



IBM Software Group

Ensure Quality with IBM Rational

Quality Driven Software Delivery for SAP

Rational. software

[Go to IBM](#)

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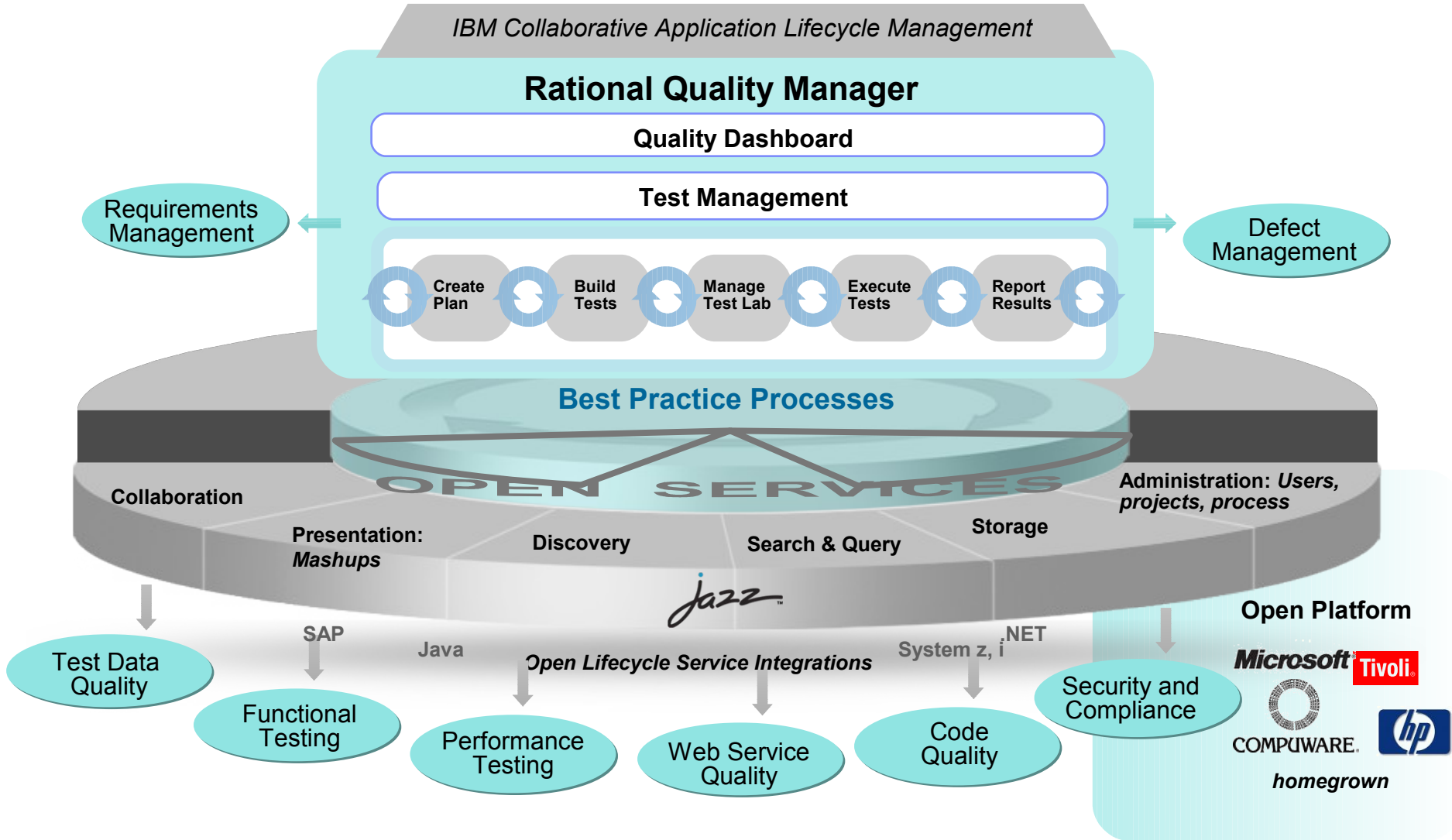
IBM Rational Quality Management

Quality Driven Software Delivery for SAP

- IBM Rational Quality Management
- Rational Functional Testing
- Rational Performance Tester

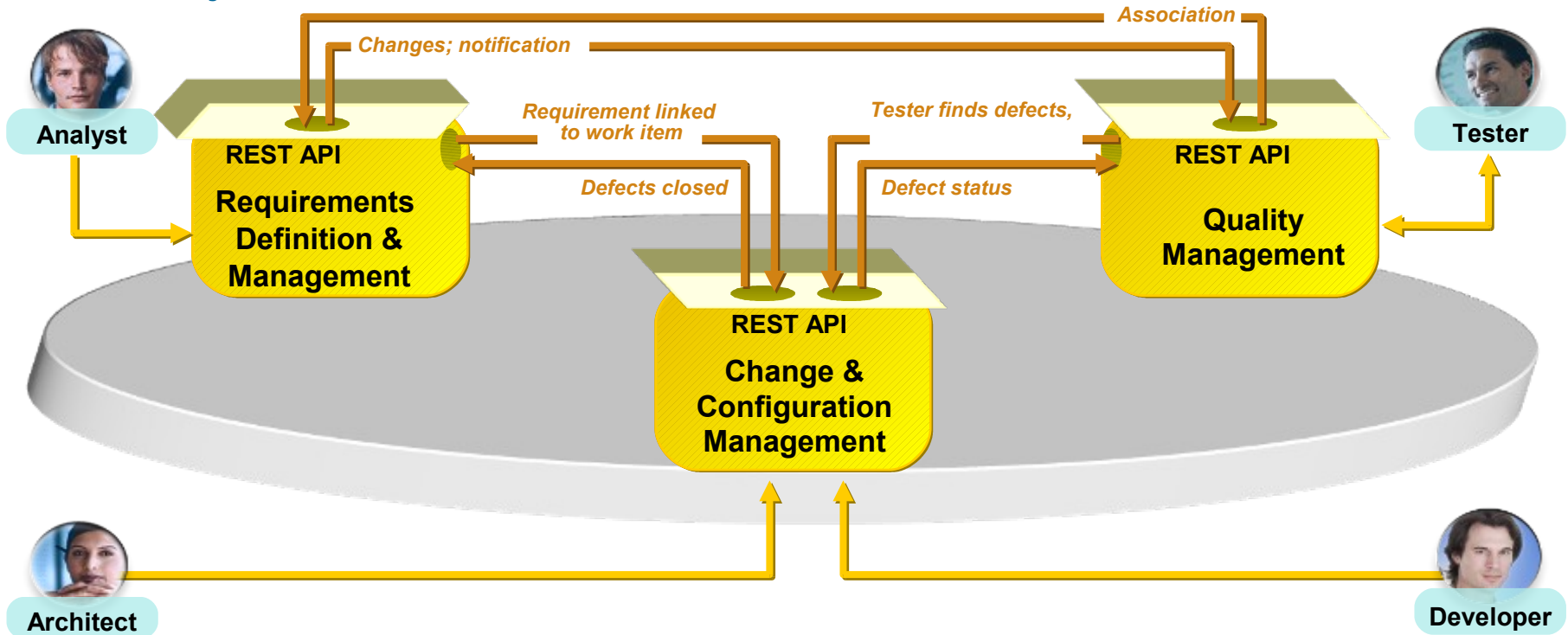


Collaborative Application Lifecycle Management



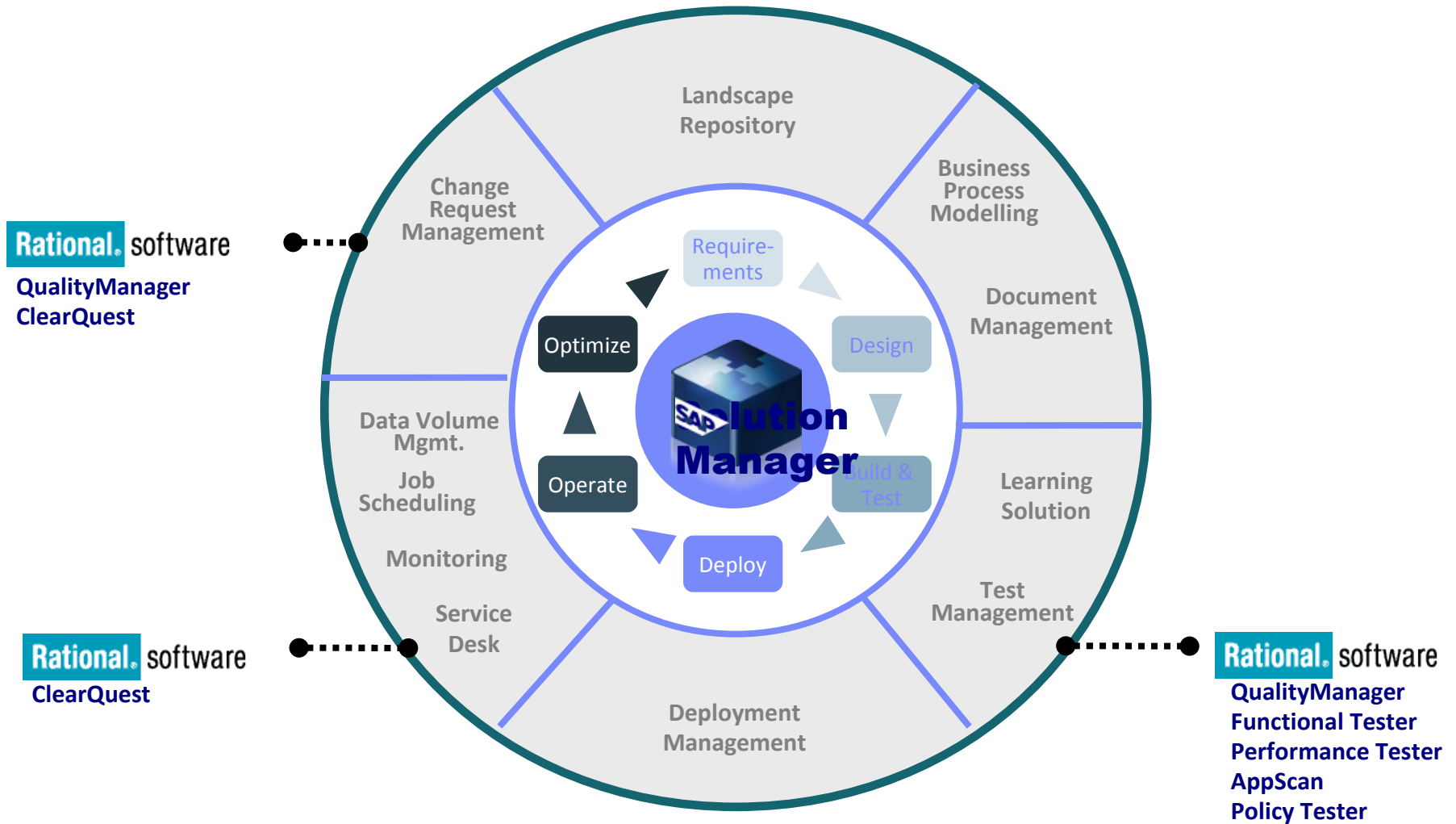
Lower the cost of delivering quality solutions

Orchestrate across teams with ALM integration for maximum transparency and traceability of assets



- **Coordinate analysts, developers and testers**
 - Collaborate in context and track status
- **Align teams on project plans**
 - Which requirements are in the development plan?
- **Track builds and the impact of defects**
 - What build is ready for test?
 - What defects are blocking test from proceeding?
- **Track status with C/ALM dashboard mashups**
 - Transparency across teams and artifacts

Solution Manager – IBM Rational Integrations for Globally Integrated Enterprise



Rational Software and SAP Solution Manager for Testing

Rational software and SAP Solution Manager for testing integrates application lifecycle management capabilities of SAP Solution Manager with test planning and test execution capabilities of Rational software

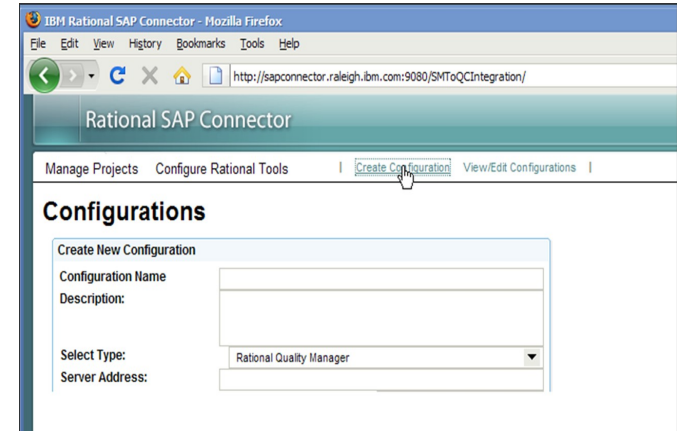
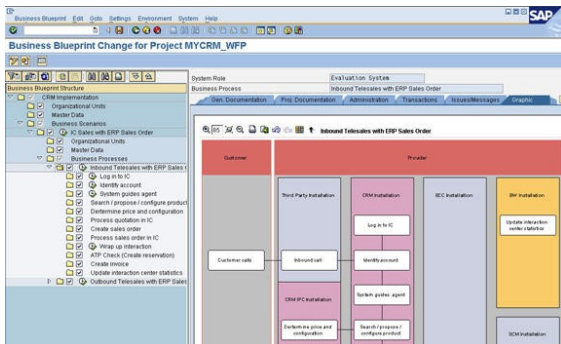


Outbound

- Business Blueprint
- Bus. Requirements
- Test Objects
- Documents
- Incidents

Inbound

- Test Results
- Incidents



Requirements driven testing

Knowing what to test

View Requirements ?

View Builder
Show Requirements that match the attributes in the View Builder.

Group by: Ungrouped Type Filter Text

10 Items per page Previous | 1 - 10 of 14 | Next

<input type="checkbox"/>	Status	ID	Risk 📈	Name	Description	Owner
<input type="checkbox"/>	🟡	5	🟡🟡🟡🟡	Data entry - change customer details	Confidential information for an existing account sha...	Coral Chen
<input type="checkbox"/>	🟡	2	🟡🟡🟡🟡	Data entry - customer details	The system shall accurately capture basic custome...	Coral Chen
<input type="checkbox"/>	🟡 updated		🟡🟡🟡🟡	Process mortgage increase - main path	The system shall process a valid mortgage increase...	Amber Alvarez
<input type="checkbox"/>	🟡	7	🟡🟡🟡🟡	Forward mortgage to secondary approver	Ownership transfer of a mortgage increase request...	Dusty Dixon
<input type="checkbox"/>	🟡	9	🟡🟡🟡🟡	View status of mortgage increase request	The system shall promptly and accurately display th...	Fern Farlow
<input type="checkbox"/>	🟡	6	🟡🟡🟡🟡	Update mortgage application status	The system shall correctly update the status of a m...	Bridget Blue
<input type="checkbox"/>	🟡	4	🟡🟡🟡🟡	Cancel an application	The system shall reliably cancel and archive a suspen...	Eliot Eggplant
<input type="checkbox"/>	🟡	15	🟡🟡🟡🟡	Spelling accuracy and professionalism	Basic banking words like "amortization" shall be spelle...	Amber Alvarez
<input type="checkbox"/>	🟡	10	🟡🟡🟡🟡	Display customer information	The system shall correctly display all customer acco...	Helen Hughes
<input type="checkbox"/>	🟡	13	🟡🟡🟡🟡	Process mortgage request - nonexistent record	The system must reject an increase request that re...	Amber Alvarez

Previous | 1 - 10 of 14 | Next

- Requirements tracking built into the test management tooling
- Customizable attributes enable you to track what is important to your team
- Real-time impact analysis of requirements changes
- Traceability of test results to user needs

Know you are testing the right things



Collaborative risk based testing

Risk management and prioritization

Classics Java Test Plan
Test Plan Overview | View Snapshots

Originator: ADMIN Action: Select Action

Test coverage for the Classics Java application

Test Cases

Lists the test cases associated with a given plan. Removing a test case will remove the association.

Group by: Ungrouped

Show All Items per page

ID	Risk Assessment	Suspect	N
12	○○○○○	◇	vsme
15	○○○○○	◇	A
16	○○○○○	◇	C
17	○○○○○	◇	A
18	○○○○○	◇	A
19	○○○○○	◇	C

Risk Assessment:
○○○○○ very high

My Risk:
Rate this: ○○○○○ very low
Comment here

Community Risk:

Very high: 0 (0%)
High: 0 (0%)
Neutral: 0 (0%)
Low: 0 (0%)
Very low: 1 (100%)
average ○○○○○ very low

Work Item: Create

Type Filter Text

action	Theme	Weight	Modified
ction	Functiona...	20	1 minu...
ction	Functiona...	100	1 minu...
ction	Functiona...	100	1 minu...
ction	Functiona...	100	1 minu...
ction	Functiona...	100	1 minu...
ction	Functiona...	100	1 minu...

- Risk assessments captured in Test Plan and Test Cases
- Collaboration planning of risk mitigation strategy
- Test Case will contain a risk failure score and a risk priority score
- Documented risk related decisions

Base project decisions on qualitative risk analysis



Integrated Manual test authoring and execution

Step	Description	Expected Results
1	Start Classics Application	This window should appear.
2	Select a CD. User browses to Schubert and selects String Quarter	
3	Order the selected CD. Press the Place Order Button. The Place Order Window appears with Schubert as a selected item.	
4	Insert CC Number	
5	Validate Trent Cuplit	
6	Press the	
7	Press the OK Button	
8	OK Button	

Environment	
Test Script Name	New Customer Order
Application Server	Tomcat 6.0
Browsers	Firefox 2.0
CPU	AMD 32bit
DataBase	DB2 7.x
OperatingSystem	Windows NT

#	Type	Result	Description	Attachment
1	Pass	✓	Select a cd and click Order button	
2	Pass	✓	Verify the login window displays	
3	Pass	✓	Select new customer radio button and select OK button	

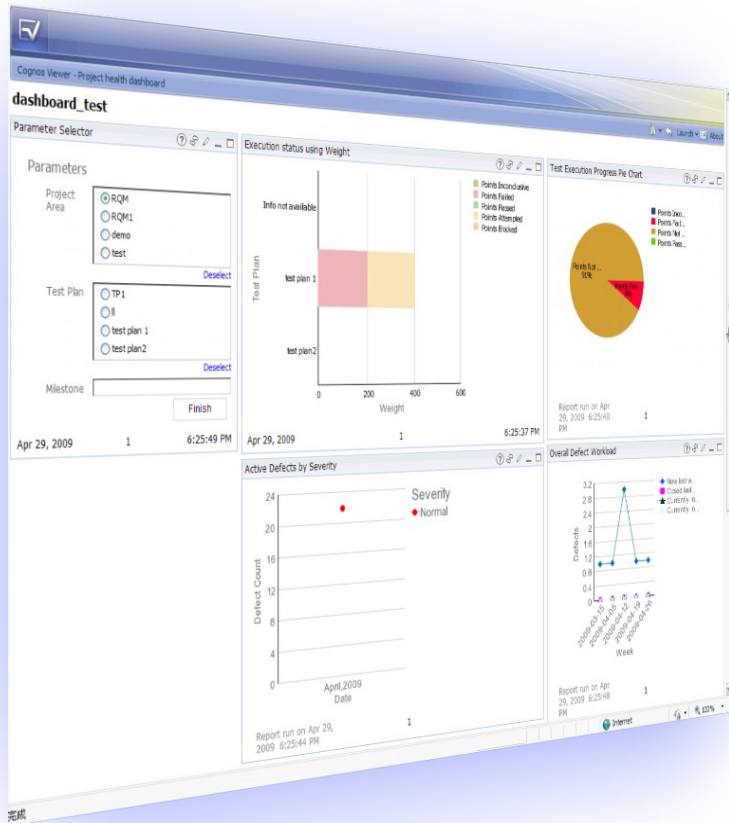
- Manual test author and execute
 - ▶ Step by step capture and execution of manual tests
 - ▶ Assisted data entry
 - ▶ Keyword support for integrated manual and automated testing
 - ▶ Rich defect capture during execution, including screenshot and attachments
 - ▶ Simple intuitive interface for quick test execution

Maximizing efficiency of manual testing



Make confident decisions with effortless reporting

Closed Loop Analysis & Reporting



- Customizable reports and dashboards
 - ▶ Reduce escalating cost of information gathering
 - ▶ Reduce risk by identifying trends before they become issues
 - ▶ Raise enterprise visibility and transparency to reduce costs and risk
 - ▶ Measures the effectiveness of processes and practices to improve organizational and business outcomes

Make the right decisions at the right time



Rational Quality Manager Open Ecosystem Today

Rational. software



Tivoli. software

Automated Testing

- Rational Functional Tester
- Rational Performance Tester
- Rational Service Tester for SOA Quality
- Rational AppScan Tester Edition
- Test RealTime
- Rational Robot
- Rational Rhapsody

Builds, WorkItems and Defects

- Rational ClearQuest
- Rational Team Concert
- Rational BuildForge

Reporting

- Rational Insight

Provisioning

- Tivoli Provisioning Manager (TPM)
- Tivoli Service Request Manager
- TADDM

Requirements

- Rational Requirements Composer
- Rational ReqPro
- Rational DOORS



Supporting bidirectional integration with the Jira change management system



Managing mobile applications testing across a global handset test environment



Accelerating test cycles with virtual machine management and execution



Quick Test Professional LoadRunner



TMAP Process



Enabling greater quality and productivity with automated SOA governance support



IBM Rational Quality Management

Quality Driven Software Delivery for SAP

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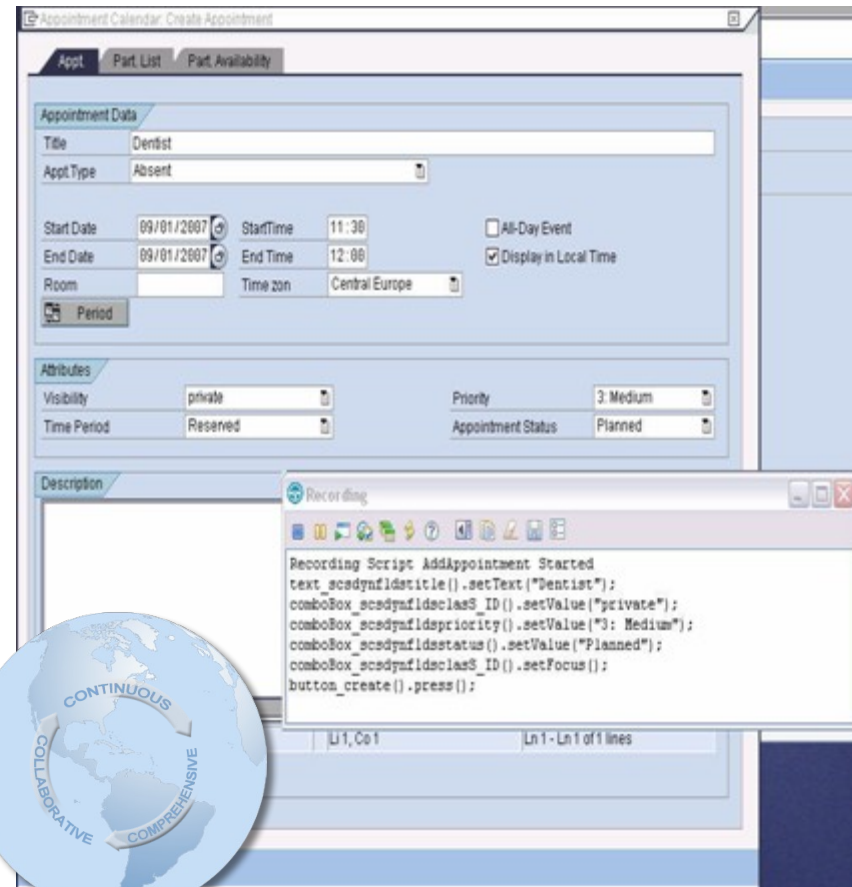


IBM Rational Functional Testing in SAP® deployments

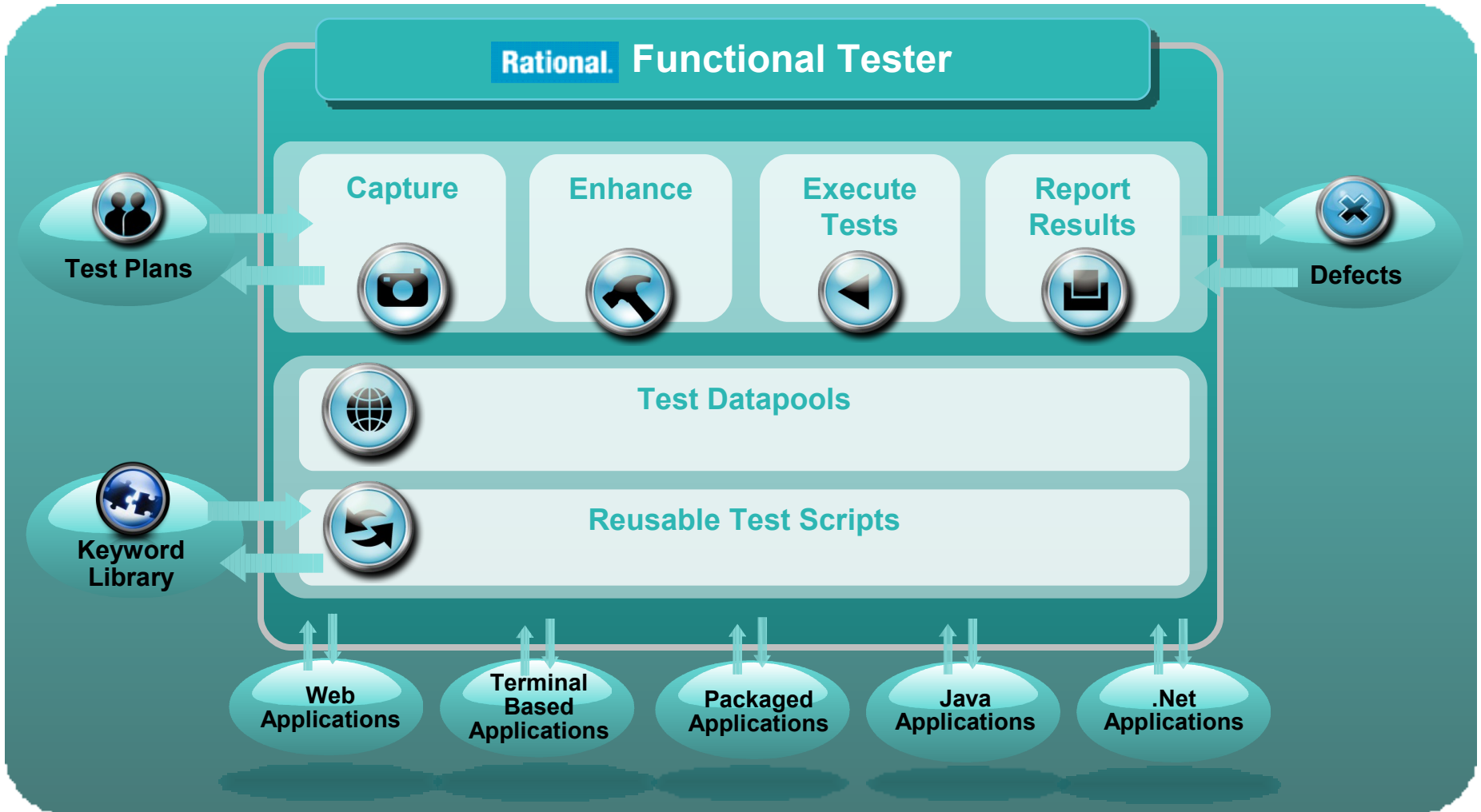
Test SAP® customizations before they go live

- SAP® certified solution for SAP R/3 and SAP NetWeaver applications (BC-TEST-GUI 6.40)
- Integrates with the SAP® NetWeaver platform to exchange critical data with instances of the SAP Business Suite family of applications.
- 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 integration for the professional tester provides a consistent, integrated environment for functional and performance testing
- Supports team oriented parallel development

SAP® Certified Integration



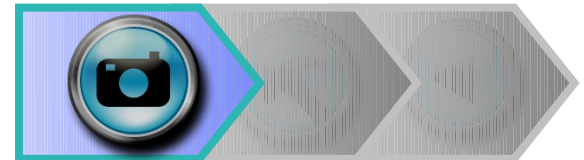
Rational Functional Tester 8.1



Effective Test Automation

Recording an automated script

- Automated script capture
 - ▶ Test scripts are recorded on the fly, as user navigates application
 - ▶ Verification points are inserted to validate system response
 - ▶ Test data can be specified and parameters created while recording



Functional Tester Highlights

- Tool mentors and process advisors accelerate training
- Broad environment support
- Create data driven tests without coding
- Static data and properties verification
- Dynamic data validation without coding



Recording Scripts

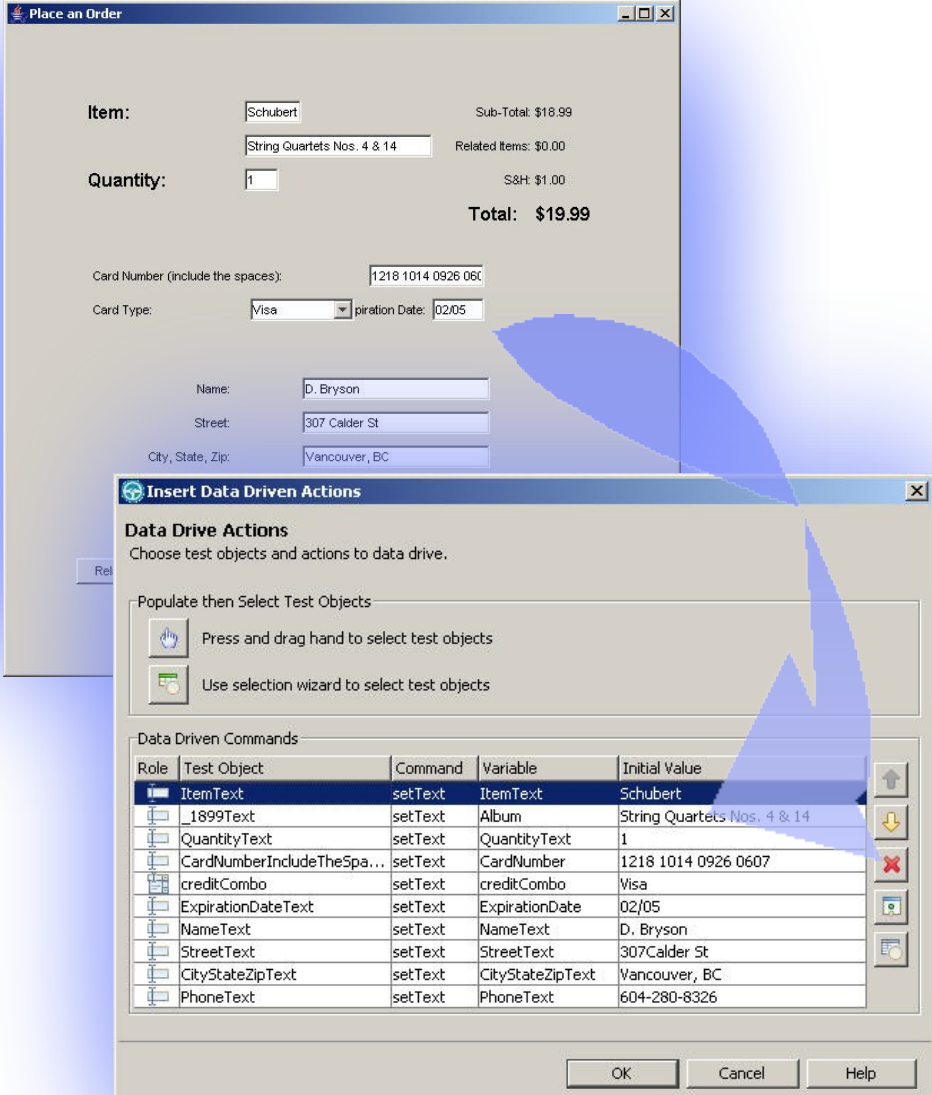
Data Driven Testing

Data Driven Testing

- ▶ Separates test data from test script
- ▶ Enables a single script to run multiple tests by using multiple data sets

Wizard driven process

- ▶ No programming involved
- ▶ Import data from external sources



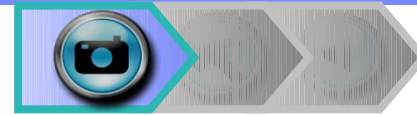
The screenshot displays two windows from a test automation tool. The top window, titled "Place an Order", is a web application form with the following fields and values:

- Item: Schubert
- String Quartets Nos. 4 & 14
- Quantity: 1
- Sub-Total: \$18.99
- Related Items: \$0.00
- S&H: \$1.00
- Total: \$19.99
- Card Number (include the spaces): 1218 1014 0926 0607
- Card Type: Visa
- Expiration Date: 02/05
- Name: D. Bryson
- Street: 307 Calder St
- City, State, Zip: Vancouver, BC

The bottom window, titled "Insert Data Driven Actions", is a dialog box for configuring data-driven tests. It contains a table of "Data Driven Commands" with the following data:

Role	Test Object	Command	Variable	Initial Value
	ItemText	setText	ItemText	Schubert
	_1899Text	setText	Album	String Quartets Nos. 4 & 14
	QuantityText	setText	QuantityText	1
	CardNumberIncludeTheSpa...	setText	CardNumber	1218 1014 0926 0607
	creditCombo	setText	creditCombo	Visa
	ExpirationDateText	setText	ExpirationDate	02/05
	NameText	setText	NameText	D. Bryson
	StreetText	setText	StreetText	307Calder St
	CityStateZipText	setText	CityStateZipText	Vancouver, BC
	PhoneText	setText	PhoneText	604-280-8326





Recording Scripts

Verification Points

Software
Trials and betas
Support
Training and certification
Library
Events
News

Functional Tester
Sees Data



You See...

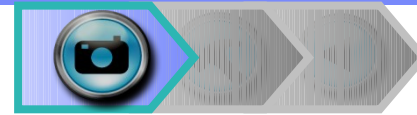
Property	Value
.bounds	Rect[84,100,787,809]
.class	Html.HtmlDocument
.cookie	IBMSurveyTest=isEnabled
.offsetHeight	809
.offsetWidth	787
.text	IBM Rational Software Home
.title	IBM Rational Software
.url	HRef(http://www.ibm.com/software/rational/)

Functional Tester
Sees Properties

Automated Validation

- ▶ Functional Tester captures data and properties that can be invisible to users
- ▶ During script execution, current results are compared to stored baselines
- ▶ Discrepancies are flagged and reported to user in an HTML based test log





Recording Scripts

Validating Dynamic Data

ClassicsCD.com

CD Order Placed

Catalog Go

Shopping Cart Go

Cashier Go

Order Status Go

Your order has been placed. For future reference, your order ID is 23### at ClassicsCD.com!

Order ID changes with each order placed

Test Passes when comparing pattern baseline to dynamic data

- ▶ Use pattern matching technique to verify dynamic data and create robust tests
- ▶ E.g. Instead of validating “Order ID 230”, validate “Order ID ###” or Order ID 2##, etc.
- ▶ This allows for a wide variety of acceptable responses as well as restrictions on acceptable responses when validating the application’s behavior

Effective Test Automation

Enhancing Scripts

- Enhancing Scripts with basic coding extends their value and reach
 - ▶ VB.net or Java code is added to perform a variety of functions
 - ▶ Typical Modifications: Conditional branching, datapooling, refactoring, adding additional dynamic data patterns



Functional Tester Highlights

- Pure Java and VB.Net provides flexibility
- Professional debugger
- Central object map to minimize rework
- ClearCase-ready for version control
- Dynamic data validations without coding



Enhancing Scripts

Storyboard testing simplification

- Enable novice and professional testers alike to easily understand and communicate test flows
- Natural language script view
- Storyboard test visualization
 - ▶ Application snapshots are captured and displayed as thumbnails
 - ▶ Insert verification points
 - ▶ Maintain test datapools

The screenshot displays the Rational Functional Tester interface. The top window shows a storyboard test script for 'SOF_UpdateProfile'. The script includes steps such as 'Click Authentication:Password', 'Type jbrown', 'Set Value of Authentication:UserId From Datapool', 'Set Value of Authentication:Password From Datapool', 'Click Log Insubmit', 'SOF - Customer Details: http://localhost:9080/CPOFinance/CustomerDetails.do', 'Verify Visible Text of welcomeName', 'Click Update Profilesubmit', 'SOF - Customer Profile Update: http://localhost:9080/CPOFinance/UpdateProfile.do', 'Drag Profile:textZip1', 'Type 99999', 'Click Save Profilesubmit', and 'SOF - Customer Details: http://localhost:9080/CPOFinance/CustomerDetails.do', 'Verify Visible Text of Profile:textZip1'.

The middle window shows the application snapshot of the 'Service Oriented Finance' web application. The application has a navigation menu with options like 'Home Loan Center', 'Access Your Account', 'Auto Loans', 'Certificate of Deposit', and 'Savings Accounts'. There is also a 'Please Log In' form with fields for 'User Id' (jbrown) and 'Password', and a 'Log In' button.

The bottom window shows the 'Storyboard test visualization' of the application. It displays the application snapshot with a context menu open over the 'User Id' field. The menu options include 'Insert "Authentication:UserId" Control', 'Click', 'Set Text', 'Insert Comment', 'Insert Verification Point', 'Insert Data Driven Commands', and 'Update Visual'.

The bottom-left window shows the 'Private Test Datapool' table:

Authenticati...	Authenticati...	welcomeNa...
0	rbetts	Richard
1	jbrown	Julie



Effective Test Automation

Executing Tests

- Scripts are executed, discrepancies are noted
 - ▶ Scripts are executed and test logs created
 - ▶ Test logs are highlight differences between actual and expected results
- Key considerations when executing scripts
 - ▶ Reliable playback with ScriptAssure
 - ▶ Remote and local playback on various platforms



Functional Tester Highlights

- Central object map with ScriptAssure object weighting
- Flexible results reporting
- Dynamic data validations without coding

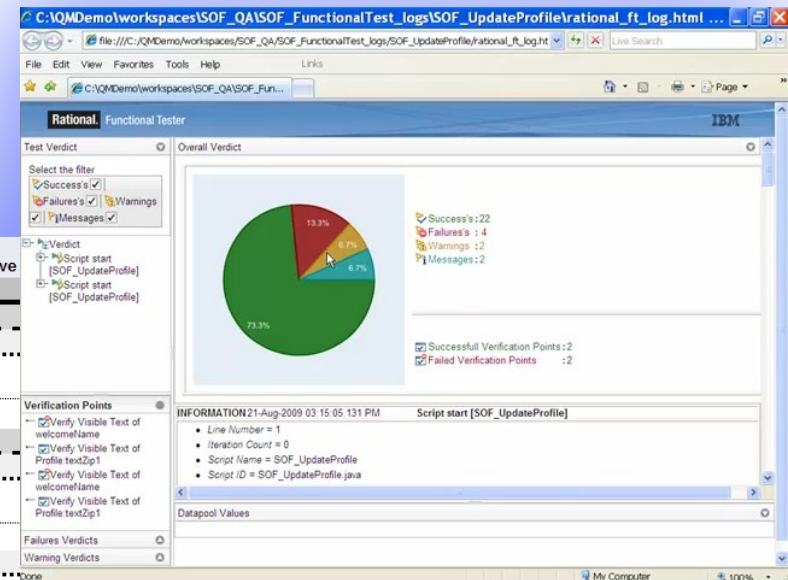


Executing Scripts

Reporting fits your organization's needs

- Following execution results can be viewed and stored in many ways:
 - ▶ Viewed and stored in an XML or HTML format
 - ▶ Centralized in Rational Quality Manager
 - ▶ Adobe® PDF 7 and 8 documents

Functional Tester XML



Rational Quality Manager

Test Iteration	Tester	Configuration	Test case	EWI ID	Weight	Points Passed	Points Failed	Points Blocked	Points Inconclusive
M0					320	160	0	0	0
	ADMIN	SAMPLE_AMDx86_WinXP_IE	Accessibility Web UI Test 3	3	95	95	0	0	0
	donald	SAMPLE_Intelx86_WinXP_Firefox	Performance Web Services Test 2	2	45	0	0	0	0
		SAMPLE_x86_Linux_Firefox	Accessibility Web UI Test 4	4	20	0	0	0	0
	larry	SAMPLE_Intelx86_WinXP_Firefox	Functionality Security Test 8	8	65	65	0	0	5



Maximize your investment in test automation

With IBM Rational Functional Tester

- Achieve success quickly and minimize maintenance
 - ▶ Simplified natural language scripting with Storyboard testing
 - ▶ Eclipse based or Visual Studio .net
 - ▶ Easy to learn
 - ▶ Maximize reuse
- Complete test coverage
 - ▶ Supports testing for Java, Web, Visual Basic .Net, SAP, Siebel, Web 2.0, Power Builder and Terminal Based applications
 - ▶ Ability to support custom controls



IBM Rational Quality Management

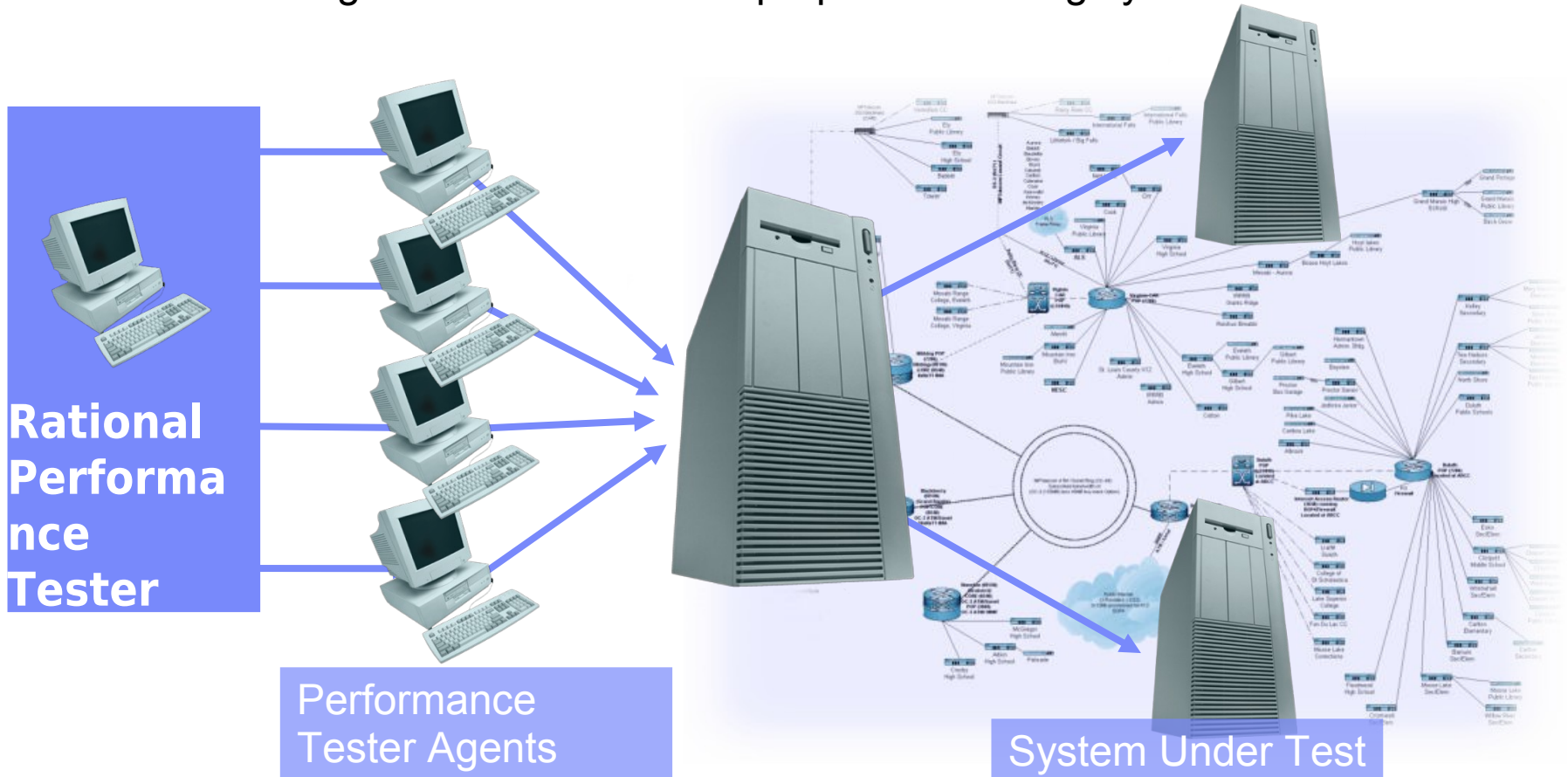
Quality Driven Software Delivery for SAP

- IBM Rational Quality Management
- Rational Functional Testing
- Rational Performance Tester



What Is Performance Testing?

- The process of exercising an application by emulating actual users with a load generation tool for the purpose of finding system bottlenecks



Performance Testing with 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

IBM Rational Performance Testing for SAP®

Maximize the performance and scalability of business-critical applications

SAP® Recorder

Enables users to easily capture all SAP transactions using SAPGUI

Provides full visibility into all SAP activities

SAP® Protocol Browser

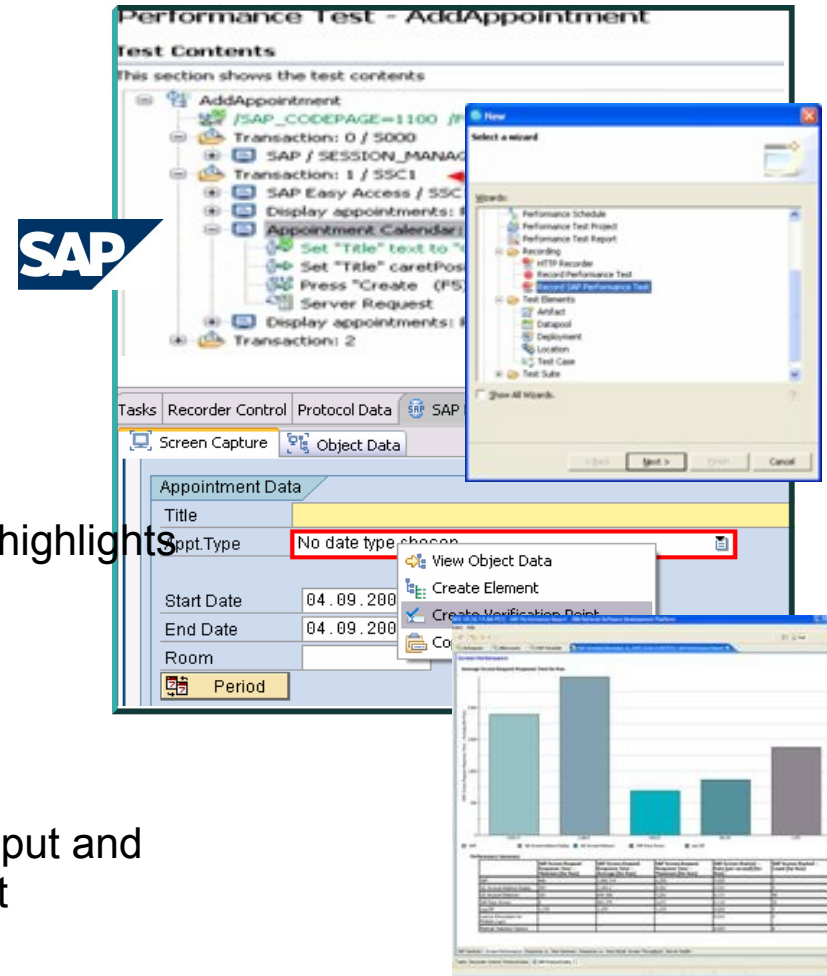
Enables users to easily read and edit tests

Shows a screenshot of SAP screen being tested and highlights the individual objects that are acted upon

SAP® Performance Reports

Enables users to quickly pinpoint bottlenecks

Reports on slow pages, server health, screen throughput and response times for all pages throughout the entire test



IBM Rational Performance Testing for SAP® Portal

Maximize the performance and scalability of business-critical applications

New and Enhanced!

Resource Management

Welcome

Request has been Copied to a new Request.

Choose

- [Overview](#)
- [Requests](#)
- [Roles](#)
- [SP Worklist](#)

- [Create FS Request](#)
- [Create Corp request](#)
- [Open Request/Role](#)

- [My Profile](#)
- [My View](#)
- [CM View](#)
- [RM View](#)

Request

Save
Broadcast Req
Check
Submit Req
Email

Req. Type	Project	Req-ing Country	Brazil	Customer Name		Status	
Req. Name	Load-Test 2008-12-01-001	Req-ing SRegion		Requester Name			
Created	01.12.2008	RO-Header Group		RO-Header Name			

Request Header

Roles

Request Details

Req Type: *	Project	Req. Name: *	Load-Test 2008-12-18_001	Request Status:	
Requester Name: *	00001181	Req. Priority:	Standard	Resp/ RM Org: *	Consulting
Requesting LOB:	FS- Consulting	PTC(Header):		RO-Header Name:	
Req-ing Country: *	Brazil	Origin of Request:		Services Sales Org:	

- Improved Support for SAP Netweaver Portal applications
- Supports full automatic data correlation for Java and ABAP Webdynpro
- Reduces test development time

Creating a Performance Test

Creating a performance test is a three step process



Build Scripts

Schedule Workload

Execute & Analyze

§ **Script Creation Considerations**

- 4 Visual test editor, varying input data & correlating server responses

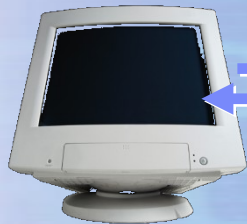
§ **Scheduling Considerations**

- 4 Accurately representing a true user workload

§ **Execute and Analyze Considerations**

- 4 Validating responses & finding the bottleneck

No-Code Tests



- ▶ Tests are represented in a tree view as a list of web pages and their elements, such as images.
- ▶ No programming necessary to create a test
- ▶ Underlying detail is accessible but hidden to simplify test creation and maintenance

Performance Test - RoomReservation

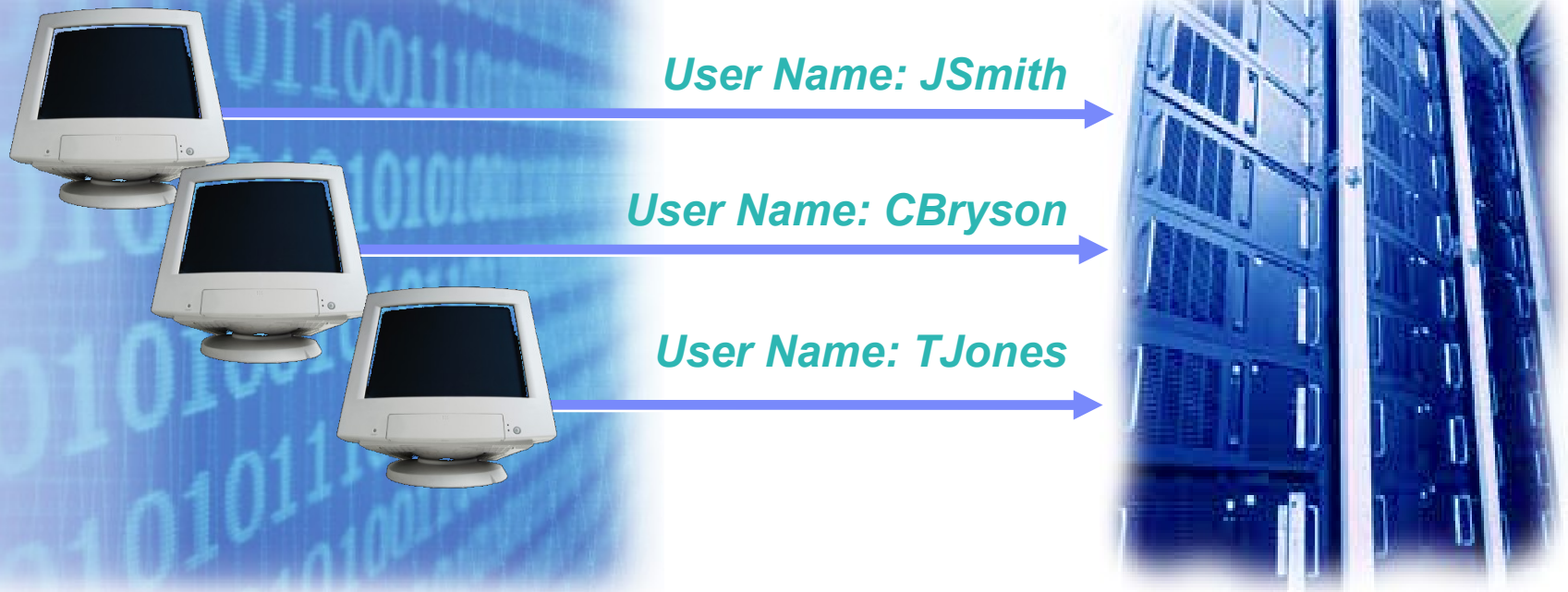
Test Contents

This section shows the test contents

- [-] RoomReservation
 - [+] Whistler Blackcomb - Ski Resort Website - Whistler, Canada
 - [+] Guest Services
 - [+] Room Reservations
 - [+] Specify Room Details
 - [+] Blackcomb Lodge - Room Details
 - [+] My Reservations
 - [+] Reservation Confirmation Details

Creating a Performance Test

Building Scripts



- Automated creation of parameterized tests
 - ▶ Literal values used during recording are replaced with variables
 - ▶ At playback time, variables are populated with data from a datapool
 - ▶ Data for playback can be imported from external data sources
 - ▶ No user coding involved

Creating a Performance Test

Building Scripts

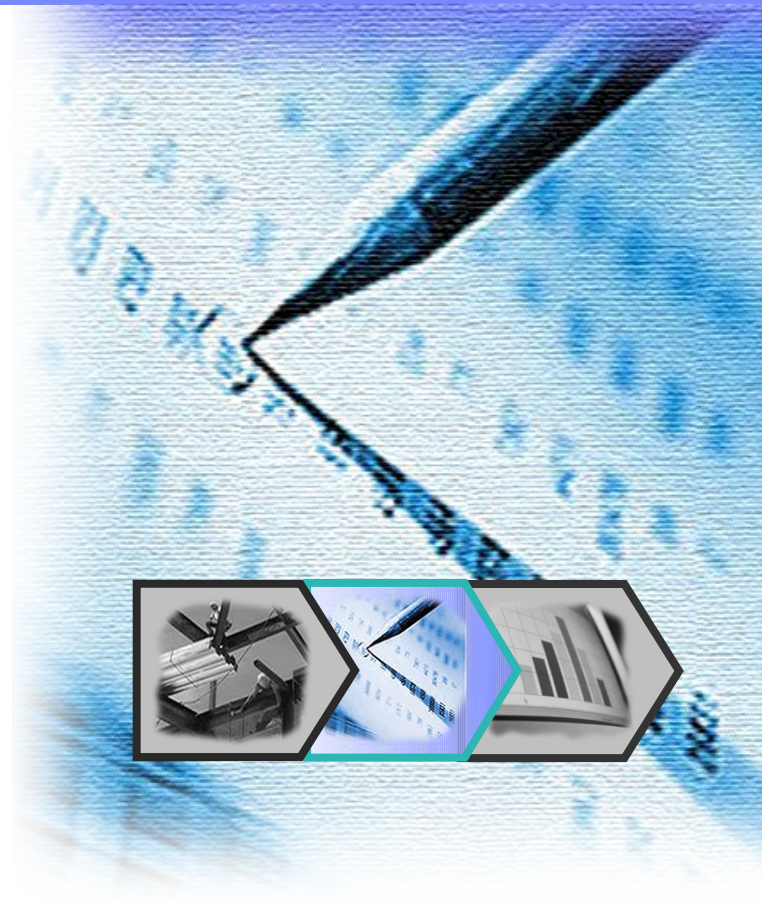


- Automated correlation of server response values
 - ▶ Server responses captured during recording are replaced with variables
 - ▶ At playback time, variables are populated with data received from server
 - ▶ Each user receives unique data based on their activity
 - ▶ No user coding involved

Creating a Performance Test *Schedule Workload*

- Tests are assembled for execution
 - ▶ Schedule defines order and sequencing of script execution
 - ▶ Schedule defines physical agents to be used to generate load
 - Linux and Windows agents available

- Key considerations when creating schedules
 - ▶ Flexibility to accurately model complex workloads
 - ▶ Dynamically add load during the run to find breakpoints



Creating a Performance Test

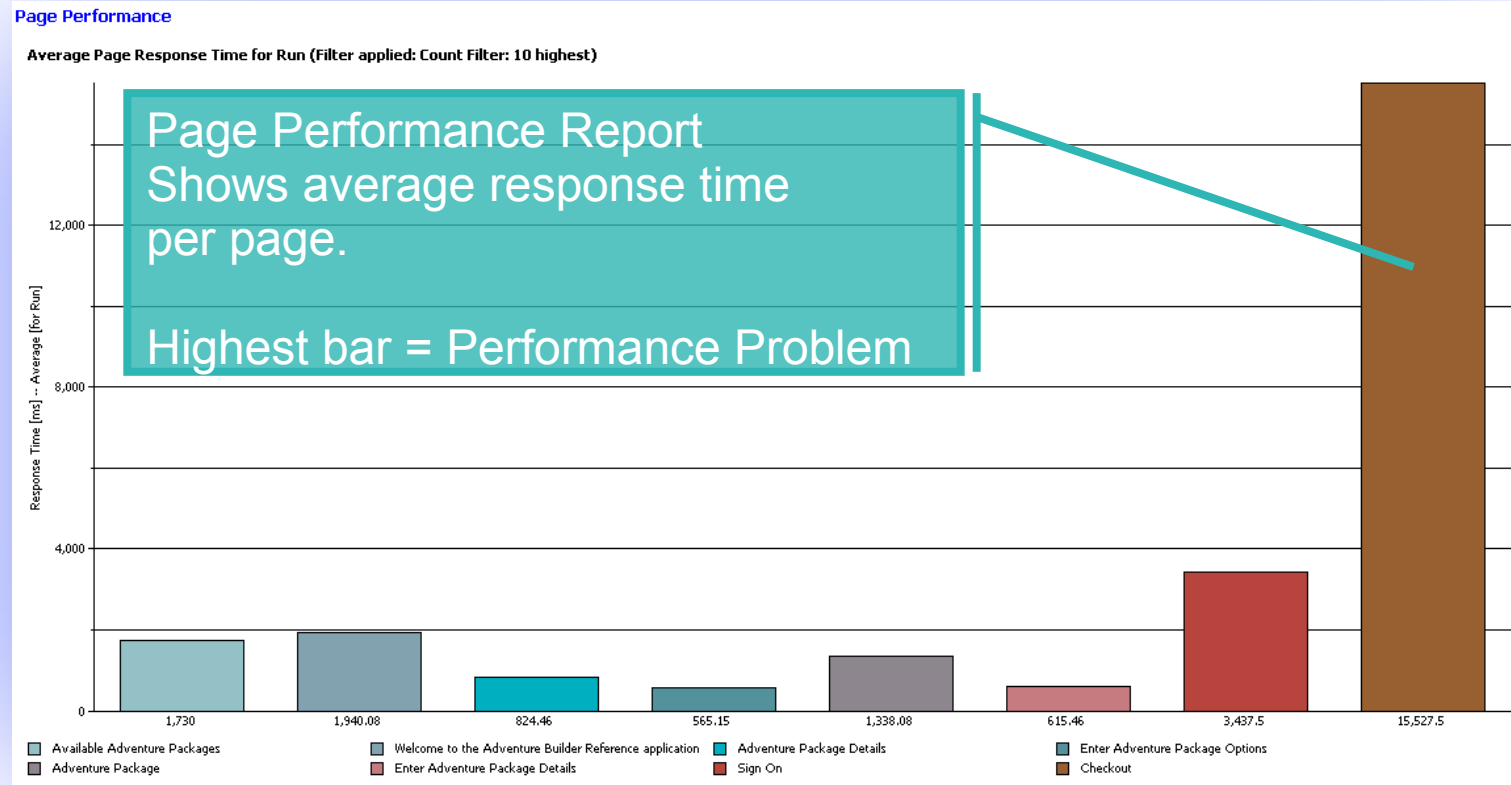
Execute and Analyze

- Distributed Test execution from central command
 - ▶ All activity coordinated and monitored from master console
 - ▶ Windows and Linux agents are used to create the load

- Key considerations for analysis
 - ▶ Locate the problem
 - ▶ Diagnose the cause



Performance Problem Identification During Test

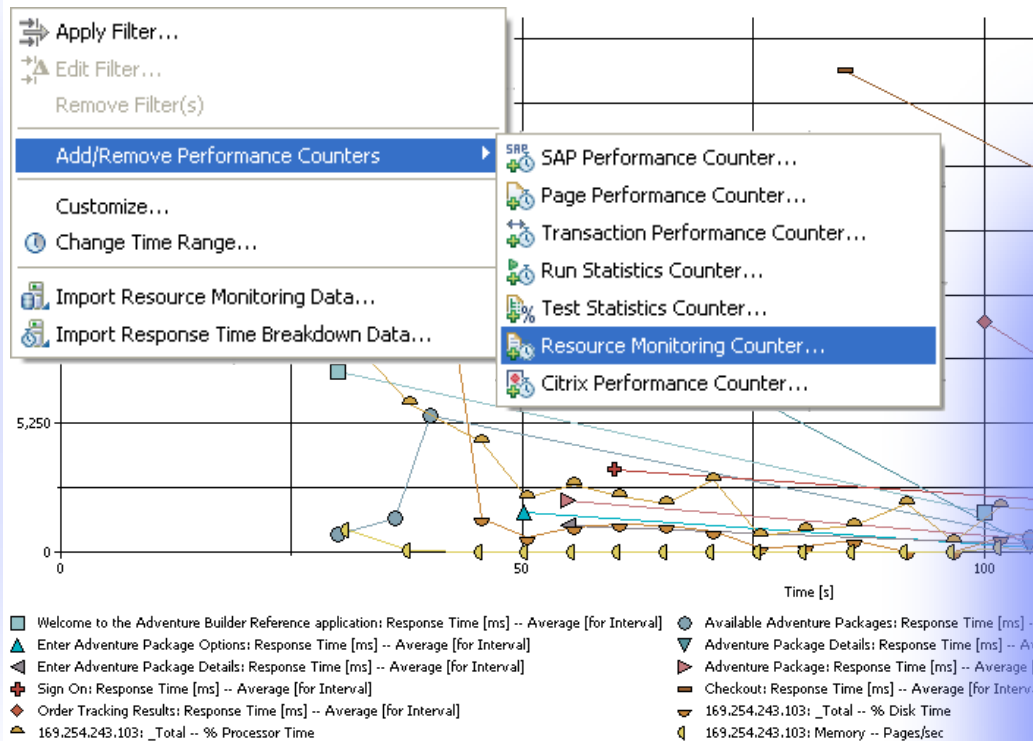


- Performance Testing finds bottlenecks
 - ▶ Next logical question is **Why?**
 - ▶ Root Cause Analysis provides tools to answer this question

Performance & Resource Statistic Report Overlay

Identifying hardware related performance problems

Average Page Response Time [for Interval]



Resource Counters

Add/Remove Resource Counters wizard.

Select Resource Counters to add to report.

Counter	Scale	Locations To Include
Windows Performance Monitor		
Memory		
Page Faults/sec	10	All Locations
Pages/sec	100	All Locations
Pool Nonpaged Bytes	0.001	All Locations
Pool Paged Bytes	0.001	All Locations
PhysicalDisk		
_Total		
% Disk Read Time	1,000	All Locations
% Disk Time	1,000	All Locations
% Disk Write Time	1,000	All Locations
Processor		
_Total		
% Processor Time	100	All Locations

Automatically add Resource Counters to graphic as they appear in result

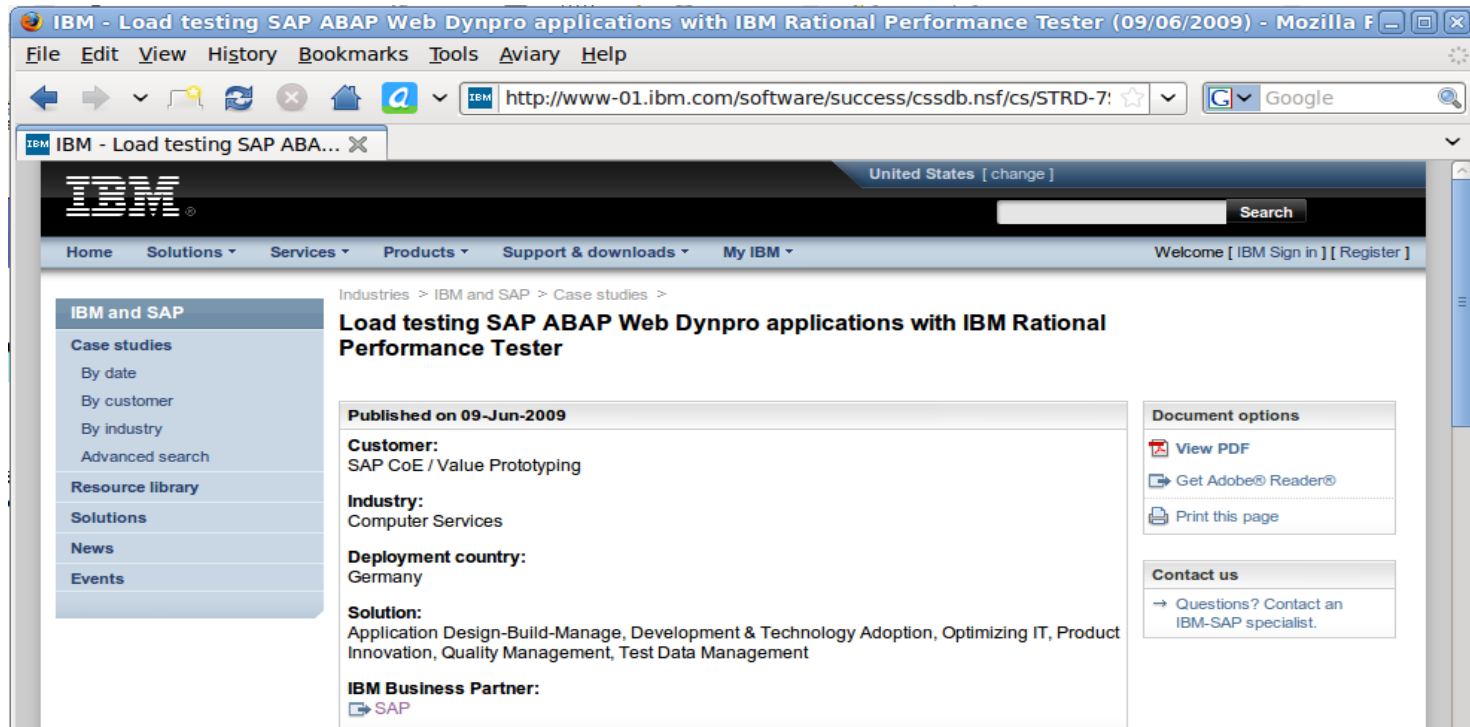
Finish Cancel

- Data from resource monitoring can be displayed on same graph as response time data
- Single view to visually correlate system resource and system response data for faster problem solving

New Case Study Available

Load testing SAP ABAP Web Dynpro applications with IBM Rational Performance Tester

<http://www-01.ibm.com/software/success/cssdb.nsf/cs/STRD-7SUK7U>



What type of environments are supported?

- **Web-based applications**
 - HTTP/HTTPS with client-side digital certificates
 - Ajax
 - WebSphere Portal
 - Web security
 - NTLM
 - Entrust TruePass
 - WebSeal
 - Kerberos
- **SOA**
 - SOAP over HTTP/HHTPS
 - SOAP over MQ
 - SOAP over JMS
- **TCP Sockets**
- **ERP environments**
 - mySAP, SAP GUI and SAP-JCO
 - Siebel-web (7.7 and 8.0)
 - Lawson System Foundations
- **Session Initiation Protocol (SIP)**
- **Citrix Presentation Server (Citrix ICA)**
- **Application Performance Analysis for J2EE**
 - **WAS 5.x, 6.x, Weblogic 8.x**
- **Partner Integrations**
 - BSD Oracle eBusiness Suite

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