



IBM RATIONAL SOFTWARE



COMES TO YOU

Change and Configuration Management IBM Software Development Platform

Segrate, 22 Novembre 2006

IBM. **Rational.** software

Agenda

- Defining Change and Configuration management
- Business value of Change and Configuration management solutions
- Challenges-solutions in Change and Configuration management
- Capabilities of Rational Change and Configuration management tools
- BuildForge Demo
- ECM Demo
- Closing, Q&A and Thanks



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Defining Change and Configuration Management

- The control and adaptation of the evolution of complex systems. It is the discipline of keeping evolving software products under control, and thus contributes to satisfying quality and time constraints. Software configuration management (or SCM) can be divided into two areas:
 - The first area of SCM concerns the storage of the entities produced during the software development project
 - The second area concerns the activities performed for the production and/or change of these entities



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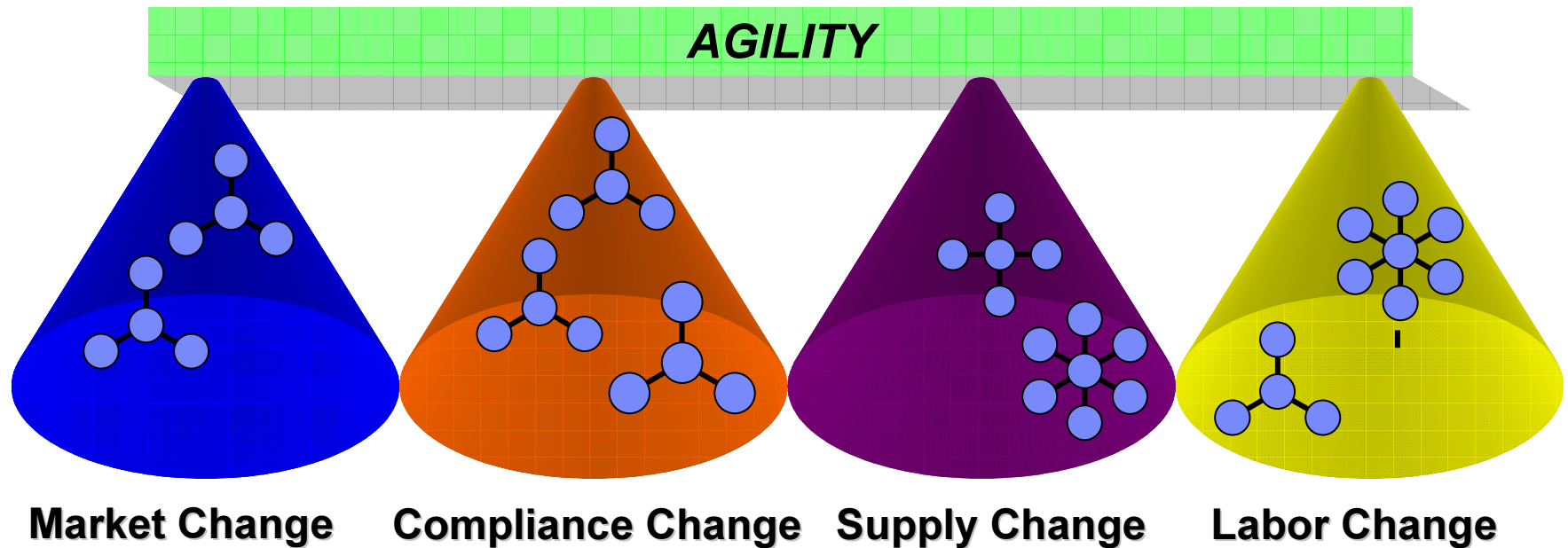
Why Change and Configuration Management ?

Software projects are more complex than ever

- Many developers
- Complex software and content artifacts
 - source code
 - object code
 - web content
 - test scripts
 - DB tables structure
 - documentation
 - models and designs
 - requirements
 - directories
 - DB tables data
- Larger and distributed teams
- Changing business needs
 - mergers, acquisitions, OEM
- Change in Internet time
- Many releases and platforms (heterogeneous environment)
- Many locations where software is developed



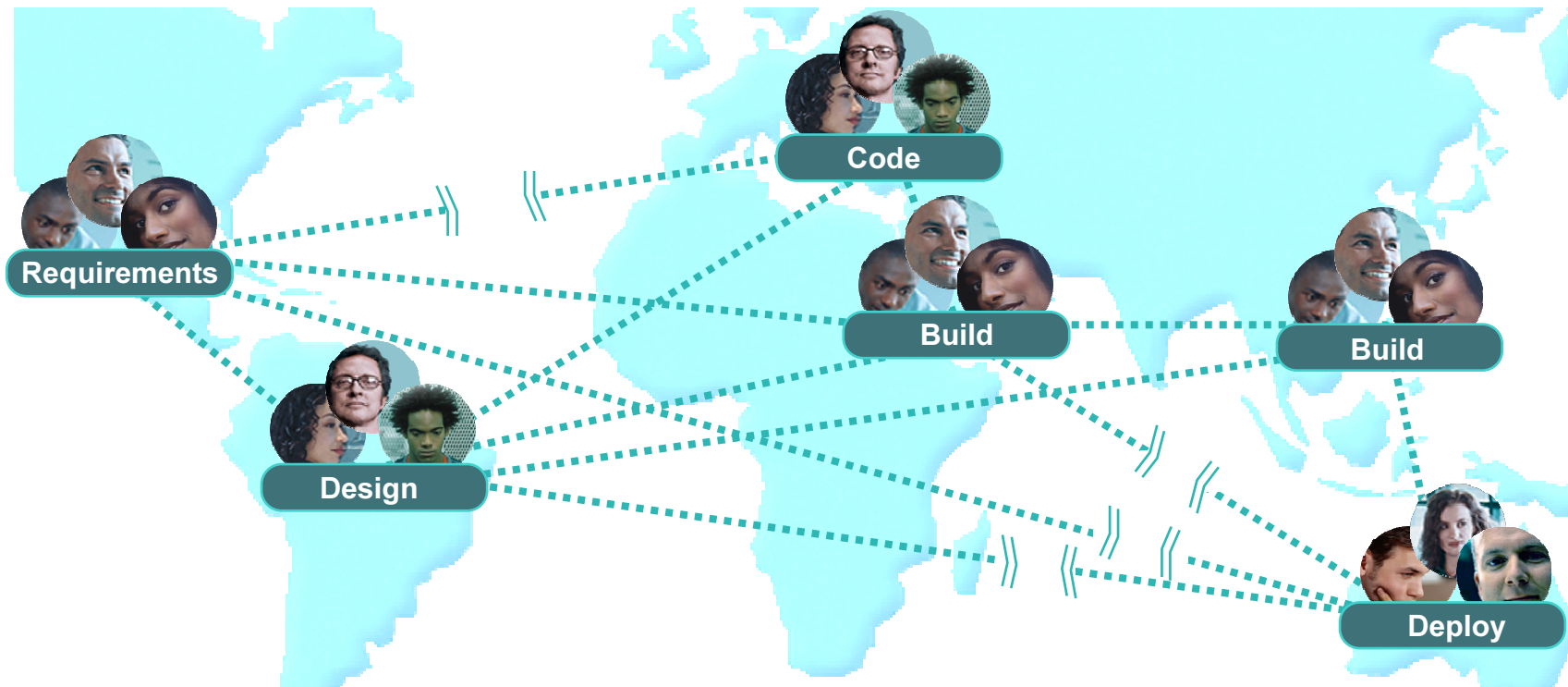
Quality Change and Configuration Management improves responsiveness and agility



Business value: Cope with changing business needs and pressures



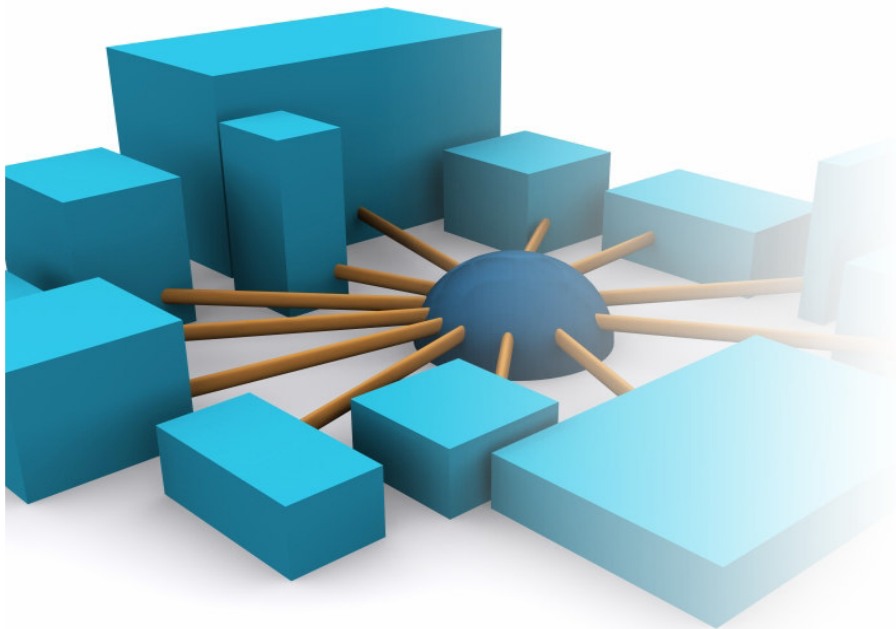
Improves management of distributed development



Business value: Collaboration and reuse reduces cost



Get better visibility into projects



Instant Insight into Projects

Test Change Defects

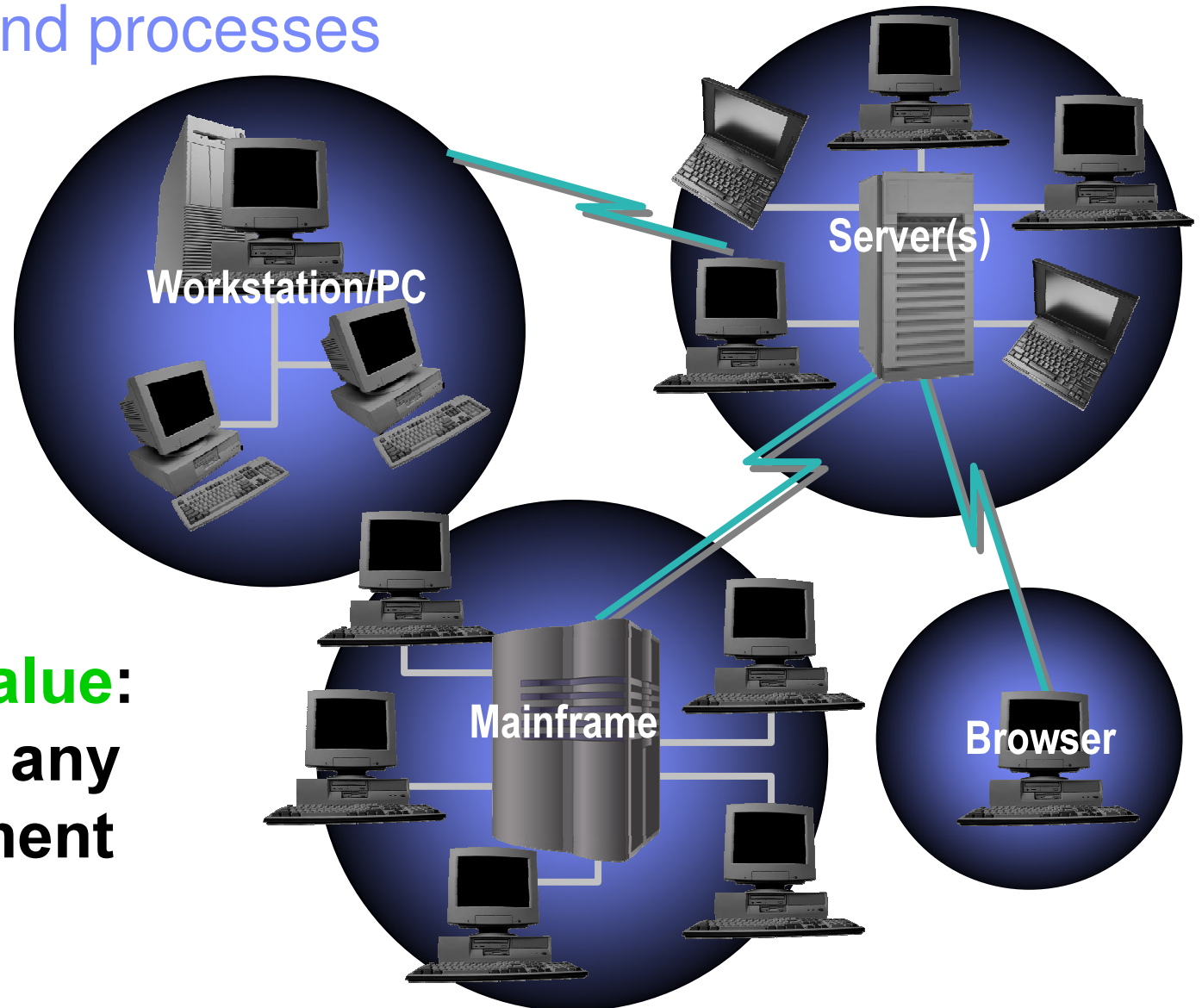
- Single project view
- Global test project coordination
- Configurable, enforceable processes

Business value: better control and predictability



Improve Management of complex architectures, environments and processes

Business value:
Works in any environment



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The challenge: poor visibility, lack of cohesion across business and technology domains

Business View

- Poor visibility and governance over IT investments
- Lack of actionable information
- Blind decision-making

Operations View

- Inadequate service levels
- Inability to rapidly deploy applications
- Complex, multi-tier operating environments



Application Development View

- Overwhelming complexity
- Relentless time-to-market pressure
- Uncontrolled change



Solutions must add value across all levels of business



Executive

- ◆ Managing change effectively speeds the development lifecycle
- ◆ Metrics ensure efficient resource allocation
- ◆ Integrations streamline cross-functional team communication

**Maximize
business
results**



Project Manager

- ◆ Instant project status updates pinpoint problem areas quickly
- ◆ Effective bug triage meetings improve quality
- ◆ Automated workflow keeps the team in synch

**Ensure
predictable
results**



Practitioner

- ◆ Easy submission and modification of change requests saves me time
- ◆ Personal metrics tell me what I should work on first
- ◆ Automation of tedious tasks saves me time

**Frees
me to
focus**



IT Lifecycle Management ... bridging the Gap



“Major vendors are starting to integrate their application life-cycle management (ALM) and systems management tools to close the loop between development and operations and are also starting to integrate these tools with portfolio management tools to make the link with planning. The vision — a fully integrated, automated end-to-end solution — what IDC is calling IT life-cycle management (ITLM) — sounds great, but there are many gaps today, and the major vendors are approaching the problem from very different perspectives. Highlights of our analysis are as follows:

- ❑ In the short term, vendors will focus mainly on extending their existing offerings with related components and exploiting obvious integration opportunities to add value to existing customer investments.
- ❑ In the medium term, vendors will compete more aggressively on the basis of partner ecosystems and developer networks. The lack of standards for integration between and among many of the component tools in the overall ITLM stack spells opportunity for vendors with strong partner programs that do a good job evangelizing open APIs and/or open frameworks and can effectively leverage partner solutions in their channels.
- ❑ Longer term, as more of the stack becomes integrated and automated, ITLM could become the platform for closed-loop change management and thus provide both the “governance” layer for IT controls related to compliance and the “system of record” for audits. This would go a long way to helping large IT organizations recoup some of the overhead costs they are paying today to manage compliance via manual systems.
- ❑ Integrated ITLM solutions address the needs of large and very large businesses with very large application portfolios and medium-sized and large businesses that are software-intensive (i.e., their core business relies on innovative or cost-effective IT-enabled service delivery). Financial services (banking, brokerage, insurance), the high-tech industry (software, hardware, telecom), and companies that provide transaction services (ecommerce, global airline reservation systems) are obvious candidates. Hosted offerings may be the ticket for software-intensive smaller businesses.

Melissa Webster, IDC, May 2005 - “IT Life-Cycle Management: Will a Platform Emerge?”

Global Headquarters: 5 Speen Street, Framingham, MA 01701 USA F: 508.872.6200 F: 508.535.4615 www.idc.com

INSIGHT

IT Life-Cycle Management: Will a Platform Emerge?

Melissa Webster Stephen D. Hendrick
Evan Quinn

IDC OPINION

Major vendors are starting to integrate their application life-cycle management (ALM) and systems management tools to close the loop between development and operations and are also starting to integrate these tools with portfolio management tools to make the link with planning. The vision — a fully integrated, automated end-to-end solution — what IDC is calling IT life-cycle management (ITLM) — sounds great, but there are many gaps today, and the major vendors are approaching the problem from very different perspectives. Highlights of our analysis are as follows:

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Challenge #1

Sluggish response to business change

- Slow response to changing requirements causing diminished development investment returns
- Poor metrics and reporting capabilities causing inefficient workload distribution
- Use of non-value-added processes
- Disjointed development and deployment efforts resulting in extra cycles and slowed delivery



Solution #1

Improving responsiveness and agility

- Allow your developers to work independently but still coordinate their work as a team
- Get better visibility into your projects status and deliverable's states
- Have developers automatically merge their changes into multiple projects running simultaneously
- Know precisely which change requests and/or defect fixes were incorporated into each build
- Easily track change requests to requirements to test results to build and release artifacts



Challenge #2

Poor individual and team effectiveness



**Deployment
Manager**



Developer



Architect



Tester



**Business
Analyst**



**Systems
Analyst**

- Slow and lacking communication
- Lack of reused components
- Manual processes
- Limited of collaboration



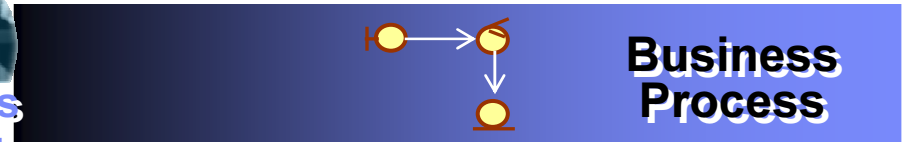
Solution #2

Improving individual and team effectiveness

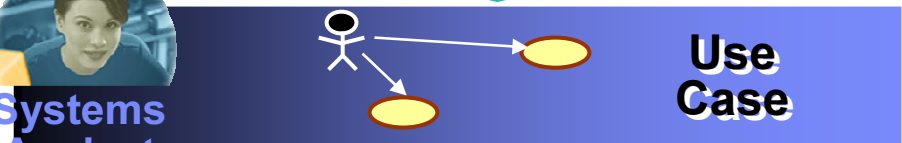
- Multiple perspectives of common data, optimized for each role
- Remote access and Web clients
- Better project communication, collaboration, coordination with:
 - a central repository for all development and build assets
 - built in automation with ability to add custom script
- Automate and control the software life cycle
- Parallel development
- Support for most commonly used IDE's



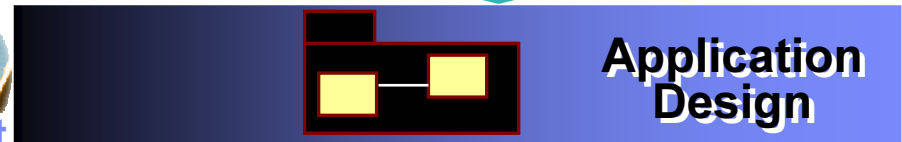
Business Analyst



Systems Analyst



Architect



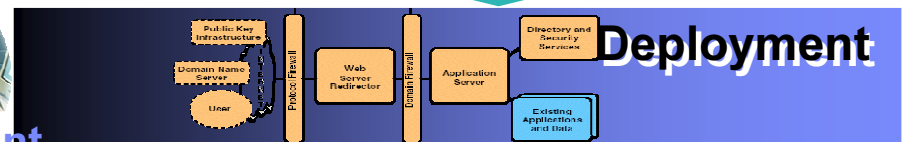
Developer



Tester



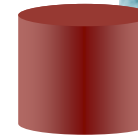
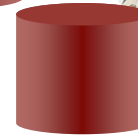
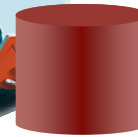
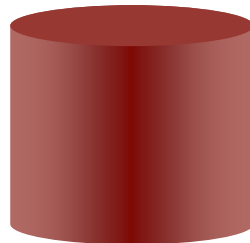
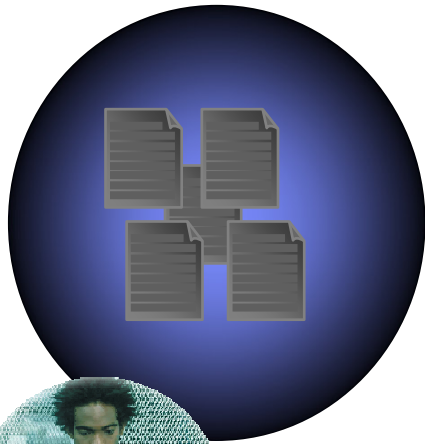
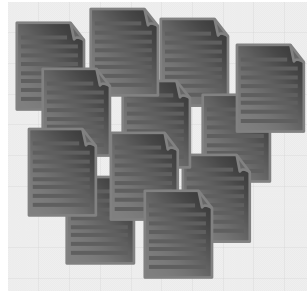
Deployment Manager



Challenge #3

Inability to properly manage enterprise wide distributed resources

Scattered Local and Remote Resources



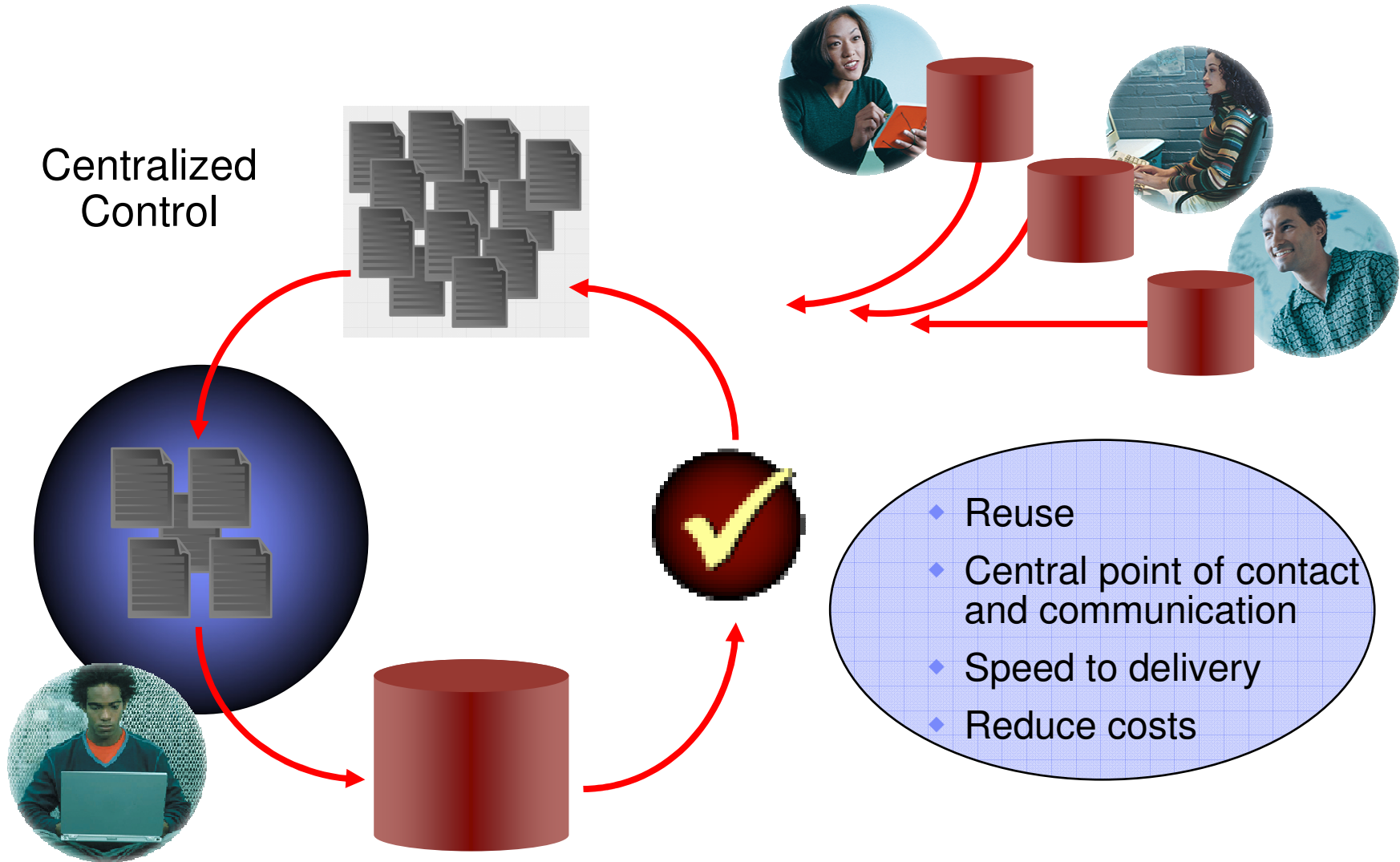
Right Sourcing of assets

- ◆ Reproduction
- ◆ Gaps in communication
- ◆ Time lost in progress



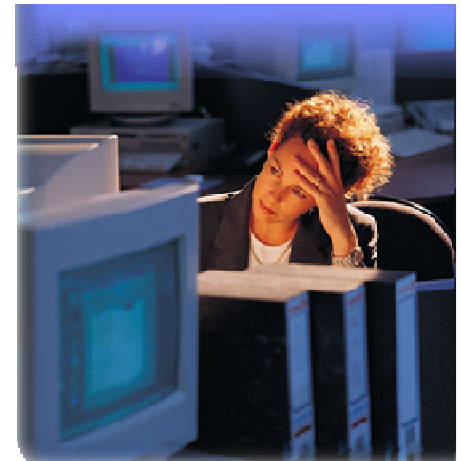
Solution # 3

Streamlined management of distributed resources



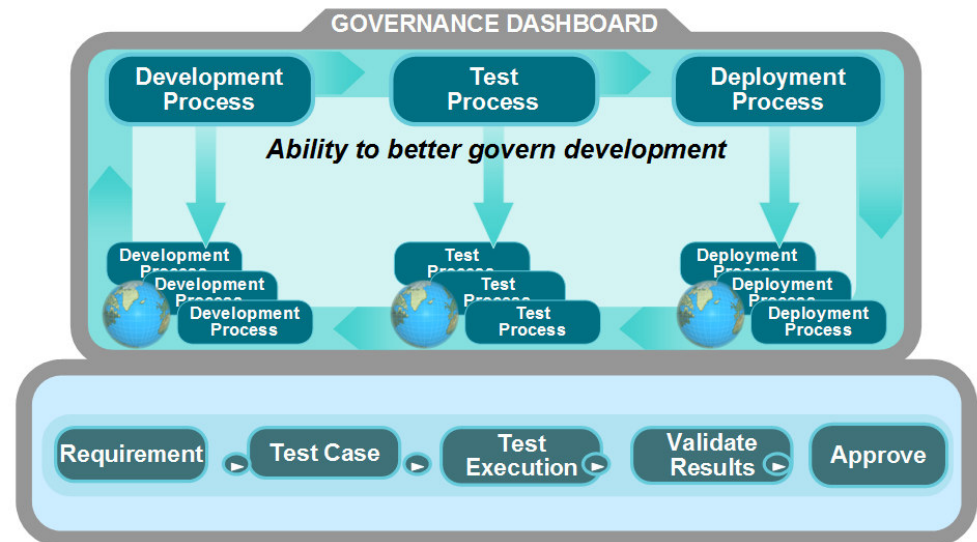
Challenge #4 Compliance

- Regulations and standards
 - ▶ Government agencies need to comply with OMB A-123 (equivalent SoX 404 in the Commercial Sector) and (FISMA) Federal Information Security Management Act.
 - ▶ Healthcare compliance issues include FDA 21 CFR Part 11, HIPPA (Health Insurance Accountability and Portability Act), and Sarbanes Oxley.
 - ▶ Standards such as CMMI are widely adopted by public and finance customers to facilitate process improvement and compliance efforts.



Solution #4 Improving control and traceability

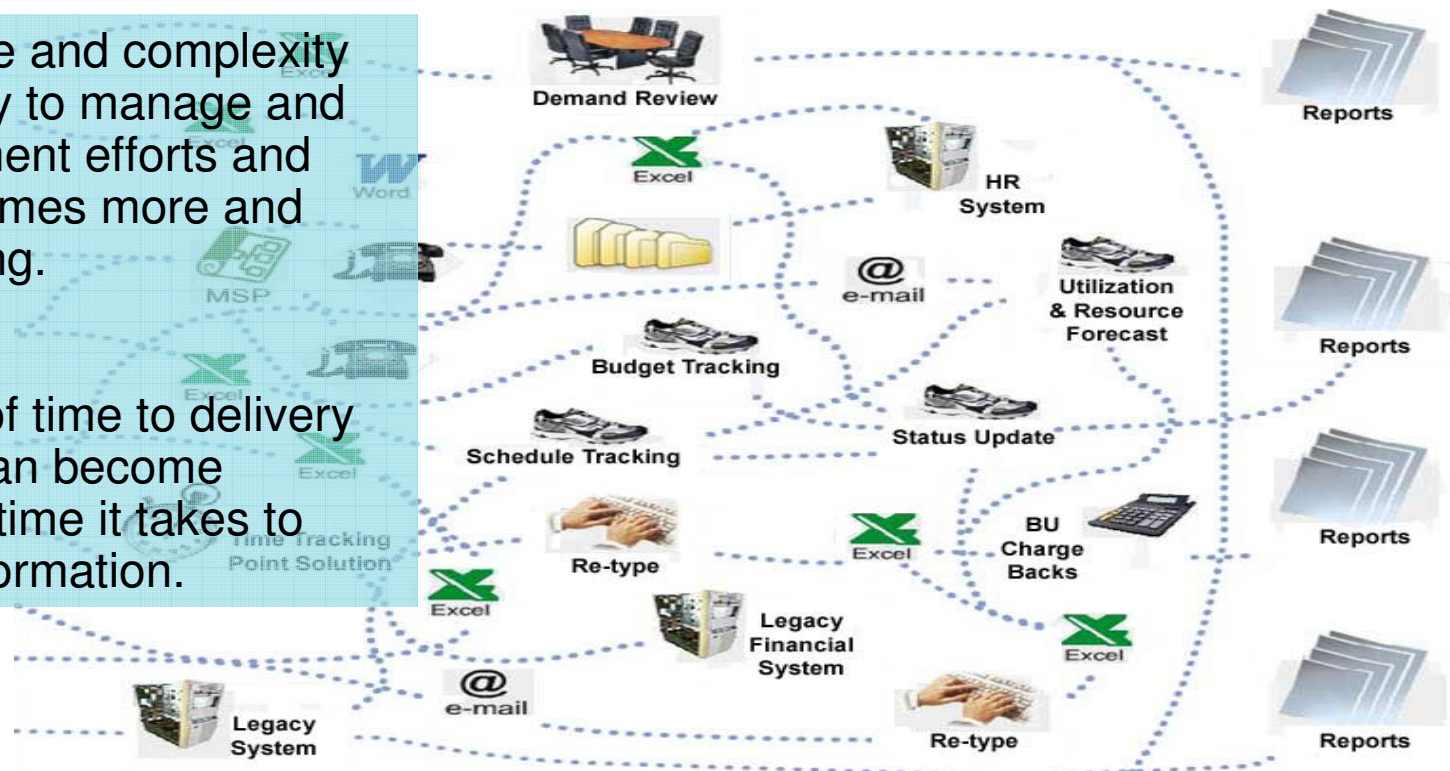
- Management required change approvals
- Automatic Change Logging
- Metadata accompanied change request that assists in determining impact analysis
- Document all changes introduced into the environment from inception to delivery
- Password security
- Audit trails
- Electronic signatures



Challenge #5

Poor visibility into project's progress and status

- As project size and complexity grows the ability to manage and focus development efforts and resources becomes more and more challenging.
- Assessment of time to delivery and progress can become obsolete in the time it takes to compile this information.



Solution #5

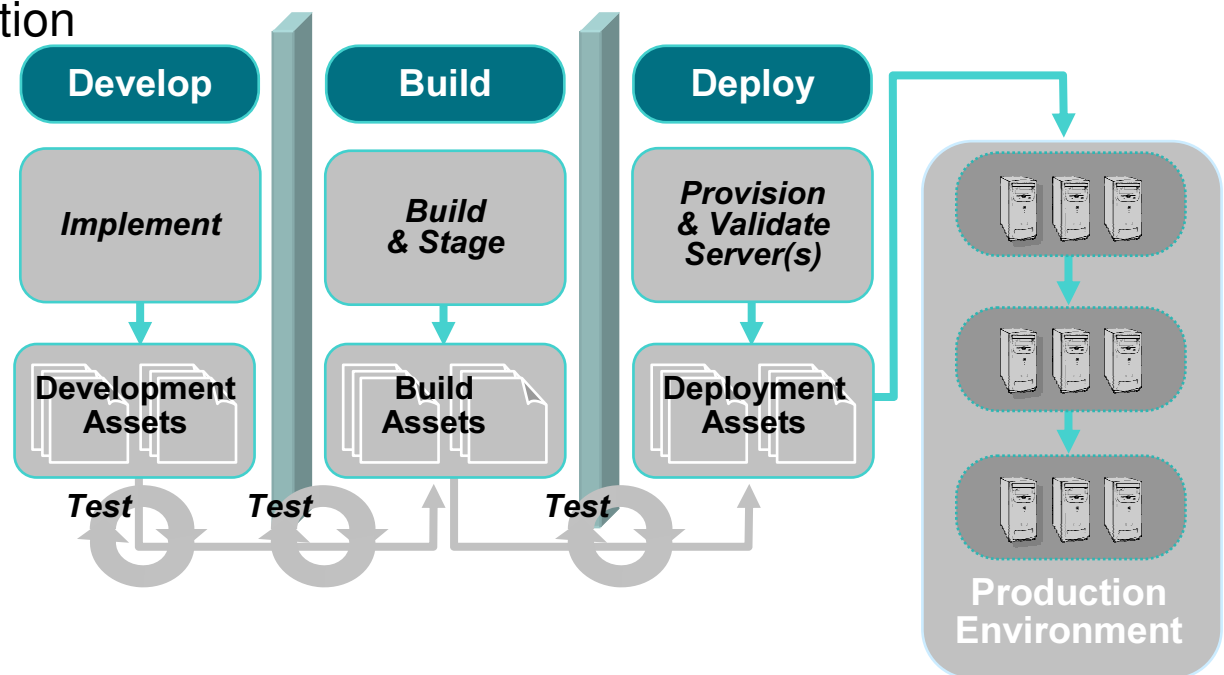
Real-time project status

- 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 configuration



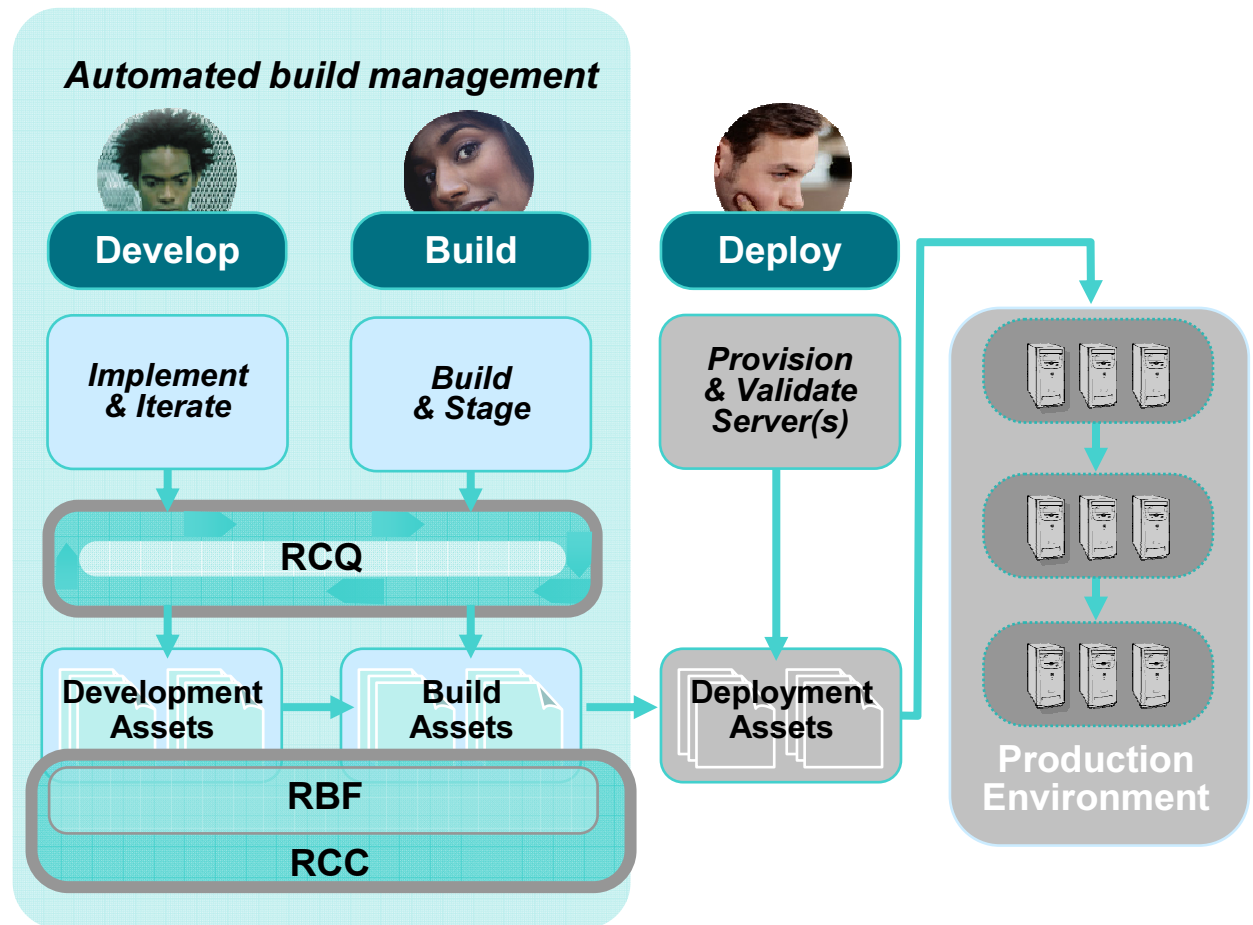
Challenge #6: Complex development, test, build and deployment architectures

- Difficulty tracking testing status of multiple builds
- No shared processes, artifacts or controls
- “Over the wall” communication
- Minimal reuse
- Labor intensive
- Error prone handoffs



Solution #6: Automated build management

- Automated build management
- Detailed record of build content
- Support for continuous builds
- Build records for tracking and reporting



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All Part of the IBM Rational Software Development Platform

GOVERNANCE DASHBOARD

Solutions for geographically distributed development, compliance, SOA

Process & portfolio management

- IBM Rational® Portfolio Manager
- IBM Rational Method Composer
- Best practices content (IBM Rational Unified Process®
IBM Tivoli Unified Process®, Portfolio Management)

Requirements & analysis

- IBM WebSphere® Business Modeler
- IBM Rational RequisitePro®
- IBM Rational Software Architect
- IBM Rational Software Modeler
- IBM Rational Data Architect

Design & construction

- IBM Rational Software Architect
- IBM Rational Software Modeler
- IBM Rational Application Developer
- IBM Rational Systems Developer
- IBM WebSphere Integration Developer

Software quality

- IBM Rational Performance Tester
- IBM Rational Functional Tester
- IBM Rational Manual Tester
- IBM Rational PurifyPlus

Change & configuration management

- IBM Rational ClearCase®
- IBM Rational ClearQuest®
- IBM Rational BuildForge®
- IBM Rational Team Unifying Platform™
- IBM Tivoli Provisioning Manager
- IBM Tivoli Intelligent Orchestrator

Partner ecosystem & open computing

Eclipse™, Linux®, Microsoft® Windows®, UNIX®, IBM z/OS®, IBM iSeries®



IBM Software Configuration management offerings

Benefits

- Quickly respond to change
- Develop anytime, anywhere
- Ensure predictable results
- Promote and support reuse



Capabilities

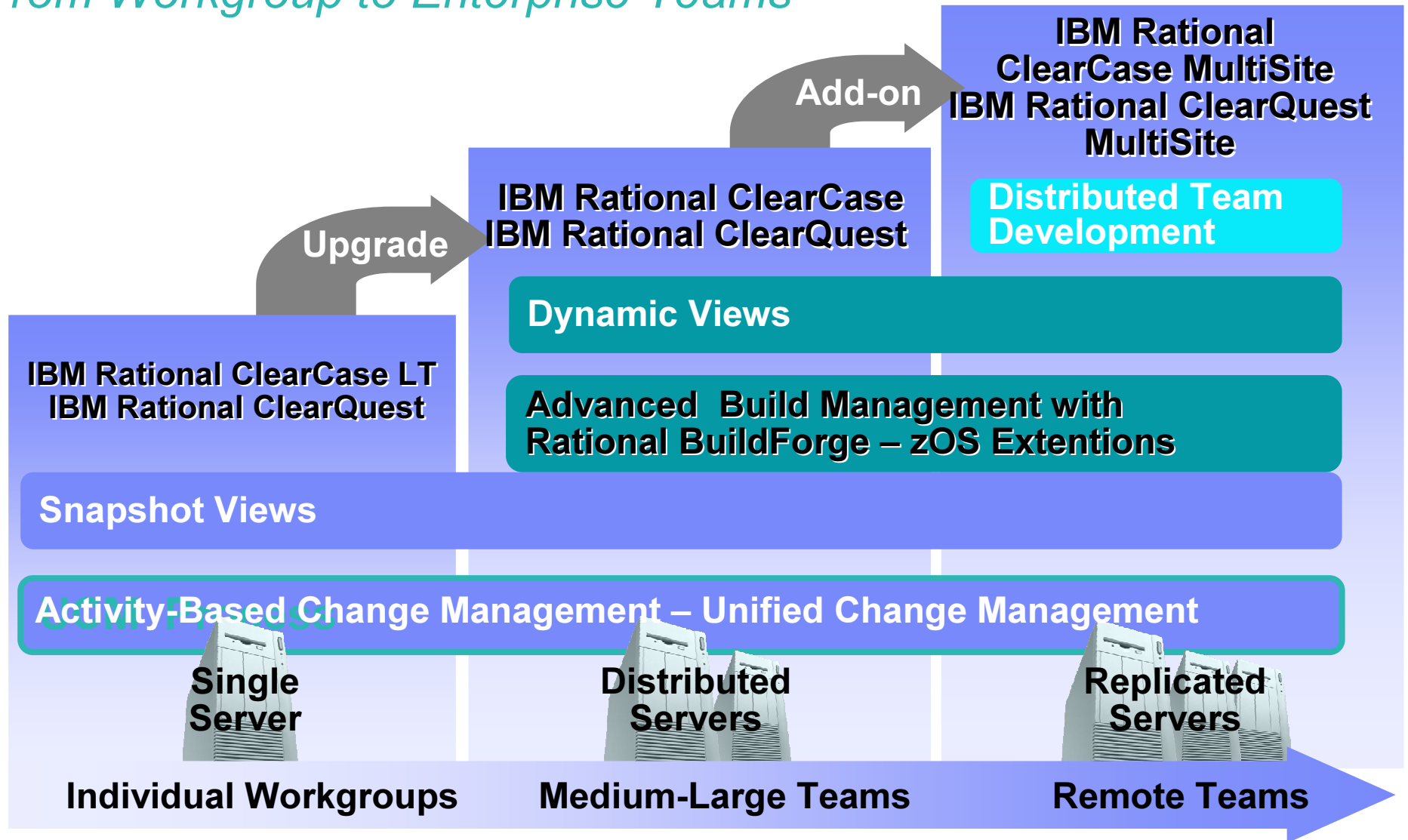
- Change and asset management
- Build and release management
- Flexible workflow support
- Traceability across the lifecycle

Key Products	Project Manager	Developer	Tester	Analyst
IBM Rational ClearCase	✓	✓	✓	
IBM Rational ClearQuest	✓	✓	✓	✓
IBM Rational BuildForge	✓	✓	✓	
IBM Rational Team Unifying Platform	✓	✓	✓	✓
IBM z/OS SCLM Suite		✓		



IBM Rational Change Management

From Workgroup to Enterprise Teams



IBM Rational **ClearQuest**

Primary benefits

- Single project view with end to end lifecycle record request tracking
 - Defects
 - Enhancement Requests
 - Customer defined records

- Test management Asset Management
 - Create and configure test plans and test cases
 - Create and run suites or individual test cases
 - Extensive query and reporting facilities to measure test progress

- Activity management
 - Built-in work flow management
 - Integrated asset management with Rational and 3rd party tools
 - Definable, repeatable and auditable processes



Rational ClearQuest provides better visibility into enterprise wide management with a Single project view abilities

- Resource allocation
 - “Are change requests distributed evenly across the team?”
 - “Who is available to take on a mission-critical bug fix?”
- Project status
 - “How many Priority 1 defects are still outstanding?”
- Trends
 - “How long is it taking to fix the average bug?”
 - “How long is taking to implement enhancement requests?”
- Testing
 - “How many defects are in the verifying state?”

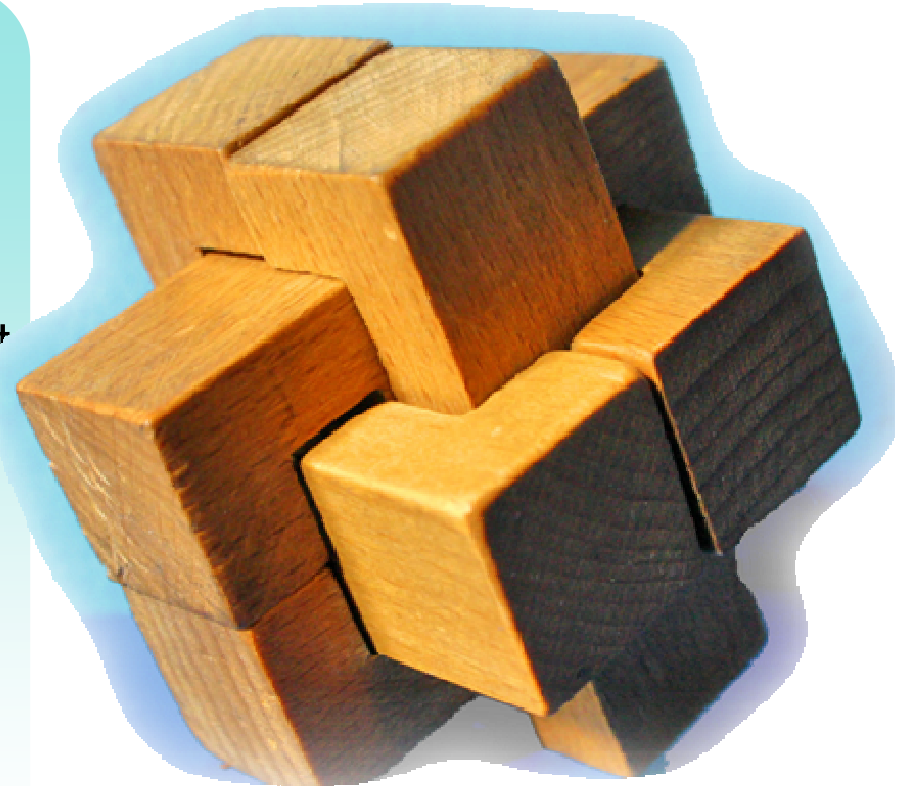


IBM Rational ClearQuest-- Single Project View

Single solution to manage tests, defects and project change

Benefits:

- Consolidated, real-time view of the entire project status
- Traceable, auditable relationships between development, test and project artifacts
 - Manages test planning, test results, quality metrics, and defects
 - Central repository with integrated version control
 - Comprehensive quality metrics in project dashboards and reports

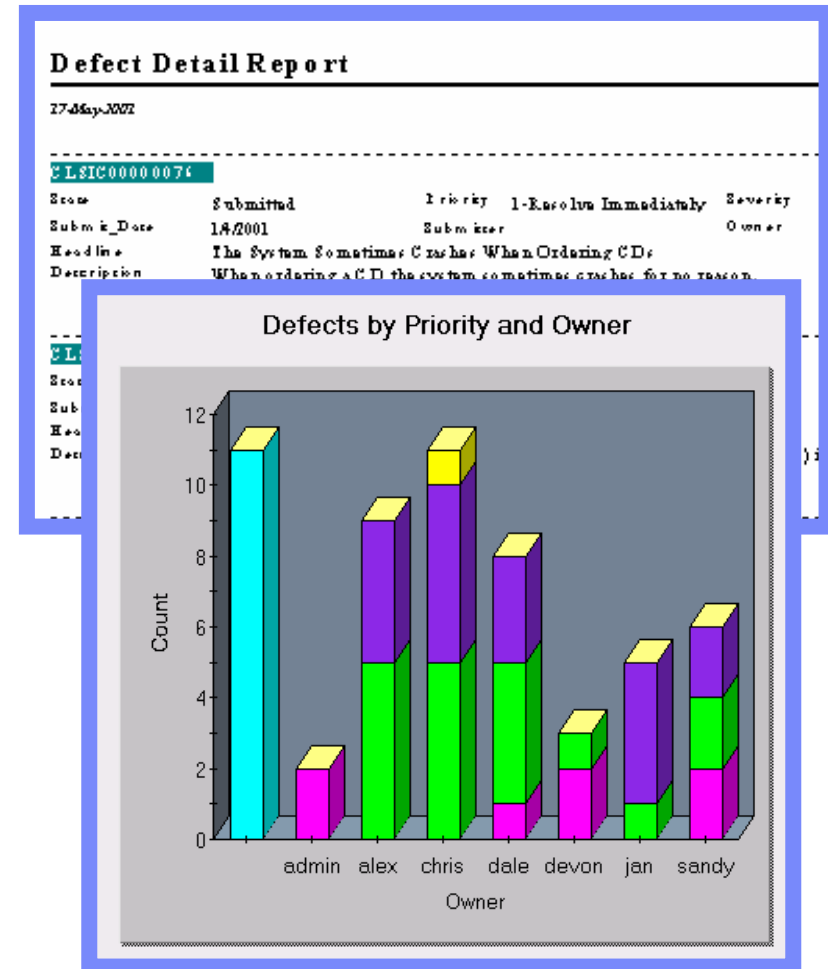


IBM Rational ClearQuest



Communicate real-time project status

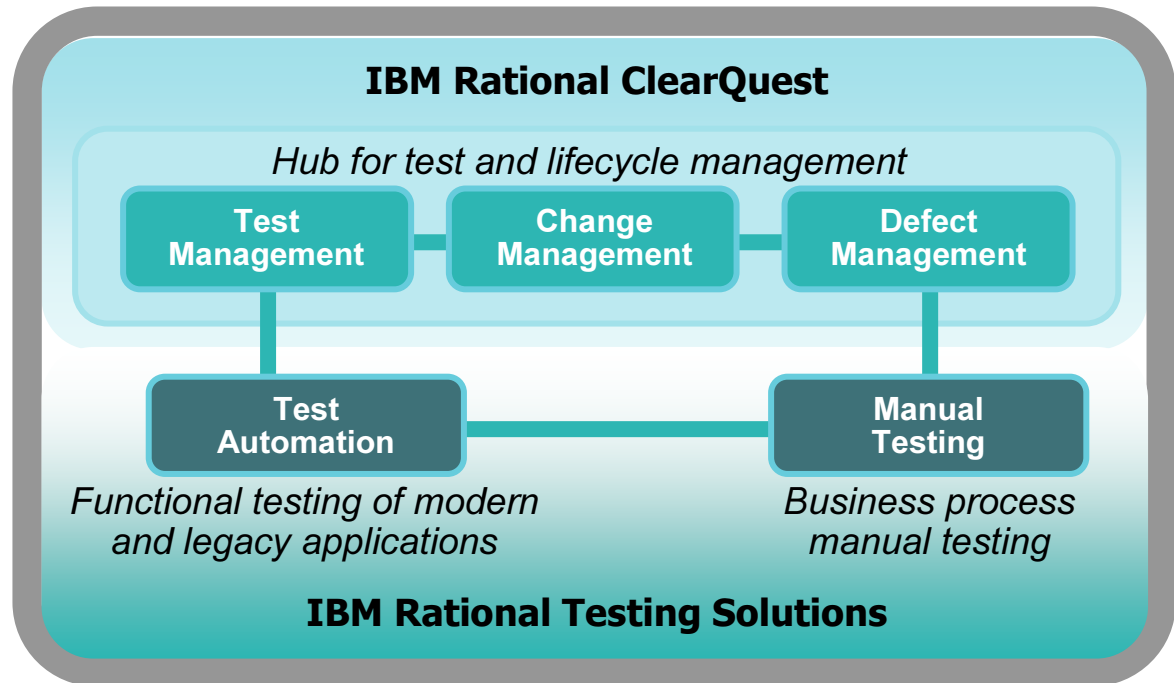
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 - Easily create and modify with Wizards
 - Charts: Aging, Trend, Distribution
- Reports
 - Crystal Reports-based run-time engine
 - Export to many common formats (Excel, Word, HTML)
- E-mail notification rules
 - Automatic notification of events and state changes
 - Configurable through GUI interface
 - No programming required!



IBM Rational ClearQuest and Functional Testing



- Enterprise scalable, distributed test management
- Test process enforcement and customization
- Quality metrics
- Integrated test management and test automation tools
- Support for testing J2EE/Java, Web, .NET, Visual Basic, C/C++ and many other client-server software applications



*IBM Rational ClearQuest
IBM Rational Functional Tester
IBM Rational Manual Tester
IBM Rational Robot*



IBM Rational ClearQuest— Components

ClearQuest Maintenance Tool

Set up and connect to the schema repository during installation and when you upgrade to a new ClearQuest version.

Allows finer control over what databases are available to different groups
Secure login

ClearQuest Designer

Customize schemas; manage user databases; and administer users and user groups.

Choose from several “out of the box” schema implementations

Extend functionality using pre-defined Packages

Add fields and control behavior

Modify forms

Configure the State Transition Matrix

Extend your system with triggers, including automated email notifications



IBM Rational ClearQuest— Platforms

ClearQuest supported client platforms

Windows® client

Submit, modify, and track change requests, and analyze project progress by creating queries, reports, and charts

Web client

Access IBM® Rational ClearQuest across multiple platforms by using a Web browser to submit, modify, and track change requests, and analyze project progress by creating queries and reports.

Eclipse Client

Submit, modify, and track change requests, and analyze project progress by creating queries, reports, and charts.

ClearQuest supported database vendors

DB2®

Oracle®

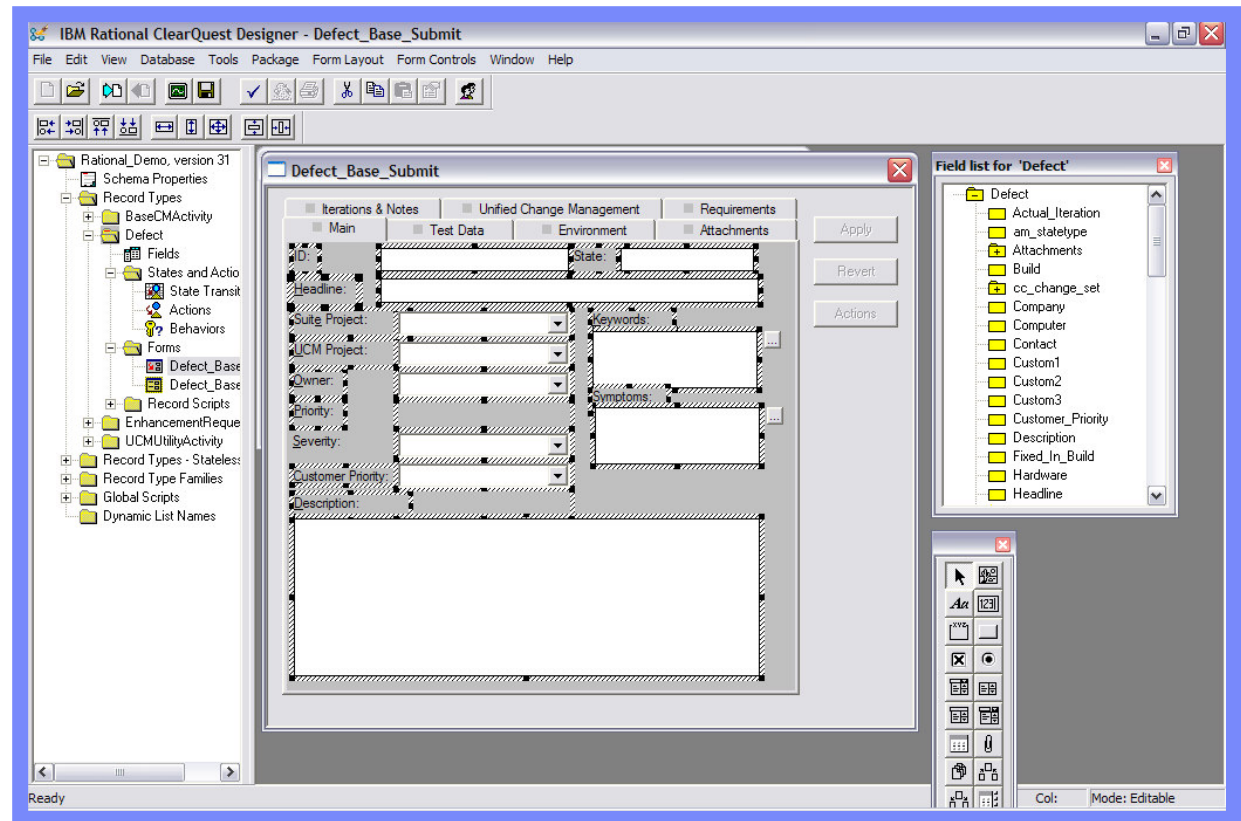
Microsoft SQL Server®

Microsoft Access®



IBM Rational ClearQuest Designer

- Create new fields of any type
 - Integer, date/time, short string, multi-line string, attachment list, reference, reference list
- Easily set a field's behavior
- Built-in visual form editor
- A state machine controls the flow of records through your system



Improving individual and team effectiveness

- To-do list
 - “What change requests have been assigned to me?”
 - “What should I work on first”



The screenshot shows the IBM Rational ClearQuest interface. The main window displays a list of change requests with columns for Headline, id, Owner, State, and record_type. The selected request is ID: CLSIC00000082, titled "Site 'hangs' when server is down", assigned to alex, with a state of Assigned and a record type of Defect. The detailed view below the list shows fields for ID, Suite Project (Webshop), Priority (2-Give High Attention), Severity (1-Critical), Owner (alex), and a Description: "When the ClassicsCD.com server is down, visitors to the site will eventually time out in their browser. We need to provide a backup server that would at least notify the user that we're currently experiencing problems at our site."

Headline	id	Owner	State	record_type
Site "hangs" when server is down	CLSIC00000082	alex	Assigned	Defect
Catalog page after search is cleared not in alpha	CLSIC00000079	alex	Assigned	Defect
Inventory report is displaying an empty column	CLSIC00000085	alex	Assigned	Defect
Cash Register should automatically reorder stock	CLSIC00000030	alex	Assigned	EnhancementRequest
Request change due in larger font	CLSIC00000027	alex	Opened	EnhancementRequest
Change "Pay" to "Payment Method" on POS screen	CLSIC00000024	alex	Assigned	EnhancementRequest
When clerks sell CDs, warehouse should backfill	CLSIC00000023	alex	Assigned	EnhancementRequest
Replenish inventory as a result of sales	CLSIC00000022	alex	Assigned	EnhancementRequest

IBM Rational ClearQuest Eclipse Client

The screenshot displays the IBM Rational ClearQuest Eclipse Client interface. The main window shows a table of defect query results for the user 'admin,Connection1@CLSIC'. The table includes columns for ID, Headline, Owner, State, and Submit Date. Below the table, there are navigation controls for pages and records. A secondary window titled 'ClearQuest Chart: Defect State Transitions by Week' is open, showing a line chart with the Y-axis labeled 'Count' ranging from 2 to 10. The chart tracks the number of defects in various states over time. A legend on the right identifies the states: Resolved (cyan), Opened (magenta), Submitted (green), Assigned (purple), and Closed (yellow).

id	Headline	Owner	State	Submit_Date
CLSLIC00000037	spelling error in login screen	alex	Resolved	6/24/02 5:00:00 PM
CLSLIC00000038	sales tax incorrect if item deleted from purchase	dale	Resolved	6/24/02 5:00:00 PM
CLSLIC00000039	cancel sale doesn't correctly repaint screen	sandy	Closed	6/24/02 5:00:00 PM
CLSLIC00000040	columns out of alignment	devon	Resolved	6/24/02 5:00:00 PM
CLSLIC00000041	delete item not working correctly	sandy	Opened	6/24/02 5:00:00 PM
CLSLIC00000042	override price does not work	chris	Closed	6/24/02 5:00:00 PM
CLSLIC00000043	alt-C does not invoke cancel operation	chris	Resolved	6/24/02 5:00:00 PM
CLSLIC00000044	clerk allowed to charge too much on credit card	jan	Resolved	7/2/02 5:00:00 PM

Chart: Public Queries/Trend Charts-All Projects/Defect State Transitions by Week

IBM Rational ClearQuest Web Client

CLSIC - Mozilla Firefox

Rational ClearQuest Web

Home | Site Configuration | Logon Statistics | User Profile | Help | About | Log Out

CLSIC New: Defect Find Record ID: View Recent...

CLSIC

Personal Queries

- All Change Requests
- All Defects
- All EnhancementRequests

Public Queries

- Aging Charts-All Projects
- Classics PointOfSale Project
- ClassicsCD Web Project
- Distribution Charts-All Projects
- Email Rules
- Report Formats
- Reports
- Trend Charts-All Projects
- UCMSystemQueries
- UCMUserQueries

Refresh Edit Query Save Query Save Query As Export Grid Printable Version

Results for Query "Personal Queries/All Defects"

Show: 25 Records: 58 Pages: 3

#	id	Headline	Owner	State	Submit_Date
1	CLSIC00000037	spelling error in login screen	alex	Resolved	Monday, June 24, 2002 5:00:00 PM
2	CLSIC00000038	sales tax incorrect if item deleted from...	dale	Resolved	Monday, June 24, 2002 5:00:00 PM
3	CLSIC00000039	cancel sale doesn't correctly repaint sc...	sandy	Closed	Monday, June 24, 2002 5:00:00 PM
4	CLSIC00000040	columns out of alignment	devon	Resolved	Monday, June 24, 2002 5:00:00 PM
5	CLSIC00000041	delete item not working correctly	sandy	Opened	Monday, June 24, 2002 5:00:00 PM

Refresh Modify Change State Duplicate Delete Get Bookmark E-mail Link Printable Version

Defect: CLSIC00000037 1/58

Main Analysis Notes Resolution Attachments History PQC

Test Data Environment Unified Change Management ClearCase Requirements

ID: CLSIC00000037 State: Resolved

Headline: spelling error in login screen

Suite Project: ClassicsPOS Keywords:

UCM Project:

Owner: alex

Priority: 3-Normal Queue Symptoms: Cosmetic Flaw

Severity:

Done

Security and Compliance made easier

- Decide what records and states require Electronic Signature Tracking
- ClearCase and ClearQuest secured entry with LDAP authentication
- Secure Repository for managed assets

Submit esig_Config

■ eSignature Configuration Record

Record Type: (Project)

Sign by State:

States: ... Sign When:

Sign by Action: ...

OK Cancel Values ▾



ClearQuest Electronic Signatures

The screenshot shows the ClearQuest Electronic Signatures configuration window. A blue callout bubble labeled "New Tab" points to the "Electronic Signature" tab, which is currently selected. The interface includes a tabbed menu at the top with options: Main, Notes, Resolution, Attachments, History, Customer, ClearCase, Electronic Signature, and Field History Log. The "Electronic Signature" tab contains a "Signature Username" dropdown menu set to "Old Sig#1" and a "Signature Password" field with masked characters "xxxxx". To the right of the main form are buttons for "Apply", "Revert", "Print Record", and "Actions". At the bottom of the window, there are navigation icons and the text "ID : 00000005". The background of the slide features several brass padlocks.



ClearQuest Field change logging

The screenshot shows the ClearQuest Field History Log interface. At the top, there are several tabs: Main, Notes, Resolution, Attachments, History, Customer, ClearCase, Electronic Signature, and Field History Log. The 'Field History Log' tab is highlighted with a red circle and a blue callout box labeled 'New Tab'. Below the tabs, the 'Field History:' section contains a scrollable list of entries. The first entry is 'START Fields Changed by admin, Close->Closed, 24 February 2006'. The second entry is 'END Fields Changed by admin, Close->Closed, 24 February 2006'. The third entry is 'START Fields Changed by admin, Submit->Submitted, 24 February 2006', which is highlighted with a red box and a blue callout box labeled 'Entry for each action.'. This entry details the following changes:
Record was Electronically Signed by : Sig#2
Old value of Resolution: <NULL>
New value of Resolution: Enhancement Request
Old value of State: Submitted
New value of State: Closed
Old value of Headline: <NULL>
New value of Headline: Project # 2 Defect
Old value of Owner: <NULL>
New value of Owner: admin
To the right of the log, there are buttons for 'Apply', 'Revert', 'Print Record', and an 'Actions' dropdown menu. At the bottom of the window, there is a navigation bar with 'ID: 00000006' and navigation icons.



IBM Rational ClearQuest Integrations:

- Rational ClearCase
- Rational BuildForge
- Rational RequisitePro
- IBM Tivoli Provisioning Manager
- Rational Portfolio Manager
- Microsoft MS Project®
- DOORS



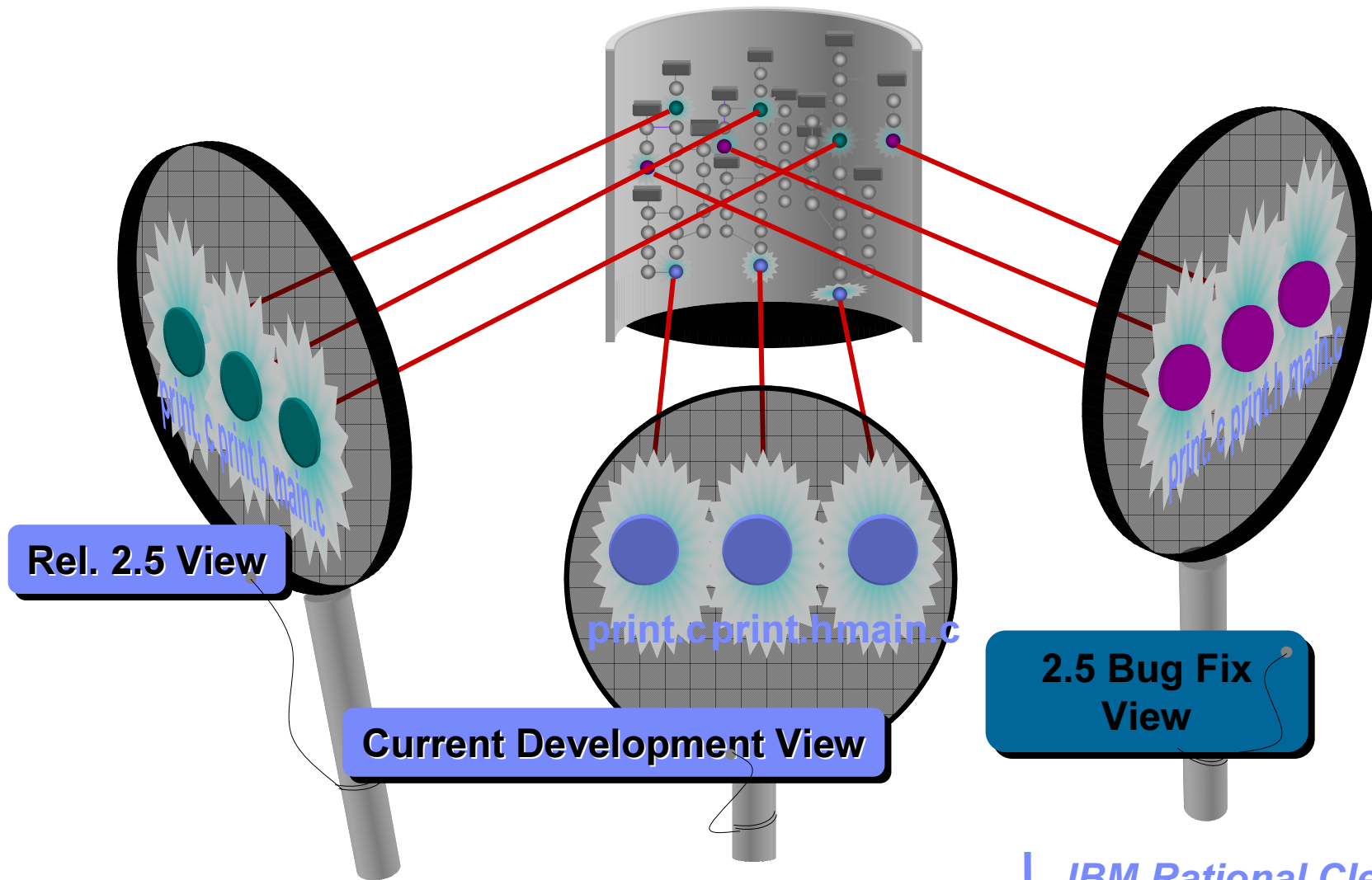
IBM Rational ClearCase

Primary functions

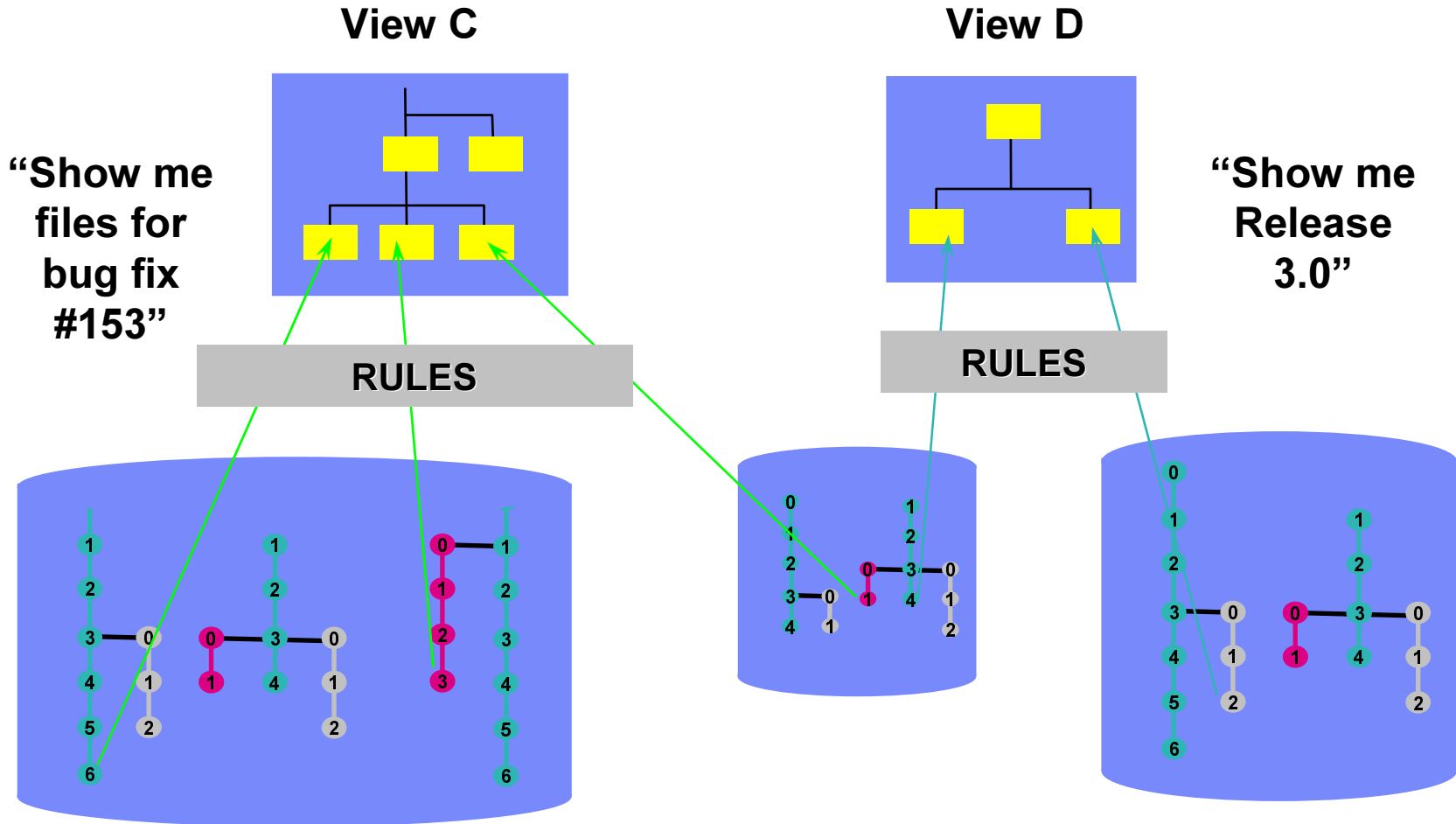
- ClearCase
 - Sophisticated version control, automated workspace management, parallel development support, baseline management, build and release management improves productivity and operational efficiency
 - Heterogeneous, cross-platform support for distributed, mainframe (IBM z/OS®) and midrange (IBM i5/OS®) development enables platform flexibility and enterprise-wide application development
 - Accessible through local, remote and Web interfaces, and leading IDEs including IBM Rational Application Developer, IBM WebSphere Studio, Microsoft® Visual Studio 2005 and the Eclipse framework
 - Deep integration with requirements, development, build, test and deployment tools provides a complete end-to-end solution to meet current and future needs
 - Operating systems supported: Linux, UNIX, Windows, Linux s/390



Easy to Use: ClearCase Views

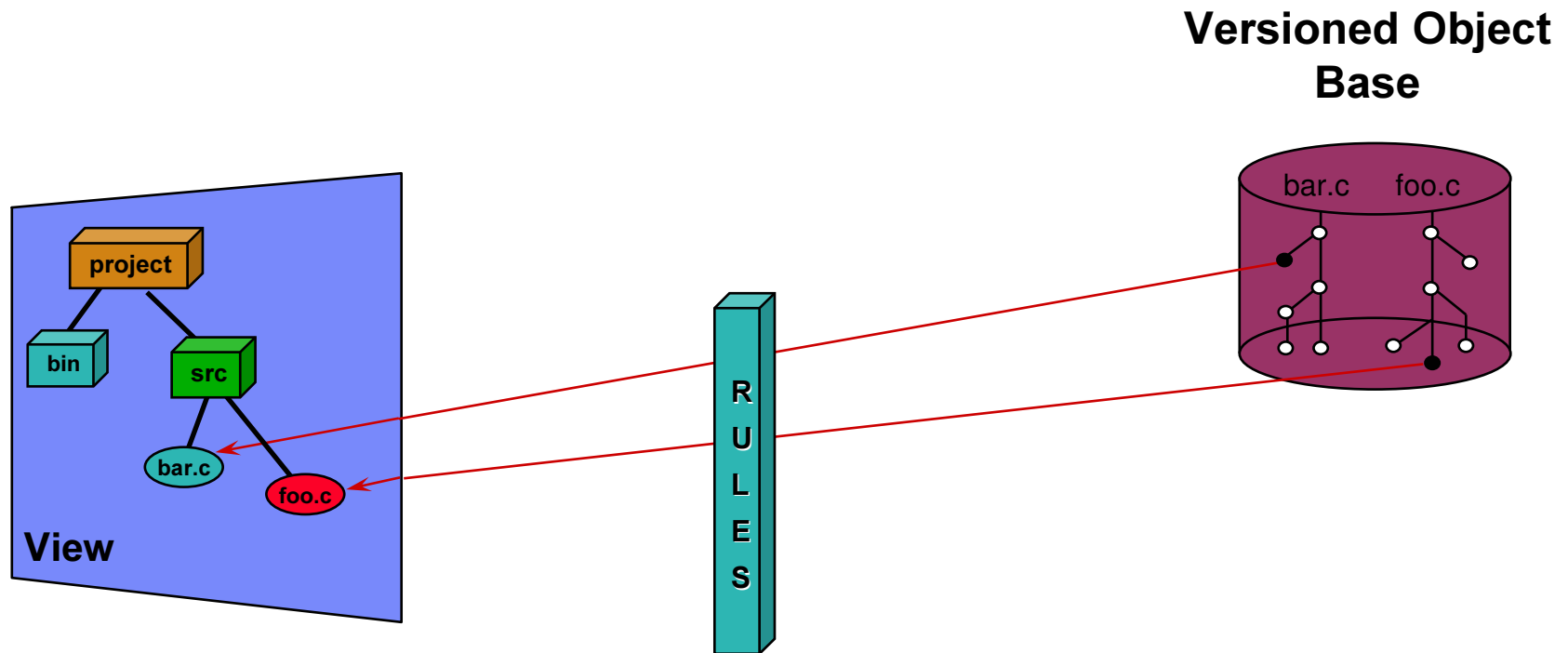


ClearCase views are configurations



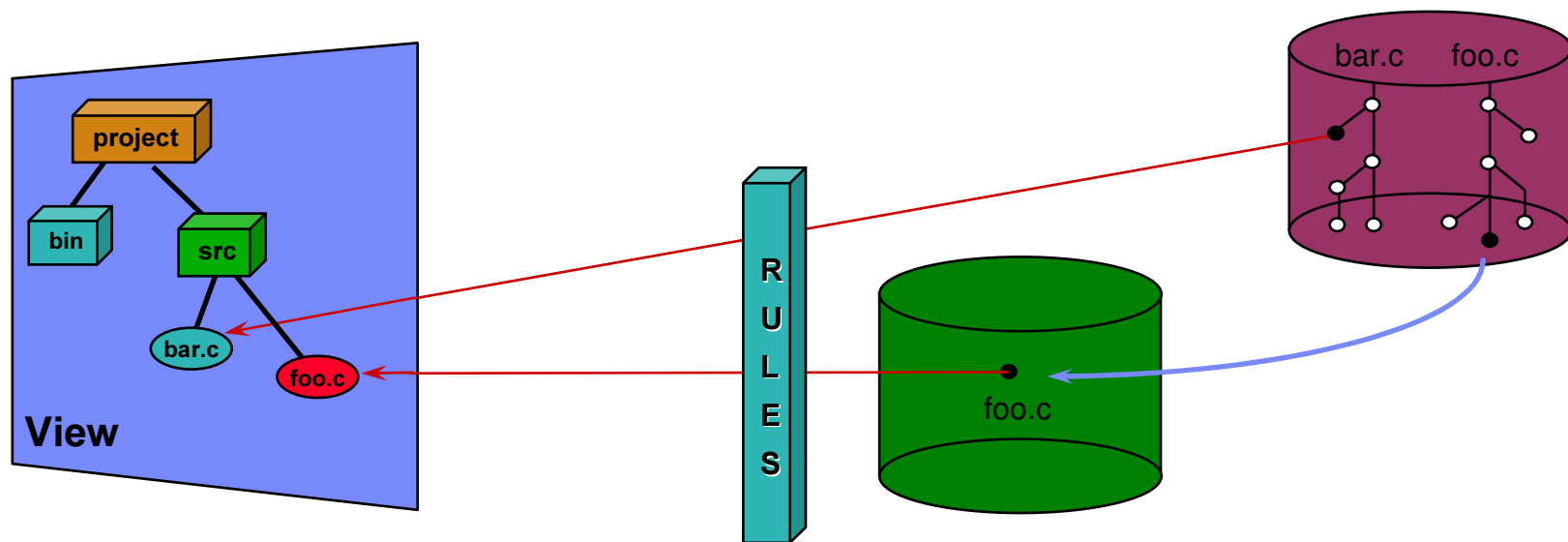
Easy to use: Dynamic views transparent access

- View Before Checkout of foo.c

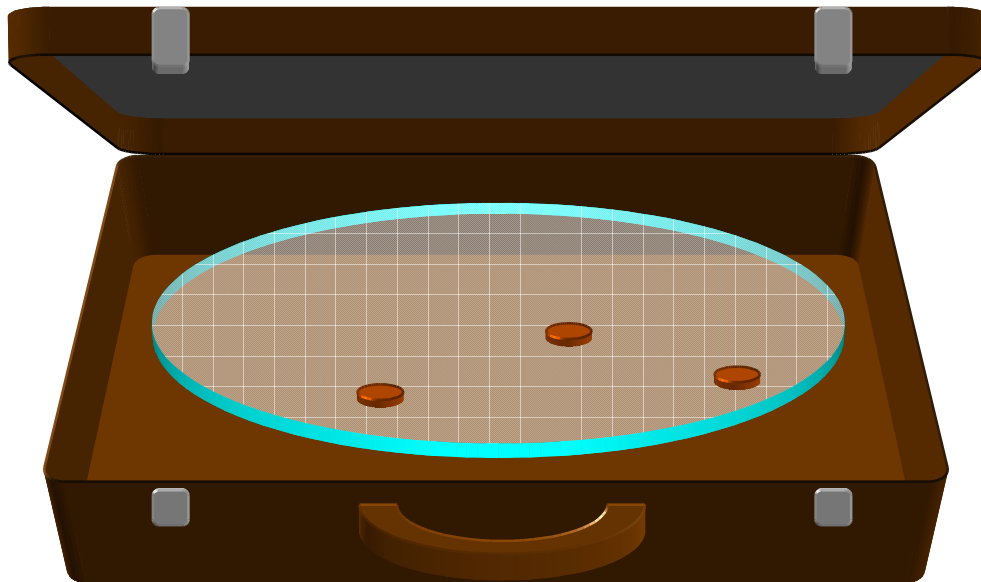


Easy to use: Dynamic views transparent access

- View After Checkout of foo.c



Easy to use: ClearCase snapshot views



- Snapshot Views enable reliable disconnected use
- Makes a controlled copy of the right configuration on your disk
 - Still under ClearCase control
 - Native filesystem access times
- Work away from office
 - Periodic updates only
 - Local builds
 - Automatically re-synchronizes your work with the ClearCase repository

ClearCase/ClearQuest and Eclipse (CCRC)

The screenshot shows the ClearCase Remote Client interface. On the left is the 'ClearCase View Navigator' showing a tree view of project folders. The main window displays 'ClearCase Details' for a file named 'Fonts.java', showing its size (3612) and kind (File Element). Below this is the 'ClearCase View Configuration, ClearCase History Browser, etc.' window, which lists various files and their states (all 'Loaded') and paths.

Name	Size	Kind	Modified Time
AdminFrame.java	3051	File Element Version	Oct 19, 2004
CDAdmin.java	2313	File Element Version	Oct 19, 2004
CDMaintPane.java	17189	File Element Version	Oct 19, 2004
CustomerMaintPane.java	17452	File Element Version	Oct 19, 2004
Fonts.java	3612	File Element	Oct 19, 2004
Logon.java		File Element	Oct 19, 2004
TaxMaintPane.java		File Element Version	Oct 19, 2004

Name	State	Path
.project	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\project
bkg_gray.jpg	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\images\bkg_gray.jpg
html	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html
images	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\images
index.htm	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\index.htm
maintitle_beethoven.gif	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\images\maintitle_beethoven.gif
maintitle_brass.gif	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\images\maintitle_brass.gif
maintitle.gif	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\images\maintitle.gif
Privacy_Policy.htm	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\Privacy_Policy.htm
ThankYou.htm	Loaded	C:\Documents and Settings\demo\stef_Rel3\Classics\html\ThankYou.htm



Eclipse



UNIX/Linux



ISPF



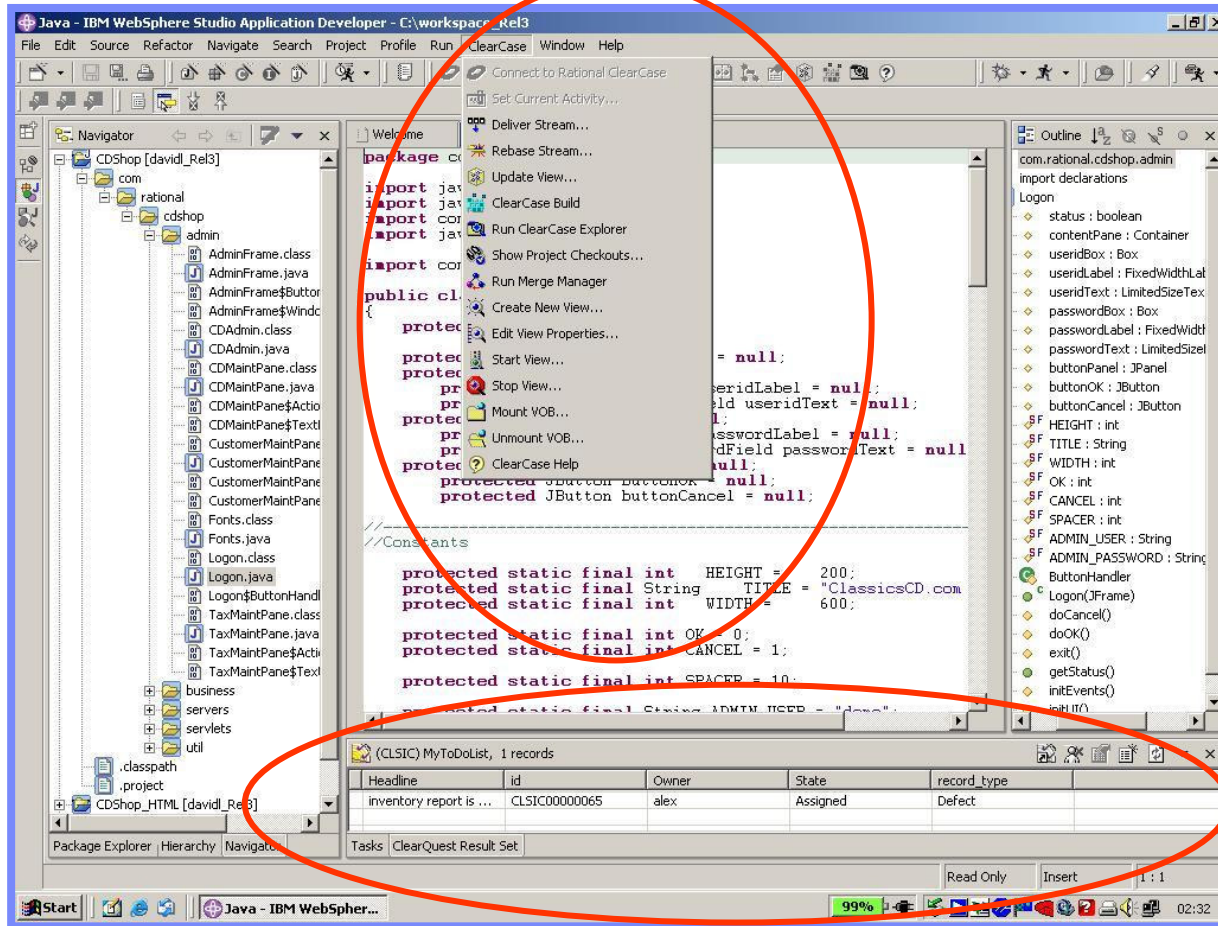
CLI



Browser



ClearCase/ClearQuest and Eclipse (WSAD / RAD / RSA)



Eclipse



UNIX/Linux



ISPF



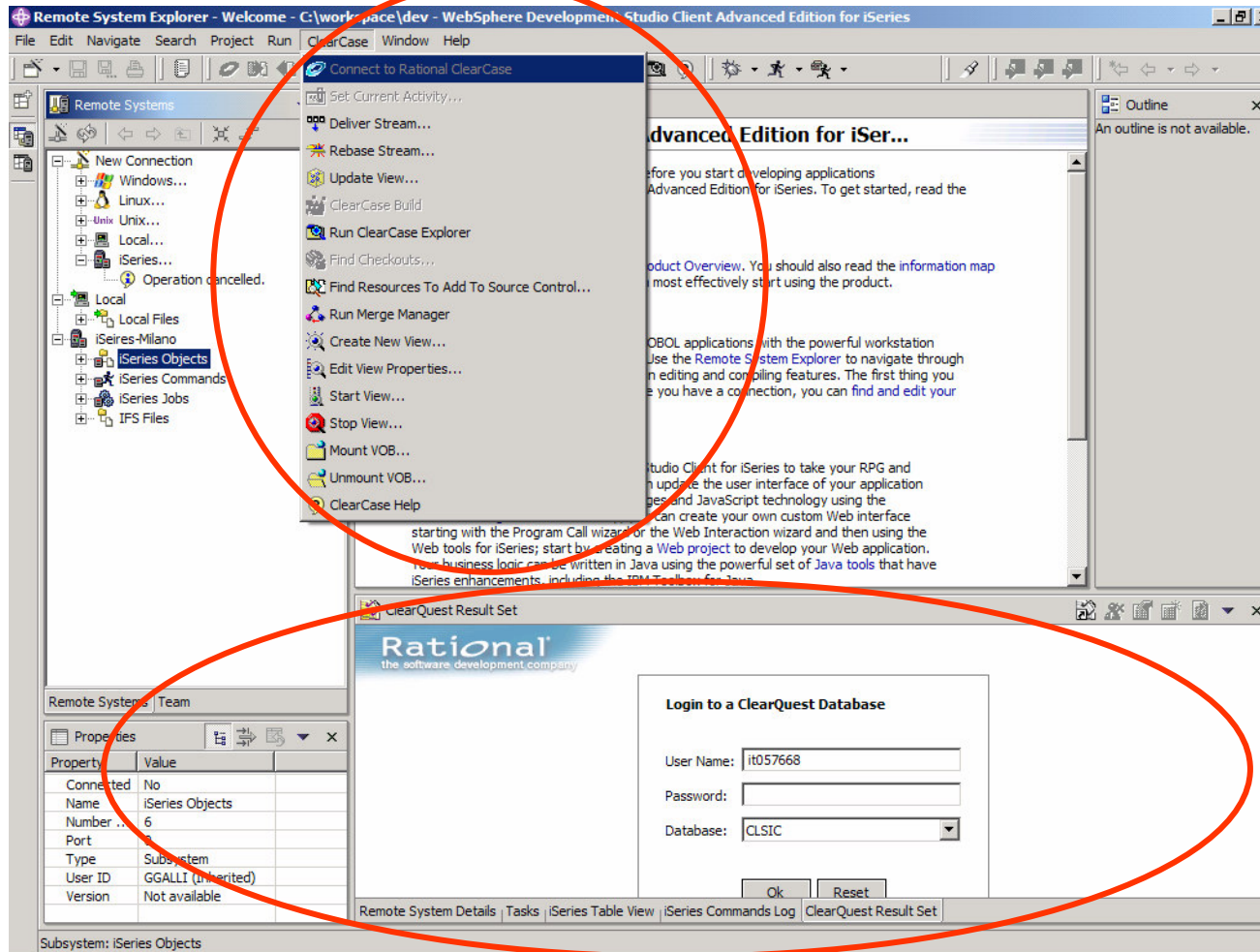
CLI



Browser



ClearCase/ClearQuest and Eclipse (WDSC – AS/400)



Eclipse



UNIX/Linux



ISPF



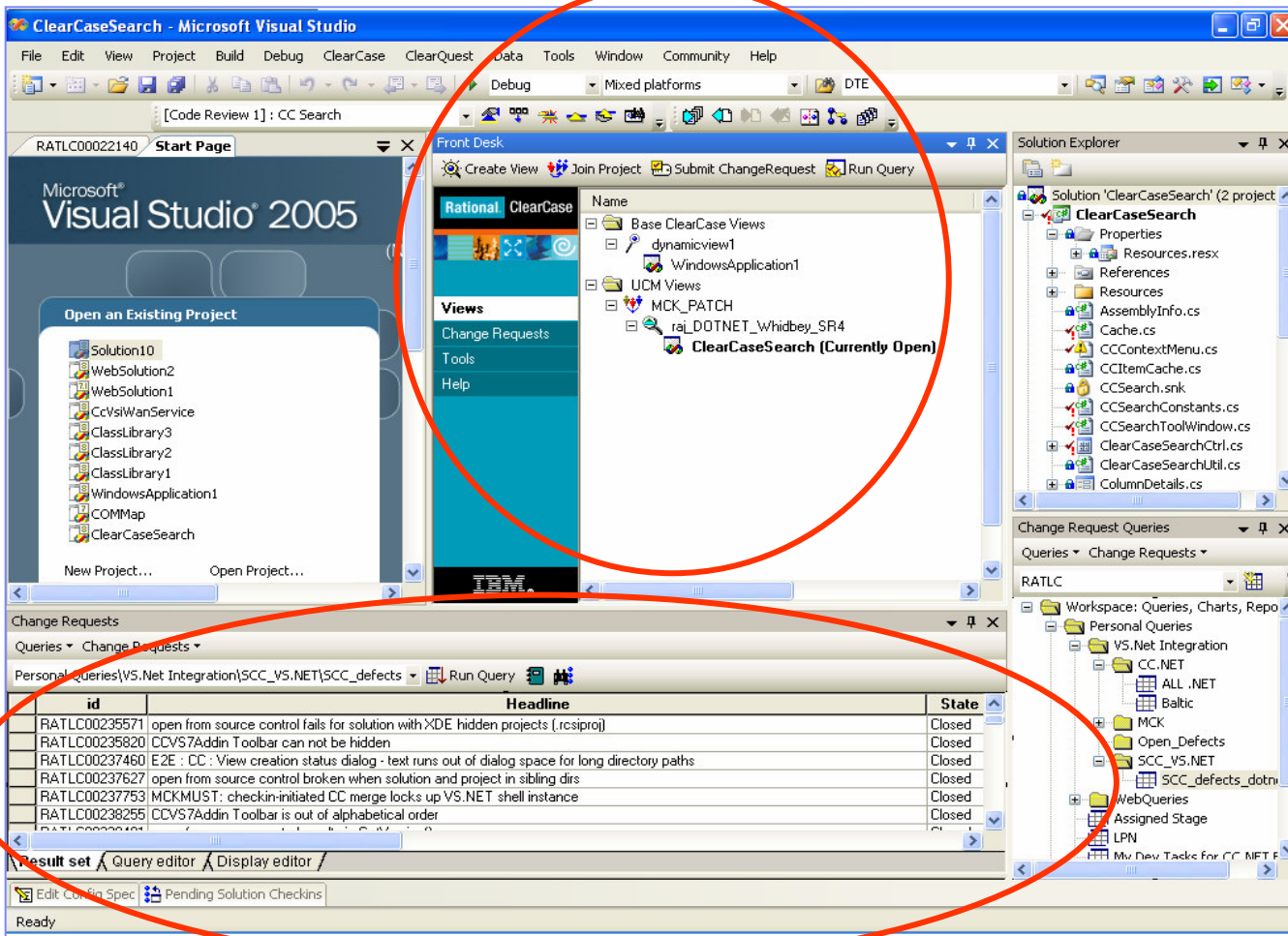
CLI



Browser



ClearCase/ClearQuest and Microsoft IDEs (V*)



Windows



UNIX/Linux



ISPF



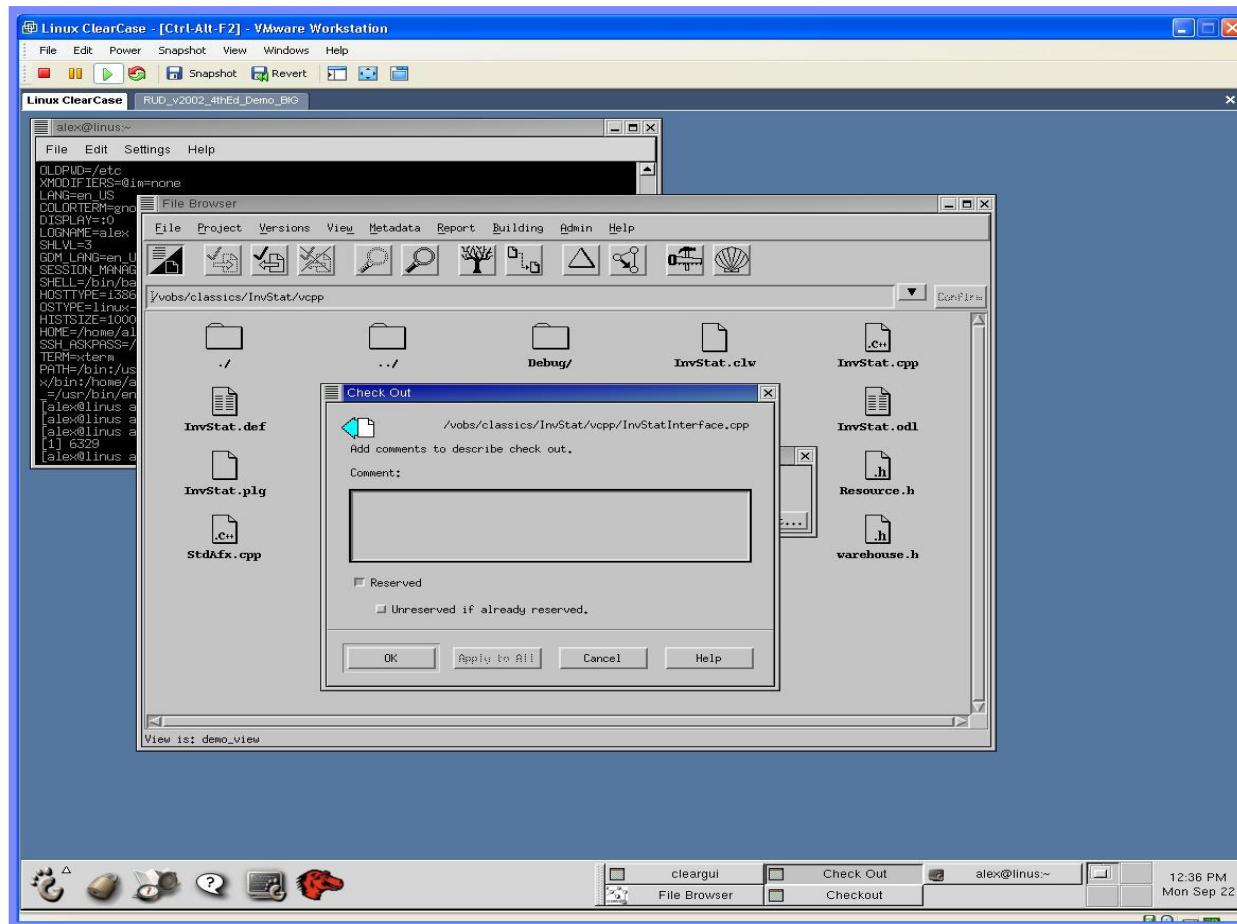
CLI



Browser



ClearCase/ClearQuest and Linux



Eclipse



UNIX/Linux



ISPF



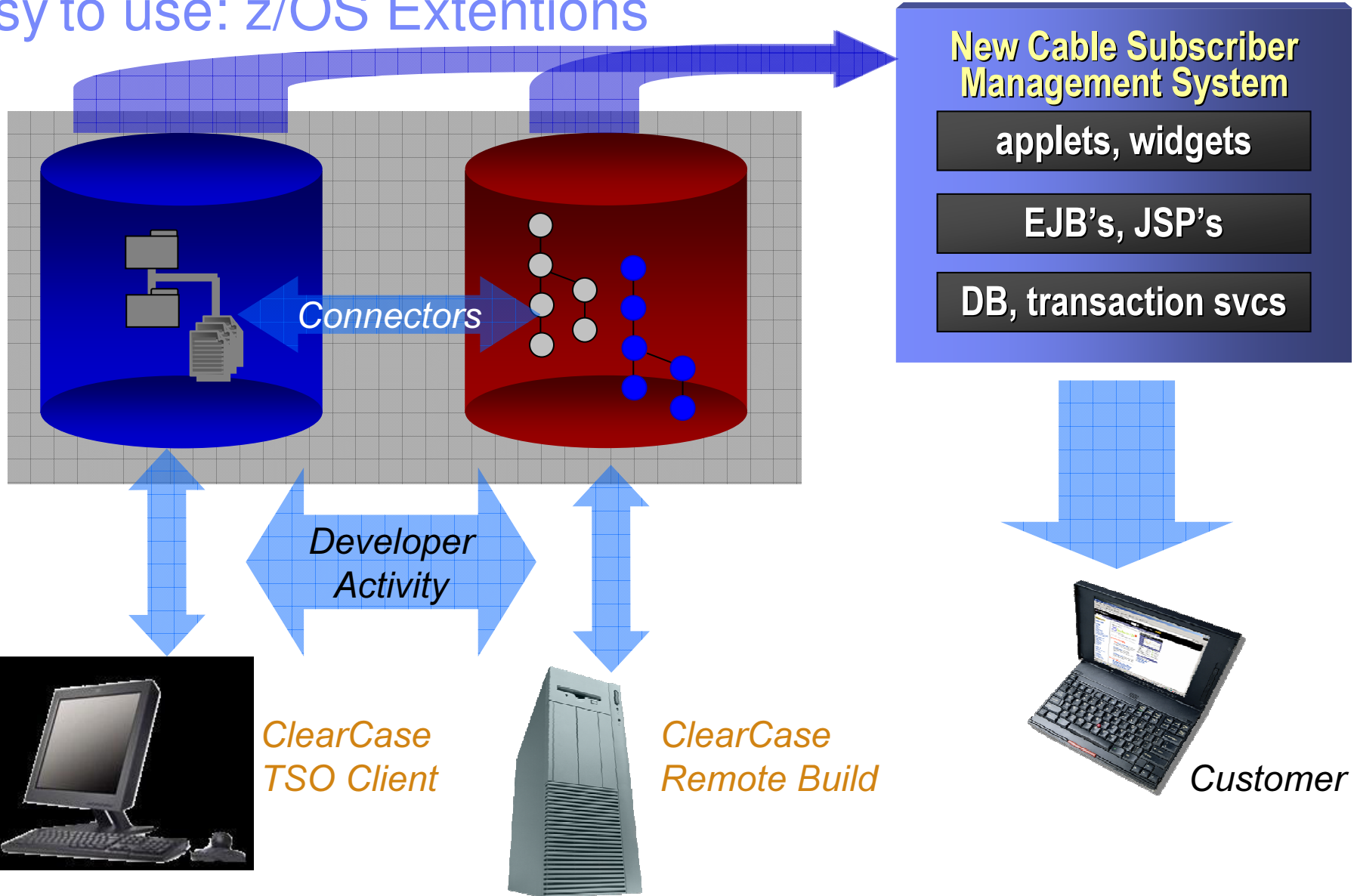
CLI



Browser



Easy to use: z/OS Extentions



ClearCase z/OS Extensions – TSO Client Feature

```
Command ==> _____  
  
Rational Clearcase Mainframe Connectors TSO Client  
Select Action for Member: 2.2.1  
  
Option ==> _____  
  
1. Check Out          4. Compare With Previous Version  
2. Check In           5. Show Version Tree  
3. Undo Check Out    6. Add to Source Control  
  
Comment for check out and check in option:  
_____  
  
PF01=ClearCase Help          PF03=Return to ViewFile List  
  
MÉ  b 09/014
```



Eclipse



UNIX/Linux



ISPF



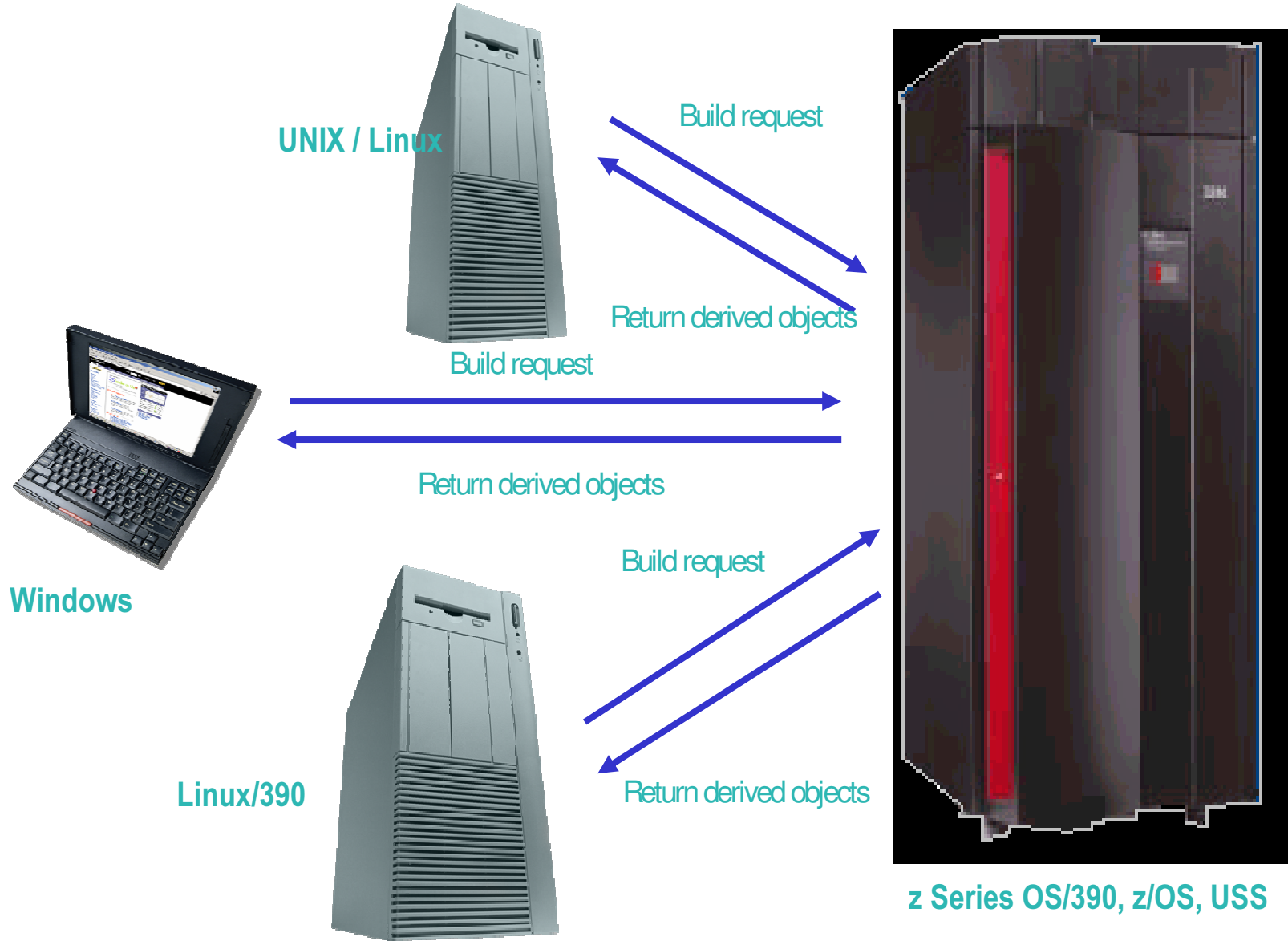
CLI



Browser



ClearCase z/OS Extensions - Remote Build Feature



ClearCase/ClearQuest and Command Line Interface

```
menu_developer.bat

MENU CLEARCASE ENVIRONMENT:

[ Application = "DEMO" ]
[ Workarea   = "CR00000004" (Active) ]

1) Change workarea
2) Checkout file
3) Uncheckout file
4) Edit file
5) Checkin file
6) Refresh workarea
7) Rebase from production
8) Perform enquiry
9) Build objects
10) Show build message
11) Show object related informations
12) Shell
13) ClearCase Explorer
14) Project Explorer

Choice (1/14) [q - exit]: _
```

(example of custom interface)



Eclipse



UNIX/Linux



ISPF



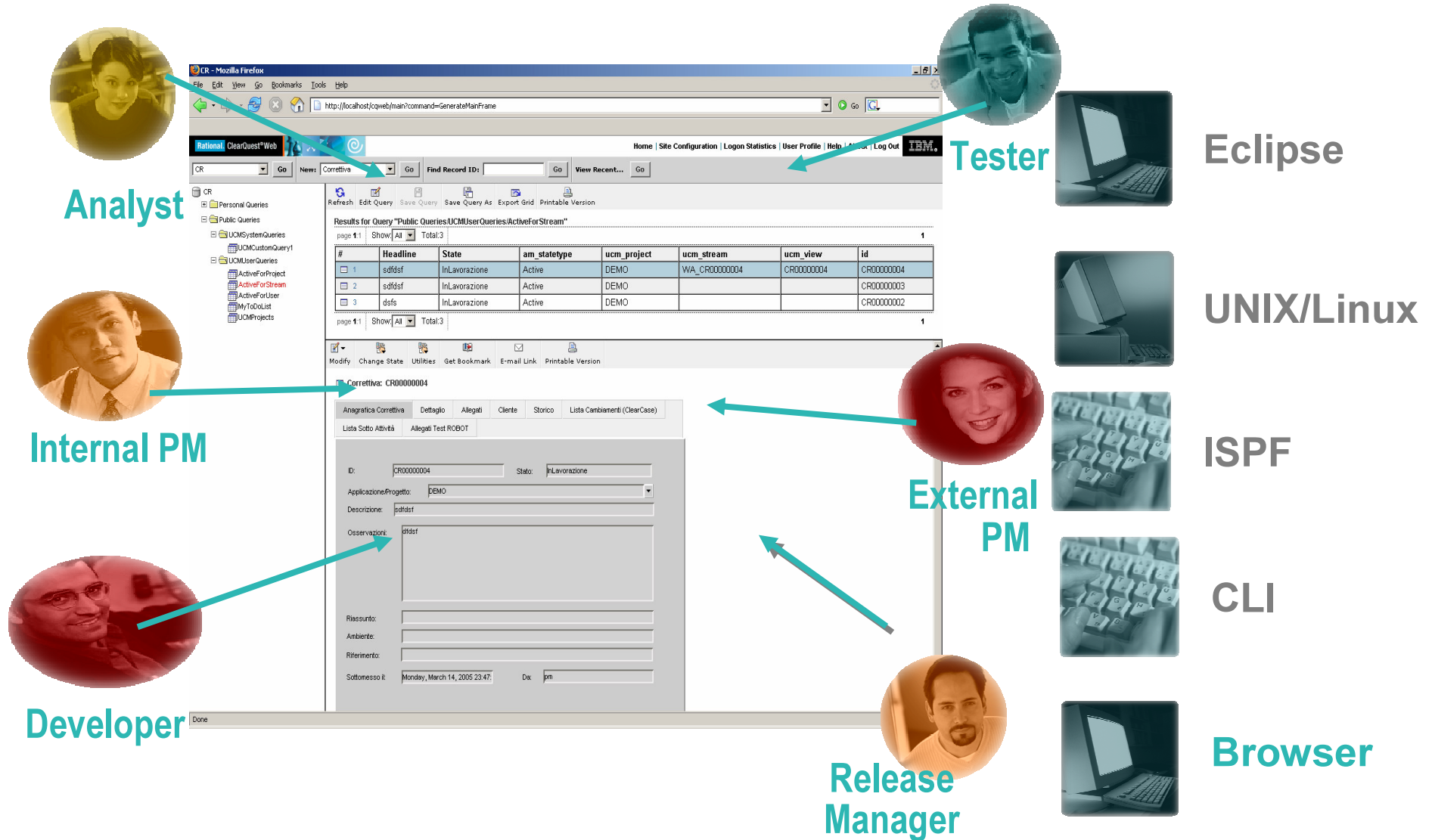
CLI



Browser



ClearCase/ClearQuest and Web Interface



Accelerate productivity with parallel development

IBM Rational ClearCase and IBM ClearQuest...

- Make parallel development practical
 - Private workspaces, automatic coordination with rest of team
 - Work simultaneously on multiple releases
 - Coordinated workflows across the team
 - Secure, versioned software assets
- Help teams collaborate and communicate
- Benefit the entire development team
 - Developers
 - Analysts
 - Content contributors
 - Integrators
 - Testers
 - Project Managers



Activity-Based Change Management

Unified Change Management (UCM)

- UCM Activities automatically manage Change Sets
 - Activities in IBM Rational ClearQuest track IBM Rational ClearCase assets
 - Developers, Integrators, Testers work with Activities, not low-level assets

IBM Rational ClearQuest

Manages activities

- ◆ To Do Lists
- ◆ Workflow

IBM Rational ClearQuest: Organized Activities

Request	Priority	Owner
Special Promo	1	Terry
Bug 527	2	Sandy
Add GUI button	2	Kim

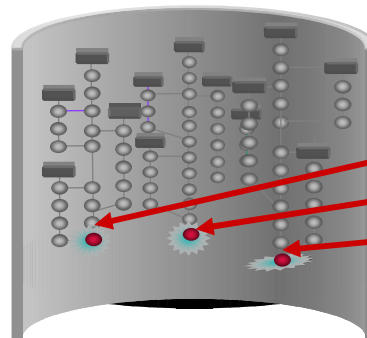
IBM Rational ClearCase

Manages assets

- ◆ Versioning: code, models, XML, HTML
- ◆ Parallel development

Change Set

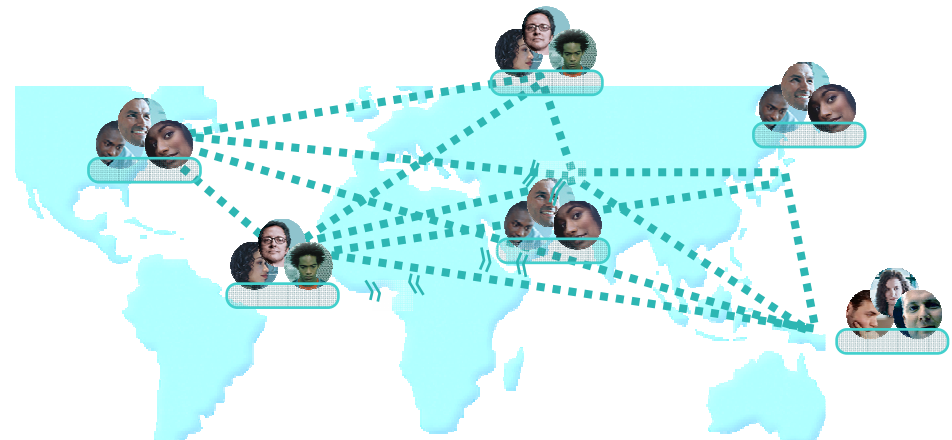
Special Promo	
a. html	V5
b. xml	V3
c. jpg	V8



Manage Distributed Development

Rational CCM solutions provides a variety of ways to manage and deploy your distributed deployment environments.

- ClearCase and ClearQuest Multisite
- ClearCase Web and ClearCase Remote Client (CCRC)
- ClearQuest Web



Rational CCM Enterprise wide management tools

Requirements, Change Sets, Build Information, Reporting all out of the box

The screenshot shows the IBM Rational ClearQuest interface. At the top, there is a table of defects with columns for ID, Headline, Owner, State, and Submit Date. Below the table, there are tabs for PQC, Test Data, and Environment. A 'View Requirement' dialog box is open, showing details for a requirement named 'Web Interfaces Compliance' associated with the project 'ClassicsCD Web Shop'.

id	Headline	Owner	State	Submit Date
CLCSIC00000083	Link to "Home" does not go to ClassicsCD home page	jan	Opened	8/14/2002 8:34:01 AM
CLCSIC00000084	Registered user cannot proceed to Cashier	sandy	Submitted	8/15/2002 5:37:22 AM
CLCSIC00000085	Wrong quantity of items placed in Shopping Cart	jan	Assigned	8/17/2002 2:04:28 AM
CLCSIC00000086	Fails poorly if browser doesn't allow cookies	jan	Closed	8/11/2002 4:07:28 AM

The screenshot shows the IBM Rational ClearQuest interface displaying a bar chart titled 'Active Defects by Owner'. The chart shows the number of active defects for each owner: user (1), QE (1), lead (2), and engineer (3). The chart is a 3D bar chart with a light blue color scheme.

Owner	Active Defects
user	1
QE	1
lead	2
engineer	3

The screenshot shows the IBM Rational ClearCase interface. It displays a version tree for a project named 'Alex_RFT_Demo_2_int'. A 'View Defect' dialog box is open, showing details for a defect with ID 'CLCSIC00000070'. The dialog box includes fields for UCM Project, Stream, View, Change Set, and a table of versions.

Name	Versions
\comp1\foo.txt	1, 2, 3
\comp1.	

The screenshot shows the IBM Rational ClearCase interface displaying a version tree for a project named 'Alex_CLSICS_CD'. The tree shows a hierarchy of views and streams, including 'main', 'Alex_CLSICS_CD', and 'Alex_CLSICS_CD'. A 'View Defect' dialog box is open, showing details for a defect with ID 'CLCSIC00000070'.

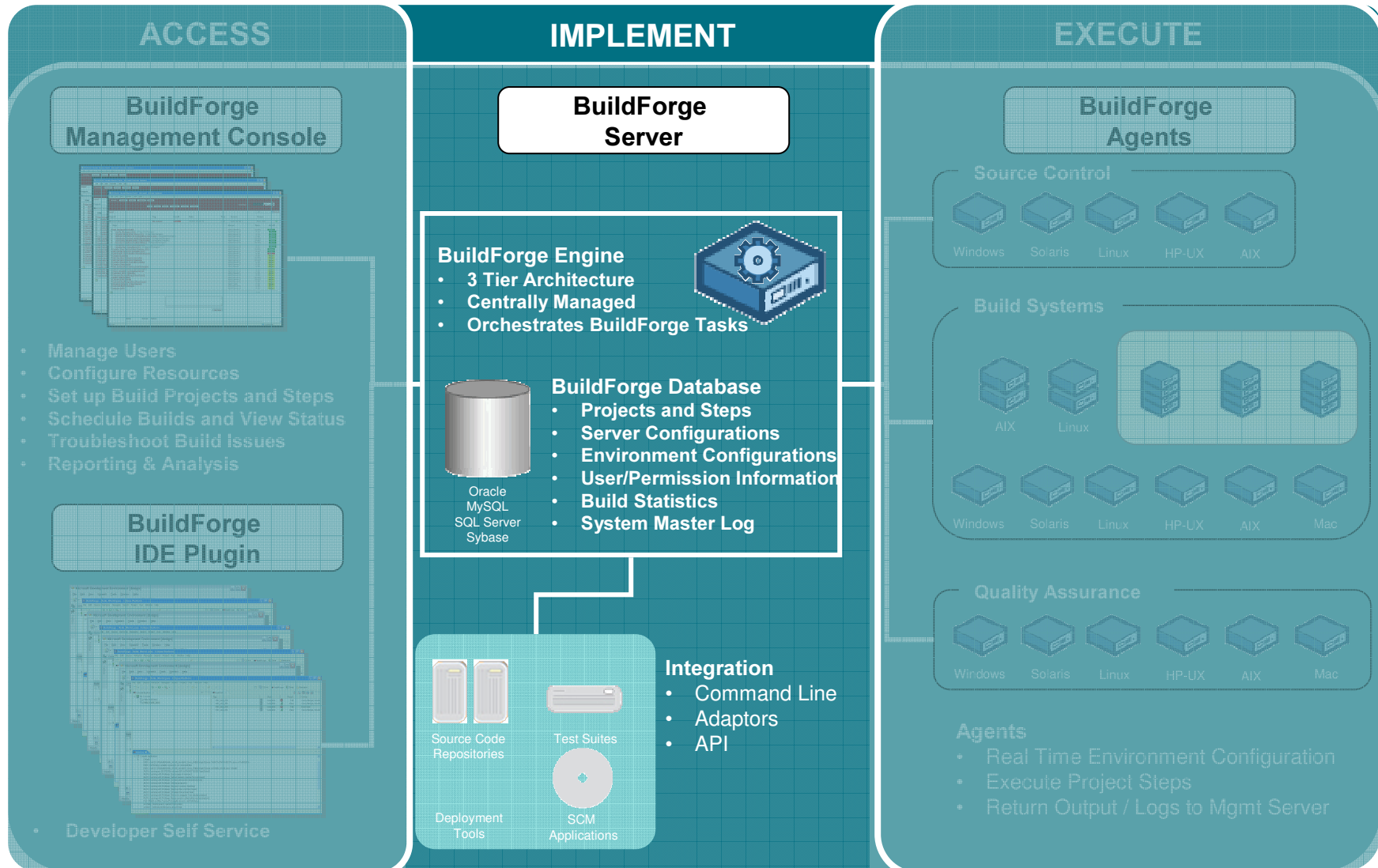


IBM Rational ClearCase Integrations:

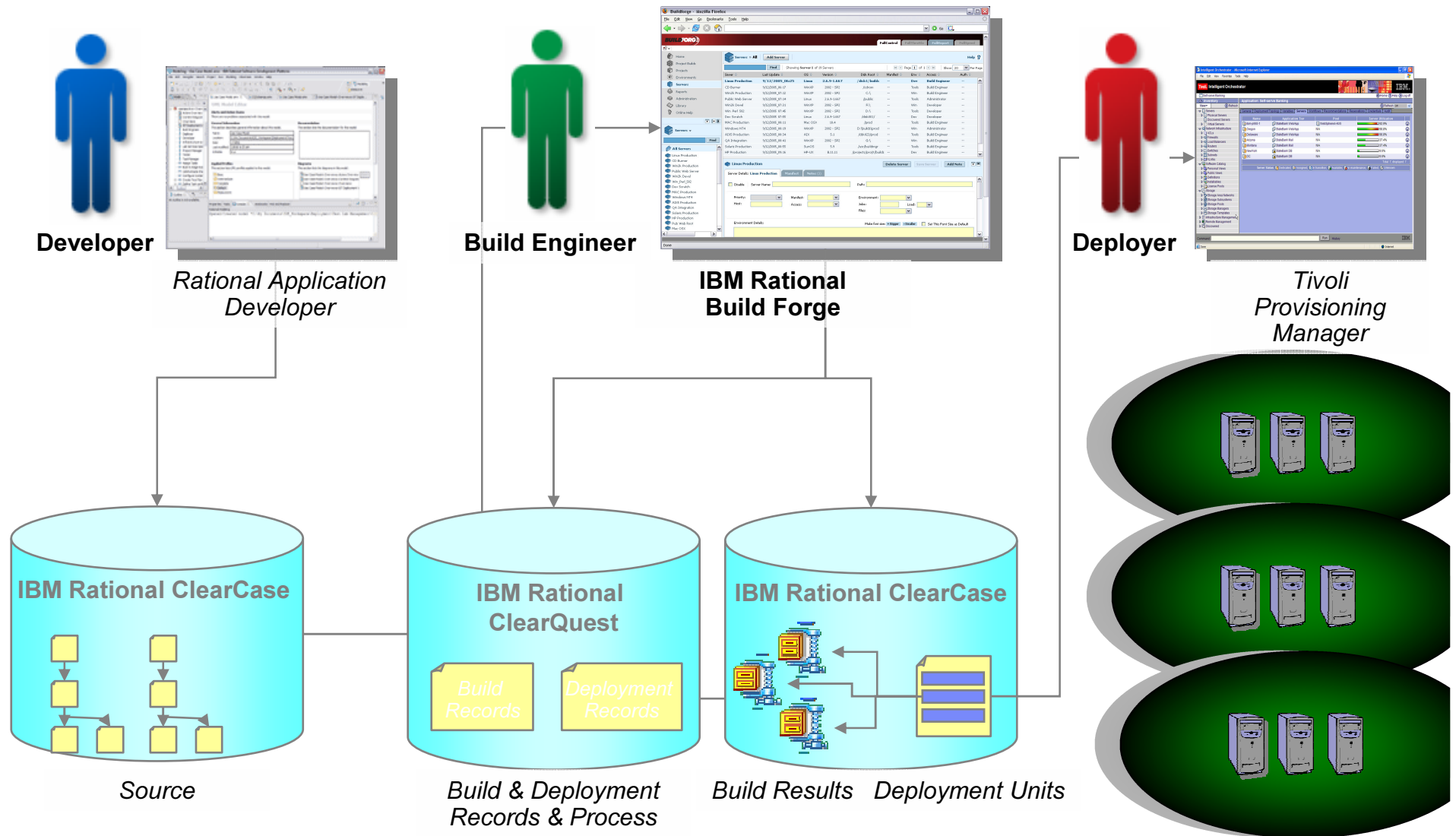
- Rational ClearQuest
- Rational BuildForge
- Rational Rose
- Rational Functional, Manual, Performance Testers
- RequisitePro
- Microsoft VS*®
- Sybase PowerBuilder®
- Microsoft Word®



IBM Rational BuildForge: Functional Architecture



Build & deploy



Terms



Server

A Server is a logical resource in the BuildForge environment that represents any physical system running the BuildForge Agent.

A Server is defined within the BuildForge system with certain properties, such as a default path.

Project

A set of Steps which can be run in the BuildForge system. A project can be run repeatedly; each run generates a new Build.

Step

A component of a Project. A Step stores one or more commands which can be executed on a Server. Each command may itself launch an executable file, a batch file, or script that launches many other commands.

A command is anything that can be invoked from the command line of a given server (through an Agent) based on the security privileges configured.



Environments

The BuildForge system allows you to manage environment variables separate from your Projects, Servers, and Steps

- Define Environment Groups
 - Containing one or more Environment Variables
- You can assign Environment Groups to Servers, Projects, and Steps
 - At runtime, the system assembles the final working environment for a Step from all of the relevant Groups assigned to the Server, Project, and Step



Bill of Materials

- The BuildForge system generates a Bill of Materials (BOM) after each build
 - Build Results
 - Notes
 - Environments
 - List of build files
 - Code Changes
- The BOM contains information about the steps in the build and the changes to files that resulted from it.
- Uses of BOM:
 - Understanding the contents of a new build
 - Serve as an audit solution for your build and release process
 - Complete documentation of a build's contents.



Filtering

- BuildForge, by default, determines the success or failure of any command by the exit status it returns
 - zero as success
 - one as failure
- Certain commands always return a zero exit status
 - For example, a command like *net use* prints a list of mapped network drives; the command always succeeds although the list may not contain desired drives
- Filters are a set of regular expressions that are used to parse the output of a step command to determine success or failure



Terms



Dot (.) Commands

The BuildForge system includes a set of special commands called Dot Commands that typically can be used as the body of a Step.

The system intercepts commands that are preceded by a period and uses them to perform special functions within the BuildForge system.



Sampling of Commands Available

- .put
- .get
- .break
- .edit
- .load
- .lock
- .mkdir
- .monitor
- .include
- .strsub
- .retry
- .rget
- .rmdir
- .rput
- .scan
- .sleep



Notification

- E-mail notifications are always sent to Groups, not individual users
- Projects level Notification
 - Start
 - Pass
 - Fail
- Steps level Notification
 - Pass
 - Fail



Security

Concepts in the BuildForge security system:

- Users
- Access Groups
- Permissions
- Ownership



Security (cont'd)

- Role-based system
 - *Access Groups* represents a role a *User* has in organization
 - Roles have *Permissions* and *Ownership*
- User access is determined by the **union** of the *Permissions* of all groups the user belongs to
- Combination of *Permissions* and *Ownership* define what a group can do and/or see
 - To edit a give Project, a User would have to have *Ownership* on the Project AND *Permissions* to Edit Projects
- Example
 - User who is a member of the Guest group (and no other groups) sees only Projects which have the Guest group assigned as their *Access* property
 - User can only launch projects with Guest access



Ownership vs Permissions

Permissions

- System level
 - Add/Delete Projects
- Multiple Access Groups can have a single permission
 - Build Engineer & System Administrator can have a permission to edit Access Groups

Ownership

- Resource level
 - Projects, Steps, Environment Groups
- Only a Single Access Group can have ownership over a resource



Overview of Adaptor Configuration

- Define source code *Interfaces* for the systems you use
- Create *Links* between those interfaces and specific projects
- *Schedule* the projects to run, as often as you want your system to check for changes
- *Run* each project once



Chaining Projects

You can link or embed one Project within another Project in the BuildForge environment through a feature called **Chaining**.

Two Types of Chaining

- Inline Chaining
- Pass / Fail Chaining



Terms



Library Projects

From the point of view of the BuildForge system, a library project is simply a projects whose Server property is set to *None*.

These projects are intended to be chained within other projects and therefore use the server of the Step that calls them.

Server Pool

A Server Pool is a group of Servers with similar build properties (running the same operating system and with the same compilers available, for example).

The BuildForge system can run a Project on a different Server in the same Pool when the default Server for the Project is busy.

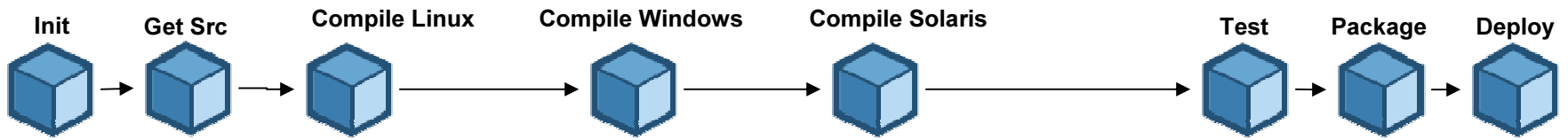
Threading

Threading allows for multiple Steps to run in parallel, thereby increasing the speed of your build.

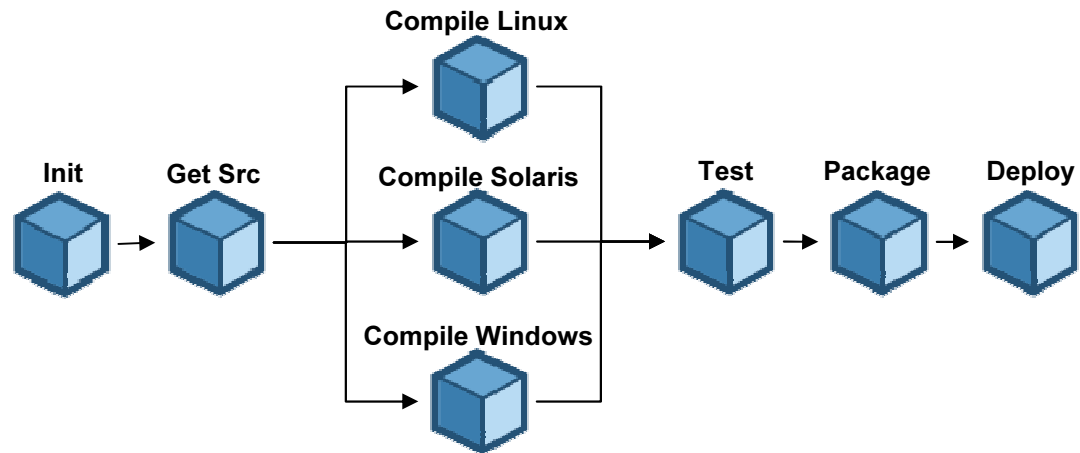


Example

Without Threading



With Threading



Benefits – Server pooling

- System can switch Build to alternate Server if default server is down or busy
- System will distribute processing load across farm of Servers automatically
- System can run a single Step on several Servers, in parallel, using **Broadcasting**



Advanced Build Management Features

- Dynamic Server Management
 - Dynamic Pooling
 - Logically group hardware based on user criteria- department, similar characteristics, etc.
 - Used for load balancing, fault tolerance, easier administration
 - Dynamic Server Allocation
 - Server inventory contains manifests- properties of a server used for dynamic selection
 - Optimally select build servers at execution time
 - Flexible selection criteria: can be general or detailed
 - Attribute types include: built-ins, static, dynamic
 - Support for user-defined types
 - Server manifest refresh on-demand or scheduled
 - Add new servers on network without having to manually configure or update any projects

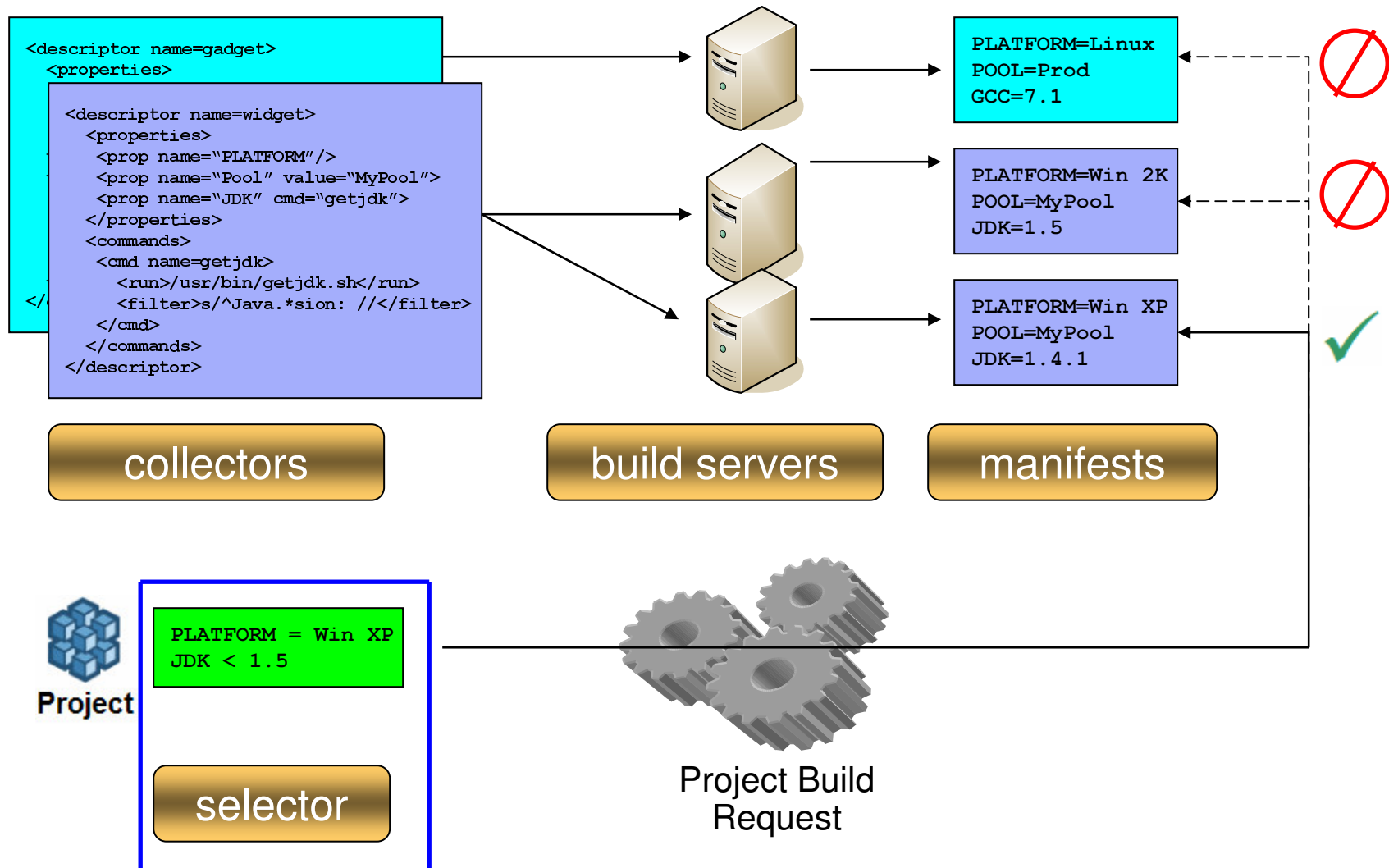


Advanced Build Management Features (cont'd)

- Load Balancing
 - Control maximum number of jobs per server, per user
 - Utilize idle hardware for requests
- These advanced build management features introduced in 7.0 are available via Enterprise Edition only



Workflow Overview of Collectors / Selectors / Manifests





Extreme Change Management

- Common, distributed and synchronized repository
- Common process and UI for heterogeneous platforms (integrated with IDEs)
 - MVS
 - Windows (VAJ – WSAD/RAD – WD/z – Eclipse – MS V* - WDSC)
 - Unix / Linux
- Ability to work on parallel Change Requests
 - Enhancement, Maintenance, Bugfixing
- Ability to rebase all parallel developments with production environment
- Ability to work on the same task/activity/request with multiple users
- Increase the level of automation for the SCM process
- High value functionalities for critical applications:
 - Impact analysis
 - Out-of-date mechanism for builds -> software consistency



Agenda

- Defining Change and Configuration management
- Business value of Change and Configuration management solutions
- Challenges-solutions in Change and Configuration management
- Capabilities of Rational Change and Configuration management tools
- BuildForge Demo
- ECM Demo
- Closing, Q&A and Thanks



For More Information...

- IBM Rational Clearcase:**

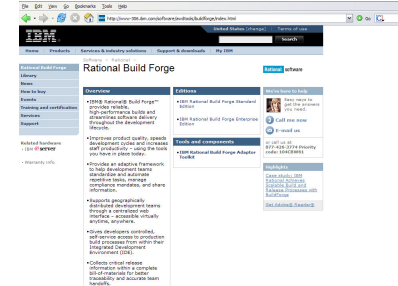
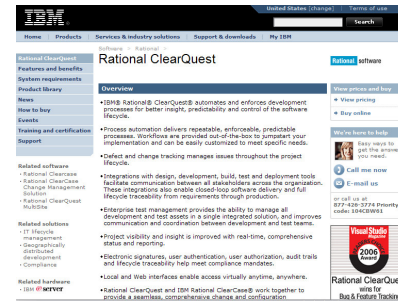
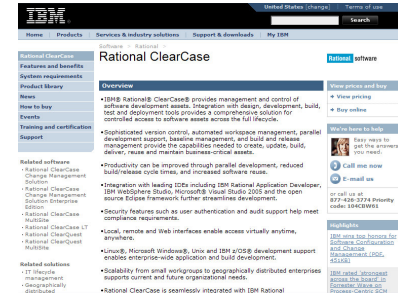
<http://www-306.ibm.com/software/awdtools/clearcase/>

- IBM Rational ClearQuest:**

<http://www-306.ibm.com/software/awdtools/clearquest/>

- IBM Rational BuildForge:**

<http://www-306.ibm.com/software/awdtools/buildforge/index.html>



Additional resources

- Eclipse
 - <http://www.eclipse.org>
- IBM developerWorks for hints, tools, tips and tricks
 - <http://www-106.ibm.com/developerworks/platform/>
- Demos, evaluations, upgrades, patches, hot fixes, add-ins, plug-ins, models, scripts, and documentation
 - <http://www-136.ibm.com/developerworks/rational/downloads/>
- IBM Rational Application Developer
 - <http://www-306.ibm.com/software/awdtools/developer/application/index.html>





IBM Software Development Platform

Paolo Cravino paolo_cravino@it.ibm.com

Oreste Egidio oreste_egidio@it.ibm.com

