



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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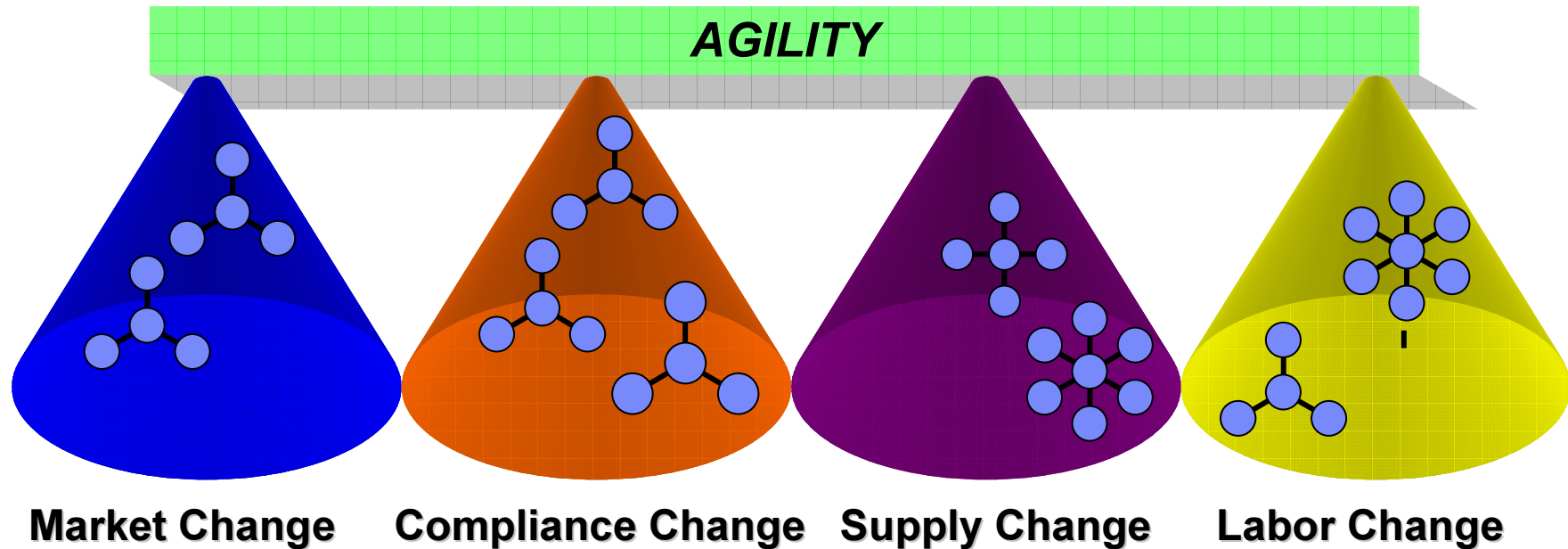
Why Change and Configuration Management ?

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



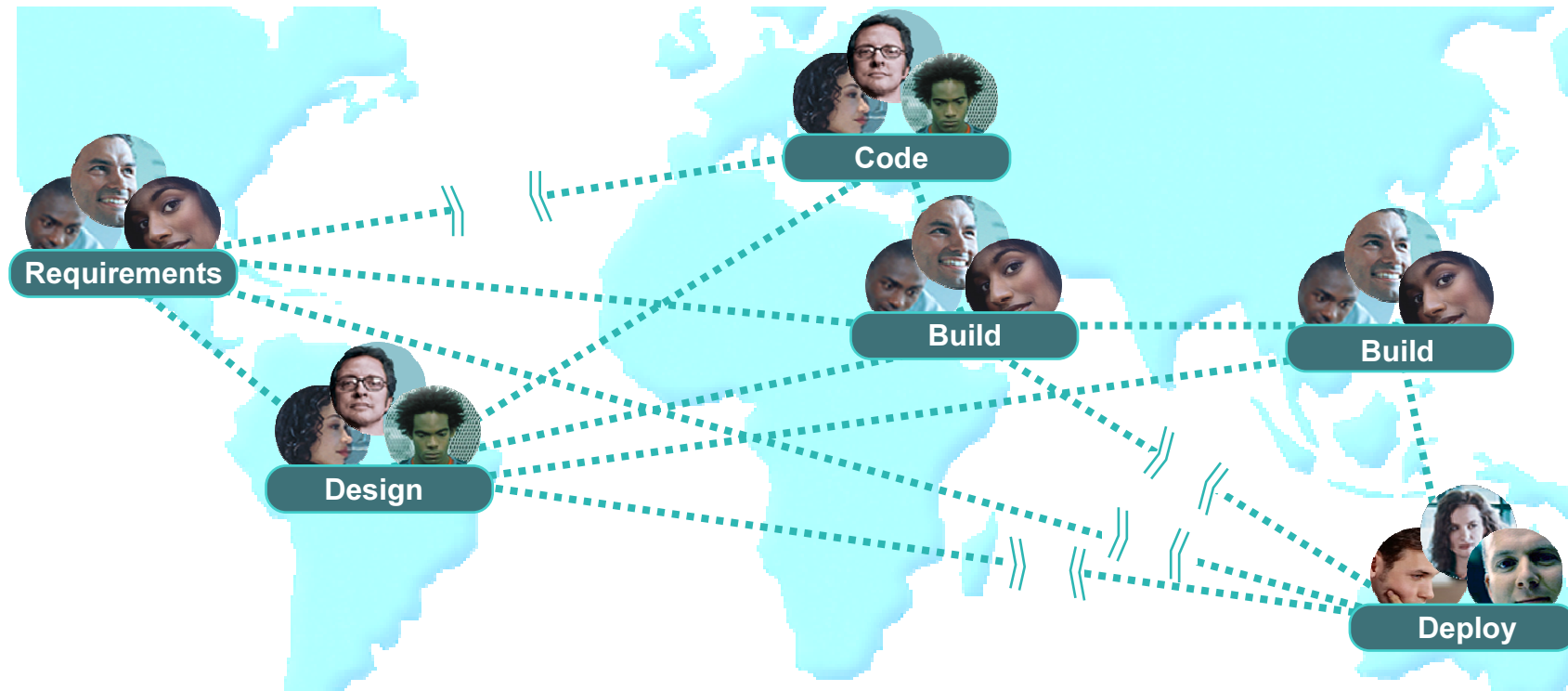
Quality Change and Configuration Management improves responsiveness and agility



Business value: Cope with changing business needs and pressures



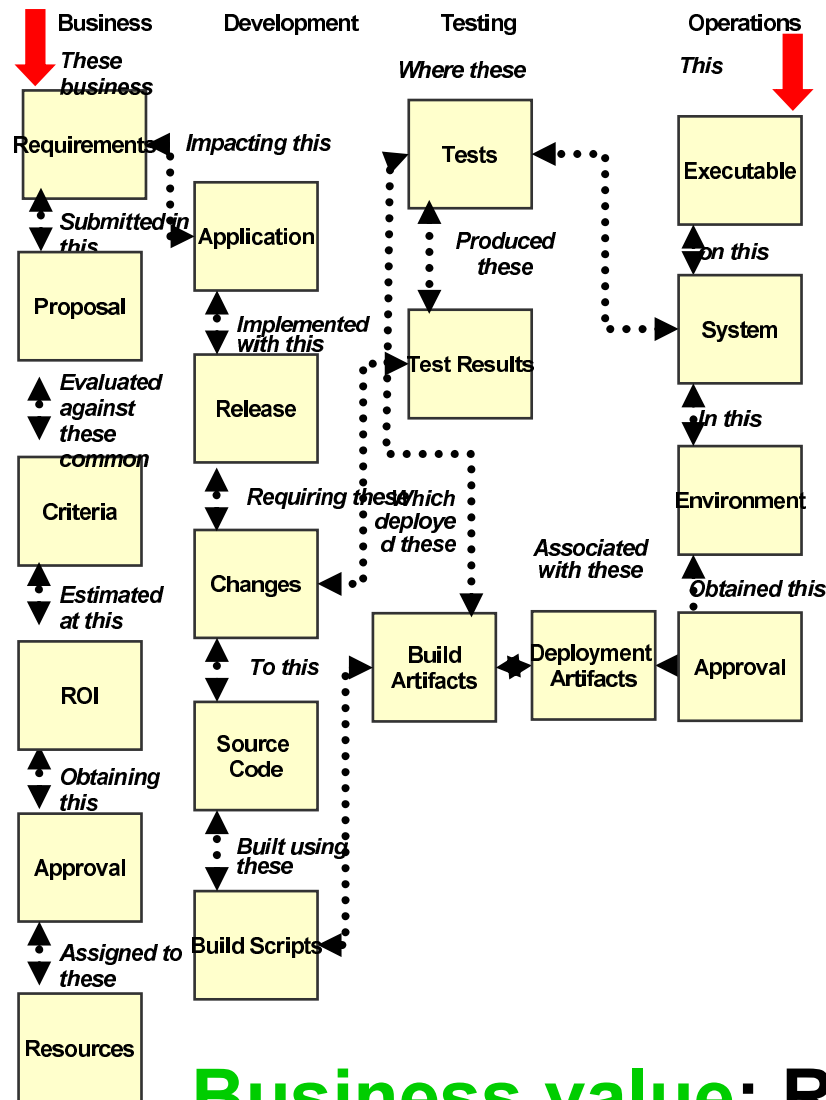
Improves management of distributed development



Business value: Collaboration and reuse reduces cost



Makes compliance easier

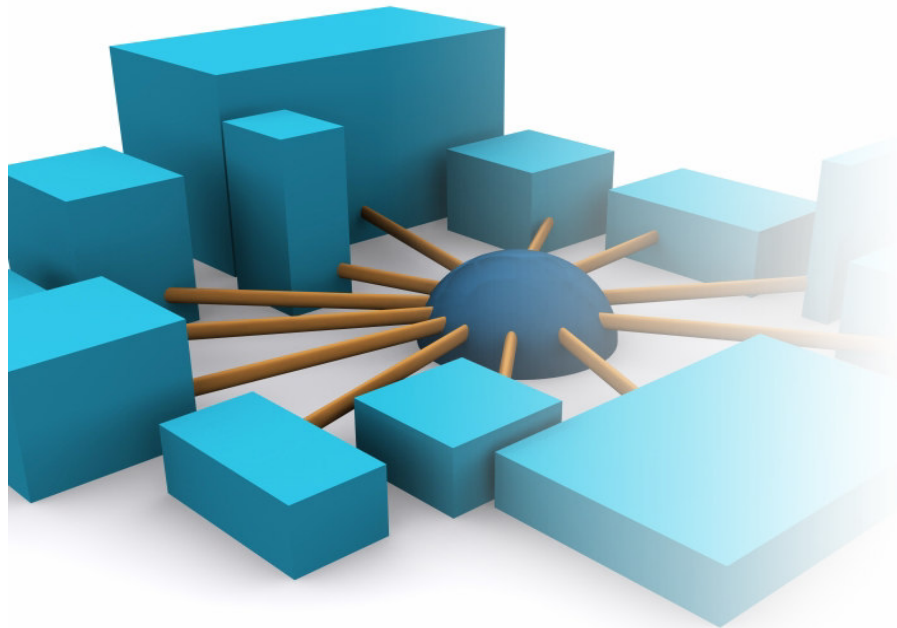


- Help enforce a secure and audit-ready development environment
- Establish end to end life cycle traceability

Business value: Reduce risk of Failing Audits



Get better visibility into projects



Instant Insight into Projects

Test Change Defects

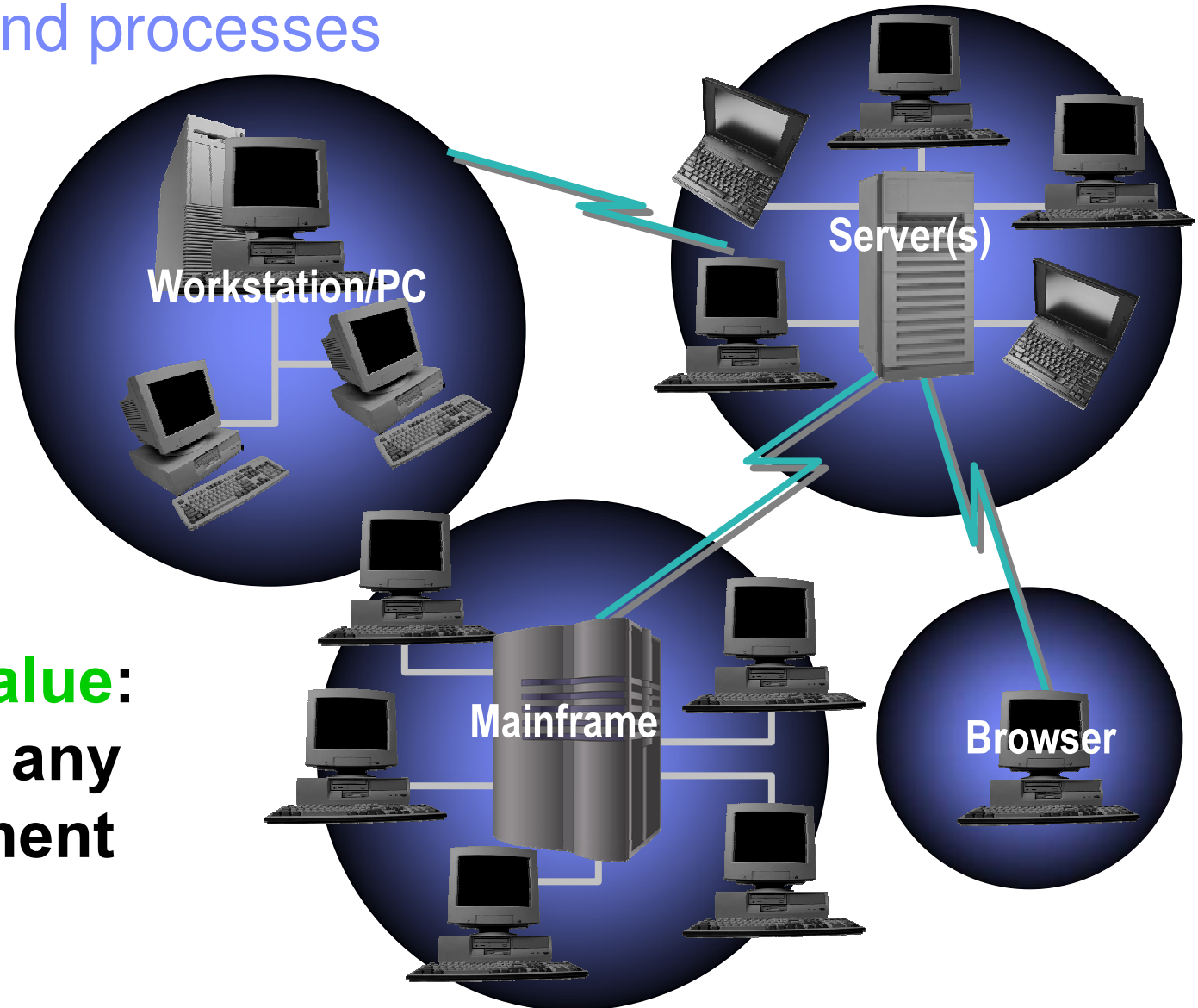
- Single project view
- Global test project coordination
- Configurable, enforceable processes

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



IDC
Analyze the Future

Global Headquarters: 6 Speen Street, Framingham, MA 01701 USA P: 508.672.6200 F: 508.535.4915 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:

- 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.

“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)...”

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



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**

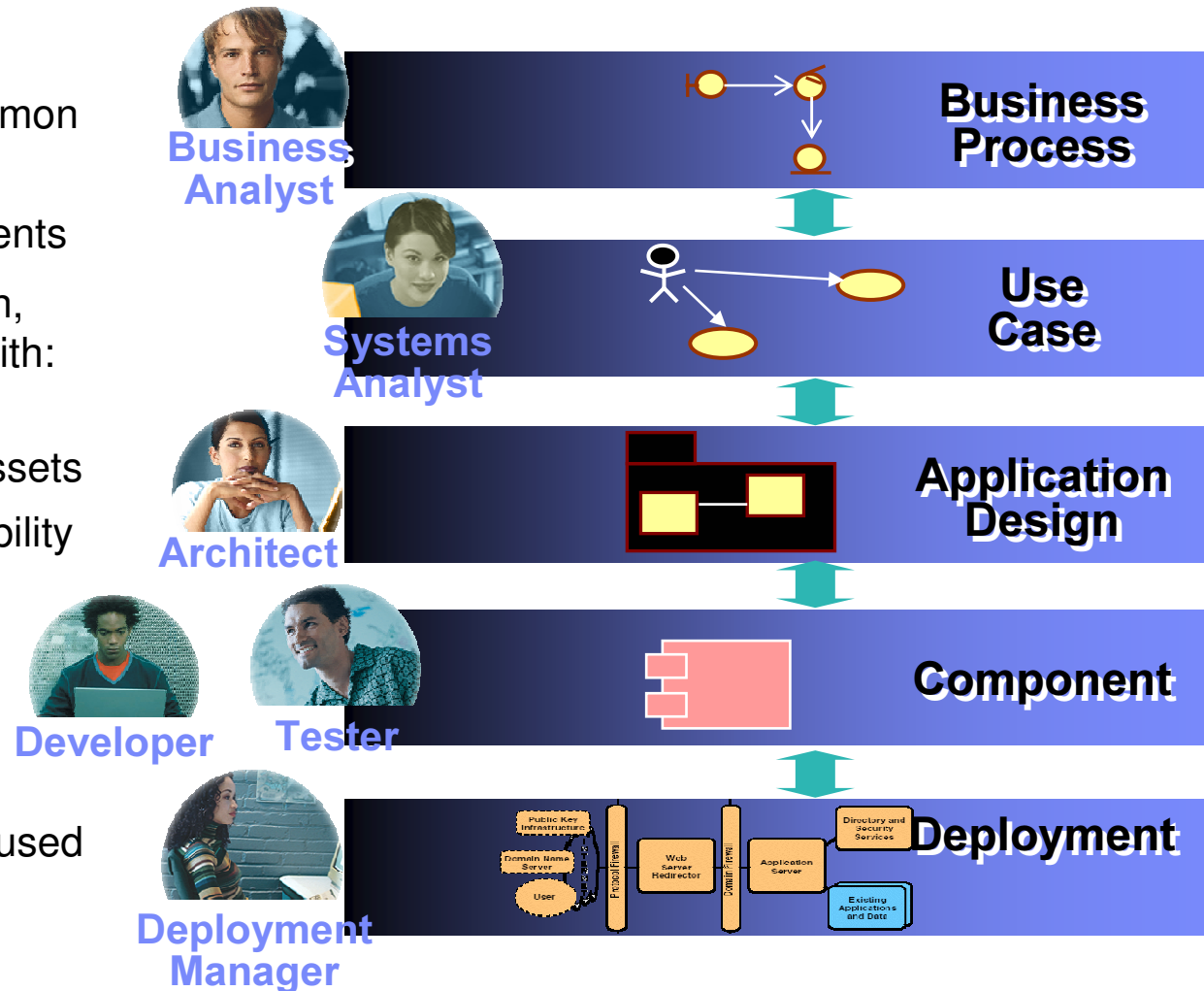
- Slow and lacking communication
- Lack of reused components
- Manual processes
- Limited of collaboration



Solution #2

Improving individual and team effectiveness

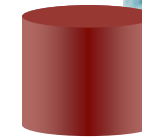
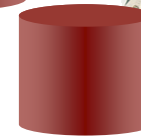
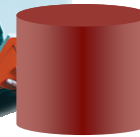
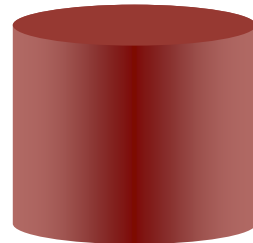
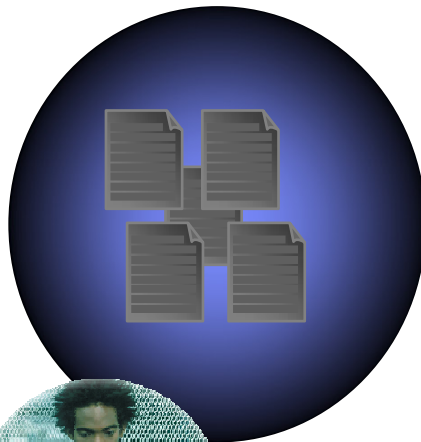
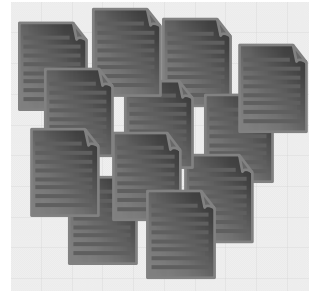
- Multiple perspectives of common data, optimized for each role
- Remote access and Web clients
- Better project communication, collaboration, coordination with:
 - a central repository for all development and build assets
 - built in automation with ability to add custom script
- Automate and control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



Challenge #3

Inability to properly manage enterprise wide distributed resources

Scattered Local and Remote Resources



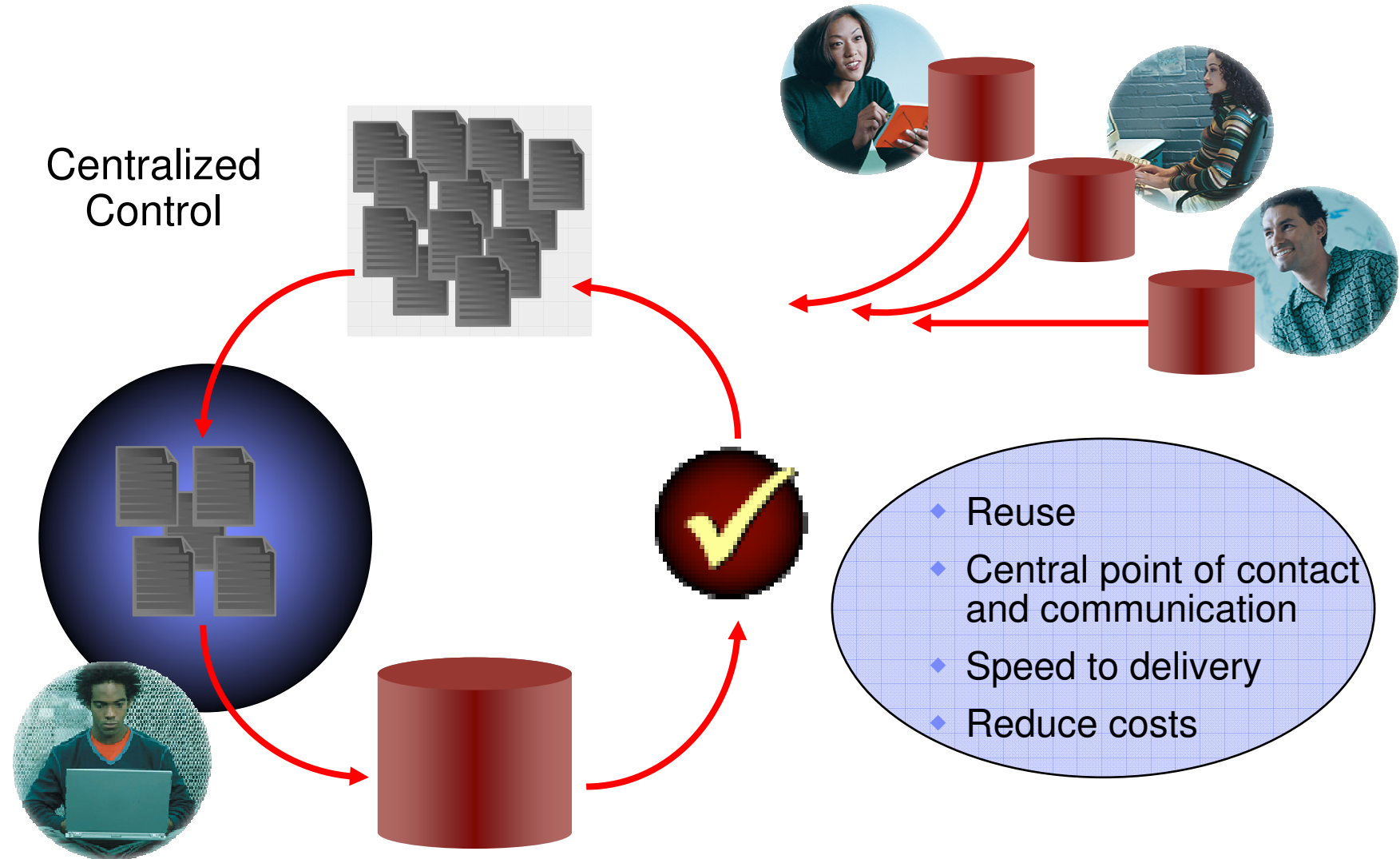
Right Sourcing of assets

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



Solution # 3

Streamlined management of distributed resources



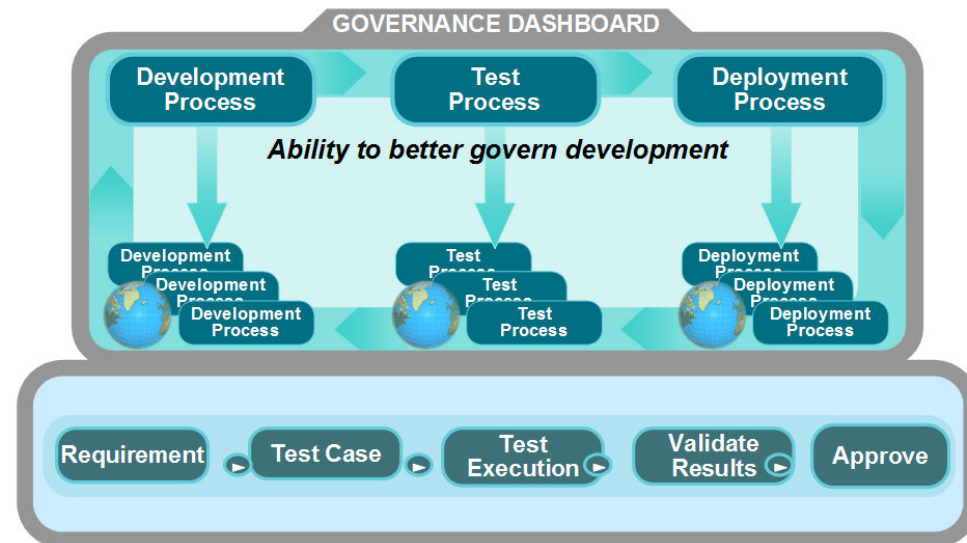
Challenge #4 Compliance

- 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

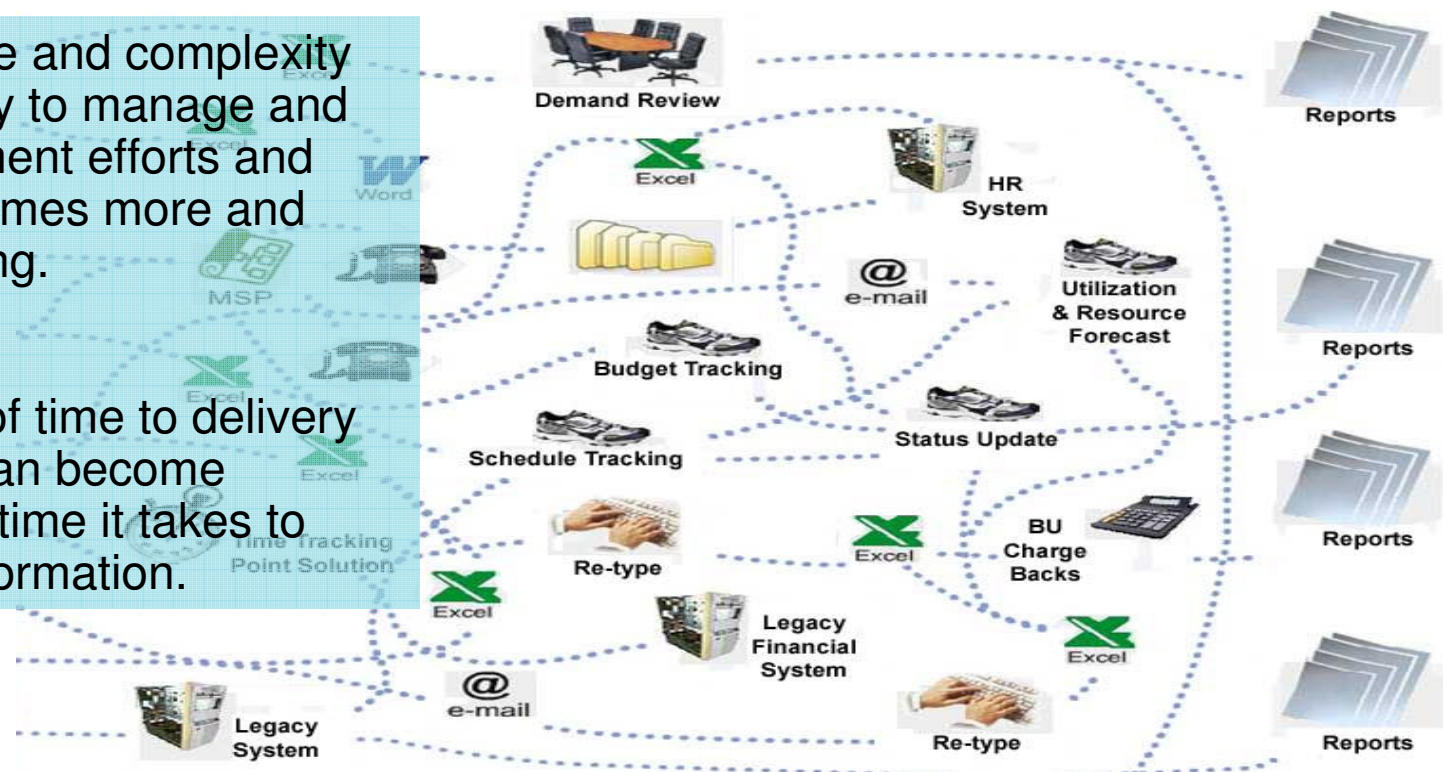
- Management required change approvals
- Automatic Change Logging
- Metadata accompanied change request that assists in determining impact analysis
- Document all changes introduced into the environment from inception to delivery
- Password security
- Audit trails
- Electronic signatures



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

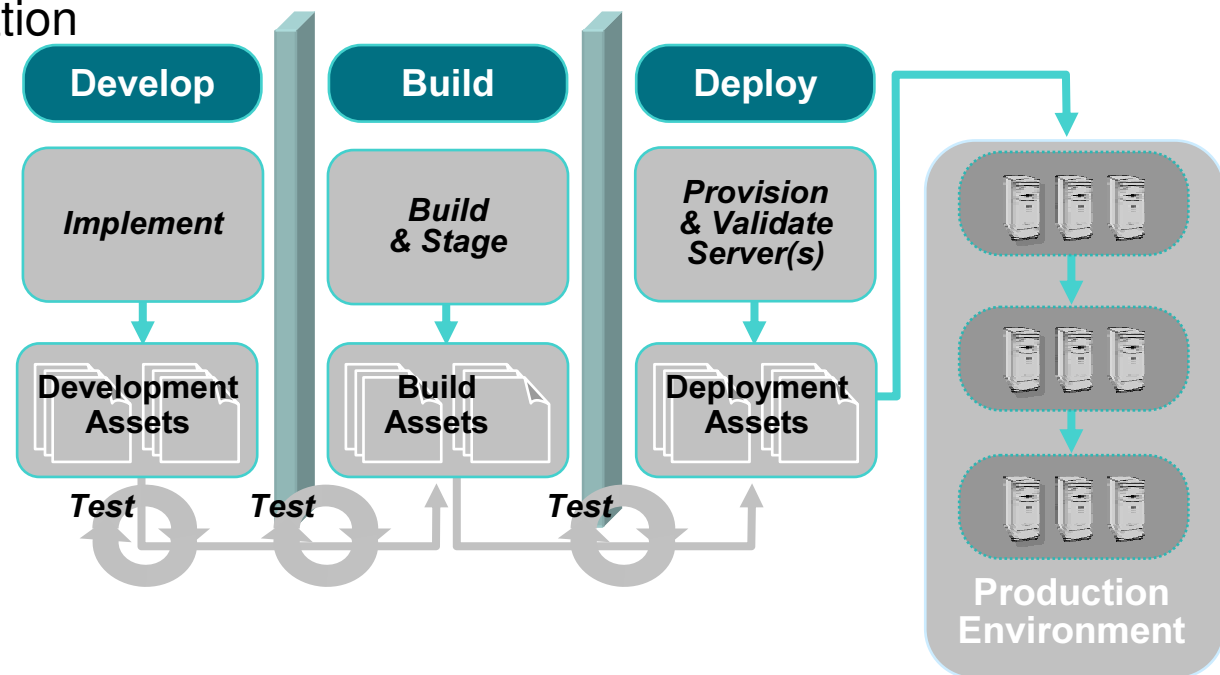
Real-time project status

- 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



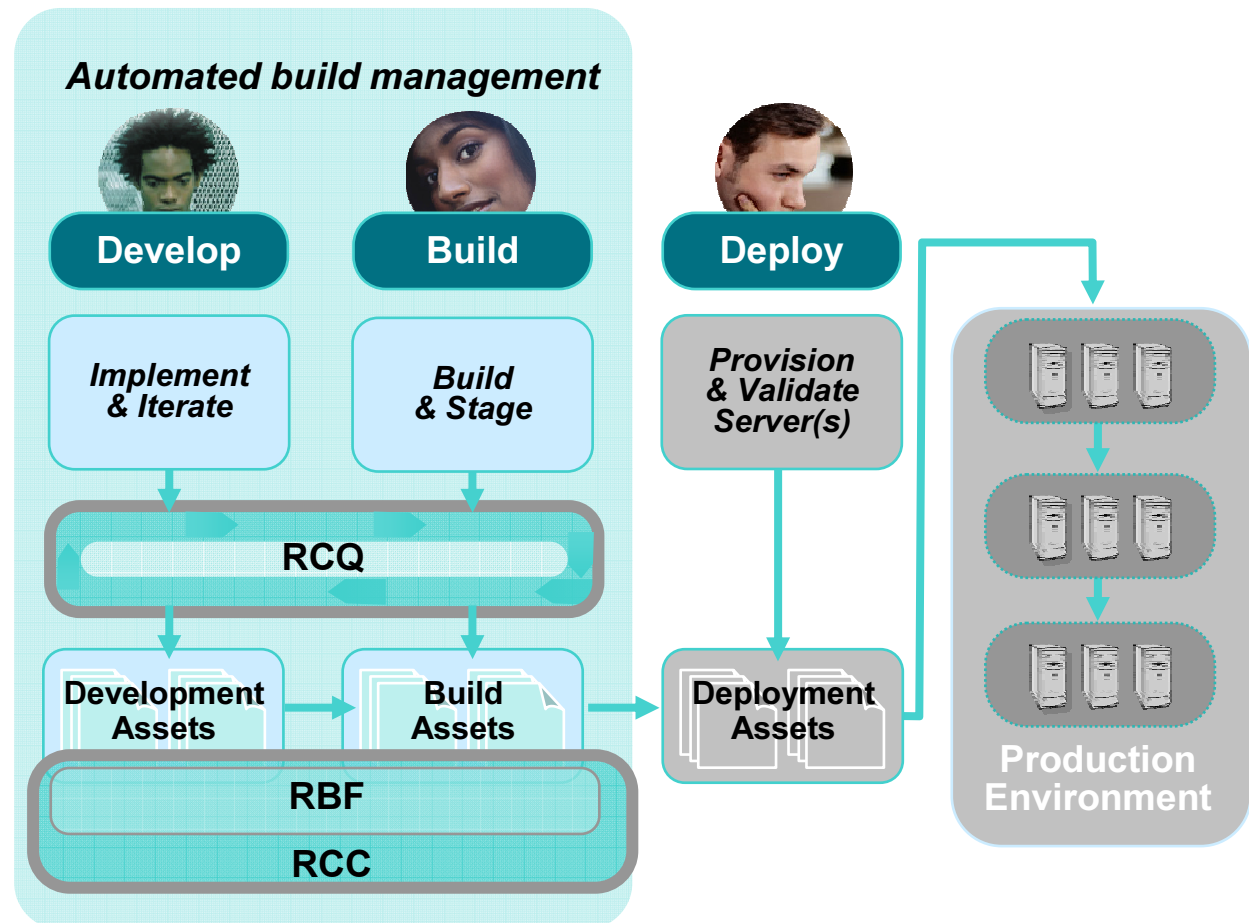
Challenge #6: Complex development, test, build and deployment architectures

- 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

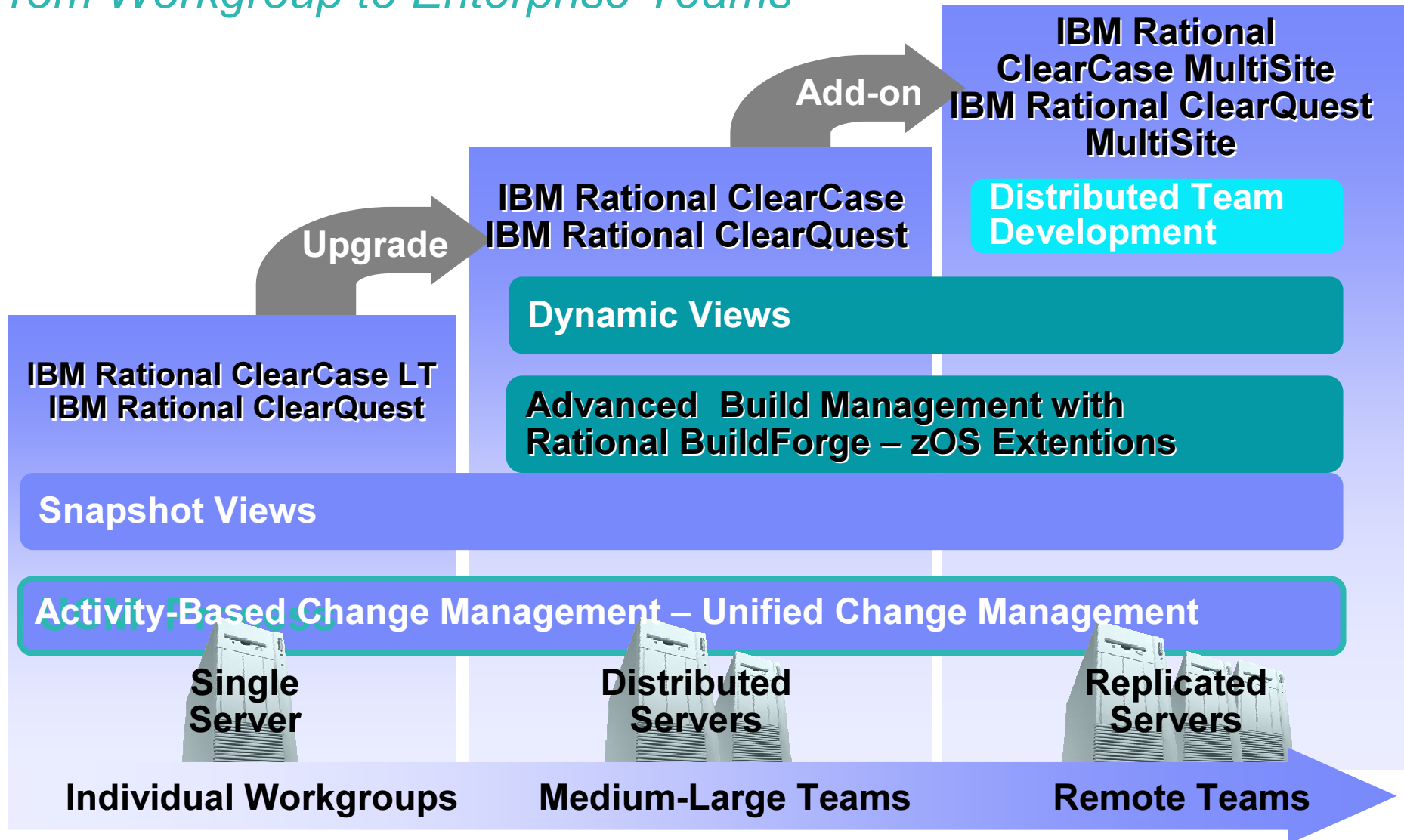
- Change and asset management
- Build and release management
- Flexible workflow support
- Traceability across the lifecycle

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?”

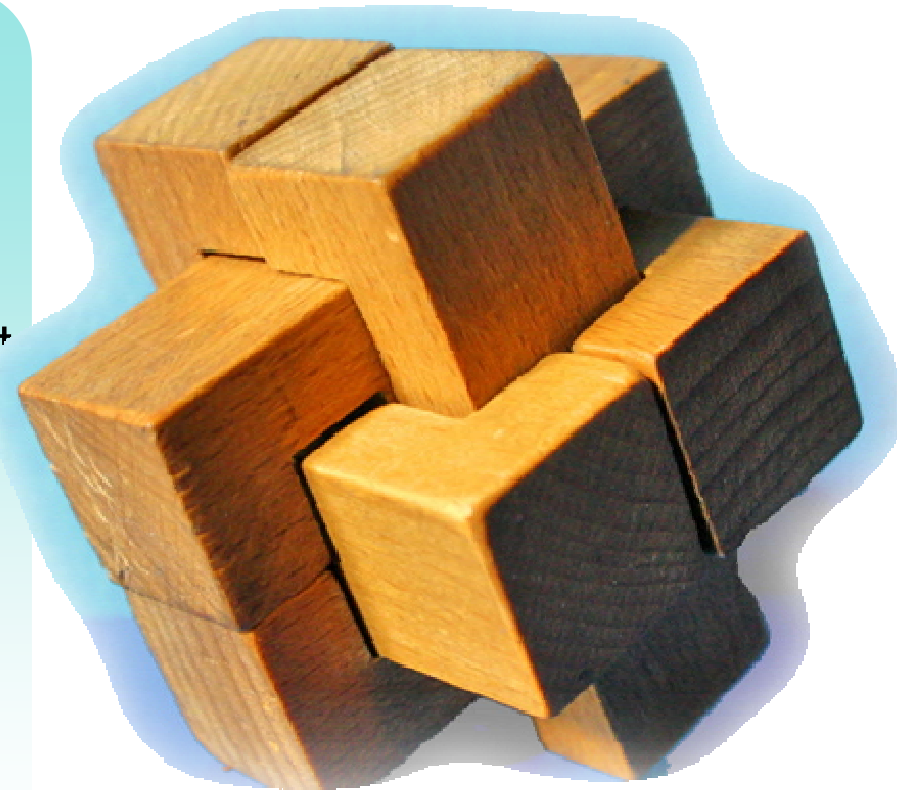


IBM Rational ClearQuest-- Single Project View

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

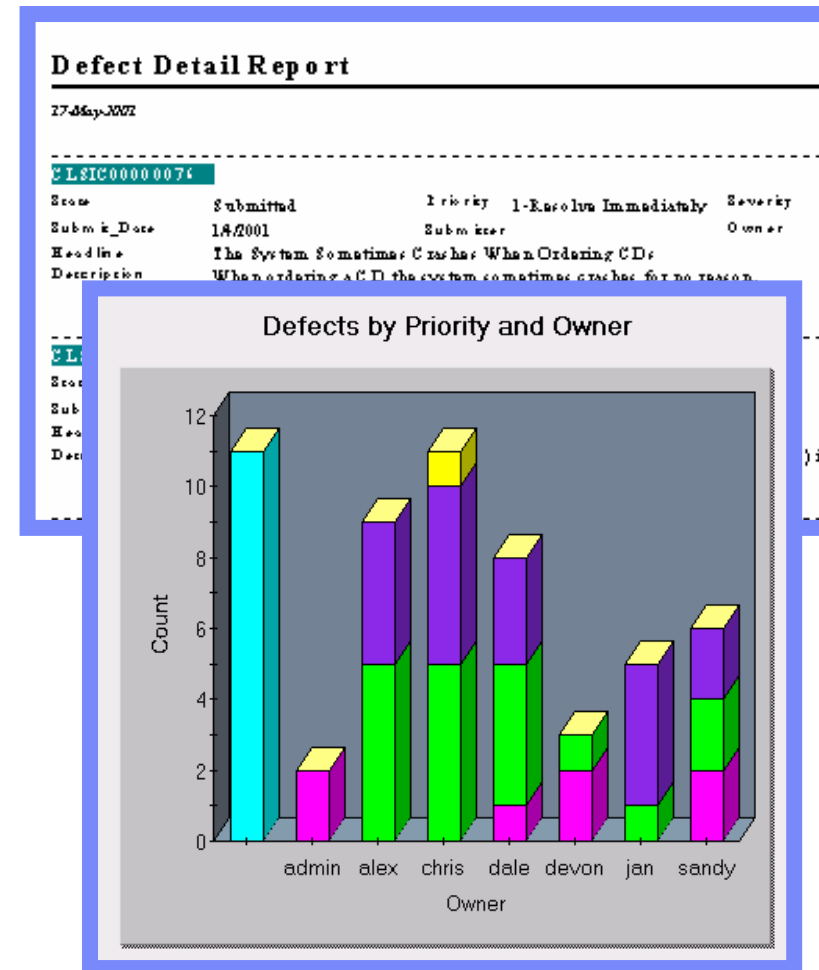


IBM Rational ClearQuest



Communicate real-time project status

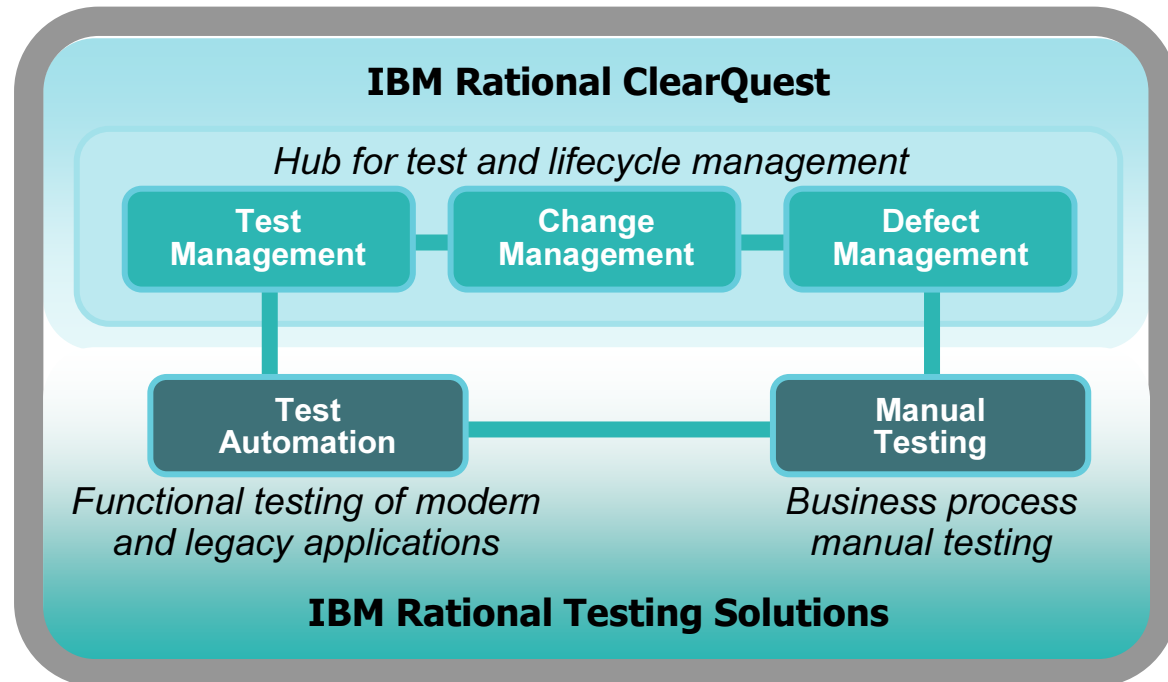
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 - Easily create and modify with Wizards
 - Charts: Aging, Trend, Distribution
- Reports
 - Crystal Reports-based run-time engine
 - Export to many common formats (Excel, Word, HTML)
- E-mail notification rules
 - Automatic notification of events and 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®

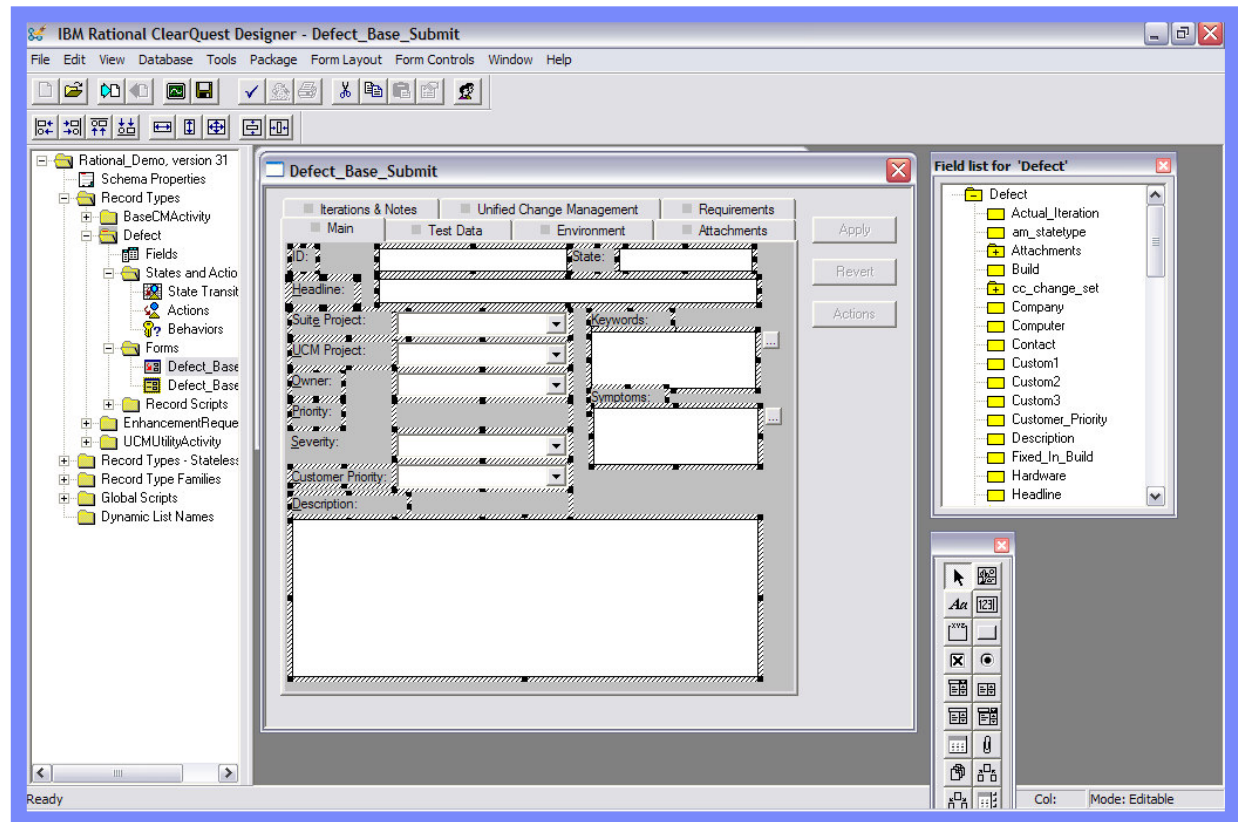
Microsoft SQL Server®

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”



Headline	id	Owner	State	record_type
Site "hangs" when server is down	CLSIC00000082	alex	Assigned	Defect
Catalog page after search is cleared not in alphabe	CLSIC00000079	alex	Assigned	Defect
Inventory report is displaying an empty column	CLSIC00000065	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 scre	CLSIC00000024	alex	Assigned	EnhancementRequest
When clerks sell CDs, warehouse should back fill	CLSIC00000023	alex	Assigned	EnhancementRequest
Replenish inventory as a result of sales	CLSIC00000022	alex	Assigned	EnhancementRequest

Result set / Query editor / Display editor

Iterations | Test Data | Environment

Unified Change Management | ClearCase | Requirements

Main | Notes | Resolution | Attachments | History | PQC

ID: CLSIC00000082 State: Assigned

Headline: Site "hangs" when server is down

Suite Project: Webshop Keywords:

UCM Project:

Priority: 2-Give High Attention

Severity: 1-Critical Symptoms:

Owner: alex

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.



IBM Rational ClearQuest Eclipse Client

The screenshot displays the IBM Rational ClearQuest Eclipse Client interface. The main window shows a table of defect records with columns for ID, Headline, Owner, State, and Submit Date. Below the table, there is a navigation pane on the left, a toolbar, and a status bar. A line chart titled "Defect State Transitions by Week" is displayed in the bottom right pane, showing the count of defects in various states over time. The legend for the chart includes 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 reprint 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

The screenshot displays the IBM Rational ClearQuest Web Client interface within a Mozilla Firefox browser window. The browser title is "CLSIC - Mozilla Firefox". The application header includes navigation links: Home, Site Configuration, Logon Statistics, User Profile, Help, About, and Log Out. The main navigation bar shows "CLSIC" and "New: Defect" with search and "Go" buttons. A search bar for "Find Record ID:" is also present.

The left sidebar contains a tree view of queries, categorized into Personal Queries and Public Queries. Personal queries include All Change Requests, All Defects, and All EnhancementRequests. Public queries include Aging Charts-All Projects, Classics PointOfSale Project, ClassicsCD Web Project, Distribution Charts-All Projects, Email Rules, Report Formats, Reports, Trend Charts-All Projects, UCMSystemQueries, and UCMUserQueries. Under UCMUserQueries, there are sub-queries for All Change Requests, All Defects, All Unresolved Defects, Defects Needing Verification, Defects Query on Headline, Defects by Submitter, Defects for Specified Requirement, ERs Query on Headline, Requirements for Unresolved Def, Resolved Defects by Fixed Build, and Submitted High Severity Defects.

The main content area displays "Results for Query 'Personal Queries/All Defects'". It shows a table with 58 records, displaying 25 records per page. The table has columns for #, id, Headline, Owner, State, and Submit_Date. The first five records are as follows:

#	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

Below the table, the detailed view for defect "Defect: CLSIC00000037" is shown. It includes a navigation bar with tabs for Main, Analysis, Notes, Resolution, Attachments, History, and PQC. The "Main" tab is active, showing fields for ID (CLSIC00000037), State (Resolved), Headline (spelling error in login screen), Suite Project (ClassicsPOS), UCM Project, Owner (alex), Priority (3-Normal Queue), and Symptoms (Cosmetic Flaw). There are also fields for Keywords and Requirements.



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:

Sign by State:

States:

Sign When:

Sign by Action:

OK

Cancel

Values ▼



ClearQuest Electronic Signatures

New Tab

■ Main | ■ Notes | ■ Resolution | ■ Attachments | ■ History
■ Customer | ■ ClearCase | ■ Electronic Signature | ■ Field History Log

Signature Username: Old Sig#1

Signature Password: xxxxx

Apply
Revert
Print Record
Actions ▼

ID: 00000005



ClearQuest Field change logging

The screenshot shows the 'Field History Log' tab in a ClearQuest application. The interface includes a menu bar with options like 'Main', 'Notes', 'Resolution', 'Attachments', 'History', 'Customer', 'ClearCase', 'Electronic Signature', and 'Field History Log'. The 'Field History Log' tab is active, displaying a list of field changes. A red box highlights a specific entry: 'START Fields Changed by admin, Submit->Submitted, 24 Feb' followed by details for 'Headline' and 'Owner'. A blue callout points to this entry with the text 'Entry for each action.'. Another blue callout points to the 'History' tab in the menu bar with the text 'New Tab'. On the right side of the window, there are buttons for 'Apply', 'Revert', 'Print Record', and an 'Actions' dropdown menu. At the bottom, the record ID '00000006' is visible.

New Tab

Entry for each action.

Field History:
START Fields Changed by admin, Close->Closed, 24 February 2006
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
END Fields Changed by admin, Close->Closed, 24 February 2006
START Fields Changed by admin, Submit->Submitted, 24 Feb 2006
Old value of Headline: <NULL>
New value of Headline: Project # 2 Defect
Old value of Owner: <NULL>
New value of Owner: admin

Apply
Revert
Print Record
Actions ▾

ID: 00000006



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

