



2007 System z Summit

IBM DESTINATION z





Mainframe Simplification: The Road Ahead

System z Summit

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Today's mainframe

For today's new era of business

- **The mainframe is designed to deliver**
 - A highly available and security-rich base for integrating applications
 - Resources optimized to meet business priorities
 - Scalability for data and transaction growth
 - Robust and resilient networking
 - Business resiliency
- **With new directions**
 - New workloads, new markets
 - Simplification and modernization for the new generation of IT professionals
 - Partnerships between IBM, clients, and schools that enrich the mainframe ecosystem



z/OS® System Management Strategy

Making z/OS easier to deploy, administer, and service

October 8, 2006

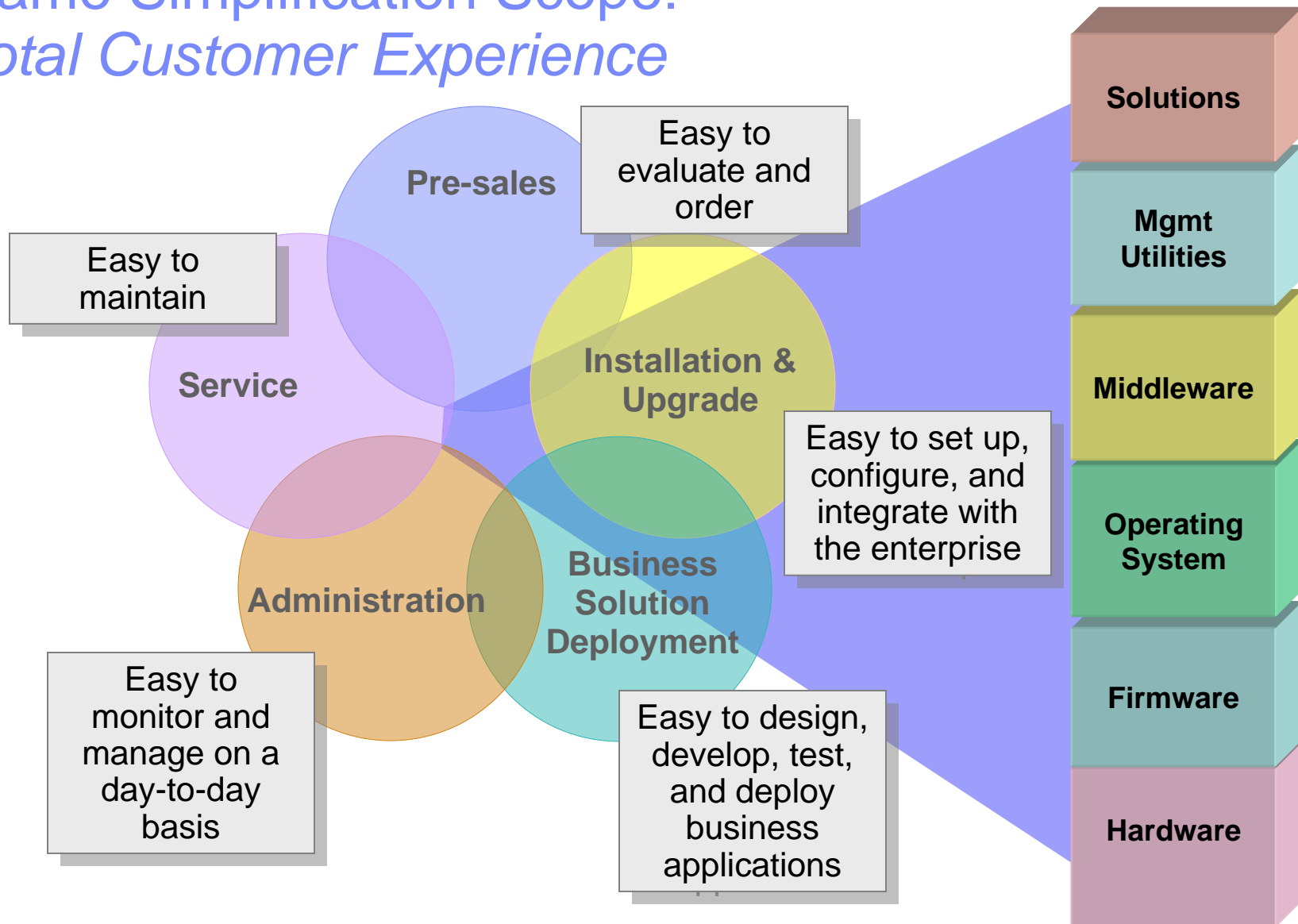
IBM announced a cross-company effort to make the IBM System z™ mainframe ... easier to use for a greater number of computer professionals by 2011. The goal of this **five-year effort**, which will include an investment of approximately **\$100 million**, is to enable technology administrators and computer programmers to more easily program, manage and administer a mainframe system -- as well as to increasingly automate the development and deployment of application programs in the mainframe environment. The initiative, involving a team of hardware and software engineers, will leverage IBM's expertise in automation and systems management. ibm.com/p

Over the next five years, IBM intends to simplify*:

- System health monitoring with event analysis and problem management
- System installation and configuration
- Workload management
- Security management
- Network management
- Data and storage management

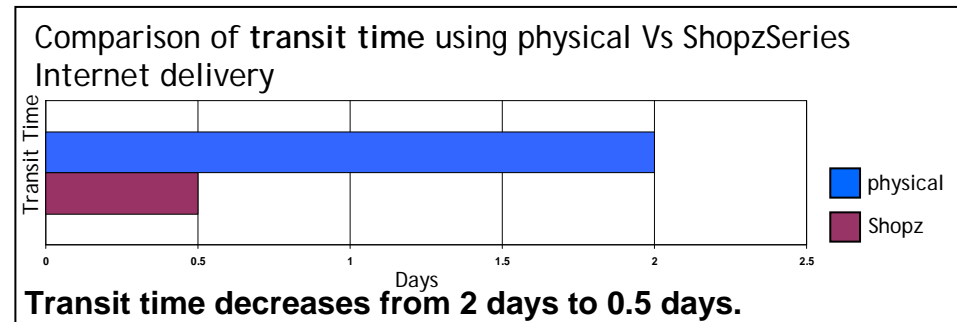
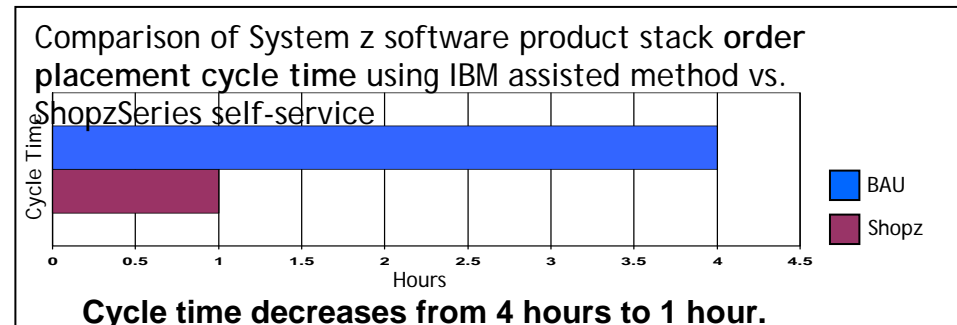
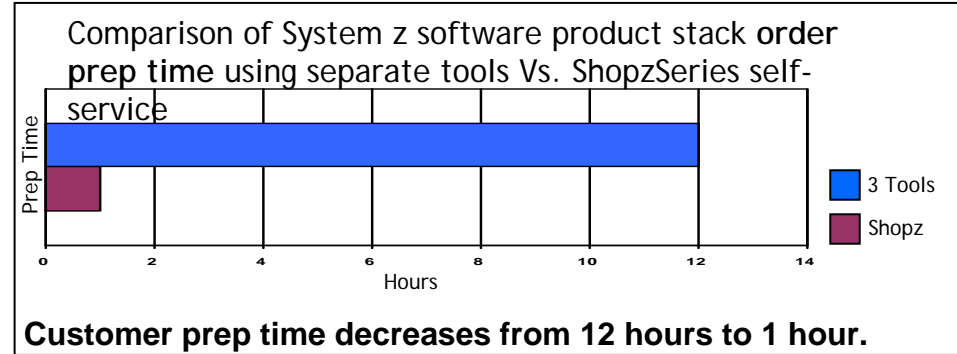


Mainframe Simplification Scope: *The Total Customer Experience*



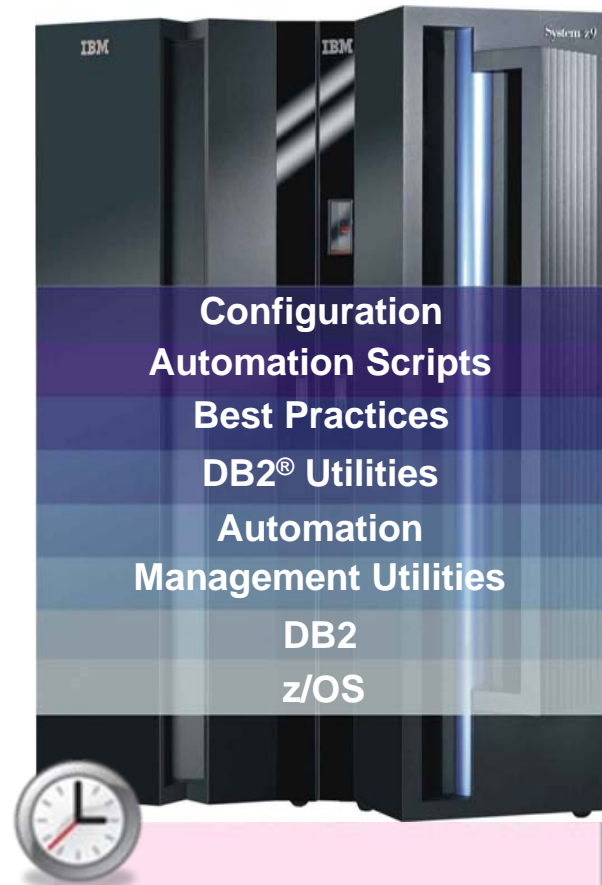
Easier Product Planning and Ordering

- With **ShopzSeries**, clients can plan and order IBM System z software over the Internet, 24x7x365
- **Customer self-service features support:**
 - Planning: Software product upgrade paths are displayed online
 - Ordering begins with a pre-populated software product order checklist
 - Delivery can be electronic; no waiting for media to arrive



Easier Installation

- **Reference architecture packages that enable quick setup of a new sysplex. First up: Data Serving Software Bundle.***
- **Package includes customization disks, scripts, and jobs that help with setup.**
 - **Automated, fast install**
 - **System pre-configured according to best practices**
 - *Result: A system ready for work*
- **Future upgrades are simplified** because of adherence to best practices such as data set layout and naming conventions



Configuration
Automation Scripts
Best Practices
DB2® Utilities
Automation
Management Utilities
DB2
z/OS

***About 30 minutes
to install a ready-
to-use z/OS DB2
database server!***

Easier Administration and Operations

- **Address a broad range of IT administrative roles such as system, database, storage, security, and network administration.**
- **Make IT staff, who are new to the mainframe, productive more quickly by:**
 - Providing a modern user interface that is consistent with other server platforms
 - Automating tasks, thus reducing the learning curve
 - Embedding active user assistance in the UI (e.g., wizards that guide users through tasks, interactive troubleshooting aids).



IBM OMEGAMON[®] z/OS Management Console V4.1

- **For monitoring the health of z/OS systems**
 - Targeted to operations staff
 - Available at no charge for z/OS 1.4 and above
 - Easy upgrade to comprehensive IBM Tivoli[®] monitoring products
- **Powerful features:**
 - Event notification
 - Drill-down to problem details and expert advice



ibm.com/servers/eserver/zseries/zos/zmc/

IBM Systems Director Console for z/OS*

Navigator is tailored to each user's role and responsibilities.

Log of system events. Clicking on an event brings up details including recommended actions.

Integrated Tivoli monitor view

Select	Event Type	Description	Severity	Date and Time	Sysplex	System	Component	z/OS Release	Category
<input type="checkbox"/>	Abend	Description	Critical	01/09/2007 8:34 PM	PETPLEX	System2	Component	Release	z/OS
<input type="checkbox"/>	Message	Description	Critical	01/09/2007 8:00 PM	PETPLEX	System1	Component	Release	DB2
<input type="checkbox"/>	Dump	Description	Critical	01/08/2007 9:30 PM	PE				
<input type="checkbox"/>	Abend	Description	Warning	01/09/2007 7:46 AM	PE				
<input type="checkbox"/>	Abend	Description	Warning	01/08/2007 9:12 PM	PE				

Health check metrics

Legend: Normal Count (Green), High Count (Red), Medium Count (Yellow), Low Count (Pink)

Future* Web-based console for IT administrators.

IBM Systems Director Console for z/OS*

Visualization of System z resources and relationships plus the ability to take action (e.g., perform maintenance, update configuration).

Integrated Solutions Console - Windows Internet Explorer

https://localhost:9044/ibm/console/login.do?action=secure

Integrated Solutions Console

View: z/OS Systems Management

Health

- IBM Health Checker for z/OS

Resources

- Resources and Devices

Workload

- All Workload
- Jobs
- Processes
- Workload Management

Sysplex Resources

- Systems
- Couple Data Sets
- Coupling Facilities

Networking

- Configuration

Capacity

- Capacity Provisioner

Problem

- Event Log

Launch Pad

- Manage External Applications

Settings

- Management Sources

Resources Related to PETPLEX

z900A z990A z800A z890A 2086-A04

CF3 CF2 SYSA JG0 CF1

JF0 Z3 JH0

J90 JB0

Z0 Z2

Z1 JA0

JE0

JC0

LAN A LAN B LAN C LAN D Shared DASD Shared Tape

Overview

Summary - SYSA

Status: ■ Normal

State: Running

Type: z/OS system

OS level: z/OS V1R9

Host Name: sysa.petplex.ibm.com

Tasks - SYSA

[Status details](#)

Monitor and control

- [Jobs](#)
- [Processes](#)
- [Files and datasets](#)

Install and configure

- [Software](#)
- [Storage devices](#)

Selection 1 of 7 Updated: 8:24:17 AM CDT Filters

Workload management scenario

A critical job needs to be processed faster

Flow:

- View all running jobs; select the job that is running too slow.
- Click on the job's service class; select a preferred class.
- Launch OMEGAMON monitor to verify the results.

The screenshot shows the OMEGAMON Jobs monitor interface. At the top, it displays 'Subsystem name: JES2' and 'Subsystem type: JES2'. Below this is a table of running jobs with columns for Job Name, Job ID, Owner, Service Class, and Priority. A blue arrow points from the 'Service Class' column of the first job (IBMUSER, TSU00066) to a detailed view of that job's service class. This detailed view includes several charts: a bar chart showing 'Priority Distribution', a pie chart showing 'Resource Utilization', and two horizontal bar charts showing 'Top Processes CPU Time' and 'Top Processes Private Size'. To the right of the charts is a vertical list labeled 'Aging' with five entries, all marked 'YES'.

Select	Job Name	Job ID	Owner	Service Class	Priority
<input type="checkbox"/>	IBMUSER	TSU00066	IBMUSER	Me	
<input type="checkbox"/>	BPXAS	STC00056	IBMUSER	Me	
<input type="checkbox"/>	BPXAS	STC00054	IBMUSER	Me	
<input type="checkbox"/>	BPXAS	STC00069	IBMUSER		
<input type="checkbox"/>	BPXAS	STC00061	IBMUSER		
<input type="checkbox"/>	PROPREL2	JOB00068	IBMUSER		
<input type="checkbox"/>	PROPREL2	JOB00067	IBMUSER		
<input type="checkbox"/>	BPXAS	STC00065	IBMUSER		
<input type="checkbox"/>	IBMUSER	TSU00059	IBMUSER		
<input type="checkbox"/>	BPXAS	STC00055	IBMUSER		
<input type="checkbox"/>	BPXAS	STC00063	IBMUSER		
<input type="checkbox"/>	BPXAS	STC00060	IBMUSER		
<input type="checkbox"/>	PROPREL2	JOB00064	IBMUSER		

Network configuration scenario

Enabling Intrusion Detection Services

- **Flow:**

- Select the console's Network Configuration task.
- Choose “Intrusion Detection Services” from the list of customizable features. By default, all services are recommended and therefore enabled. However, the network administrator can choose to disable some forms of protection according to site policy.
- The system translates the administrator's choices into configuration settings that adhere to best practices.

Enabled protection

Attack Type	Rule Name	Action
Flood Attack	Flood	Both Discard and Report
Perpetual Echo Attack	Echo	Report Events
Unwanted IP Protocols Attack	IPProtocol	Report Events
Unwanted IP Options Attack	IPOption	Report Events
Malformed Packet Attack	MalformedPacket	Both Discard and Report
Outbound Raw Attack	OutboundRaw	Report Events
IP Fragment Attack	IPFragmentation	Report Events

Disabled protection

Attack Type
ICMP Redirect Attack

Problem management scenario

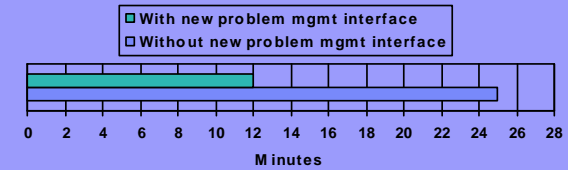
Reporting a problem to IBM

Flow:

- Review incident log.
- Select an incident from the list and review details and recommended actions.
- Search IBM's problem database for a fix. (Plan* to automate this in future.)
- If a fix is not yet available, open a problem report with IBM, and send diagnostic data (e.g., dump data, log snapshots) that were automatically captured at the time of the incident.



Time to gather and send doc to IBM



Reduced by 50%!

Select	Event Type	Description	Severity	Date and Time	PMR Number	Sysplex	System	Component	z/OS Release	Category
	Filter	Filter	Filter	Filter	Filter	<input checked="" type="checkbox"/> PETPLEX	Filter	Filter	Filter	Filter
<input type="checkbox"/>	Abend	Description	Critical	01/09/2007 8:34 PM	PMR	PETPLEX	System2	Component	Release	z/OS
<input type="checkbox"/>	Message	Description	Critical	01/09/2007 8:00 PM	PMR	PETPLEX	System1	Component	Release	DB2
<input type="checkbox"/>	Dump	Description	Critical	01/08/2007 9:30 PM	<input type="text"/>	PETPLEX	System 3	Component	Release	Websphere
<input type="checkbox"/>	Abend	Description	Warning	01/09/2007 7:46 AM	<input type="text"/>	PETPLEX	System 1	Component	Release	z/OS
<input type="checkbox"/>	Abend	Description	Warning	01/08/2007 9:12 PM	PMR	PETPLEX	System 2	Component	Release	z/OS

Example of incident details

Event Details

Event Type: System abend
 Event Description: System abend
 Date: 1/09/2007
 Time: 08:34PM
 Sysplex Name: PETPLEX
 System Name: System2
 Component: BPX -z/OS UNIX System Services
 Component ID: SCPX1
 z/OS Release: z/OS V1R8
 Category: z/OS
 Abend Code: S0422
 Reason Code: 083A01A5
 Load Module: BPXLK

Diagnostic Data

Select	Data Type	Data Set Name	Location	Symptom String
<input checked="" type="radio"/>	Dump			
<input type="radio"/>	Log			
<input type="radio"/>				
<input type="radio"/>				
<input type="radio"/>				

Actions: Search []

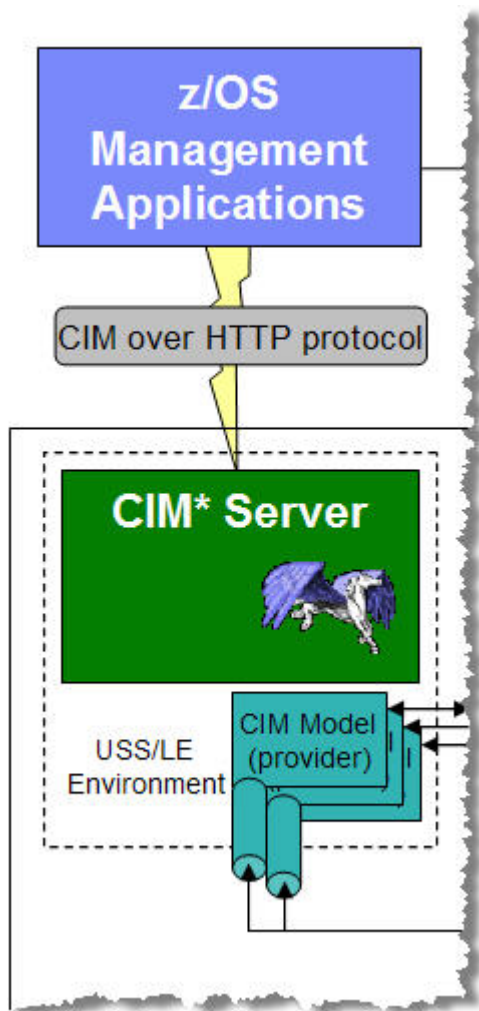
Context menu for 'Dump':
 Rename...
 Allow Next Dump...
 Details...

Buttons: OK, Problem Database, Cancel, Help

Search Service Database for a match.

Underlying Architecture for Simplification

Leverages open standards and autonomics



■ **Open Standards**

- The Common Information Model (CIM) is a standard data model for describing and accessing systems management data in heterogeneous environments.
- CIM makes it possible for IBM and third party developers to create management applications that control z/OS – without requiring deep knowledge of z/OS interfaces.
- A subset of resources and metrics of a z/OS system have been mapped into the CIM standard data model, and more extensions are planned.

■ **Autonomics**

- IBM Health Checker for z/OS provides a foundation to automate the identification and correction of potential configuration problems before they impact system availability.
- Predictive technology detects unusual resource consumption and allows corrective actions to be taken before system availability is affected.

IBM Data Server Administration Console

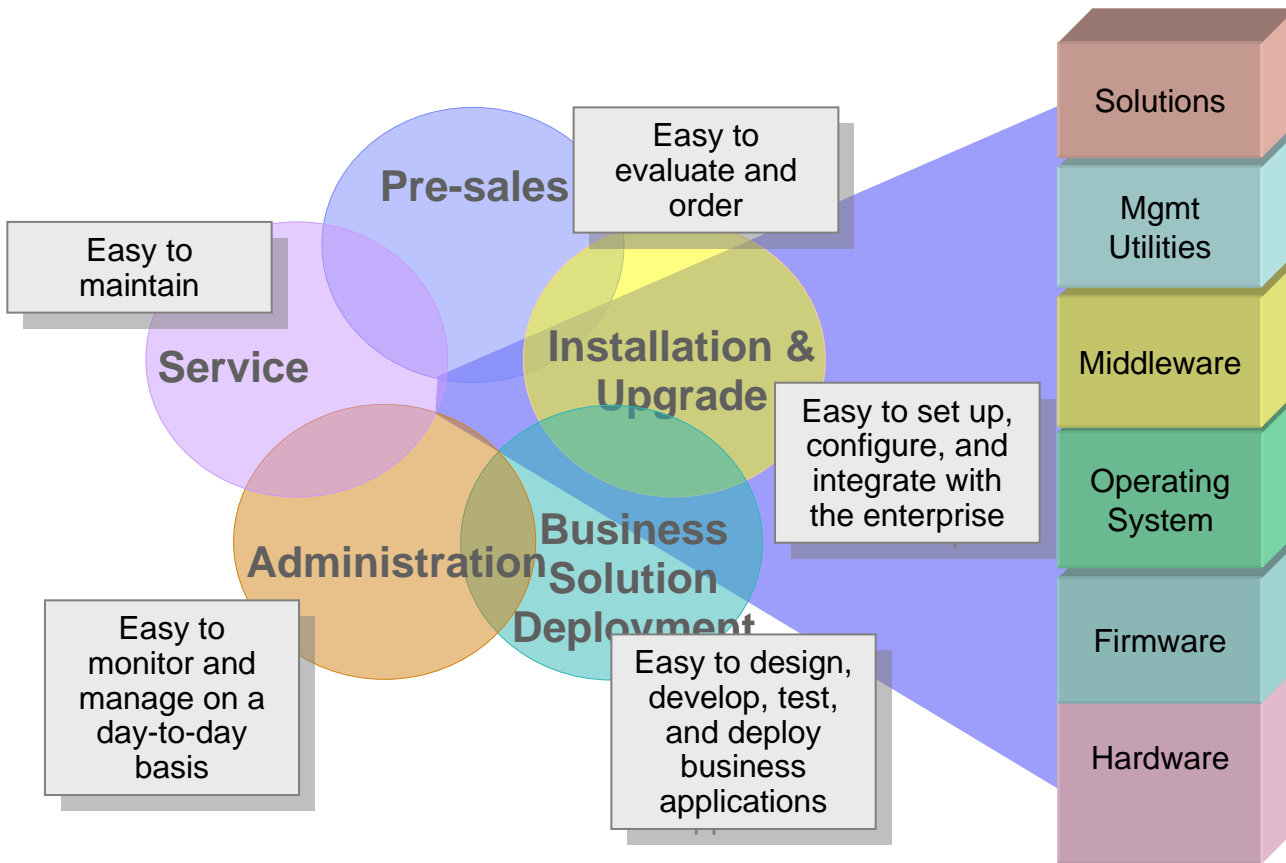
New Web-based console planned.*

- **Common solution**
 - Supports DB2 LUW, DB2 for z/OS, IDS
 - Objective is to make Web interactions exactly the same for all database products.
- **Task-based**
 - Support key end-to-end admin scenarios
- **Simple but powerful**
 - Do the simple things easily & quickly, make the complex possible for everybody
- **Scalable**
 - Full spectrum – big (100s of DBs) or small (departmental DB)
- **Easy deployability, upgradeability**
 - Bundled with data servers & downloadable, upgrade console server not clients

The screenshot shows the 'Health Monitor' interface with a grid of health indicators. The grid has columns for 'Market Agent Status', 'Data Server Status', 'Alerts', 'System', and 'Database'. The 'Alerts' column is further divided into 'Critical', 'Warning', 'CPU Usage', 'Disk Space', 'Memory Usage', and 'Logging'. The 'System' column is divided into 'SQL Performance', 'Connections', and 'Transactions'. The 'Database' column is divided into 'Logging'. The grid shows various status indicators (green circles, red hexagons, yellow triangles) and numerical values in red boxes.

Name	Market Agent Status		Data Server Status		Alerts						System			Database	
	OK	Warn	OK	Warn	Critical	Warning	CPU Usage	Disk Space	Memory Usage	Logging	SQL Performance	Connections	Transactions	Logging	
Production	●	●	●	●	3	5	▲	●	●	●	●	●	●	●	▲
Web	●	●	●	●	1	0	●	●	●	●	●	●	●	●	●
eCommerce	●	●	●	●	1	0	●	●	●	●	●	●	●	●	●
Support	●	●	●	●	0	0	●	●	●	●	●	●	●	●	●
Retail	●	●	●	●	0	2	▲	●	●	●	●	●	●	●	●
New York	●	●	●	●	0	1	▲	●	●	●	●	●	●	●	●
Los Angeles	●	●	●	●	0	1	●	●	●	●	●	●	●	●	●
Accounts	●	●	●	●	1	0	●	●	●	●	●	●	●	●	●
Marketing	●	●	●	●	1	3	●	●	●	●	●	●	●	●	▲
Test	●	●	●	●	1	6	▲	●	●	●	●	●	●	●	●
Development	●	●	●	●	0	11	●	●	●	●	●	●	●	●	●

Mainframe Simplification Scope: *The Total Customer Experience*



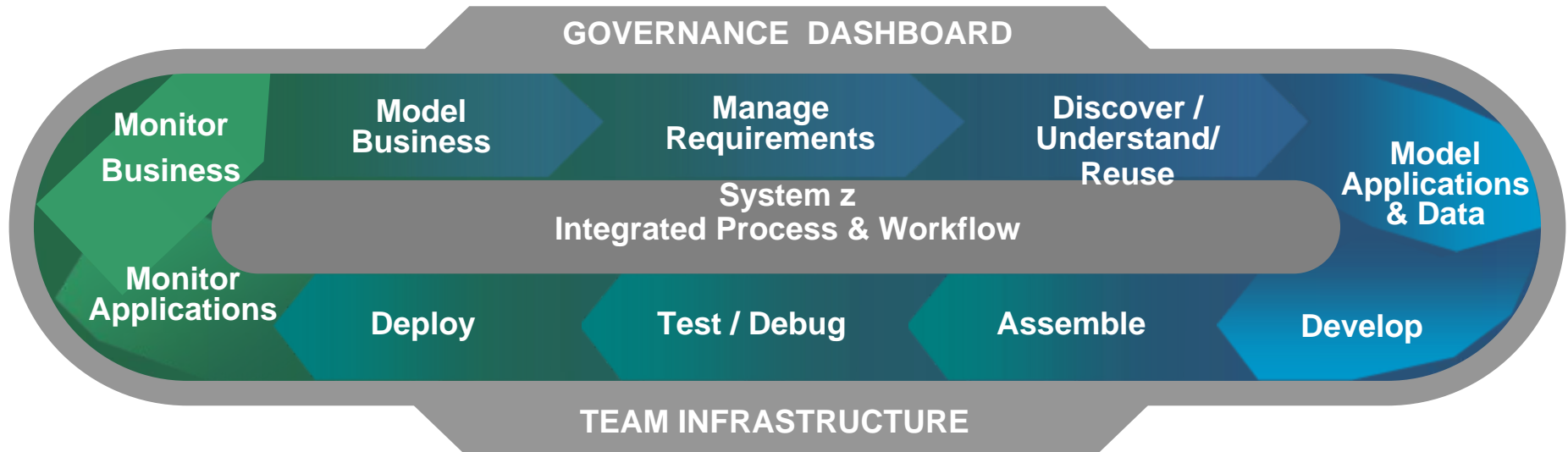
- **All aspects of System z will be managed consistently.**
- **The management framework will be integrated – always there.**
- **Capabilities can grow with value-added extensions from IBM and 3rd parties.**
- **Basic management functions upwardly integrate into Tivoli enterprise management**



IBM System z9

Simplifying application development and giving new life to core business applications

IBM Software Delivery Platform (SDP)



- **The marketplace is rapidly changing; IT must adapt by becoming more agile**
- **Challenges: architectural, middleware and technology complexity; skills gaps**
- **The IBM SDP offers leading edge, high productivity solutions to address these challenges**
 - for teams as well as for individuals
 - for System z as well as for distributed platforms

WDz: The New Face of Application Development

- **WebSphere® Developer for System z (WDz) provides a modern, efficient, Eclipse-based environment for developing:**
 - Dynamic Web applications including Java™ and Java 2 Enterprise Edition, JSF, JSP, HTML, and more;
 - Traditional COBOL and PL/I applications;
 - CICS® and IMS™ Web services using integrated SOA tools.
- **WDz offers advantages over the traditional mainframe development environment:**
 - Single environment for programming tasks: design, code, debug from the same UI
 - Productivity features like syntax-checking, JCL generation, visual debugging
 - Integrated user assistance

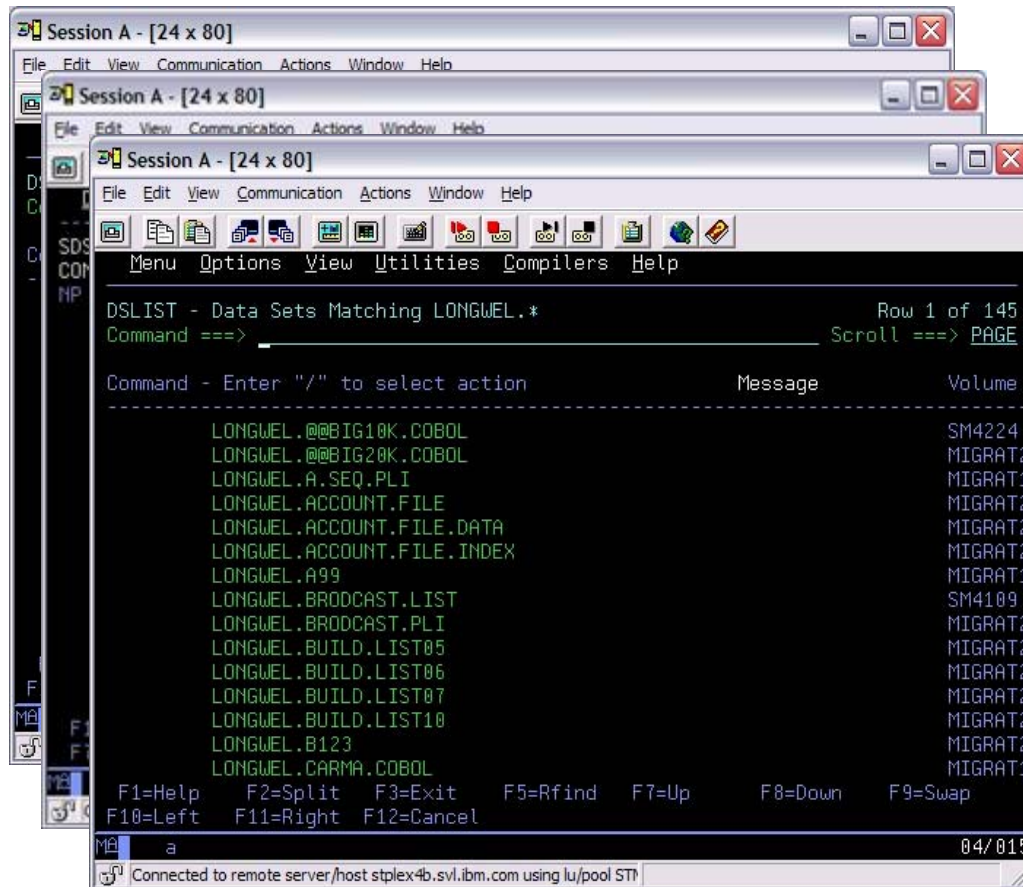


[Click for Details](#)

Client quote: "...this new release strengthens WDz position as the IDE of choice and the dream of a powerful, state-of-the-art and all-integrated IDE for mainframe development more and more comes alive."

z/OS Application Programmer's Experience Before WDz

Scenario: Correcting an error in a COBOL source file

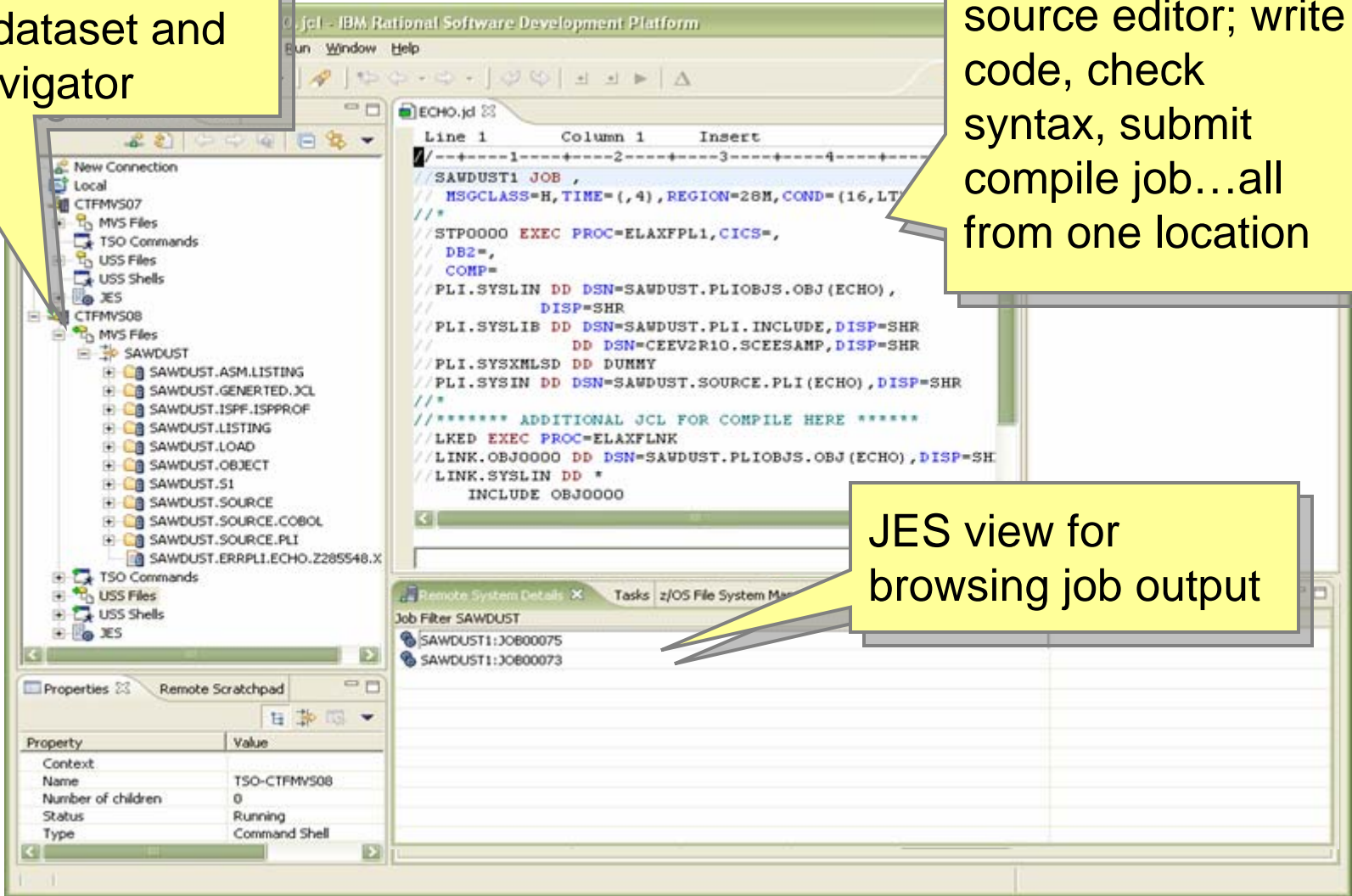


1. Start 3270 emulator
2. Logon to the z/OS system
3. Navigate to the dataset and member using ISPF
4. Select the member for editing
5. Locate the line in the source code
6. Change the source code and save the member
7. Switch to the JCL that is used to submit and schedule the compile job
8. Submit the JCL job
9. Switch to SDSF to monitor the job and review the output
10. Repeat 5-9 until program runs correctly

WDz User Interface

z/OS dataset and file navigator

Configurable source editor; write code, check syntax, submit compile job...all from one location



JES view for browsing job output

The image shows a row of IBM System z9 mainframe server racks. The racks are dark blue with the IBM logo and 'System z9' text visible. The background is a dark blue gradient with vertical columns of binary code (0s and 1s) and a horizontal line of binary code. The overall aesthetic is technical and futuristic.

Growing the mainframe community

Advancing toward goal of 20,000 additional mainframe educated students in marketplace by 2010

Academic Initiative to educate students on mainframes and enterprise skills

- >27,000 students worldwide educated to date – reported by professors
- School enrollments grew 900% in 2 years, over half outside of US
- 20 courses available to all schools
- Student Mainframe Contests
4,500 students from 500 schools
- 6 University HUB systems actively sharing academic mainframe resources worldwide
- zNextGen community kicked off with SHARE/IBM
- Over 200 IBM mainframe ambassadors assisting schools



And more planned ...

- Student Mainframe Contest
- Faculty Education Seminars ongoing
- More Majors and Certifications
- Matching schools with customers
- Faculty Awards

Student Mainframe Contests

Completed first contest in North America, Fall 2005

- 750 students enrolled from 85 schools in first ever remote “hands-on” contest
- Three levels of challenges, prizes awarded at each level (T-shirts to ThinkPads)
- Winners invited to Poughkeepsie; Interviewed by IBM & Customers

Completed contests for 2006 – and planned for 2007

- 2nd NA contest complete – 1,085 students from 177 schools (plus China contest)
- 1st Europe (UK) contest – 725 students from 40 schools (additional European contests in Spring 2007)
- Brazil contest running (2,000 registered)
- Additional global contests being considered – Asia etc.



“z/OS has blown me away in terms of polish and usability compared to MVS.”

– student,
Michigan State



“I’m enjoying it more than I can admit in public.”

– student,
Rutgers University



IBM System z entry level for z/OS System Programmer Mastery Test

- **Measure and validate mainframe z/OS knowledge**
 - *Introduction to the Mainframe: z/OS Basics*
- **Panel of subject matter experts**
 - IBM
 - College and university faculty
 - Mainframe customers
- **Worldwide proctored exam**
- **Results recorded in IBM certification database**
 - Goal: Increase the chances for success within an organization's mainframe community
 - Qualifies students to submit their resumes to the Student Opportunity System Database (Accessible by customers)
 - Leverage the value and importance of System z courses in academia

THOMSON
PROMETRIC



ibm.com/certify/mastery_tests/ovrZ01.shtml

Thank
YOU

@server

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