



z9 Executive Software Briefing Software Strategy and Directions

Ray Jones
WW Vice President, z Software



The z Software Strategy

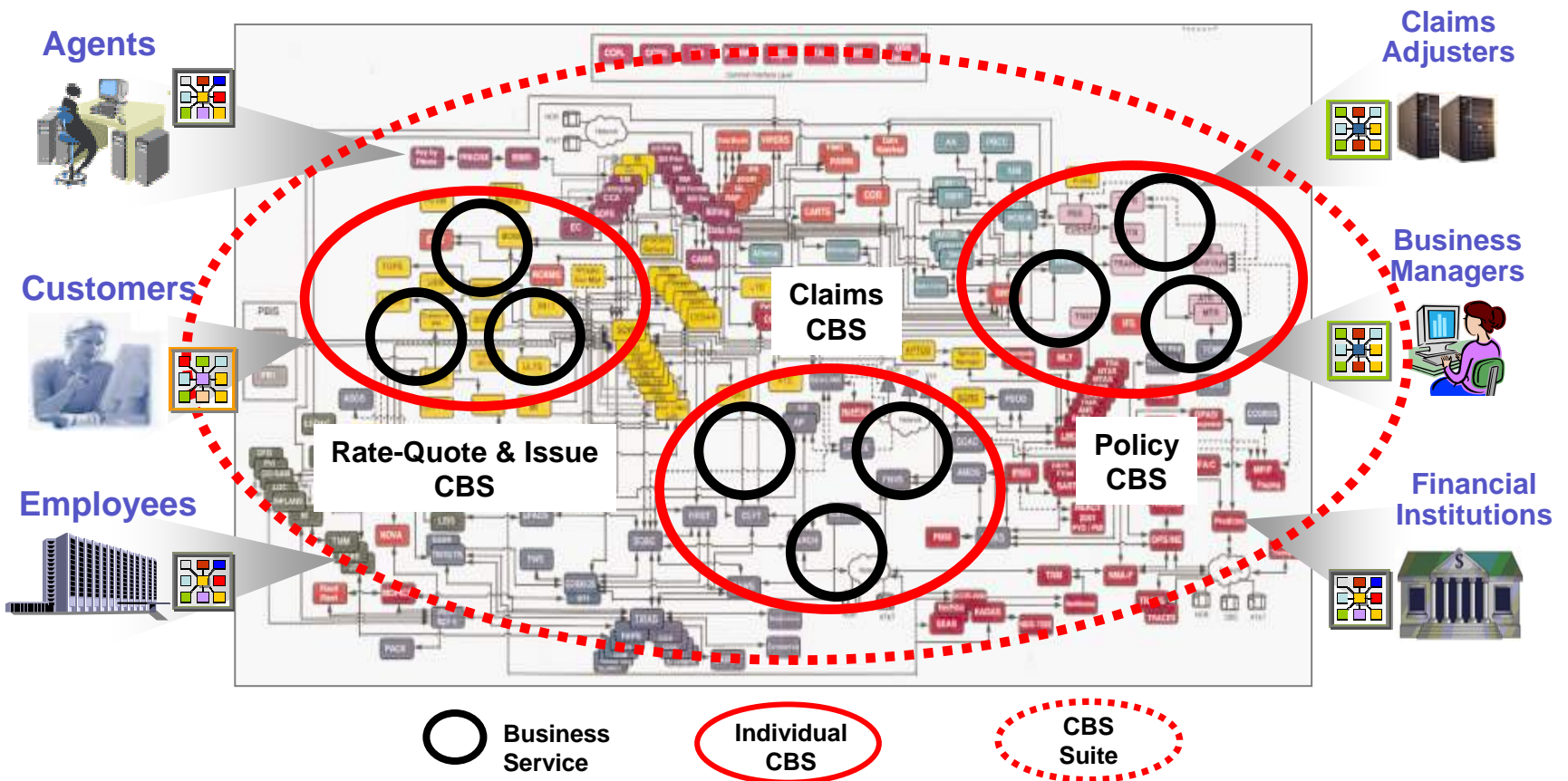


- **Reinvigorate the System z Ecosystem:**
 - ▶ Attract New System z Customers and Application Workloads
 - ▶ Retain and Grow Existing System z customers
 - ▶ Make the Mainframe Relevant to a new IT Generation
- **Platform Modernization and Simplification are key:**
 - ▶ Evolve to an SOA Server
 - Systematic Reengineering of the Software Stack
 - More Open Standards Compliant and Common Middleware
 - Integration with the z Platform for Added Functions
 - ▶ Deliver Extensive Data Management Services
 - Leading Edge Relational Function
 - Reinvigorated Data Warehousing Competitiveness
 - Autonomic Tooling to Augment Human Expertise
 - ▶ Make System z Easy to Install and Manage for Better TCO
 - New Faces of z
 - Simplified Labor Intensive Tasks
 - More End to End Management Capability from a z Central Point of Control



SOA Promises to Un-Bundle the “IT Hairball”

- IT assets are described and exposed as standards-based Web services
- Composite Business Service (CBS) are loosely coupled, distributed apps built on IT assets typically already available to the organization and exposed as services

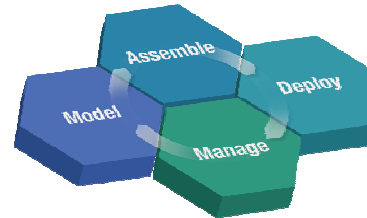


SOA, WAS z/OS, & the Mainframe

Recent data indicates that 41% of mainframe customers are building or deploying new applications on System z - up from 31% a year ago.

WebSphere is the key to unlocking & reusing many core assets and extending their value, and the mainframe is at the heart of many SOA customers.

WebSphere Application Server for z/OS



CICS, IMS, & DB2

- Commitment to open standards

- ▶ J2EE
- ▶ JMS support
- ▶ XML support
- ▶ Advanced Web services

- Commitment to SOA

- ▶ SCA & futures

- WebSphere security

- WebSphere high availability

- Engine for WebSphere expansion products on z/OS

- Platform integration

- ▶ z/OS WLM
- ▶ Automatic Restart Mgr
- ▶ Parallel Sysplex
- ▶ Security (RACF)

- Asset integration

- ▶ Local DB2 connections
- ▶ IMS & CICS integration

WebSphere Application Server V6.1

Generally available

Focus on innovation not implementation

- J2SE support (JDK 5.0)
- Application Server Toolkit enhancements
- Installation factory
- Portlet support
- JSF widget library

Standards and security driven SOA runtime

- Security configurations out of the box
- Web Services security enhancements
- Government standards
- Performance improvements

Deliver key function in new ways

- Flexibility through new Web services
- Session Initiation Protocol (SIP) servlets
- Flexibility with your messaging backbone

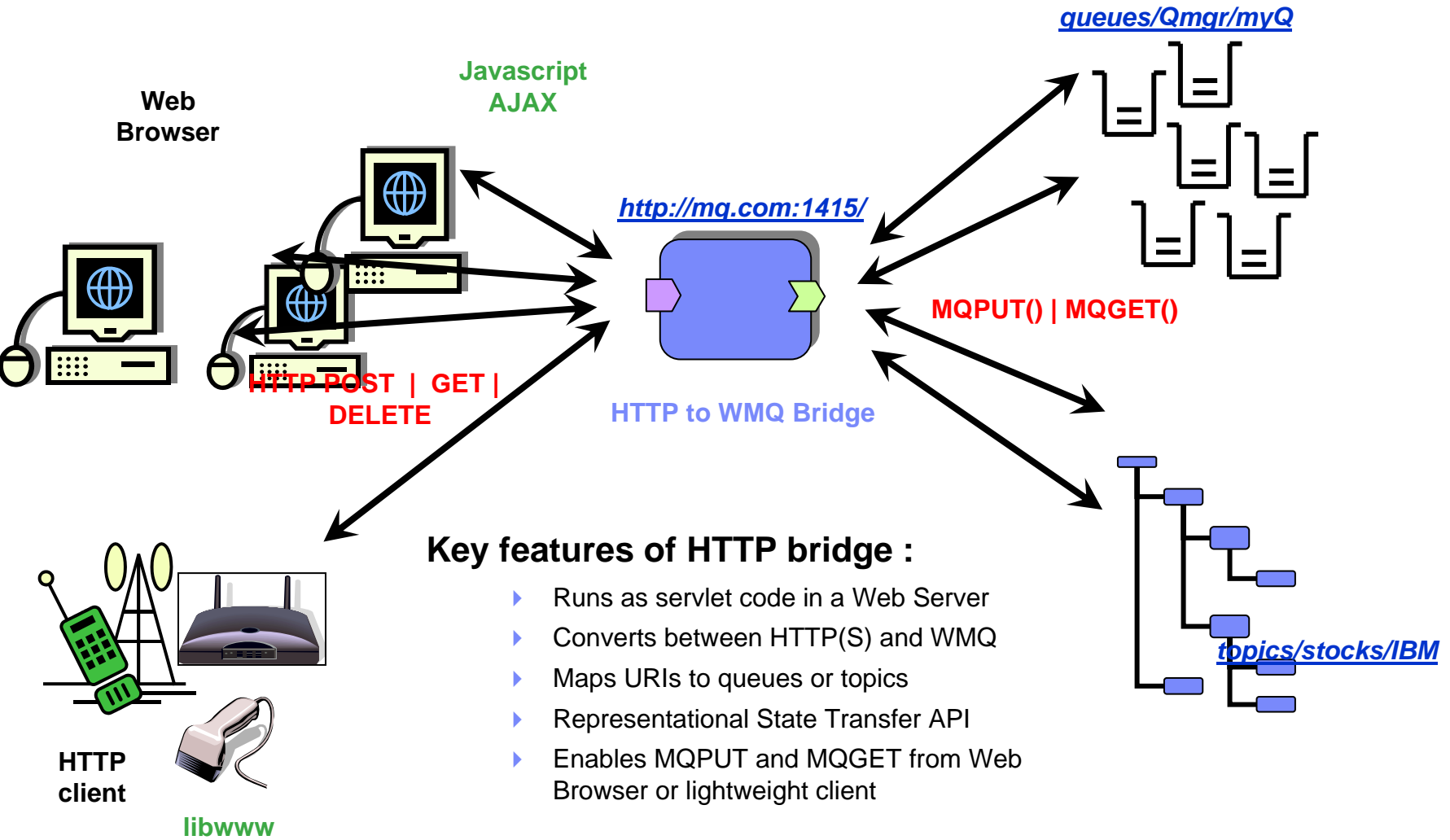
Administration enhancements and ease of use

Web server for z/OS, powered by Apache

- 64 bit enablement for WebSphere for z/OS



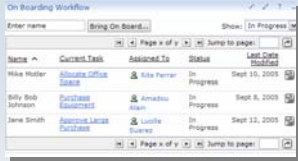
Internet access to WMQ



Key features of HTTP bridge :

- ▶ Runs as servlet code in a Web Server
- ▶ Converts between HTTP(S) and WMQ
- ▶ Maps URIs to queues or topics
- ▶ Representational State Transfer API
- ▶ Enables MQPUT and MQGET from Web Browser or lightweight client

WebSphere Portal V6 integrated with Process Server Integrate Process Flow on System z - And Portlet Factory



**Process
Orchestrating
within Portal
Form Driven
Workflows**

Company
Last: 0.55, Change: 0.09, %: 1.64%, Volume: 2,200K

CT Stock
Last: 89.87, Change: 0.36, %: 0.41%, Volume: 4,435K

CT Chart
#International Business Mach. Daily 8/28/2004

CT Profile
Thursday, August 26, 2004 9:05:00 AM EDT

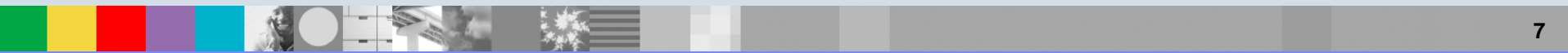
Business Description
IBM provides customer solutions through the use of advanced information technologies. These solutions include technologies, systems, products, services, software and consulting for the e-business model.

Officers & Inquiries
Officers: Samuel J. Palmigiano, Chairman, CEO, Director; Paul J. Sciarra, President, CFO; Robert J. M. White, President, COO; Robert E. O'Donnell, President, CTO; Robert S. Chappell, President, CIO.



**Portlet to Portlet
Interaction
Ad-Hoc Person to Person
Exception Handling and
Problem Resolution**

**Dynamically Presented Based on
Role & Security**



CICS Transaction Server for z/OS V3.2

Increased Ease of Integration

- Maturing the Web Services capabilities and SOAP standards
- Wider support of other payload format (XOP & MTOM)
- Optimization of the HTTP Transport to give better performance, robustness and manageability
- Delivering a consistent approach between CICS systems for an IP environment.

Enhanced Application Transformation

- Conforming with WSDL 2.0
- More extensive Web Services support for COBOL data types
- Improved Application Deployment
- Exploitation of 64-bit storage for channels and containers. Used by Web services requests.

Improved Operational Efficiency

- Enterprise wide workload management – ARM correlator
- CPSM Integrated install and definition & CPSM WUI enhancements
- JDK 1.4.2 JVM management and PD improvements
- Remove capacity restraints relating to Data
- Continued enhancements to OTE enabling some File Control configurations and the MQ Bridge Adapter



Key characteristics of IBM COBOL V4

The Business Value Proposition

- Popular with the business community because:
 - ▶ **High performing**
 - Supports thousands of Transactions Per Second (TPS) with optimised data handling
 - Compiled programs process many times faster than interpretive programs
 - ▶ **Scalable**
 - Multi-Threaded, large data size processing, leverages System z instruction set
- Popular with the technical community because:
 - ▶ **Ease of Use and maintenance**
 - COBOL uses Business-syntax, simplifying new development and maintenance
 - ▶ **Ease of Application Development**
 - Built in support through Eclipse based WebSphere Developer for System z
 - ▶ **Ease of Integration and SOA**
 - Java interoperability, WebSphere integration, Web Services infrastructure

In summary, IBM COBOL V4 delivers:

- High-performing data and business processing through Batch, CICS, IMS, and DB2 runtimes
- Integration to SOA infrastructures through key integrating points
- Requiring minimal changes to back level applications



Tools enabling reuse on System z

"OK. I have hundreds of services, thousands of programs using many different technologies. How do I understand and identify the assets that I can use in my SOA?"



Architects, project leaders, managers, DBAs, developers, Q/A analyst

Service discovery and management

**Service Management
WebSphere Service Registry and Repository (WSRR)**



Architects, project leaders

Enterprise-wide app discovery and insight; find dependencies across applications and lines of business

**Application Portfolio Understanding
WebSphere Studio Asset Analyzer (WSAA)**



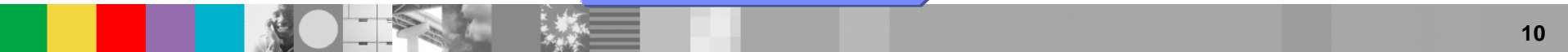
Developers

Project-level workbench for deep application analysis and transformation

Asset Transformation Workbench (ATW)

Common IDE for COBOL, PL/I, Java and Web services applications

WebSphere Developer for System z (WDz)



The IBM Software Development Platform – A New Face for z

Integrated and role-specific tools



Analyst

WebSphere Business Modeler
WebSphere Business Monitor
Rational RequisitePro
Rational Software Modeler



Architect

Rational Software Architect
Rational Data Architect
WebSphere Studio Asset Analyzer
Asset Transformation Workbench



Developer

WebSphere Developer for zSeries
Rational Business Developer Extension
Rational Application Developer
WebSphere Integration Developer



Tester

Rational Functional & Manual Tester
Rational Performance Tester
Problem Determination Tools for System z



Deployment Manager

IBM Tivoli Configuration Manager
Tivoli Monitoring
Tivoli Provisioning Manager
Tivoli Intelligent Orchestrator

Customer Extensions

ECLIPSE

3rd Party ISV Tools



Project Manager

Rational Unified Process
Rational Build Forge
IBM SCLM Advanced Edition

Rational ClearCase
Rational ClearQuest
File Manager for z/OS



Executive

Rational Portfolio Manager

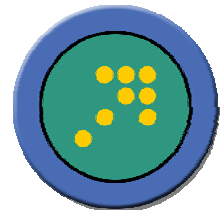
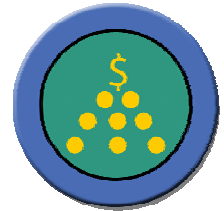
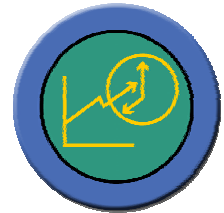


DB2 9 for z/OS: Raising the Bar

Addressing Business and Infrastructure Goals



<p>Faster, Lower Cost Development and Porting</p>	<ul style="list-style-type: none"> ▪ pureXML simplifies access to XML data ▪ SQL improvements that simplify porting ▪ Native SQL procedural language ▪ Default databases and table spaces ▪ Automatic unique indexes to support primary keys
<p>Decrease Complexity and Cost</p>	<ul style="list-style-type: none"> ▪ Enhanced Compression and Optimization ▪ Fast table replacement and append ▪ Partition, range, multi dimensional clustering & hashing ▪ Volume-based COPY/RECOVER using FlashCopy ▪ Optimization Service Center ▪ DB2 managed optimistic locking
<p>Streamline Compliance Efforts</p>	<ul style="list-style-type: none"> ▪ Network trusted security context & database roles ▪ Instead of Triggers ▪ Improved auditing capabilities ▪ SSL ▪ New encryption of key DB2 resources
<p>Information Led Business Innovation</p>	<ul style="list-style-type: none"> ▪ Support for both relational & integrated pureXML data ▪ WebSphere integration ▪ Data Warehousing on System z ▪ SAP optimized with 40+ specific features

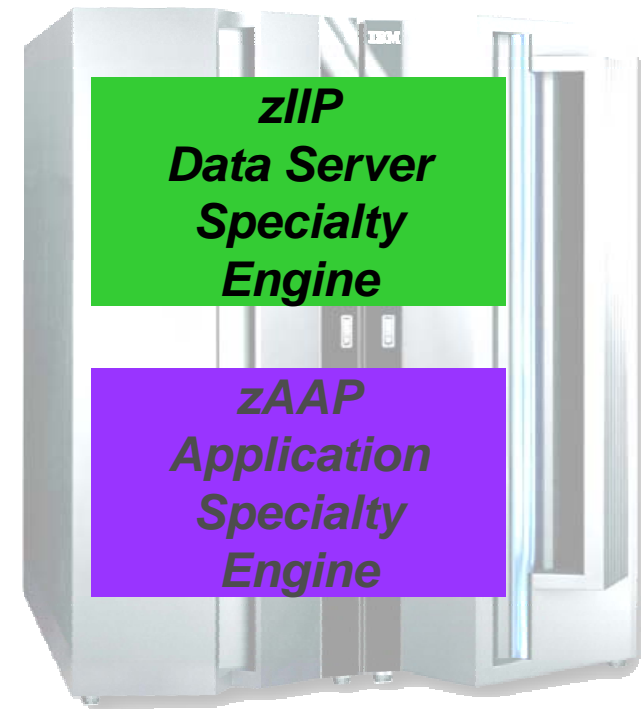
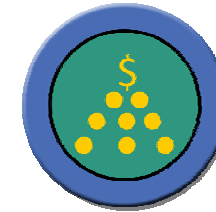


DB2 zIIP Exploitation

Optimizing Costs with New Specialty Engines

- **Significant Value, Available Now**
 - Improved Response Times
 - Improved TCO
 - Flexible Configuration
 - Multiple LPARs, Applications across Systems and Platforms, DRDA Support

- **Tests Show Multiple Workloads Can Benefit**
 - SAP OLTP
 - 40% better response time
 - Regular CP time reduced
 - 49.8% LPAR redirected
 - BI Batch Workloads
 - Better response times
 - CPU time reduced
 - SAP Business Warehouse
 - 43% better response time
 - 50.1% LPAR redirected
 - Utilities
 - Up to 60% of workload redirected



New Tools to address TCO in 2007

- DBA Time = Money
 - ▶ Managing application changes
 - ▶ Tuning for performance
 - ▶ Optimizing repetitive tasks
 - ▶ Managing Complexity
 - ▶ Complying with regulations and audit
- Time savers
 - ▶ DB2 Change Management Expert
 - Automates and simplifies the most time consuming DBA task
 - ▶ Omegamon DB2 Performance Expert
 - Tunes DB2 systems
 - Finds performance problems
 - Eliminates bottlenecks
 - ▶ DB2 Optimizer Expert
 - Optimizes query performance
 - ▶ DB2 Utilities enhancements
 - V8 zIIP exploitation
 - vNext volume based utilities
 - ▶ IMS Sysplex manager
 - Simplifies complex IMS sysplex management
 - ▶ DB2 Thread Expert
 - Manages DB2 Threads
 - ▶ DB2 Audit Management Expert & IMS Audit Management Expert
 - Enables fast auditing of DB2 and IMS users and data
 - ▶ DB2 Regulatory Compliance Suite
 - Combines 4 tools, including Audit Expert into a single compliance offering



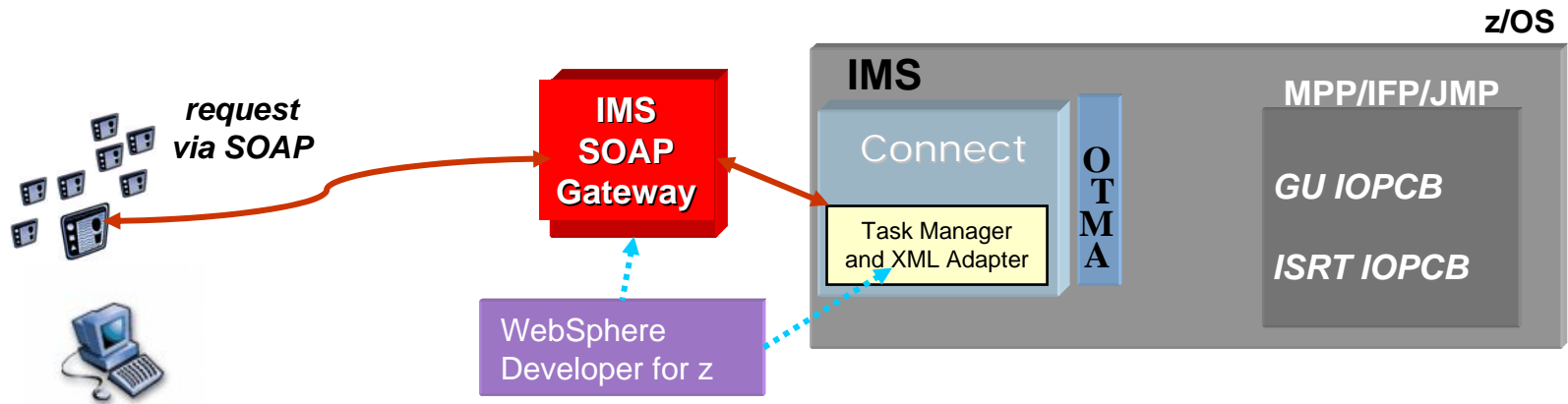
Looking Beyond DB2 9 –Autonomics and Transparency

- **Reduce the need for z specific skills**
 - Advanced autonomics
 - Reduced administration
- **Continued cost/performance improvements**
 - Table scan acceleration
- **New application improvements**
 - Even more XML
- **Extend the lead in availability, scalability & performance**
 - Deeper SW, HW, OS, disk management integration
- **Continued leadership for security & data compliance**



Broadened IMS Application Integration with IMS SOAP support

- **Enables Reuse of IMS Applications as Web Services**
 - Support WebService specifications
 - Leverages open standards and utilizes flexible tooling support
- **Provides IMS Transaction Interoperation with Client Applications**
 - Independent of location, programming language, and platform
 - SOAP Clients can be Microsoft .Net, SAP, Java, etc.

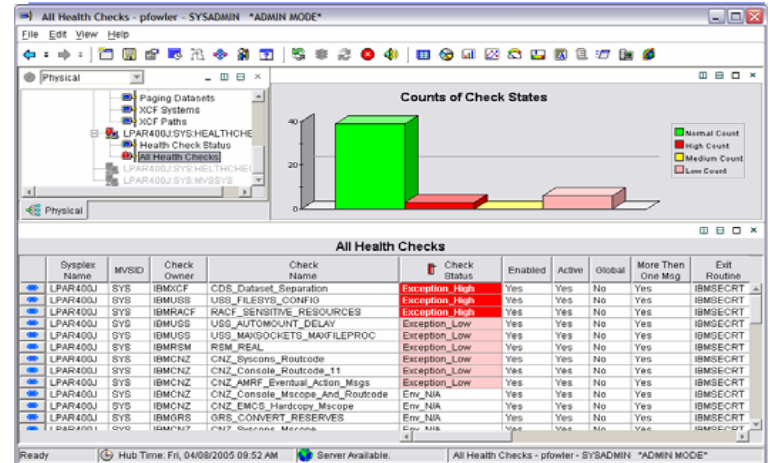
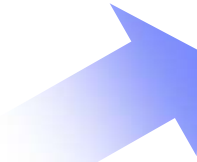
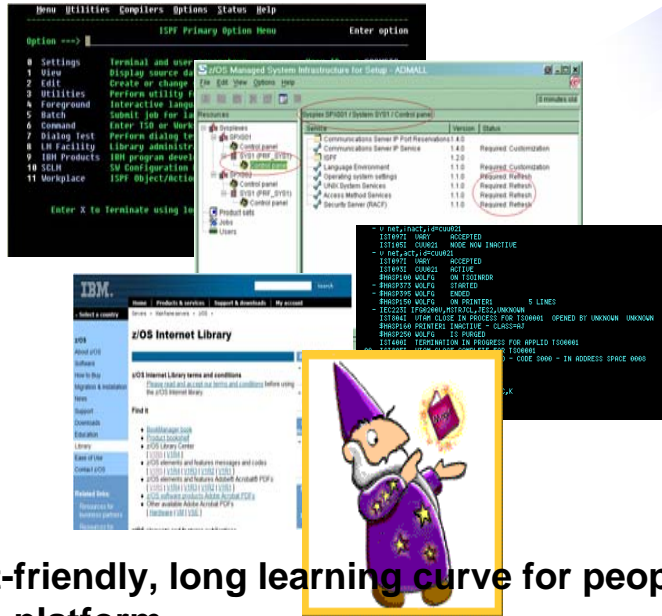


- **IMS SOAP Gateway R9.2 GA August 2006**
 - *Security enhancements*
 - **Downloadable at <http://www.ibm.com/ims>**
- **Task Manager/XML Adapter available Oct 2006 through IMS V9 service stream**

Modernizing the “Face” of z/OS

New

Old



- ✓ **Modern** look & feel; more familiar to those new to platform
- ✓ Focus on **customer goals**
- ✓ **Optional** for those who prefer traditional interfaces
- ✓ **Simplified, automated** task-oriented mgmt interface, with integrated user assistance
- ✓ **Central** z/OS management portal

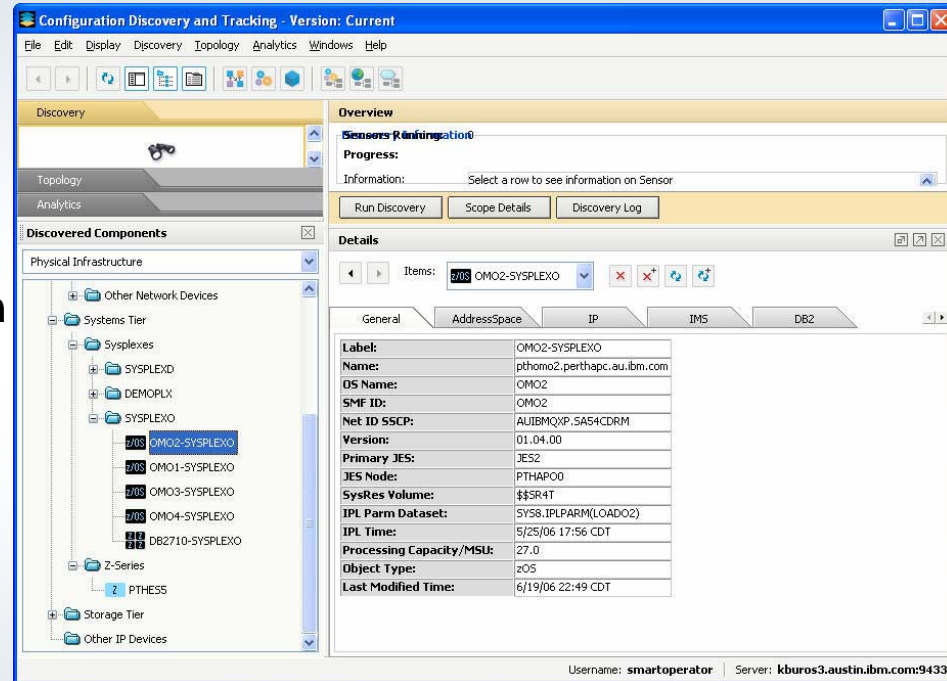
Expert-friendly, long learning curve for people new to platform

- Multiple, inconsistent UIs – no central system management portal
- Many interfaces foreign to those new to platform
- Manual tasks requiring extensive documentation



CCMDB and System z Resources Today

- **z/OS Discovery Library Adapter**
 - ▶ Includes System z resources such as LPAR, z/OS, IMS, DB2, CICS, MQ and WebSphere
- **Tivoli Business System Manager integration for Line of Business objects to leverage investment in TBSM resources**
- **Discovery of IP networking resources from NetView for z/OS**
- **Info/Man Incidents affecting Computer Systems**
- **Context sensitive launch to OMEGAMON XE**



The screenshot displays the Configuration Discovery and Tracking (CDT) interface. The left pane shows a tree view of discovered components under 'Physical Infrastructure', including 'Systems Tier', 'Sysplexes', and 'Z-Series'. The right pane shows the 'Details' for the selected component 'z/OS OMO2-SYSPLEXO'.

Details	
Label:	OMO2-SYSPLEXO
Name:	phomo2.perthapc.au.ibm.com
OS Name:	OMO2
SMF ID:	OMO2
Net ID SSCP:	AUIBMQYP.SA54CDRM
Version:	01.04.00
Primary JES:	JES2
JES Node:	PTHAP00
SysRes Volume:	\$\$\$SR4T
IPL Parm Dataset:	SYS8.IPLPARM(LOAD02)
IPL Time:	5/25/06 17:56 CDT
Processing Capacity/MSU:	27.0
Object Type:	zOS
Last Modified Time:	6/19/06 22:49 CDT

Username: smartoperator | Server: kburos3.austin.ibm.com:9433

CCMDB Extends System z Coverage in Early 2007

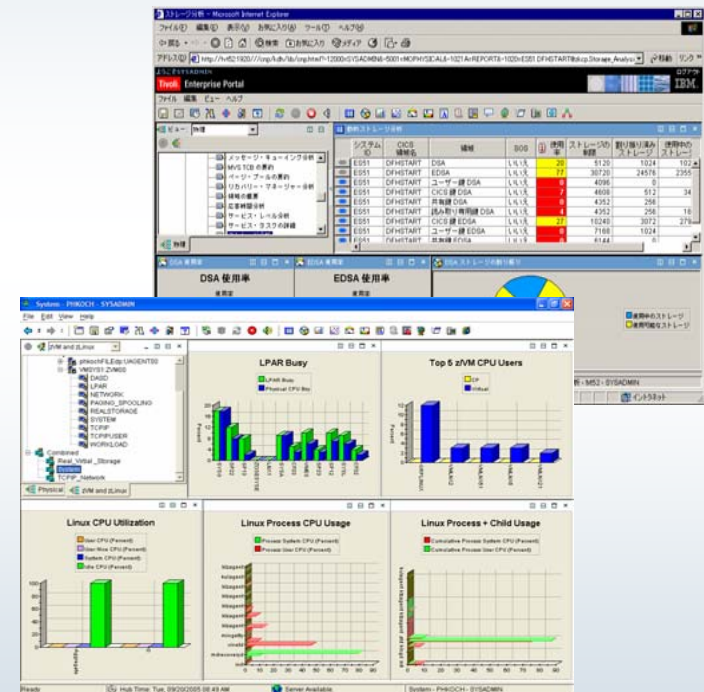
- **Relationships for CCMDB Topology Views**
 - ▶ Linking distributed with z/OS subsystems
 - ▶ Linking z/OS subsystem to z/OS subsystems (extending distributed to z/OS further)
 - e.g. WAS to CICS to DB2
- **Attributes for CCMDB Detail, Comparison & Change Views**

z/OS	Link list datasets, Parmlib datasets, Proclib datasets, Volumes etc
Address Space	Dataset Allocations etc
IMS	Transactions, Programs, Databases etc
CICS	Transactions, Programs, Files etc
DB2 for z/OS	Databases, Tablespaces, Tables, Views etc
MQ for z/OS	Channels, Queues etc
WAS for z/OS	Comprehensive coverage via the CCMDB WAS sensor. This sensor currently supports distributed WAS only and will be enhanced to support WAS on z/OS. The z/OS DLA will discover the WAS Soap Port to seed this discovery.

New OMEGAMON XE Capabilities

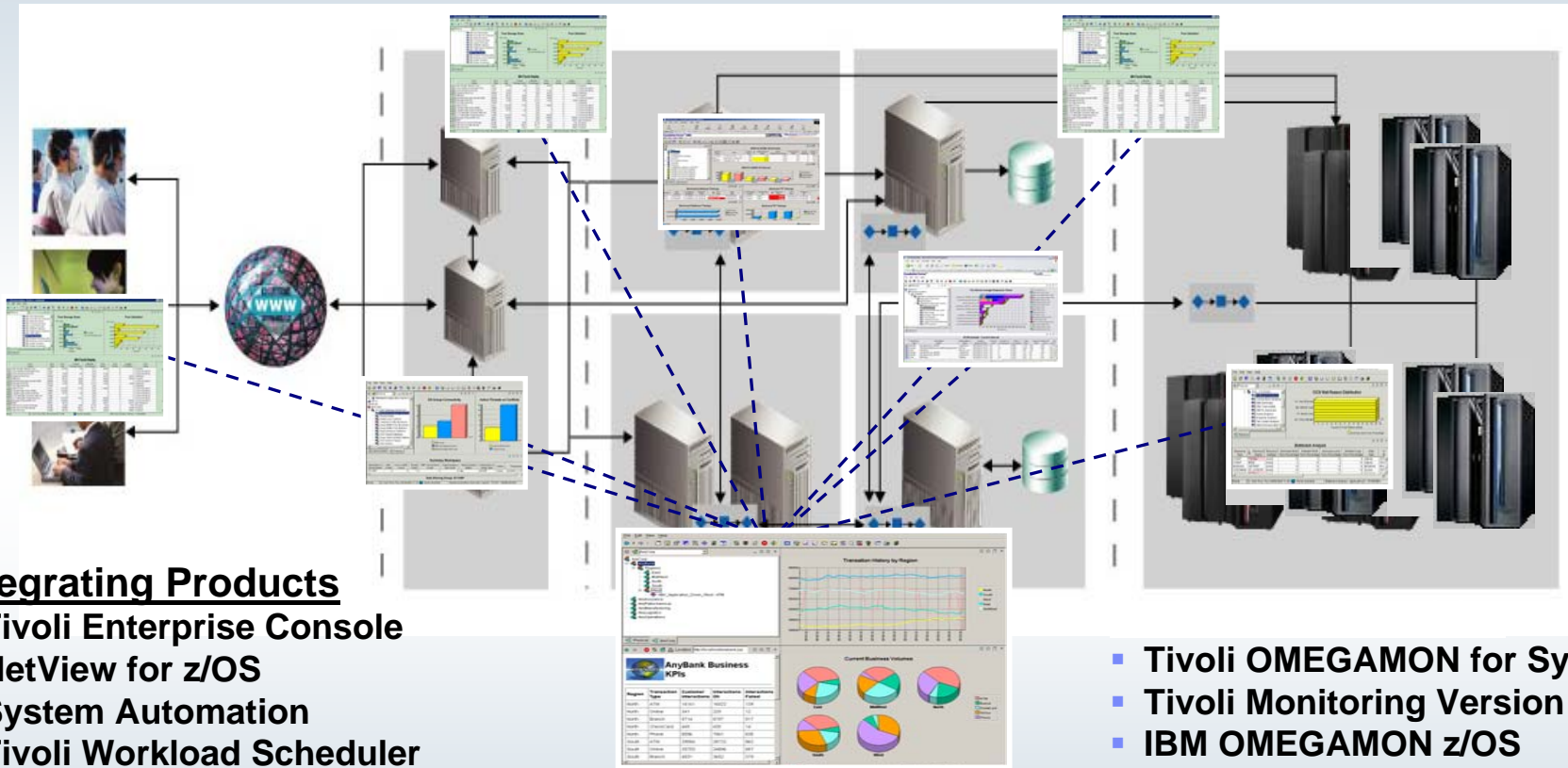
Common across the OMEGAMON portfolio of solutions

- **CCMDB Integration**
- **Language globalization**
 - ▶ French, German, Italian, Spanish, Portuguese, Chinese (simple & traditional), Japanese, Korean
- **Advanced interoperability via workspace linkages**
 - ▶ Enhances and improves problem resolution
- **Problem Determination Guides**
 - ▶ Improves diagnose and operational problem solving
- **Multi-product version support**
 - ▶ Enables incremental deployment of products
- **IBM zIIP monitoring**



Complete View Of Application Performance

A Dynamic Role-based Policy Workspace for Integrating IT Operations Silos



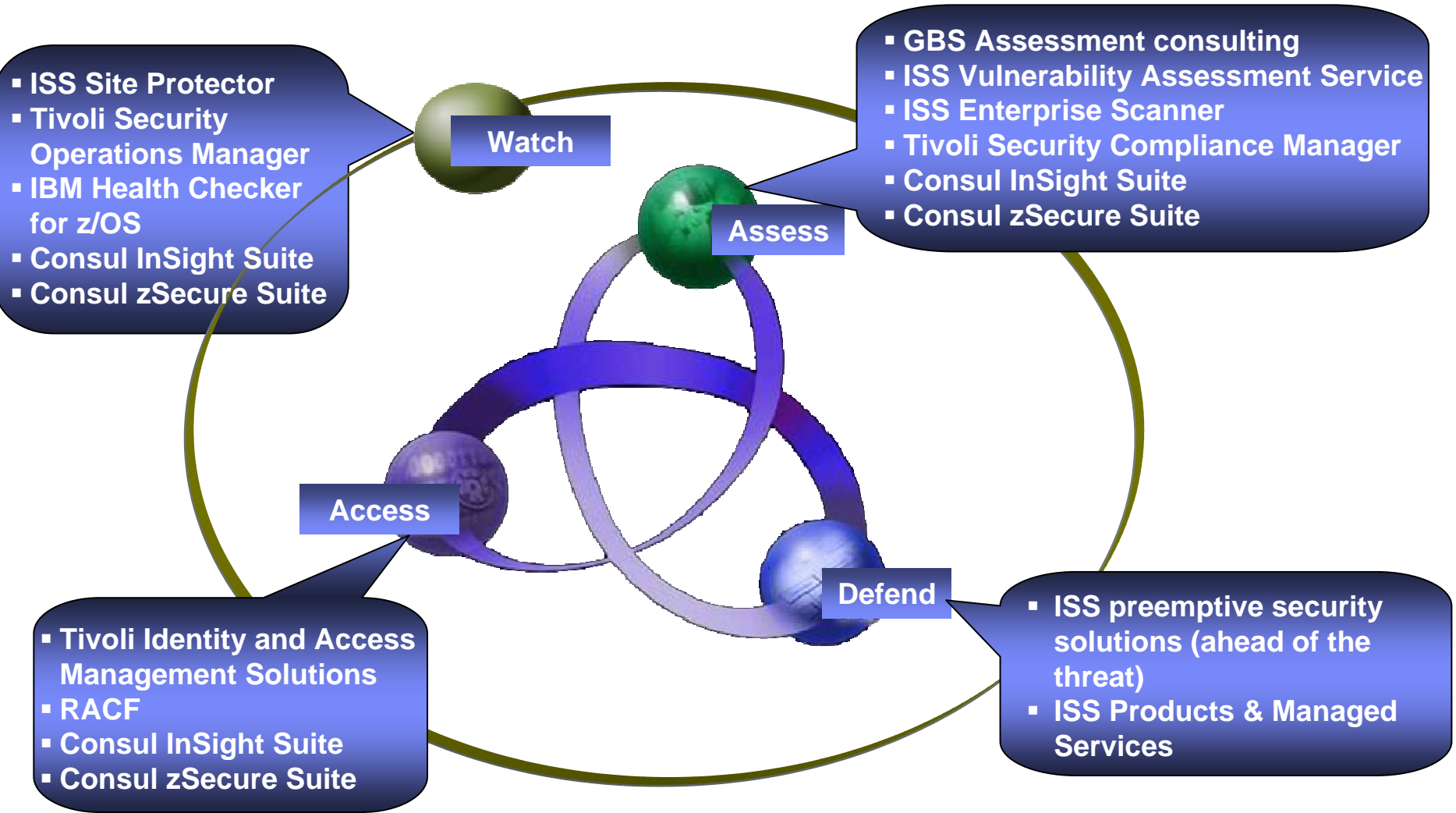
Integrating Products

- Tivoli Enterprise Console
- NetView for z/OS
- System Automation
- Tivoli Workload Scheduler
- Tivoli Monitoring Version 5
- Tivoli Service Level Advisor
- Tivoli Business Systems Manager
- *Netcool OMNibus Active Event List*

Tivoli Enterprise Portal (TEP)

- Tivoli OMEGAMON for System z
- Tivoli Monitoring Version 6
- IBM OMEGAMON z/OS Management Console
- Tivoli Composite Application Manager Family

IBM's security management vision and strategy: *Integrated capabilities from Tivoli, Consul, ISS, and IGS*



Consul InSight and zSecure

Comprehensive compliance, integrated security management and mainframe administration



Consul InSight™ Suite

Enterprise security audit and compliance

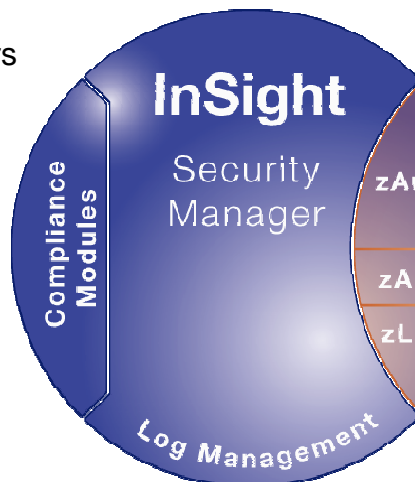
For:

- Chief information officers
- Chief information security officers
- Chief financial officers
- Enterprise security managers
- Compliance officers
- Auditors and regulators
- Network administrators

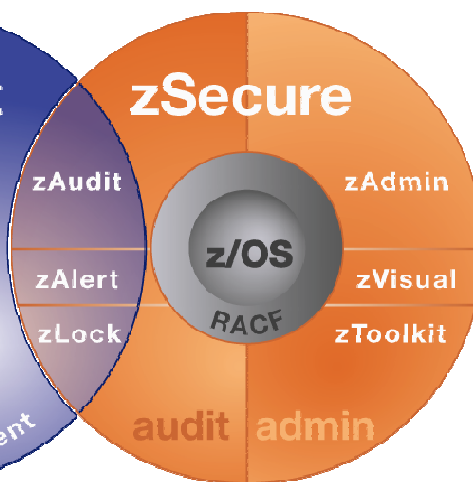
Concerned about:

- Regulations
- Privileged-user access
- Trusted-user access
- Log Management
- Security event management
- Network complexity
- Passing stringent audits
- Identity and access management

Consul InSight™ Suite



Consul zSecure™ Suite



Enterprise



Consul zSecure™ Suite

Mainframe security audit and management

For:

- Mainframe security managers
- Mainframe auditors
- RACF administrators
- System programmers
- Helpdesk managers

Concerned about:

- Regulations
- Audit and monitoring
- Intrusion detection and alerting
- Policy enforcement
- RACF administration
- Distributed administration
- CICS and API interface

Comprehensive IBM System z Storage Management

IBM service management

Process management

Service management platform

Operational management

Best practices and services

Storage Infrastructure management

IBM Data Facility Product (DFSMSDfp)

IBM Tivoli OMEGAMON XE for Storage v4.1

IBM Tivoli Advanced Catalog Management v1.1

IBM Tivoli Allocation Optimizer v1.2

Allows administrators to manage data and a broad range of devices such as switches, tape, removable media and storage servers

Business Continuity

IBM Data Set Services (DFSMSDss)

IBM Backup and Restore Manager for z/VM v1.2

IBM Tivoli Advanced Backup & Recover for z/OS v1.1

IBM z/OS Global Mirror v1.1

Minimizes operational risk by ensuring business data meets backup and recovery objectives

Data Retention

IBM Hierarchical Storage Manager (DFSMSHsm)

IBM Tivoli Advanced Audit for DFSMSHsm v1.1

IBM Archive Manager for z/VM v1.1

Helps control storage growth and control costs for data requiring long retention periods.

Resource Virtualization

IBM Removable Media Manager (DFSMSRmm)

IBM Tivoli Tape Optimizer v1.2

IBM Tape Manager for z/VM V1.2

IBM Tivoli Automated Tape Allocation Manager v2.2

Increases flexibility and improves resources optimization



IT Financial Management: Tivoli Usage & Accounting Manager

IT Service Level Advisor

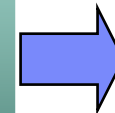
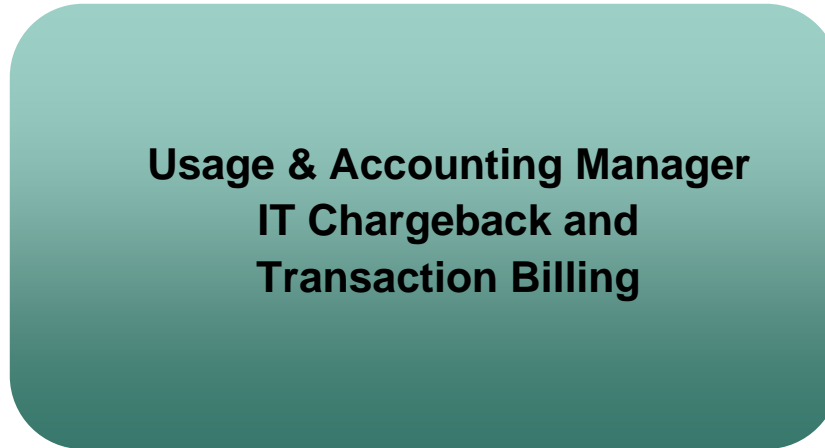
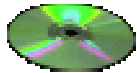
Adjustments for Service Level Violations

Cost reporting in SLA



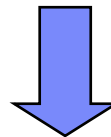
Tivoli IT Asset Management Solution

System z Hardware & Software utilization data



Reports go to:

- Cost Centers
- Departments
- Various slices for financial analysis
- Service catalog



ITUAM Data Collectors



Unix, Linux, Oracle, Storage, Middleware, Applications and other third party hardware and software



ITUAM Data Collectors



Windows, Exchange, Notes, SQL Server, MS Disk Storage, Middleware and Applications



Tivoli Decision Support for z/OS



Batch TSO, Transaction Processing, Database and Storage



Summary

- We are delivering a New Generation of Software on z
- SOA and z Together Extend and Leverage Decades of Massive Business Investments
- The z Ecosystem Now Enables Leap Frogging to the Next Generation of Applications
- Simplification of IT Management is the Next Large Step
- Its All About the Economies of Scale and How z Capability and Quality of Service makes a Difference

