



IBM Software Group

z9 Executive Software Briefing

Maximize Your Investments in Mainframe Software

Ray Jones

WW Vice President, z Software

October 2005



@business on demand.

A Holistic Approach to System Design – System z9 Software

Designed to protect, manage and integrate your on demand environment

Business Integration

- J2EE 1.4 and Web services support
- Simplified deployment and management of WebSphere
- Secure data transfer between over 35 platforms
- zAAP execution for WebSphere Java Workloads
- SOA

System z9 Infrastructure Management

IT Service Management

- End-to-end infrastructure management
- Manage job scheduling resources across the network
- Improvements in
 - Automation
 - Network management
 - Charge back management
 - Parallel Sysplex systems management

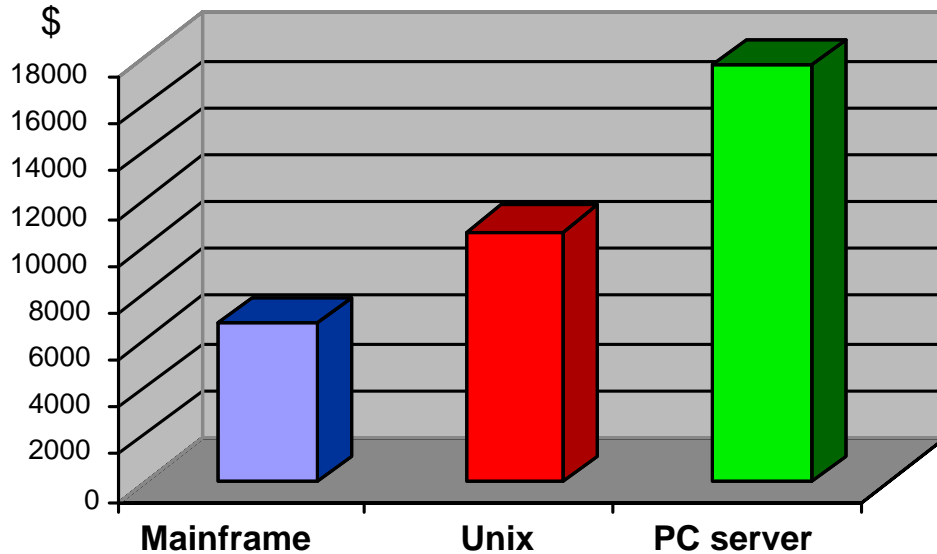
Business Resiliency and Security

- Improved access to z/OS configuration files from other platforms
- Security software management
- Connect to identity data in multiple repositories
- Manage software assets

Platform Readiness

- Maximize business value with new versions of the middleware: CICS TS V3, DB2 V8, IMS V9, WebSphere MQ V6, NetView® V5.2
- Exploiting the features of z/OS and z9109

Mainframe Cost Advantage Stronger Than Ever



Total annual cost per user over a five-year period

Source: *The Dinosaur Myth*, www.arcati.com, 2004

“We believe that simple Cost of Ownership comparisons between the mainframe and distributed platforms are often misleading - dangerously so. Many distributed costs are surprisingly well hidden within the enterprise; but with the mainframe data center, what you pay is what you get.

And what you get is unparalleled scalability, very high utilization levels, and mature centralized management. This in turn significantly reduces the need for technical support, simplifies change management, and allows a more flexible approach to business continuity. “

Mark Lillycrop, Arcati Research



**Arcati
Research**

zSeries - The Mainframe for Mixed Commercial & e-business Workloads

- **Near-linear scalability**
- **More secure transactions**
- **"Mean Time Between Failure"**
- **1/4 network equipment costs**

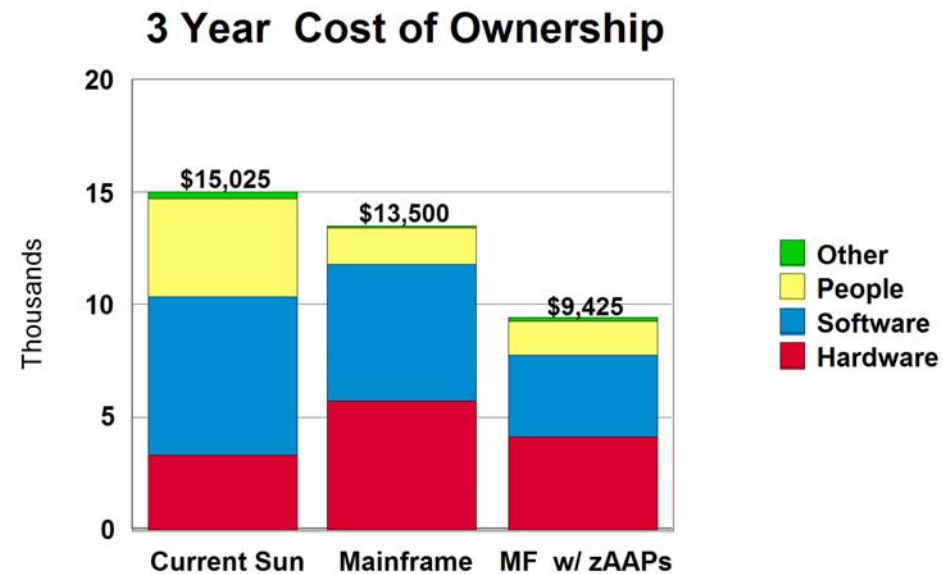
- **1/20 energy requirement**
- **1/5 the administration**
- **Highest average resource utilization**

up to 900,000+ concurrent users
>6000 SSL/sec vs. <200 SSL/sec
measured in decades vs. months
1/25 floor space
400 Sq. Ft vs. 10,000 Sq. Ft
\$32/day vs. \$600/day
< 5 people vs. > 25 people
>70% vs.. <15%

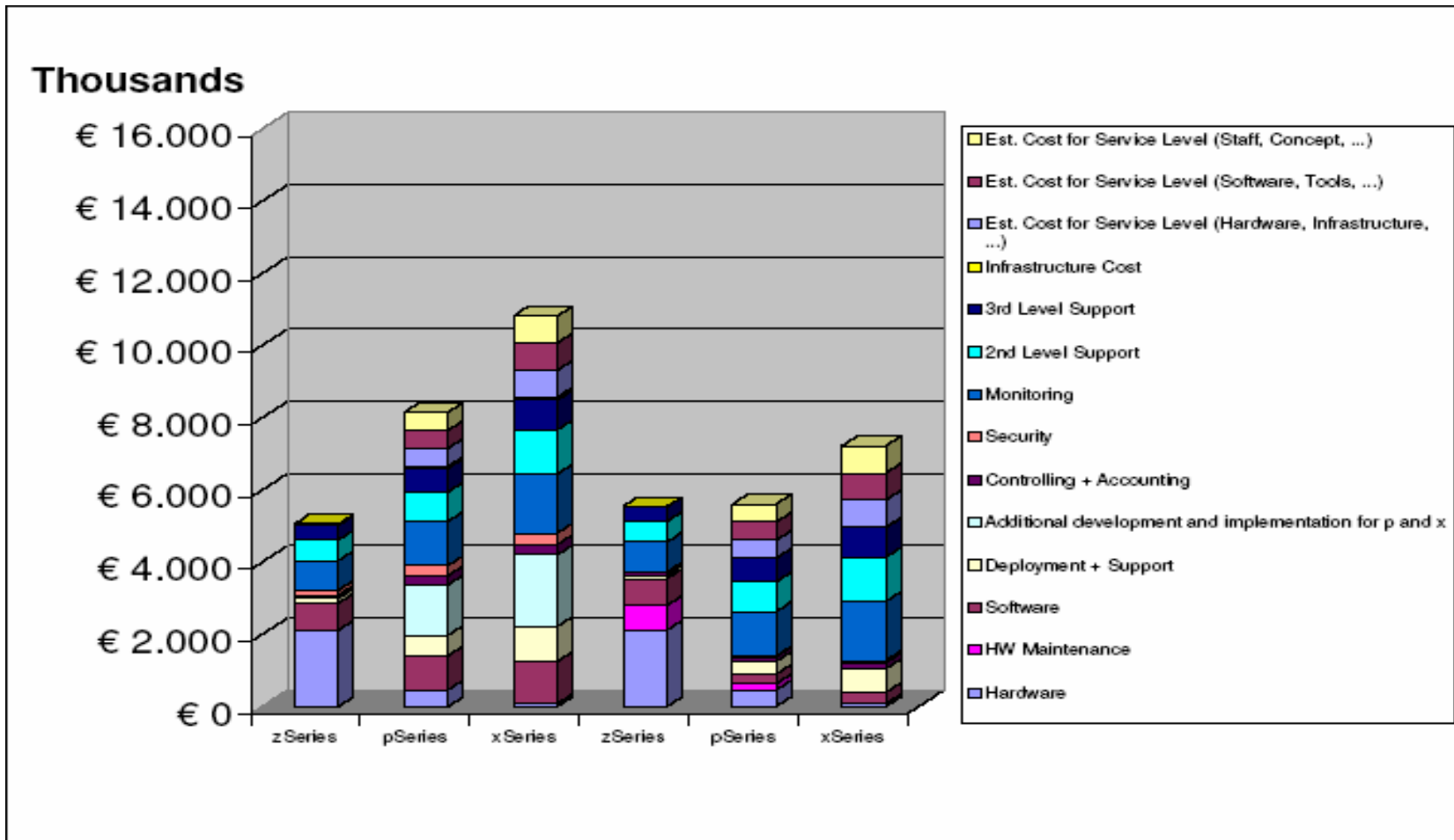


People costs are often *hidden* in distributed implementations

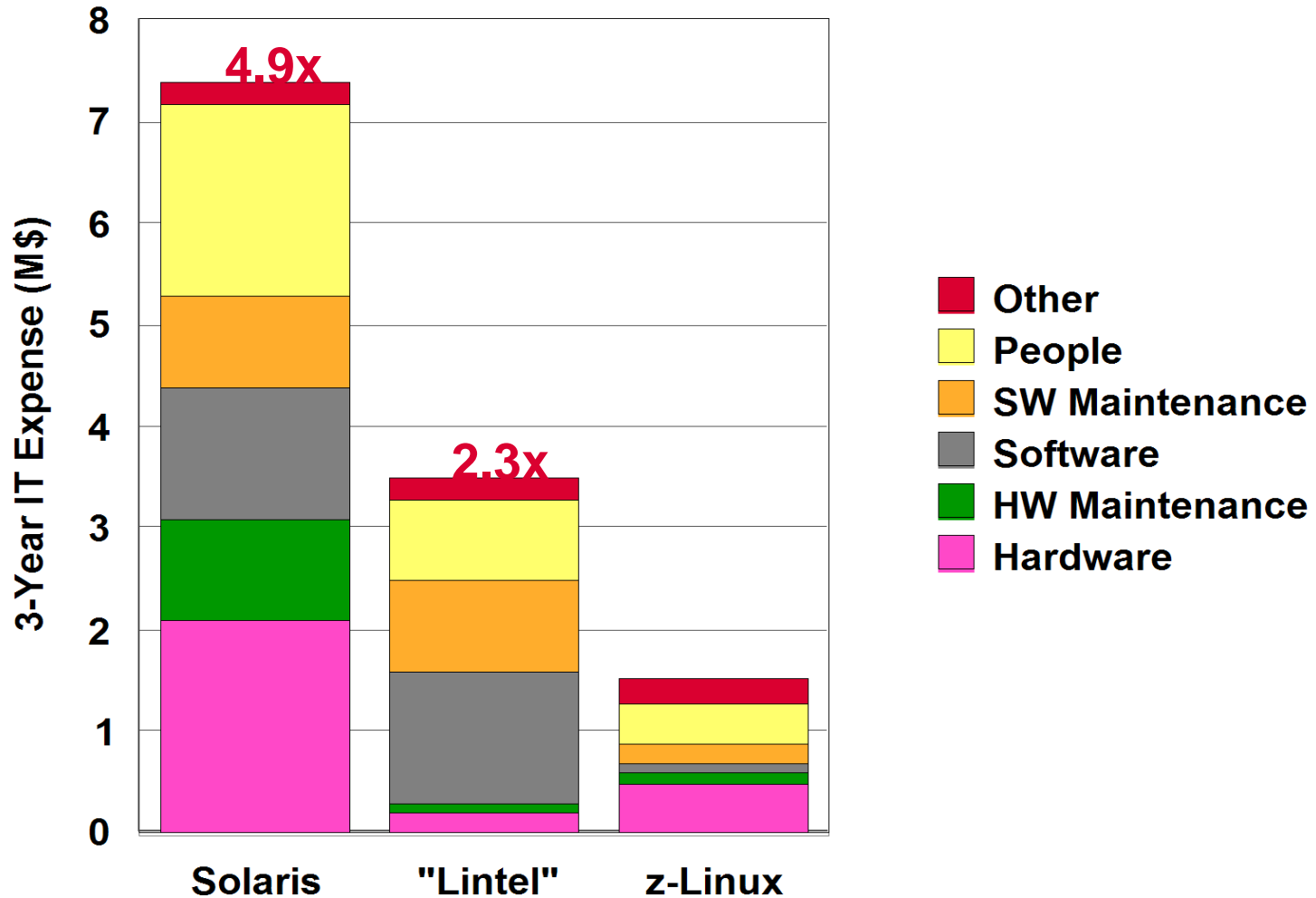
- In a recent typical study, a customer thought they only had 24 UNIX servers
 - ▶ But these were just the PRODUCTION servers
 - ▶ In addition they had 49 servers for Development, Test and Disaster Recovery
- They needed 44 people to support these servers and \$7M software
 - ▶ Running at only 20% utilization
- A comparable zSeries implementation would have required an estimated 20 servers
 - ▶ Requiring 16 people to support
 - ▶ Using \$6M software (over 3 years)
- They thought the Solaris environment was 1/5 the cost of the mainframe...
...but in fact the **zSeries TCO was 37% less**



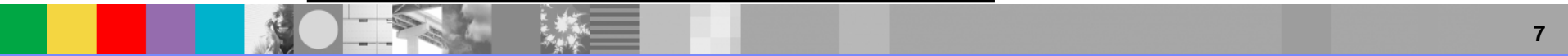
TCO Results Chart (GAD)



Web Trading Application Costs



Sun 3-year cost ~ 4.9 x z-Linux
 Lintel/Windows 3-year cost ~ 2.3 x z-Linux

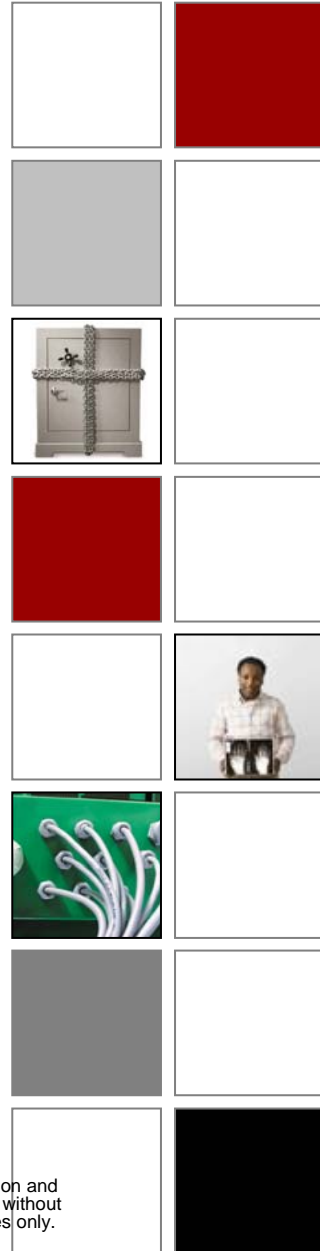


z/OS 1.7– IBM's Flagship Operating System

Simplifying z/OS management for new IT professionals while extending z/OS robust capabilities

- Simplifying z/OS management
 - ▶ Easier to configure with “best practices”
 - IBM Health Checker for z/OS built into z/OS 1.7
 - Provides more checks and new front end
 - Enables other z/OS products to check for “best practices”
 - ▶ Simplified networking with JES2 NJE support for TCP/IP (planned for 1Q06)
 - JES3 support planned for 2006*
 - ▶ Statement of Direction*- new user interface for z/OS:
 - IBM intends to provide a new user interface for z/OS management that will be designed to automate, eliminate, and simplify many z/OS management tasks
- Extending z/OS capabilities and qualities of service
 - ▶ Extending z/OS resiliency and security
 - May reduce the need to IPL with z/OS UNIX System Services dynamic service activation
 - Improved z/OS Digital Certificate life-cycle management (PKI services)
 - ▶ Further performance optimization for TCP/IP networking
 - TCP/IP Sysplex Load Balancing Advisor working with network devices
 - ▶ Improved function for business integration
 - Compatibility, easier porting with C/C++ enhancements
 - Simplified application security
 - Support for new standards
 - TLS support designed to be transparent to applications

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



Customer value in DB2 V8

- **Availability** – *dramatic reduction in planned outages, increased protection against unplanned outages, reduced recovery time*
 - ▶ Alter databases on the fly without disruption in service : **Online Schema Evolution**
 - ▶ Reduce planned outages and move towards 24x7 operations: Improved online re-org & recovery: **Data Partitioned Secondary Indexes, Online Reorg**
 - ▶ Eliminate table outages, dramatically reduce planned outages: **Online check index**
 - ▶ Avoid disruptions and save time during backups and recoveries: **Point in Time Recovery**
- **Scalability & Performance** – *exploitation of V8 features offers orders of magnitude improvement in performance and ability to scale*
 - ▶ Breaking storage limits, & more efficient use of storage: **64 bit addressing**
 - ▶ Save CPU and shorten elapsed time: **Multirow operations (insert, fetch)**
 - ▶ Save up to 20% of CPU time in query environment: **Optimization**
 - ▶ Substantially increased scalability by lifting many limits lifted: **i.e. Partitions and Logs**
- **Skills & Productivity**- *Application programmers can develop on Unix/Windows for deployment on z; autonomic improvements reduce skills requirement*
 - ▶ Better integration with vendors (SAP): **Long name support**
 - ▶ Smoother porting (distributed & other db), ability to leverage non-zSeries skills
 - ▶ Combine data from WW operations into a single database: **UNICODE**
 - ▶ Reduce DBA effort and errors: **Automated space management**

Addressing Customer Requirements

DB2 for z/OS delivers on demand

- ✓ Integration
- ✓ Scalability
- ✓ High Availability
- ✓ Flexible Growth

DB2: Engineered for the Future ...

03/01 DB2 V7

- Scrollable Cursors
- Availability/ Online Improvements
- ODBC/JDBC
- Scalability Enhancements

03/04

DB2 V8

- 64-bit Virtual Storage
- Online Schema Evolution
- Unicode Support
- More flexible SQL
- Improved security
- New Backup and Recover Tools

V8 GA +24-36 Months

DB2 V9

- Web exploitation
- Leadership availability & scalability
- Platform specific skills reduction
- DW & OLTP Reporting Enhancements

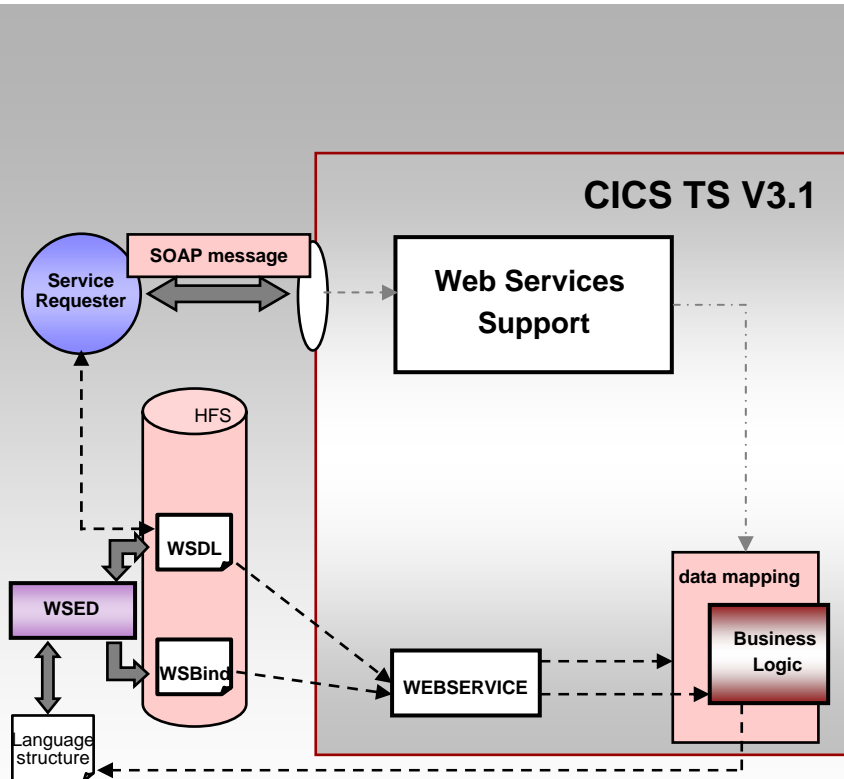
VNext GA + 24-36 Months

DB2 VNext +1

- Autonomic Enhancements
- System tuning & performance
- Remote site failover
- zSeries System & Storage Integration



New in CICS Transaction Server V3.1 – Increased Ease of Integration



Exposure of CICS-based applications as Web Services for integration in a Service Oriented Architecture (SOA)

- Enables standards based interfaces via Web Services
- Provides a simple method for re-factoring CICS applications
- Allows CICS to be both a Web Services provider and requestor
- Support for containers

Supports industry leading SSL protocol

- Enables fine-tuned control of network security
- Provides a faster and more comprehensive security solution through exploitation of advanced z/OS security features

CICS Directions

CICS provides technologies for an On Demand world

- ✓ Application Transformation
- ✓ Integration
- ✓ Operational Efficiency

CICS ensures lasting value of applications in modern Enterprise solutions

1/02

CICS TS V2.2

- Support for EJB'S
- JDBC/SQLJ Access to DB2 Data
- JCICS access to VSAM data
- ECI over TCP/IP
- Integrated Translator for COBOL & PL/I

EJB support

12/03

CICS TS V2.3

- Performance improvements for Java programs
- Addition of CICS Web Support to the JCICS classes
- Interactive debugging for COBOL and Java applications
- SOAP for CICS
- Performance improvements in CICS-DB2® attachment

**High Performance
JAVA**

03/05

CICS TS V3.1

- Web Services capabilities to extend apps to SOA
- Support for industry leading SSL protocol
- Optimised CICS data exchange capabilities
- New interfaces for Enterprise Management
- Leverage WD4Z for application transformation and integration.
- Enhanced C/C++ programs performance

Web Services

next 24
Months

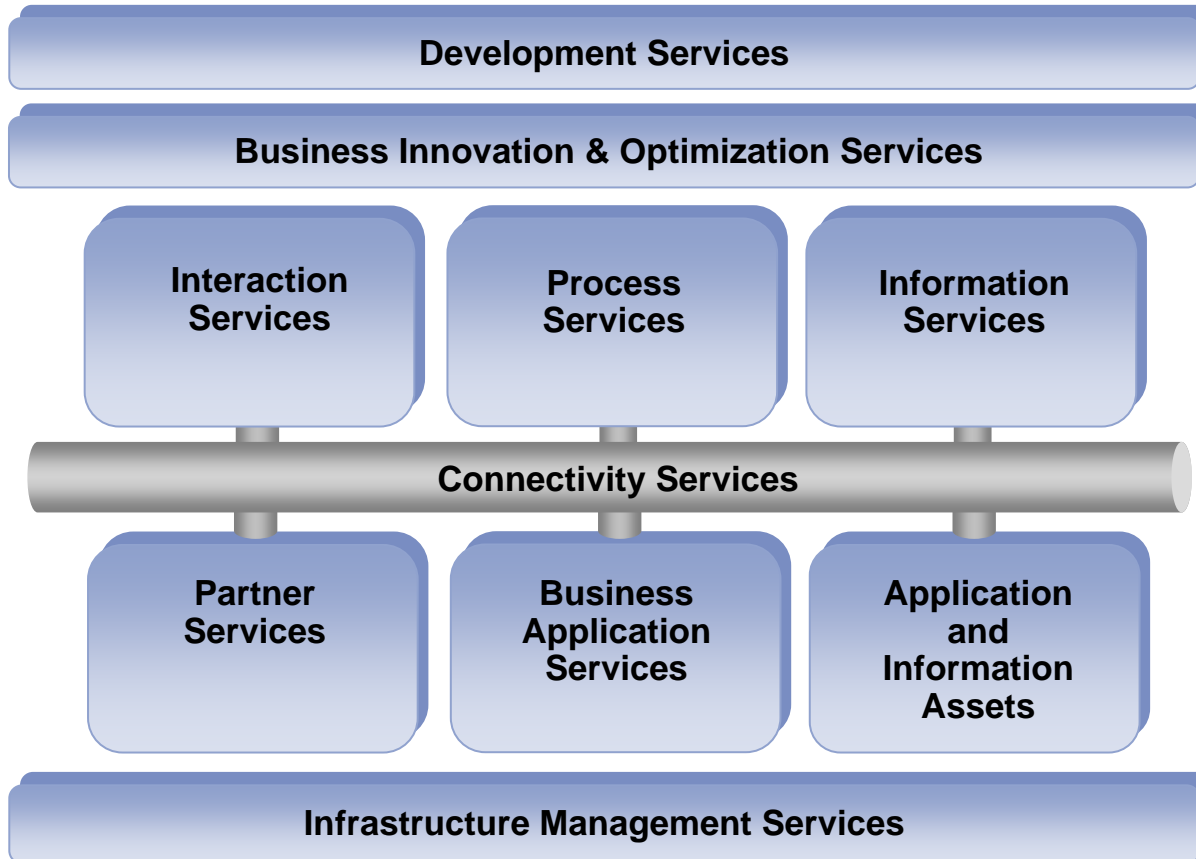
CICS TS V3.n

- CICS-to-CICS connectivity with an IP network
- Enhance Web Services capabilities
- Higher application parsing efficiency
- Extend Web Services support for COBOL data types
- Enterprise wide workload management
- Remove capacity restraints relating to data sources

SOA

Robust Capabilities Connected in an Open, Flexible Manner

IBM WebSphere Integration Reference Architecture



Modular product portfolio built on open standards

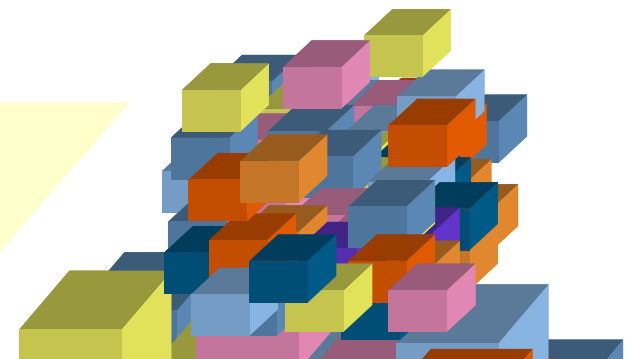
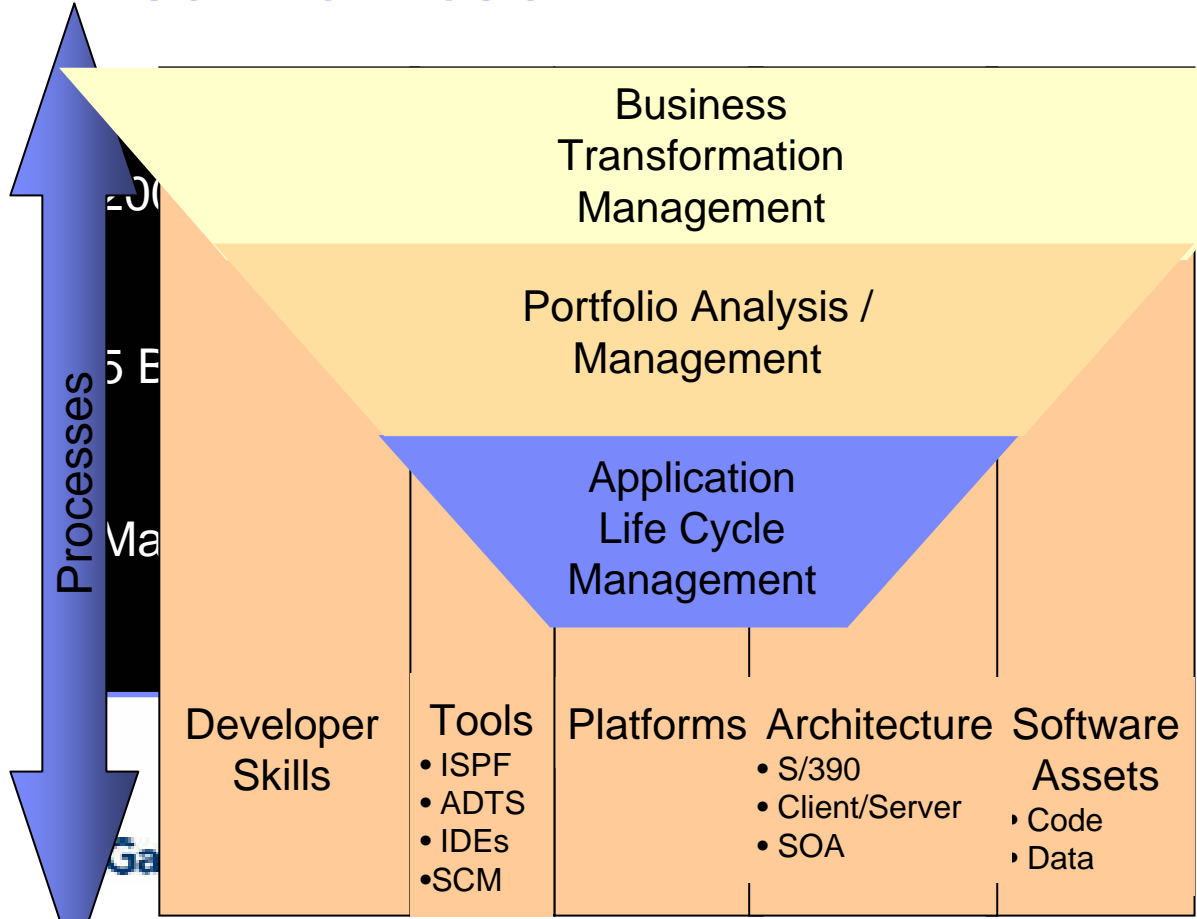
Functionally rich, adopted incrementally

Simple to develop, deploy and manage

Integrated role-based tools for development & administration

...delivering **the value of SOA, today**

Transformation Investment Considerations For Mixed Workload



"200 Billion lines of COBOL code in place"
eWeek

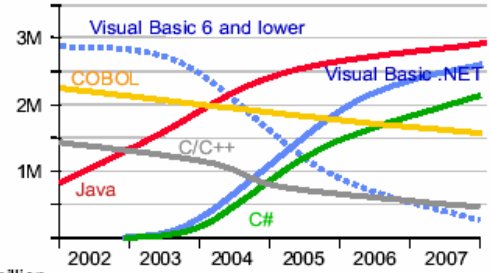
"5 Billion lines of new COBOL code yearly"
TSG Inc.

"Majority of data on mainframes"
Computerworld

- Diverse development teams and skill sets
- Poorly integrated tools & processes
- Diverse sets of artifacts

Developers

From an estimated worldwide market size of 7 million "professional" developers



M = million
Gartner

Enabling a robust, flexible SOA runtime environment



While maximizing the value of existing assets Fully SOA capable!

WebSphere Application Server V6

March 2005

- Extend existing Java assets with support for Web Services standards and standards-based messaging
- Help ensure 24x7 availability of business-critical applications with clustering and high availability
- Build and deploy Web Services quickly and easily with rapid development and deployment features

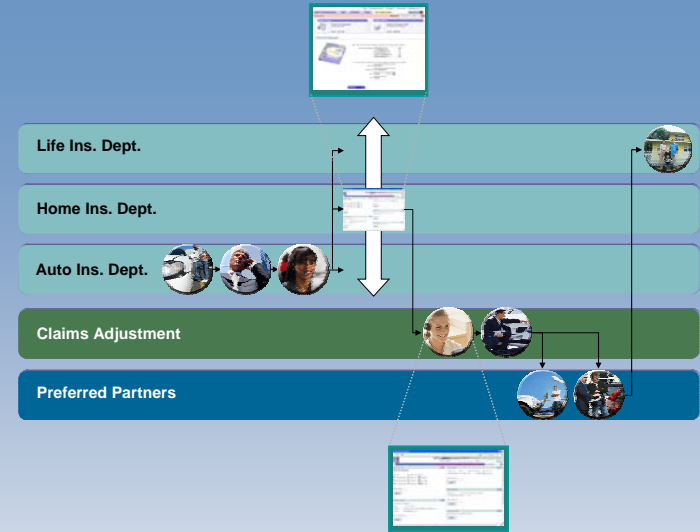
WebSphere Application Server V6.0.2 Preview

- SDK 1.4.2 included in WAS runtime – easier packaging and serviceability
- Tighter integration with WebSphere MQ and improved IJP support
- Enabling government standards for products to acquire federal government standards certification:
 - FIPS140-2
 - IPV6
 - Certified at a Common Criteria Evaluated Assurance Level (EAL4)
- Ease-of-use and serviceability enhancements
- Security enhancements.

WebSphere MQ V6.0 Extended Security Edition

- Featured as a SOD in April 2005 Announcement of WebSphere MQ V6.0
- End-to-end application level security for WebSphere MQ environment
- Enables enterprise-wide, remote management of security policies
- Upgrade from standard WebSphere MQ without changes to existing production MQ environment.

Planned Availability Year-End 2005



#1 in market share for Application Server software



IBM WebSphere Application Server comes out on top

35+ years of maturity and innovation in transaction and data systems



Announcing New and Enhanced Products

Strengthening the IBM SOA Foundation

WebSphere Integration Developer*

WebSphere Developer for zSeries
 Rational Application Developer*
 Workplace Designer

Process:

WebSphere Process Server for z/OS*
WebSphere ESB for z/OS*

WebSphere Message Broker for z/OS
 WebSphere Extended Deployment

People:

WebSphere Portal for z/OS
 Workplace Collaboration Services
 Workplace Managed Clients
 WebSphere Everyplace Deployment*

Information:

WebSphere Information Integrator

Application Infrastructure:

CICS Transaction Server
 WebSphere Application Server & XD for z/OS

WebSphere Business Modeler

Rational Software Architect
 Service Flow Monitor in WebSphere
 Developer for zSeries

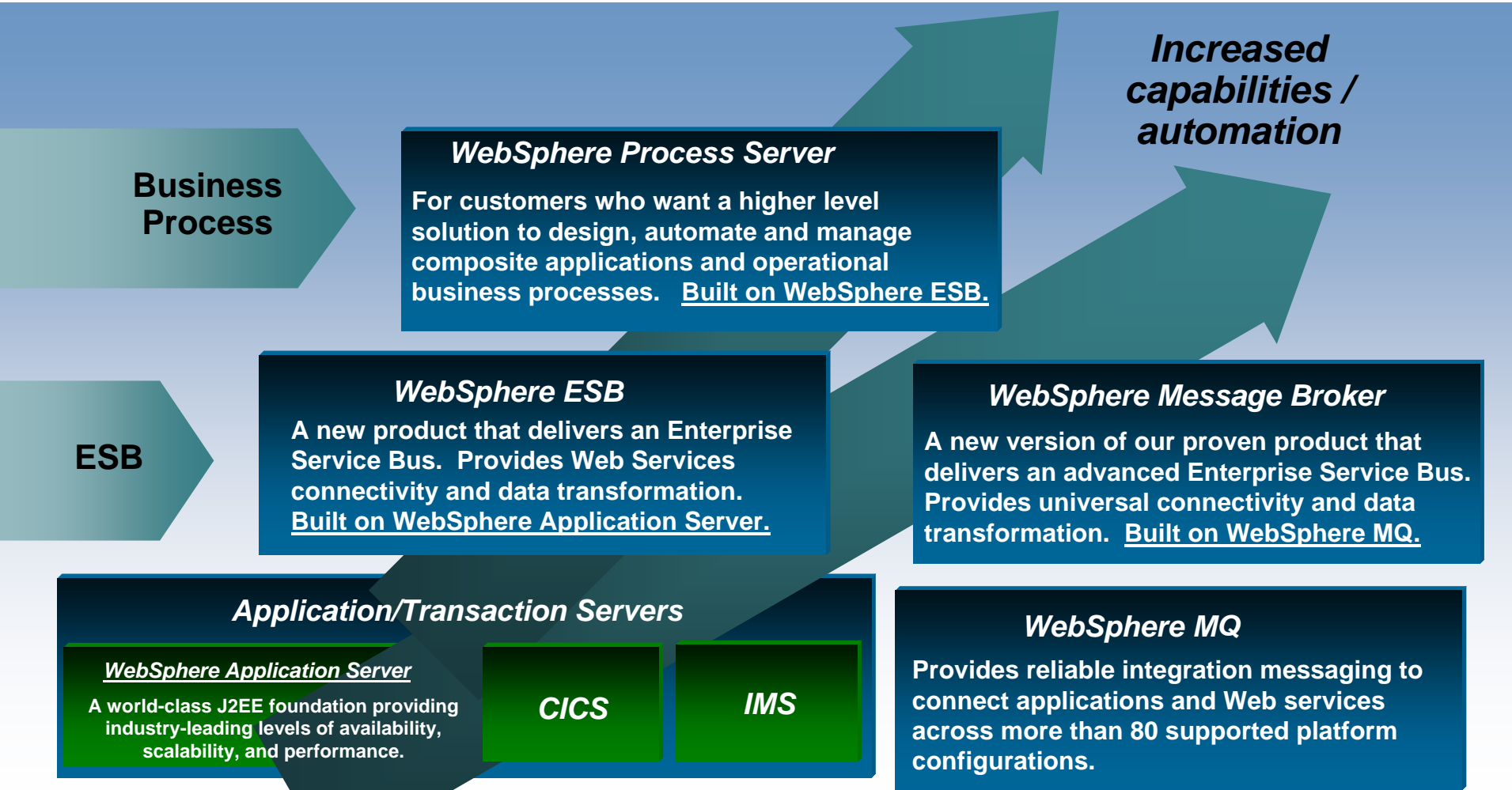
WebSphere Business Monitor

Tivoli Composite Application Manager for WebSphere
 Tivoli Composite Application Manager for SOA *
 Tivoli Federated Identity Manager

* Indicates new products

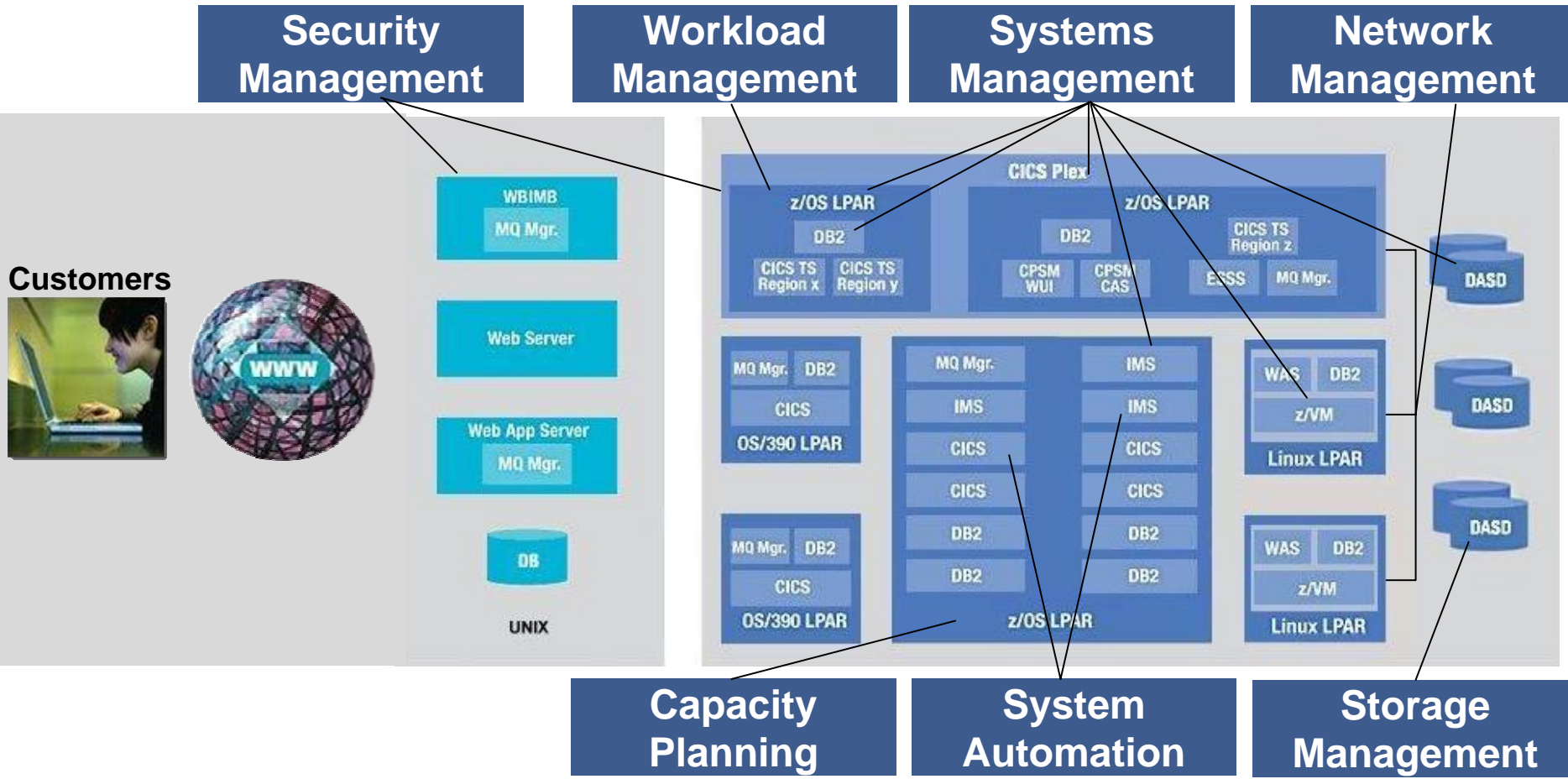


z flexible deployment options for an SOA environment



zSeries Infrastructure Management

Continually adjust the end-to-end infrastructure to deliver high-performance in a volatile business climate



zSeries Infrastructure Management – Security Management

Complete zSeries security management solution, including administration, integrity auditing, and intrusion detection and management

- **Vanguard Administrator** simplify and enhance RACF security management
- **Vanguard Analyzer** assists with security system snapshots or full-scale zSeries security audits
- **Vanguard Enforcer** manages and enforcing security policy in z/OS and RACF
- **Vanguard Advisor** provides Event Detection, Analysis and Reporting capabilities for the z/OS and RACF
- **Vanguard Security Center** offers browser-based RACF and DB2 security administration on z/OS
- **IBM Tivoli Security Administrator for RACF** provides low cost, rapidly deployable RACF management solution

The image displays three overlapping screenshots from zSeries security management tools:

- Baseline Build Selection:** A terminal window showing a menu of system and installation baselines. The 'System Sensors' list includes All System Baselines, APF, Critical Data Sets, Link List, LPA, and Privileged Users. The 'Installation Sensors' list includes All Installation Baselines, DASD Volumes, Data Sets or Data Set Profiles, General Resource Profiles, Restricted Utilities, and Security Server Groups.
- Program Properties Table Analysis:** A terminal window showing details for a program entry. The entry is 'BPXVCLNY' with a protection key of '08'. A message 'VSA392R' indicates that RACF checking for datasets is bypassed. The explanation states that the entry in the PPT grants the bypass password attribute to the program.
- SYS1: Group Tree - Order by Superior Group:** A graphical interface showing a tree structure of system groups. The 'EZXIGR' group is expanded, showing subgroups 'EZIGRP1', 'EZIGRP2', and 'EZIGRP3'. A table on the right lists users and their authorities for the selected group.

User	User Name	Authority
1	BPX0HIT	USE
2	DB8GRFSH	unknown
3	DSH1WLM1	unknown
4	FTPD	USE
5	IBMUSER	SYSTEM OPERATOR
6	IDUHC2	IAN'S BACKUP ID
7	IDUHC3	IAN DUNCAN 3
8	IDUHC4	IAN
9	IDUHC5	IAN TEST CLONE 5
10	IDUHCAN	IAN DUNCAN



Tivoli End-to-End Software Asset Management

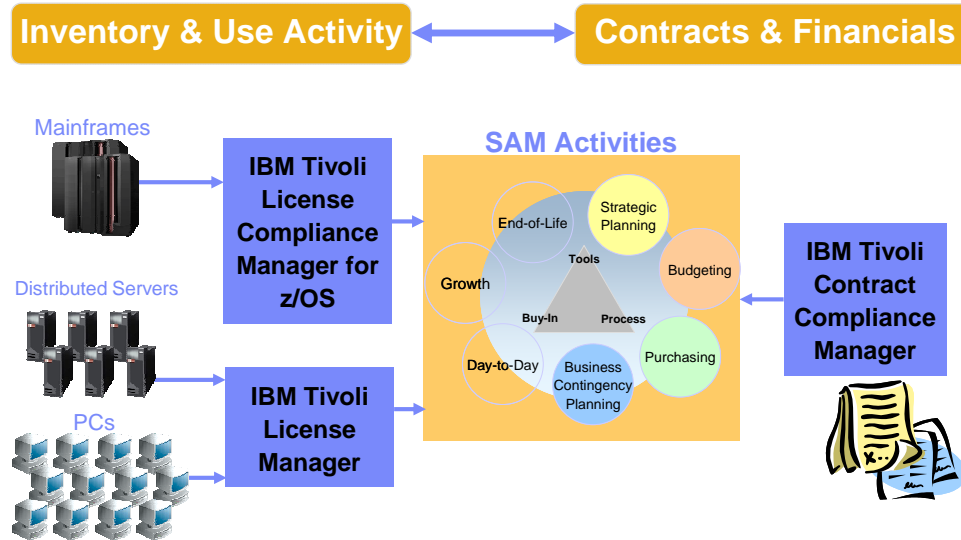
Business Issues

- Software costs are difficult to “control”
- Potential for unexpected expensive software contract compliance audit penalties
- Hard to find key “software product use activity” information needed for effective software asset management
- Difficult to shift software spending to align with business needs

Business Value

- Tivoli end-to-end software asset management solutions help you control software costs and contract compliance exposure to free up funds for priority projects
- Helps organizations demonstrate adherence to stringent accounting standards (Sarbanes-Oxley)

IBM Tivoli License Compliance Manager for z/OS
 IBM Tivoli License Manager
 IBM Tivoli Contract Compliance Manager



Software Asset Management Value

Boise Cascade

SAM Actions

Cost Reduction

- **We were able to eliminate several products and optional add-ons to other products that had little or no use.”**

Cost Management

- **“By understanding what we have, where we have it and who is using it, we have been able to manage our hardware planning more effectively.”**
- **“We can make decisions on how many versions of software we want to maintain.”**
- **“We identify and re-bill our internal customers for expansive “must have” product that only they are using.”**

SAM Results

Software Cost Reduction with MIPS Growth

- **“Our actual mainframe ISV expenses were 24% less than 5 years ago and we now have a lot more processing.”**



Portfolio Review and Analysis

"PRA" - a study for IBM zSeries customers

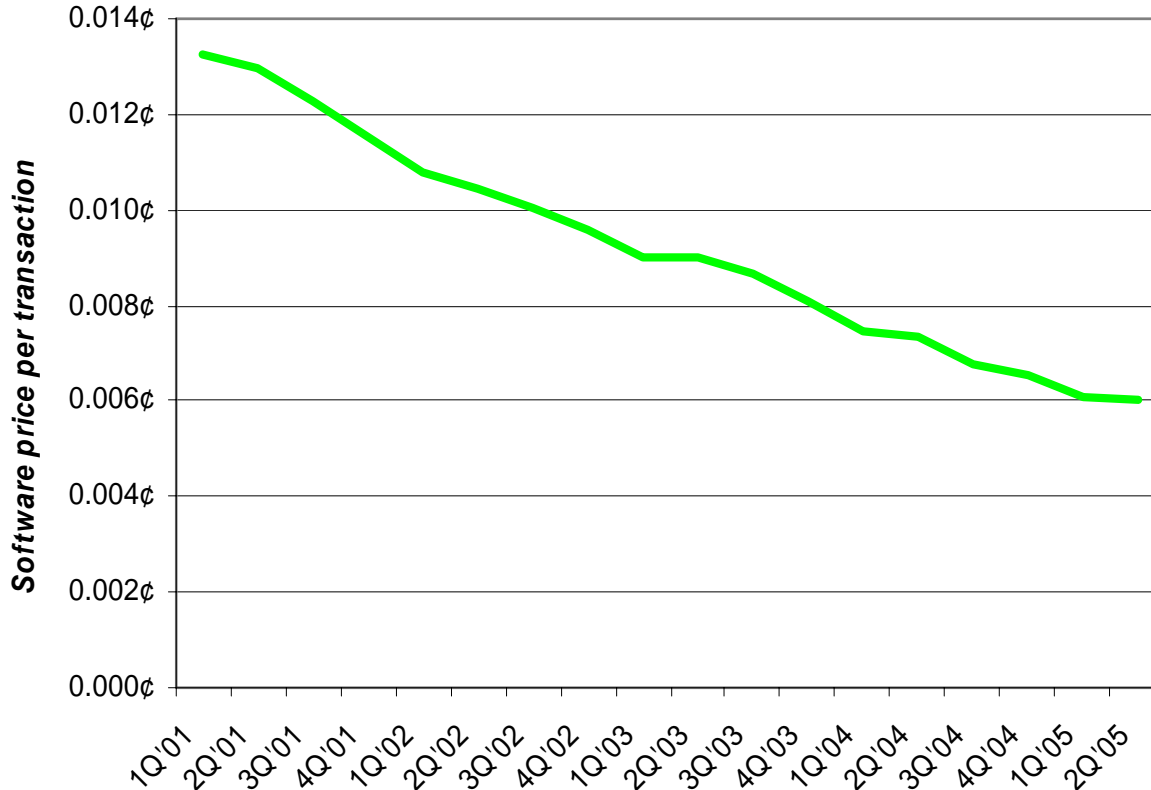
- **helps understand the potential impact of processing growth on future software budgets by developing predictive costs models.**
- **provides you with a comparison of your current portfolio cost structure with those of other zSeries/S390 customers.**
- **analyzes your software portfolio to identify redundant or underutilized software products.**
- **identifies product alternatives and their cost/ benefit impact.**
- **provides you with negotiation leverage with incumbent product vendors.**
- **provides you with the latest Software Asset Management tips to help proactively manage your zSeries/S390 software portfolio**

<http://www-3.ibm.com/software/solutions/softwaremigration/sps.html>

Or contact Linda Beckner at (614) 659-7192 or at Becknel@us.ibm.com.



Decrease in average zSeries IBM SW price/transaction YTY for the last 54 months



Key factors behind this decrease:

- sub-capacity pricing
- consolidation to fewer, bigger boxes
- improved price slopes and OS pricing
- organic growth allowing move up the software pricing curves
- 'Tech Dividend' for newer zSeries machines
- ZELC & NALC
- specialty engines (zAAPs, IFLs)

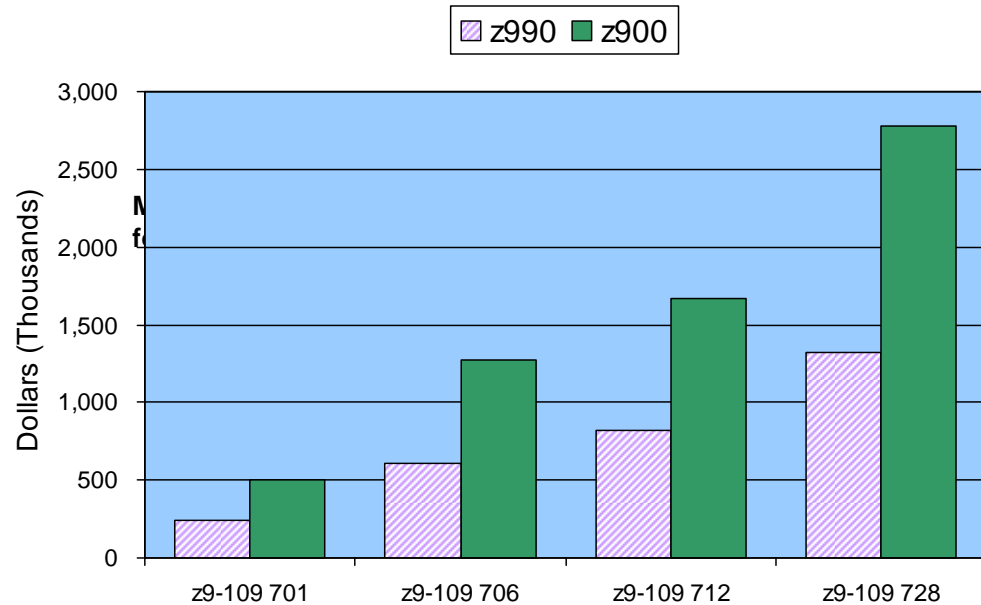
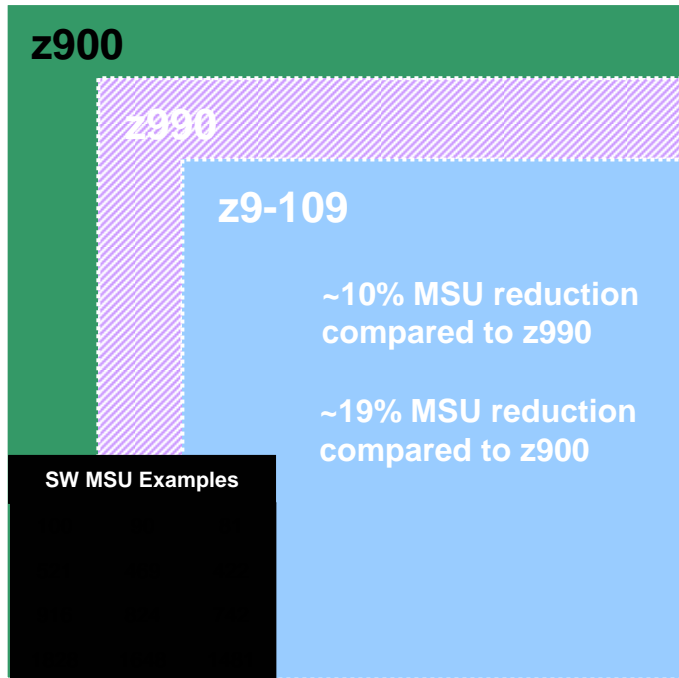
Source: IBM SWG Finance
 Data is WW customer revenue only (not IGS)
 Data includes specialty engines
 'Highway conditions .. mileage may vary'

Inflation-adjusted IBM software price per transaction in cents

Generation to Generation Software Savings

The announced MSUs for SW pricing purposes on z9-109 and z990 servers are designed to offer improved software price/performance.

Example



* **Sample Software Stack Includes:** z/OS Base plus features, DB2 v8, CICS v2, IMS v9, MQ v5

zSeries Center of Excellence Services Offering - zCoE

- Integrated IBM services offering to ensure clients success by improving skills, processes, and practices to support the design, development, deployment and management of solutions in the zSeries environment.

zCoE Services Offering delivers:

- Assessment of client solutions to help ensure success
- Single point of contact across IBM Brands
- Best Practices across IBM Technologies
- Skills transfer to clients' or partners' design, development and operations staff
- Expertise to ensure successful adoption of new technology

Offerings include:

- Project Management
- Architectural Design Reviews
- Security Solutions
- Installation and Configuration
- Application Development and Test
- Deployment and Production Operations
- Capacity Planning
- Performance Monitoring and Tuning
- Premium Support

Contact: Brian Senn/Austin/IBM

<http://www.ibm.com/servers/eserver/zseries/about/charter/offerings.html>



Summary

- We are improving TCO on zSeries
- We are investing in and delivering new technologies on z Software and Hardware.
- We are exploiting the Integration of the z System to deliver new Value
- We have affordable and competitive tools to solve customer ISV concerns.
- We are increasing investment in z technical skills.



Where To Find More Information

Internet –
www.ibm.com/software/zseries

The Mainstream –
www.ibm.com/software/zseries/mainstream

Webcasts 2005

- Oct 25:** [Optimizing your performance with DB2-UDB for z/OS Version 8](#)
- Nov 3:** [IMS Integration Updated for Services Oriented Architecture \(SOA\) with the latest in IMS Tooling](#)
- Nov 8:** [Discover true end-to-end zSeries management with the newest releases of OMEGAMON XE for z/OS, IMS, DB2, Storage, and Networks](#)
- Nov 17:** [DB2 and IMS Tools Update: Continuing to help re-define TCO in terms of value](#)
- Nov 22:** [DB2 UDB for z/OS and Oracle RAC: The Value of DB2](#)

[A complete list of On Demand webcasts and teleconferences](#)

Roadshows 2005

- August – November:** [Best Practices for automating and managing today's data Centers](#)
- September – October:** [Technology Update - Business Integration Solutions for zSeries](#)
- October – November:** [zSeries COBOL Application Development and CICS Technical Update](#)
- October – December:** ["WebSphere® Live for SOA"](#)