafe and 64-bit exploitation



Improve application performance, stakeholder satisfaction with tools for development and deployment



Session and user views, Configuration, Broadcast, User and Admin commands

ISM

Daemon & Connection Status & Test

TG

Threadsafe, File, CPU, Response Time, Statistics, Alerts, Graphical and Sheet views

PA

Deployment, Discovery, Visualization, Cloning, Automation & Control

DA

CICS, IMS, DB2, & z/OS Application Debugging

DT

CICS, IMS, DB2, & z/OS Abend Reporting & Diagnosis

FA

CRUD/Install History, Audit Backout Search, Compare

CM

Dependencies Queries Command Flow

IA

CICS, IMS, DB2, and z/OS Observation Requests and Reporting

APA

Configuration Status Control, Test

MQ

Status Situations Topology

XE

Develop Test Etc

RDz

CRUD/Install Control, Filter Topology Events, ATOM

SM

- SM CICS Transaction Server
- IA CICS Interdependency Analyzer
- PA CICS Performance Analyzer
- CM CICS Configuration Manager
- DA CICS Deployment Assistant
- TG CICS Transaction Gateway
- ISM IBM Session Manager

ibm.com/cics/tools

ibm.com/cics/explorer

ibm.com/cics/explorer/download

APA	Application Performance Analyzer
FA	Fault Analyzer
DT	Debug Tool
MQ	WebSphere MQ
XE	OMEGAMON XE for CICS
RDz	Rational Developer for System z

CICS delivers enhanced price/performance on z196

Workload

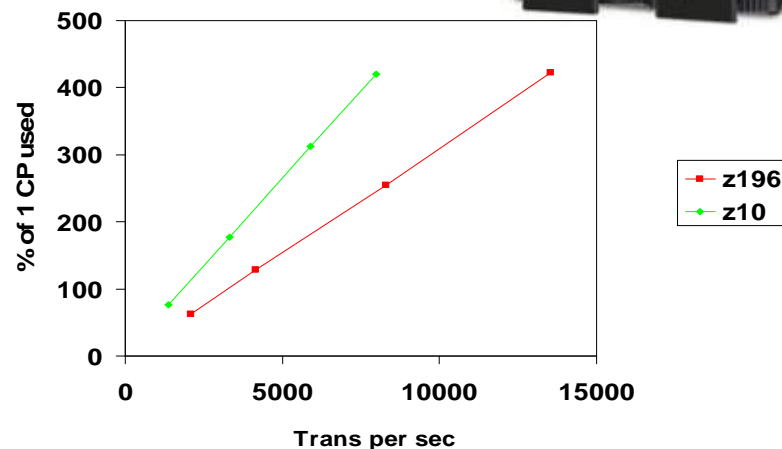
- Representative of a customers CICS WebServices Workload
 - Based on SOA Benchmark
 - XML SOAP messages directly into CICS via TCPIP
- 5 CICS regions
 - 500 TCPIP clients per region

The Application

- Fairly complex XML
 - 3K and 69 elements inbound
 - 10K and 321 elements outbound
- Back end application
 - COBOL Threadsafe OPENAPI
 - 1 additional link to another COBOL program
 - Average of 20 VSAM Reads
 - Data in memory

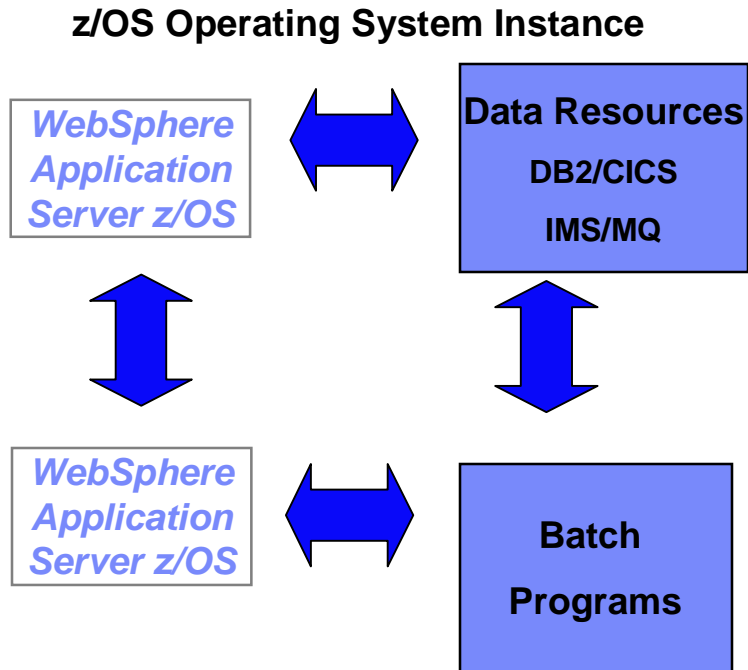
Hardware

- Systems under comparison
 - Z10 2097-763 and z196-772
 - LPARs with 5 dedicated CPs
 - Separate LPAR for network simulation
 - 4 data points highlighted on each machine



- Comparing 2097-705 with 2817-705
- ITRs 9365 vs 16274 gives 73% improvement

Consolidate workload via collocation in the zEnterprise for faster, streamlined performance



- Extremely fast data transfer
- Tightly controlled by z/OS authorization processes
- Eliminate need to serialize and deserialize data and objects
- Eliminate need for encryption overhead
- Propagate several forms of user identity

Efficient -- very low overhead so scalability can be addressed

Secure -- no network, can't be sniffed or hacked

Fast -- for very high volume workloads

Business Process Management on System z enables agile processes for change

BPM

Today's challenges

- ▶ Inflexible systems inhibit responsiveness
- ▶ Difficult to use existing business logic for new services
- ▶ Change management inefficient or nonexistent

Why zEnterprise?

- ▶ Allows multi-tier application integration
- ▶ Automatically prioritizes and routes work
- ▶ Monitors for critical business events and initiates actions
- ▶ Integrate and manage the entire enterprise

SOLUTIONS

**IBM Business Process Management
7.5 for Linux on System z**

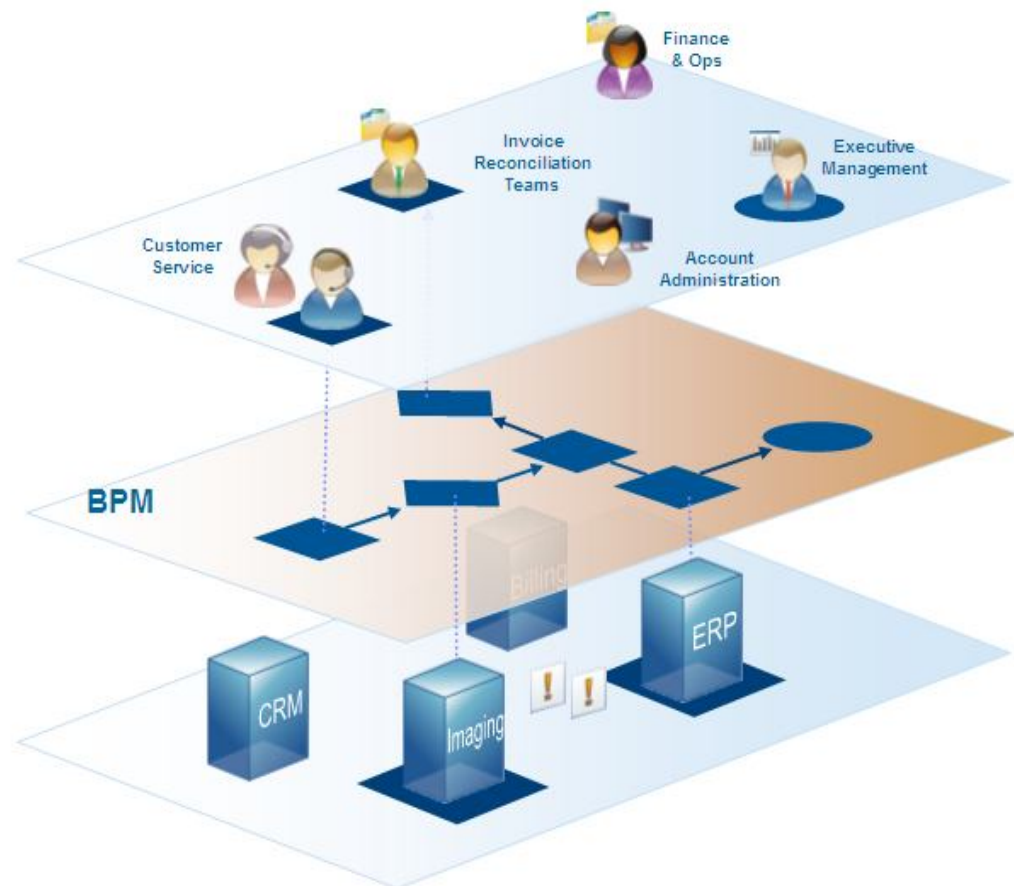
**WebSphere DataPower XI50z
WebSphere Decision Server**

E. Sun uses WebSphere Message Broker and Process Server for an Enterprise Service Bus solution that connects applications across their heterogeneous systems



Business Process Management facilitates automatic prioritization and routing of work requests

- Reduces manual interaction
- Guides users through decisions
- Standardizes resolution across geographies
- Leverages existing systems and data
- Monitors for business events and initiates actions
- Real-time visibility and process control



Powerfully Simple Process Improvement

IBM Business Process Manager V7.5 (available for Linux on System z)

NEW!

- **Unified BPM platform** combines the **simplicity** of Lombardi Edition experience and the **power & scalability** of WebSphere Process Server.
- **Process Center and asset repository** provides maximum **collaboration & governance** required to scale up your BPM program.
- **Single product with multiple entry point configurations** and deployment options for companies & programs of all sizes.
- What's new in V7.5:
 - Joint WebSphere Lombardi Edition & WebSphere Process Server backward compatibility ensures preservation of your BPM investments to-date
 - WPS applications can tap into easy-to-use design, playback, rapid deployment, and optimization capabilities
 - WLE applications can extend their robustness & reach with SOA-based process automation, enterprise integration, and high reliability



Empowers business users to take back their business by providing federated visibility across all process participants.

Designed to enable business-led change

Simple enough to engage process participants, regardless of their role, yet powerful enough to scale as needed to support enterprise-wide transformation.

Hardware ESB offers universal connectivity capability to help enable Web 2.0 and Cloud



What is it?

The IBM WebSphere DataPower Integration Appliance XI50 for zEnterprise can help simplify, govern, and enhance the security of XML and IT services by providing connectivity, gateway functions, data transformations, protocol bridging, and intelligent load distribution.



- Consumable hardware ESB

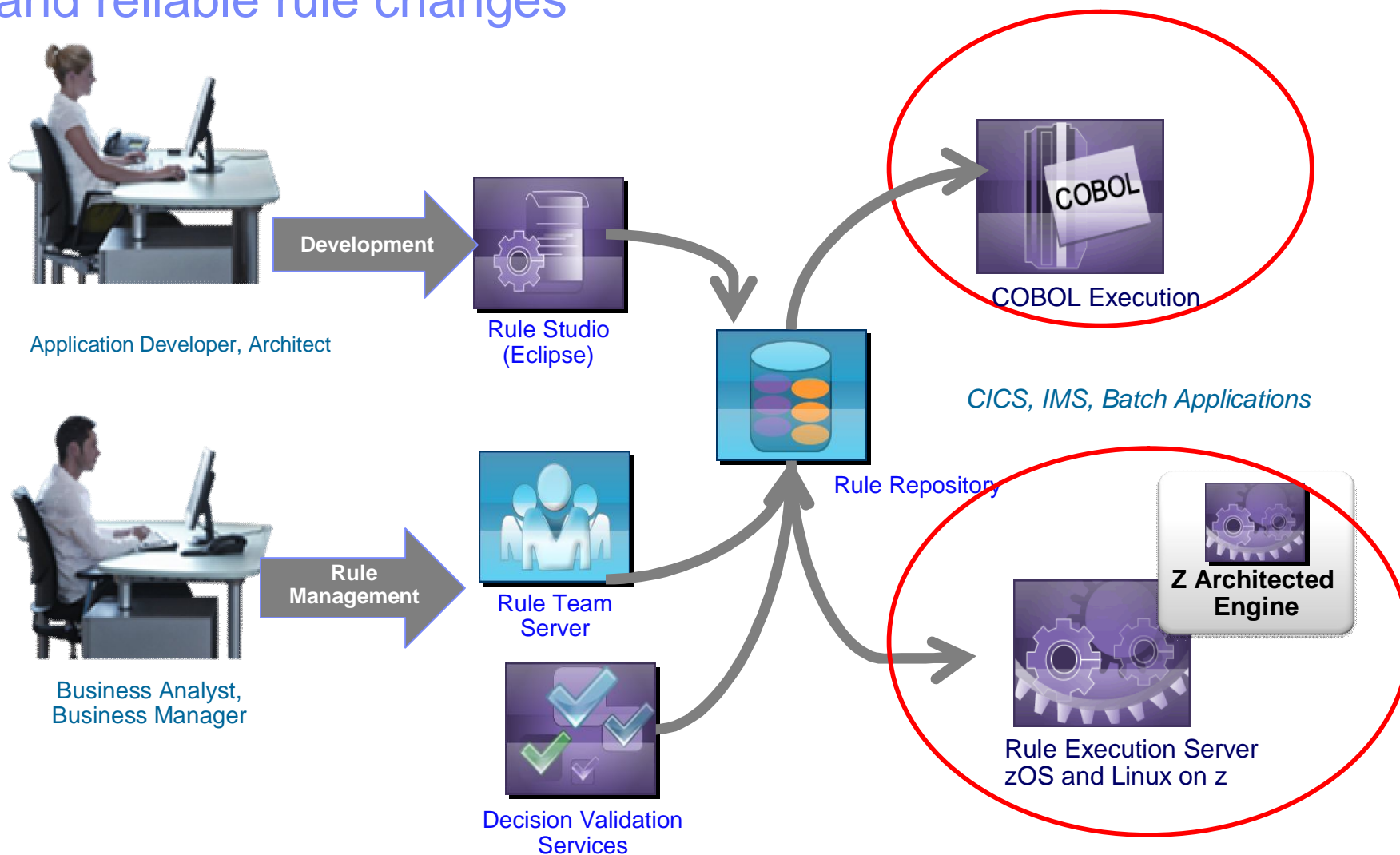


- “Any-to-any” conversion at wire-speed
- Dynamic routing; intelligent load distribution

How is it different?

- **Security:** VLAN support provides enforced isolation of network traffic with secure private networks. And integration with RACF® security.
- **Improved support:** Monitoring of hardware with “call home” for current/expected problems and support by System z Service Support Representative.
- **System z packaging:** Increased quality with pre-testing of blade and zBX. Upgrade history available to ease growth. Guided placement of blades to optimize.
- **Operational controls:** Monitoring rolled into System z environment from single console. Time coordination with System z. Consistent change management with Unified Resource Manager.

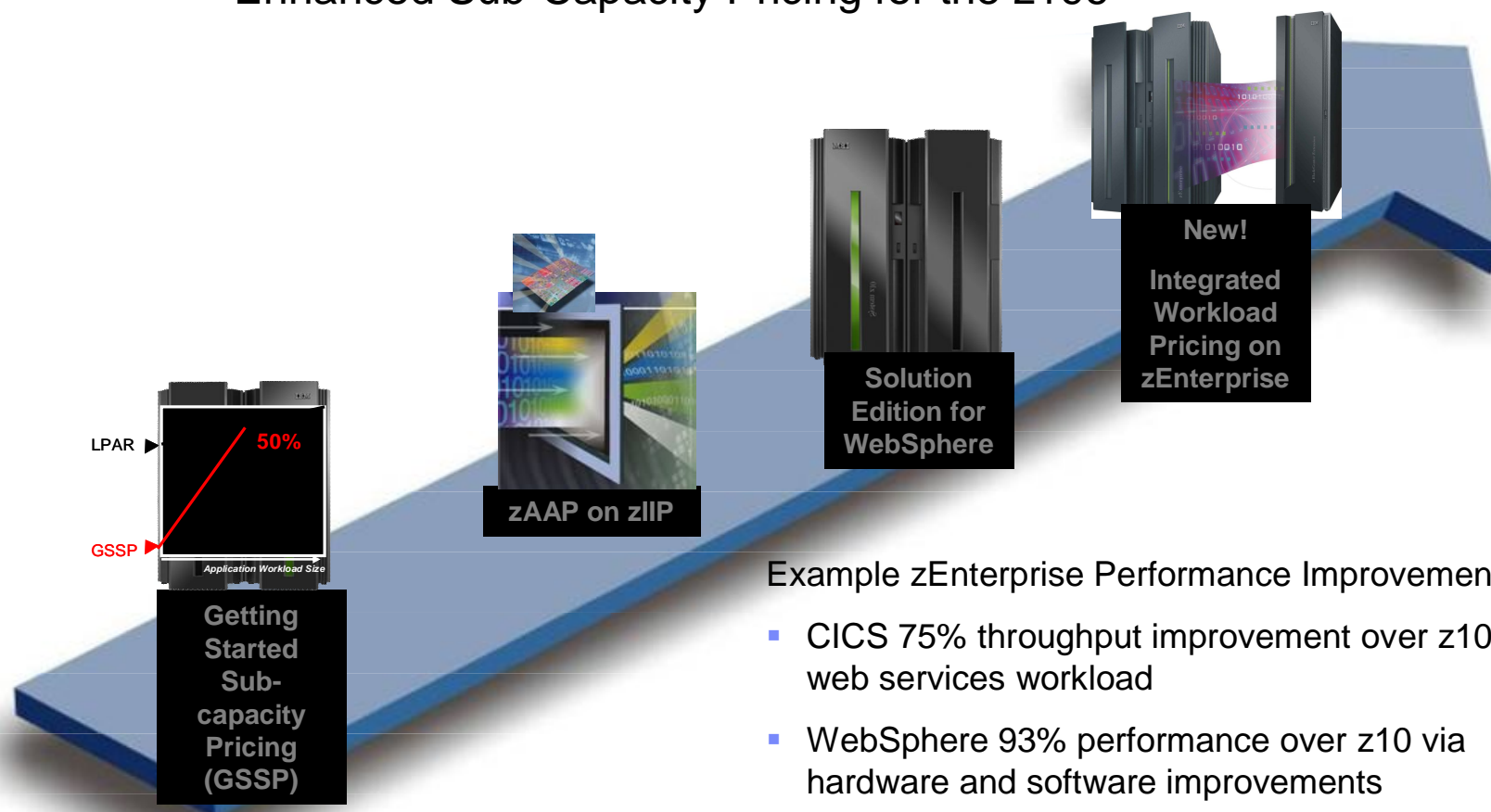
WebSphere ILOG Rules for COBOL enables easy, safe and reliable rule changes



Continuous price/performance enhancements for zEnterprise improve total cost of ownership



Enhanced Sub-Capacity Pricing for the z196



Example zEnterprise Performance Improvements:

- CICS 75% throughput improvement over z10 for web services workload
- WebSphere 93% performance over z10 via hardware and software improvements



The company

- Founded in 1983
- Independent cooperative association
- Bank data center in Nuremberg
- Two redundant data center locations
- 340 employees
- Provides IT services to 10,000 users
- 500 servers



SDV faced several challenging business requirements from the Sparda banks that impacted IT service

- Changing consumer and customer expectations toward more consultancy and customer care. New applications need to support those requirements.
- 24-by-7 access to a majority of services and products of the Sparda banks via the Internet is crucial.
- New banking products need to be created and changed regularly within the IT applications.
- Strong growth in users of Internet and Intranet applications at the Sparda banks.

IBM System z196 and software helped SDV address these business challenges

■ Quality of Service

- New applications are built on a rock-solid mainframe z/OS core banking system. That keeps risk low and allows for fast implementation of new applications.
- Linux for System z has become one of the most flexible and agile application environments at SDV.

■ Efficiency

- WebSphere on z/OS in comparison to x86 was clearly more efficient.
- WebSphere Portal on z/OS has shown an excellent growth path. We can grow this environment extensively and keep costs and administration efforts low.

■ Capacity

- System z196 has shown a tremendous increase in CPU power for all workloads.
- Increased network capacity allows us to place bandwidth-heavy Java z/OS and Linux applications on z196.
- Powerful disaster recovery functions such as capacity backup in System z196 help us meet our availability targets easily.
- IFL – I/O-bandwidth seems to be endless, and clock-speed is appealing.

“Our disaster recovery test showed we can recover the entire System z environment including Linux within 2 minutes, with I/O back up within 15 seconds, and some applications up within 30 seconds.”

**-----Bernd Bohne, Manager,
Central Systems, SDV**

Forward-thinking companies are making strategic investments in zEnterprise to propel business growth

Qualities of Service

- Ability to extend the z/OS legendary qualities of service to the entire enterprise

Capacity

- Accommodates 50 billion instructions per second

Efficiency

- End-to-end management of the hybrid computing environment

Flexibility

- Freedom to deploy applications based on business objectives instead of platform



Resources

- White papers
 - **Considerations for making System z your ESB deployment platform**
 - http://download.boulder.ibm.com/ibmdl/pub/software/solutions/soa/websphere/app_integration/WS/W11335-USEN-01_Final_Nov6_10.pdf
- Redbooks
 - **IBM zEnterprise System: Smart Infrastructure for Today's Heterogeneous Business Applications**
 - <http://www.redbooks.ibm.com/redbooks.nsf/RedbookAbstracts/redp4645.html?Open>
- Case studies
 - **SDV delivers innovative banking solutions with a Web solutions build on IBM WebSphere Portal software**
 - http://www-01.ibm.com/software/success/cssdb.nsf/CS/LMCM-7YZR5B?OpenDocument&Site=default&cty=en_us
 - **IBM zEnterprise/z196 case study: JD Williams- z196 enables new mainframe workloads**
 - <ftp://submit.boulder.ibm.com/sales/ssi/ecm/en/zsl03116usen/ZSL03116USEN.PDF>

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