



# Software Strategy and Directions for System z

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*WW Vice President, System 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

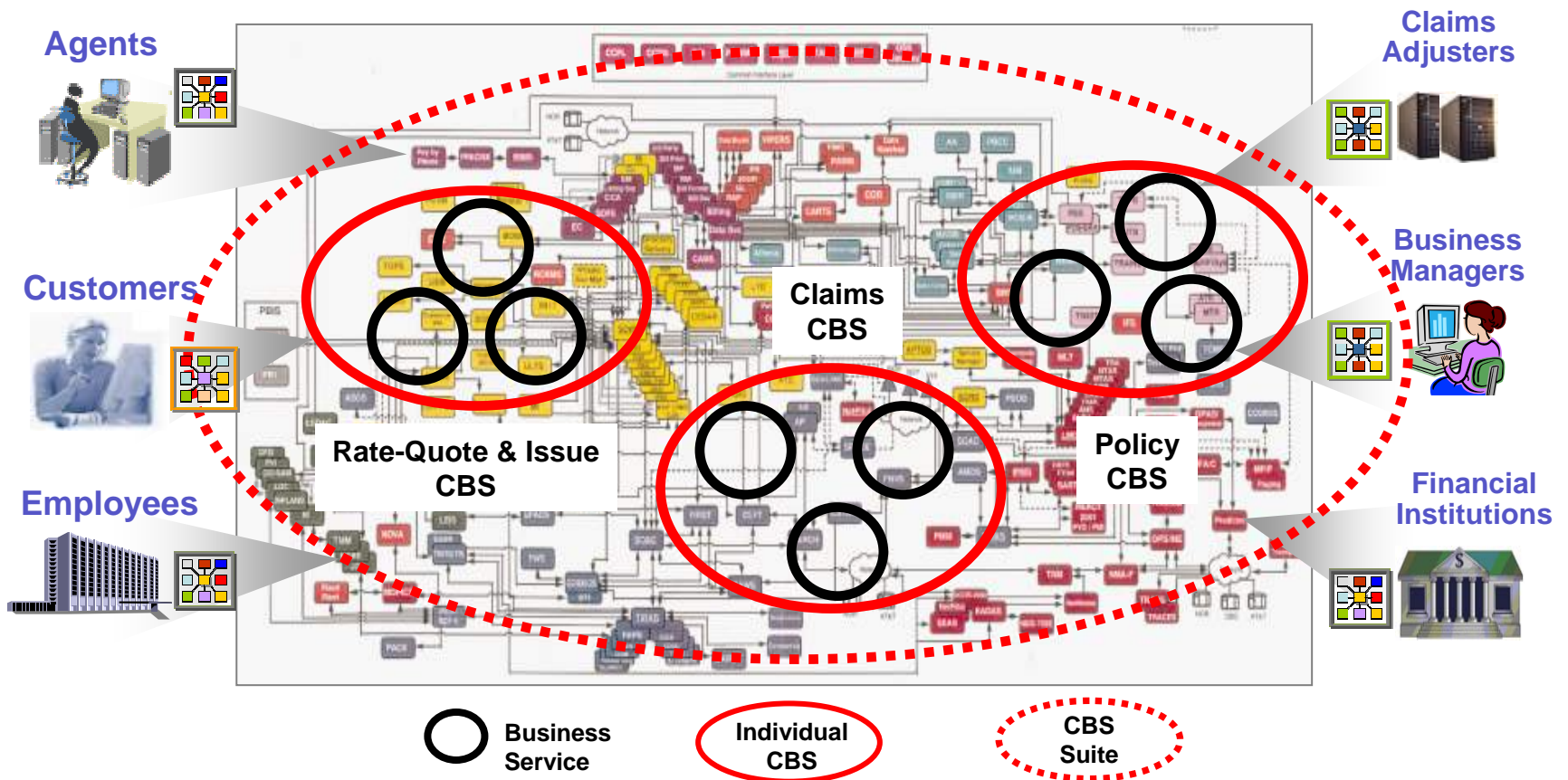
## ■ Platform Modernization and Simplification are key:

- ▶ 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 High Value Tools to Support Evolving Business Needs
  - Enable Modernization of Existing Assets
  - Build On Ramps for New High Value Business Assets
- ▶ 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

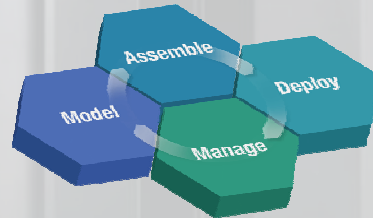


# SOA, WAS z/OS, & the Mainframe

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 June 30, 2006*

## 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 future SOD for ease of use

- IBM support assistant
- Web server for z/OS, powered by Apache
- 64 bit enablement for WebSphere for z/OS



# 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

# *IMS: The Continuing Journey ... with IMS V10*

## **Easing Integration with New Technology for a Service Oriented Architecture**

- Enhancing IMS XML and Web Services Connectivity
- Integrating Operations across Subsystems/Platforms

## **Simplifying Installation and Management**

- Defining Resources Dynamically
- Easing Operations Management
- Easing Systems Management

## **Providing High Performance, Scalable, Available, Reliable and Secure Solutions**

- Providing More Parallelism in DB Recovery Control
- Widening Bandwidth for Multiple Systems Coupling
- Enhancing Security

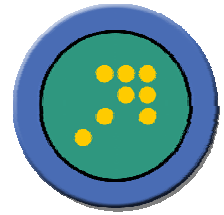
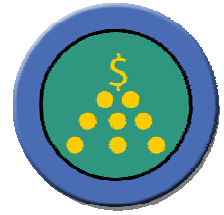
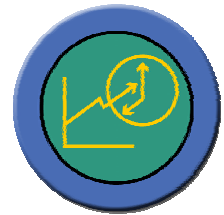


# DB2 9 for z/OS: Raising the Bar

## Addressing Business and Infrastructure Goals



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

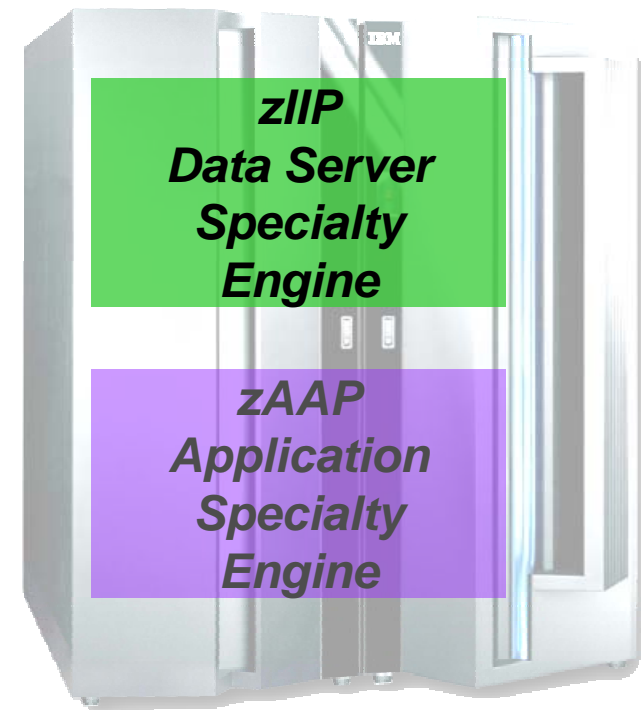
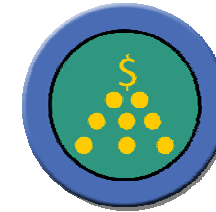




# DB2 zIIP Exploitation

## 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 2006

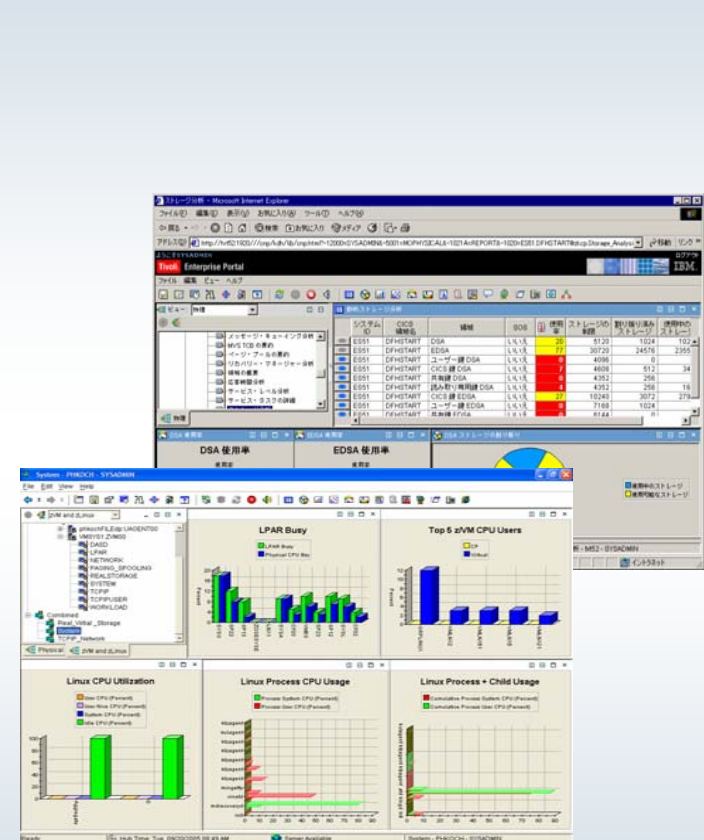
- DBA Time = Money
  - ▶ Managing application changes
  - ▶ Tuning for performance
  - ▶ Optimizing repetitive tasks
  - ▶ Managing Complexity
  - ▶ Complying with regulations and audit
- Time savers
  - ▶ DB2 Change Management Expert
    - Automates and simplifies the most time consuming DBA task
  - ▶ 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



# New OMEGAMON XE Capabilities

Common across the OMEGAMON portfolio of solutions

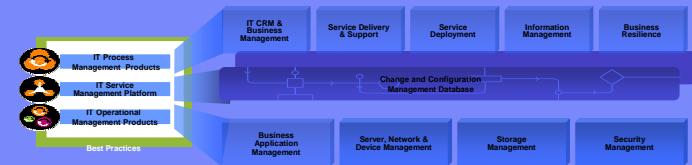
- **CCMDB Integration**
- **Language globalization**
  - ▶ French, German, Italian, Spanish, Portuguese, Chinese (simple & traditional), Japanese, Korean
- **Advanced interoperability via workspace linkages**
  - ▶ Enhances and improves problem resolution
- **Problem Determination Guides**
  - ▶ Improves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



# Composite Application Manager for SOA v6.1

## Support for ITSM strategy

Discovery Library Adapters add discovered Service information to CCMDB



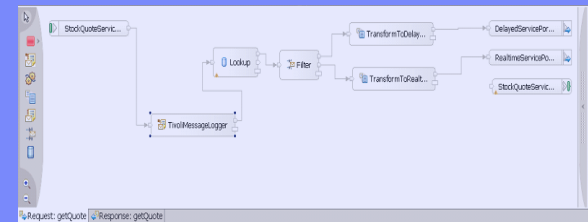
## Integration with WebSphere Service Registry and Repository

- ▶ Reconciliation of registered services with those monitored by TCAM
- ▶ Tivoli Enterprise Portal views show business process relationships for impact analysis



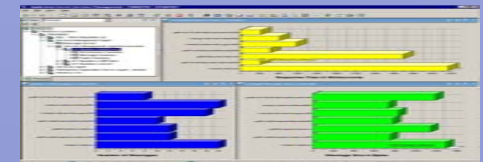
## Integration with WebSphere Enterprise Service Bus SCA runtime

Provides SCA-based mediation primitives for enhancing management functions (monitoring, logging, routing and transformation)



## New Platform support

- ▶ CICS TS 3.1, DataPower SOA Appliances, WebSphere ESB, WebSphere CE, JBOSS Application Server, SAP NetWeaver



# Announcing... **System z for ISVs**

**Comprehensive resources helping System z ISVs build middleware-based applications, develop skills and close business**

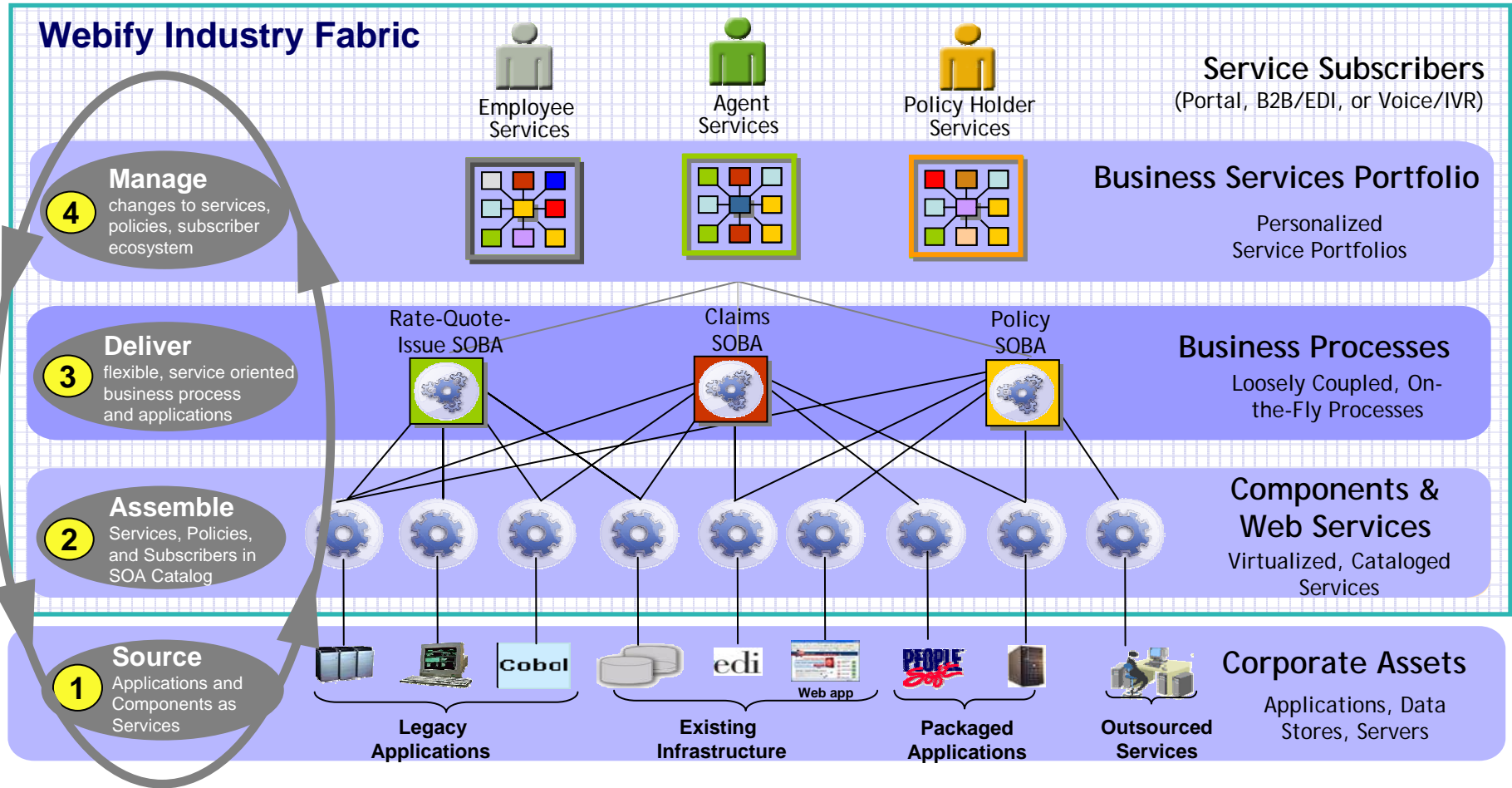
- **Training and education**
  - ▶ Providing skills for students, developers and business partners
- **Integrated technical support environment – fees waived for 2006\***
  - ▶ Online tools, 24/7 support
  - ▶ Remote access to System z hardware
  - ▶ Worldwide centers for in-person technical support
- **Hardware and software discounts**
  - ▶ Substantial discounts for application development on z/OS
- **Go-to-market support**
  - ▶ Investing in driving leads and closing business for *System z ISVs*
  - ▶ Assigned dedicated IBM sales reps to close business

*Builds upon the SOA community resources announced at PartnerWorld*

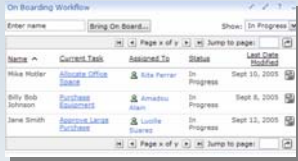


# Webify Industry Fabric is industry SOA middleware for Composite Business Services

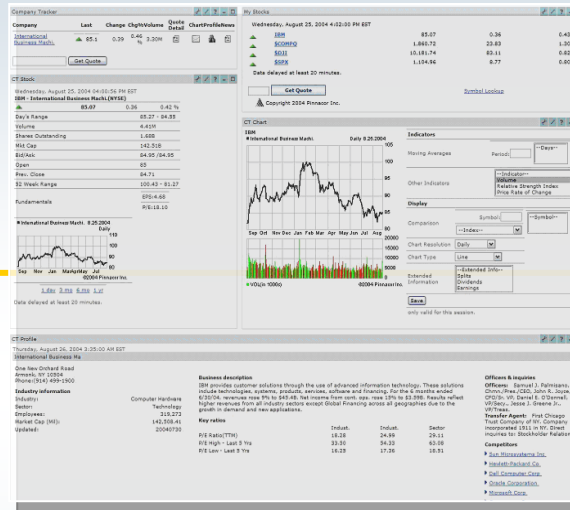
- Composite business services are composed of multiple layers with services at its core



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



**Process  
Orchestrating  
within Portal  
Form Driven  
Workflows**



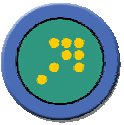
**Portlet to Portlet  
Interaction**

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

**Dynamically Presented Based on  
Role & Security**

# XML Solves Business Problems Today

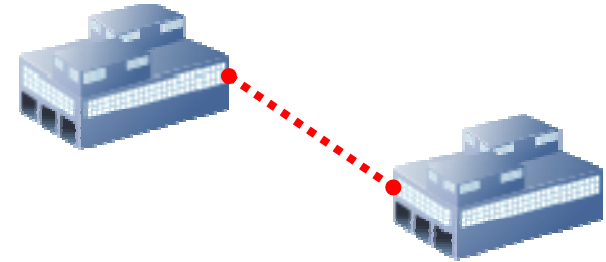
## *Effectively Serving XML Data is Essential*



- Business to Business Integration

- ▶ Platform independent transport mechanism

*Purchase order triggers transactions flowing over a service oriented architecture*



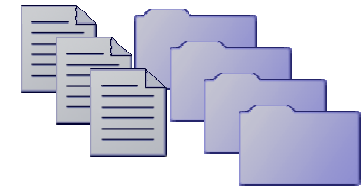
- Document Management

- ▶ Government and legal industry require digital signature

*Tax forms require signature & change year to year*

- ▶ Documents often contain sub-documents

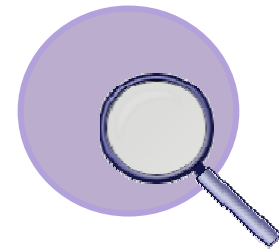
*Literary materials contain books, chapters, and sub-chapters*



- Business Intelligence

- ▶ Universal representation from multiple sources

*Claims adjustor reviews damage estimates from multiple garages without consideration of original format*



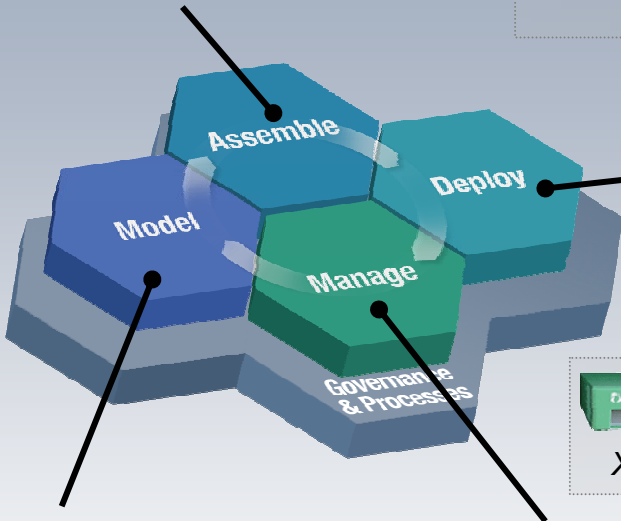




# DataPower Product line – Today

## XML Appliances Continue SOA Foundation Enhancements

WebSphere Integration Developer  
Rational Application Developer



*XI50 XML Message Handling*

### Process:

- WebSphere Process Server
- WebSphere ESB & Message Broker
- WebSphere Partner Gateway & Adapters

### People:

- WebSphere Portal
- WebSphere Everyplace Deployment
- Workplace Collaboration Services

### Information:

- WebSphere Information Integrator

### Application Infrastructure:

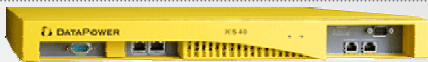
- WebSphere Application Server & XD



*XA35 XML Accelerator*

WebSphere Business Modeler  
Rational Software Architect

WebSphere Business Monitor  
Tivoli Composite Application Manager



**DataPower does**  
*B2B XML Security Policy Enforcement*

+

**Tivoli Federated Identity Manager**  
**Tivoli Access Manager for e-business**

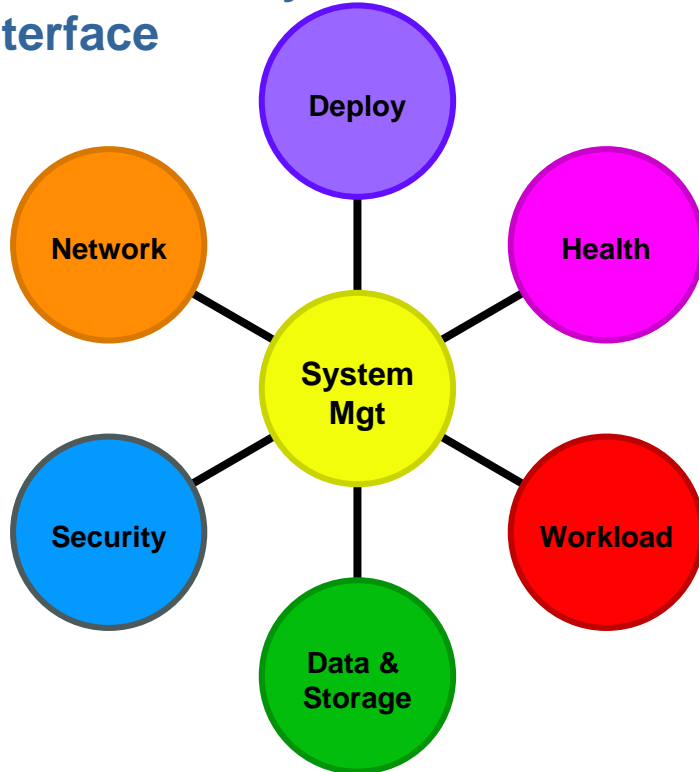
**Tivoli software does**

**SOA Security Management**  
*Policy Management*  
*Federated Identity Management*  
*Auditing and Compliance for SOA*  
*User Provisioning*

# z/OS Management Focus Areas

## Goals

- Eliminate, or automate z/OS administrative and operational tasks
- Simplify the tasks that remain with a modern, easy to learn and useful interface



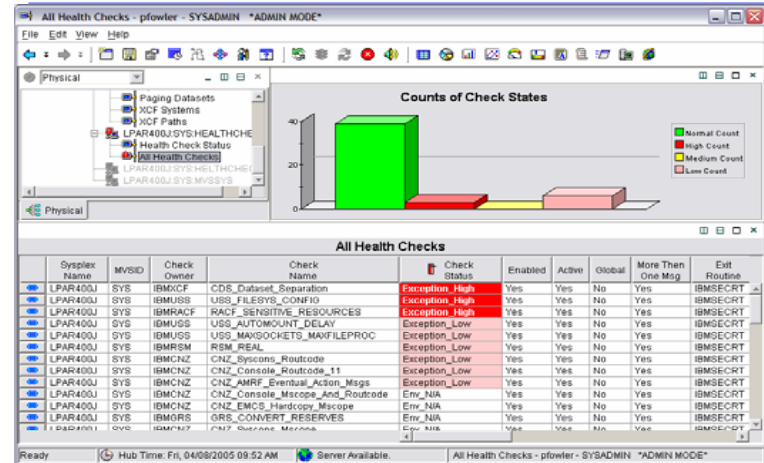
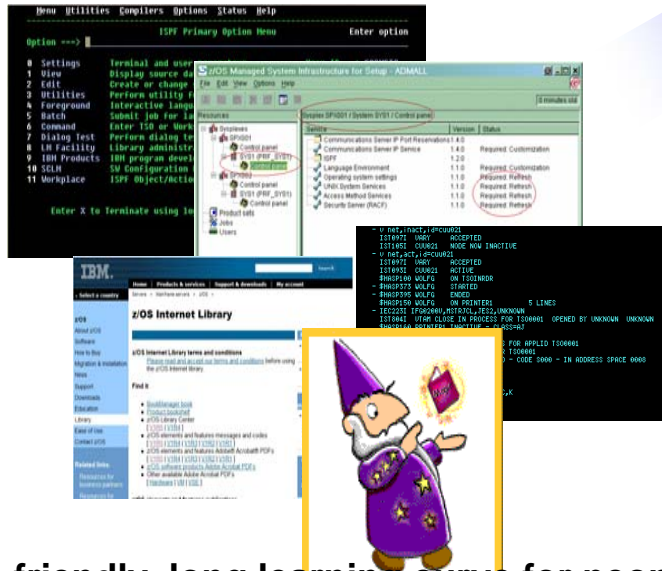
Assist customers with the following tasks:

- **Deployment: Plan, order, install, migrate, configure, update OS, SW products, HW devices:**
  - ▶ Migrate to new releases and deploy “on demand” features
- **Health and availability management:**
  - ▶ Detect, diagnose, recover from – and prevent - z/OS problems.
- **Data and storage management:**
  - ▶ Deploy new storage devices; migrate data
  - ▶ Establish storage management policies that meet business goals.
- **Workload management:**
  - ▶ Define workload management policies and track policy execution
  - ▶ Monitor and control system activity: business applications, batch jobs, UNIX® processes, and other forms of work
- **Network management:**
  - ▶ Monitor, configure and administer network connections, servers, and security. Focus: IP and SNA over IP
- **Security management:**
  - ▶ Configure z/OS security and help protect resources and information from unauthorized use

# Modernizing the “Face” of z/OS

New

Old



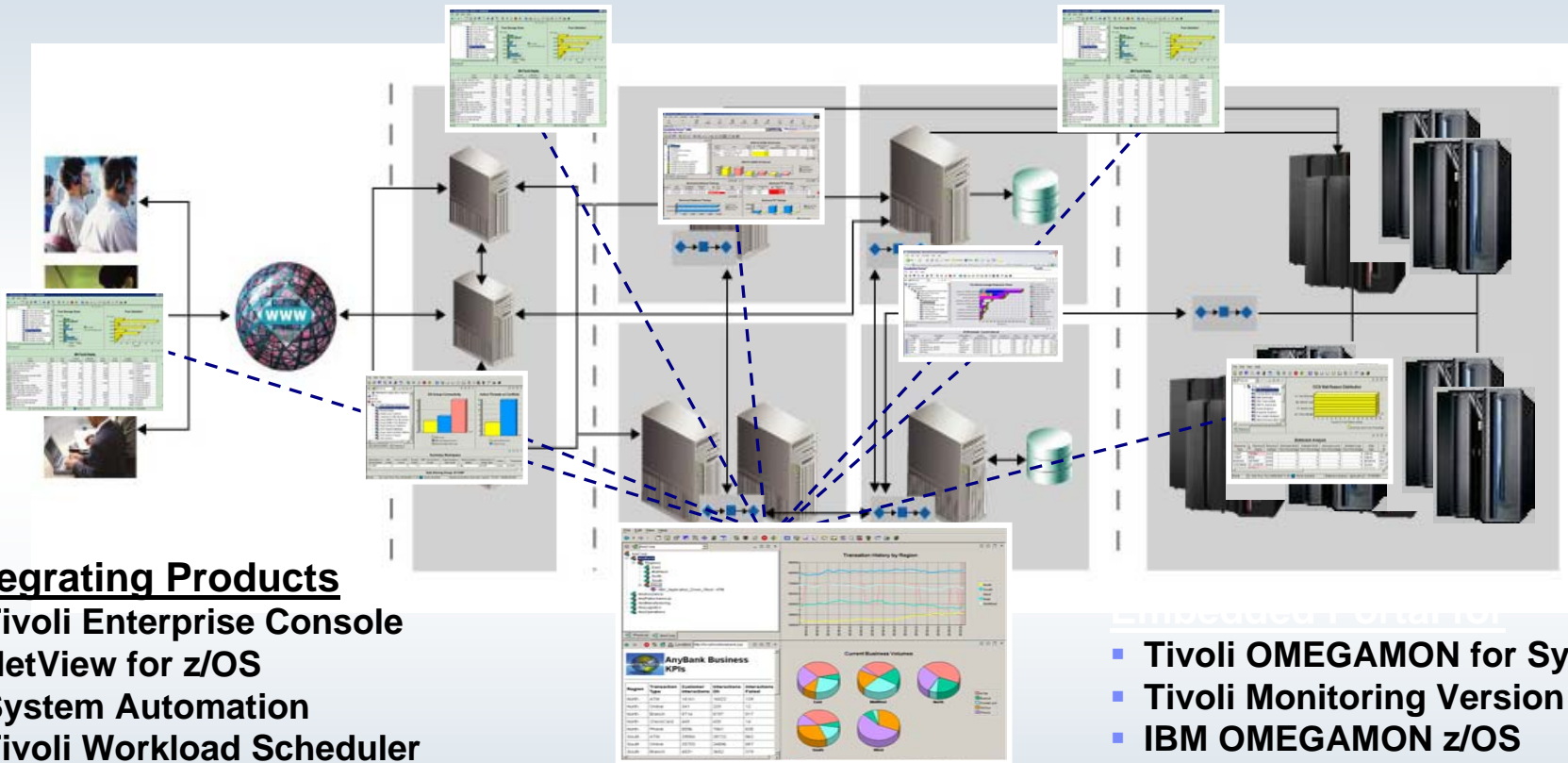
- ✓ **Modern** look & feel; more familiar to those new to platform
- ✓ Focus on **customer goals**
- ✓ **Optional** for those who prefer traditional interfaces
- ✓ **Simplified, automated** task-oriented mgmt interface, with integrated user assistance
- ✓ **Central** z/OS management portal

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

# Complete View Of Application Performance

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



## Integrating Products

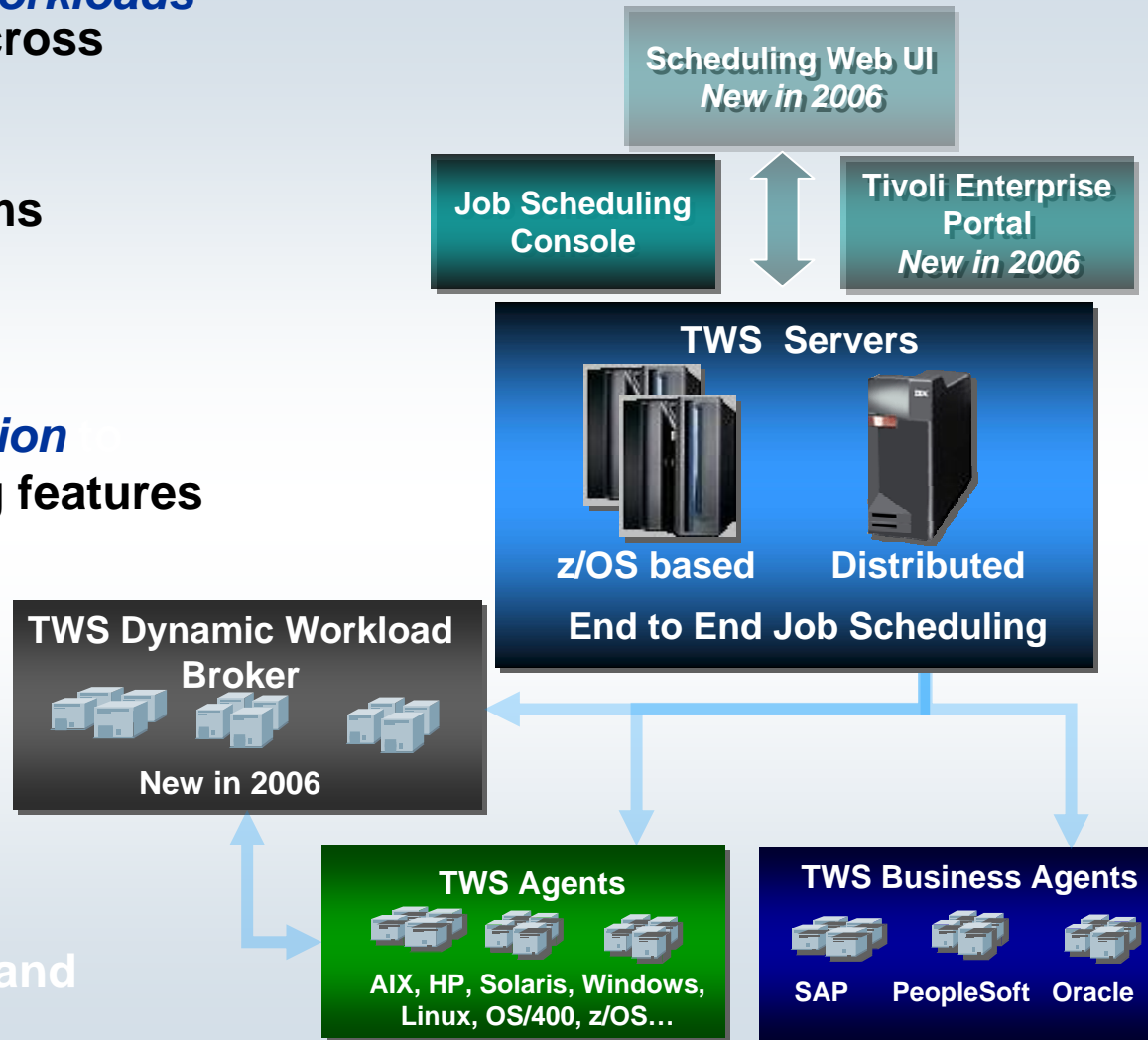
- Tivoli Enterprise Console
- NetView for z/OS
- System Automation
- Tivoli Workload Scheduler
- Tivoli Monitoring Version 5
- Tivoli Service Level Advisor
- Tivoli Business Systems Manager
- *Netcool OMNibus Active Event List*

## 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 Tivoli Workload Scheduler

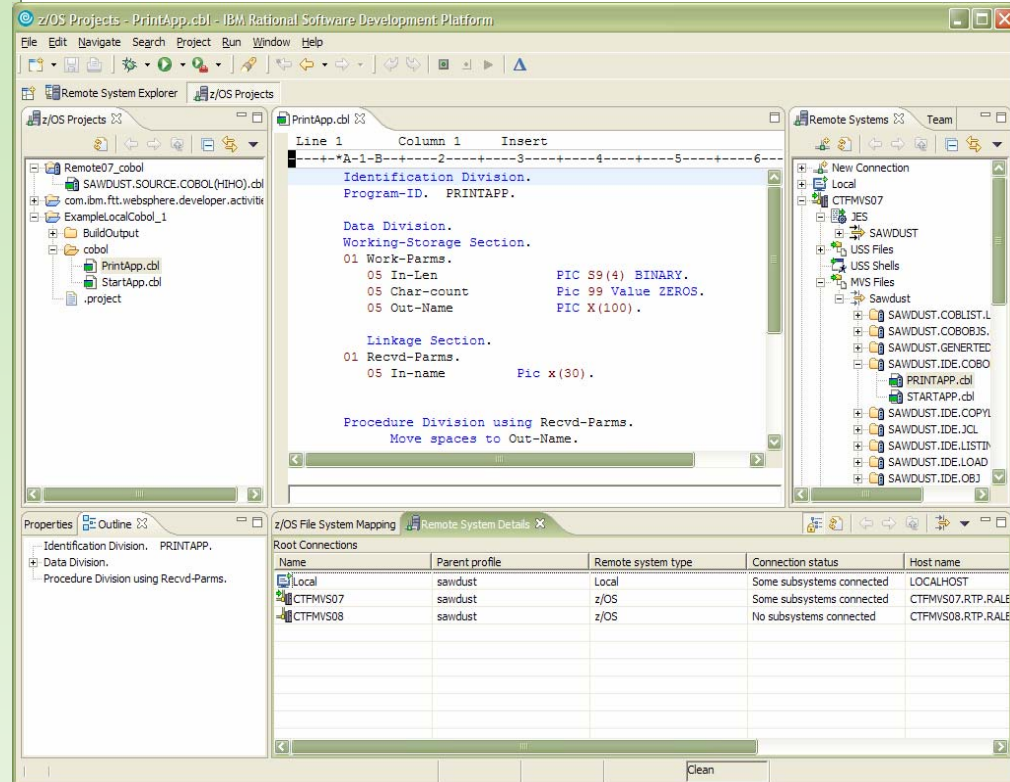
- **Single solution to integrate workloads** from multiple applications, across multiple platforms.
- **Improves availability and integrity** of production systems
- **High Availability and Fault Tolerant** architecture.
- **Enhanced TWS-WLM integration** support new WLM scheduling features
- **New TEP integration** monitor the status of TWS critical jobs
- **Dynamic real-time workload automation** in addition to traditional calendar and event-based scheduling
- **New Critical Path Monitoring** and management feature for TWS



# WebSphere Developer for zSeries

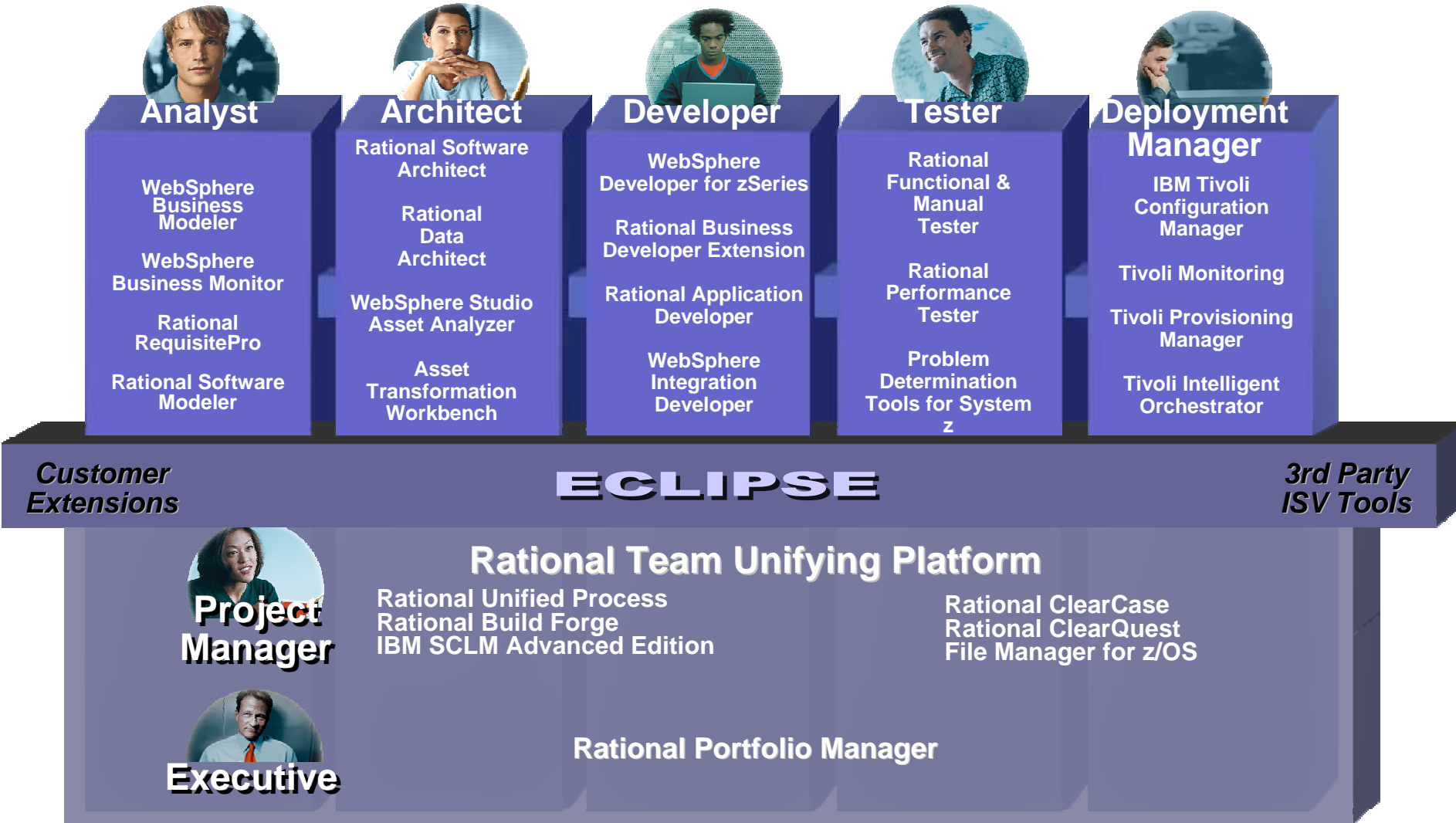
**Eclipse-based integrated development environment for developing enterprise-level, multi-tier applications (composite applications)**

- **Builds z/OS applications**
  - ▶ COBOL, PLI, HLASM
  - ▶ TSO/Batch, CICS, IMS, DB2
  - ▶ DB2 Stored Procedures – COBOL, PLI, Java, SQL
- **Creates COBOL/CICS/JSF/Java/J2EE Multi-tier apps**
  - ▶ Built on Rational Application Developer
    - Includes all of the J2EE web development tools
  - ▶ Generate JSF/EGL/J2EE web front ends
  - ▶ COBOL back ends running on zSeries
- **Enables CICS and IMS applications for Web services and SOA**
  - ▶ Provides tooling to make it easy to integrate existing applications into an SOA
- **Supports the full application lifecycle**
  - ▶ Model, Architect, Develop, Test, Deploy, and Manage



# The IBM Software Development Platform – A New Face for z

*Integrated and role-specific tools*



# Looking Beyond DB2 9 –Autonomics and Transparency

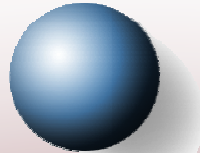
- **Reduce the need for z specific skills**
  - Advanced autonomics
  - Reduced administration
- **Continued cost/performance improvements**
  - Table scan acceleration
- **New application improvements**
  - Even more XML
- **Extend the lead in availability, scalability & performance**
  - Deeper SW,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



# How is Security Different on the Mainframe?

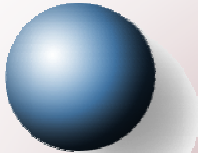
**A highly secure business environment with compliance to standards helps build industry credibility and gain consumer trust**

## Information & Applications

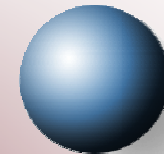


Supports a variety of encryption standards to help keep **current with industry and government security regulations**

## People



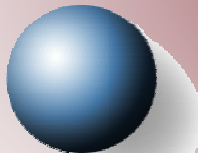
Manage access of critical data for users through **Multiple Level Security**



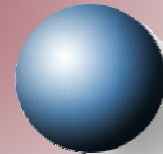
## Hardware

**End-to-end protection** that helps keep data uncorrupted and uncompromised

## Networks



**Integrates security** with the network with built-in technology **resistant to hackers**



## Operating System

**Architected for security** from within to **reduce risk and not be susceptible to viruses**

*“The **IBM mainframe** is the **only** computing system to earn the **highest level of industry security certification, EAL5.**” Bob Hoey, Worldwide VP Sales for System z*

*“Operating systems generally called ‘secure’ rarely reach higher rankings than EAL4.” [wikipedia.org](http://wikipedia.org) \*EAL (Evaluation Assurance Level) = International standard to define security requirements in computer systems.*



## 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

