

Phil Weintraub

Vice President, System z software sales, North
America



zEnterprise and System z Software



Trademarks

The following are trademarks of the International Business Machines Corporation in the United States and/or other countries.

IBM*	FICON*	System z*
IBM (logo)*	IMS	System z10
ibm.com*	Lotus*	Tivoli*
AIX*	POWER7	WebSphere*
BladeCenter*	ProtecTIER*	XIV*
DataPower*	RACF*	zEnterprise
CICS*	Rational*	z/OS*
DB2*	System Storage	z/VM*
DS4000*	System x*	

* Registered trademarks of IBM Corporation

The following are trademarks or registered trademarks of other companies.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license there from.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

InfiniBand is a trademark and service mark of the InfiniBand Trade Association.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency, which is now part of the Office of Government Commerce.

* All other products may be trademarks or registered trademarks of their respective companies.

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.

IBM hardware products are manufactured from new parts, or new and serviceable used parts. Regardless, our warranty terms apply.

All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.

This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.

All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

Prices subject to change without notice. Contact your IBM representative or Business Partner for the most current pricing in your geography.

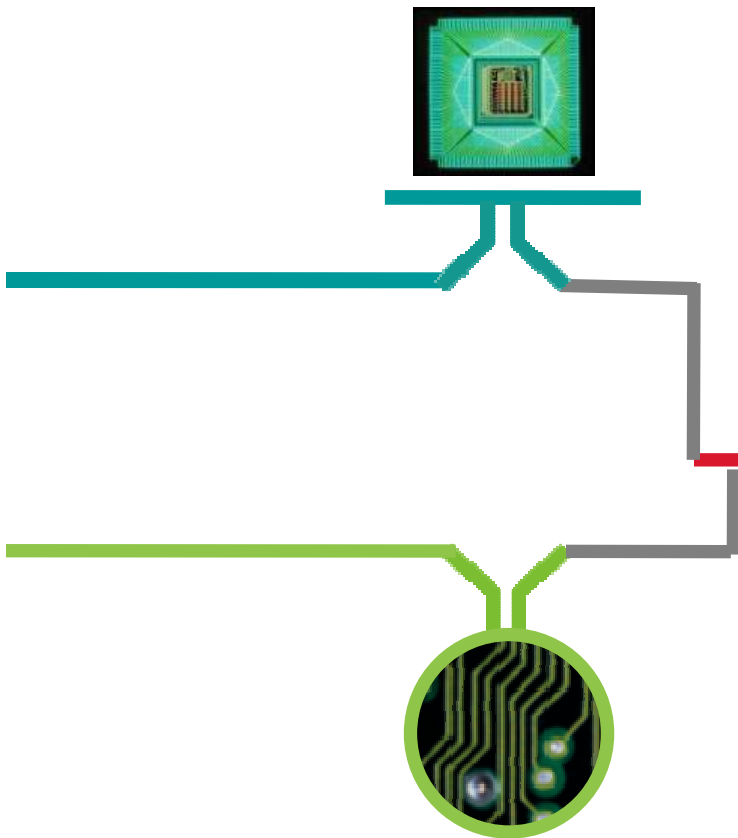
We need Smarter Systems that are optimized for the needs and the **workloads** of the world we live in today

Different needs and priorities

- Reduce the cost and complexity of managing data
- Discover insights and optimize processes – in real time.
- Achieve the business performance and scale required
- Deliver operational efficiency & business agility
- Manage risk, security and compliance

A wide range of workloads

- Transaction Processing and Database Applications
- Business Intelligence and Analytics
- Business Process Management
- Collaboration and Infrastructure Applications



Smarter Software...



Knows & acts

Turn information into insight



Adapts

Increase agility



Connects

Connect & collaborate



Delivers

Enable business service and product innovation



Optimizes

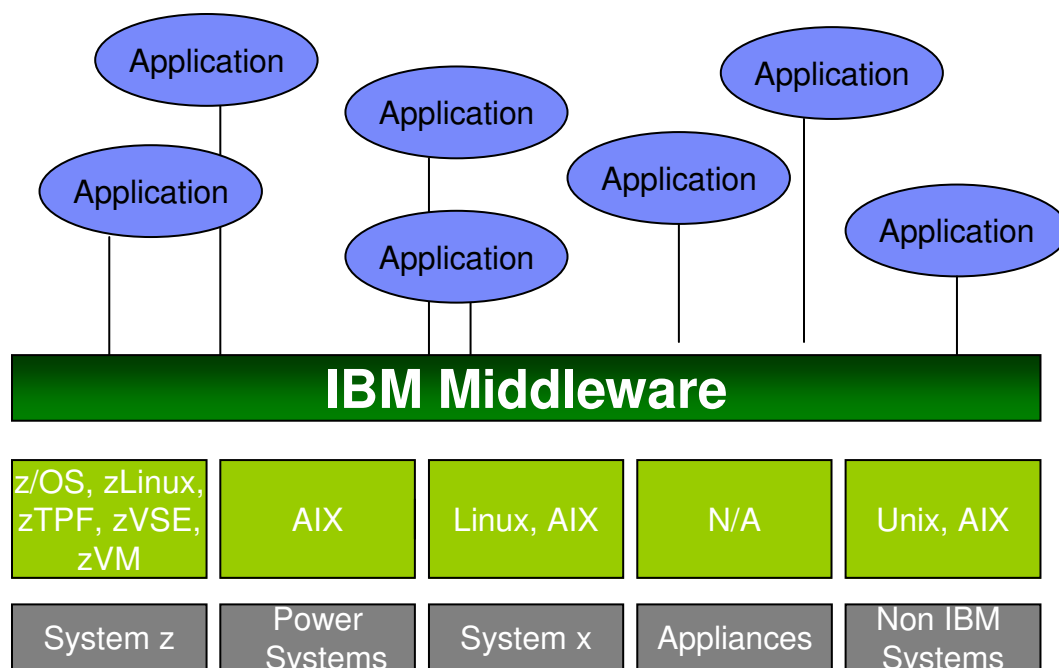
Drive enterprise operations effectiveness and efficiency



Protects

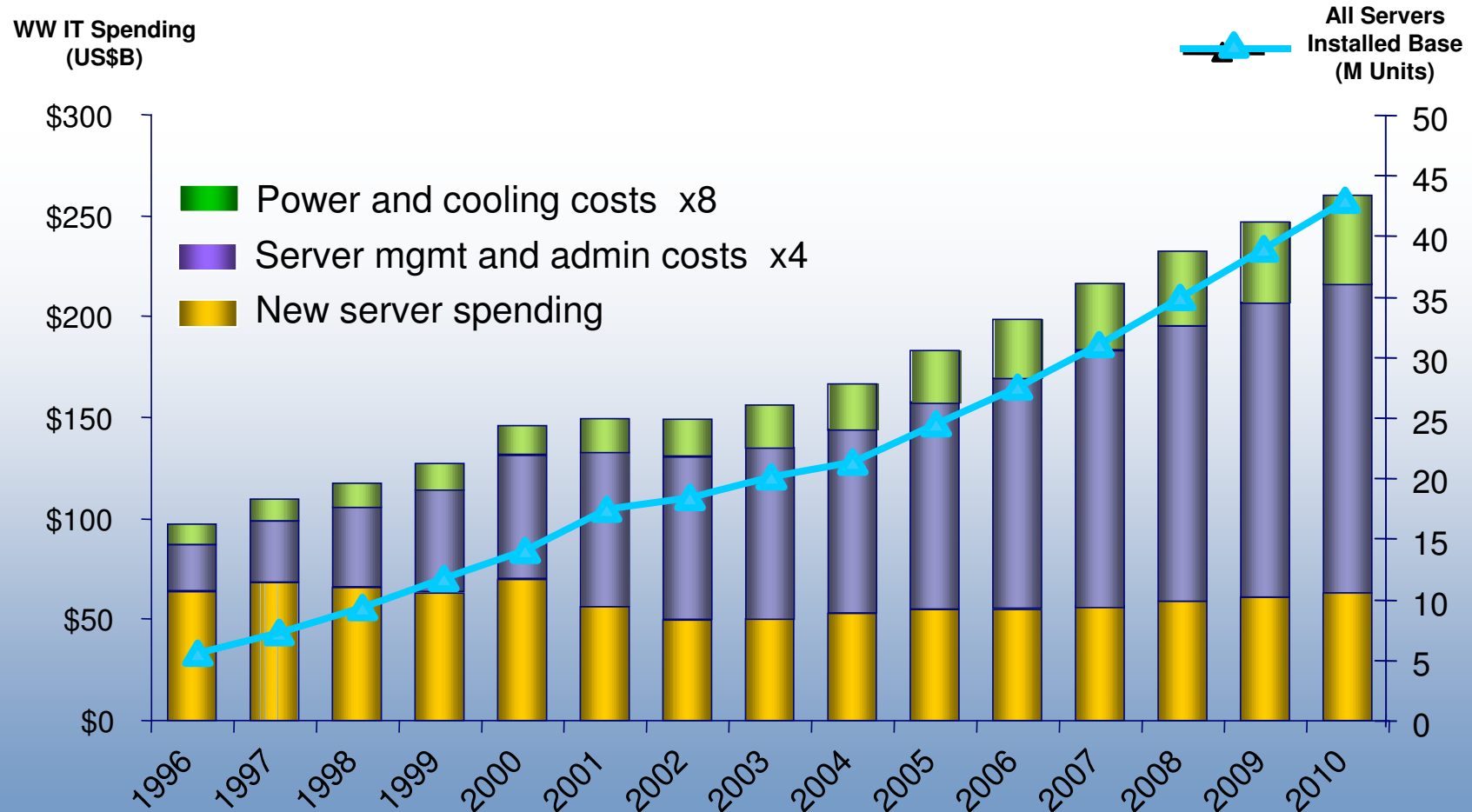
Manage risk, security, and compliance

The value of IBM Middleware



- **Middleware eliminates need to code to specific hardware and operating systems**
- **SOA for reuse of web services**
- **Unified application development**
- **Cross platform resource and service management**
- **Advanced integrated business analytics**

The previous method of meeting new business demand resulted in an explosion of new applications and servers and increased cost that has proved to be unsustainable.



The IBM zEnterprise System:

A system of systems that unifies IT for predictable service delivery

Unified management for a smarter system: zEnterprise Unified Resource Manager

- Part of the IBM System Director family, an integrated System z management facility responsible for zEnterprise platform management
- Unifies management of resources, extending System z qualities of service across the zEnterprise System

The world's fastest and Most scalable server: IBM zEnterprise 196

- Ideal for large scale data and transaction serving and mission critical applications
- Most efficient platform for Large-scale Linux consolidation
- Capable of massive scale up, over 50 Billion Instructions per Second (BIPS)

Scale out to trillion of instructions per second: zEnterprise BladeCenter Extension (zBX)

- Selected IBM POWER7 blades and System x Blades* for tens of thousands of AIX and Linux applications
- High performance optimizers and appliances to accelerate time to insight and reduce cost
- Dedicated high performance private network

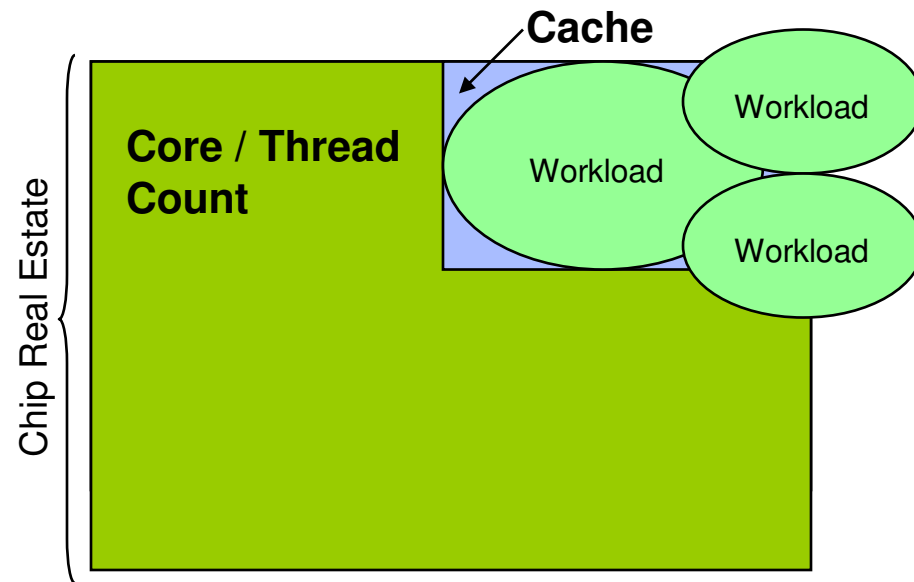


*Statement of Direction

© 2010 IBM Corporation

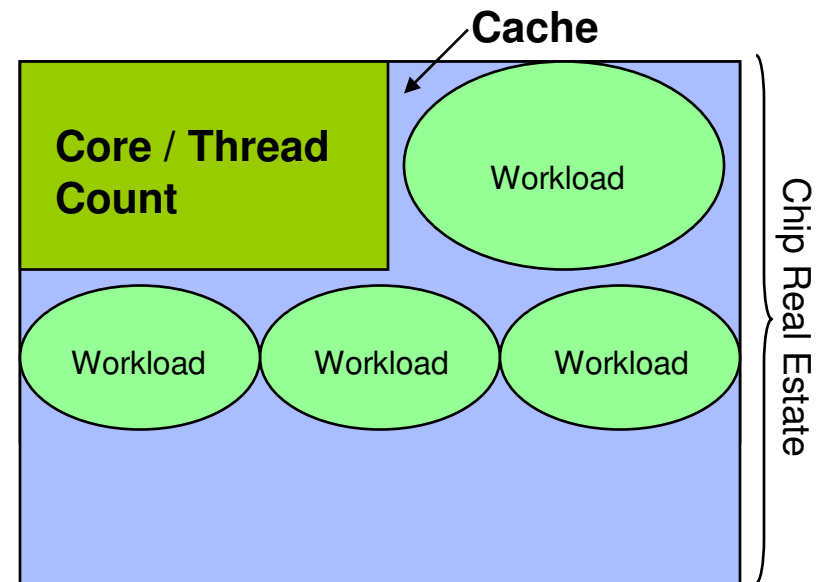
Chip Design Affects Virtualization Capabilities

Replicated Server Chip Design



- 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

Consolidated Server Chip Design



- 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 while maintaining high processor utilization.

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

System z software exploits the Strengths of zEnterprise

Capitalize on Traditional System z Strengths

- Batch and Transaction processing, Messaging, Quality of Service, Data Serving
- 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; Linux on z
- Simplify System z – make it easier to install and manage for better TCO

Deliver Value through IBM Middleware

- SOA for reuse of web services
- Unified application development
- Cross platform resource and service management
- Advanced integrated business analytics

Continue to expand the System z Ecosystem, as of 1H 2010:

- ***1,650 unique ISVs have enabled more than 6,300 applications on the System z platform***
- ***4,000 applications are enabled on z/OS***
- ***3,000+ Linux applications are supported on System z***

150 New and enhanced IBM Software products since z10™

IBM System z and System z Software

Delivering greater value across the portfolio

Information Management

MDM Server for z/OS

SPSS Predictive Analytics for Linux on System z

Smart Analytics System 9600



WebSphere software

CICS Deployment Assistance for z/OS
Business Monitor for z/OS



Tivoli software

Tivoli Access Manager Family

Tivoli zSecure Manager for RACF z/VM

Tivoli Application Management for zEnterprise

Tivoli Application Resilience for zEnterprise

Tivoli Asset and Financial Management for zEnterprise

Rational software

C/C++ Compilers
Enterprise PL/I for z/OS

zPDT



Rational Software Delivery Platform powered by *Jazz*

Lotus software

Lotus Sametime

Unified Lotus Quickr for WebSphere Portal



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

z/OS Version 1 Release 12

Increased performance for your 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

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++

- standards compliant C/C++ compilers to support porting code
- METAL C compiler option to support low-level programming

Enterprise COBOL for z/OS

- support for modernization of applications (XML support and Java support)
- integration with middleware such as CICS, DB2, and IMS

Enterprise PL/I for z/OS

- facilitates repurposing of existing business processes into new business models
- Integration with IBM middleware (CICS, DB2, and IMS)

• 135 new / changed Instructions

Java and WAS Performance with zEnterprise

World class per-thread performance yields outstanding results:

CPU benchmark
63%

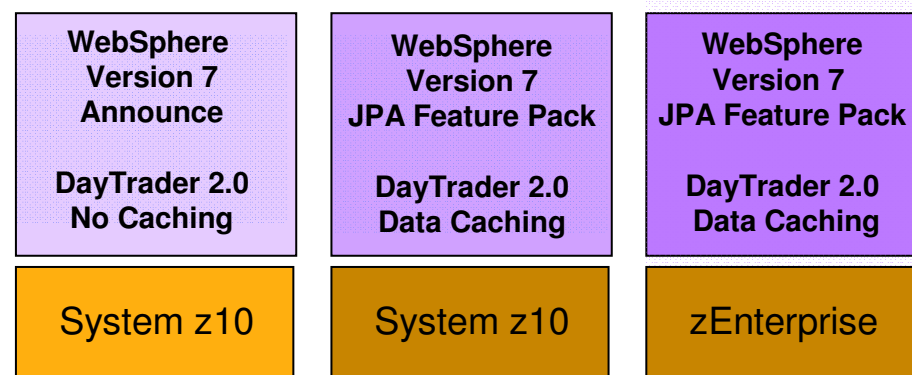
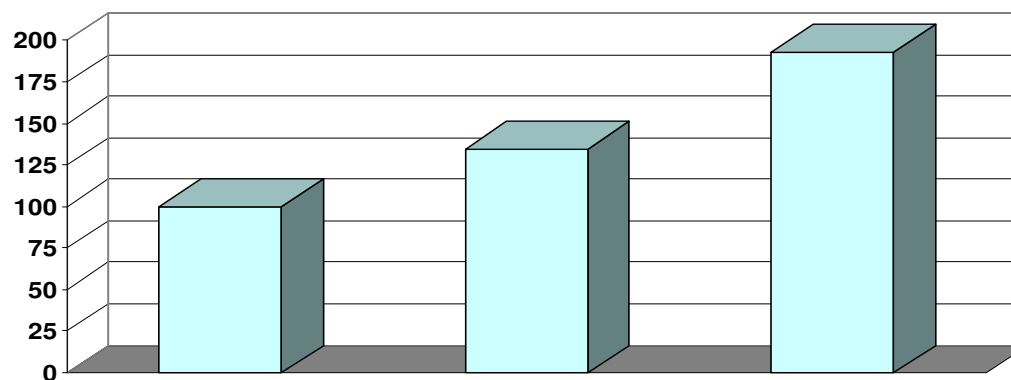
ILOG/CONFIRM
45-62%

Multi-threaded
45%

WebSphere V7
up-to 93%

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

System z10 Announce Uplevel Software zEnterprise Hardware

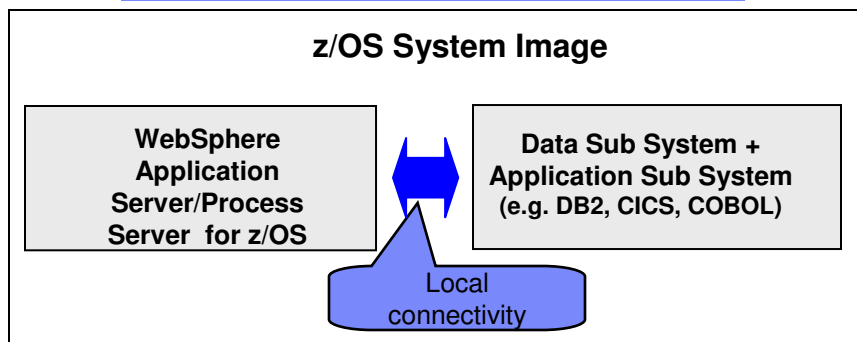


Then → Now

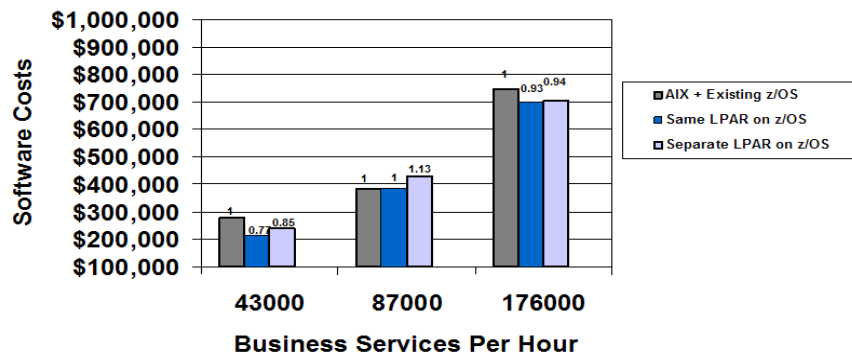
WebSphere Performance Optimization with Co-location

Deploying application servers, data sub systems and application sub systems

Co-located Deployment



3-Year Total Software Cost Comparison Summary



Top five 5 reasons for Co-location

- 52% more throughput when WAS for z/OS is co-located with DB2 in the same LPAR
- Up to 34% overall CPU savings with WebSphere Application Server and DB2 on the same LPAR
- 500% improvement over Web Services when WebSphere Application Server co-located with application sub systems
- 3-year TCA shows WAS / WPS are price neutral when compared to running equivalent workload on distributed servers
- Networking costs plunges, while infrastructure is drastically simplified by leveraging existing assets and infrastructure

Additional Benefits

Improving team collaboration

Align business goals with downstream design

Operational benefits (QoS), such as DR, scalability, and high availability

Incremental strategic modernization

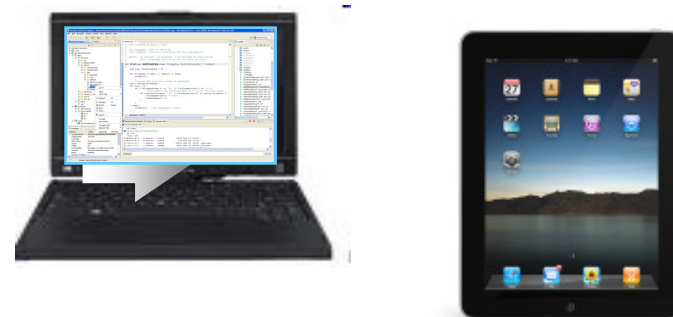
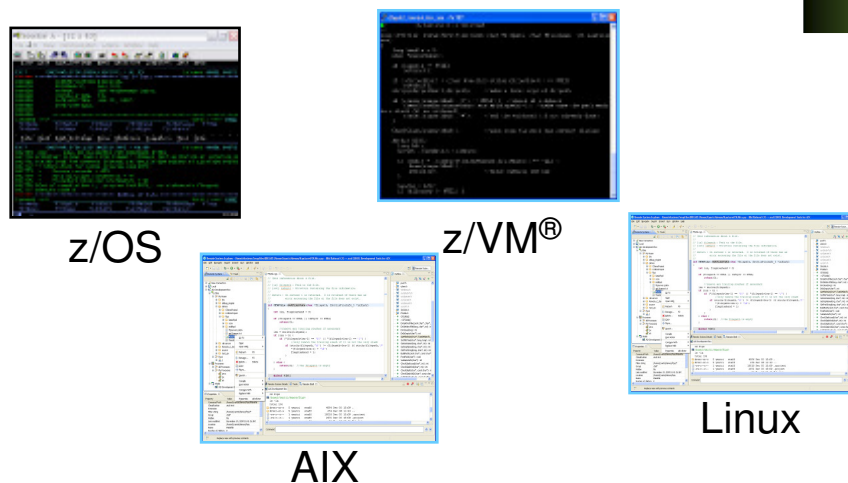
Multi-platform Development and Deployment on zEnterprise

Easily extending workloads across all platforms

Before: Platform dependent tools



After: Multi-platform tools



z/OS z/VM AIX Linux

Separate tools for each platform



Eclipse-based IDE with modern GUI for application development CICS and IMS™ development across platforms

- Liberate developers to rapidly prototype new applications
- Develop and test System z applications anywhere, anytime
- Free up mainframe development MIPS for production capacity
- Eliminate costly delays by reducing dependencies on operations staff

DB2 for z/OS

DB2

DB2 9

DB2 10



- Deep synergy with System z
- Hardware compression
- Consolidation

- Significant Utility CPU savings
- Compress indexes, save 50% disk
- More CPU on specialty engines

- Additional savings in DB2 Batch & OLTP CPU
- On-the-fly data Compression
- Temporal data support
- Skip-level migration



- Unmatched availability
- Unparalleled security
- Industry leading reliability
- Near-linear scalability

- Flexible context and role security
- Expanded online schema changes
- Volume level backup & recovery

- Ten times more concurrent users
- More online schema changes
- More granular access control



- Optimized for SOA
- Flexible development
- Warehousing capabilities

- Seamless integration of XML and relational data
- Improved SQL
- Partition by growth
- OLAP expressions

- Enhanced query parallelism
- More SQL compatibility
- Improved pureXML™ and SQL PL

**Beta Announced:
Feb 9, 2010**

IBM Smart Analytics Optimizer

Capitalizing on the best of relational and columnar databases

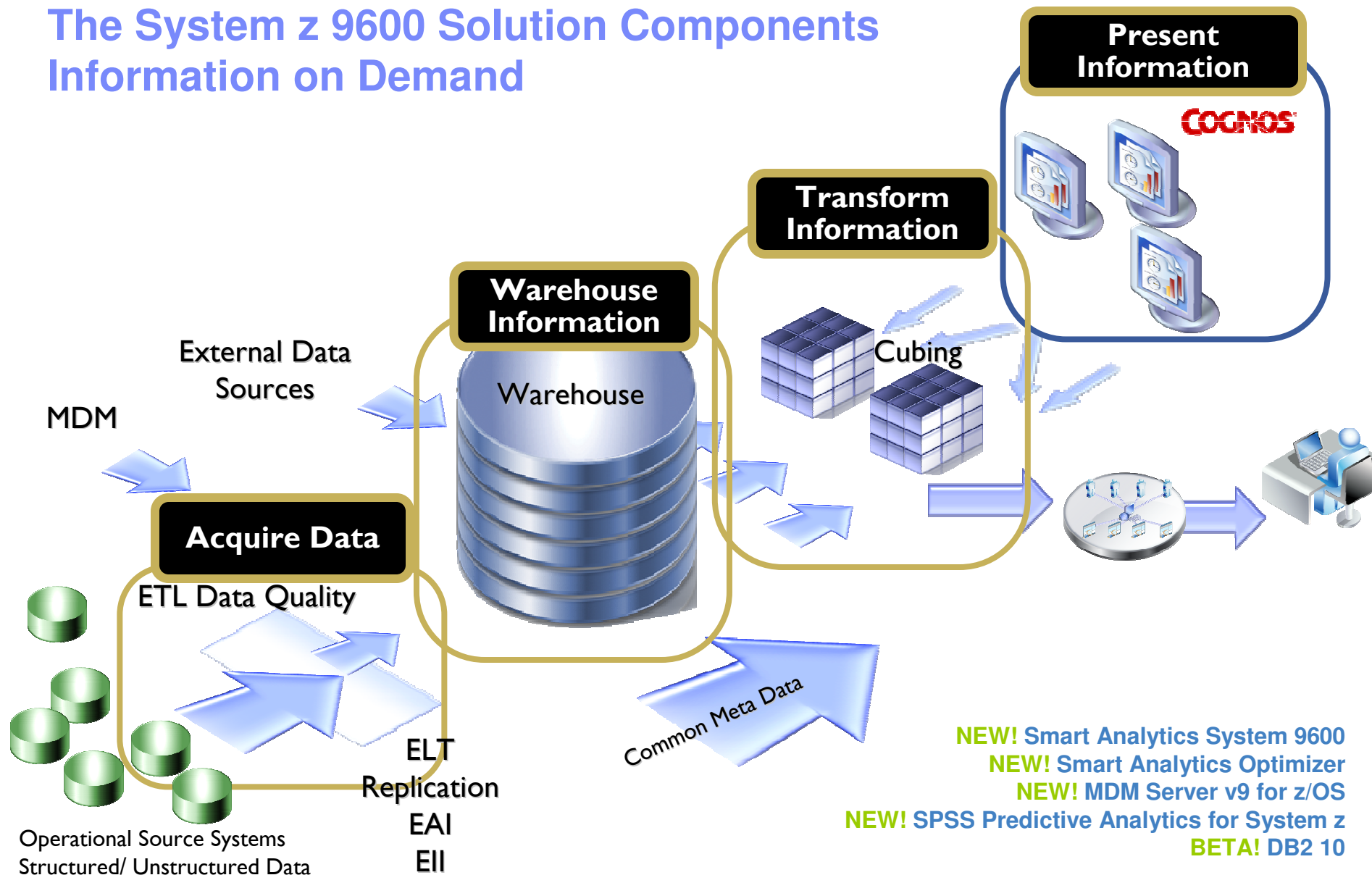
Workload optimized, appliance-like, add-on, that enables the integration of business insights into operational processes to drive winning strategies.

- Performance
- Integration
- Self-managed workloads
- Transparency
- Simplified administration



Up to **80X** performance increase
in specific queries

The System z 9600 Solution Components Information on Demand



- 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

Empower People, Boost Productivity and Collaborate

- 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

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



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

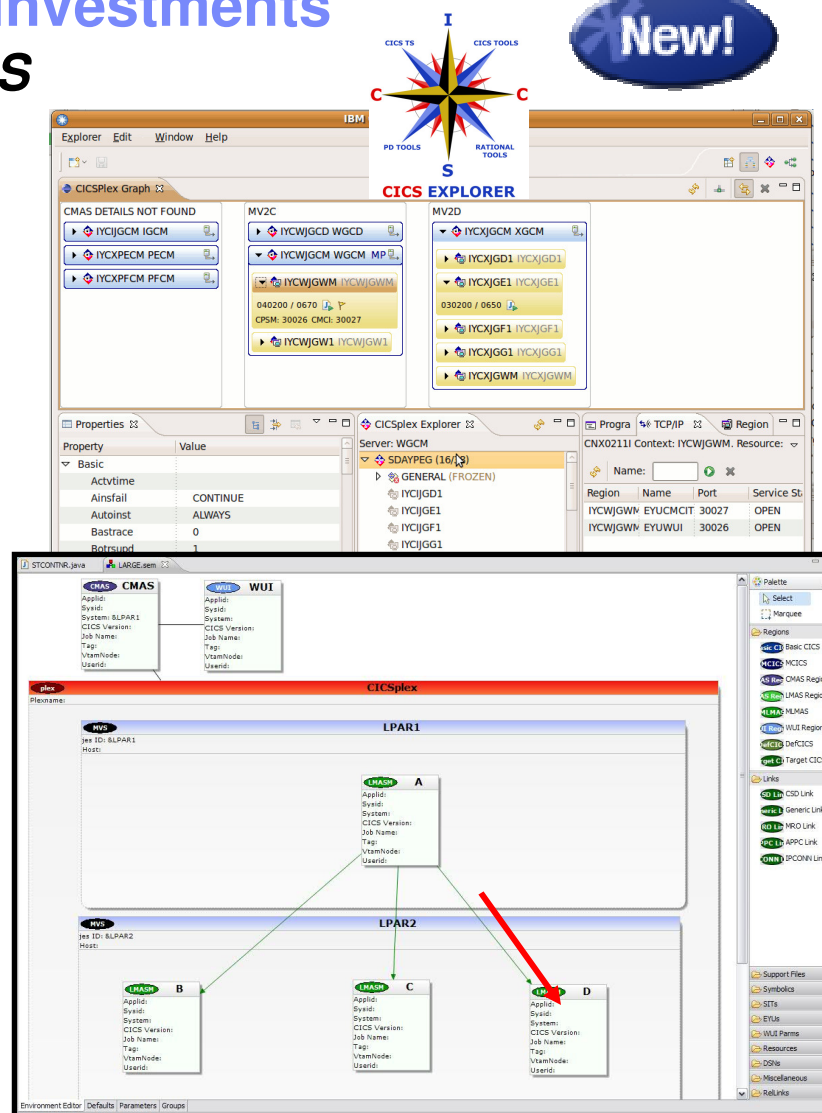
* Planned capability. IBM plans are subject to change

Accelerating return on your CICS investments

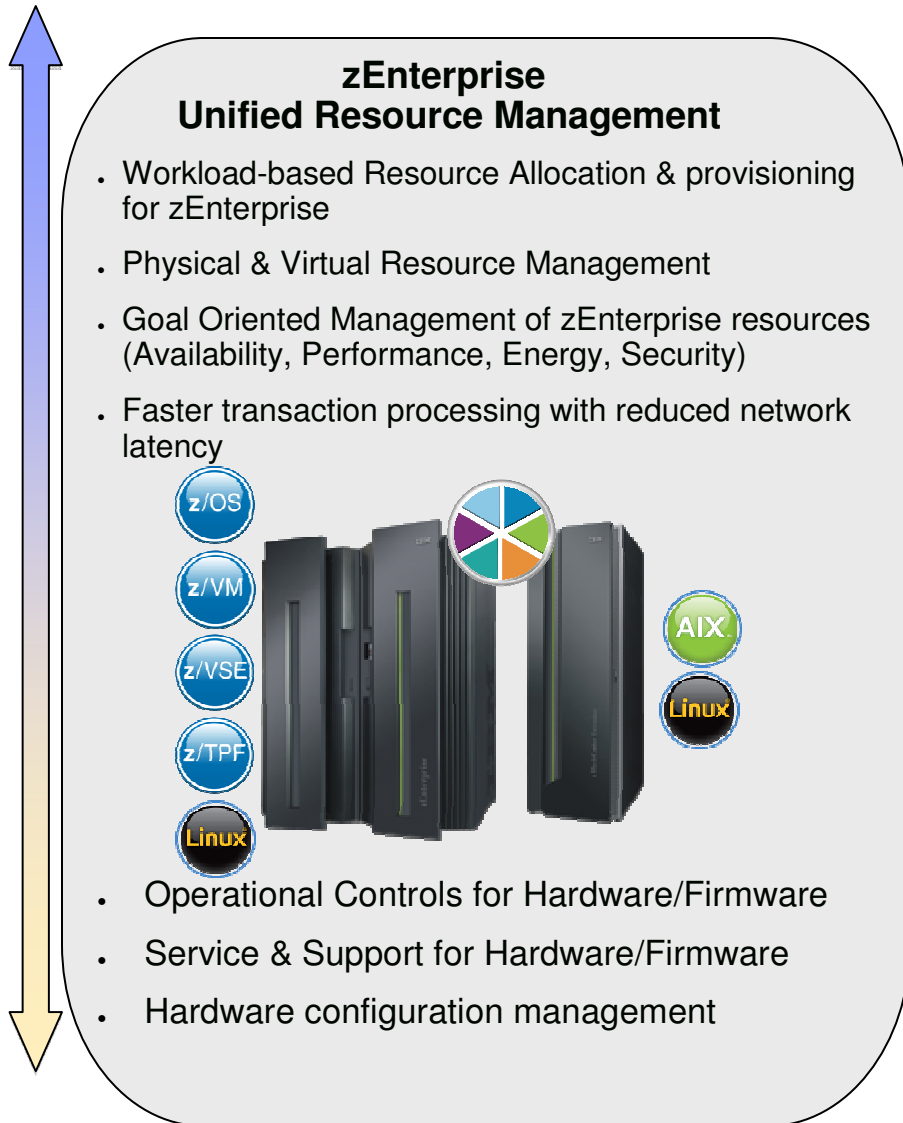
IBM CICS Deployment Assistant for z/OS



- 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



Extending zEnterprise Unified Resource Manager with Integrated Service Management



Tivoli & Integrated Service Management

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

★ **Integrated Operational Dashboards to monitor and manage service impacting events**

★ **KPIs applied to Business Services for impact analysis**

★ **Heterogeneous data in ONE**

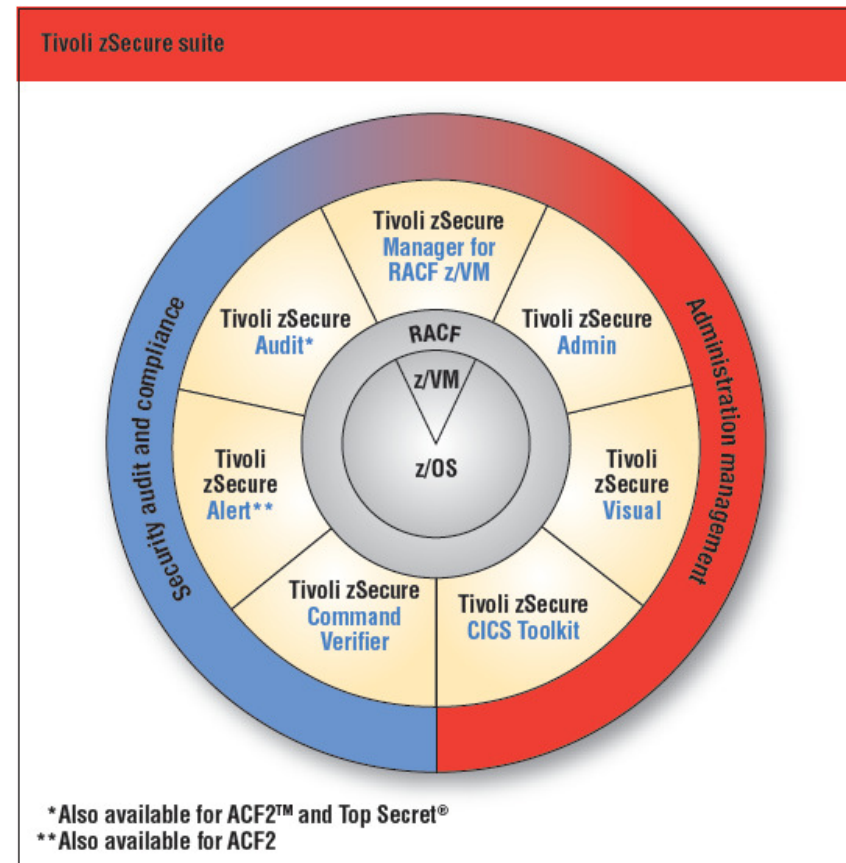
★ **Business Service Modeling for planning**

★ **Contextual Correlation to reduce MTTR**

★ **Establish and automate SLA tracking**

Manage Risk, Security, and Compliance

- New capability to report and analyze security events associated with Linux on System z
- New capability to easily enroll and manage federated user access for zEnterprise and Linux on System z



NEW! Tivoli Security for zEnterprise
NEW! Tivoli zSecure Manager for RACF z/VM
NEW! Tivoli Federated Identity Manager for z/OS
 Tivoli Security Management for z/OS, Tivoli zSecure suite
 Tivoli Identity and Access Assurance

Comprehensive Software Leveraging the Strengths of zEnterprise

Software that works in any System z environment

Information Management

Strong information management platform built for business workloads

DB2, IMS, FileNet, InfoSphere Warehouse, InfoSphere MDM Server, Cognos, SPSS, Optim

NEW! Smart Analytics System 9600

NEW! Smart Analytics Optimizer

NEW! SPSS Predictive Analytics for System z

NEW! IMS 11, **BETA!** DB2 10

BETA! InfoSphere MDM Server 9 for z/OS

BETA! Cognos 8 BI for z/OS

WebSphere®

Application infrastructure, connectivity and dynamic business processes

WAS, CICS, BPM, WMQ, ESB, DataPower, ILOG, Lombardi

NEW! WebSphere Application Server Feature Pack for Dynamic Scripting

NEW! CICS Deployment Assistance for z/OS

ENHANCED! Business Monitor for z/OS

Tivoli®

Visibility, control, security, and automation from System z across your business

IBM Service Management on System z, TSAM, System Automation and NetView for z/OS, TWSz, OMEGAMON

NEW! Tivoli Access Manager Family

NEW! Tivoli zSecure Manager for RACF z/VM

NEW! Tivoli Application Management for zEnterprise

NEW! Tivoli Application Resilience for zEnterprise

NEW! Tivoli Asset and Financial Management for zEnterprise

Rational®

Application Development Tools and Software Delivery Platform

Compilers (C/C++, PL/I, COBOL), RDz, RTCz

NEW! Rational Developer for System z Unit Test

NEW! z/OS XL C/C++,

NEW! Enterprise PL/I for z/OS,

NEW! Eclipse EGL Development Tools project

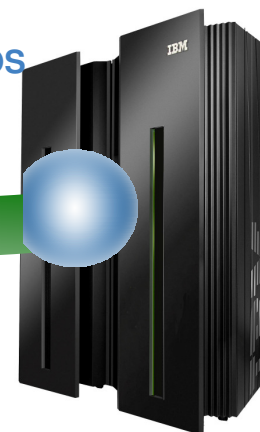
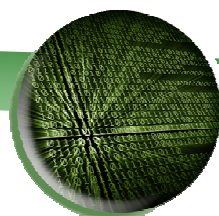
Lotus®

Productivity and Collaboration

Portal, Connections, Notes Domino, Sametime

NEW! Lotus Quickr 8.5 for WebSphere Portal

NEW! Lotus Sametime 8.5.1



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

