

| IBM Software Group



Helping System z developers deliver and deploy quality applications with IBM Rational solutions

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Rational. software



Agenda

- Key Messages
- Today's Realities
- Overview of Rational lifecycle and testing solutions for System z
- Summary



IT Challenges and the need for Modernization

- ▶ Businesses need to change to stay viable, and IT must enable this flexibility
- ▶ IT must overcome challenges to enable flexibility, such as:
 - ▶ No inventory of current IT assets
 - ▶ Complex, tightly coupled architectures
 - ▶ Skills lock-in
 - ▶ Islands of development
 - ▶ No flexibility for new investments
- ▶ The IBM Rational Software Delivery Platform helps companies overcome these challenges with comprehensive support for enterprise modernization



Enterprise Pressures & Opportunities

commoditization pressures

increased competition

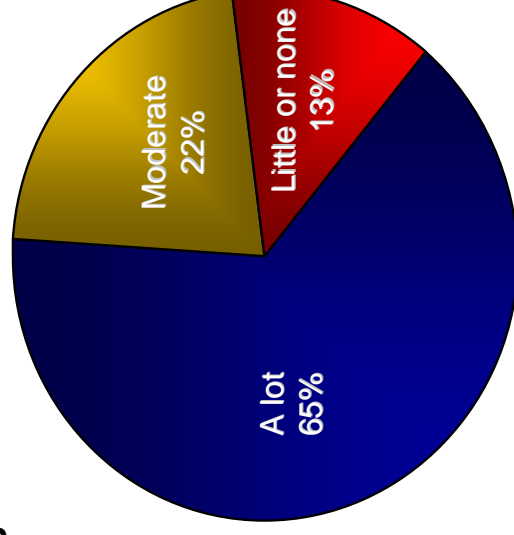
global marketplace opportunities

adjacent marketplace opportunities

global volatility and disruption

competing business models

CEOs: extent of fundamental
change needed over the next two years



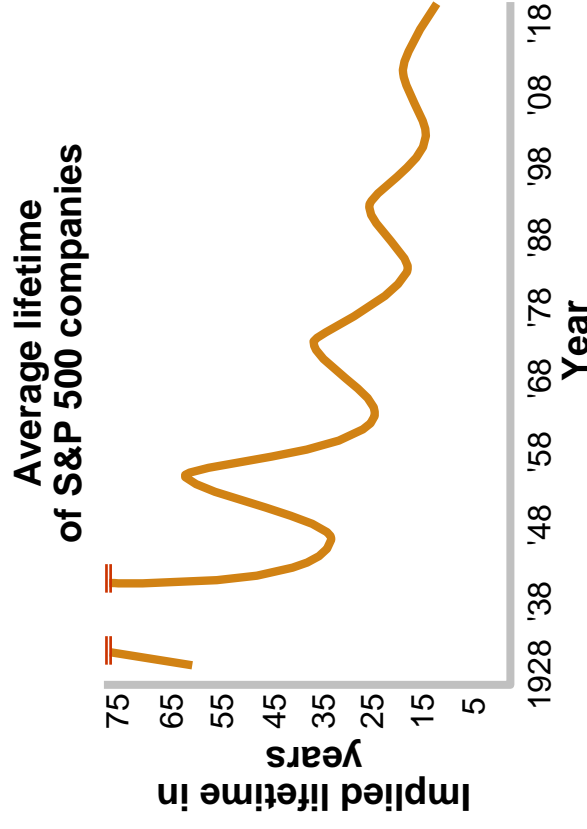
... and 83% think it's likely that changes
in a competitor's business model will
change their industry

Source: IBM Global CEO Study, 2006

“Most organizations would like to use technology as a competitive weapon ... but they're not doing so because they have a performance-oriented mind-set.” — IBM Global CEO Study, 2006

Marketplace Destabilization

- ▶ *Technology* systematically reduces interaction costs and extends global reach
- ▶ *Globalization* increases complexity of business requirements and need for IT agility
- ▶ Constant global policy shifts alter *regulatory* and competitive climates
- ▶ Intense pressure on *business models* drives focus on core competencies



Source: *Creative Destruction*, by Richard Foster

Destabilizing forces converge to significantly intensify global competition

“Speed and agility are the new buzzwords we [IT CIOs] struggle with. IT has been known for taking a long time to define, build and deliver, but that’s not an acceptable approach today.”

— IBM Global CEO Study, 2006



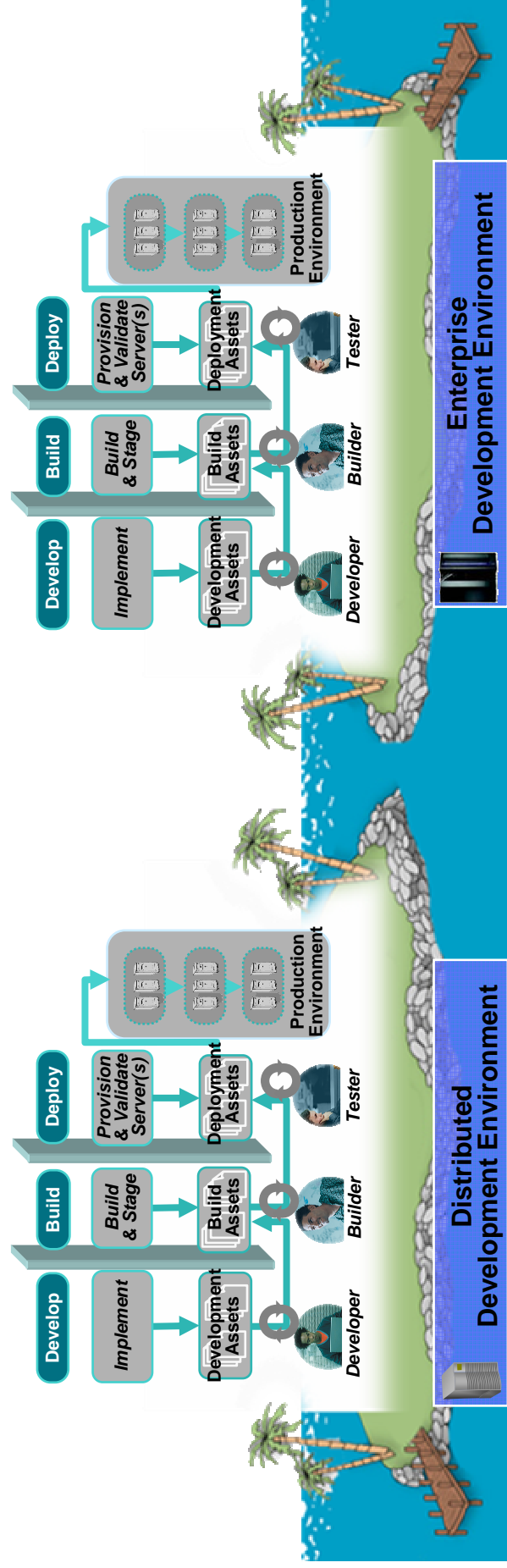
IT as a Core Business Process

- *IT flexibility is a key enabler for today's businesses*
- *To be successful, you must mature and modernize your IT posture*
- *Companies face significant challenges getting from "here" to "there"*



Challenge: Islands of Development

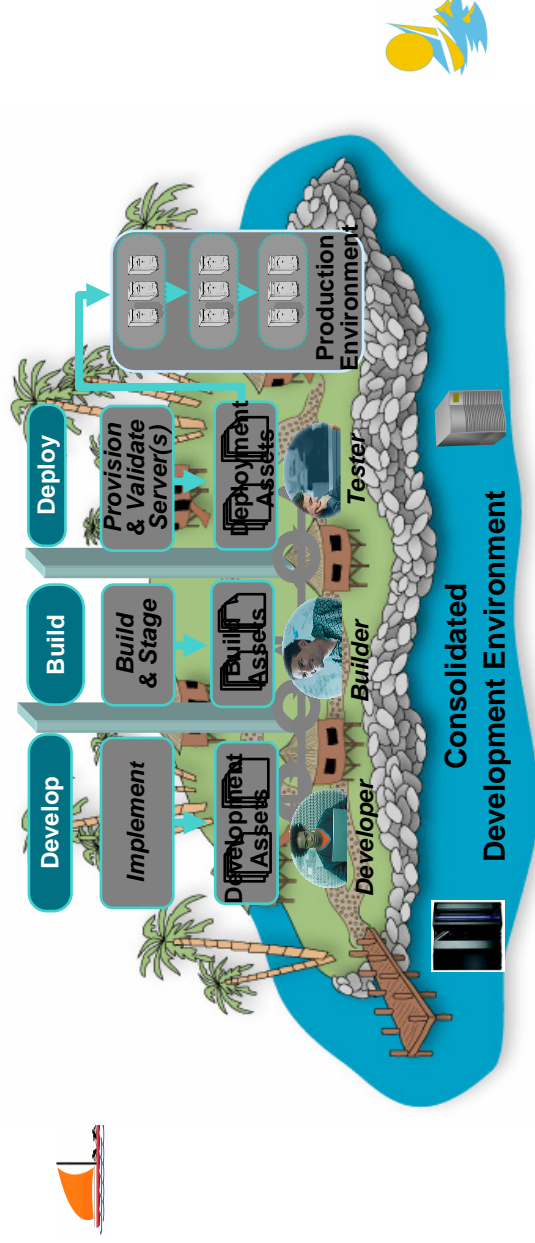
- ▶ Duplicate infrastructures limit IT and skills flexibility, introduce errors, reduce productivity
- ▶ Constrained IT flexibility due to skills islands
- ▶ Multiple infrastructures increase costs, so less capital is available to invest in new projects
- ▶ Lack of traceability inhibits end-to-end governance



Modernize Processes, Infrastructure & IDEs

Shared development environments for enterprise & distributed

- Lower costs due to elimination of duplicate tools and processes
- Improve IT flexibility because employee skills can be leveraged across organization
- Exploit single infrastructure for enterprise and distributed development environments
- Realize improved end-to-end communication and traceability across the entire lifecycle



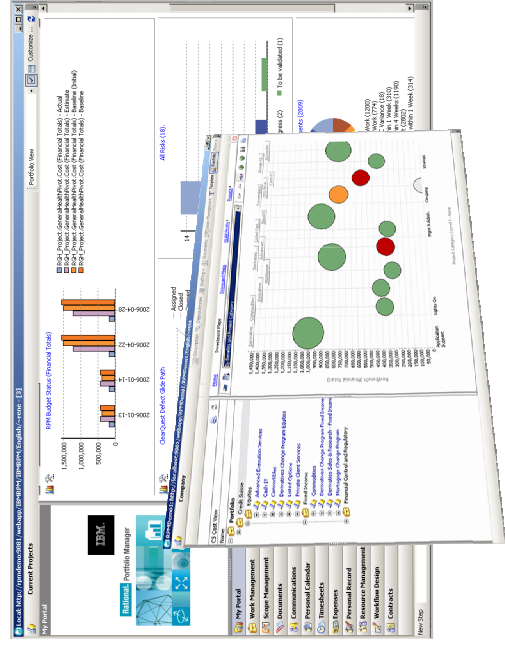
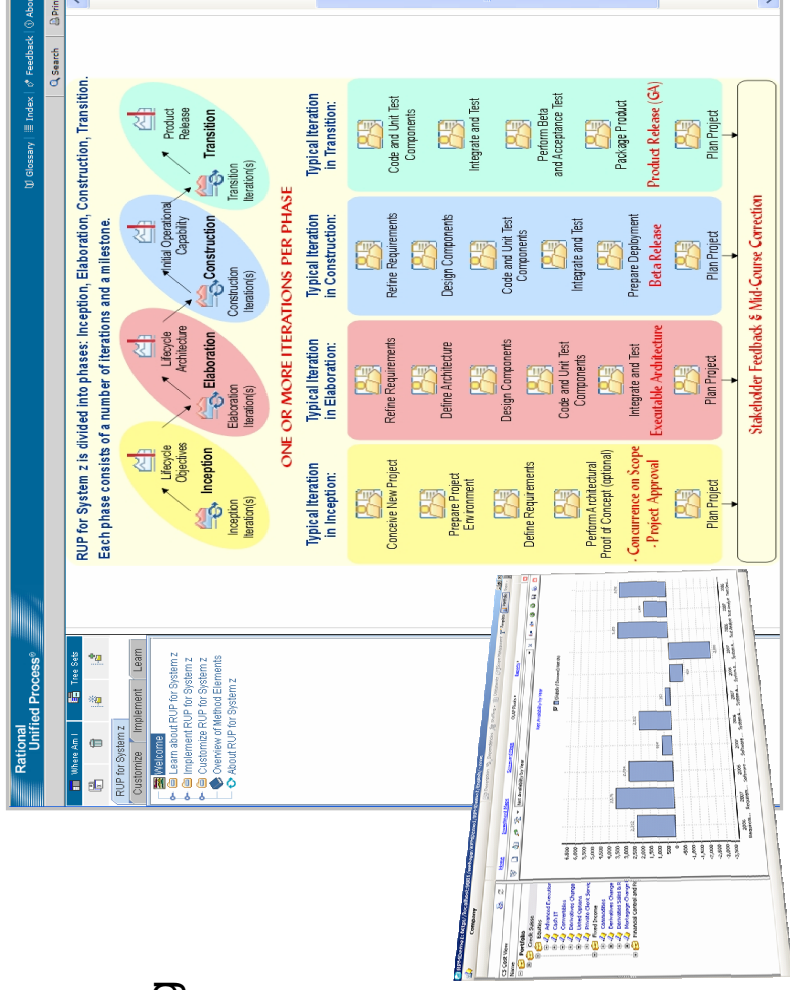
Your governance solution needs to cover the entire topology as well as the entire lifecycle and all roles.

Modernize Processes

Centrally manage requirements, processes, activities, best practices, projects

- Manage requirements for both distributed and enterprise projects with **Rational RequisitePro**
- Provide a unified dashboard for your organization with **Rational Portfolio Manager**

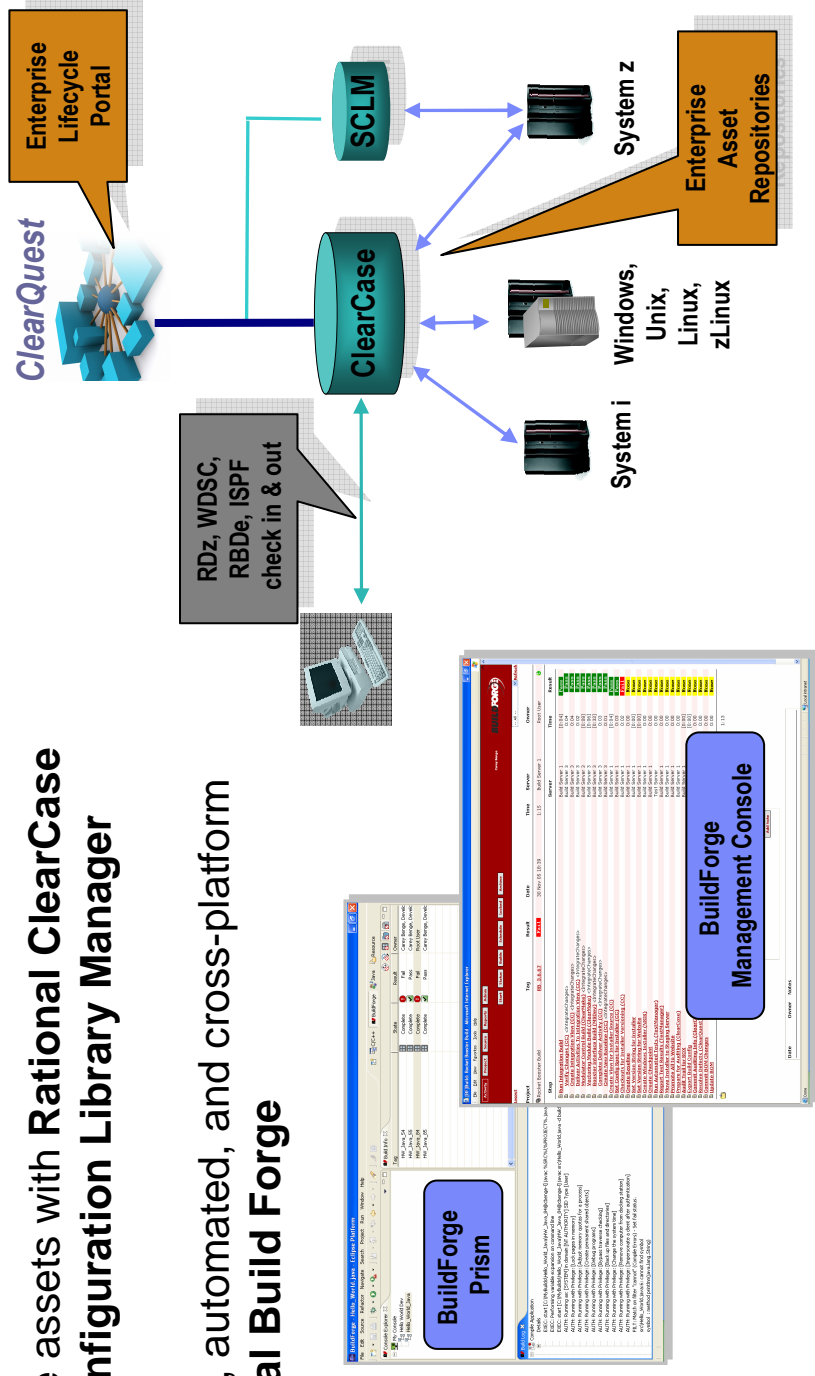
- Take advantage of best practices in collaborative distributed development using **Rational Method Composer** and **Rational Unified Process for z**



Modernize Team Infrastructure

Provide coordination, traceability, consistency across platforms

- Orchestrate all problem tracking and configuration management with **Rational ClearQuest**
- Manage enterprise assets with **Rational ClearCase** and/or **Source Configuration Library Manager**
- Produce traceable, automated, and cross-platform builds with **Rational Build Forge**



Modernize Development Investments

Improve productivity, save time and money... get “modern”

- Save time and guarantee repeatability by automating tests with **Rational Functional Tester (RFT)**, including extensions for 3270 and 5250
- Ensure scalability of applications which expose existing assets in new ways (e.g. services) with **Rational Performance Tester (RPT)**

Terminal UI

Browser UI

Medical software developer for physicians in USA and Canada

.NET UI

Java UI

■ Background:

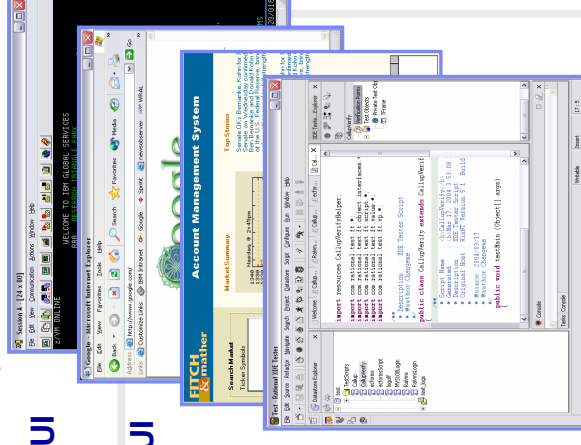
- ▶ Medical software developer for physicians in USA and Canada

■ Challenge:

- ▶ Relying on labor intensive, time consuming manual testing
- ▶ Need to improve software testing and QA processes

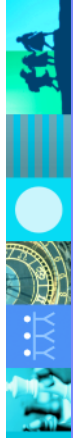
■ Benefits of Solution:

- ▶ Increased the quality of its products and sped time to market for new applications using **RFT** to automate regression testing
- ▶ Reduced the workload on support personnel and increased the overall quality of software products



Process and Tools Modernization offerings

IBM Enterprise Modernization Solutions		
Enterprise Modernization	If you need to....	...IBM Software can help
Process and Tools Modernization	<ul style="list-style-type: none"> ✓ Ensure that business goals and requirements drive downstream design, development and testing. ✓ Lower costs due to elimination of duplicate tools and processes ✓ Improve IT flexibility because employee skills can be leveraged across organization ✓ Exploit single infrastructure for enterprise and distributed development environments ✓ Realize improved end-to-end communication and traceability across the entire lifecycle ✓ Enforce software governance policies and procedures across functionally diverse and geographically distributed teams ✓ Verify software builds and document the exact software versions that are deployed ✓ Manage quality across the software delivery lifecycle 	<p>IBM Rational RequisitePro – allows global teams to clearly understand and effectively manage changing requirements in their natural context. IBM Rational RequisitePro reduces rework by improving global requirements communication and interpretation.</p> <p>IBM Rational Unified Process for System z – Rational Unified Process® (RUP®) for System z™ method, which has been especially created for use by organizations that are involved in developing applications software in the System z environment.</p> <p>IBM Rational ClearQuest – governs, integrates, and automates your global development processes and workflow between your global teams IBM Rational ClearQuest orchestrates collaboration and work transfer between distributed team members.</p> <p>IBM Rational ClearCase – drives and manages global parallel development with flexible and secure worldwide access to software assets. IBM Rational ClearCase ensures that changes to assets worldwide are business driven.</p> <p>IBM SCLM Advanced Edition – helps System z developers to easily approve packages, implement augmented security controls, run three-way merges, and simplify the management of SCLM-based projects.</p> <p>IBM Rational Build Forge – automates build and release management across multiple projects. It helps reduce errors that delay downstream testing and deployment activities by enabling you to quickly build a service or composite application while writing code.</p> <p>IBM Rational Functional Tester and Functional Tester Extension for Terminal-based Applications – provides automated, data-driven regression and functional testing for atomic and composite services including automated testing of 3270 (System z) and 5250 (System i) applications.</p> <p>IBM Rational Performance Tester and Performance Tester for z/OS – validates the reliability and performance of atomic or composition services with a flexible test scheduler that specifies the different groups of consumers, as well as the activities and usage patterns of each group.</p>



Managing Requirements with IBM Rational RequisitePro

- ✓ Keep your team on track
- ✓ 3 interfaces - work the way you want
- ✓ Document-centric or database-centric - your choice

4. Product Features
 4.1 [ClassicsCD.com Web Shop]
 [Source: Promoted method]
 [Use Case:
 [Customer should be able to register as a user for future purchases without reading to personal information]
 [Ability to add/remove, offemail]
 [Ability to check on customer orders]
 [Maintain customer information]
 [Generate reports]
 4.2 [ClassicsCD Administration System]
 [Ability to add/remove, offemail]
 [Ability to check on customer orders]
 [Maintain customer information]
 [Generate reports]

Microsoft Word

Rational RequisitePro - Learning Project - [FEAT: All Features]
 Requirements:
 [FEAT: 1: Secure payment...]
 [FEAT: 2: Ability to check status...]
 [FEAT: 3: Ability to check status...]
 [FEAT: 4: E-mail notification of...]
 [FEAT: 5: Highly scalable...]
 [FEAT: 6: Ability to customize the...]
 [FEAT: 7: User registration...]
 [FEAT: 8: ClassicaCD...]
 [FEAT: 9: Ability to add/remove...]
 [FEAT: 10: Ability to check on...]
 [FEAT: 11: Maintain customer...]
 [FEAT: 12: Generate reports...]
 [FEAT: 13: Interactive guide to site...]
 * <Click here to create a requirement>

Windows

Requirements	Type	Priority	Status
FEAT: 1: Secure payment method	Functional	High	Incorporated
FEAT: 2: Ability to check status	Functional	Medium	Proposed
FEAT: 3: Ability to check status	Functional	Low	Approved
FEAT: 4: E-mail notification of order	Functional	Medium	Incorporated
FEAT: 5: Highly scalable	Functional	Low	Proposed
FEAT: 6: Ability to customize the Web site	Non-functional	High	Incorporated
FEAT: 7: User registration for future purchases	Functional	Medium	Proposed
FEAT: 8: ClassicaCD Administration System	Functional	High	Incorporated
FEAT: 9: Ability to add/remove, offemail	Functional	Low	Proposed
FEAT: 10: Ability to check on customer orders	Functional	Medium	Incorporated
FEAT: 11: Maintain customer information	Functional	High	Incorporated
FEAT: 12: Generate reports	Functional	Medium	Proposed
FEAT: 13: Interactive guide to site	Functional	Low	Incorporated

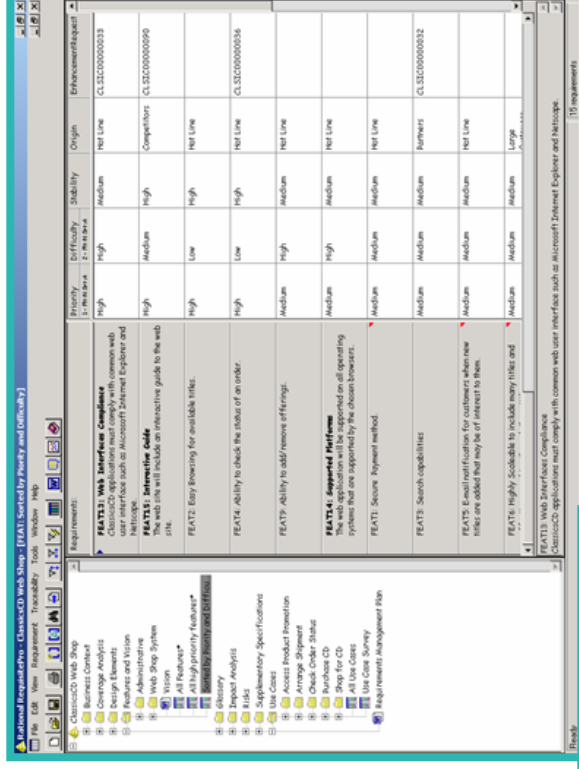
Web

Organizing and Reporting on Requirements

Types, Attributes, Views, Packages

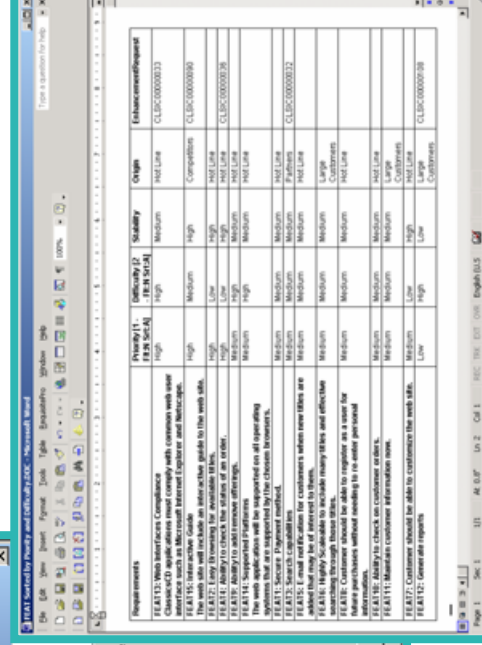
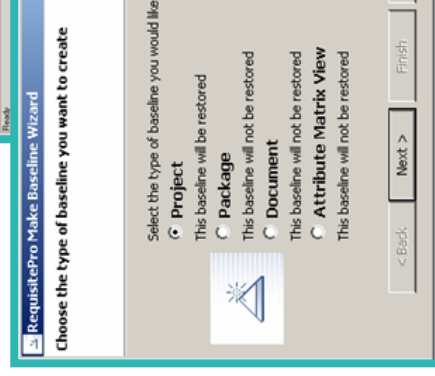
Organizing

- ✓ User-defined requirement types
- ✓ User-defined attributes
- ✓ User-defined filters (views)
- ✓ User defined packages



Reporting

- ✓ Customizable views
- ✓ Export views to Word or Excel
- ✓ Create and compare partial or complete baselines



Managing Changing Requirements Traceability

- ✓ Graphical trace matrix
- ✓ Textual trace matrix
- ✓ Graphical trace tree

The screenshot displays the Rational RequisitePro interface with three distinct views of requirements traceability:

- Graphical Trace Matrix (Top):** A table showing the relationship between requirements. The columns represent requirements (e.g., UC2.2, UC2.3, UC4.2) and the rows represent their relationships (e.g., BEGN, TRACK PACKAGES, UCA.2). The matrix uses colored cells to indicate the type of relationship.
- Textual Trace Matrix (Middle):** A list of requirements with their associated traceability information. For example, UC2.2 Basic Flow is linked to BEGN, UC2.3 TRACK PACKAGES, and UCA.2 Basic Flow. UC4.2 Basic Flow is linked to BEGN.
- Graphical Trace Tree (Bottom):** A hierarchical tree structure showing the lineage of requirements. It starts with UC2.2 and branches out to show its dependencies on other requirements like UC2.3 and UCA.2.

Communicating Changes and Their Impact

- ✓ Email notification of changes
- ✓ Suspect links

4. Product Features

- 4.1. [Classical] Secure Payment method
 - Ability to suggest alternative payment methods for consumers, when user titles are added that may be of interest to them.
 - Ability available to include many titles and effective searching through those titles.
 - Customer should be able to customize the web site.
- Customer should be able to register, as a user, for future purchases, without needing to re-enter personal information.

4.2. [Classical] Administration System

- Ability to address new offers.
- Ability to check on customer orders.
- Maintain customer information.
- Generate reports.

5. Other Product Requirements

5.1. [Classical] Announce Standards

UCA: Purchase CD

- UCA 1: BRIEF DESCRIPTION** The Shopper has already selected CD the like to purchase.
- UCA 2: BEGIN**
- UCA 3: IDENTIFY SHOPPER** IDENTIFY SHOPPER: The system must identify the shopper.
- UCA 4: GET PROTECTED SHIP DATA** GET PROTECTED SHIP DATA: The system must get the protected ship data.
- UCA 5: SUMMARY** SUMMARY: The system displays a summary of COMPLETE ORDER.
- UCA 6: COMPLETE ORDER COMPLETE ORDER.** The Shopper completes COMPLETE ORDER.
- UCA 7: END**
- UCA 8: INVALID SHOPPER ID.** END: The use case ends when the user order has an invalid shopper id.
- UCA 9: IDENTIFY SHOPPER** IDENTIFY SHOPPER: The system requests information to identify the Shopper and the Shopper provides that information.

FEAT1: Secure Payment method

FEAT1: Secure Payment method	FEAT2: Entry for available side	FEAT3: Search capabilities	FEAT4: Ability to check the status of an order
✖	✔	✔	✔

Subject: Requirement revision - Learning Project - Use Cases: SUPP1

SUPP1: interface guidelines

Revision #: 1.0018
 Version Label:
 Date Time: 2004-07-01 13:00:04
 Author: Unknown
 Change Description: Created trace relationship to FEAT11.
 Created trace relationship from FEAT3.

Revision #: 1.0017
 Version Label:
 Date Time: 2004-07-01 12:59:48
 Author: Unknown
 Change Description: DIFFICULTY: Medium - Low.
 Requirement Text Changed.
 REQTEXT: The system shall follow standard interface guidelines. dfg dfgdf

SUPP1: interface guidelines

Text: The system shall follow standard interface guidelines. dfg dfgdf
 Package: C:\Program Files\IBM\Software\Learning_Proj\Use_Cases\Supplementary_Requirements
 Location: C:\Program Files\IBM\Software\Learning_Proj\Use_Cases\Supplementary_Specification.SUP

Priority: Validated
 Status: Validated
 Difficulty: Low
 Stability: Low
 Contact:
 Revision Notification: Nabil, maslo

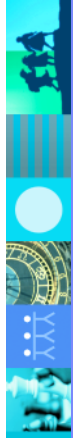
Traces from: FEAT3
 Traces to: FEAT11
 Parent: None
 Children: None

“With Rational RequisitePro’s suspect links, my team members and I can immediately see changes that are made...”

Jason Oliver, Kodak

Process and Tools Modernization offerings

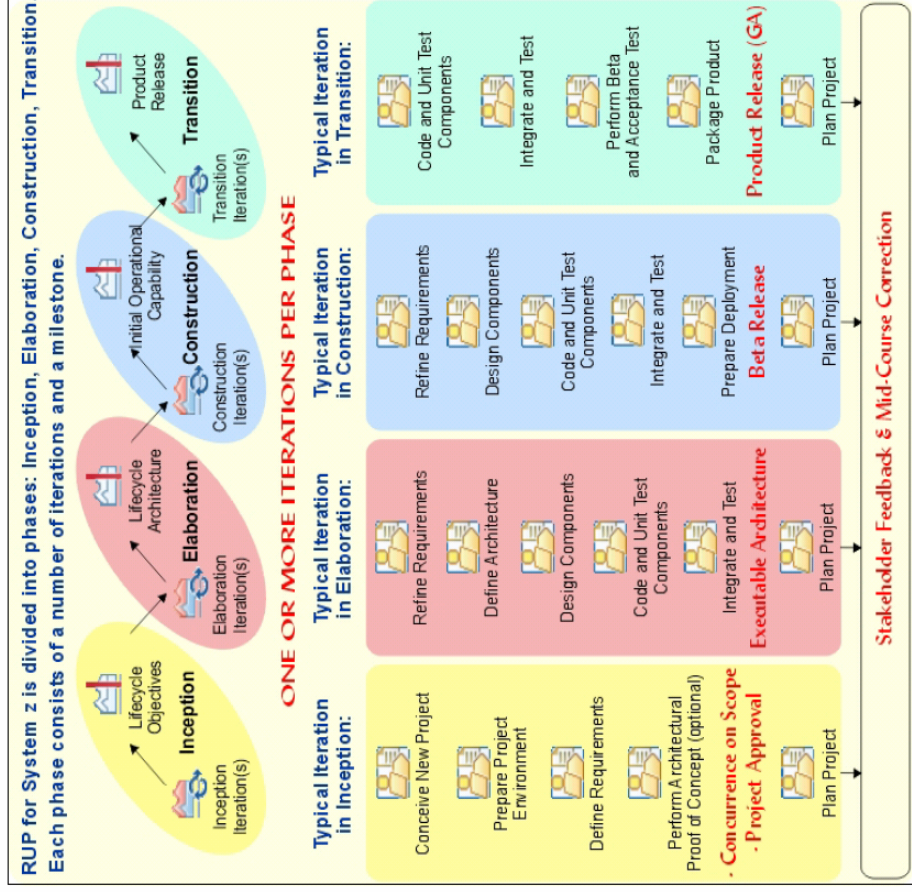
IBM Enterprise Modernization Solutions		
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Rational Unified Process for System z

At its heart, the IBM Rational Unified Process (RUP) is about successful software development. There are three central elements that define RUP:

- **An underlying set of philosophies and principles for successful software development**
- **A framework of reusable method content and process building blocks**
- **The underlying method and process definition language**
- **One of the core practices behind RUP is iterative and incremental development.**



Rational Method Composer plugin for RUP for System z

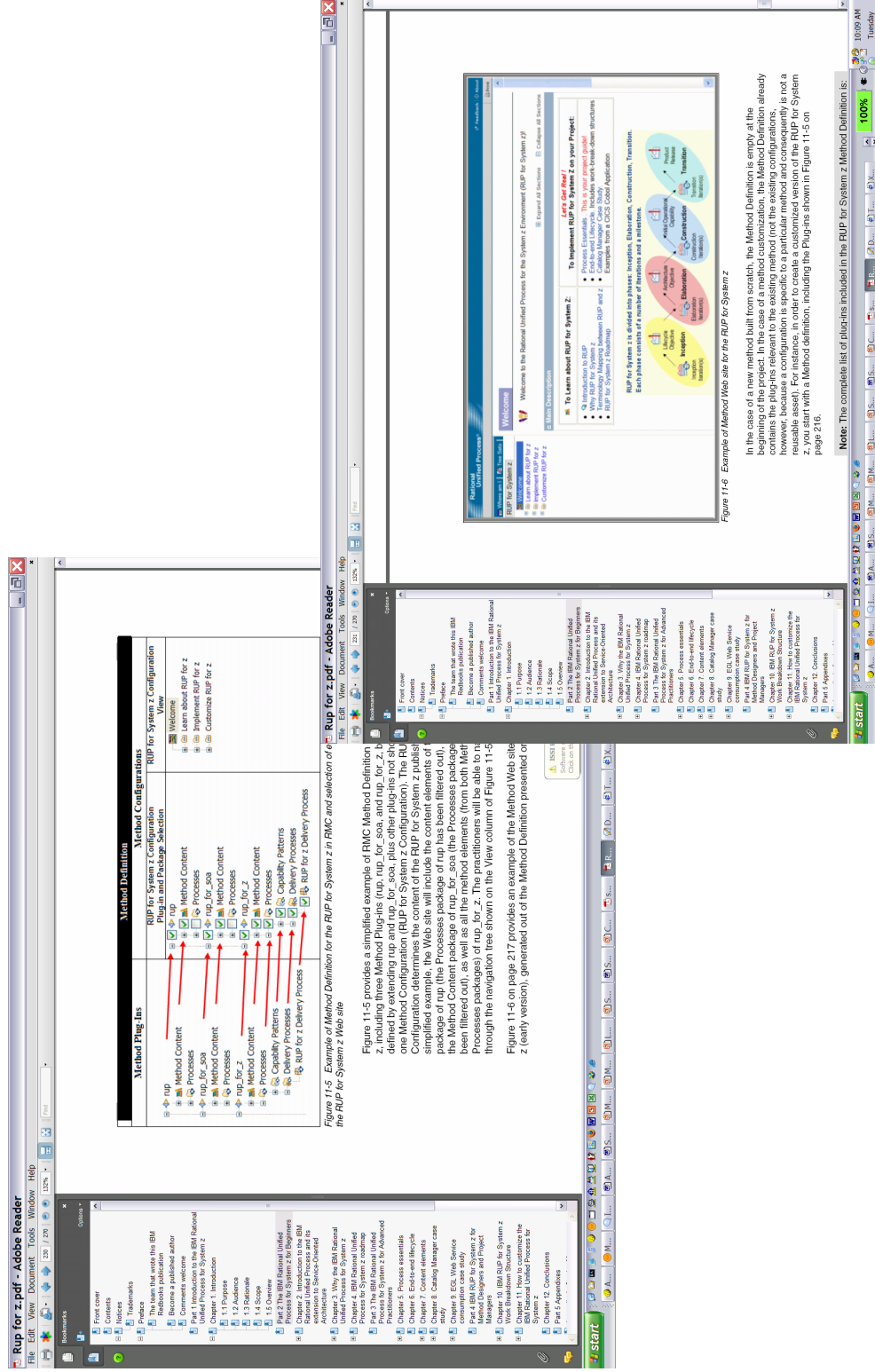


Figure 11-6 Example of Method Web site for the RUP for System z

In the case of a new method built from scratch, the Method Definition is empty at the beginning of the project. In the case of a method customization, the Method Definition already contains the content of the Method Definition. However, because a configuration is specific to a particular method and consequently is not a reusable asset), for instance, in order to create a customized version of the RUP for System z, you start with a Method Definition, including the Plug-ins shown in Figure 11-5 on page 216.

Note: The complete list of plug-ins included in the RUP for System z Method Definition is:

Process and Tools Modernization offerings

IBM Enterprise Modernization Solutions		
Enterprise Modernization	If you need to....	...IBM Software can help
Process and Tools Modernization	<ul style="list-style-type: none"> ✓ Ensure that business goals and requirements drive downstream design, development and testing. ✓ Lower costs due to elimination of duplicate tools and processes ✓ Improve IT flexibility because employee skills can be leveraged across organization ✓ Exploit single infrastructure for enterprise and distributed development environments ✓ Realize improved end-to-end communication and traceability across the entire lifecycle ✓ Enforce software governance policies and procedures across functionally diverse and geographically distributed teams ✓ Verify software builds and document the exact software versions that are deployed ✓ Manage quality across the software delivery lifecycle 	<p>IBM Rational RequisitePro – allows global teams to clearly understand and effectively manage changing requirements in their natural context. IBM Rational RequisitePro reduces rework by improving global requirements communication and interpretation.</p> <p>IBM Rational Unified Process for System z – Rational Unified Process® (RUP®) for System z™ method, which has been especially created for use by organizations that are involved in developing applications software in the System z environment.</p> <p>IBM Rational ClearQuest – governs, integrates, and automates your global development processes and workflow between your global teams IBM Rational ClearQuest orchestrates collaboration and work transfer between distributed team members.</p> <p>IBM Rational ClearCase – drives and manages global parallel development with flexible and secure worldwide access to software assets. IBM Rational ClearCase ensures that changes to assets worldwide are business driven.</p> <p>IBM SCLM Advanced Edition – helps System z developers to easily approve packages, implement augmented security controls, run three-way merges, and simplify the management of SCLM-based projects.</p> <p>IBM Rational Build Forge – automates build and release management across multiple projects. It helps reduce errors that delay downstream testing and deployment activities by enabling you to quickly build a service or composite application while writing code.</p> <p>IBM Rational Functional Tester and Functional Tester Extension for Terminal-based Applications – provides automated, data-driven regression and functional testing for atomic and composite services including automated testing of 3270 (System z) and 5250 (System i) applications.</p> <p>IBM Rational Performance Tester and Performance Tester for z/OS – validates the reliability and performance of atomic or composition services with a flexible test scheduler that specifies the different groups of consumers, as well as the activities and usage patterns of each group.</p>



IBM Rational ClearQuest

Single solution to manage change across your project

- Consolidated, real-time view of the entire project status
- Traceable, auditable relationships between development, testing, building and project artifacts
 - ▶ Comprehensive quality metrics in project dashboards and reports
 - ▶ Manage test planning, test results, quality metrics, and defects
 - ▶ Secure, central repository
 - ▶ Integrations with version control, build management and requirements management



- Integration with Rational Asset Manager (RAM)
 - ▶ maximizes asset reuse
- Enhanced integration with Rational Portfolio Manager
 - ▶ maximizes project management



IBM Rational ClearQuest

Powerful Metrics and real-time project status

- Queries & Charts
 - ▶ Easily create and modify with Wizards
 - ▶ Charts: Aging, Trend, Distribution
- Reports
 - ▶ Crystal Reports-based run-time engine
 - ▶ Export to many common formats (Excel, Word, HTML)
- E-mail notification rules
 - ▶ Automatic notification of events and state changes
 - ▶ Configurable through GUI interface
 - ▶ Out of the box



IBM Rational ClearQuest

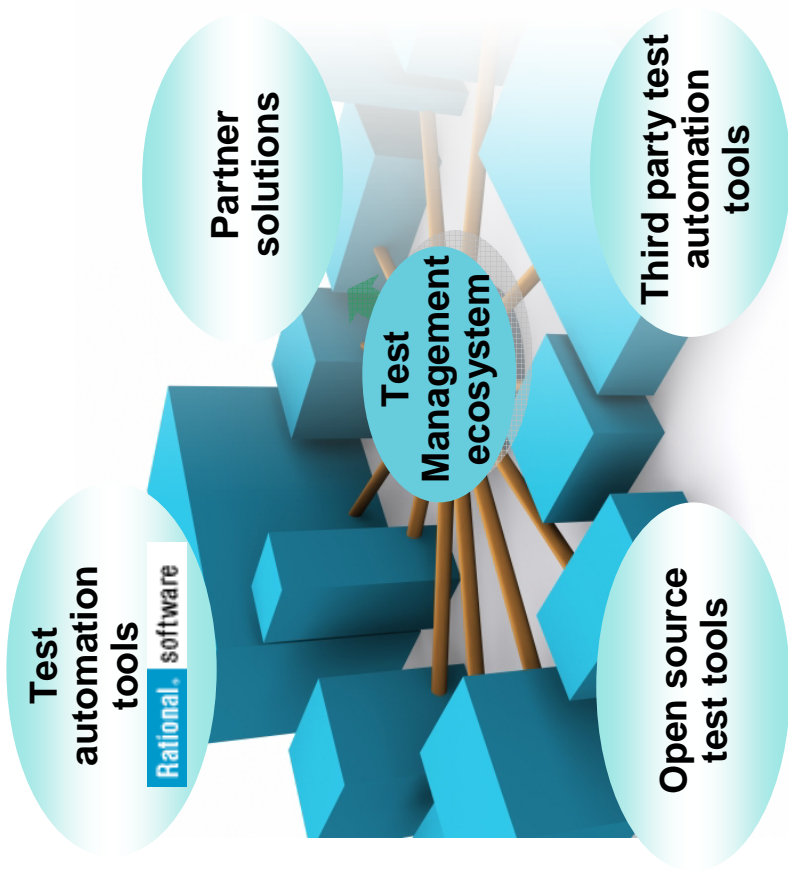
Extensible Test Management ecosystem

Integrated with Rational testing tools, open source and 3rd party test automation tools

Benefits:

- Lowers the cost of test lab Management
- Simplifies the Management of tools from multiple vendors

- ▶ Integrated with Rational Functional Tester, Rational Manual Tester and Rational Performance Tester
- ▶ Supports distributed and System z testing
- ▶ Partner extensibility for inclusion of complementary testing tools



IBM Rational ClearQuest

Simplify security and compliance management

Repeatable, reliable and enforceable processes

- Electronic Signature
 - Choose what records and states require Electronic Signature approval
- LDAP Authentication and User Authorization
 - Rational ClearCase and Rational ClearQuest secured login
- Audit Trail and Field Logging
- Secure Repository
 - Supports popular database vendors

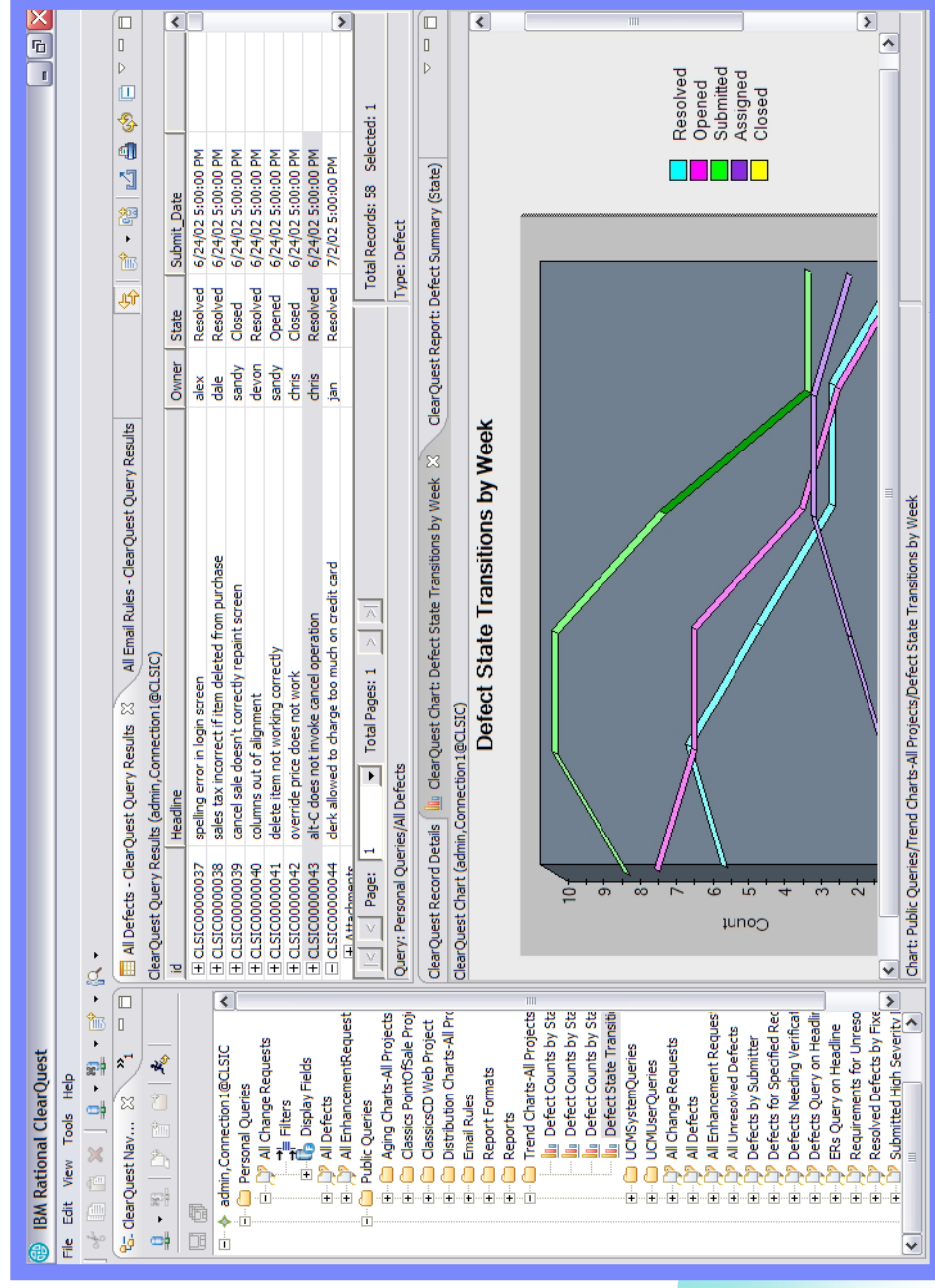


- Enhanced Security
 - ▶ Public folders access control lists (ACLs)

IBM Rational ClearQuest

Easy access using the client of choice

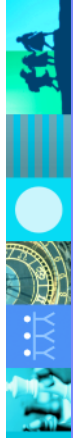
- Windows
- UNIX/Linux
- Eclipse
- Web



- Fortified Web scalability for stronger distributed development support

Process and Tools Modernization offerings

IBM Enterprise Modernization Solutions		
Enterprise Modernization	If you need to....	...IBM Software can help
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IBM Rational ClearCase

Complete Software Configuration Management

An industry-leading solution that provides sophisticated version control, workspace management, parallel development support and build auditing to improve productivity

- ✓ Integration with leading IDEs allows you to work in your preferred environment
- ✓ Transparent real-time access to files and directories virtually anywhere in your organization
- ✓ Sophisticated branching and graphical merge tools enable concurrent access and efficient use of time
- ✓ Light-weight feature-rich clients allow you to work locally or remotely.
- ✓ Support for open source environments provides added workspace flexibility

IBM Rational ClearCase

Work in your preferred environment

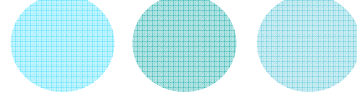
- Integrations with leading IDEs
 - Eclipse framework
 - IBM Rational Application Developer (RAD)
 - IBM Rational Developer for System z
 - IBM WebSphere Studio Developer Client (System i)
 - Microsoft Visual Studio 2005
 - z/OS ISPF
 - and more....

- Wide-range of supported environments
 - UNIX
 - Windows
 - Linux
 - IBM z/OS®
 - IBM i5/OS

- Work locally or remotely



New integrations for High Availability ensures operational continuity

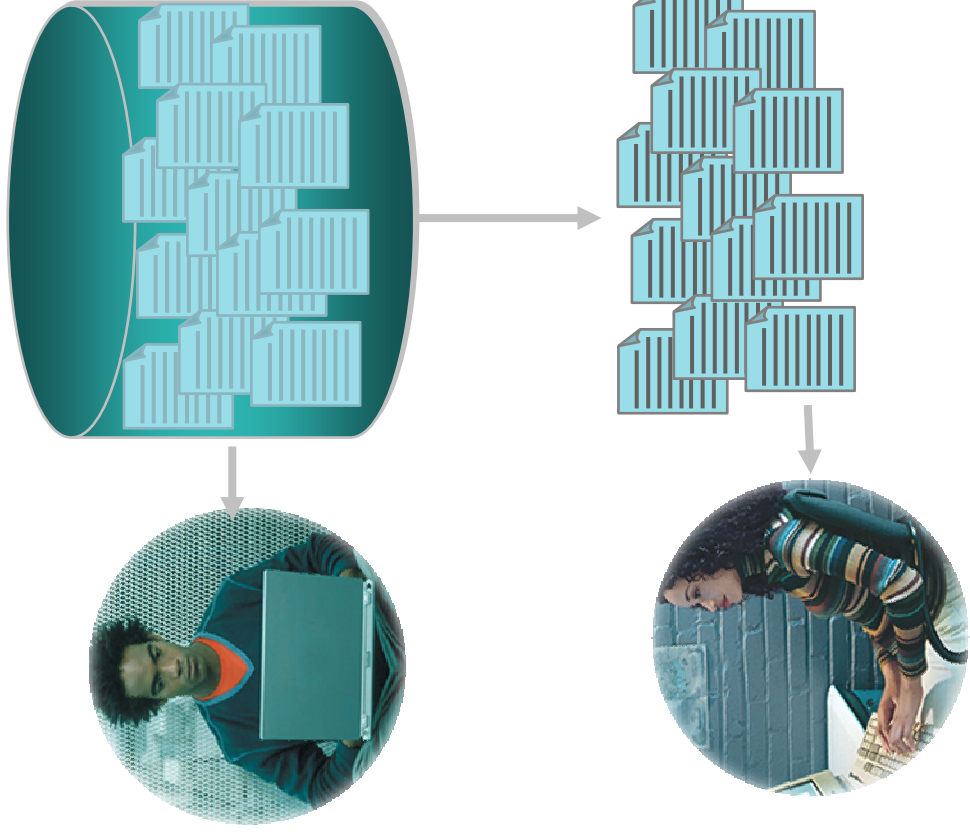


IBM Rational ClearCase

Transparent real-time access or disconnected access to files

- **Dynamic Views**
 - ▶ Access any configuration immediately
 - ▶ Global view of code base enables sharing

- **Snapshot Views**
 - ▶ Intelligent disconnected use
 - ▶ Automatically detects and re-synchronizes all modified files



IBM Rational ClearCase

Flexible alternatives for implementation

Rational ClearCase supports two implementation methods:

- Unified Change Management (UCM)
 - ▶ Out-of-the-box solution
 - ▶ Activity-based change management process
 - ▶ Configurable automated workflow process
 - ▶ Proven best practices

- Base Rational ClearCase
 - ▶ Flexibility to implement virtually any configuration management solution tailored to a particular development environment
 - Unlimited and automated branching
 - Customize to your needs



IBM Rational ClearCase

Activity-Based Change Management

- Never forget a file again



Developers

Unified Change Management (UCM)

- ✓ Customized without scripting
- ✓ Manages high-level components
- ✓ Optimized for team acceptance
- ✓ Increased abstraction Level - UCM is layered on base Rational ClearCase

- Organize Projects
- Track Project Status
- Easy to Adopt



Project Manager

- Assemble Systems Consistently
- Manage Baselines
- Maintain Build Audit Trail

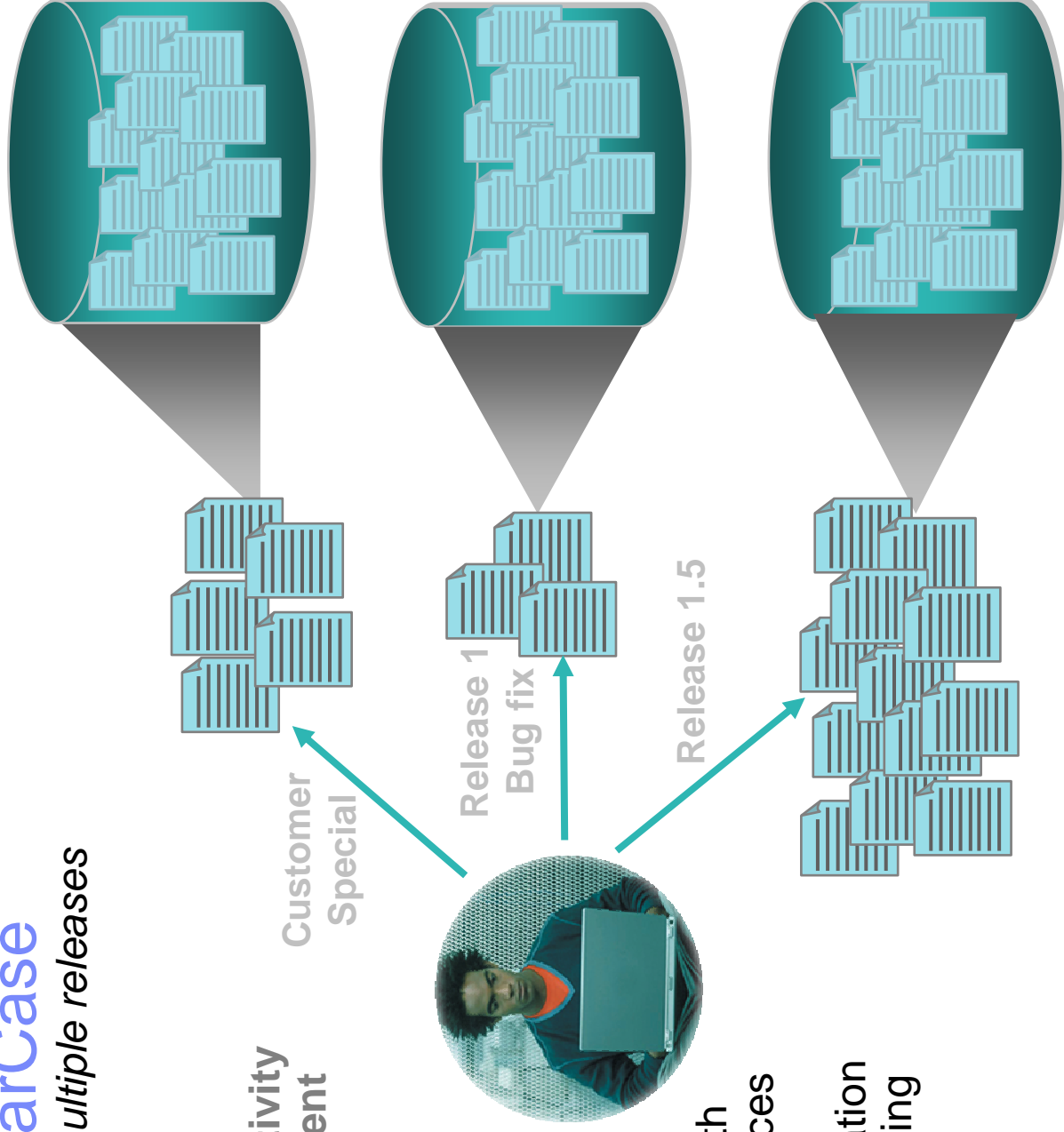


Integrator

IBM Rational ClearCase

Work simultaneously on multiple releases

**Accelerate your productivity
with parallel development**



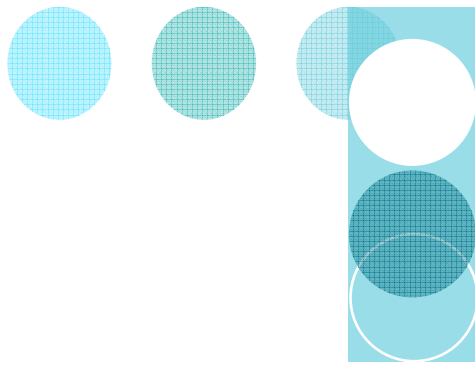
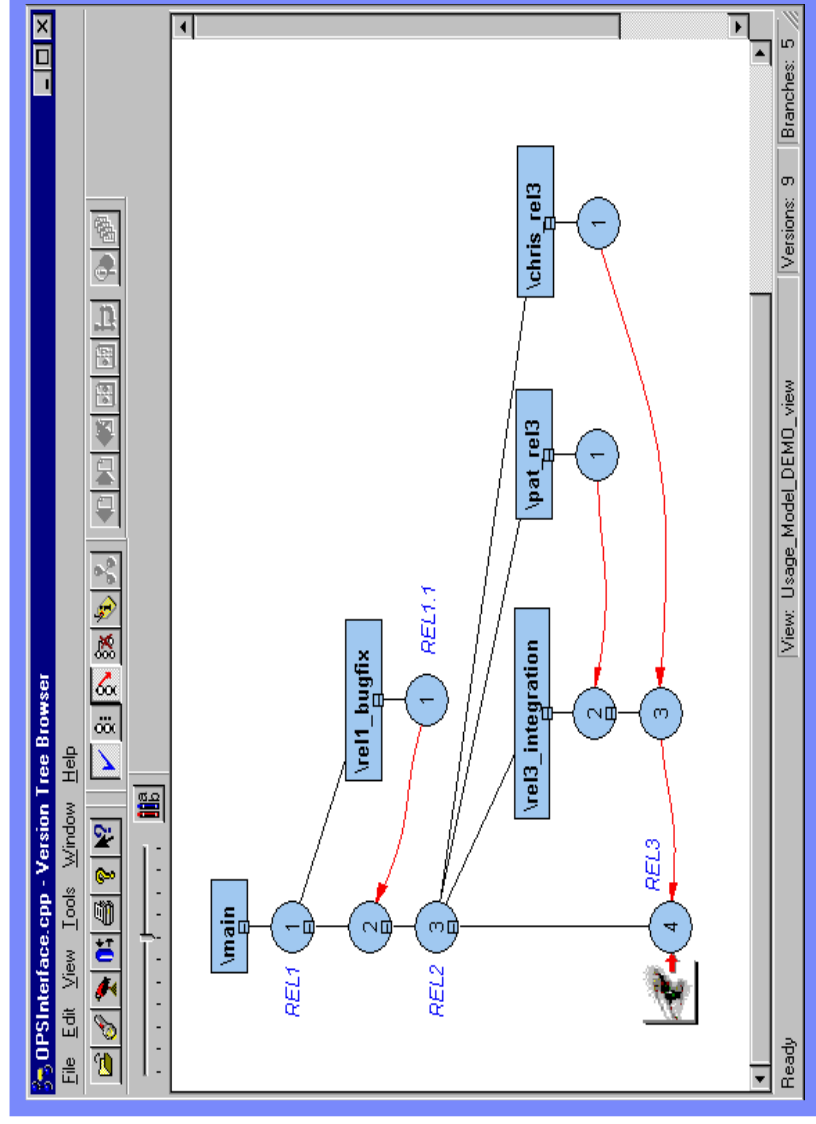
- Isolate unstable work with private developer workspaces
- Automate team coordination using sophisticated branching and graphical merge tools



IBM Rational ClearCase

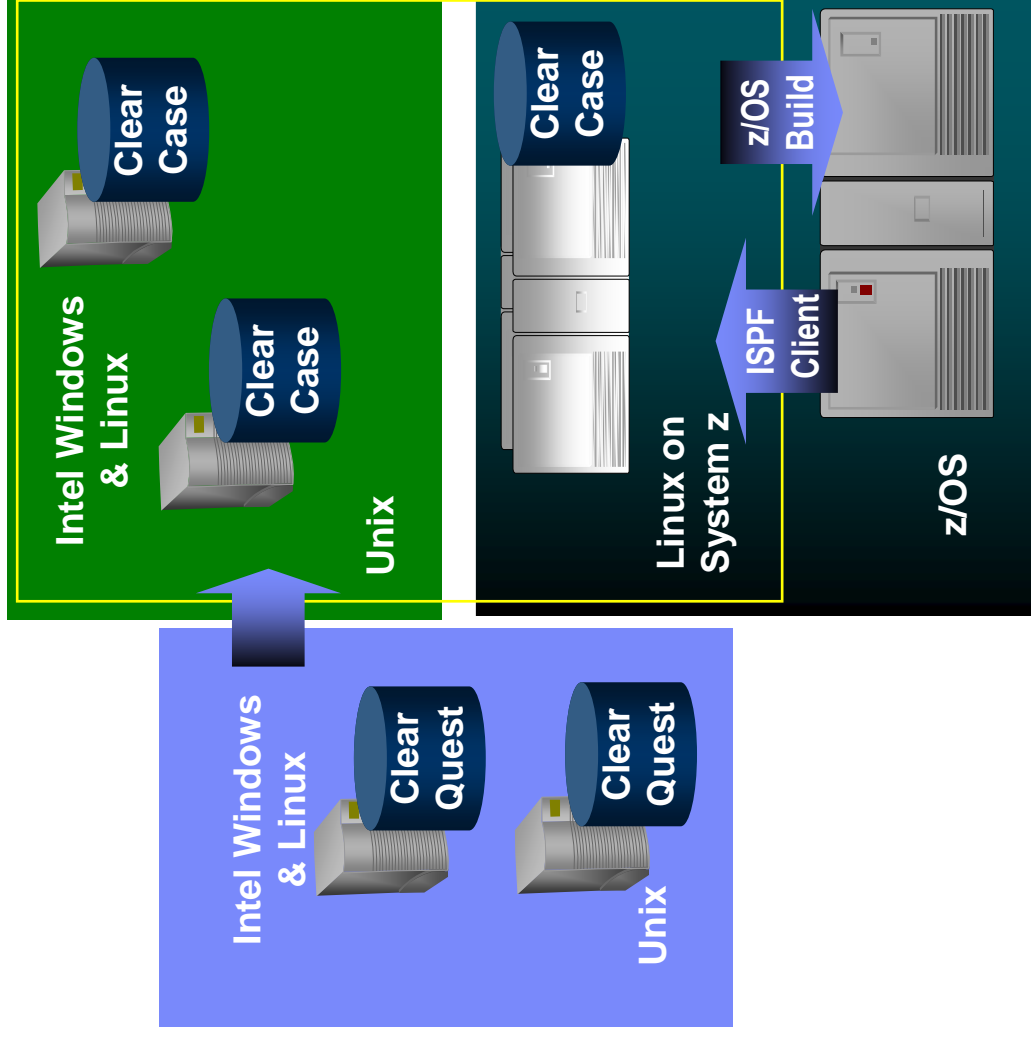
Visually view your file versions

Using the Version Tree Browser, view your branching structure, performed merges, file versions, labels, etc...



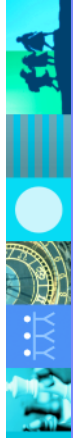
ClearCase/ClearQuest for the Enterprise

- Extends ClearCase to manage both distributed and z/OS assets
- Provides single point of control, single artifact repository, single set of user interfaces
- Provides consistent process paradigm across platforms
- Extends the power of the Software Delivery Platform and ClearQuest/ClearCase UCM to z/OS development



Process and Tools Modernization offerings

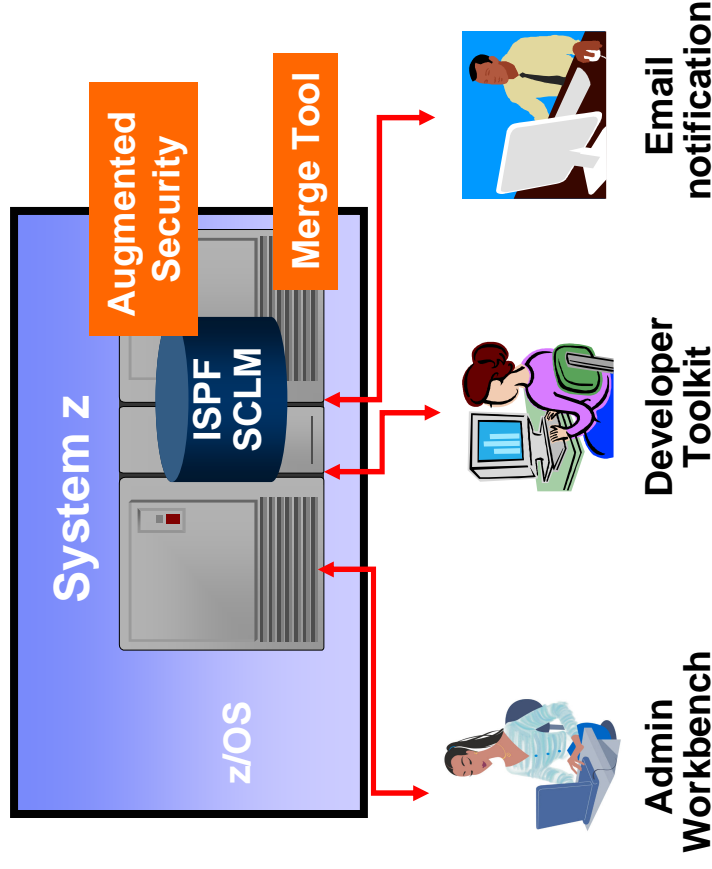
IBM Enterprise Modernization Solutions		
Enterprise Modernization	If you need to....	...IBM Software can help
<p>✓ Ensure that business goals and requirements drive downstream design, development and testing.</p> <p>✓ Lower costs due to elimination of duplicate tools and processes</p> <p>✓ Improve IT flexibility because employee skills can be leveraged across organization</p> <p>✓ Exploit single infrastructure for enterprise and distributed development environments</p> <p>✓ Realize improved end-to-end communication and traceability across the entire lifecycle</p> <p>✓ Enforce software governance policies and procedures across functionally diverse and geographically distributed teams</p> <p>✓ Verify software builds and document the exact software versions that are deployed</p> <p>✓ Manage quality across the software delivery lifecycle</p>	<p>IBM Rational RequisitePro – allows global teams to clearly understand and effectively manage changing requirements in their natural context. IBM Rational RequisitePro reduces rework by improving global requirements communication and interpretation.</p> <p>IBM Rational Unified Process for System z – Rational Unified Process® (RUP®) for System z™ method, which has been especially created for use by organizations that are involved in developing applications software in the System z environment.</p> <p>IBM Rational ClearQuest – governs, integrates, and automates your global development processes and workflow between your global teams IBM Rational ClearQuest orchestrates collaboration and work transfer between distributed team members.</p> <p>IBM Rational ClearCase – drives and manages global parallel development with flexible and secure worldwide access to software assets. IBM Rational ClearCase ensures that changes to assets worldwide are business driven.</p> <p>IBM SCLM Advanced Edition – helps System z developers to easily approve packages, implement augmented security controls, run three-way merges, and simplify the management of SCLM-based projects.</p> <p>IBM Rational Build Forge – automates build and release management across multiple projects. It helps reduce errors that delay downstream testing and deployment activities by enabling you to quickly build a service or composite application while writing code.</p> <p>IBM Rational Functional Tester and Functional Tester Extension for Terminal-based Applications – provides automated, data-driven regression and functional testing for atomic and composite services including automated testing of 3270 (System z) and 5250 (System i) applications.</p> <p>IBM Rational Performance Tester and Performance Tester for z/OS – validates the reliability and performance of atomic or composition services with a flexible test scheduler that specifies the different groups of consumers, as well as the activities and usage patterns of each group.</p>	
<p>Process and Tools Modernization</p>		



IBM SCLM Advanced Edition

Managing the application development process

- **Provides**
 - Library and configuration management
 - Package approval processing
 - Granular security controls
 - Easy-to-use three-way merge tool
 - Easy-to-use GUI interface to ease administration tasks
 - Source code management of Eclipse based IDE projects



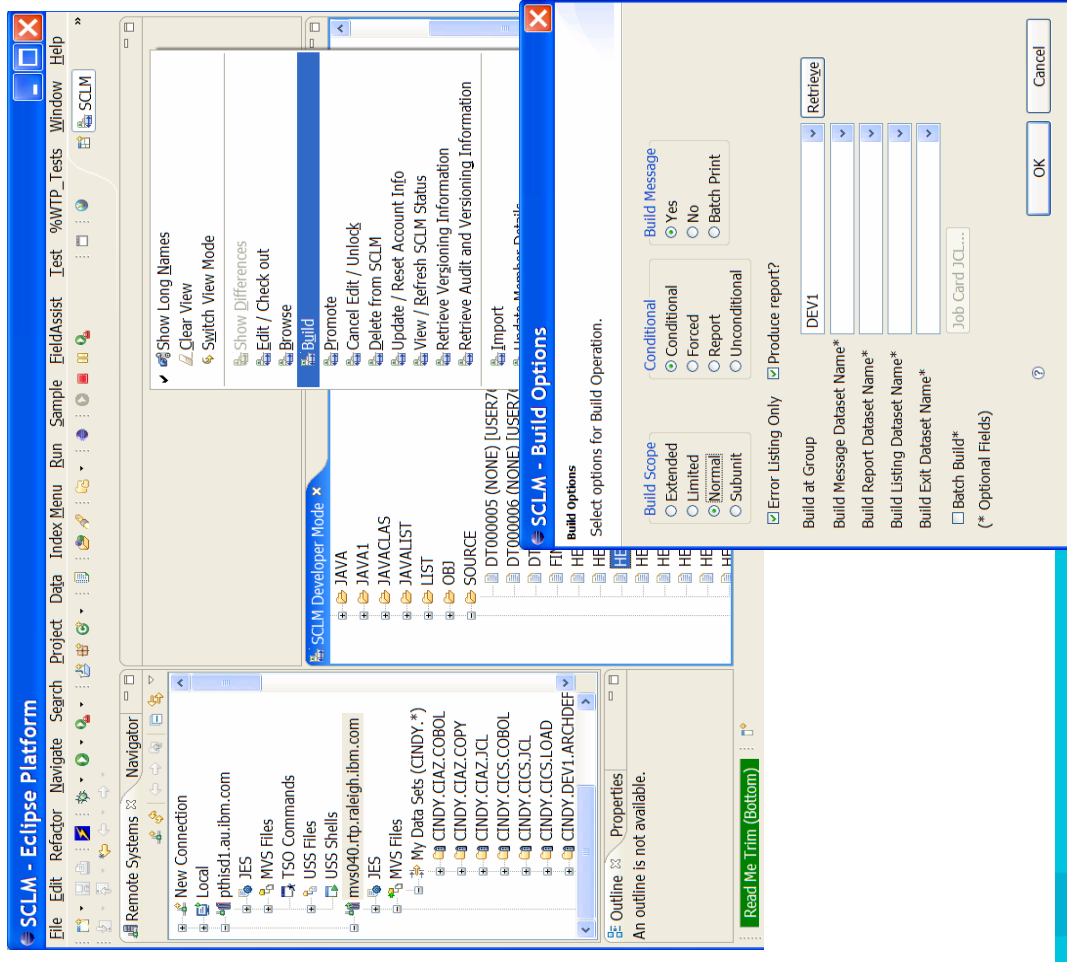
Component products of SCLM AE

- **SCLM Administrator Toolkit**
 - ▶ Simplifies the administration of SCLM-managed projects by means of a workstation-based graphical interface or an ISPF-based interface.
 - ▶ Assists in creating and configuring new SCLM projects as well as modifying, cloning, building or rebuilding, and deleting existing SCLM projects.
- **Enhanced Access Control for SCLM**
 - ▶ Provides additional flexibility and control over access to SCLM-managed libraries.
- **SCLM Developer Toolkit:**
 - ▶ Facilitates collaboration between z/OS and non z/OS-based developers via an Eclipse-based interface that extends SCLM Services to Eclipse-based IDEs.
 - ▶ Provides investment protection with an architecture that can extend the languages supported by SCLM.
- **Breeze for SCLM**
 - ▶ Provides browser-based and e-mail-based software package notification, and review and approval capabilities for approving the promotion of packages through the software development life cycle.
- **Merge Tool**
 - ▶ Provides a variety of tools to perform merge tasks and provides reports to aid in the assessment of source consolidation.
 - ▶ Produces a statistics file for identifying and sizing a consolidation effort.



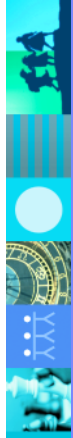
SCLM Developer Toolkit Integration

- SCLM DT is an Eclipse based tool that extends SCLM services to Eclipse based IDEs, like RDz
- Provides
 - ▶ A transparent IDE-based interface to SCLM
 - ▶ Long file support
 - ▶ A remote portal via SCLM Explorer/Developer view that allows access to other SCLM based products
- Facilitates development of composite applications targeted for deployment to WAS/z
- Allows Java/J2EE developers to leverage the security and functionality of SCLM



Process and Tools Modernization offerings

IBM Enterprise Modernization Solutions		
Enterprise Modernization	If you need to...	...IBM Software can help
<p>✓ Ensure that business goals and requirements drive downstream design, development and testing.</p> <p>✓ Lower costs due to elimination of duplicate tools and processes</p> <p>✓ Improve IT flexibility because employee skills can be leveraged across organization</p> <p>✓ Exploit single infrastructure for enterprise and distributed development environments</p> <p>✓ Realize improved end-to-end communication and traceability across the entire lifecycle</p> <p>✓ Enforce software governance policies and procedures across functionally diverse and geographically distributed teams</p> <p>✓ Verify software builds and document the exact software versions that are deployed</p> <p>✓ Manage quality across the software delivery lifecycle</p>	<p>IBM Rational RequisitePro – allows global teams to clearly understand and effectively manage changing requirements in their natural context. IBM Rational RequisitePro reduces rework by improving global requirements communication and interpretation.</p> <p>IBM Rational Unified Process for System z – Rational Unified Process® (RUP®) for System z™ method, which has been especially created for use by organizations that are involved in developing applications software in the System z environment.</p> <p>IBM Rational ClearQuest – governs, integrates, and automates your global development processes and workflow between your global teams IBM Rational ClearQuest orchestrates collaboration and work transfer between distributed team members.</p> <p>IBM Rational ClearCase – drives and manages global parallel development with flexible and secure worldwide access to software assets. IBM Rational ClearCase ensures that changes to assets worldwide are business driven.</p> <p>IBM SCLM Advanced Edition – helps System z developers to easily approve packages, implement augmented security controls, run three-way merges, and simplify the management of SCLM-based projects.</p> <p>IBM Rational Build Forge – automates build and release management across multiple projects. It helps reduce errors that delay downstream testing and deployment activities by enabling you to quickly build a service or composite application while writing code.</p> <p>IBM Rational Functional Tester and Functional Tester Extension for Terminal-based Applications – provides automated, data-driven regression and functional testing for atomic and composite services including automated testing of 3270 (System z) and 5250 (System i) applications.</p> <p>IBM Rational Performance Tester and Performance Tester for z/OS – validates the reliability and performance of atomic or composition services with a flexible test scheduler that specifies the different groups of consumers, as well as the activities and usage patterns of each group.</p>	<p>IBM Rational RequisitePro – allows global teams to clearly understand and effectively manage changing requirements in their natural context. IBM Rational RequisitePro reduces rework by improving global requirements communication and interpretation.</p> <p>IBM Rational Unified Process for System z – Rational Unified Process® (RUP®) for System z™ method, which has been especially created for use by organizations that are involved in developing applications software in the System z environment.</p> <p>IBM Rational ClearQuest – governs, integrates, and automates your global development processes and workflow between your global teams IBM Rational ClearQuest orchestrates collaboration and work transfer between distributed team members.</p> <p>IBM Rational ClearCase – drives and manages global parallel development with flexible and secure worldwide access to software assets. IBM Rational ClearCase ensures that changes to assets worldwide are business driven.</p> <p>IBM SCLM Advanced Edition – helps System z developers to easily approve packages, implement augmented security controls, run three-way merges, and simplify the management of SCLM-based projects.</p> <p>IBM Rational Build Forge – automates build and release management across multiple projects. It helps reduce errors that delay downstream testing and deployment activities by enabling you to quickly build a service or composite application while writing code.</p> <p>IBM Rational Functional Tester and Functional Tester Extension for Terminal-based Applications – provides automated, data-driven regression and functional testing for atomic and composite services including automated testing of 3270 (System z) and 5250 (System i) applications.</p> <p>IBM Rational Performance Tester and Performance Tester for z/OS – validates the reliability and performance of atomic or composition services with a flexible test scheduler that specifies the different groups of consumers, as well as the activities and usage patterns of each group.</p>



IBM Rational Build Forge

Full Build and Release Management

A process execution framework that automates and accelerates build and release processes for Agile development and streamlined software delivery

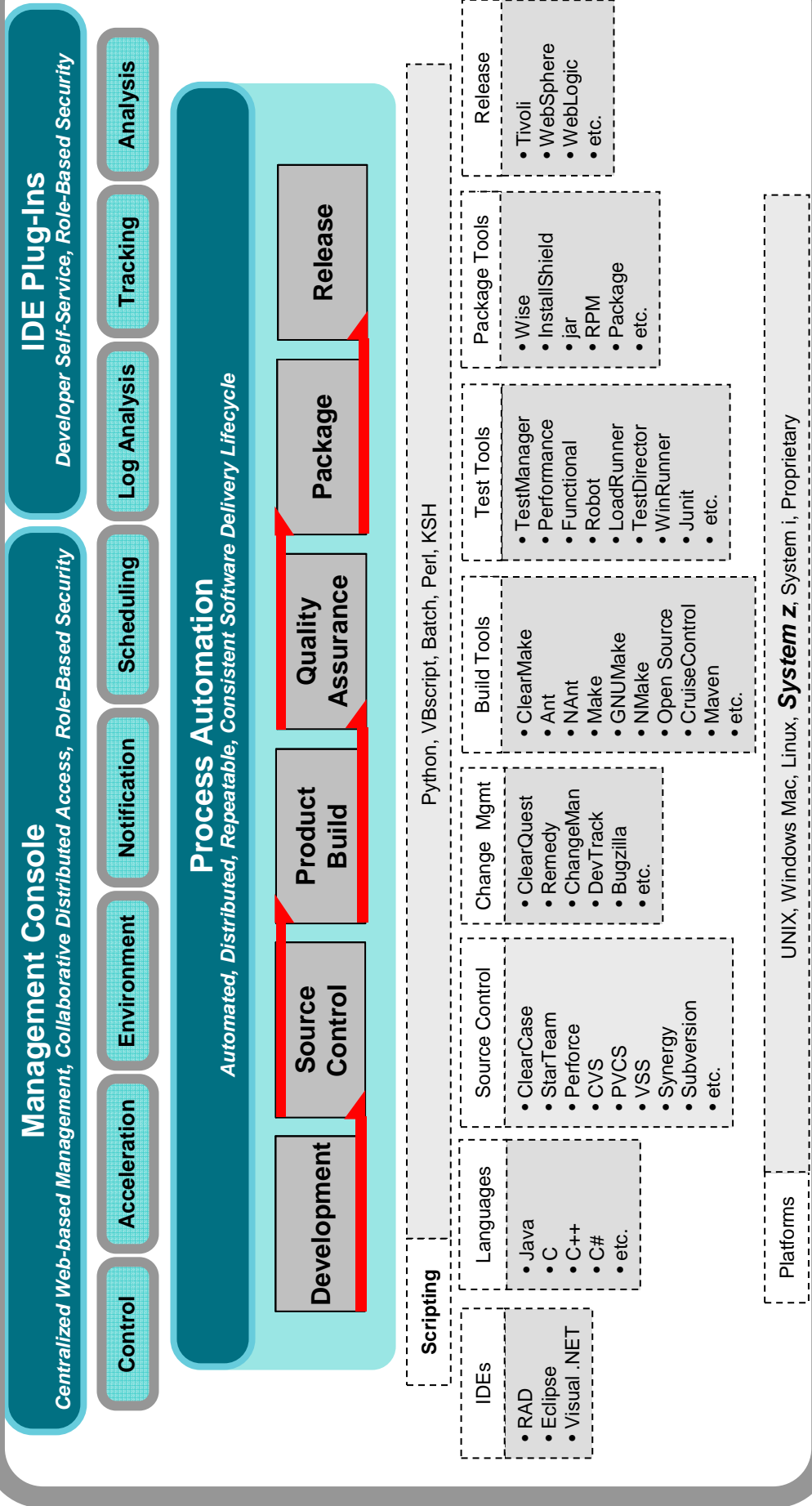
- ✓ Quick builds using pre-configured build processes and environments automates tasks for increased efficiency
- ✓ A complete bill-of-materials list changes and the contents of each build for more accurate testing and problem resolution
- ✓ Enterprise reporting improves visibility into the build and release processes and helps to meet compliance mandates
- ✓ Integration with leading IDEs provides controlled, self service access to production build processes and allows you to work in your preferred environment
- ✓ Integration with existing development technologies (languages, scripts and tools, regardless of platform) make use of existing investments



IBM Rational Build Forge

An adaptive framework to standardize and automate repetitive tasks

SOFTWARE DELIVERY AUTOMATION FRAMEWORK

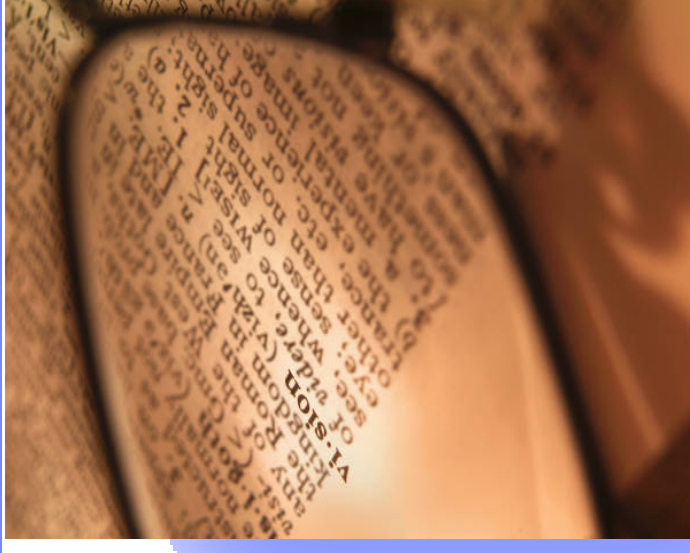


IBM Rational Build Forge

Improve visibility and decision support

Fast analysis and insight to value build information

- Intuitive out-of-the-box reporting
 - Uncover development bottlenecks
 - Determine trends for specific projects
 - Pinpoint areas for performance tuning
- Advanced reporting with IBM Rational Build Forge Quick Report
 - Ad-hoc custom or out-of-the-box reporting
 - Zero footprint web client
 - Public and private reports
 - Save/export to different formats

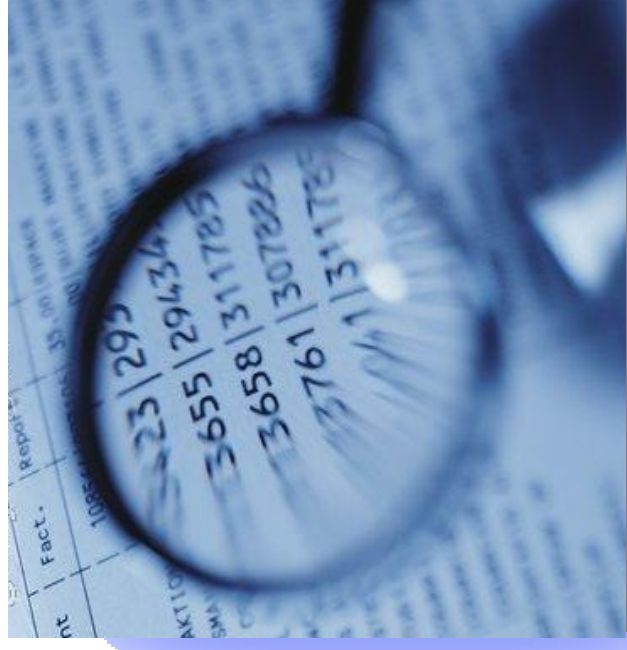


IBM Rational Build Forge

Automated, documented data and audit trail

Better reproducibility and simplifying compliance management

- Comprehensive bill-of-materials (BOM)
 - files that were changed
 - any automated unit tests performed
 - environment used to create the build
 - thorough account of build processes
- Documented audit trail of release contents, process changes and user access to the systems
- No need to manually gather information!



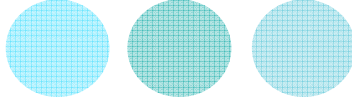
IBM Rational Build Forge

Direct access to build and release functions

Empower developers with self-service capabilities

- Integrations with leading IDEs
 - Eclipse framework
 - IBM Rational Application Developer (RAD)
 - Microsoft Visual Studio 2005
 - and more...

- Wide-range of supported environments
 - UNIX
 - Windows
 - Linux
 - Mac OS
 - z/OS and i5/OS agents enable enterprise-wide build management



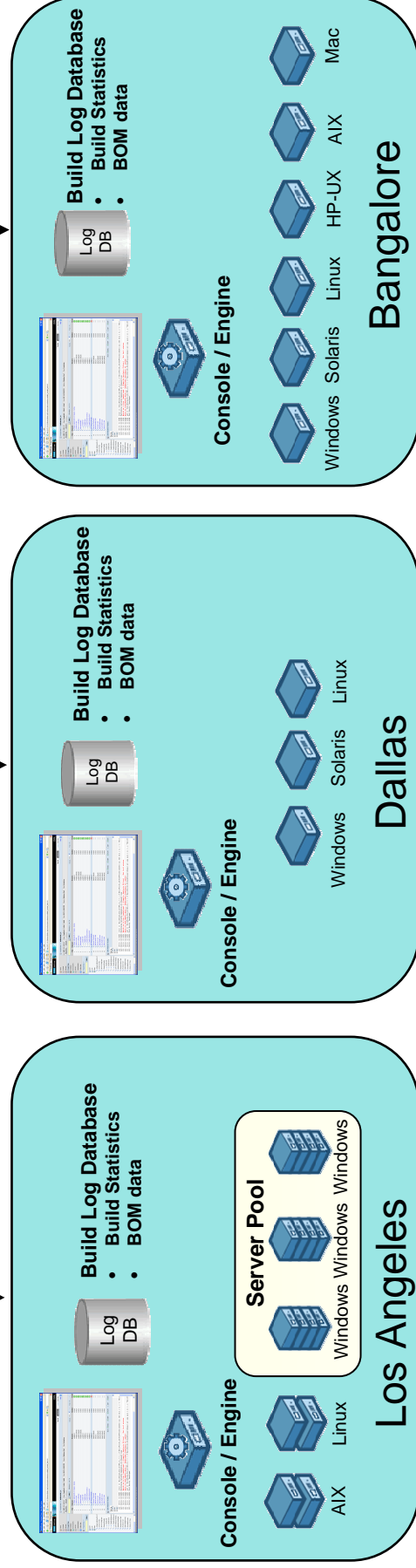
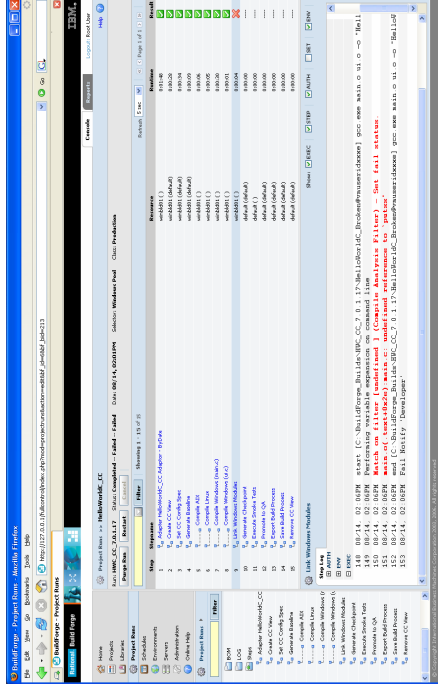
**Support for more environments than any other
Build and Release Management tool!**



IBM Rational Build Forge

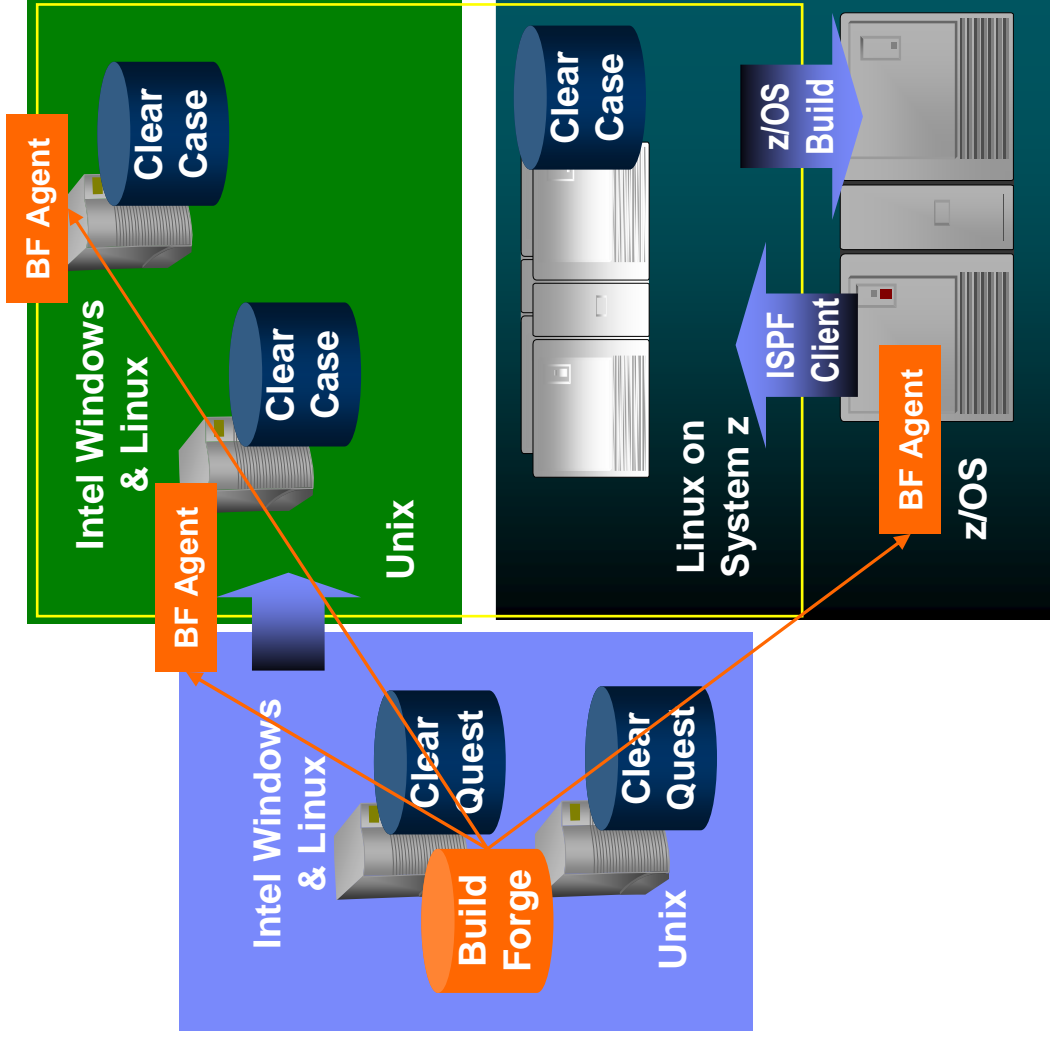
Centralized management across geographically distributed teams

- Web-based management console
- Consolidated, real-time project view
- Safe, secure access via user authentication
- Unicode support for international projects



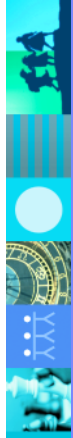
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- Extends ClearCase/ClearQuest/Build Forge to manage both distributed and z/OS assets
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Process and Tools Modernization offerings

IBM Enterprise Modernization Solutions		
Enterprise Modernization	If you need to...	...IBM Software can help
<p>Process and Tools Modernization</p>	<ul style="list-style-type: none"> ✓ Ensure that business goals and requirements drive downstream design, development and testing. ✓ Lower costs due to elimination of duplicate tools and processes ✓ Improve IT flexibility because employee skills can be leveraged across organization ✓ Exploit single infrastructure for enterprise and distributed development environments ✓ Realize improved end-to-end communication and traceability across the entire lifecycle ✓ Enforce software governance policies and procedures across functionally diverse and geographically distributed teams ✓ Verify software builds and document the exact software versions that are deployed ✓ Manage quality across the software delivery lifecycle 	<p>IBM Rational RequisitePro – allows global teams to clearly understand and effectively manage changing requirements in their natural context. IBM Rational RequisitePro reduces rework by improving global requirements communication and interpretation.</p> <p>IBM Rational Unified Process for System z – Rational Unified Process® (RUP®) for System z™ method, which has been especially created for use by organizations that are involved in developing applications software in the System z environment.</p> <p>IBM Rational ClearQuest – governs, integrates, and automates your global development processes and workflow between your global teams IBM Rational ClearQuest orchestrates collaboration and work transfer between distributed team members.</p> <p>IBM Rational ClearCase – drives and manages global parallel development with flexible and secure worldwide access to software assets. IBM Rational ClearCase ensures that changes to assets worldwide are business driven.</p> <p>IBM SCLM Advanced Edition – helps System z developers to easily approve packages, implement augmented security controls, run three-way merges, and simplify the management of SCLM-based projects.</p> <p>IBM Rational Build Forge – automates build and release management across multiple projects. It helps reduce errors that delay downstream testing and deployment activities by enabling you to quickly build a service or composite application while writing code.</p> <p>IBM Rational Functional Tester and Functional Tester Extension for Terminal-based Applications – provides automated, data-driven regression and functional testing for atomic and composite services including automated testing of 3270 (System z) and 5250 (System i) applications.</p> <p>IBM Rational Performance Tester and Performance Tester for z/OS – validates the reliability and performance of atomic or composition services with a flexible test scheduler that specifies the different groups of consumers, as well as the activities and usage patterns of each group.</p>



Functional Testing with IBM Rational Functional Tester

Test automation for the novice and the professional



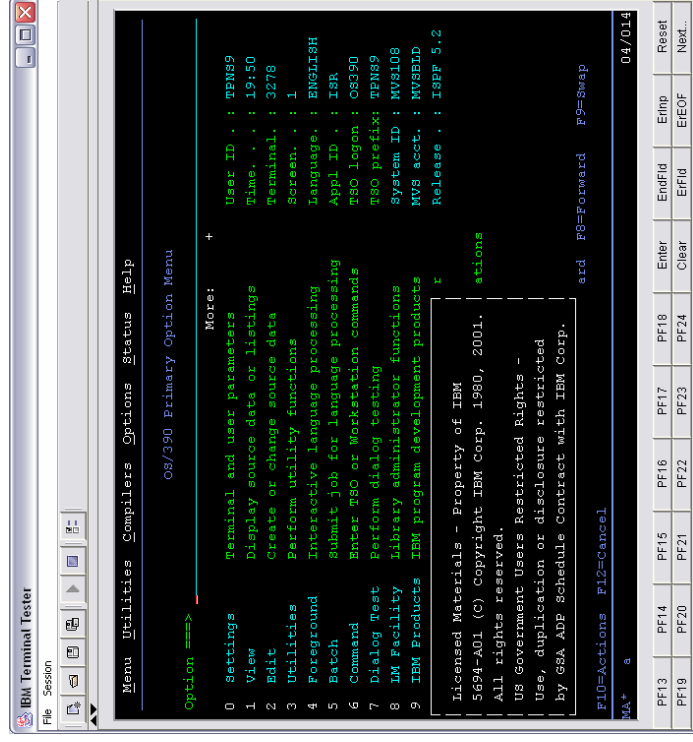
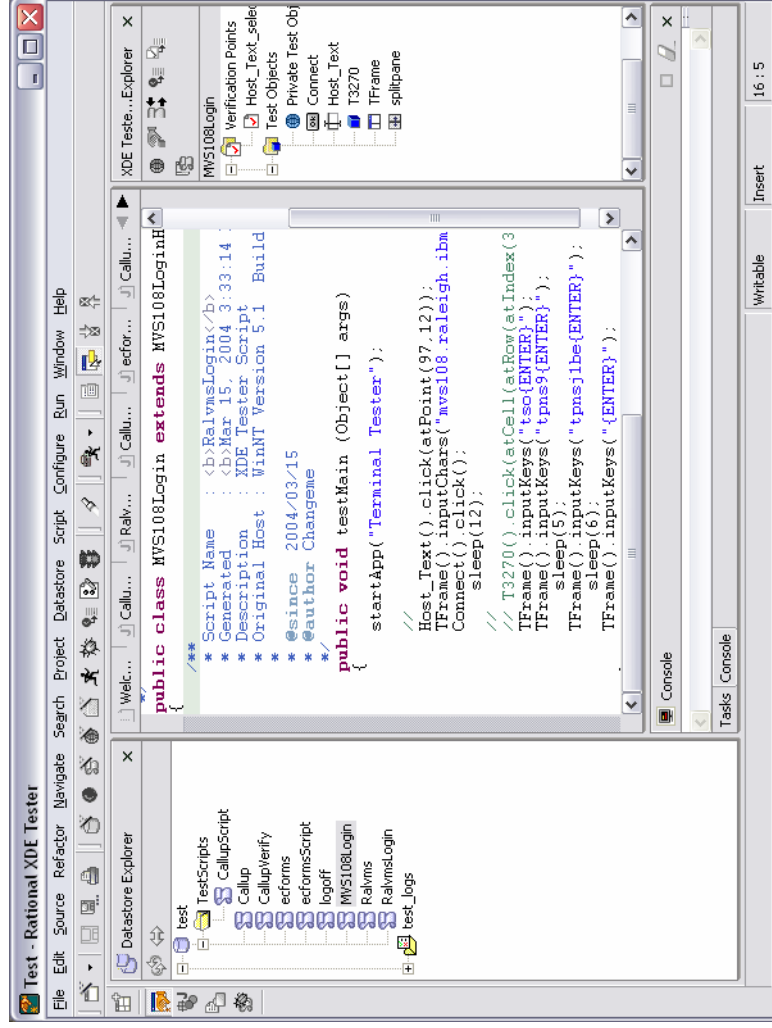
- **IBM Rational Functional Tester**
 - ▶ Automated regression testing for Web, J2EE and .Net applications

- **Key Benefits**
 - ▶ Minimize test maintenance with scripts resilient to application changes
 - ▶ Wizard enhanced automation to speed test creation for the new user
 - ▶ Powerful scripting language and IDE for the professional tester
 - ▶ Supports Team oriented parallel development



Functional Tester Extension for Terminal-based Applications

IBM Rational Functional Tester Extension for Terminal-based Applications lets you test your System z and System i terminal-based applications with the same tool – IBM Rational Functional Tester – used to test your Java, .NET and Web-based client server applications.



Process and Tools Modernization offerings

IBM Enterprise Modernization Solutions		
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IBM Rational Performance Tester

Test automation for the novice and the professional



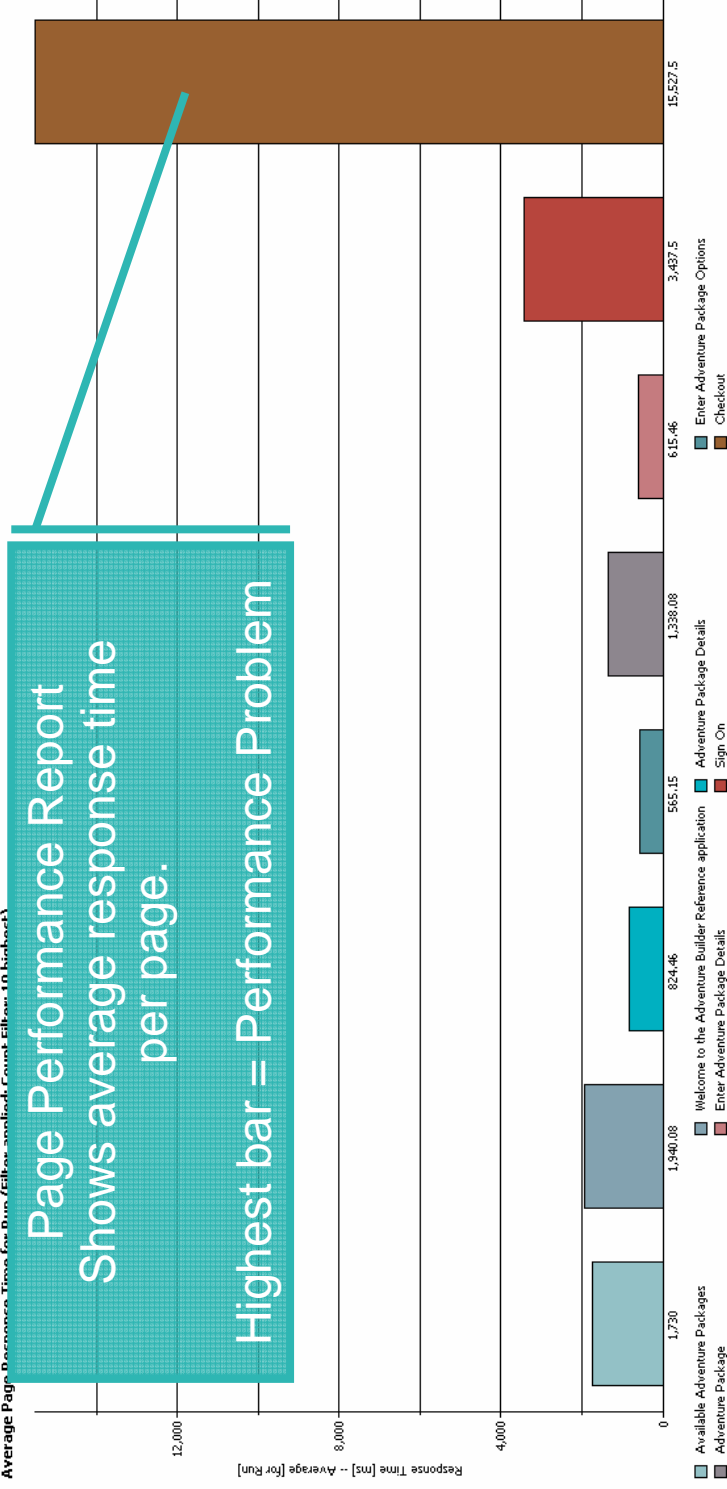
- **IBM Rational Performance Tester**
 - ▶ Performance problem identification and diagnosis for Web, SAP, Siebel, Oracle and Citrix based applications
- **Performance test automation**
 - ▶ **Built for Day 1 Productivity**
 - Mask complexity to get the job done
 - ▶ **Advanced Data Access & Manipulation**
 - Automated data variation and synchronization
 - ▶ **Root Cause Analysis**
 - Identifies location and **root cause** of performance problem in hardware and software



Performance Problem Identification During Test

Page Performance

Average Page Response Time for Run (Enter analyzed Count Filter: 10 hits)



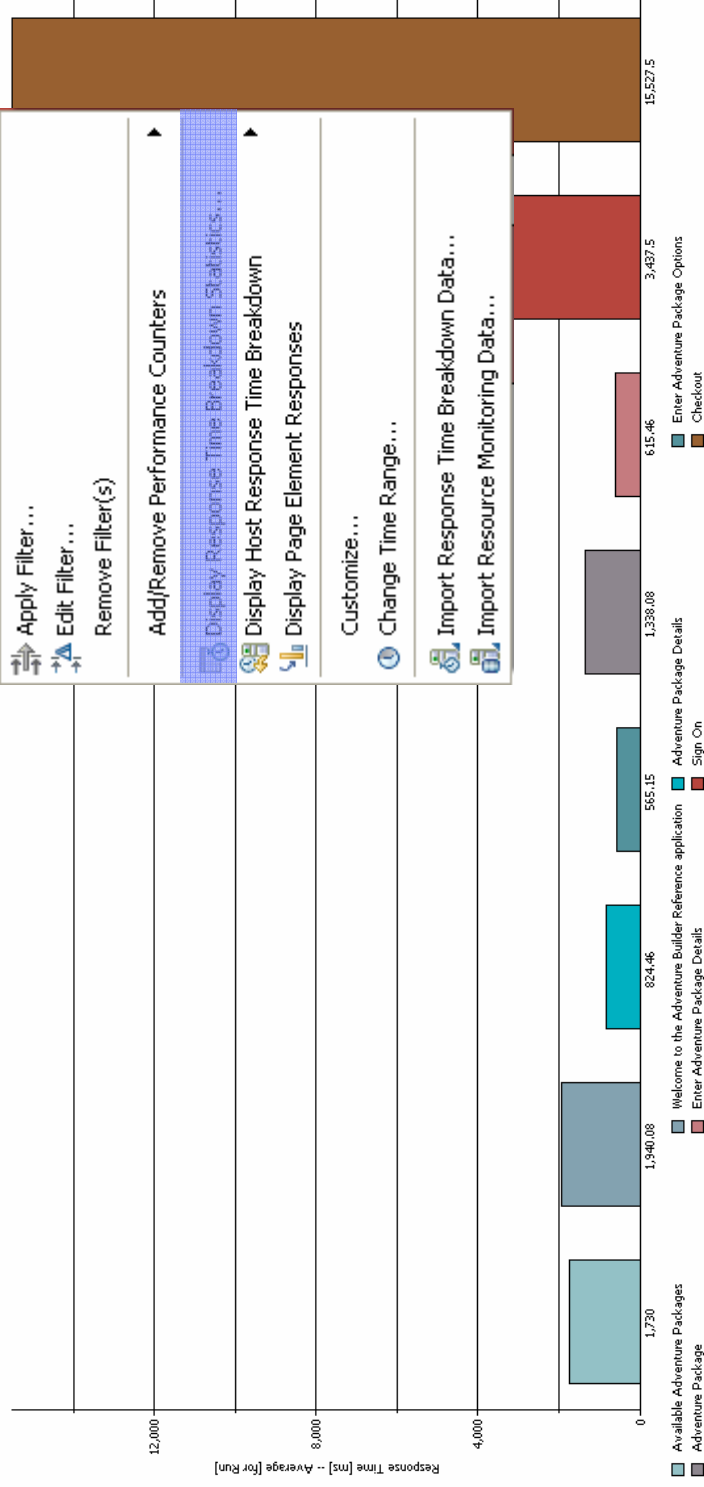
Page Performance Report Shows average response time per page.
Highest bar = Performance Problem

- Rational Performance Tester easily identifies bottlenecks
 - ▶ Next logical question is *Why?*
 - ▶ Root Cause Analysis provides to tools to answer this question

Performance Problem Identification During Test

Page Performance

Average Page Response Time for Run (Filter applied: Count Filter: 10 highest)



- Rational Performance Tester easily identifies bottlenecks
 - ▶ Next logical question is *Why?*
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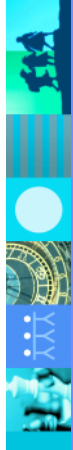
Response Time Breakdown

[Page Performance](#) > [Response Time Breakdown Statistics](#)

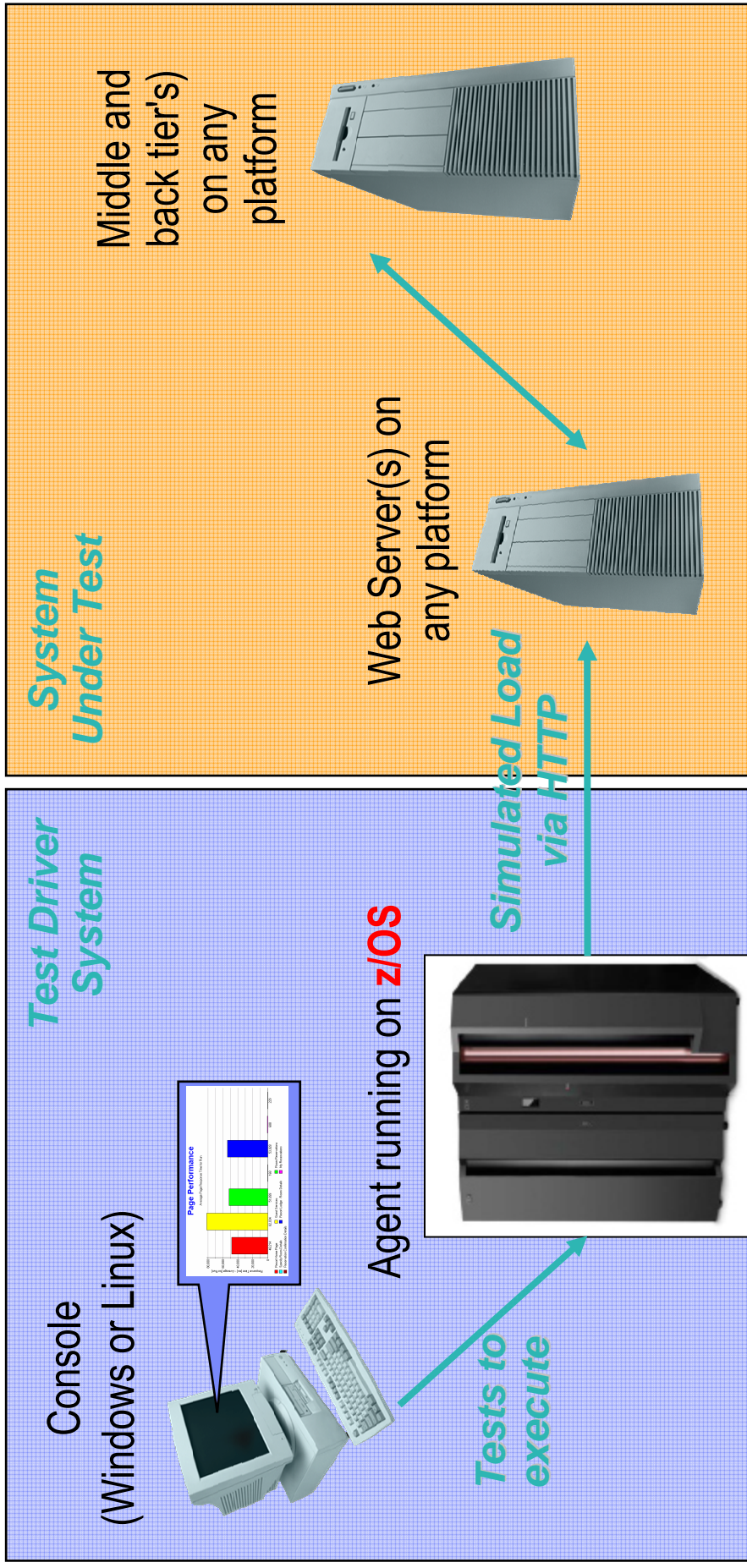
demo:9080/ab/checkout.do

Component	Base Time (seconds)	Average Base Time...	Cumulative Time ...	Calls
[-] CASPIAN	311.512	77.878	470.908	12
[-] IBM Rational Performance Test	311.512	77.878	470.908	12
[+] Delivery Time	26.500	6.625	26.500	4
[+] Response time	208.748	52.187	208.748	4
[+] text/html;charset=ISO-8859-1	76.264	19.066	235.660	4
[-] demo	2,109.879	179.492	3,488.143	186
[-] J2EE/WebSphere/6.0.0.1/demoNode01	2,109.879	179.492	3,488.143	186
[+] Filter	39.632	9.908	570.228	4
[+] JDBC	1,673.199	70.982	1,783.055	126
[+] JSP	33.572	8.393	373.776	28
[+] RMI-IIOP	5.280	0.660	5.280	8
[+] Servlet	26.112	6.528	261.788	8
[+] Session EJB	160.628	40.157	161.280	4
[+] Web Services Provider	2.840	0.710	164.120	4
[+] Web Services Requestor	168.616	42.154	168.616	4

- **Response Time Breakdown:**
 - ▶ Breakdown page response times into composite element response time
- **Provides:**
 - ▶ Breakdown data drills down to highlight slowest components of a given page. Breakdown into tiers and components is a unique feature of Rational Performance Tester .



Topography of Rational Performance Tester for z/OS



IBM Rational Software Delivery Platform for System z

Deliver software better, faster and smarter

Customer results: higher productivity, improved quality, faster delivery, reduced cost

Reduced cost of software delivery

Through standardized processes, team efficiency, effective asset leverage and environment flexibility

Increased quality of products

Delivered through reliable, repeatable and automated processes for lifecycle traceability and rapid error detection

Decreased overall time to market

Through more frequent, iterative development cycles and the ability to work simultaneously on multiple activities

Management & decision support

By providing critical information about your complete software and systems development lifecycle



Quintino

Learn more at:

- **IBM Rational software**
<http://www.ibm.com/software/rational>
- **IBM Rational Software Delivery Platform**
<http://www-306.ibm.com/software/info/developer/index.jsp>
- **Process and portfolio management**
<http://www-306.ibm.com/software/rational/offerings/lifecycle.html>
- **Change and release management**
<http://www-306.ibm.com/software/rational/offerings/scm.html>
- **Quality management**
<http://www-306.ibm.com/rational/offerings/testing.html>
- **Architecture management**
<http://www-306.ibm.com/software/rational/offerings/design.html>
- **Rational trial downloads**
http://www.ibm.com/developerworks/rational/downloads/?S_TACT=105AGX23&S_CMP=RCD
- **developerWorks Rational**
<http://www.ibm.com/developerworks/rational>
- **IBM Rational TV**
http://www-306.ibm.com/software/info/television/index.jsp?cat=rational&media=video&item=en_us/rational/xml/M259765N40519Z80.xml
- **IBM Rational Business Partners**
<http://www-306.ibm.com/software/rational/partners>

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