Collaborative Software Development with Jazz and IBM Rational Team Concert

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Rational Technology Events

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Agenda

- Today's Software Development Landscape
- All that Jazz
  - Introduction
  - Architecture
- Rational Team Concert
  - Overview
  - Getting Started with a new Team
  - Software Configuration Management
  - Build Management
  - Change and Traceability
- Wrap-up and Next Steps

Demos

- Throughout the event, you will see in-depth demonstrations of the products in action

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Today's reality: An intense focus on business outcomes

Align *IT* investments with rapidly evolving business priorities

Manage value and mitigate risks by improving project management

Control costs & improve global operational efficiencies

Ensure security and compliance in a changing global environment

Integrate value in organizationally diverse environments

The defining challenges in effective software delivery

Only 37% of stakeholders are satisfied with the speed of internal application development[1]..

Only 42% are satisfied with the quality[1].

50% of outsourced projects are expected to underperform[2].

Silos of people, process, and projects

Geographic Barriers

- Poor communication
- Language, culture, time
- Process gaps resulting in rework
- High degree of friction

Organizational Barriers

- Lack of meaningful collaboration
- Weak project governance
- Lack of domain expertise
- Poor LOB oversight
- Security of IP when outsourcing

Infrastructure Barriers

- Incompatible tools / repositories
- Unreliable access artifacts
- Lengthy on-boarding
- Inflexible tooling integration

Source: [1]Forrester, [2]Gartner

Customer Speak: What they would like to see possible

Project status and cost analysis anytime for all business sponsors

Top down and the low level views linking configuration, bug and cost tracking

Easily extend and automate short iteration cycles to meet hot business needs

Agile work flows automating and smoothing execution

Empower team members to collaborate using up to date information "in context" of the work they are doing

Automated synchronization of project artifacts

Easy triggers to catch licensing issues early

Seamless access to highest risks and security vulnerabilities

Onboard team members across the world across projects in a day not months

Envisioning a platform that can transform software delivery

A open technology initiative to *transform how people work together* to deliver greater value and performance from their software investments

- Robust, extensible and scaleable
- Globally distributed, fluid and dynamic
- Community-based and open at Jazz.net

Collaborate in Context

- Enable team transparency of “who, what, when, why”
- Build team cohesion and presence
- Automate hand-offs so nothing falls through the cracks

Right-size Governance

- Automate team workflow improving productivity
- Automate data collection eliminating administrative overhead
- Real time reporting and alerts reduces project risk

Day One Productivity

- Dynamic provisioning of projects and teams
- Real-time iteration planning and workload balancing
- Unify teams with tools choice

Real-time integration of people, process and projects across the lifecycle

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The Jazz project

People working together to deliver great software

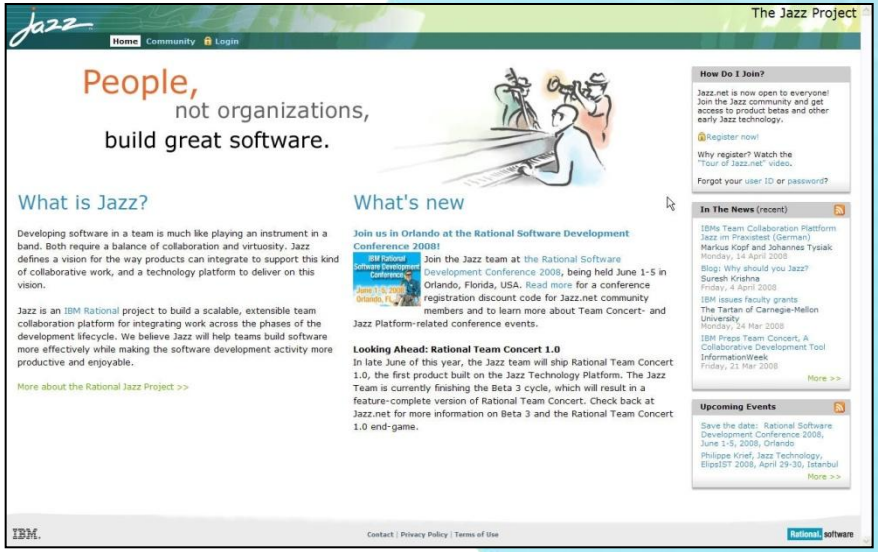
Jazz is a **project** and **platform** for *transforming how people work together* to deliver greater value and performance from their software investments.

A major investment by IBM to create a **scalable architecture for lifecycle integration**.

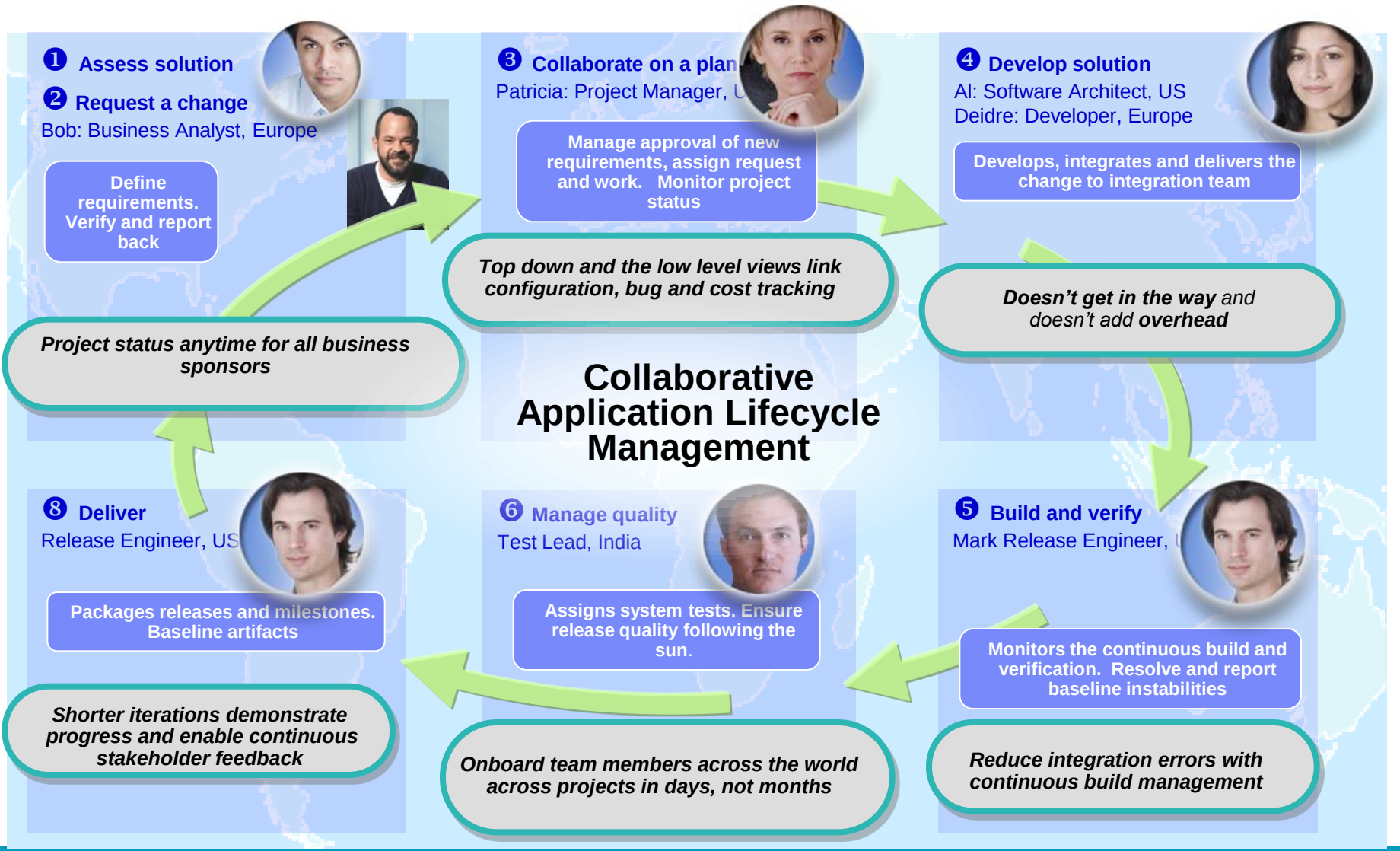
IBM's vision for the future of software delivery -- supporting a workforce that is increasingly organizationally and globally distributed, fluid and dynamic.

An **evolution** of the Rational portfolio, which will evolve to support the Jazz technology platform over time.

A **community** at **Jazz.net** – the online venue for open commercial development of select Jazz-based products.



Dynamic processes streamline team communication and collaboration



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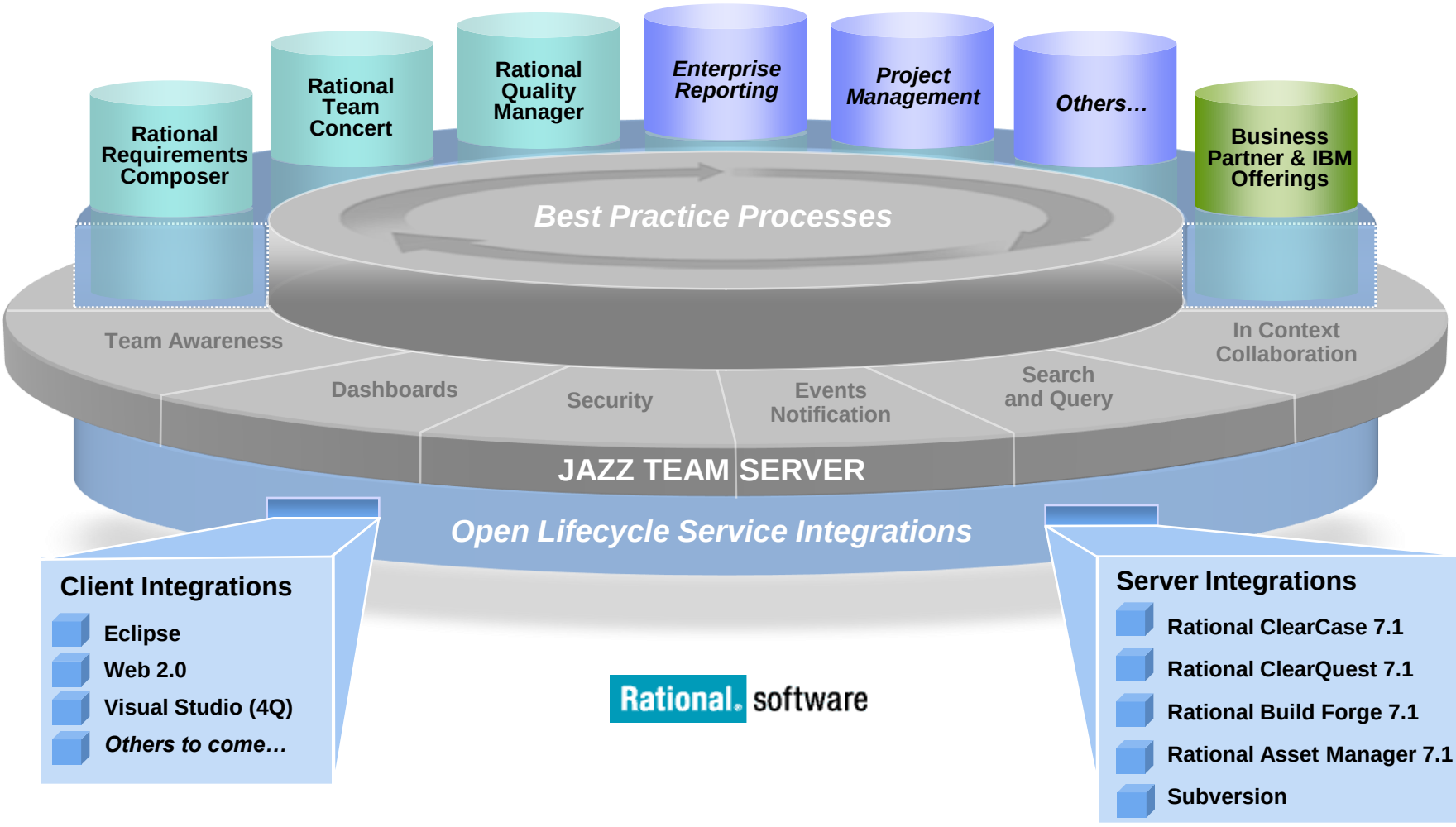
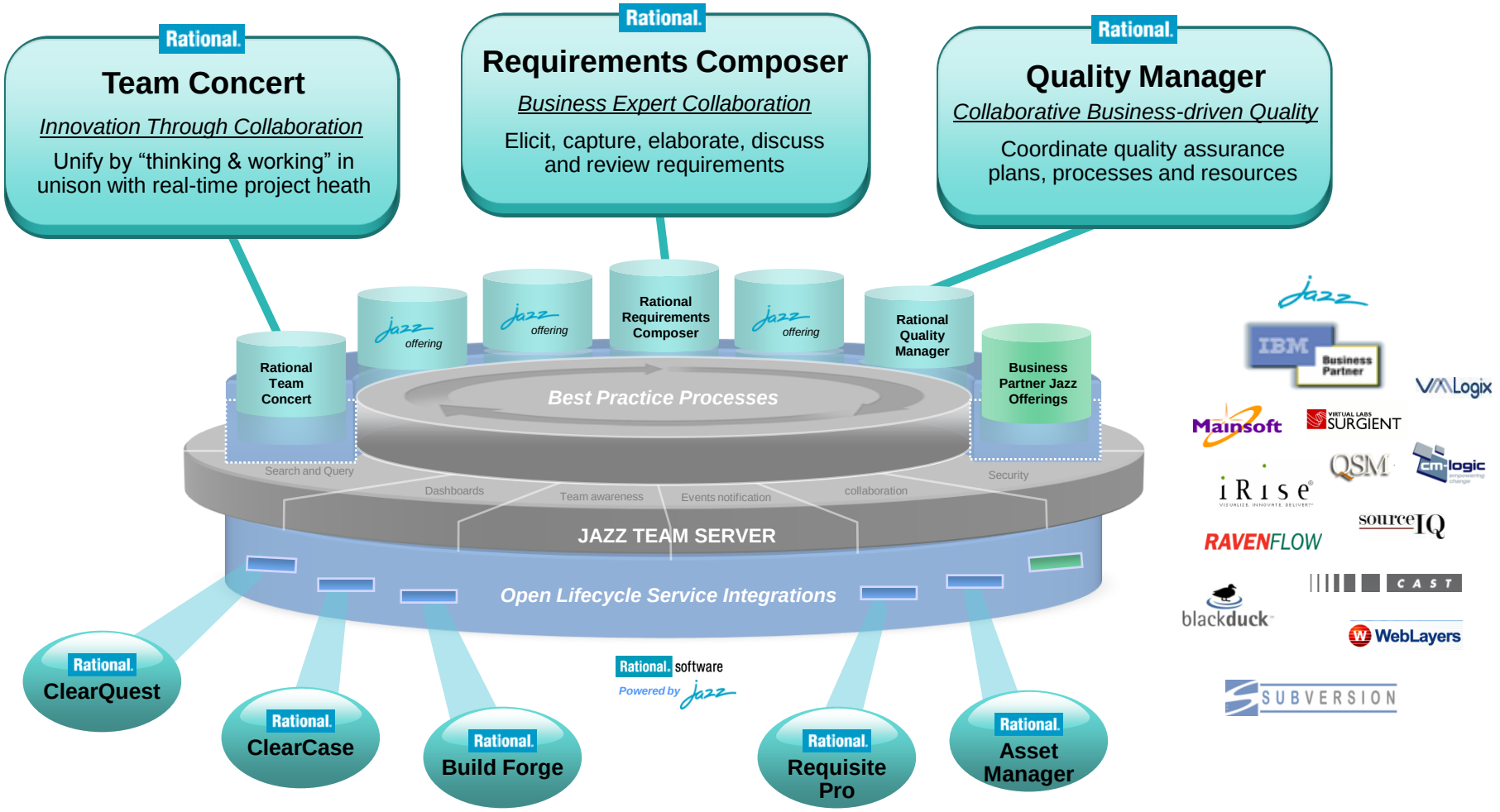
Jazz Architecture



Introducing the first wave of new *Jazz* offerings



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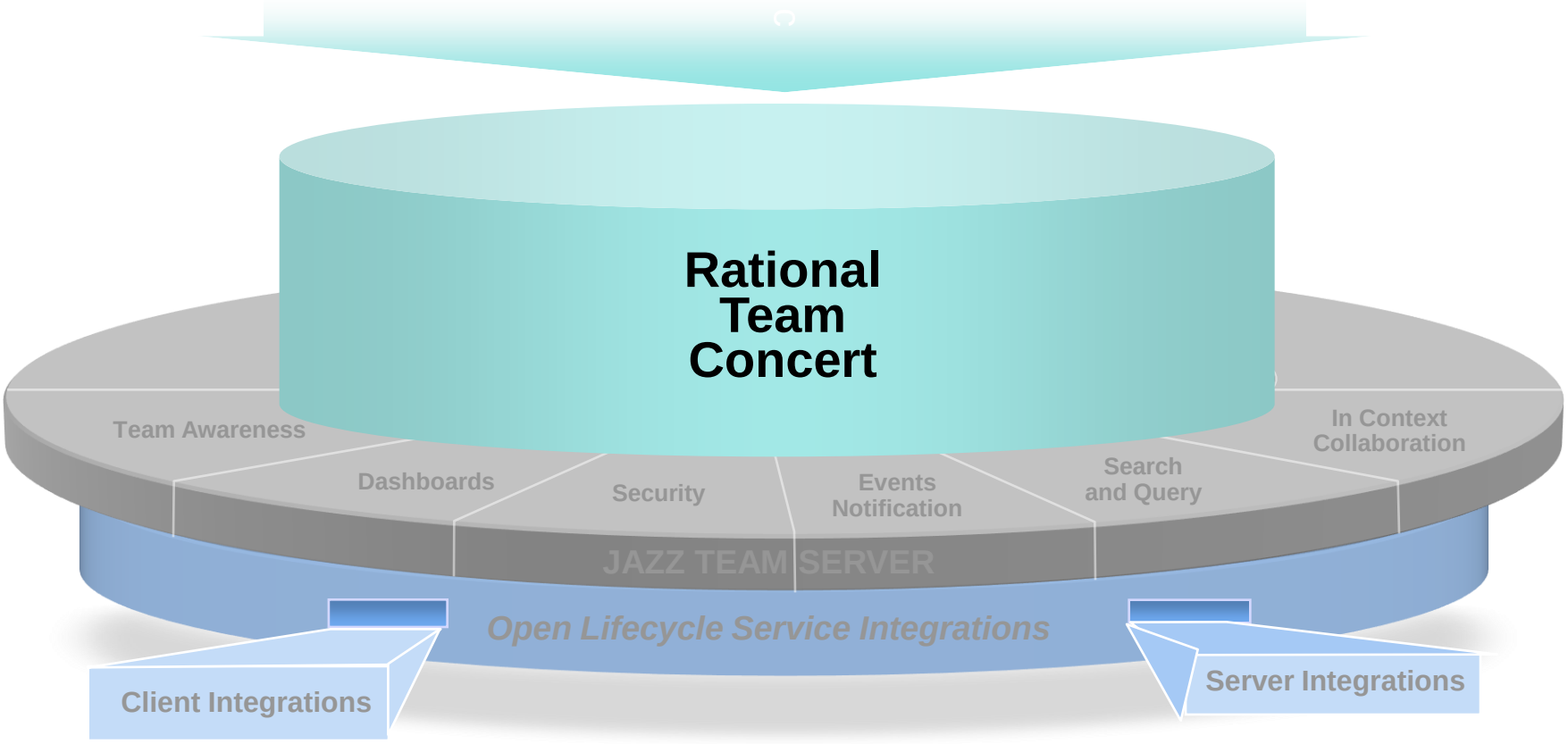
Today's focus: Rational Team Concert

The first offering built on the Jazz technology platform



Rational. software

Software innovation through collaboration

- **Real time, in-context team collaboration**
  - Make software development more automated, transparent and predictive
- **"Think and work in unison"**
  - Integrated source control, work item and build management
- **Assess real-time project health**
  - Capture data automatically and unobtrusively
- **Automate best practices**
  - Dynamic processes accelerate team workflow
  - Out-of-the-box or custom processes
- **Unify software teams**
  - Integrate a broad array of tools and clients
  - Extend the value of ClearQuest and ClearCase
  - Visual Studio Client (4Q08)
  - Support for System z and System i servers (2H08)

Open and extensible on Jazz

- ✓ Collaborate in context
- ✓ Right-size governance
- ✓ Day one productivity

Rational Team Concert

Iteration Planning

- Integrated iteration planning and execution
- Task estimation linked to key milestones
- Out of the box agile process templates

Project Transparency

- Customizable web based dashboards
- Real time metrics and reports
- Project milestone tracking and status

SCM

- Integrated stream management with flow relationships
- Component level baselines
- Server-based sandboxes
- Identifies component in streams and available baselines
- ClearCase connector

Work Items

- Defects, enhancements and conversations
- Query results view and share queries with team or member
- Support for approvals and discussions
- ClearQuest connector
- Query editor interface

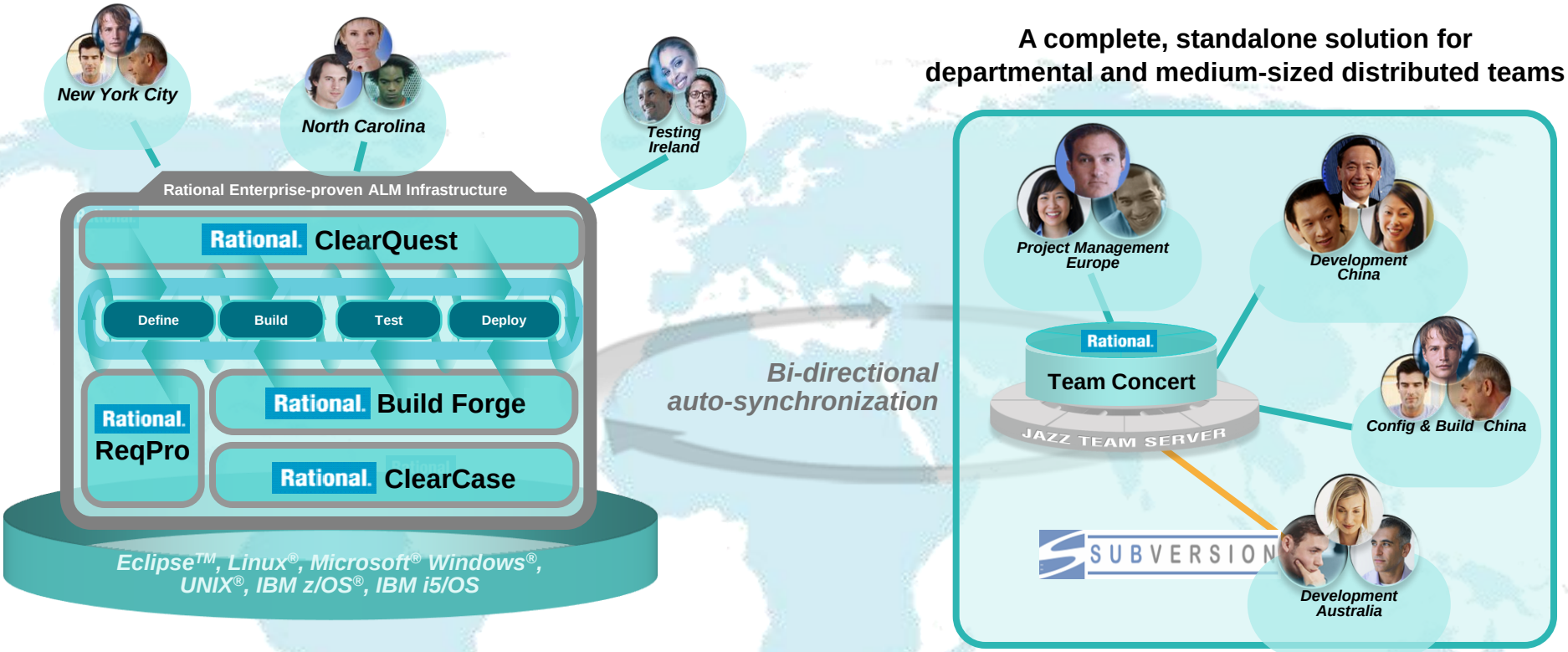
Build

- Work item and change set traceability
- Local or remote build servers
- Supports ant and command line tools
- Integration with build forge
- Build definitions for team and private builds

Jazz Team Server

- Single structure for project related artifacts
- World-class team on-boarding / offboarding including team membership, sub-teams and project inheritance
- Role-based operational control for flexible definition of process and capabilities
- Team advisor for defining / refining “rules” and enabling continuous improvement
- Process enactment and enforcement
- In-context collaboration shows team members and status of their work

Unify distributed teams in mid-sized or enterprise settings

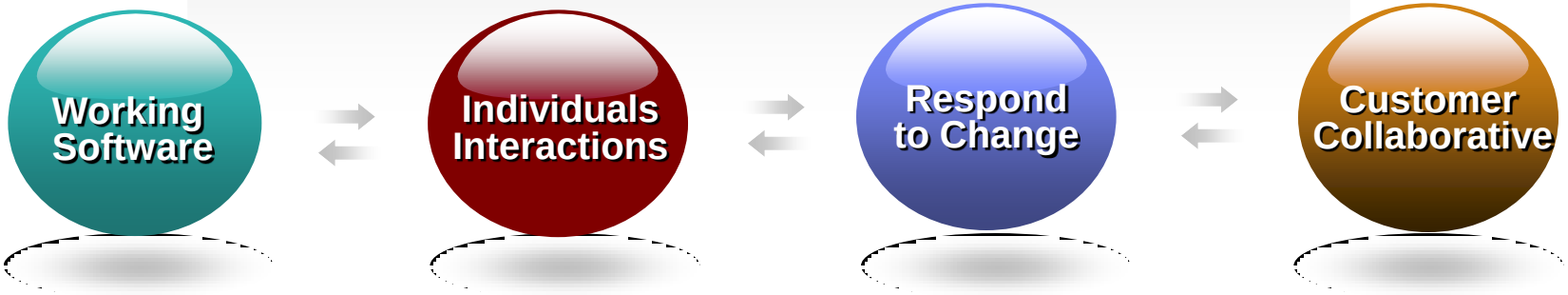


- Supports departmental “satellite” or “agile” projects optionally integrated with existing enterprise-proven Rational ALM infrastructure offerings
- Enhances existing ALM offerings with new collaborative & process capabilities

Improve business agility and project success rates

Facilitates the principles of high-performance teams

Supports enactment of any process, including Agile



- Continuous integration
- Manage team assets
- Change driven
- Integrated / traceable

- Starting ad-hoc teams
- Team awareness
- Process awareness
- Ad-hoc sharing

- Process flexibility
- Iterative plan-execution
- Multiple releases
- JIT code reviews

- Transparency
- Objective commonality
- Project health checks
- Context driven

Agile Process Templates available in RTC

- Agile
  - Provides a mash-up of best practices of several existing agile processes. Incorporates the “XP” style methods.
- Eclipse Way
  - An agile, iteration-based process with a focus on consistent, on-time delivery of quality software.
- OpenUp
  - Preserves the essential characteristics of the Rational Unified Process, which includes iterative development, use cases and scenarios driving development, risk management, and an architecture-centric approach.
- Cloudburst
  - Designed to support the Cloudburst reference project, available with the Jazz platform
- Scrum
  - Supports a popular approach to managing projects in an Agile way.
- Simple Team
  - Enables teams to get started quickly. Team members have permissions to perform any modification in the project

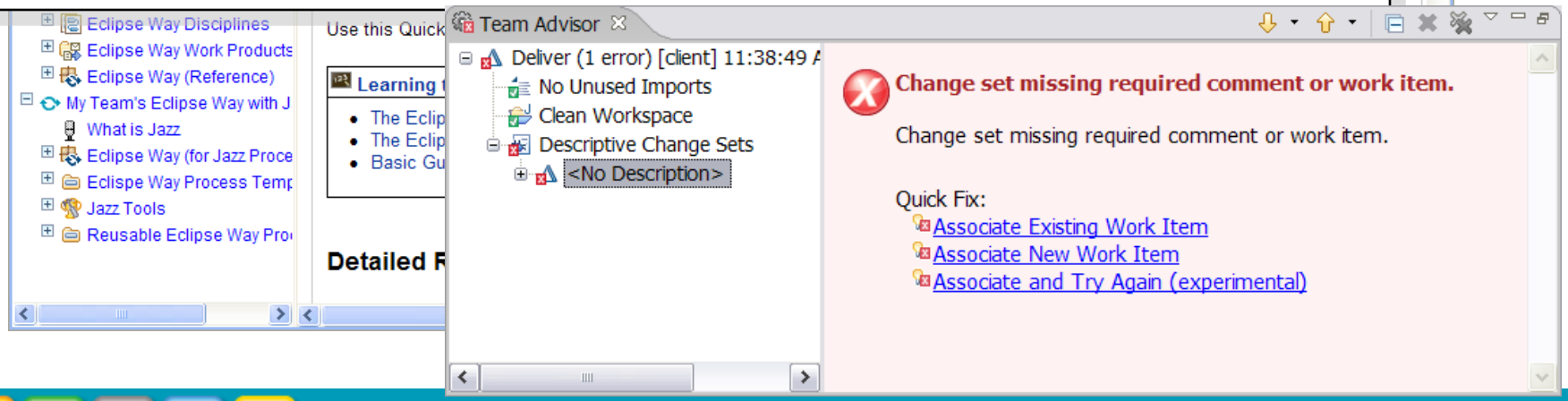
Potential ROI using RTC*

- Team Productivity increases of up to 50%
  - Improved project management
  - Leveraging remote staff
  - Improved team utilization
- Team collaboration performance up 25%
  - Transparent knowledge sharing
  - Improved task coordination between team members
  - Seamless transfer of work
- Quality of releases improves 12%
  - Reduced customer issues
  - Reduced build issues
  - Reduced risk of project failures
- Project governance improvements of 12%
  - Automated process management
  - Enforcement of best practices
  - Alignment of quality/risk with lifecycle stages

*Based on IBM customer surveys

Enables process awareness and guidance

- **Team Advisor**
  - Rules can be run when delivering changes to enforce team or organizational standards
  - Helps ensure higher quality results through enforcement of agreed-upon standards
  - Rules are configurable
  - “Quick Fixes” can be specified to simplify corrective action
  - Process rules can be defined, refined “on the fly”, enabling continual improvements
  - Out of the box processes include OpenUP, Scrum, The Eclipse Way, etc



DEMO

- Introduction to Rational Team Concert

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Introducing IBM Rational Team Concert Integration

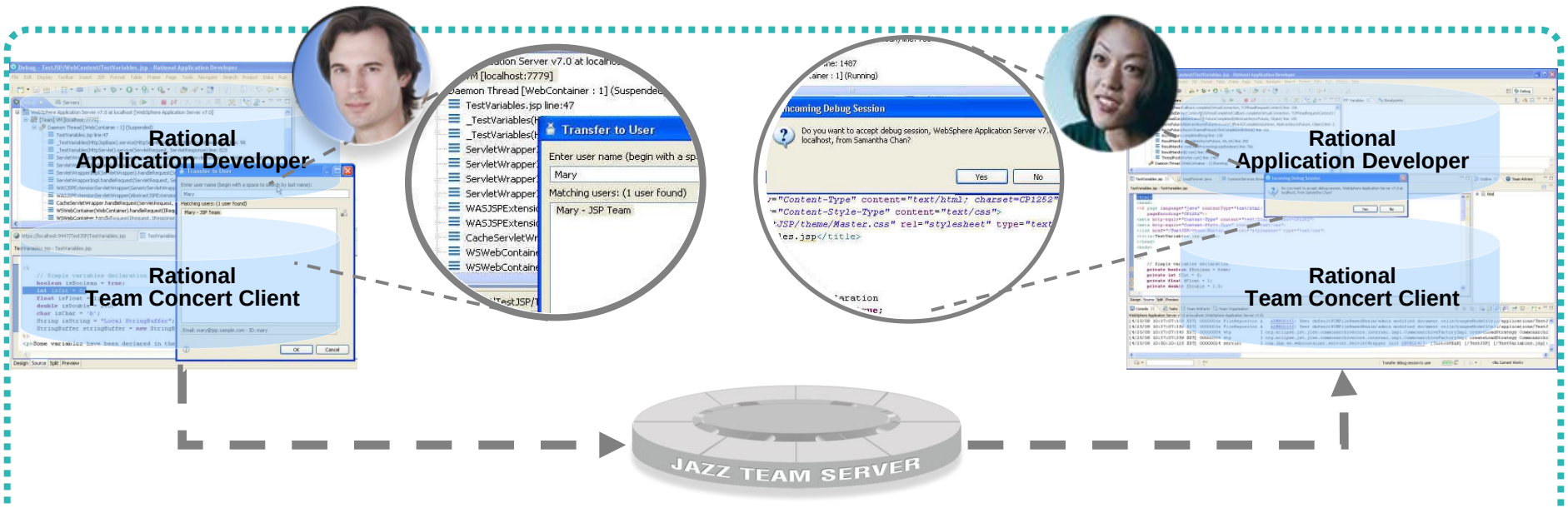
Software innovation through collaboration

- Rational Team Concert enables “real-time, in-context” collaboration for distributed project teams – making software development more automated, transparent and predictive
- Integrates source control, work item, reporting and build capabilities which “think and work in unison”

Open and extensible on

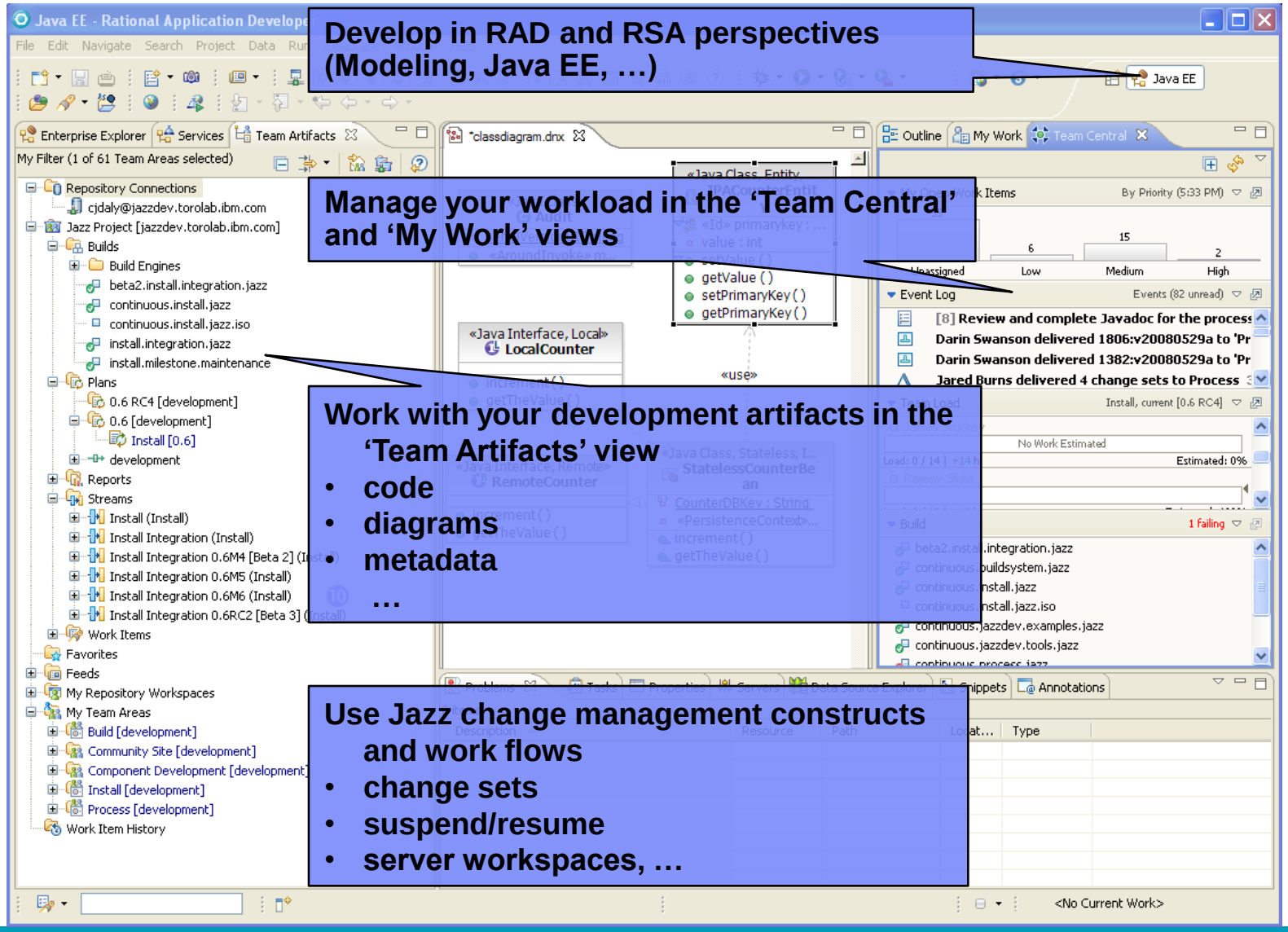
jazz™

- ✓ Collaborate in context
- ✓ Right-size governance
- ✓ Day one productivity



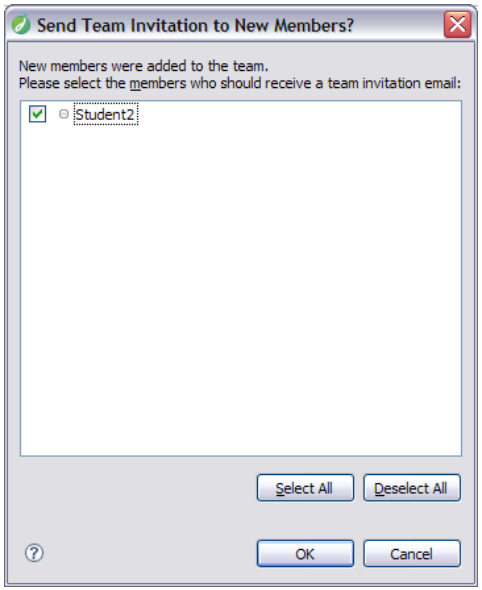
With RAD and RTC you can share live debug sessions between team members

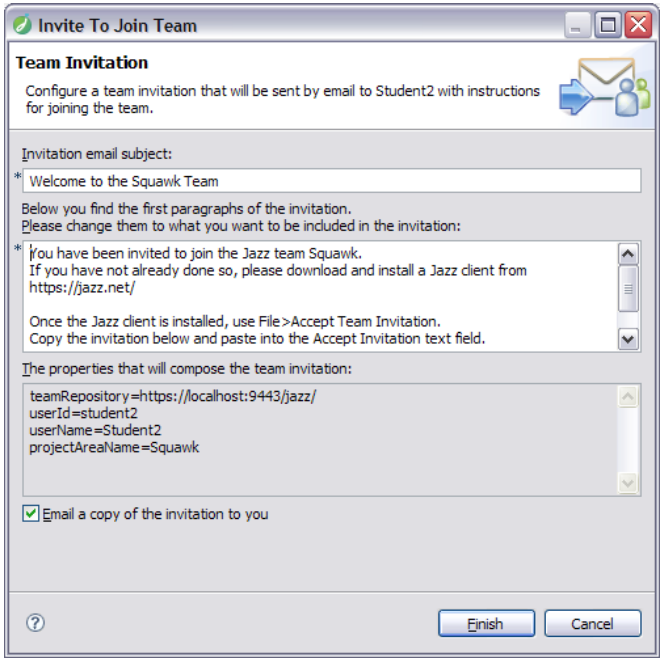
RTC Views Integrated into RAD / RSA



Joining a Team

- For most environments, joining a project can be complicated
- Team Concert makes this as easy as possible
- Adding a new team member to a project generates a Team Invitation email
- Contents of the email can be used to set up the new team member's access to the project resources in Team Concert





Communication

- Users of Team Concert can use a variety of tools to communicate with team members
  - E-mail
  - Instant Messaging/Chat
  - RSS feeds
  - Web UI
  - Team Concert client
- Team members can use all the typical communication mechanisms to keep working together as a team, regardless of where they are physically located. This collaboration allows for a single view of project data
  - Integrated Instant Messaging/Chat for immediate feedback
  - RSS feeds to notify you of significant events on the project in real time
  - The Web UI used for anyone on the team, or who has an interest in the project

DEMO

- Joining a new project
  - Connect to project
  - Network with new team

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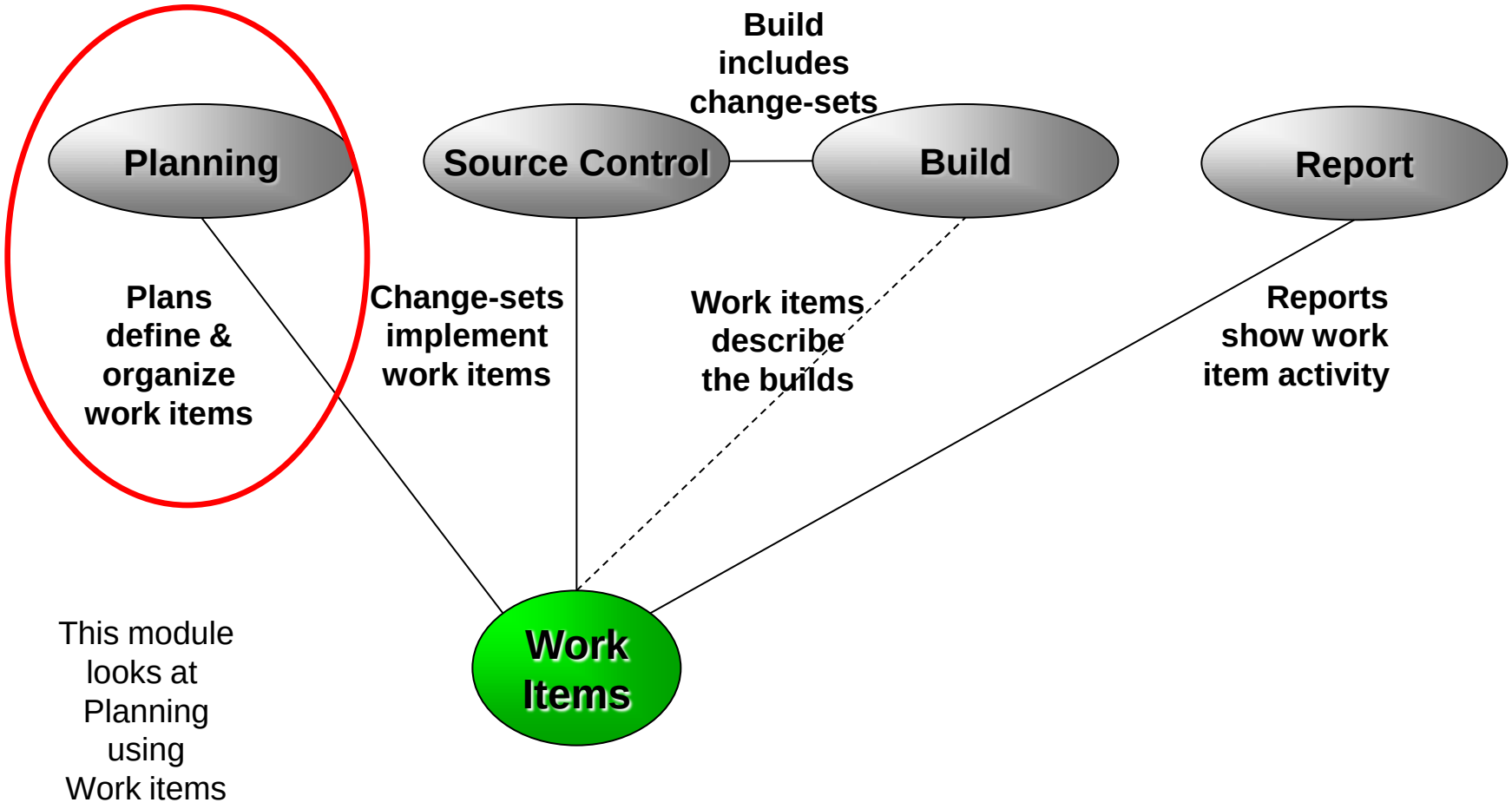
Units of work

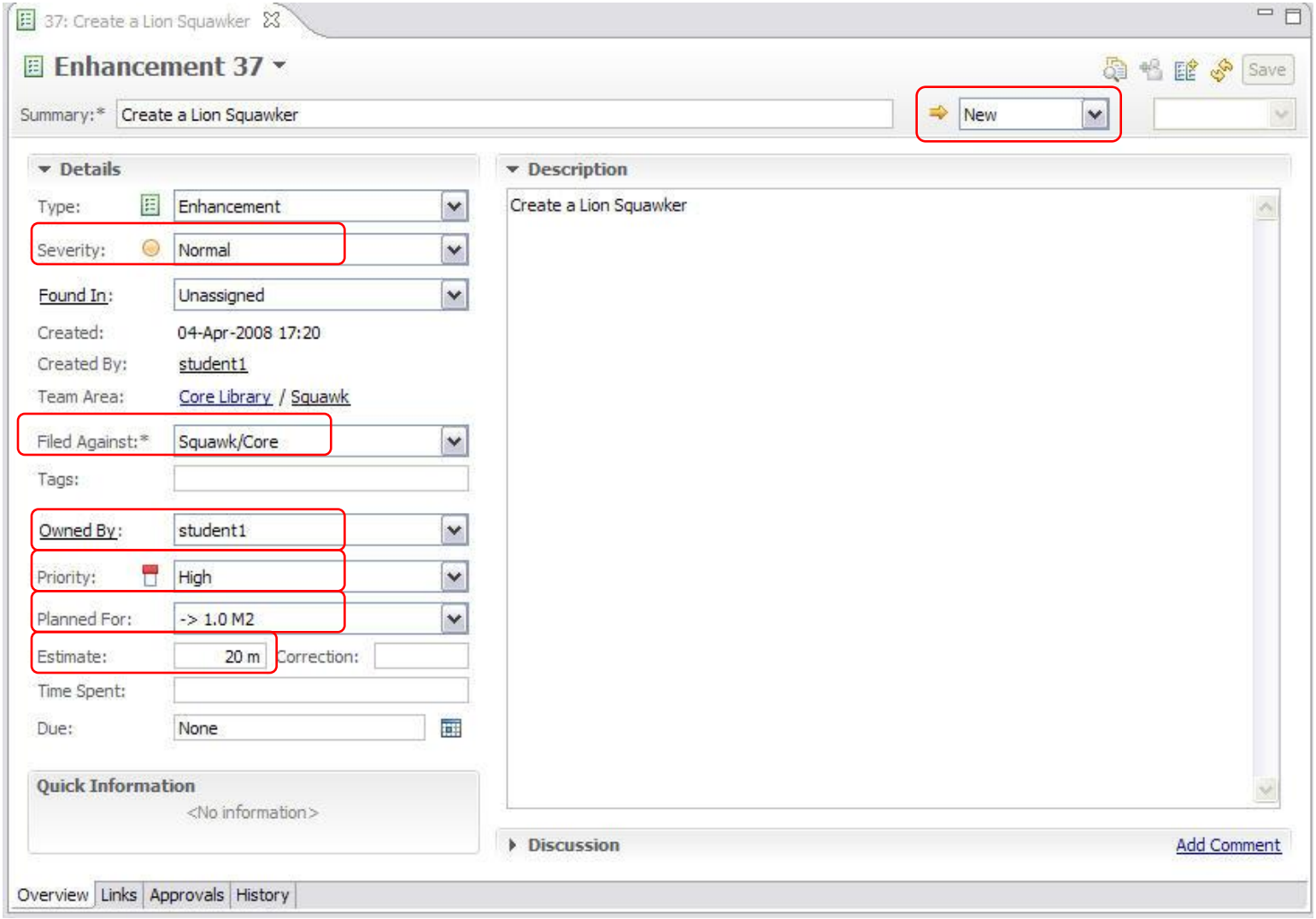
- Rational Team Concert allows you to divide your work into **work items**
- The set of work item types is **open-ended**
- Standard types: **Task**, **Enhancement**, **Defect**
- The set is **defined by each team**
- The work item **life cycle** is **configurable**
- All work items are **stored** in the **repository**

- The way that Rational Team Concert uses **Work items** means that all your work can be planned, tracked and stored under configuration management. Allowing for both the top down view and the low level view of data and project status.

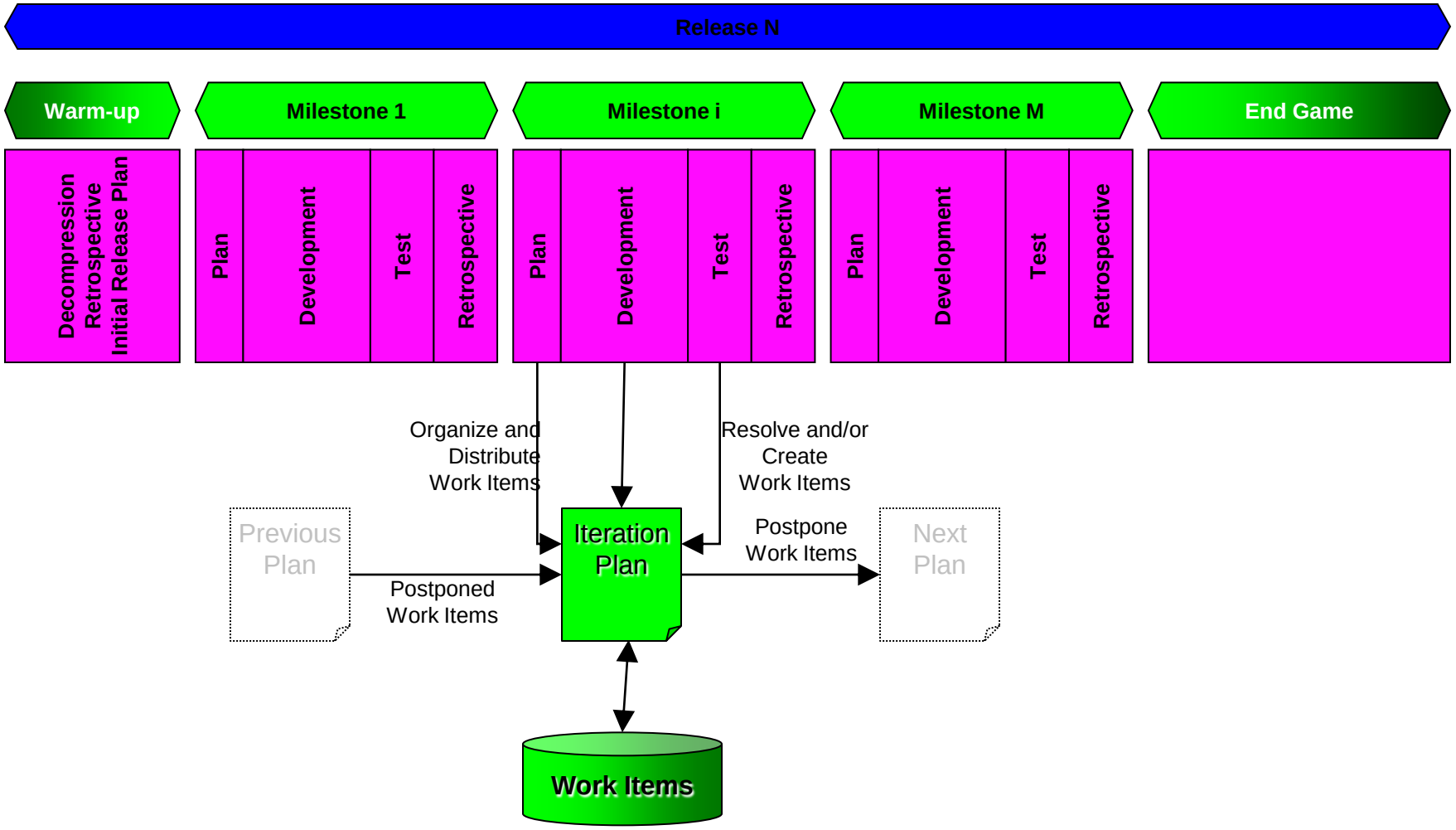
Work Items are central to Rational Team Concert



Work Item details



Iteration planning in Rational Team Concert



The Iteration Plan

- A collection of work items…
  - Assigned to a given milestone
  - For a given team
- Plans are live
  - Changing work items changes the plan
  - Changing the plan directly changes the work items
  - Create new work items from the plan
- Plan structure is dynamic
  - Easily be grouped by owner, category, duration, priority, etc.
- Plans are visible
  - Available to everybody on the team
  - Observable by interested outsiders

Work Item Queries

- Provides real-time project health information and transparency of status through automated data gathering.
- Rational Team Concert provides a query mechanism to find work items in a Project Area allowing for more project transparency.
  - The query scope for work items is the project area.
- The user interface includes
  - an editor for building structured work item queries
  - an end-user configurable work item view to browse the query results.

DEMO

- Planning your work
  - Create a new Enhancement
  - Create a new Iteration

Real time collaboration

- The modules before showed how the project team plans the work for an iteration.
  - But how does the project keep track of all the planned work items?
  - How do I see who may help me with my actual problem?
  - How do I get the most recent status of the project?

What if your tool knows the actual status of your team's work?

Rational Team Concert stores all artifacts for the development project in one repository and provides powerful query capabilities to retrieve and display data.

Real time collaboration

- Query and Reporting capabilities are available in the Eclipse Client and the Web UI.
  - Define queries on Work Items to find your work and the work of others.
  - See who is online and ready to collaborate with you.
  - See the event log for build or work item events that are interesting to you and follow RSS feeds for News.
  - Generate, display and export reports on the status and health of the project.

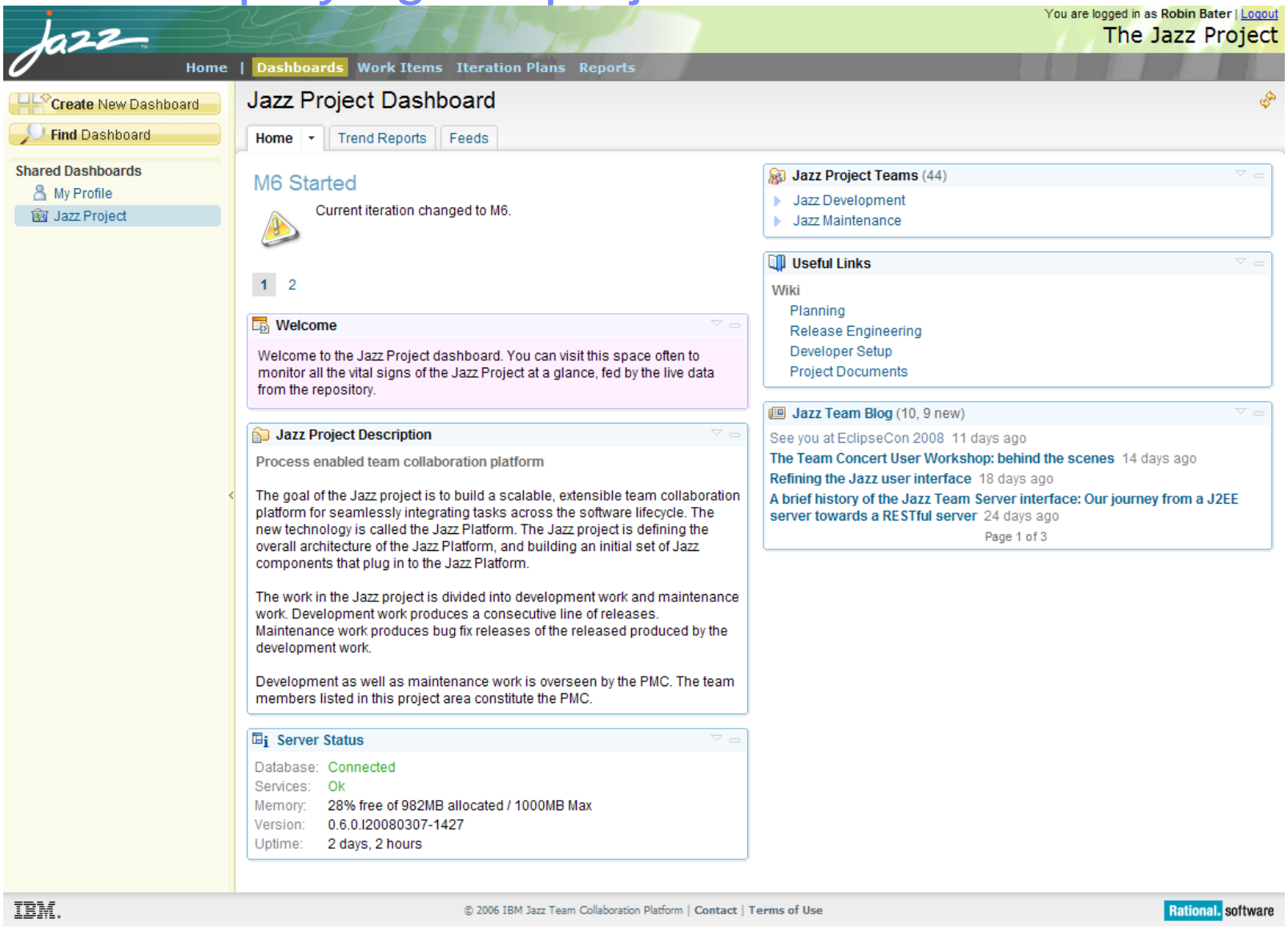
- Rational Team Concert displays the information in automatically refreshed views that are configurable, so that you are up to date with the information you need in real time.

Reports – Displaying the project status

- Rational Team Concert uses the BIRT* reporting engine
- A huge variety of report formats are designed and available to display an actual overview of your projects:
  - Reports for the health of your builds
  - Reports for viewing the team load and the distribution of work items
  - Reports for your code
  - Etc.
- Reports can be arranged in the Web UI to Dashboards
- Reports can be exported to: .pdf, .xls, .doc, .ppt Formats

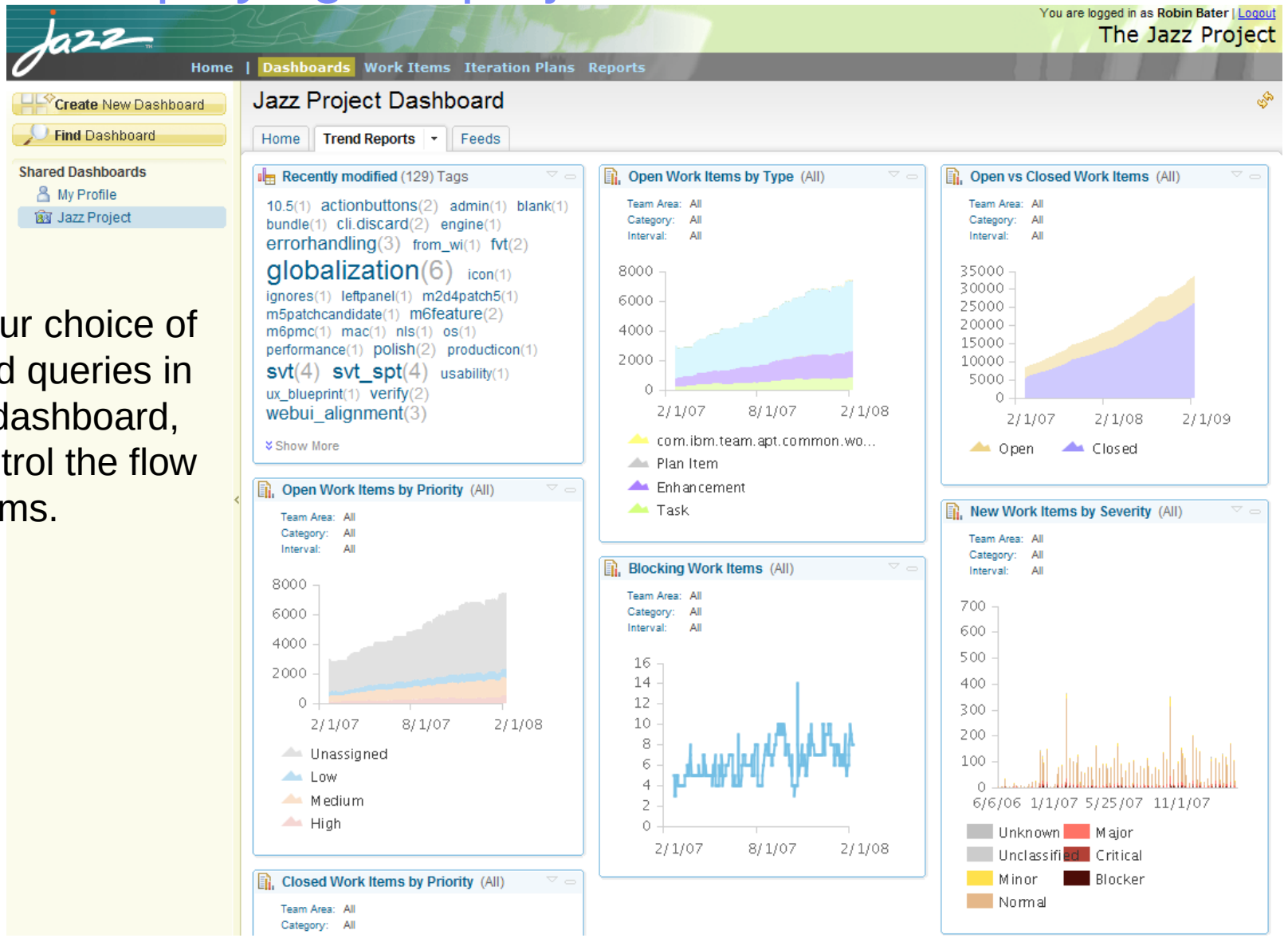
*BIRT is an open source Eclipse-based reporting system that integrates with your Java/J2EE application to produce compelling reports.

Reports – Displaying the project status

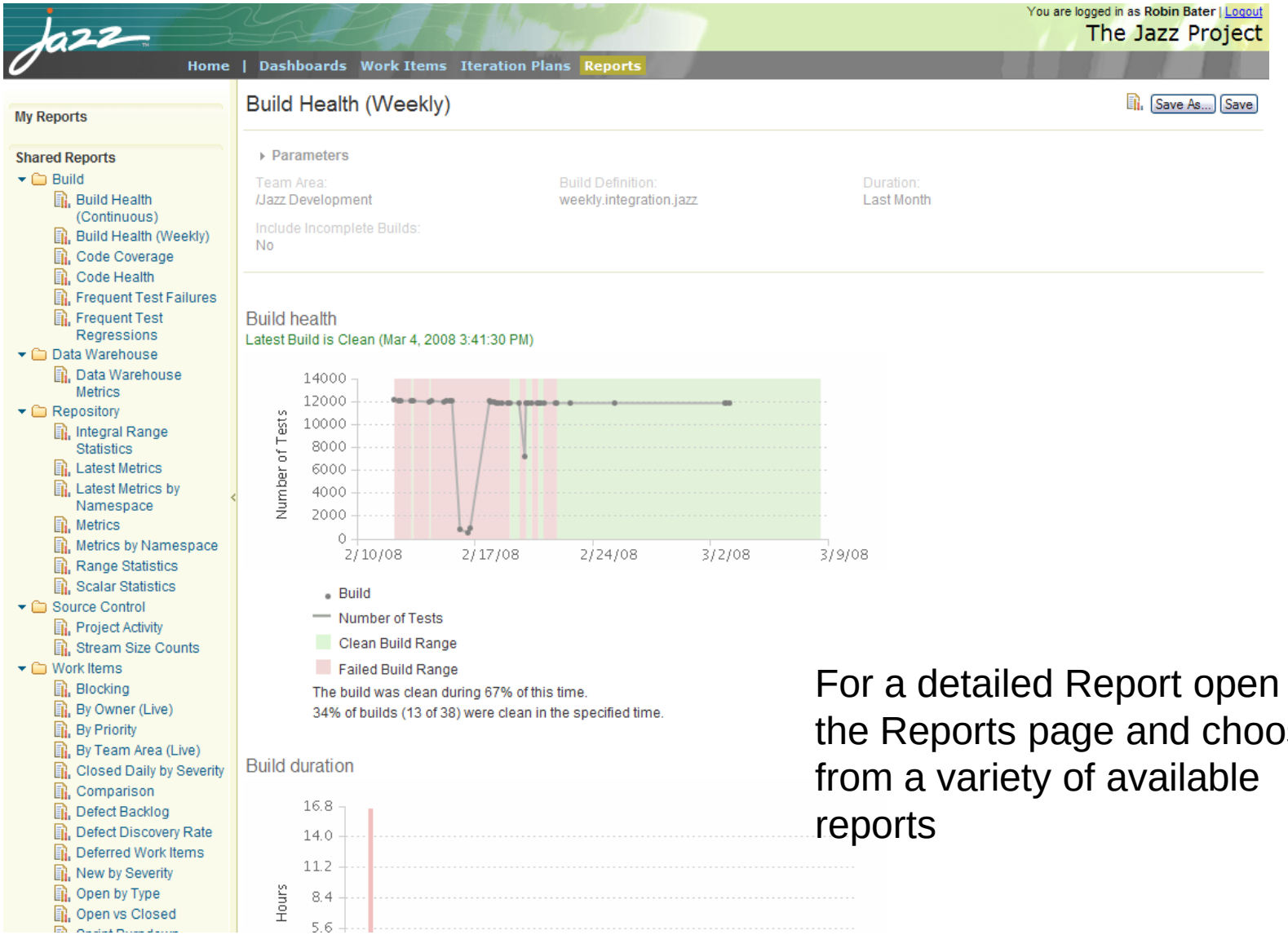


Reports – Displaying the project status

Display your choice of reports and queries in your own dashboard, e.g. to control the flow of work items.

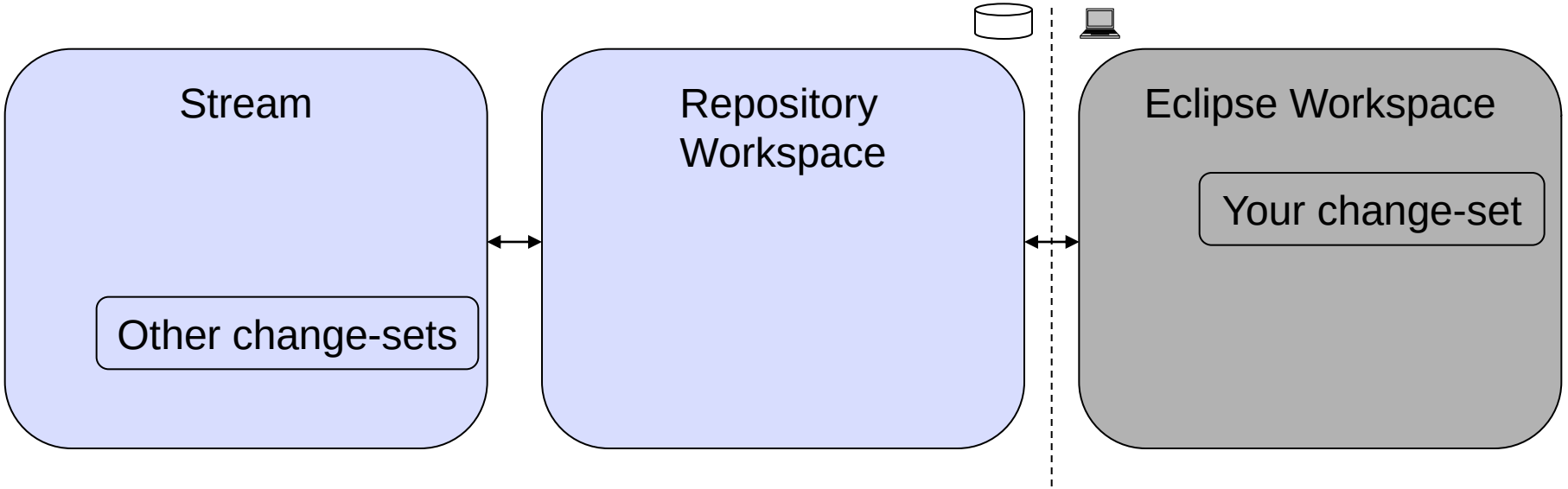


Reports – Displaying the project status



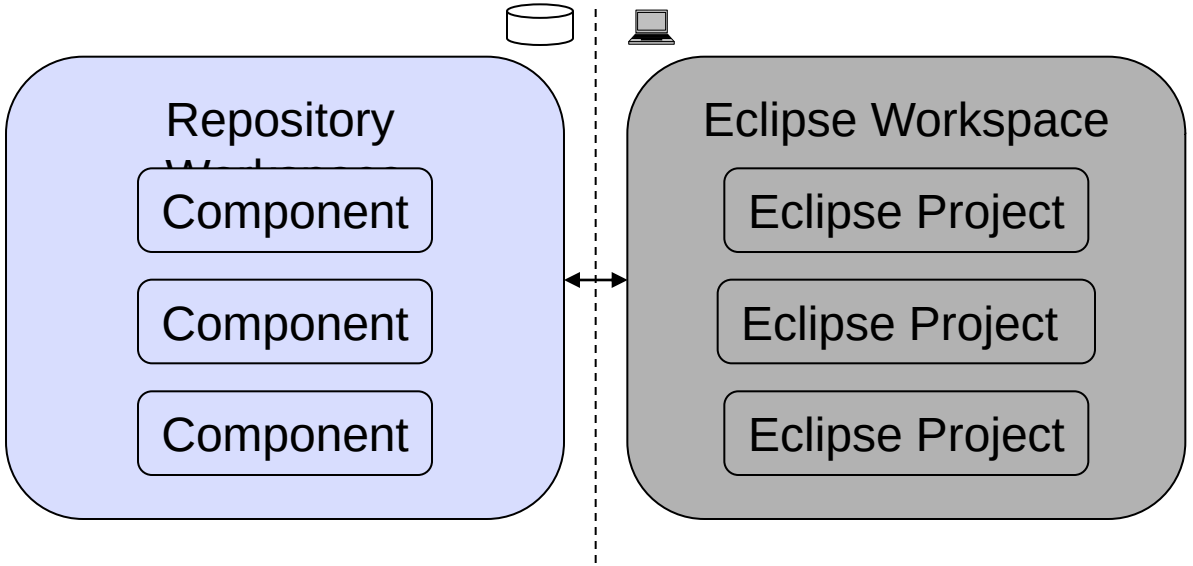
For a detailed Report open the Reports page and choose from a variety of available reports

Basic Jazz SCM Anatomy



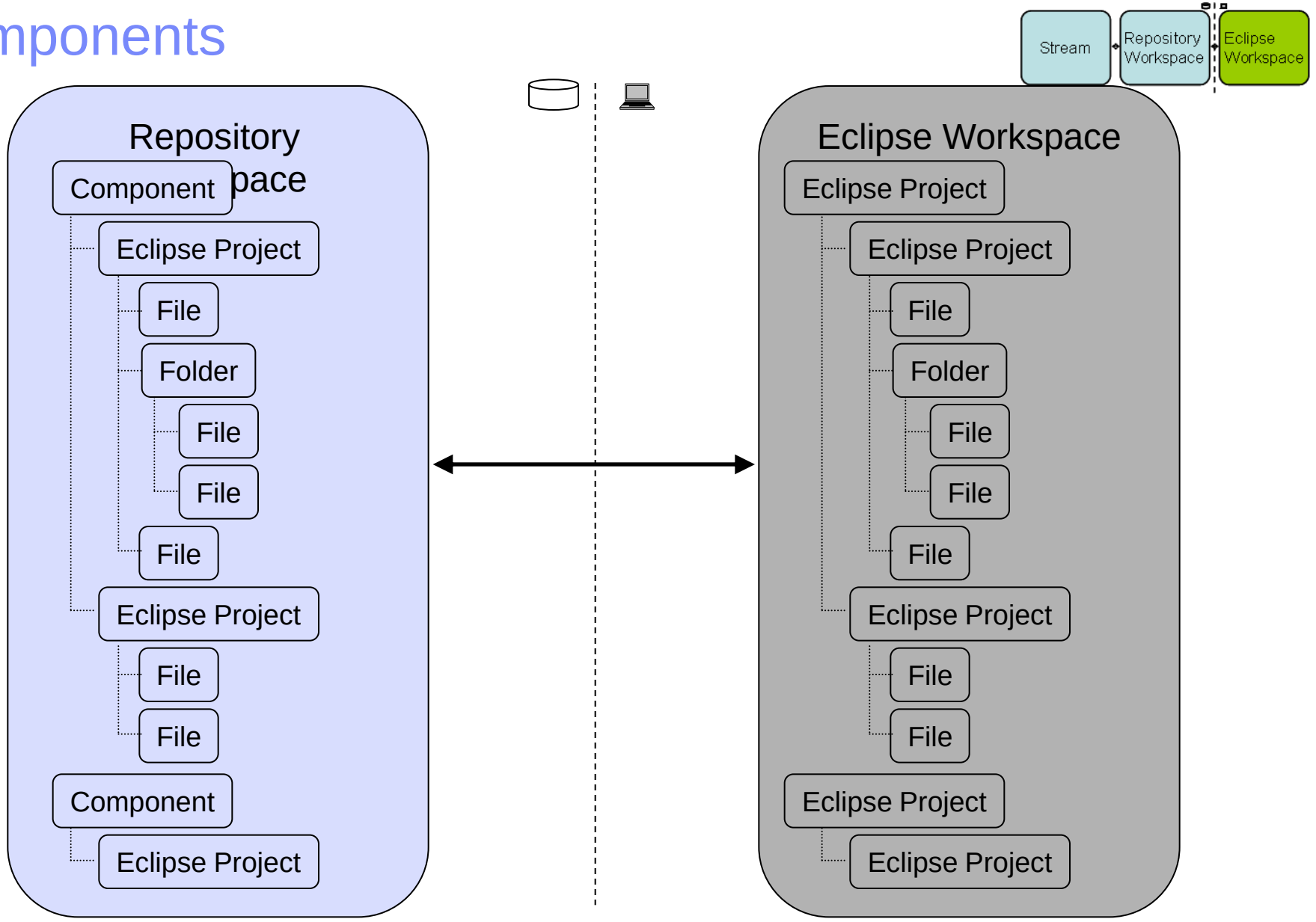
- Streams are for sharing
- Repository workspaces are your personal space
- Eclipse workspaces are where you work
- Change-sets flow back and forth
- Subsequent modules will cover each of these

Components…



- Repository Workspaces
  - Contain components
  - Jazz understands the structure of your project
  - Components map to Eclipse Projects in an Eclipse Workspace
    - Jazz will create these Eclipse Projects for you

Components


Stream
Repository Workspace
Eclipse Workspace
Repository
pace
Component
Eclipse Project
File
Folder
File
File
File
Eclipse Project
File
File
Component
Eclipse Project
Eclipse Workspace
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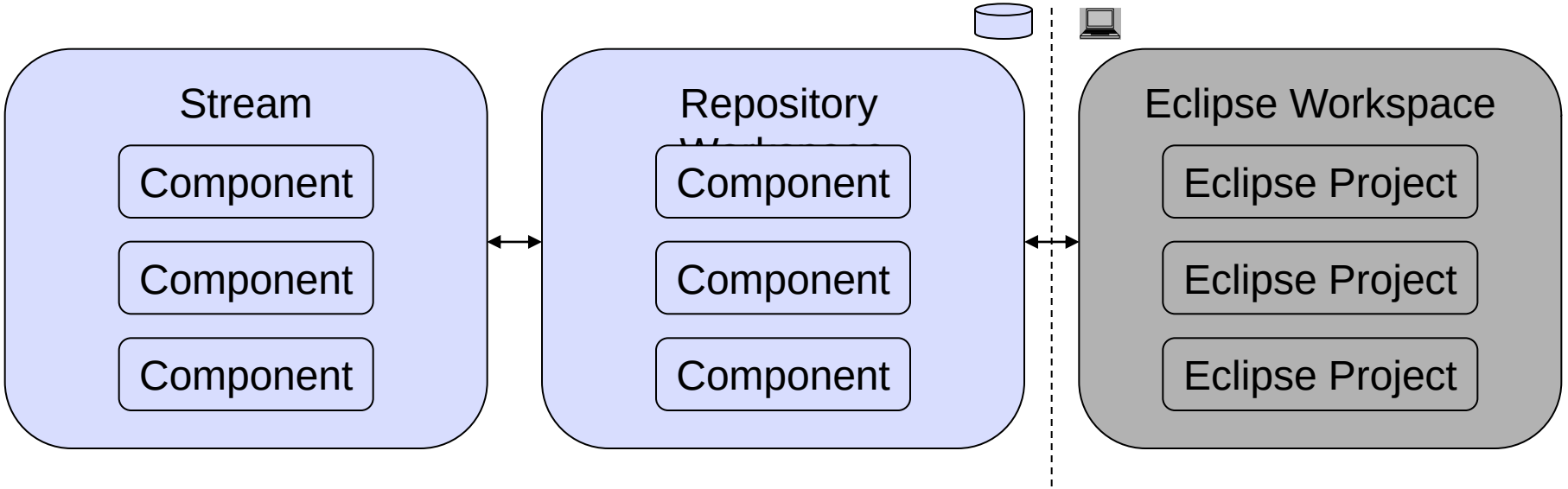
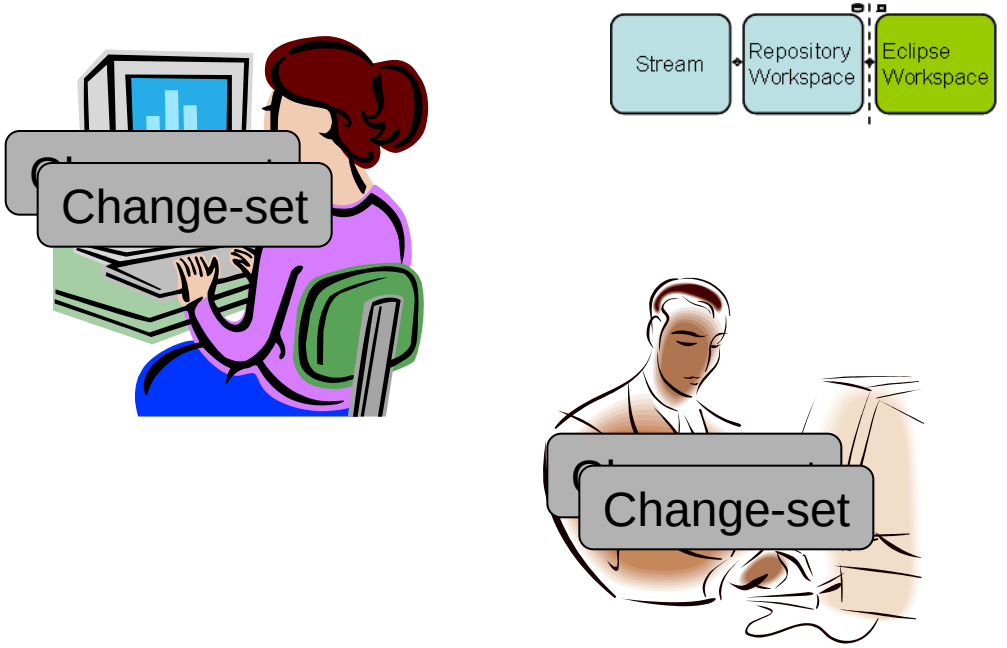
Streams



- Eclipse Workspace
  - Where a developer actively adds and changes source
- Repository Workspace
  - A developer's private space in the repository
- Stream
  - A place to share source with your team

Change-sets



- Components Track Changes
  - Collection of files and folders is built up from the steady build up of change-sets
  - Each change-set builds on what came before
- Change History
  - A time-ordered sequence of change-sets
  - Describes how the component's content was built from nothing

Change-set Details

- Composed from a collection of changes to one or more files and folders
  - Manage dependencies in an integrated and transparent fashion
  - Change-set orientation is another example of Jazz understanding your project
  - A change-set that affects multiple resources is committed as a single atomic unit
- Indicates the reason for the changes
  - Traceable artifacts
  - Collaborative in nature via a comment, and/or
  - By referencing the relevant work item
- Can be shared with another team member in real time to increase productivity
  - Via a stream, or
  - From your repository workspace via a work item

Typical Journey For A Change-set

3. Complete (usually combined with deliver)

4. Deliver

Stream

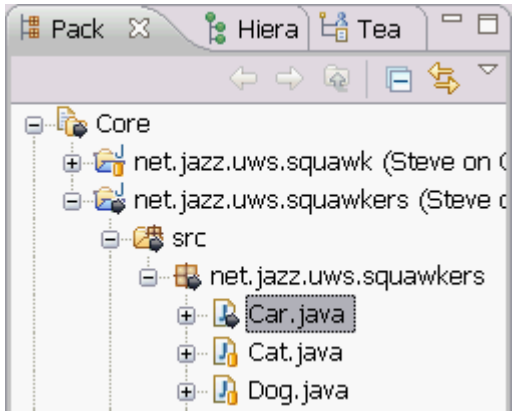
Component

Repository Workspace

Component

2b.Change-set

2a. Check-in (usually automatic)



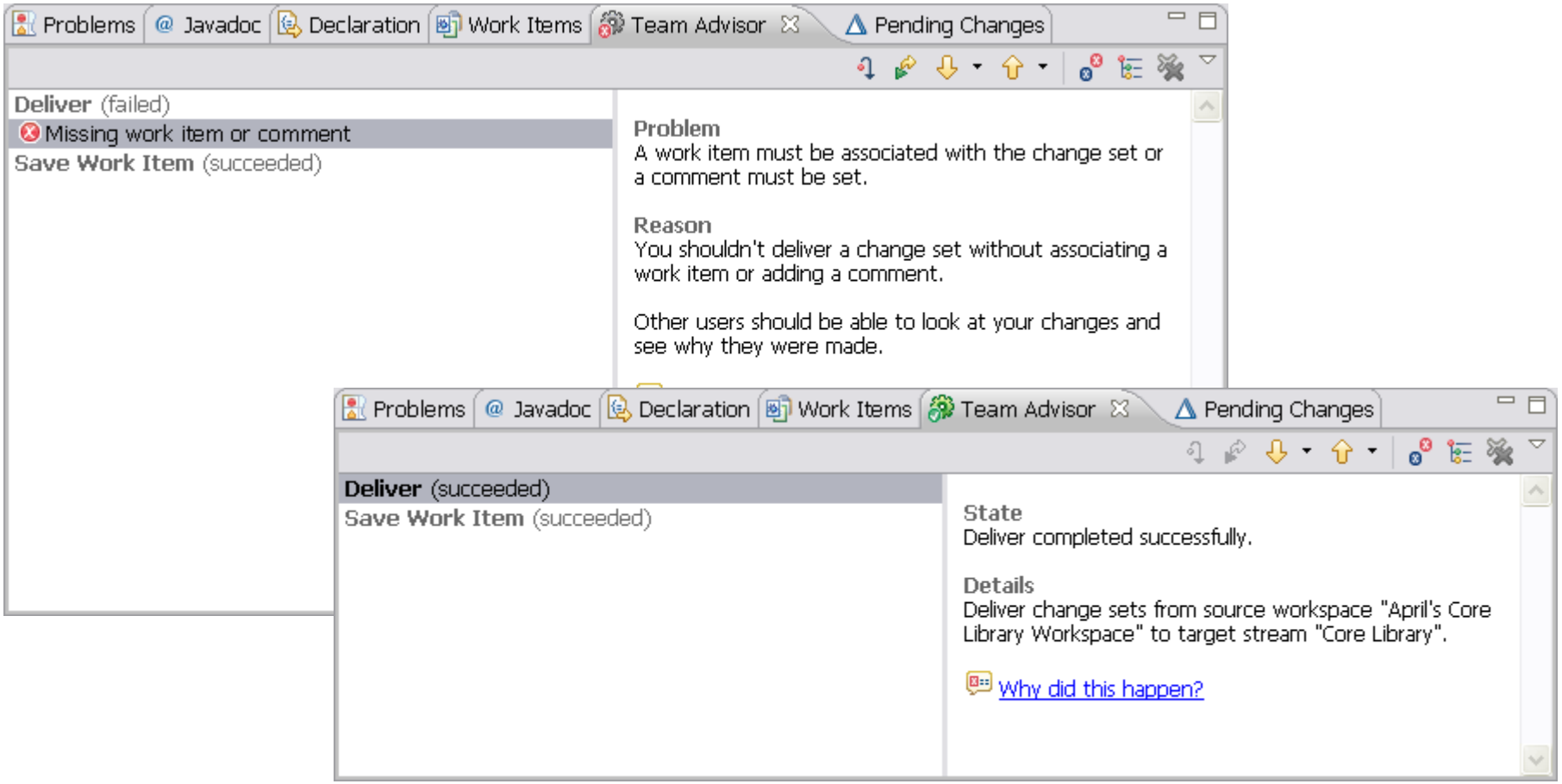
1. Change

Eclipse Workspace

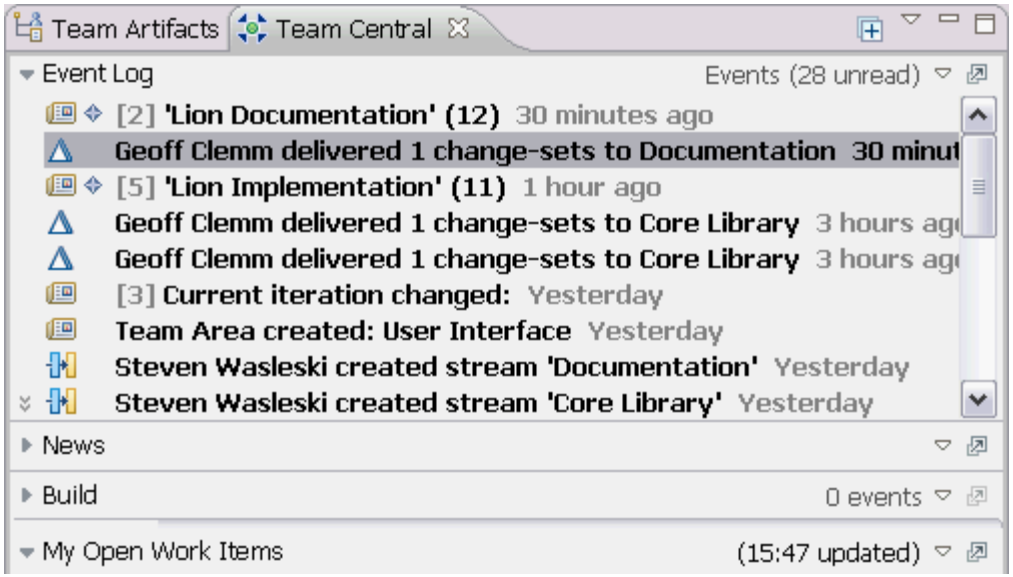
Eclipse Project

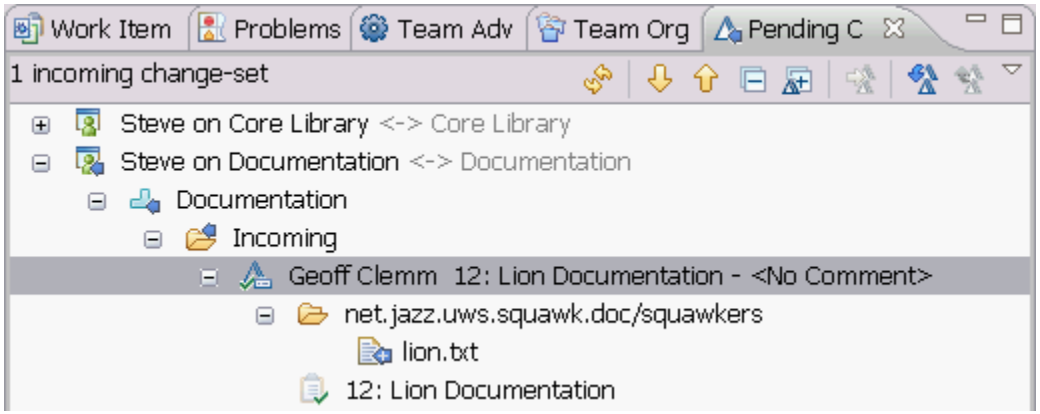
Change-set Delivery is Process Enabled

- The deliver operation is process-enabled, allowing the team's process to check and enforce delivery rules automatically

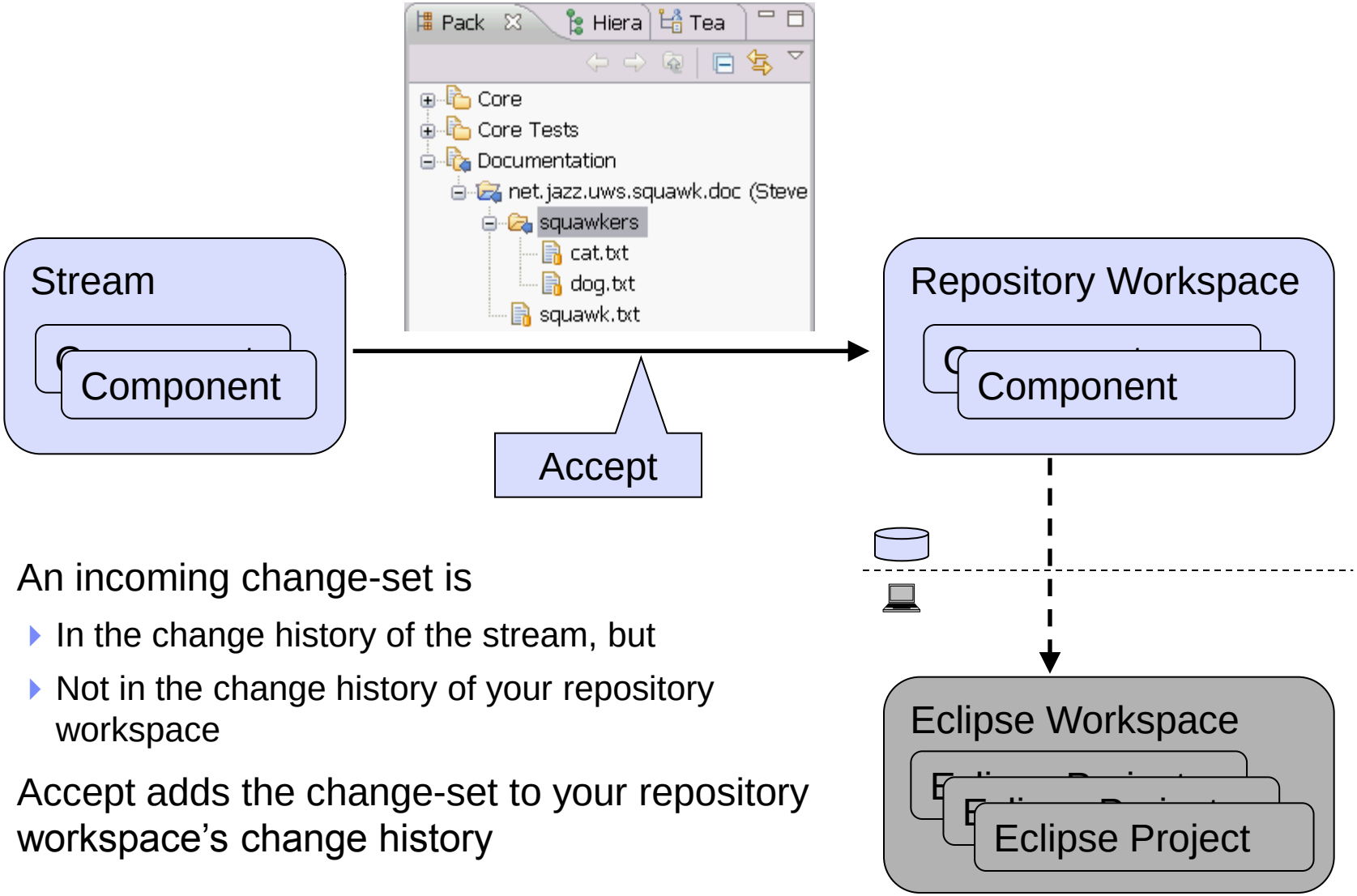


Delivery Notifications





Getting Teammates' Delivered Work



- An incoming change-set is
  - In the change history of the stream, but
  - Not in the change history of your repository workspace
- Accept adds the change-set to your repository workspace's change history

DEMO

- Sharing work across your team

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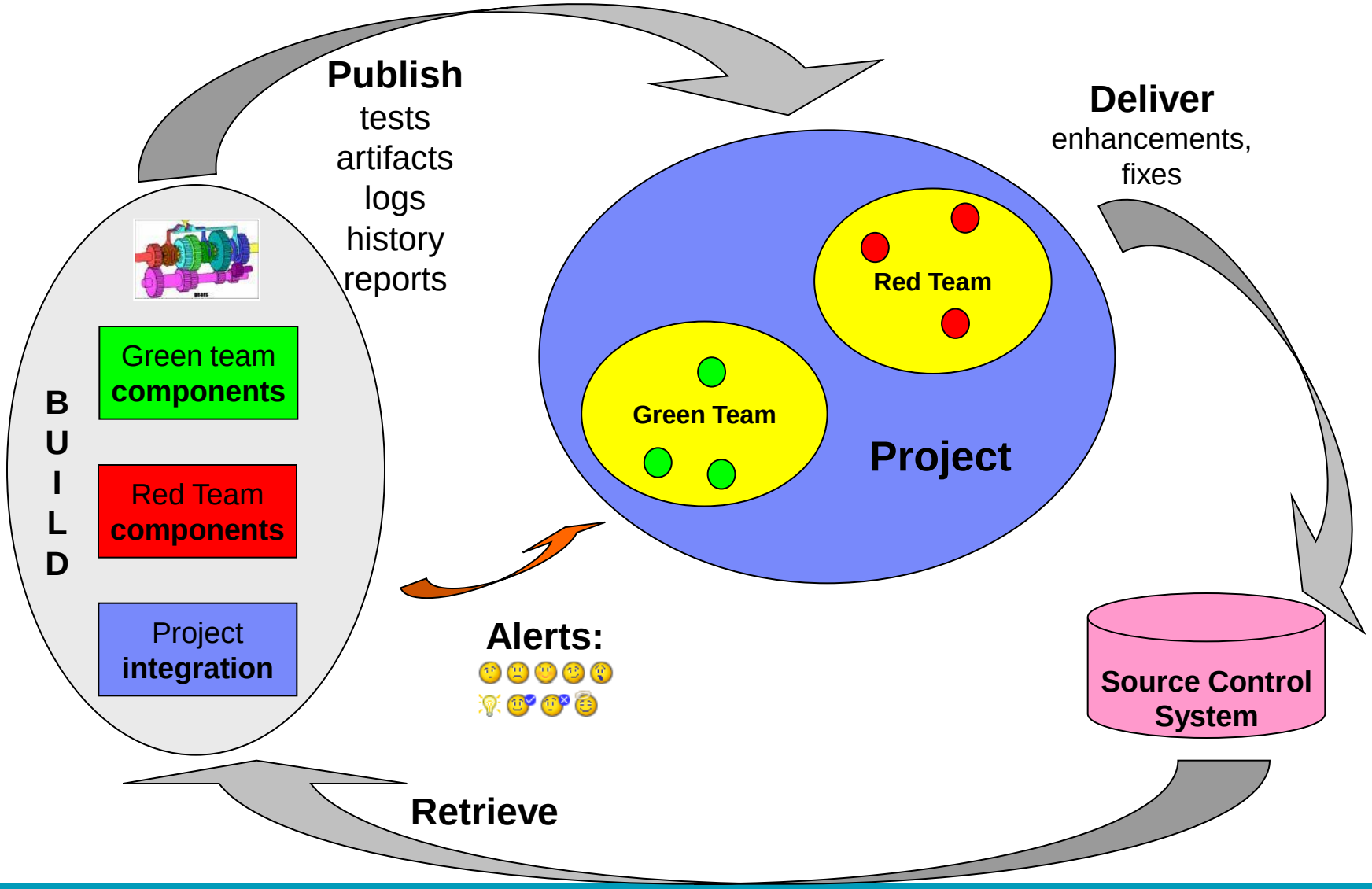
- Wrap-up and Next Steps

Build Challenges and their impacts

- Silos of information contribute to reducing team productivity
- Inconsistent policies and processes for project stakeholders
- Difficult to facilitate communication, visibility, sharing, and leveraging globally distributed teams without mass chaos
- Limited to no traceability among the artifacts
- Difficulty tracking status of multiple builds

- Delays and missed deadlines for projects and releases
- Unpredictable product/project release cycles
- Costly to support/integrate/troubleshoot multiple systems to avoid mass chaos
- Failed audits, additional work needed for tracking
- No reliable status of project health and no trend analysis

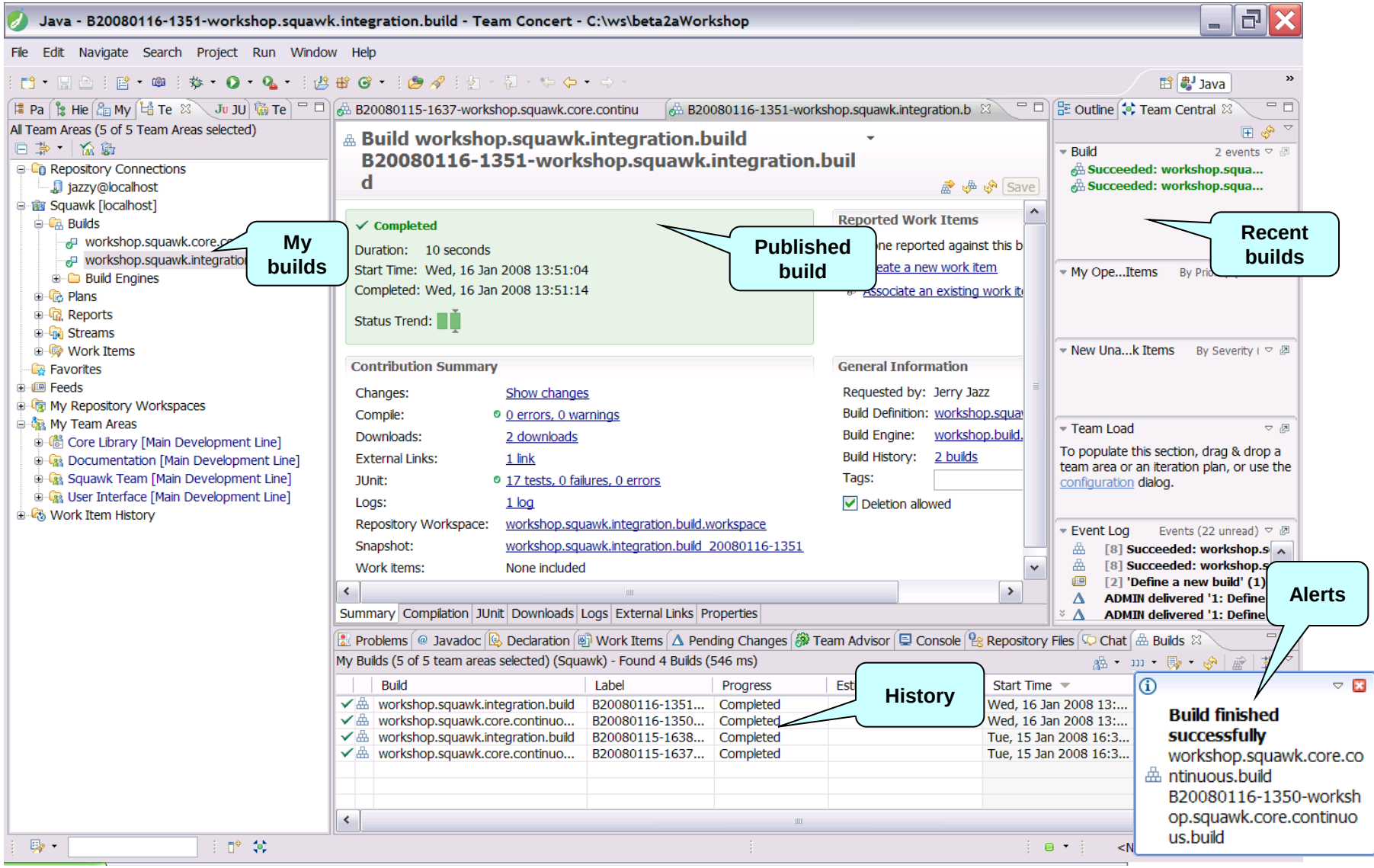
Build in the World of Agile Team Development



Rational Team Concert Build

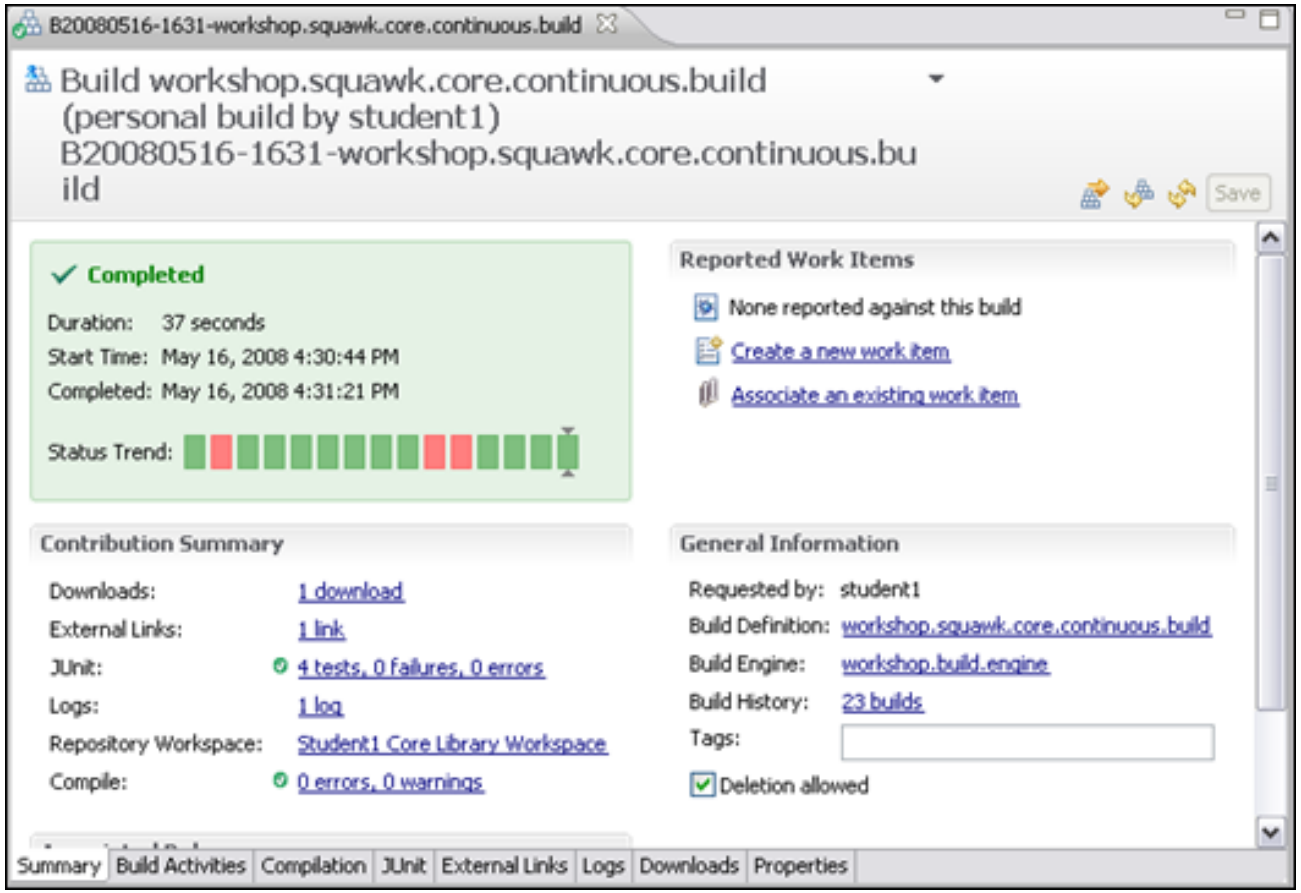
- Is an integral part of the project infrastructure
  - Consistent, repeatable process throughout the project
- Brings awareness of build progress and results to developers
  - Easy sharing of information
- Links build results to related Jazz artifacts
  - Integrated experience, traceability and tracking “baked in“
- Allow developers to have a private build area
  - Build and test code before delivering to the main branch
- Accommodates existing build technologies (Ant, CruiseControl , Build Forge, Maven, …)
  - Leverages technology that fits your project best

Build is very visible to the user



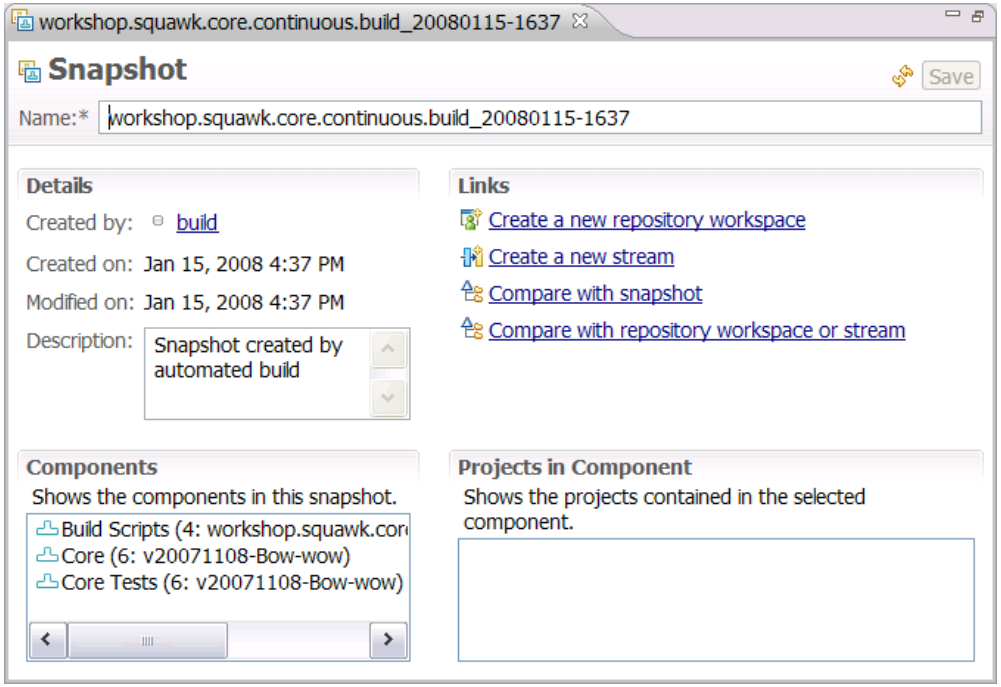
Private builds

- Private or Personal Builds allow you to build your changes before delivering them to the stream. This can provide you with some assurance that your changes will not disrupt the team when you deliver them.



Builds and Snapshots

- A build can request a snapshot
  - If there are any changes in a component since the last build
    - A new baseline is created with the same name as the snapshot name
  - Convenient for reproducing build problems



DEMO

- Build Management

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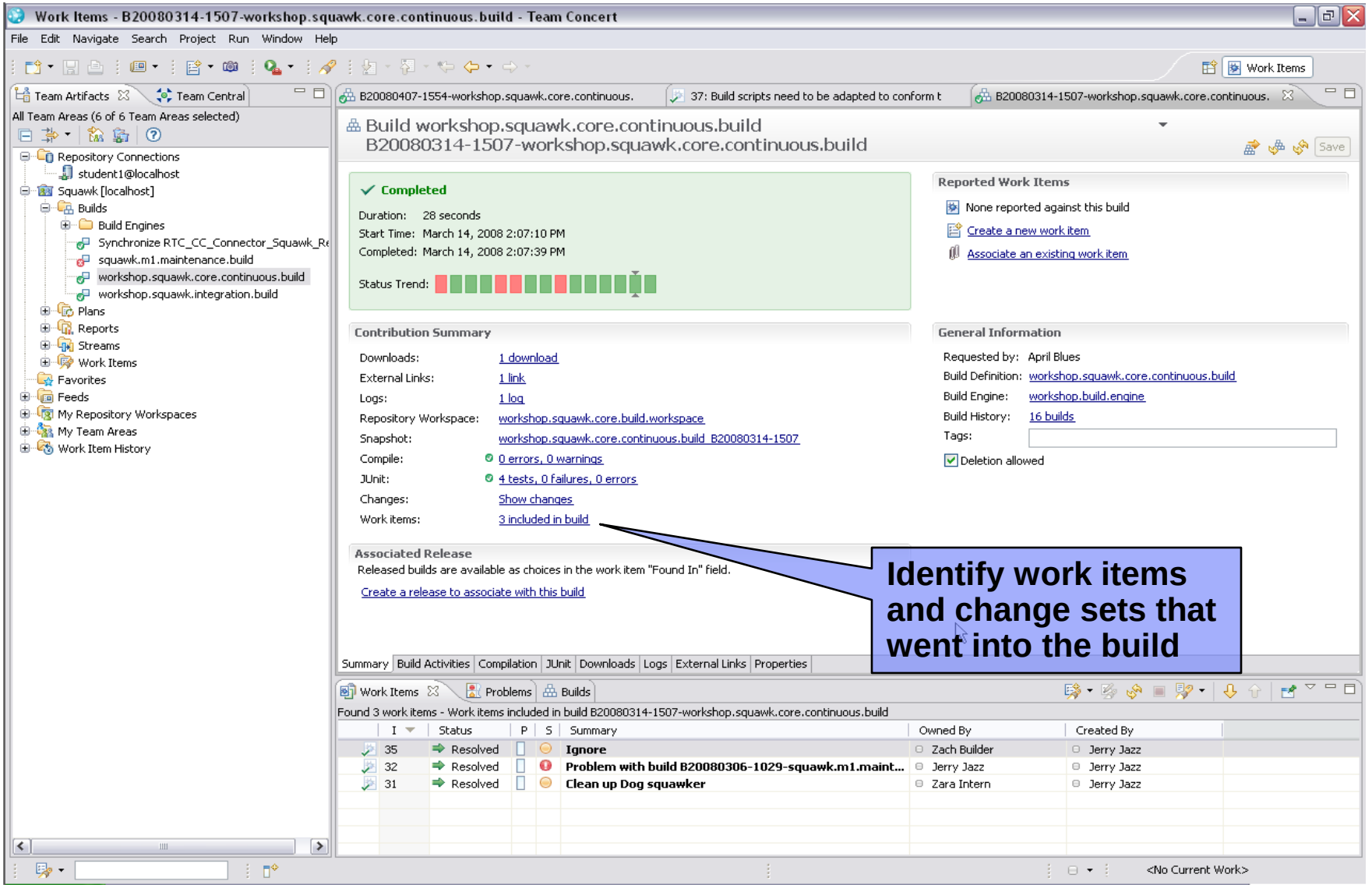
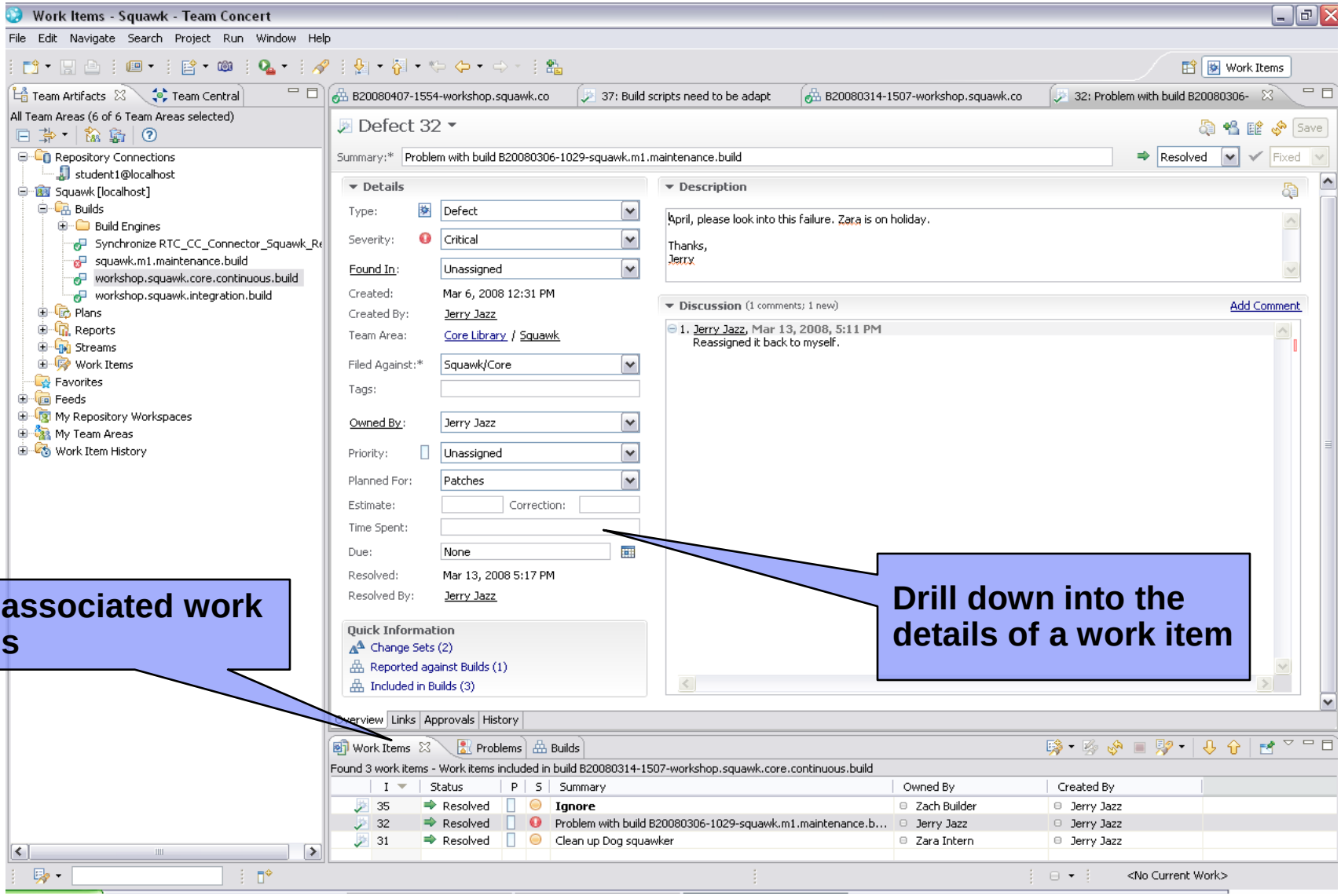
Builds


Work Items - B20080314-1507-workshop.squawk.core.continuous.build - Team Concert
File Edit Navigate Search Project Run Window Help
Work Items
Team Artifacts
Team Central
All Team Areas (6 of 6 Team Areas selected)
Repository Connections
student1@localhost
Squawk [localhost]
Builds
Build Engines
Synchronize RTC_CC_Connector_Squawk_Re
squawk.m1.maintenance.build
workshop.squawk.core.continuous.build
workshop.squawk.integration.build
Plans
Reports
Streams
Work Items
Favorites
Feeds
My Repository Workspaces
My Team Areas
Work Item History
B20080407-1554-workshop.squawk.core.continuous.
37: Build scripts need to be adapted to conform t
B20080314-1507-workshop.squawk.core.continuous.
Build workshop.squawk.core.continuous.build
B20080314-1507-workshop.squawk.core.continuous.build
Save
Completed
Duration: 28 seconds
Start Time: March 14, 2008 2:07:10 PM
Completed: March 14, 2008 2:07:39 PM
Status Trend:
Reported Work Items
None reported against this build
Create a new work item
Associate an existing work item
Contribution Summary
Downloads: 1 download
External Links: 1 link
Logs: 1 log
Repository Workspace: workshop.squawk.core.build.workspace
Snapshot: workshop.squawk.core.continuous.build_B20080314-1507
Compile: 0 errors, 0 warnings
JUnit: 4 tests, 0 failures, 0 errors
Changes: Show changes
Work items: 3 included in build
General Information
Requested by: April Blues
Build Definition: workshop.squawk.core.continuous.build
Build Engine: workshop.build.engine
Build History: 16 builds
Tags:
Deletion allowed
Associated Release
Released builds are available as choices in the work item "Found In" field.
Create a release to associate with this build
Summary Build Activities Compilation JUnit Downloads Logs External Links Properties
Work Items
Problems
Builds
Found 3 work items - Work items included in build B20080314-1507-workshop.squawk.core.continuous.build
I Status P S Summary Owned By Created By
35 Resolved Ignore Zach Builder Jerry Jazz
32 Resolved Problem with build B20080306-1029-squawk.m1.maint... Jerry Jazz Jerry Jazz
31 Resolved Clean up Dog squawker Zara Intern Jerry Jazz
<No Current Work>
Identify work items and change sets that went into the build

Work Items


Work Items - Squawk - Team Concert
File Edit Navigate Search Project Run Window Help
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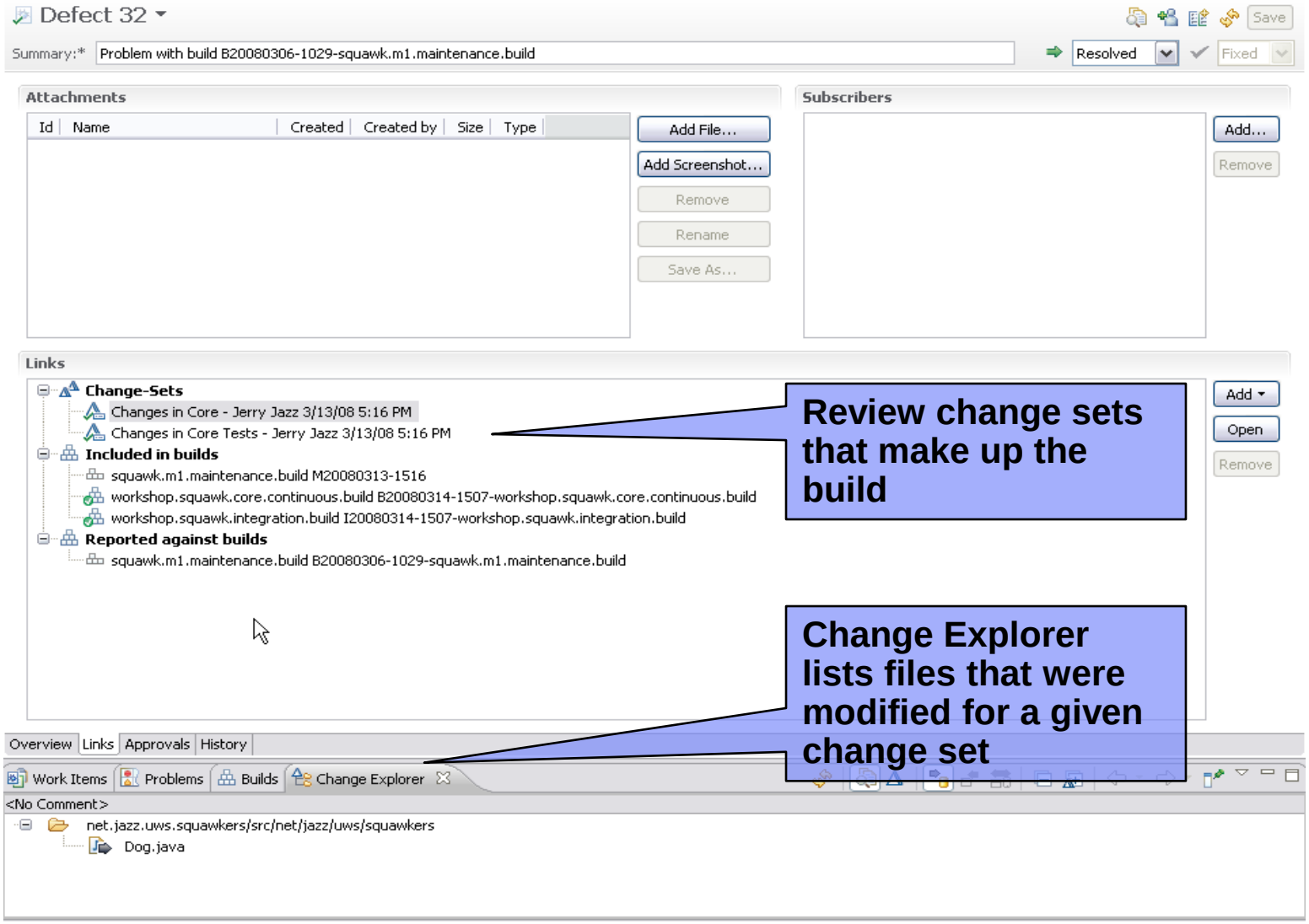
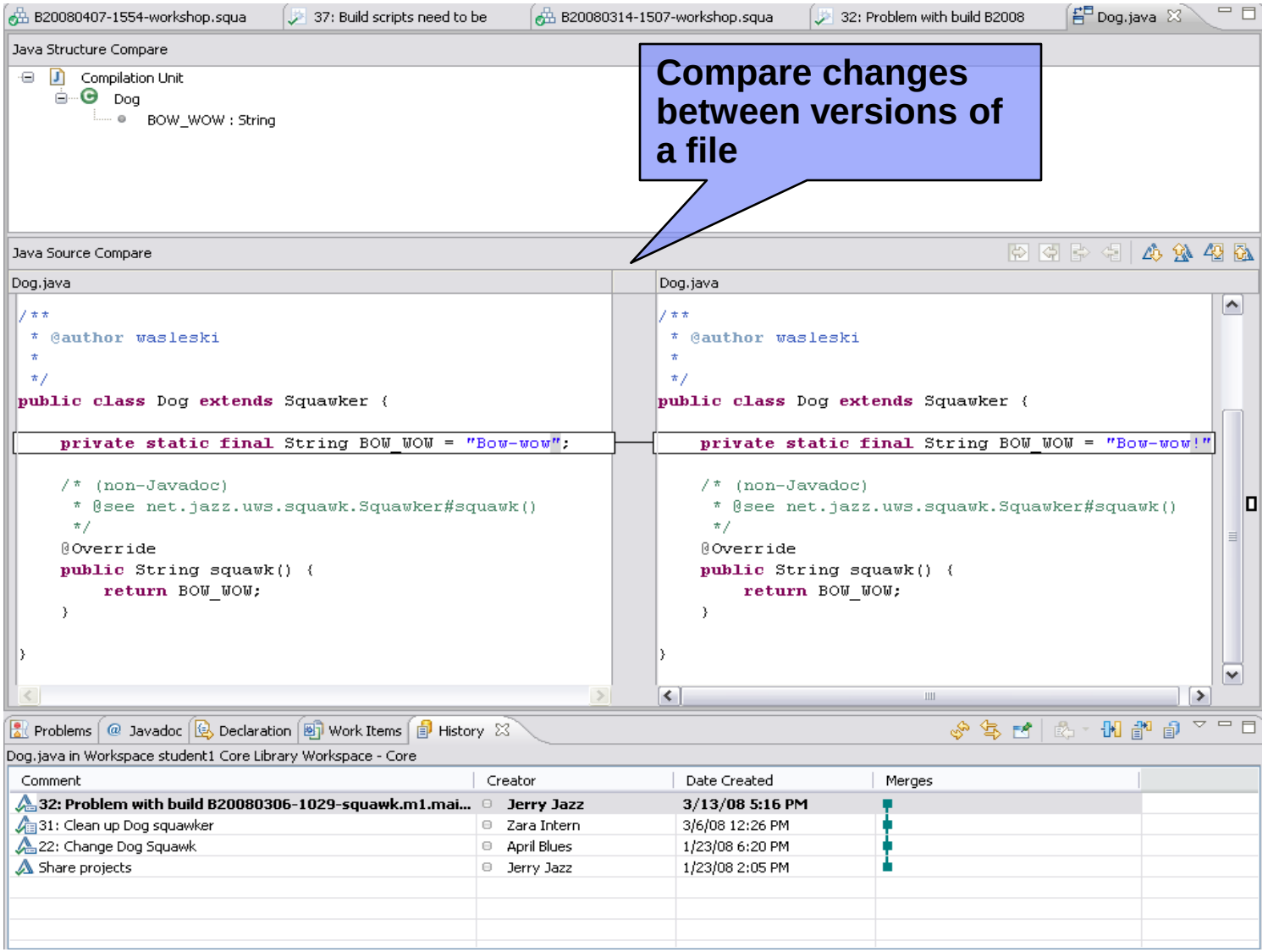
workshop.squawk.integration.build
Plans
Reports
Streams
Work Items
Favorites
Feeds
My Repository Workspaces
My Team Areas
Work Item History
B20080407-1554-workshop.squawk.co
37: Build scripts need to be adapt
B20080314-1507-workshop.squawk.co
32: Problem with build B20080306-
Defect 32
Save
Summary:* Problem with build B20080306-1029-squawk.m1.maintenance.build
Resolved
Fixed
Details
Type: Defect
Severity: Critical
Found In: Unassigned
Created: Mar 6, 2008 12:31 PM
Created By: Jerry Jazz
Team Area: Core Library / Squawk
Filed Against:* Squawk/Core
Tags:
Owned By: Jerry Jazz
Priority: Unassigned
Planned For: Patches
Estimate: Correction:
Time Spent:
Due: None
Resolved: Mar 13, 2008 5:17 PM
Resolved By: Jerry Jazz
Description
April, please look into this failure. Zara is on holiday.
Thanks,
Jerry
Discussion (1 comments; 1 new)
Add Comment
1. Jerry Jazz, Mar 13, 2008, 5:11 PM
Reassigned it back to myself.
Quick Information
Change Sets (2)
Reported against Builds (1)
Included in Builds (3)
Overview Links Approvals History
Work Items Problems Builds
Found 3 work items - Work items included in build B20080314-1507-workshop.squawk.core.continuous.build
I Status P S Summary Owned By Created By
35 Resolved Ignore Zach Builder Jerry Jazz
32 Resolved Problem with build B20080306-1029-squawk.m1.maintenance.b... Jerry Jazz Jerry Jazz
31 Resolved Clean up Dog squawker Zara Intern Jerry Jazz
<No Current Work>
List associated work items
Drill down into the details of a work item

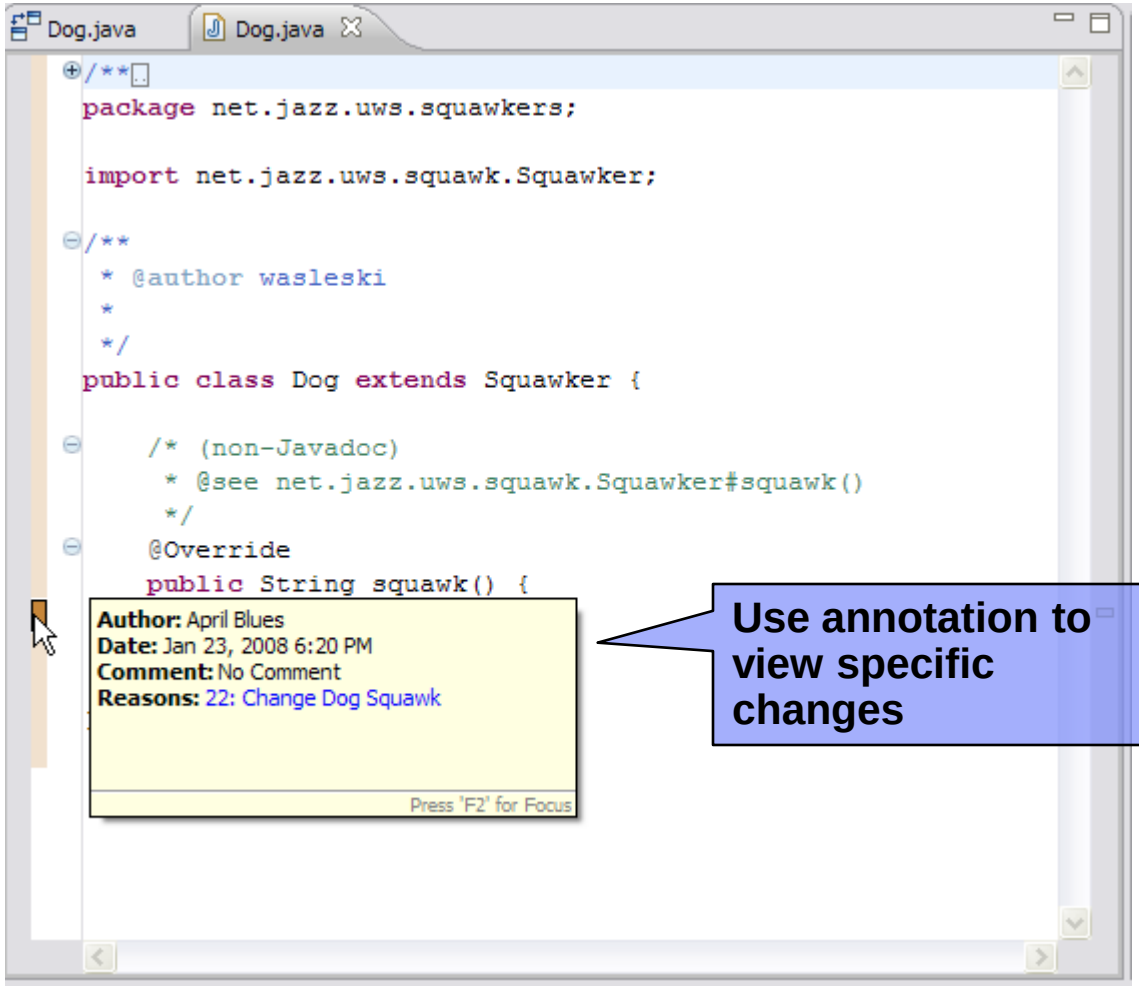
Change Sets


Defect 32
Save
Summary:*
Problem with build B20080306-1029-squawk.m1.maintenance.build
Resolved
Fixed
Attachments
Id
Name
Created
Created by
Size
Type
Add File...
Add Screenshot...
Remove
Rename
Save As...
Subscribers
Add...
Remove
Links
Change-Sets
Changes in Core - Jerry Jazz 3/13/08 5:16 PM
Changes in Core Tests - Jerry Jazz 3/13/08 5:16 PM
Included in builds
squawk.m1.maintenance.build M20080313-1516
workshop.squawk.core.continuous.build B20080314-1507-workshop.squawk.core.continuous.build
workshop.squawk.integration.build I20080314-1507-workshop.squawk.integration.build
Reported against builds
squawk.m1.maintenance.build B20080306-1029-squawk.m1.maintenance.build
Add
Open
Remove
Review change sets that make up the build
Overview
Links
Approvals
History
Work Items
Problems
Builds
Change Explorer
<No Comment>
net.jazz.uws.squawkers/src/net/jazz/uws/squawkers
Dog.java
Change Explorer lists files that were modified for a given change set

Compare Changes



Visualize Change History



DEMO

- Exploring Changes and Traceability

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App Server included (optional)	Tomcat only	Tomcat (WebSphere)	Tomcat (WebSphere)
Source Code Management	✓	✓	✓
Work Item Tracking	✓	✓	✓
Build Management	✓	✓	✓
Agile Planning	✓	✓	✓
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LDAP Import			✓
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Mailing Address:

*Address line 1:

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*City:

State/Province (required U.S./Canada):

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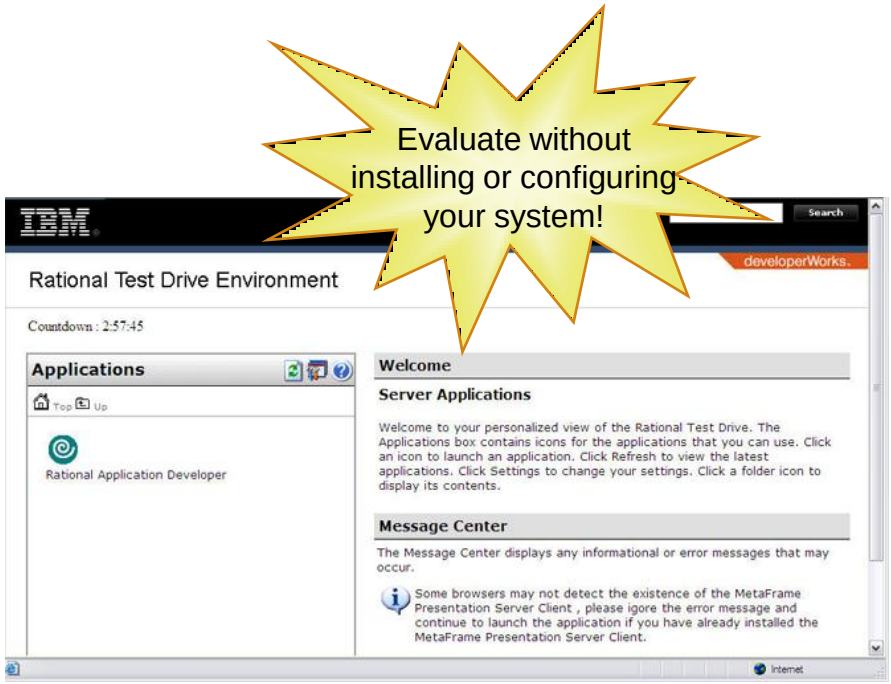

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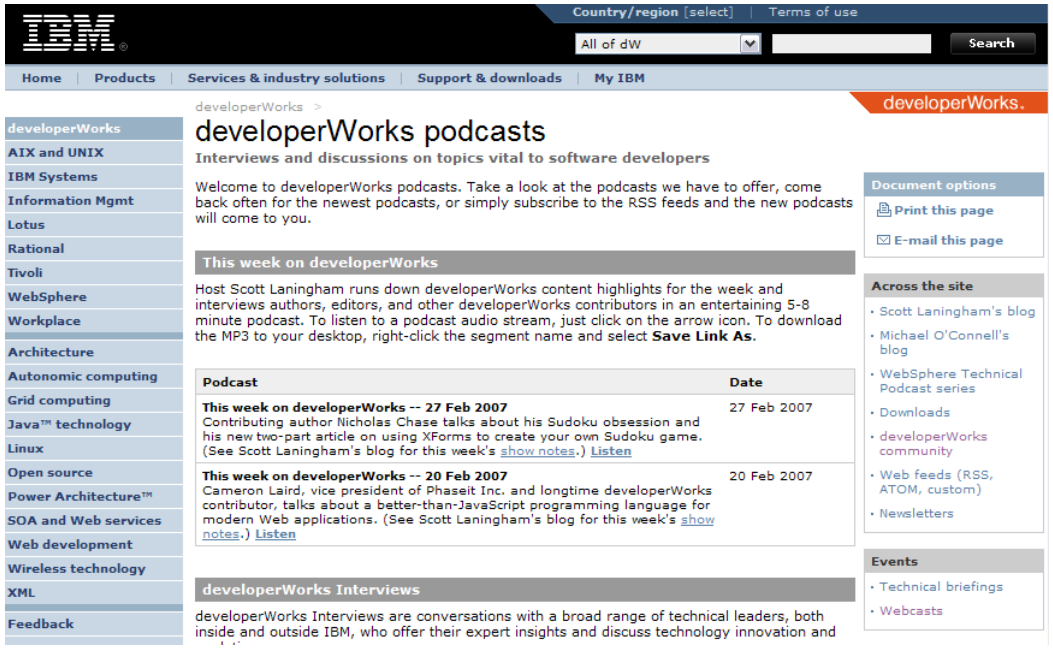

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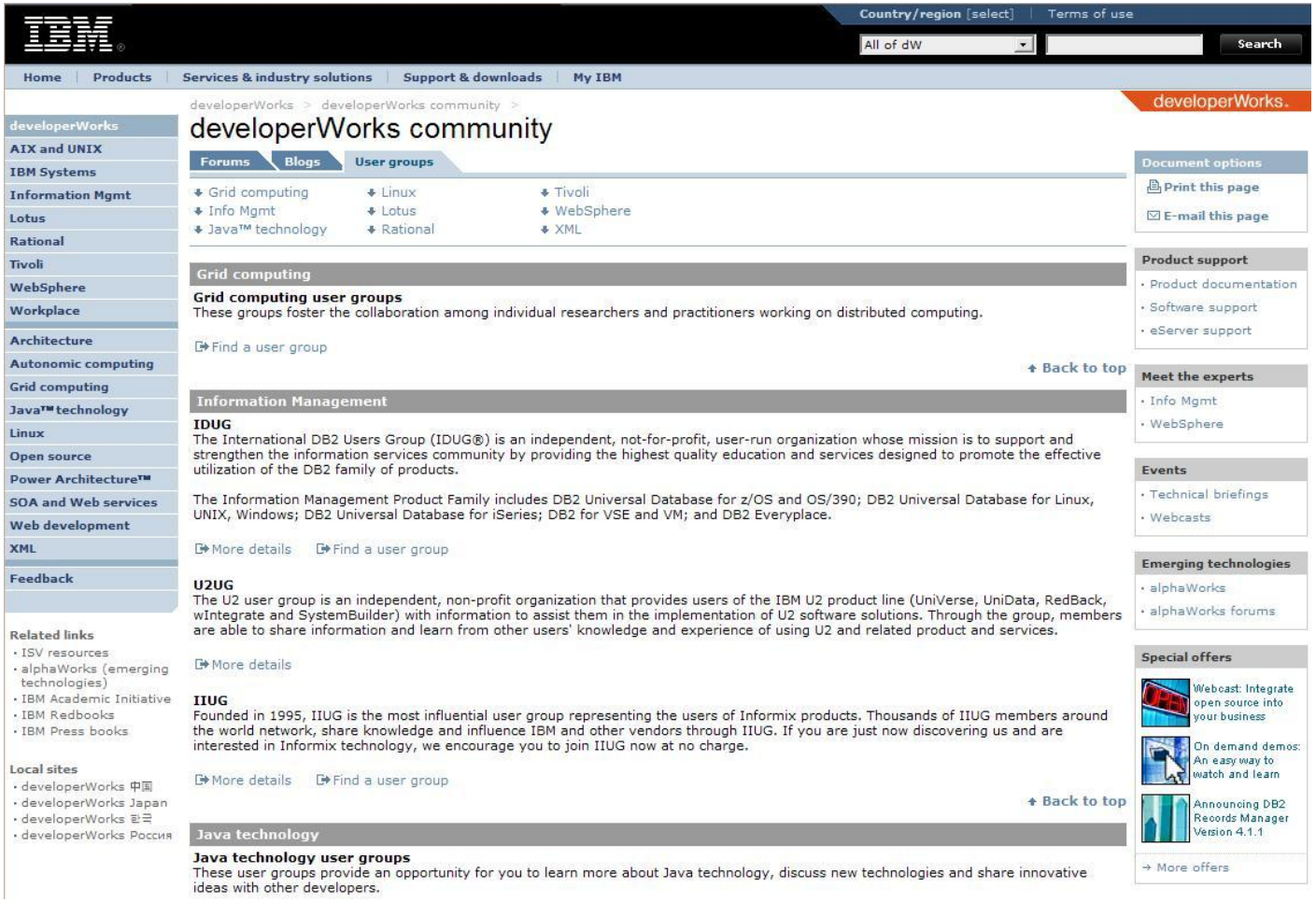

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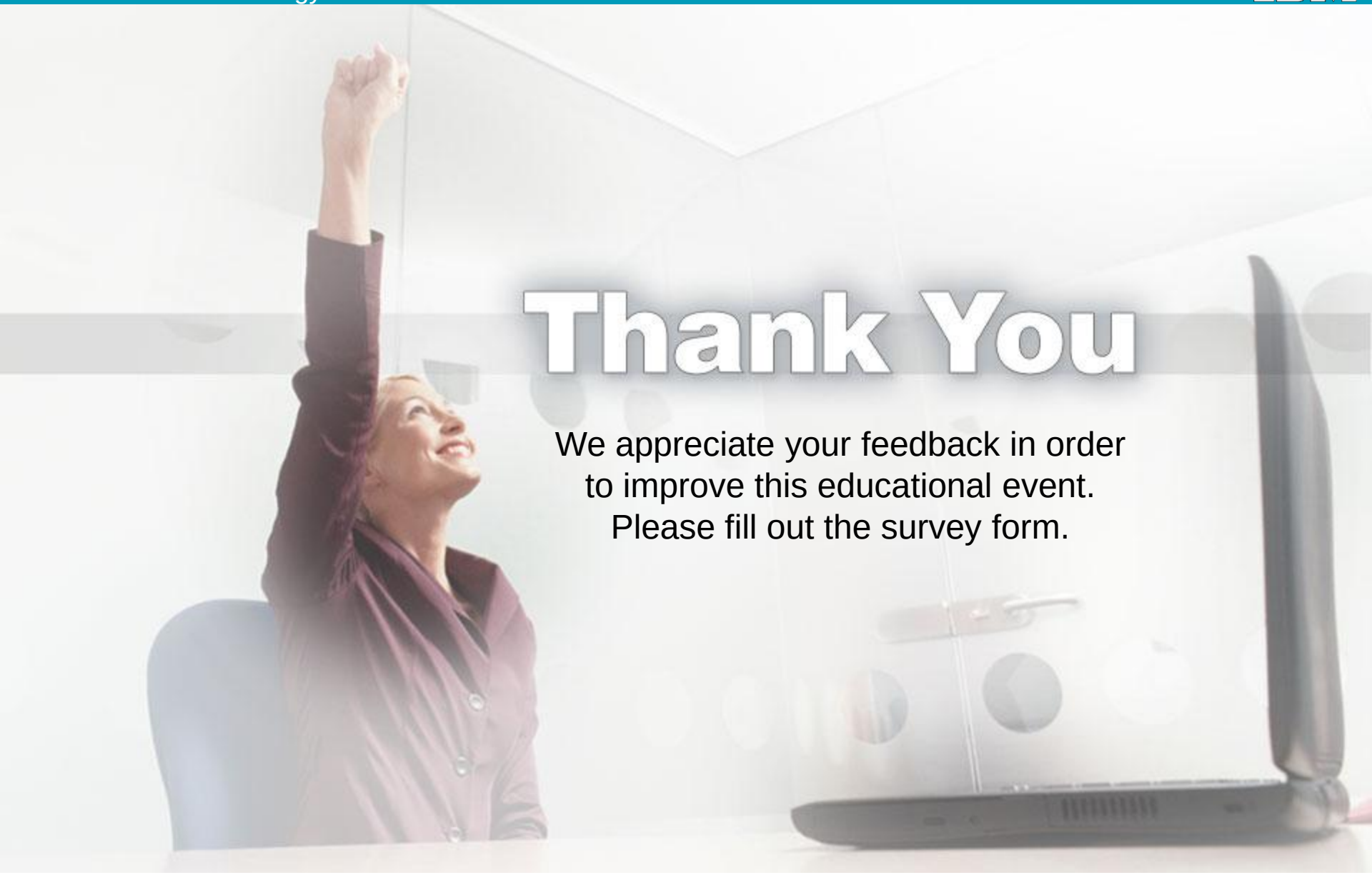

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