



# Enterprise Modernization

Using Modern Architecture and  
Technology to Modernize,  
Extend and Accelerate Your  
Application Development and  
Delivery

**Hayden Lindsey**  
**Vice President and Distinguished Engineer**  
**IBM Rational Enterprise Tools & Compilers**

*The future runs on System z*



# Agenda



- ▶ Breaking News!
- ▶ Enterprise Modernization
- ▶ Getting Started
- ▶ Q&A

# Rational and System z

- ▶ New Rational Organization
  - Enterprise Modernization
  - z/OS Compilers and Tools transferred to Rational
    - Application development tools in same division for all platforms
- ▶ Focused on
  - System i and z customers
  - Business Application Developers
  - Bringing products to System z with native z/OS support!
- ▶ Seamless platform-independent tools and technologies for all supported systems
- ▶ Key part of recent z/OS z10 announcement



em z

United States [ change ]

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Software >

## System z Software

**System z software**

- Products A to Z
- Products by category
- Services
- Trials and demos
- Library
- Case studies
- News
- Training and certification
- Events
- Support

Communities

- IBM Business Partners
- ISVs
- Developers

→ IBM TV Video: Mainframe cost misconceptions

→ 2008 IMPACT

→ IBM Pulse 2008

**Why System z software**

System z™ has the power to drive an enterprise, using software to help reduce costs and improve flexibility, security, compliance and access to information through central resource management. [Learn more](#)

**What we offer**

**Information Management (Info Mgmt)**  
Creates new business value by transforming all forms of data into trusted information that's in business context.

**IT Service Management (ITSM)**  
Delivering visibility, control and automation to maximize return on investments, and accelerate business growth.

**SOA and Enterprise Modernization**  
Aligns IT and business to generate greater flexibility.

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**IBM Rational Enterprise Modernization products featured prominently on System z Software page**



[http://www-306.ibm.com/software/os/systemz/en\\_US/index.html](http://www-306.ibm.com/software/os/systemz/en_US/index.html)



The screenshot shows the IBM Rational Business Developer 7.1 website. The main heading is "Enterprise modernization for System z". Below this, there is a banner for "BUILDING NEXT GENERATION SYSTEM z APPLICATIONS" with an image of server racks and a globe. The page is divided into several sections: "Overview" (with tabs for System z, System i, and Distributed), "Assets", "Skills", "Investments", "Architectures", and "Processes and infrastructures". A "Spotlight" section features a "Webcast: IBM Rational modernization strategy and roadmap" and a "Webcast: Unleash the power of enterprise assets and skills with Smart SOA". A "Highlights" section includes a "Demos: IBM Enterprise modernization solutions" and two "Whitepaper" entries: "Unleash the power of mainframe assets into SOA (2MB)" and "IBM System z tools for CICS SOA development (360KB)". A "Related links" sidebar on the left lists various resources like Events, Education, Library, News, Services, Support, Trials and betas, and Warranties, licenses and maintenance. A "New!" badge is visible in the top right corner of the page content.

▶ Accelerate Web and SOA application development and improve skills flexibility with EGL: the newest business language for z/OS

- **Rational Business Developer 7.1**



▶ Accelerate adoption of SOA technologies with

- **Rational Developer for System z 7.1**

▶ Analyze assets to expand ROI, speed new projects with

- **Rational Transformation Workbench 3.1**

▶ Extend core System z transactions to the web

- **Host Access Transformation Services (HATS) 7.1**

▶ Enhance team collaboration and traceability with

- **Rational ClearCase for z/OS 7.0.1**
- **Rational BuildForge**

▶ Maximize exploitation of hardware architecture with

- **IBM C, C++, COBOL, PL/I, and FORTRAN compilers**

<http://www-306.ibm.com/software/info/developer/solutions/em/systems/z/index.jsp>

# Agenda



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# IT as a Core Business Process

*“IT investments made 10 to 20 years ago are ... constraining the speed with which these businesses can change and respond to industry threats.” – Gartner’s Top Predictions for Industry Leaders, 2007 and Beyond*

- ▶ IT flexibility is a key enabler for today’s businesses
- ▶ To be successful, you must mature and modernize your IT tools and processes
- ▶ Companies face significant challenges getting from “here” to “there”.

*“Aligning IT with the business relates directly with an IT group attaining real flexibility.” – Butler Group*

# Customers are asking, can we.... ?

- ▶ **Leverage existing assets?**
  - Discover and gain control over our existing enterprise application portfolio?
  - Identify assets for reuse in a Service Oriented Architecture?
- ▶ **Leverage modern architectures?**
  - Create services easily from existing code, including 3270 terminal applications?
  - Define new services for all deployment platforms from initial design to implementation?
- ▶ **Leverage existing skills and attract new skills?**
  - Exploit new technologies and innovation without retraining existing staff that knows the business?
  - Utilize new employees on any project independent of target platform?
- ▶ **Leverage a common development environment for all development teams?**
  - Lower costs due to elimination of duplicate tools and processes?
  - Realize improved end-to-end communication and traceability across the entire lifecycle?
- ▶ **Leverage my development spending better?**
  - Reduce maintenance costs, freeing resources to work on new projects?
  - Improve application performance without expensive code changes?





# The Challenge of Modernization

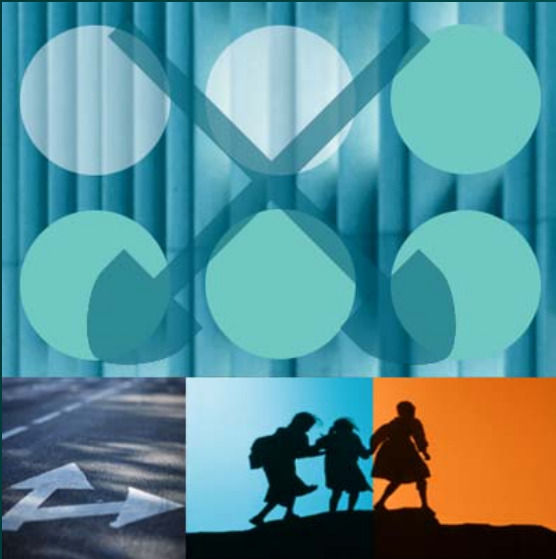


To enable flexibility, IT must overcome challenges such as:

- ▶ No electronic inventory of current IT assets
- ▶ Complex application architectures
- ▶ Skills lock-in
- ▶ Islands of development
- ▶ Limited funding for new investments

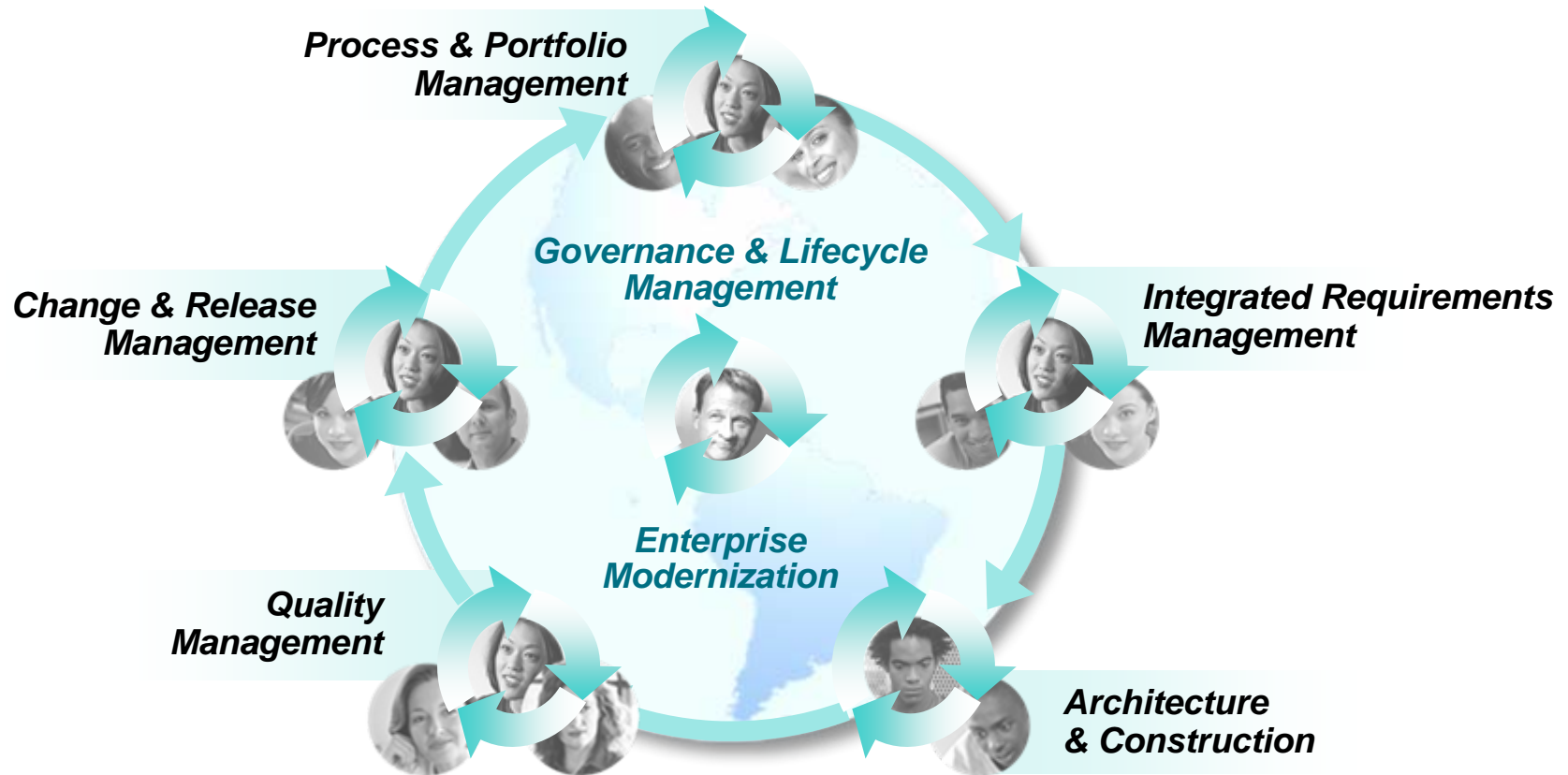
# Enterprise Modernization - The Road Ahead

- ▶ You need a unique modernization strategy based on:
  - Your business requirements
  - Your budget
  - Your staffing constraints
- ▶ Choose one or more of the options on the next pages to build your modernization strategy
- ▶ Rational and our business partners can help you formulate your own customized strategy for modernization
- ▶ Let's look at our solutions ...



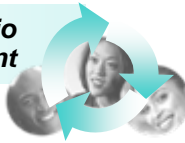
# Application Lifecycle for Enterprise Modernization

Governing the business process of software & systems delivery



# Modernize your Asset Management

Process & Portfolio Management



## Challenges

### No Electronic Inventory of Assets

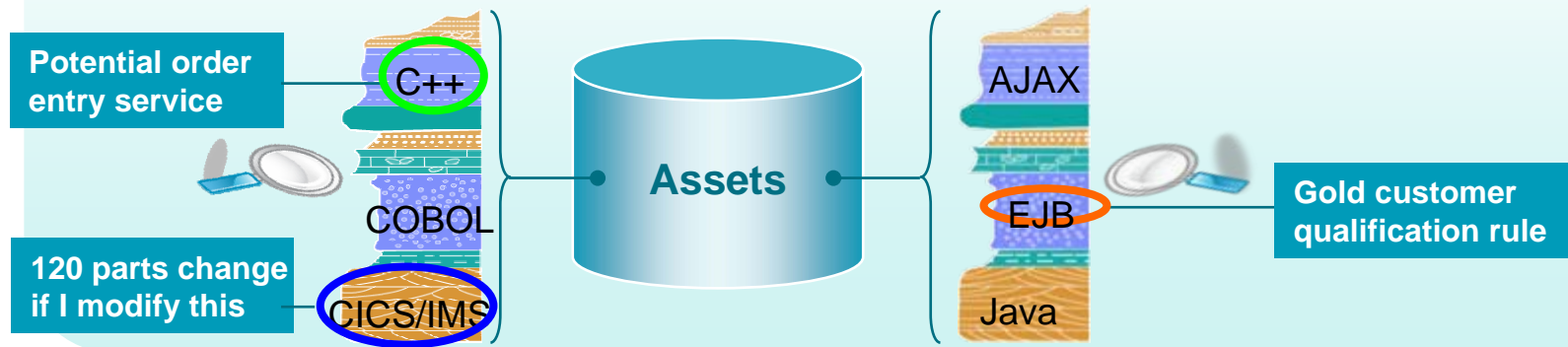
How can we leverage our existing assets to

- ▶ Discover, manage, and understand dependencies so a code change does not break production?
- ▶ Discover and understand application relationships and structures?
- ▶ Maintain control over code provided by outsourcers, business partners, or acquired through a merger?
- ▶ Identify assets for reuse in a Service Oriented Architecture?

## Solutions

### Comprehensive inventory of assets for reuse & modernization

- ✓ Understand existing assets and relationships
  - Rational Transformation Workbench
  - WebSphere Studio Asset Analyzer
- ✓ Create architectural model from business process model and automate tasks
  - Rational Software Architect
  - Rational Asset Manager
- ✓ Deploy and manage runtime services
  - WebSphere Service Registry & Repository
- ✓ Align business goals, best practices and projects
  - Rational Portfolio Manager



# Modernize your Architectures

Architecture & Construction



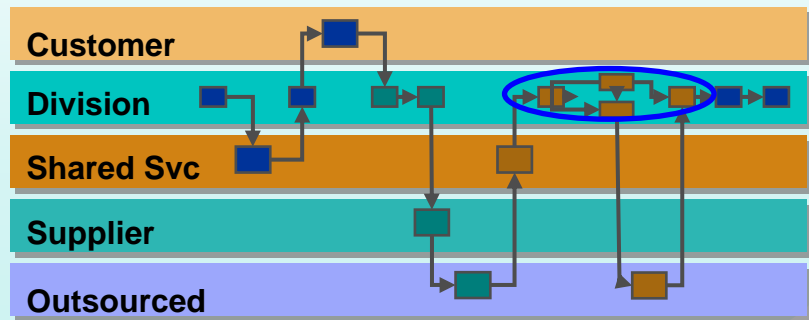
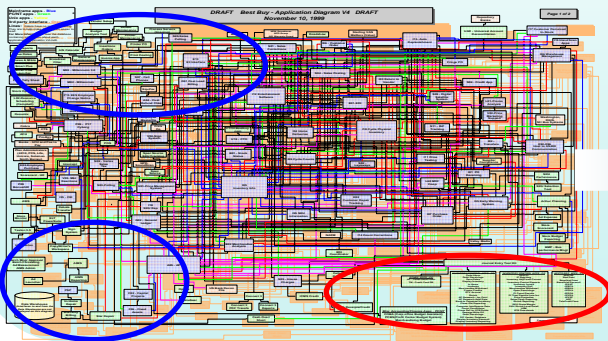
## Challenges Complex Application Architectures

How can we leverage modern architectures to

- ▶ Create web services easily from existing code, including CICS, IMS, i5/OS, and green screen applications?
- ▶ Define new services for all deployment platforms from initial design to implementation?

## Solutions Flexible architectures to enable business agility

- ✓ Transform green screen applications to web UIs and/or web services
  - *Host Access Transformation Services*
- ✓ Quickly create and consume web services from existing COBOL, PL/I, Java, CICS, IMS, i5/OS, RPG, or EGL applications using
  - *Rational Developer for System z*
  - *Rational Business Developer* New!
- ✓ Use Model-Driven Development (MDD) to architect services and data
  - *Rational Software Architect*
  - *Rational Data Architect*







# Modernize your Skills

## Challenges Skills Lock-in

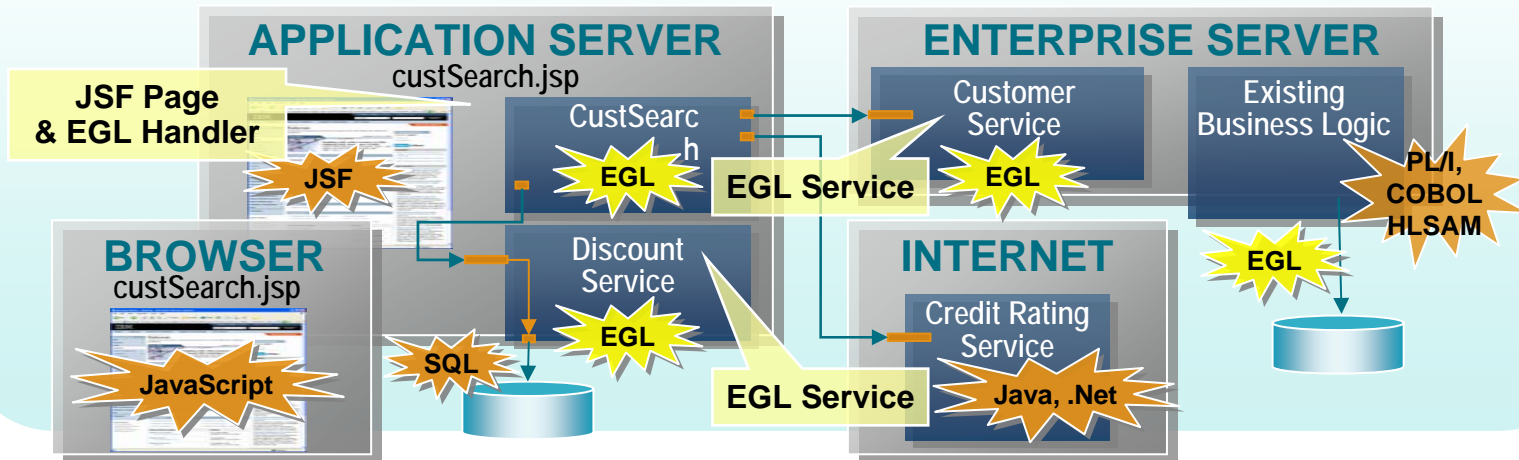
How can we leverage IT skills to

- ▶ Exploit new technologies and innovation without retraining our existing staff that knows the business?
- ▶ Use new employees on any project, independent of the target platform?
- ▶ Provide modern web UIs leveraging existing skills and systems?

## Solutions Powerful tools & abstractions for multi-platform development

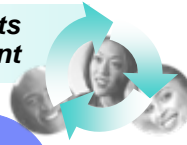
- ✓ Provide developer visibility across multiple development languages including COBOL, PL/1 and Java
  - *Rational Developer for System z*
- ✓ Apply existing business-knowledgeable staff to build all elements of multi-platform applications .. “end-to-end” from Web 2.0 to services to batch processes
  - *Rational Business Developer*
- ✓ Attract new staff with modern IDEs
  - *Rational Business Developer*

New!



# Modernize your Processes

Integrated Requirements Management



## Challenges Islands of Development

How can we leverage common development processes to

- ▶ Reduce costs, risk, and errors by eliminating duplicate tools?
- ▶ Provide a common view across distributed and enterprise development, no matter where it is located?

## Solutions Centrally manage requirements, processes, activities, projects

- ✓ Develop common and integrated processes across developer islands
  - Rational Method Composer
  - Rational Unified Process for System z
- ✓ Reduce risk of project failure by managing shared common requirements
  - Rational Requisite Pro
- ✓ Provide a unified dashboard for your organization
  - Rational Portfolio Manager





# Modernize your Processes & Tools

## Challenges

Disparate test cases and build processes across teams

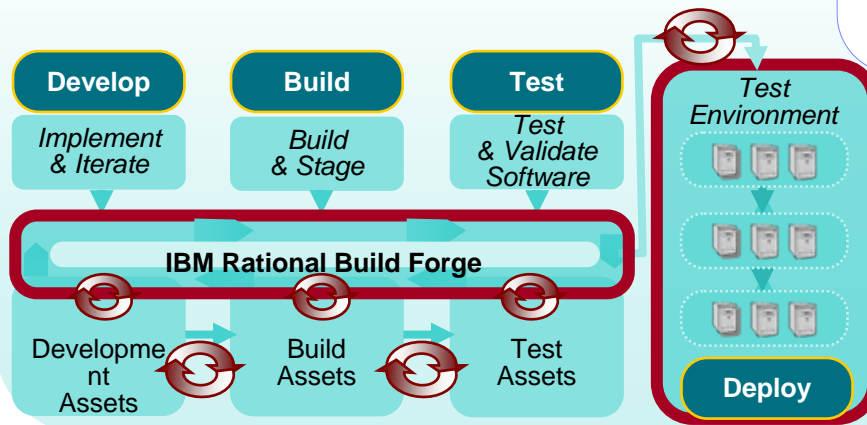
How can we leverage our test and build environment to

- ▶ Integrate functional testing to reduce risk and cost while improving predictability and automation?
- ▶ Drive consistent performance characteristics?
- ▶ Improve traceability and reduce problem determination cycles?

## Solutions

Save time and improve quality with modern Test & Build solutions

- ✓ Reduce time and guarantee repeatability with automated testing including extensions for 3270
  - *Rational Functional Tester*
- ✓ Ensure scalability of applications which expose existing assets in new ways (e.g., services)
  - *Rational Performance Tester*
- ✓ Produce traceable, automated, and cross-platform builds
  - *Rational BuildForge*
- ✓ Identify vulnerabilities, privacy issues, quality exposures, and standards non-compliance
  - *Rational AppScan*



# Modernize Your Team Infrastructure

Change & Release Management



## Challenges

### No end-to-end governance

**How can we leverage a common infrastructure and tools to**

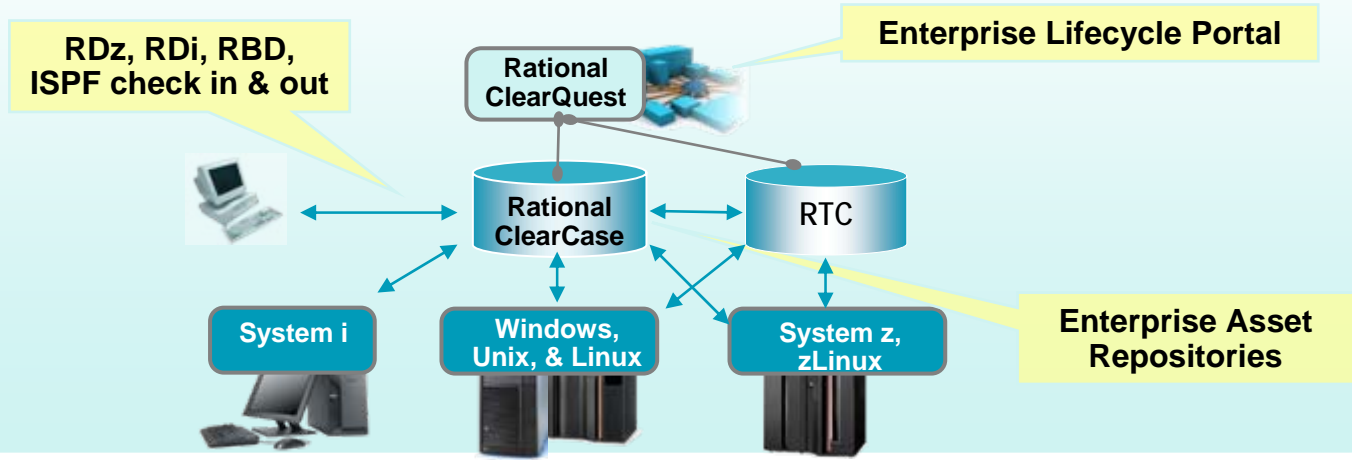
- ▶ Create event based lifecycle management to eliminate inconsistent and mismatched versions across platforms?
- ▶ Align shared business objectives using common development processes?
- ▶ Establish end-to-end communication and traceability across the entire lifecycle?

## Solutions

### Provide coordination, traceability, consistency across platforms

- ✓ Manage enterprise wide assets and change with common shared repository
  - *Rational ClearCase*
  - *Rational Team Concert for System z & i*
- ✓ Automate and orchestrate defect tracking and configuration management
  - *Rational ClearQuest*
- ✓ Produce coordinated, traceable, automated, and cross-platform builds
  - *Rational BuildForge*

Coming Soon!





# Rational Team Concert for System z

*Modern, collaborative team support*

## Rational Team Concert for System z

### Rational Team Concert

#### The Jazz Platform:

##### ***An Open, Services Oriented Architecture that***

- Enables teams to collaborate in real time in the context of the work they are doing
- Provides visibility into accurate current project health information drawn directly from actual work across the team
- Automates traceability and auditability by managing artifacts and their inter-relationships across the lifecycle
- Enables custom process enactment via process automation & definable checkpoints
- Provides an extensible technology platform for building products & adapters

#### **A New Family of Products based on Jazz Technology**

- Optimized for Agile development teams
- Integrates the entire team around an integration server
- In-place collaboration between team members
- Support and enforcement for development processes
- Transparency of status and trends through automated data-gathering and reporting
- Low administrative footprint

#### **A New Family of Products based on Rational Team Concert**

- Provides an integrated set of collaborative software delivery lifecycle tools including source control, change management, build and process management; targeted for z/OS development
- Includes specialized support for traditional language artifacts such as COBOL and PL/I
- Supports multi-tier software development and application modernization efforts
- Can be hosted natively on z/OS



# Modernize your IDEs

Architecture  
& Construction



## Challenges

Disparate test cases and build processes across teams

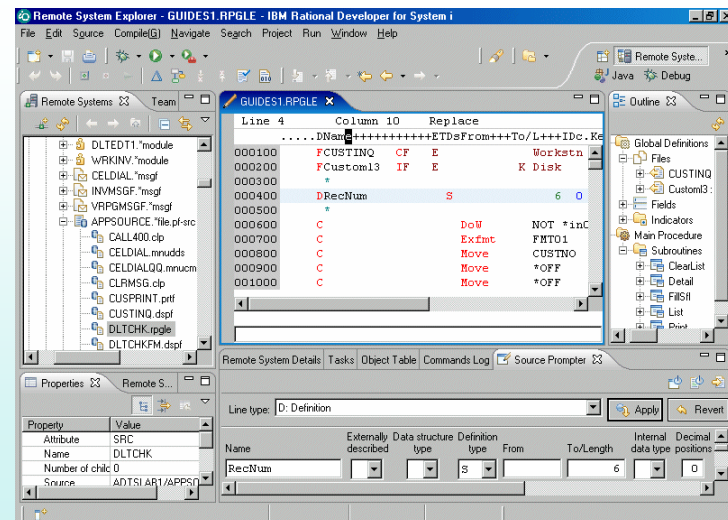
How can we leverage a modern development environment to

- ▶ Achieve higher productivity than green screen editors?
- ▶ Attract new and younger developers to legacy platforms?
- ▶ Access enterprise resources from developer workstations?

## Solutions

Achieve high productivity with modern development

- ✓ Use modern IDEs to develop and maintain code
- ✓ Debug and test from workstation, offloading host
  - Rational Developer for System z
  - Rational Business Developer
  - Rational Application Developer



# Modernize your Development Investments

Architecture & Construction



## Challenges

### No flexibility for new investments

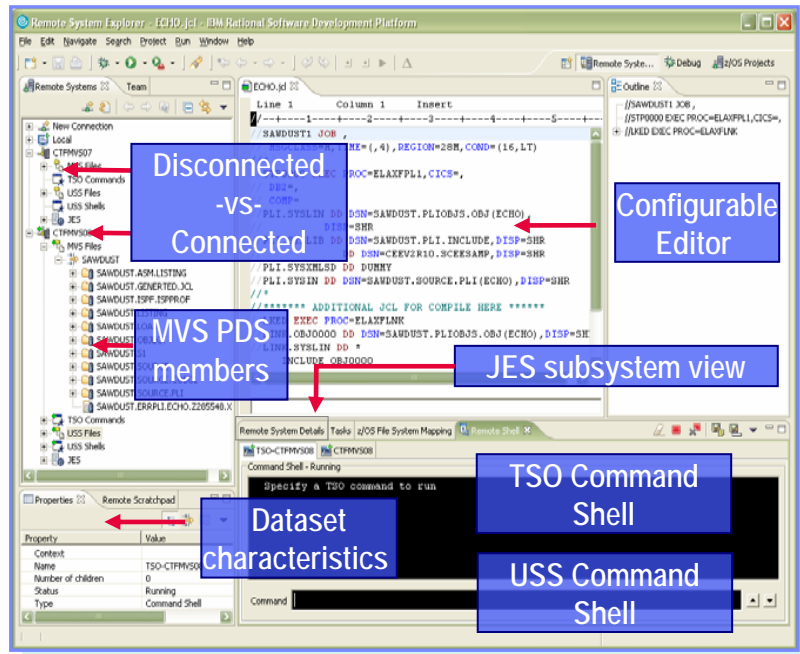
**How can we leverage our development investments to**

- ▶ Devote more resources to new development, rather than maintenance?

## Solutions

### Increase productivity with advanced IDEs and high-level languages

- ▶ Rapidly exploit technology changes to extend existing applications as services
  - ▶ *Rational Business Developer* New!
- ▶ Develop z/OS applications, CICS and IMS web services more productively, with integrated end-to-end processes
  - *Rational Developer for System z*



# Modernize your Development Investments Architecture & Construction



## Challenges

### No flexibility for new investments

How can we leverage our development investments to

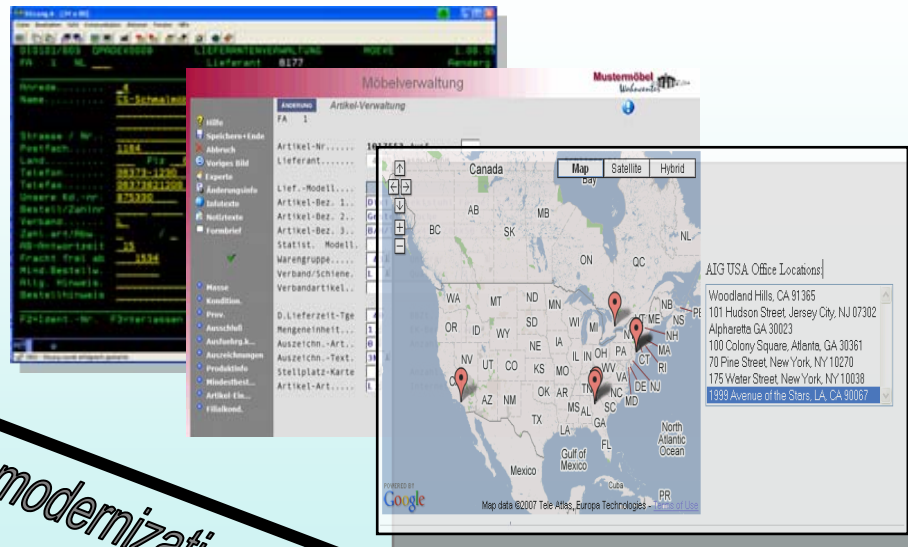
- ▶ Make incremental improvements within the context of a long-term strategic modernization plan?

## Solutions

### Create impressive UIs quickly

- ✓ Quickly and easily create impressive UIs for your green-screen applications and extend terminal application tasks as web services
  - *Host Access Transformation Services*
- ✓ Leverage rich UI and Web 2.0 technologies
  - *Rational Business Developer*

Coming Soon!



# Modernize your Development Investments

## Challenges

### No flexibility for new investments

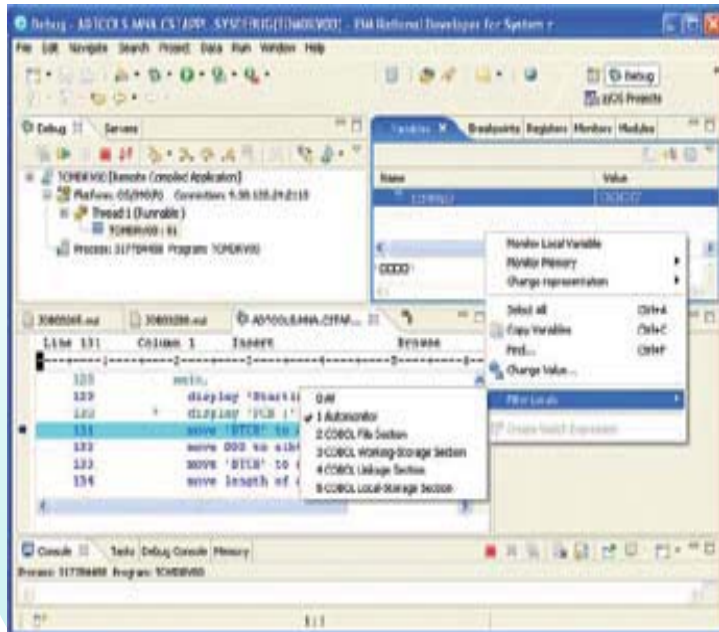
How can we leverage our development investments to

- ▶ Devote more resources to new development by identifying and solving problems more quickly?

## Solutions

### Debug problems faster with z/OS Problem Determination Tools

- ✓ Maximize IT productivity with the following Problem Determination tools, integrated into Rational Developer for System z
  - *Application Performance Analyzer*
  - *Debug Tools & Advanced Functions*
  - *Fault Analyzer*
  - *File Export*
  - *File Manager*
  - *Workload Simulator*
  - *Application Time Facility*



# Modernize your Development Investments Architecture & Construction



## Challenges

### No flexibility for new investments

- How can we leverage my development investments to
- ▶ Efficiently move to supported development platforms, languages, and tools?

## Solutions

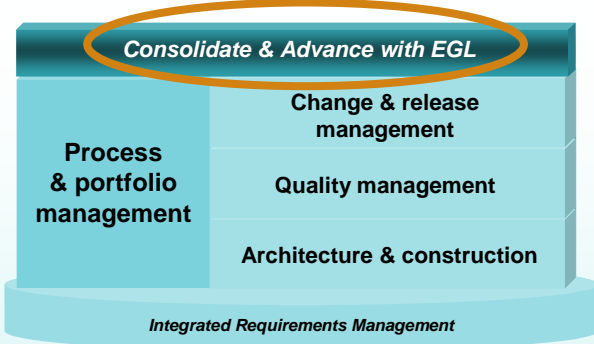
### Save money by moving off unsupported platforms

- ✓ Migrate from out-of-date and expensive legacy development platforms onto the IBM SDP
  - *Enterprise Generation Language*

### Non IBM Technologies

HPS/AppBuilder	COBOL	Ca Ideal	TEION
		COOL: GEN	
		COOL: Enterprise	
Maestro		IDMS ADS/Online	
natural	ADABAS	* CPS	
SYNON *	Microsoft Visual Basic	Progress OpenEdge *	
RPG	SYBASE	PowerBuilder	

\* Future Capability



### Deploy to:

- Linux
- AIX
- Solaris
- HP-UX
- System i
- System z
- Windows
- WAS



# Modernize your Development Investments

## Challenges

### No flexibility for new investments

#### How can we leverage my development investments to

- ▶ Improve the performance of mission critical applications without the need for code changes?
- ▶ Take advantage of modern hardware architectures (e.g. parallel, SIMD)?
- ▶ Support mixed language environments?

## Solution

### Improve performance and flexibility without code changes

- ▶ Exploit hardware improvements to improve application performance and “gain capacity”  
–*IBM Compiler Technology*
- ▶ Use language standards conformance to support mixed language environments, improving flexibility  
–*IBM Compiler Technology*

XL C for AIX Enterprise Edition  
XL C/C++ for AIX Enterprise Edition  
XL C/C++ for Linux Advanced Edition  
z/OS XL C/C++  
C/C++ for z/VM  
COBOL for AIX  
Enterprise COBOL

XL Fortran for AIX Enterprise Edition  
XL Fortran for Linux Adv Edition  
XL Fortran for Mac OS X Adv Edition  
PL/I for AIX  
Enterprise PL/I

# Accelerating software innovation on System z

## Customer successes

### IT projects

- Integrate distributed applications with its z/OS® environment
- Identify business services to leverage across the enterprise
- Extending COBOL applications for SOA transformation
- Improving productivity by breaking skills silos
- Unifying enterprise and distributed teams



#### User interface modernization

- ✓ Decrease development cycle time from 11 to 6 months with HATS
- ✓ Speeds creation of new customer services
- ✓ Improved operational efficiency



#### Enterprise portfolio management

- ✓ Identify obsolete code within automotive systems, and begin “decommissioning”
- ✓ Perform impact across massive systems with WSAA and RTW
- ✓ Communicate impacts to potentially affected development teams



#### Rapid application development

- ✓ New application framework based on IBM COBOL standard
- ✓ RDz to design new COBOL to provide online banking services



#### Cross-platform application development

- ✓ Standardize on RBDe and RAD to unify application development across all platforms and transaction managers (e.g., WAS, IMS)
- ✓ Rapid time to market



#### Unified change and release management

- ✓ Highly automated cross-platform solution using ClearCase to manage and support the software lifecycle for COBOL and Java development



# Agenda



- ▶ Breaking News!
- ▶ Enterprise Modernization
- ▶ **Getting Started**
- ▶ Q&A

# How to get started?

New!

*Resources to help you kick-start your System z software innovation*

## System z Sandbox

*Example assets and best practices providing low-risk, practical, hands-on path to leveraging IBM solutions*

- ▶ Full version software trials
- ▶ 'Try online' hosted System z environments
- ▶ Hands-on-exercises

## System z Starter Packs

*Solution to help you incrementally evolve core IT systems towards modern architectures and technologies*

- ▶ Discover, reuse and grow
- ▶ Develop and manage
- ▶ Test and track

*Jump-start  
your  
modernization  
projects!*

## Education Series

### Modern Application Architecture for COBOL Developers

*Learn how to design and integrate composite applications across CICS and WebSphere – leveraging existing COBOL processes*



**Learn more at:**

[www.ibm.com/rational/modernization](http://www.ibm.com/rational/modernization)



# How to get started?

## System z Enterprise Modernization Starter Packs

### Discover, Reuse and Grow

- ▶ **Rational Transformation Workbench**  
Discover what you have
- ▶ **Rational RequisitePro**  
Document and share why you have it
- ▶ **Rational Developer for System z**  
Maintain, extend and develop
- ▶ **Rational Business Developer**  
Quickly and efficiently grow new applications
- ▶ **Rational Software Architect**  
Model new applications across platforms

### Develop and Manage

- ▶ **Rational Developer for System z**  
Maintain, extend and develop
- ▶ **Rational ClearCase**  
Manage assets
- ▶ **Rational ClearQuest**  
Manage change
- ▶ **Rational Asset Manager**  
Manage development assets
- ▶ **Rational Business Developer**  
Quickly and efficiently grow new applications

### Test and Track

- ▶ **Rational Manual Tester**  
Test authoring and execution
- ▶ **Rational Functional Tester**  
Automate functional and regression testing
- ▶ **Rational Performance Tester**  
Multi-user load testing and performance testing tool
- ▶ **Rational ClearQuest**  
Track defects and manage change

### Offering Terms

- ▶ 40% discount
- ▶ Minimum 2 products purchased per Starter Pack (no maximum)
- ▶ Up to 50 licenses per product
- ▶ Free 1-3 day workshop may be scheduled subject to availability



# Summary

**Rational.** software

## Governing the business process of software and systems delivery

*Decades of proven process expertise  
and customer success*

- ▶ To be flexible, you must mature and modernize your IT tools and processes
- ▶ Rational solutions can help you
  - Discover application knowledge to achieve new levels of business value and innovation
  - Increase productivity and eliminate skills silos by simplifying development environments
  - Reduce time to market and risk by reusing existing assets to deliver new solutions
  - Improve efficiency and lower costs by optimizing processes, tools, and infrastructures
  - Discover incremental ways to modernize with quick ROI on your schedule

You can get started today. We can help!



# IBM Rational Software Development Conference 2008

June 1 – 5, 2008; Orlando, Florida

## IBM Rational Software Development Conference 2008

WHERE TEAMS ARE **R4HEROES**

June 1-5, 2008 • Orlando, FL



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THE  
DATE!

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- Keynotes with industry-leading experts
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# Questions



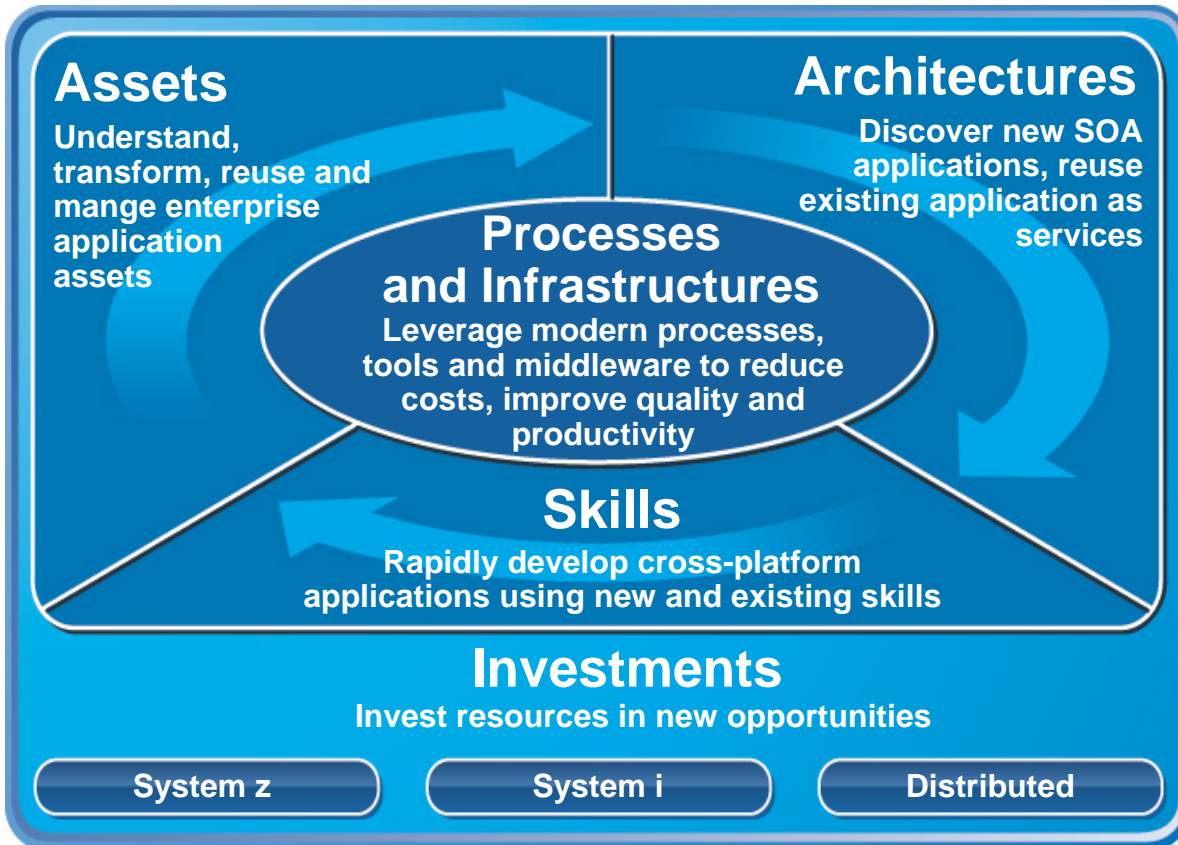
## Learn more at:

- [IBM Rational software](#)
- [IBM Rational Software Delivery Platform](#)
- [Process and portfolio management](#)
- [Change and release management](#)
- [Quality management](#)
- [Architecture management](#)
- [Rational trial downloads](#)
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# Enterprise Modernization – Solution Overview

*Unleashing enterprise software assets and skills*



- ✓ *Leverage value of existing assets*
- ✓ *Drive innovation with SOA and web technology advancements*
- ✓ *Leverage existing and new staff on multi-platform projects*
- ✓ *Improve responsiveness of systems & people*
- ✓ *Reduce maintenance costs*

System z: <http://www-306.ibm.com/software/info/developer/solutions/em/systems/z/index.jsp>

# Modernize your Processes

## Challenges Islands of Development

How can we leverage common development processes to

- ▶ Reduce costs, risk, and errors by eliminating duplicate tools?
- ▶ Provide a common view across distributed and enterprise development, no matter where it is located?

## Solutions Centrally manage requirements, processes, activities, projects

- ✓ Develop common and integrated processes across developer islands
  - *Rational Method Composer*
  - *Rational Unified Process for System z*
- ✓ Reduce risk of project failure by managing shared common requirements
  - *Rational Requisite Pro*
- ✓ Provide a unified dashboard for your organization
  - *Rational Portfolio Manager*

