IBM Rational software

Jazz Project

Overview and Strategy
Martin Nally
Chief Technical Officer Rational

Tendances Logicielles
Automne 2006

ON DEMAND BUSINESS™

The Development Landscape Today

- **Geographically Distributed**
- **Accelerated Delivery Demands**
- **Agility with Predictability**
- **Innovation and Repeatability**
- **Increased Need for Transparency**

Reshaping Software Development

Communities

- Leverage community effects from Open Source, Metcalf's law, social networking

Modularity

- Rethink modularity and granularity of software
- Focus on "granular decomposition" for re-composition

Empowerment and innovation via good governance

- Maximize value and flexibility of the knowledge-based workforce
- Minimize chaos while maximizing individual decision rights

Grady Booch and Alan Brown *2003*

"One of the most intriguing ways that commercial developers of software can become more efficient is to reuse not only software but also best practices from open-source development."

"Ultimately, the purpose of a Collaborative Development Environment (CDE) is to create a frictionless surface for development by eliminating or automating many of the daily activities of the team and by providing mechanisms that encourage creative healthy, and high-bandwidth modes of communication among the project's stakeholders."

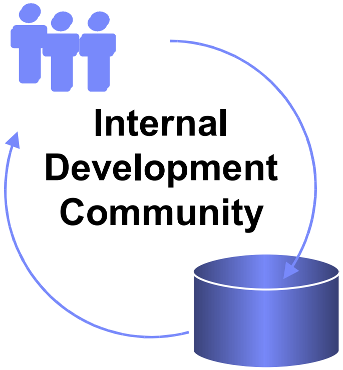
Booch, G. and Brown, A., "Collaborative Development Environments." Advances in Computers, 59, Academic Press, Aug. 2003.

Accelerate software evolution

- Communication
- Processes and Policies
- Measurement, traceability, feedback
- Controls and decision-making

These are the key elements of Governance

Community Source in IBM



- Key Features:
  - Access Control
  - Product builds, fixes and test drivers
  - Discussion Forums
  - Reference information (API specs, programming documentation, education, demo, etc.)
  - Defect Reporting
  - Feature Requests
  - Code Storage and Version Control
  - Project Management

- Benefits:
  - Reuse over reinvention
  - Improving information flow
  - Leveraging broader IBM
  - Improving quality through peer reviews and user feedback
  - Positively impacting our ability to deliver more function on shorter schedule
  - Most valuable assets get the most attention
  - Facilitate development

Jazz

- **New technologies to take our team platform to the next level**
  - An out-of-the-box integrated multi-role collaborative life-cycle development environment
    - integration of versioning, defects, build, unit test, project health metrics (code quality and coverage, defect trends, test results) and project planning
  - Define, Automate, Log, measure and control lifecycle processes
    - IDE behavior that adapts to process definitions
  - Exploit new internet technologies for global communication and collaboration
    - Instant Messaging, RSS feeds, Wiki, Blog, VOIP, …
  - Leverage standards-based open-source and commercial Web-era middleware
    - Scaling from Tomcat and Derby to WebSphere Application Server and DB2
    - Scalable consumability

What is Jazz?

- **Jazz is an open, scalable, extensible team collaboration technology for seamlessly integrating work across the development (both systems development and software development) lifecycle**
- **What does Jazz do?**
  - enables development teams to collaborate in real time in the context of the work that they are doing
  - enables projects to be run more effectively by providing accurate real-time project health information drawn directly from actual project work
  - manages artifacts across the development lifecycle
  - Shifts thinking from “Individual first” to “Team first” to “Collaboration First”
- **Who is working on Jazz?**
  - Jazz is the result of a collaboration between IBM Research and IBM Rational

Jazz Goals (1)

Seamless end-to-end team collaboration and governance across all disciplines of the development lifecycle

- Improved productivity, communication, and collaboration
- Cross-lifecycle traceability
- Enable comprehensive, *non-intrusive* project visibility
- Process automation and guidance: process configuration changes tool automation
- Consistent versioning and baselining across the lifecycle

Jazz Goals (2)

Low Total Cost of Ownership (TCO)

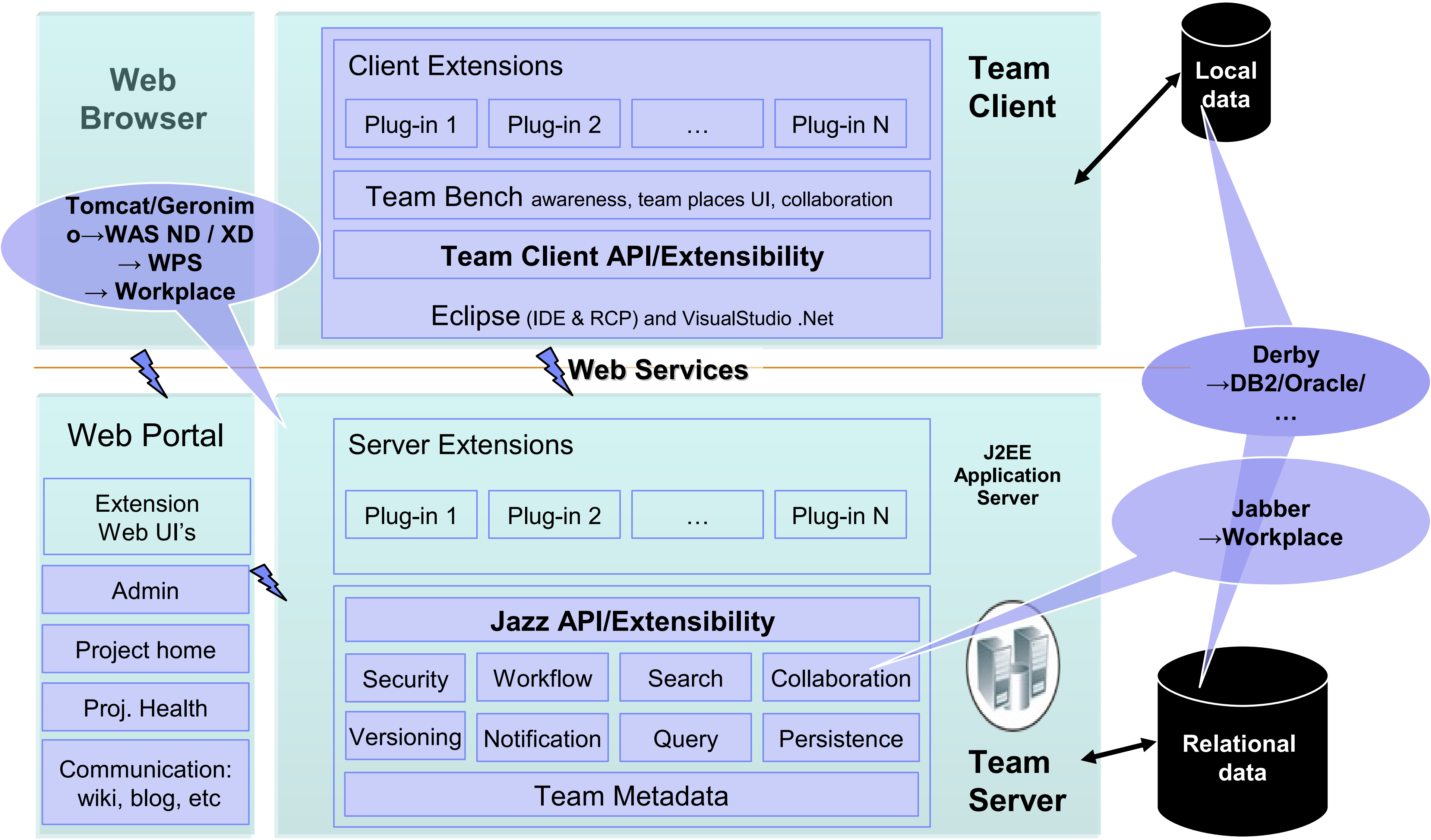
- Highly scalable (small/agile, to large enterprise/formal)
- Extensive support for highly distributed teams
- Simplified administration and operation
- Consistent backup/recovery across the lifecycle
- Leverage open source, industry standards and IBM strengths (WAS, DB2)

Jazz Goals (3)

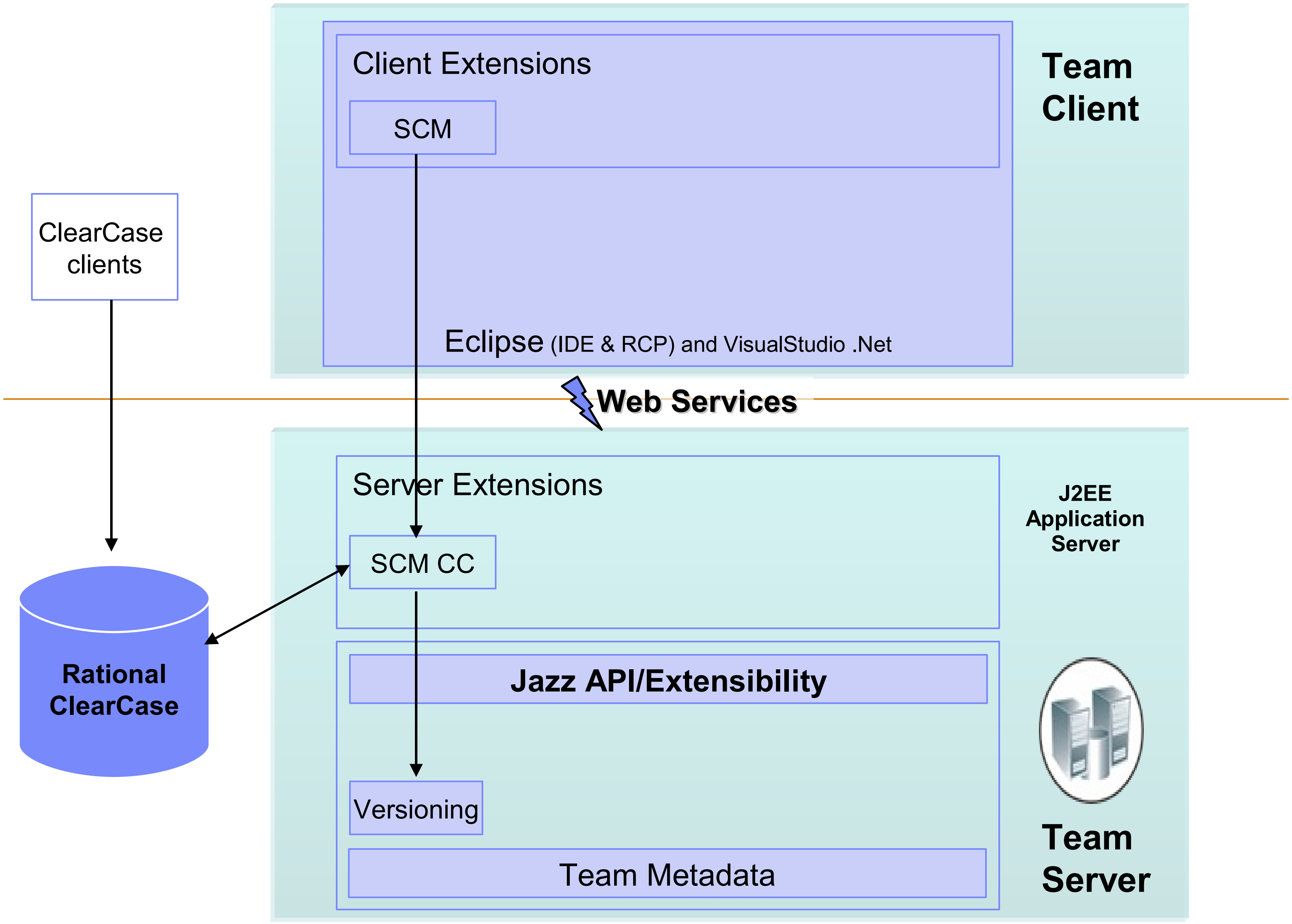
Create a Jazz-based community

- Encourage partners and customers to create Jazz-enabled plug-ins
- Create an open commercial development model to foster the community
- Enable the community to guide the direction of Jazz development

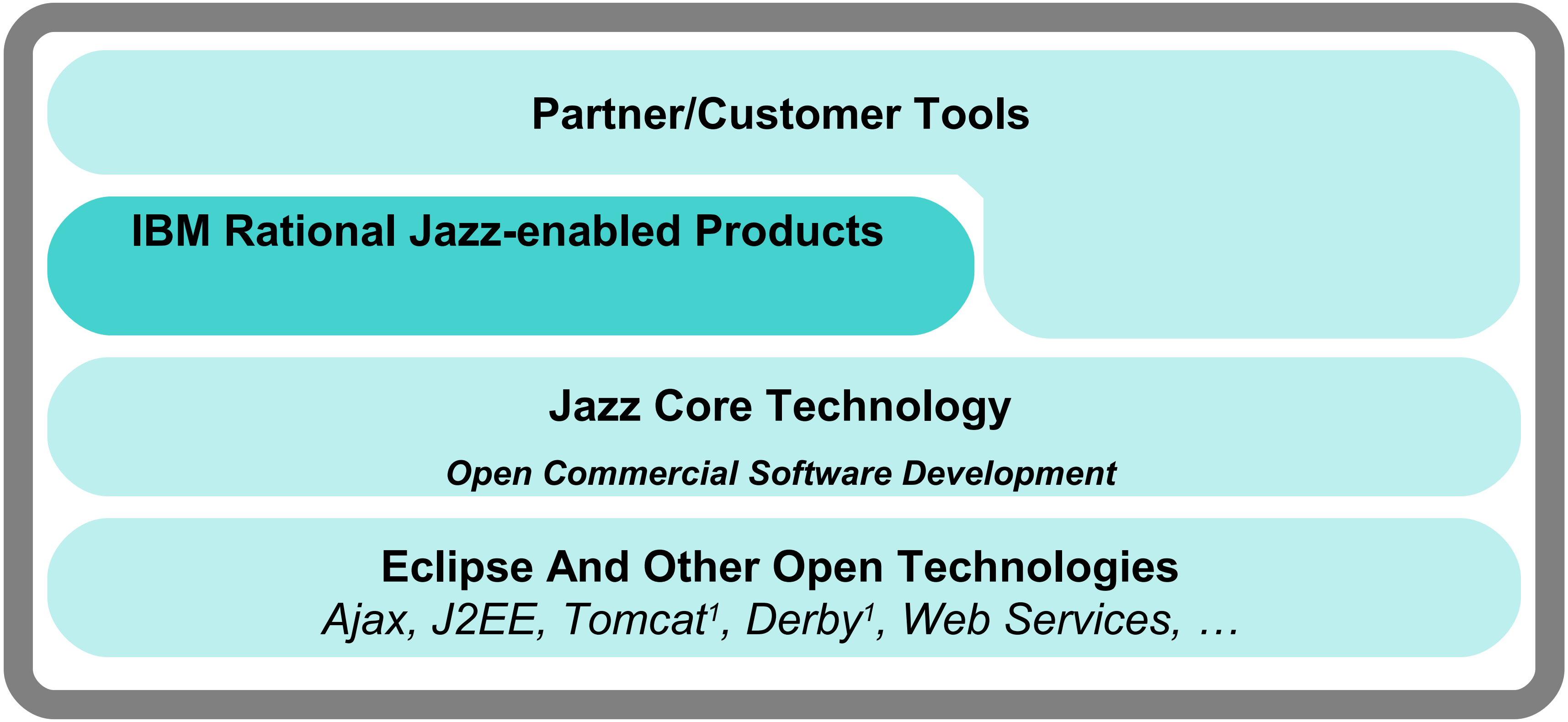
Jazz Architecture Overview



Leveraging Investment in Existing Tools – ClearCase Example



The Jazz ecosystem



Partner/Customer Tools

IBM Rational Jazz-enabled Products

Jazz Core Technology

Open Commercial Software Development

Eclipse And Other Open Technologies

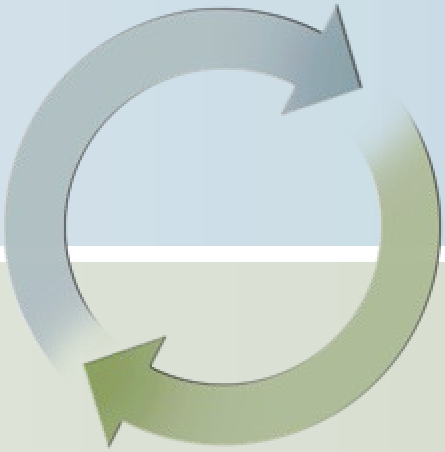
Ajax, J2EE, Tomcat[1]*, Derby*[1]*, Web Services, …*

[1] High-end scalability through WebSphere, DB2, and other commercial high performance application server and database technologies.

Open commercial development

Rational Jazz-based Products
Open Commercial Software Development

Open Commercial



Creating, maintaining, and enhancing innovative commercial software through an open transparent process that allows customers to participate directly in the development process

Creating, maintaining, and enhancing software through open, *collaborative* communities driving evolution of *standards* and *common components*

Open-Source

Mutually Complementary and Transparent

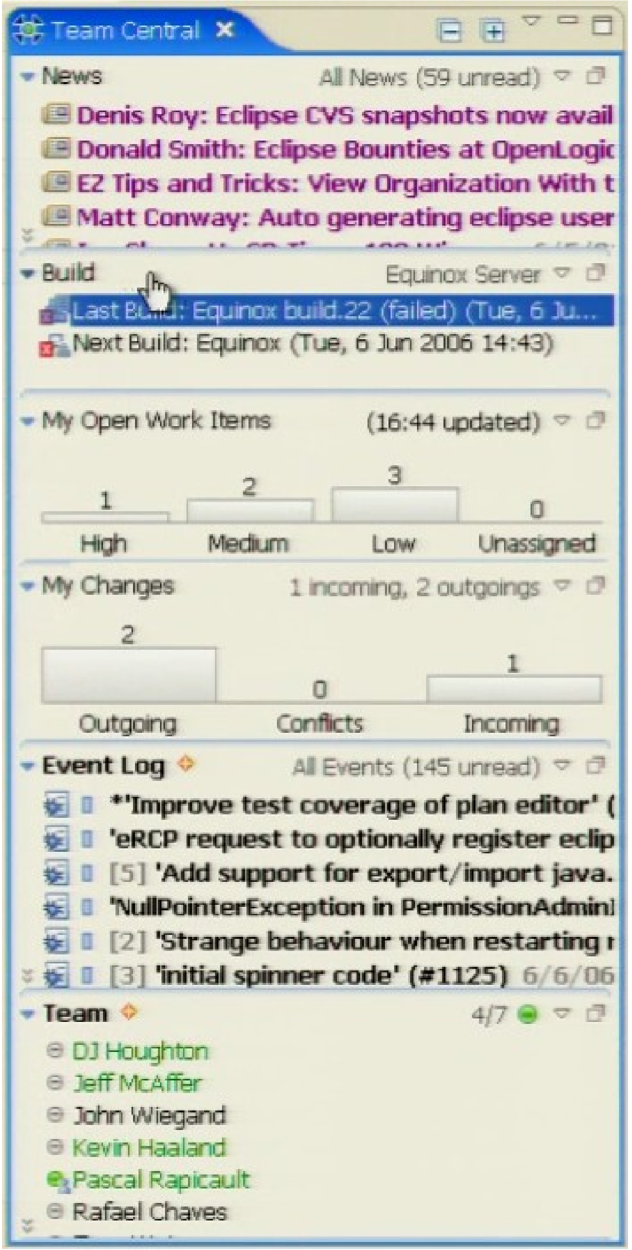
IBM Rational software

A Brief Tour of Jazz

ON DEMAND BUSINESS™

Team Central

- **Shows what is happening on project**
  - News & events
  - Build status
  - What's being worked on
  - Changes
- **Configurable (RSS feeds)**
  - New kinds of information easily added
- **Personalizable**
  - Each team member can tailor to their needs



Team Central

News — All News (59 unread)

Denis Roy: Eclipse CVS snapshots now avail
Donald Smith: Eclipse Bounties at OpenLogic
EZ Tips and Tricks: View Organization With t
Matt Conway: Auto generating eclipse user

Build — Equinox Server

Last Build: Equinox build.22 (failed) (Tue, 6 Ju...
Next Build: Equinox (Tue, 6 Jun 2006 14:43)

My Open Work Items — (16:44 updated)

High	Medium	Low	Unassigned
1	2	3	0

My Changes — 1 incoming, 2 outgoings

Outgoing	Conflicts	Incoming
2	0	1

Event Log — All Events (145 unread)

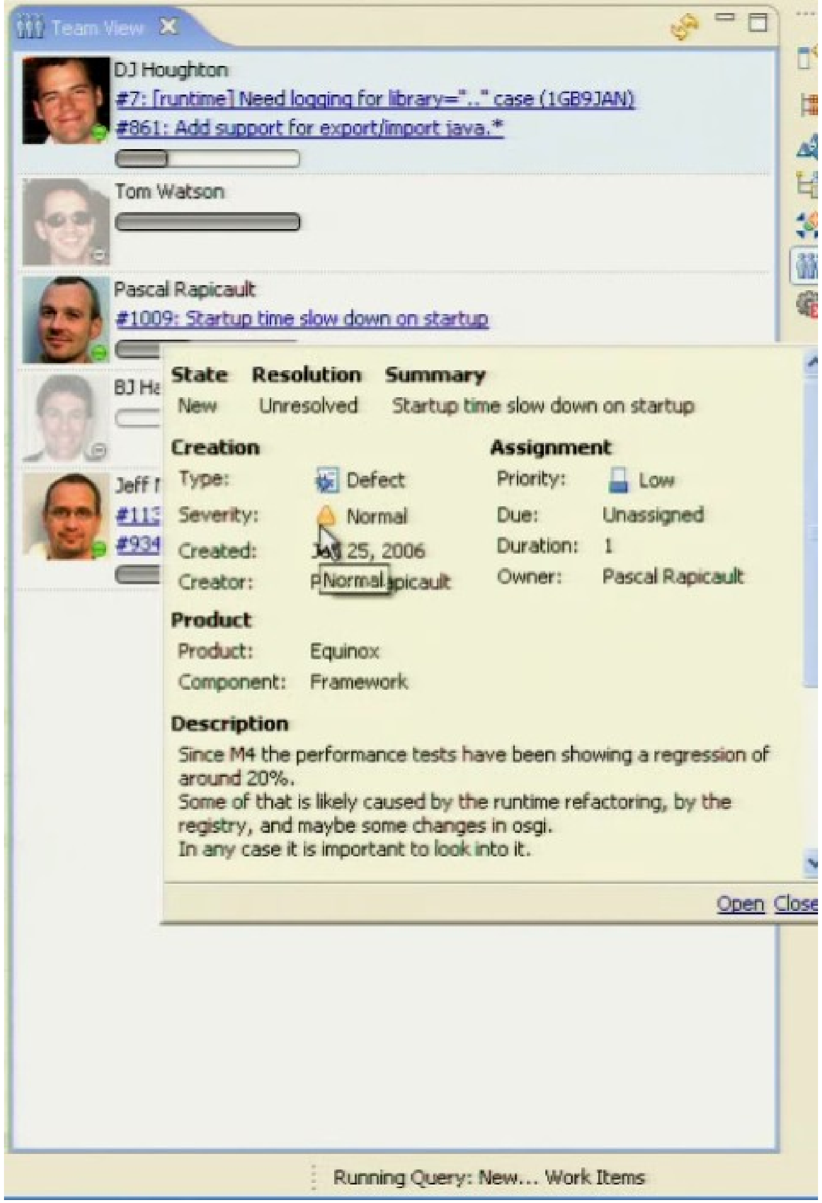
*'Improve test coverage of plan editor' (
'eRCP request to optionally register eclip
[5] 'Add support for export/import java.
'NullPointerException in PermissionAdmin
[2] 'Strange behaviour when restarting r
[3] 'initial spinner code' (#1125) 6/6/06

Team — 4/7

DJ Houghton
Jeff McAffer
John Wiegand
Kevin Haaland
Pascal Rapicault
Rafael Chaves

Team Awareness

- **Shows team members and their online status**
- **Shows what the team is working on**



DJ Houghton
#7: [runtime] Need logging for library="..." case (1GB9JAN)
#861: Add support for export/import java.*

Tom Watson

Pascal Rapicault
#1009: Startup time slow down on startup

BJ Ha

Jeff
#113
#934

State	Resolution	Summary
New	Unresolved	Startup time slow down on startup

Creation
Type: Defect
Severity: Normal
Created: Jan 25, 2006
Creator: PNormal picault

Assignment
Priority: Low
Due: Unassigned
Duration: 1
Owner: Pascal Rapicault

Product
Product: Equinox
Component: Framework

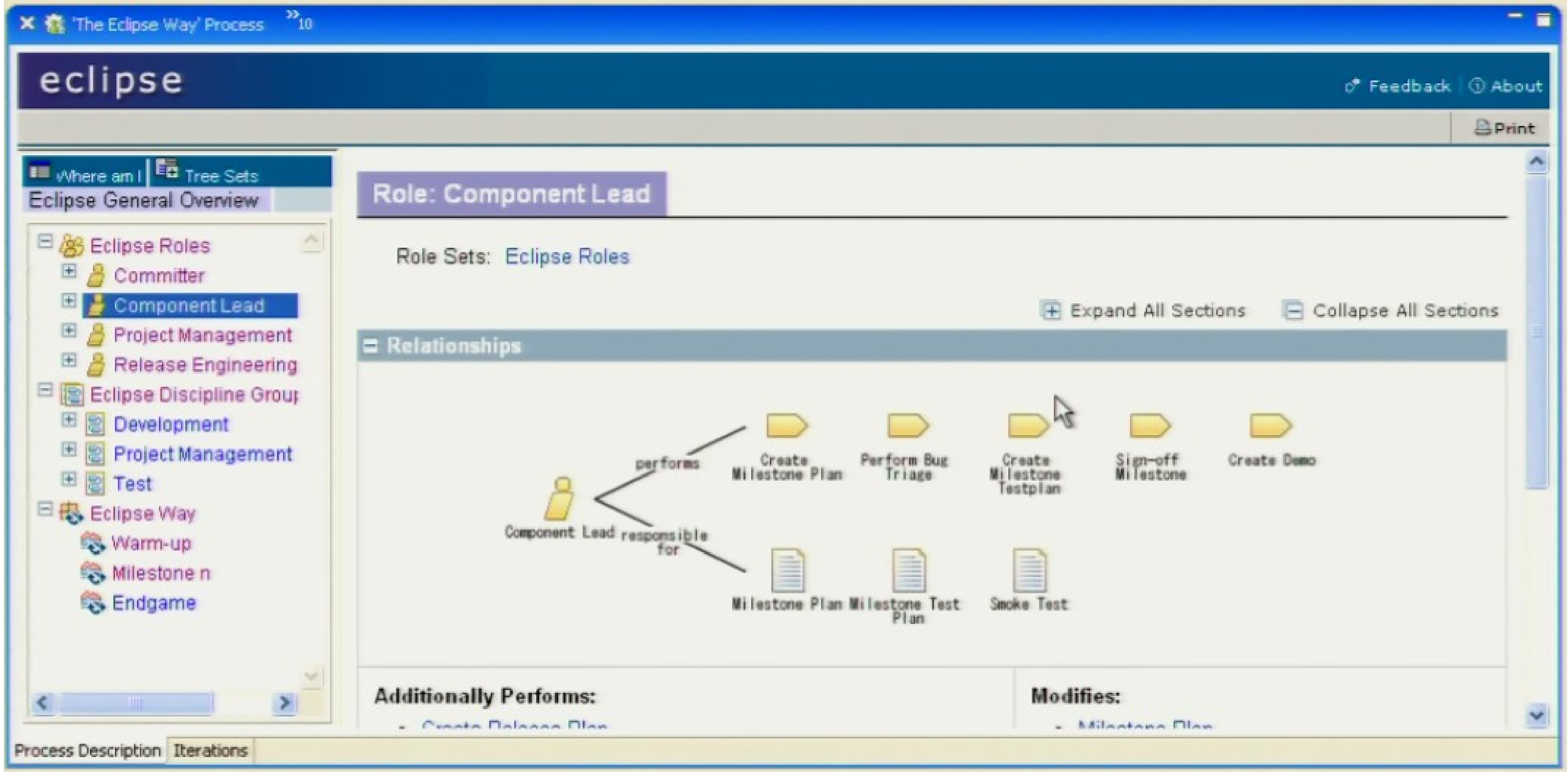
Description
Since M4 the performance tests have been showing a regression of around 20%.
Some of that is likely caused by the runtime refactoring, by the registry, and maybe some changes in osgi.
In any case it is important to look into it.

Running Query: New... Work Items

Process Automation and Guidance

- **Defined using Rational Method Composer/Eclipse Process Framework**

- Artifacts, roles, tasks, guidance
- Future: process rules



Role: Component Lead

Role Sets: Eclipse Roles

Relationships

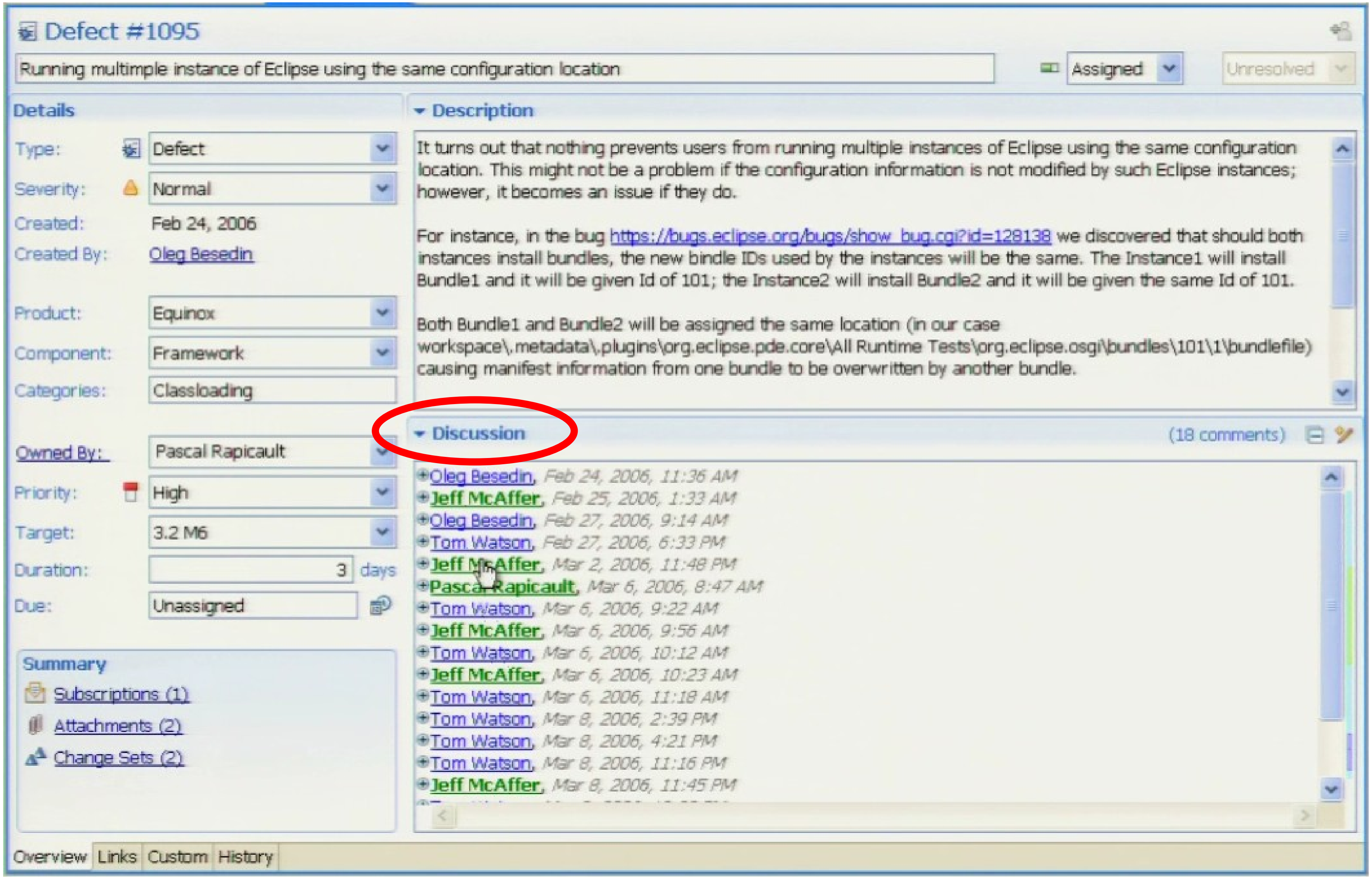
Additionally Performs:

- Create Release Plan

Modifies:

- Milestone Plan

Work Items



Defect #1095

Running multimple instance of Eclipse using the same configuration location

Assigned

Unresolved

Details

Type: Defect

Severity: Normal

Created: Feb 24, 2006

Created By: Oleg Besedin

Product: Equinox

Component: Framework

Categories: Classloading

Owned By: Pascal Rapicault

Priority: High

Target: 3.2 M6

Duration: 3 days

Due: Unassigned

Summary

- Subscriptions (1)
- Attachments (2)
- Change Sets (2)

Description

It turns out that nothing prevents users from running multiple instances of Eclipse using the same configuration location. This might not be a problem if the configuration information is not modified by such Eclipse instances; however, it becomes an issue if they do.

For instance, in the bug https://bugs.eclipse.org/bugs/show_bug.cgi?id=128138 we discovered that should both instances install bundles, the new bindle IDs used by the instances will be the same. The Instance1 will install Bundle1 and it will be given Id of 101; the Instance2 will install Bundle2 and it will be given the same Id of 101.

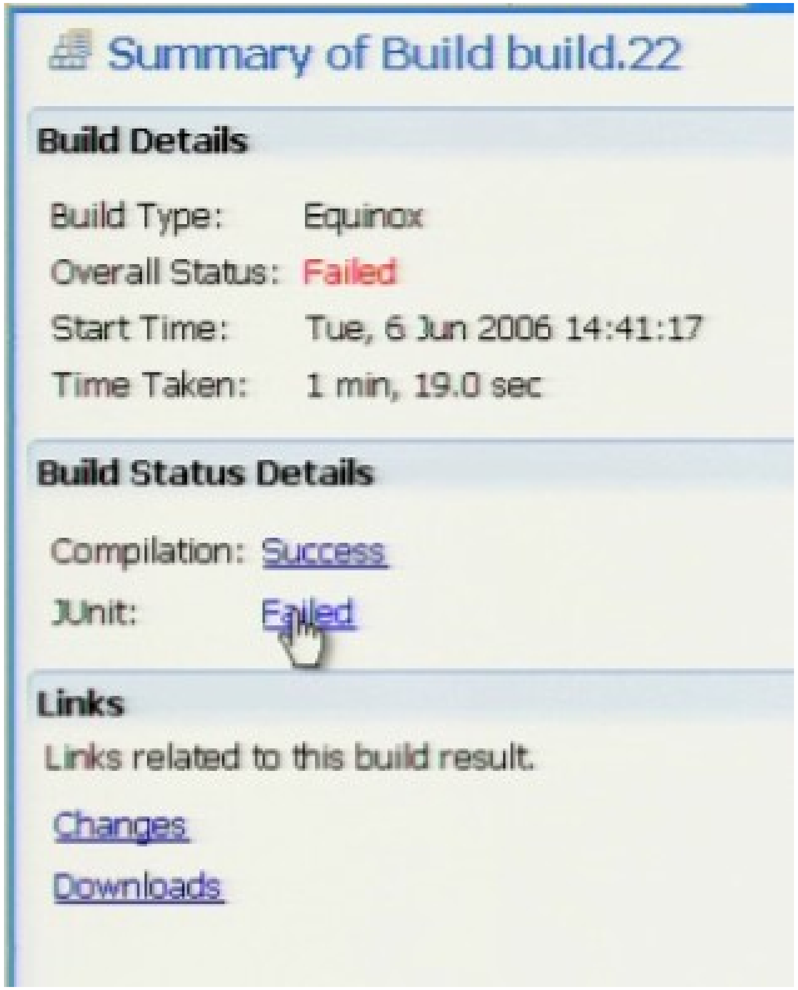
Both Bundle1 and Bundle2 will be assigned the same location (in our case workspace\.metadata\.plugins\org.eclipse.pde.core\All Runtime Tests\org.eclipse.osgi\bundles\101\1\bundlefile) causing manifest information from one bundle to be overwritten by another bundle.

Discussion (18 comments)

- Oleg Besedin, Feb 24, 2006, 11:36 AM
- Jeff McAffer, Feb 25, 2006, 1:33 AM
- Oleg Besedin, Feb 27, 2006, 9:14 AM
- Tom Watson, Feb 27, 2006, 6:33 PM
- Jeff McAffer, Mar 2, 2006, 11:48 PM
- Pascal Rapicault, Mar 6, 2006, 8:47 AM
- Tom Watson, Mar 6, 2006, 9:22 AM
- Jeff McAffer, Mar 6, 2006, 9:56 AM
- Tom Watson, Mar 6, 2006, 10:12 AM
- Jeff McAffer, Mar 6, 2006, 10:23 AM
- Tom Watson, Mar 6, 2006, 11:18 AM
- Tom Watson, Mar 8, 2006, 2:39 PM
- Tom Watson, Mar 8, 2006, 4:21 PM
- Tom Watson, Mar 8, 2006, 11:16 PM
- Jeff McAffer, Mar 8, 2006, 11:45 PM

Team Build

- **A Build is a first-class object**
  - Associated build results, tests
  - Full navigability to all artifacts contributing to a build, directly or indirectly
- **Build engine is “pluggable”**
  - CruiseControl
  - BuildForge



Summary of Build build.22

Build Details

Build Type: Equinox

Overall Status: Failed

Start Time: Tue, 6 Jun 2006 14:41:17

Time Taken: 1 min, 19.0 sec

Build Status Details

Compilation: Success

JUnit: Failed

Links

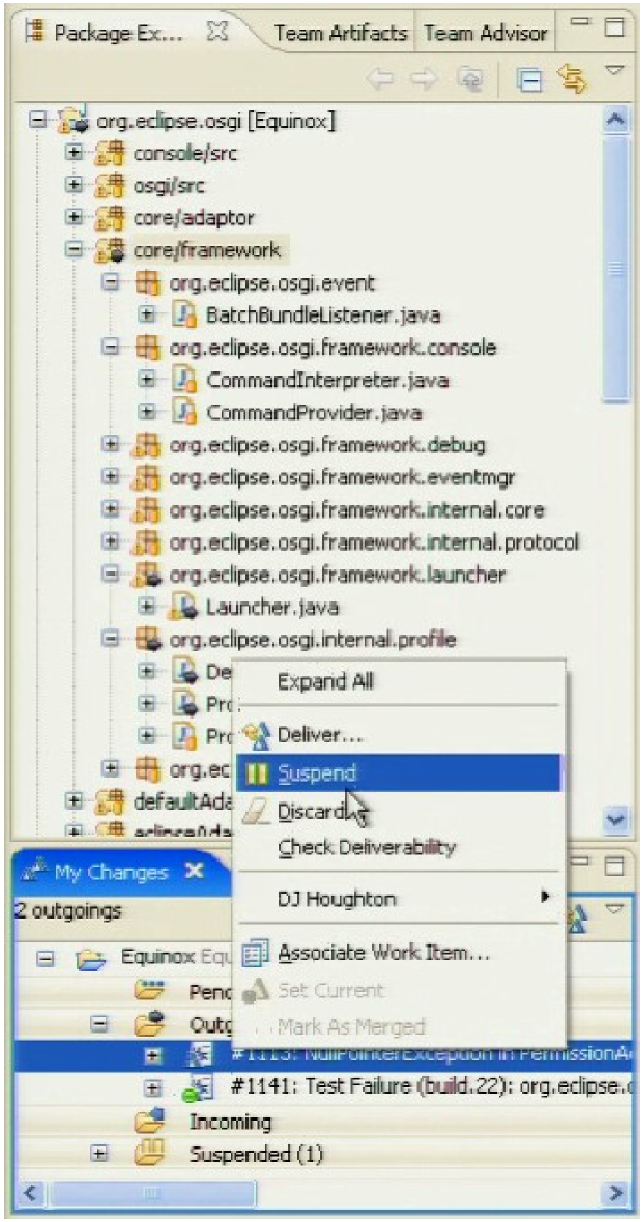
Links related to this build result.

Changes

Downloads

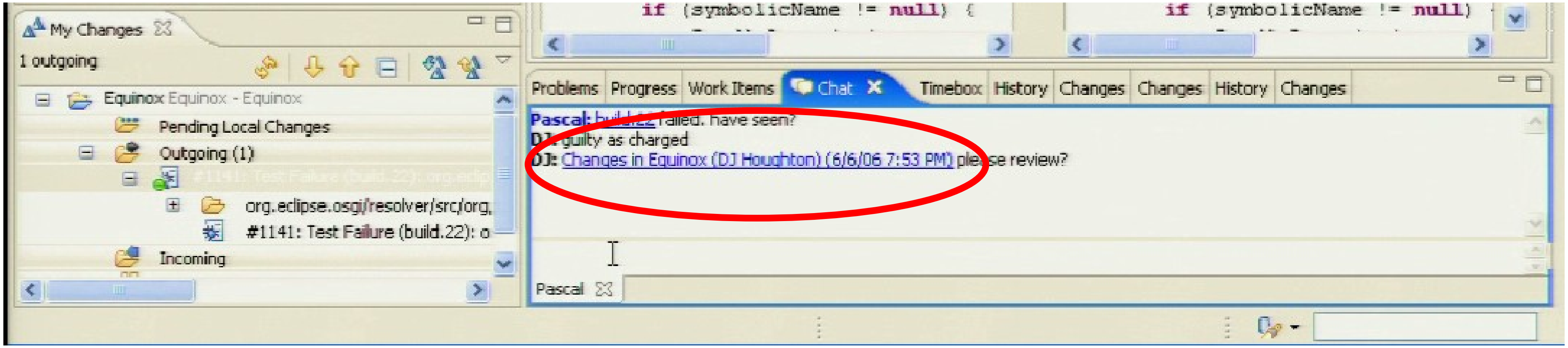
Suspending/Resuming Work

- **More than one WorkItem can be worked on at the same time**
- **Work can be suspended and resumed, preventing change sets from being mingled**



Sharing Change Sets

- **Changes can be shared with other team members before committing to the repository**
  - Aids in code reviews, discussions, informal communication between team members
  - Prevents “in process” work from having to be added to the official record of the project just to have a discussion
  - Accelerates progress by improving communication



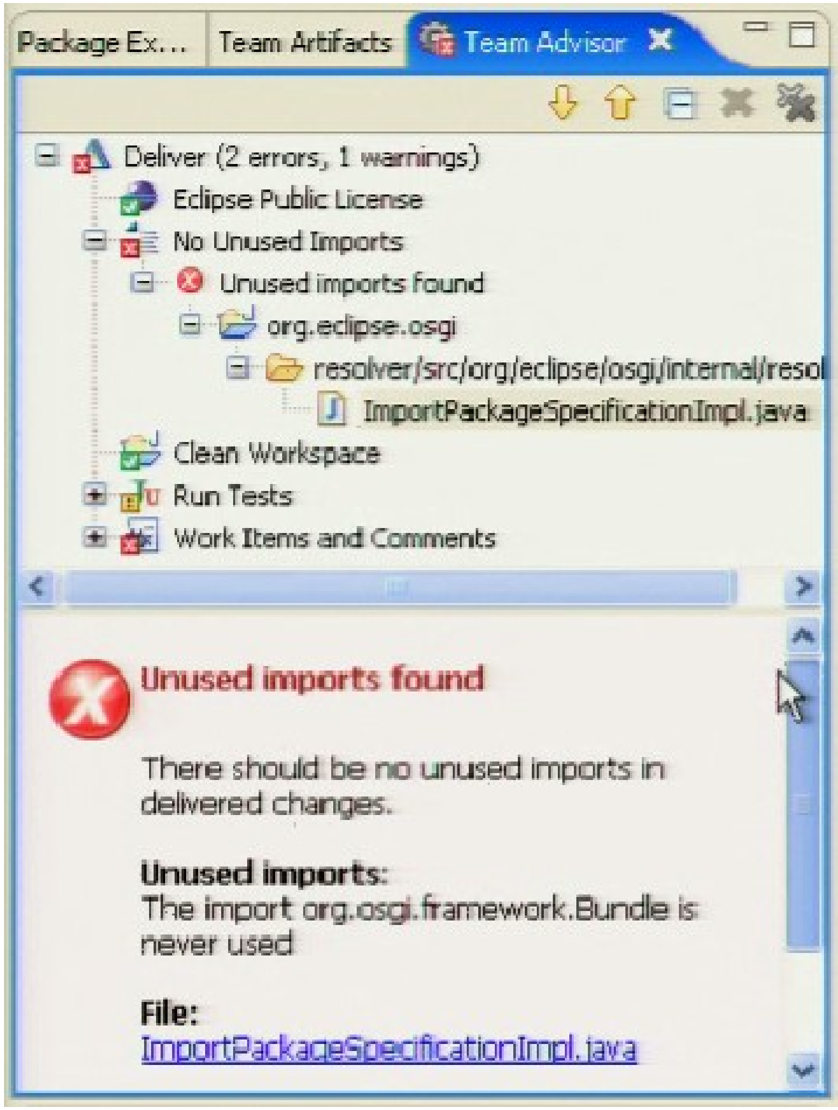
```
if (symbolicName != null) {
```

```
if (symbolicName != null)
```

Pascal: build.22 failed. have seen?
DJ: guilty as charged
DJ: Changes in Equinox (DJ Houghton) (6/6/06 7:53 PM) please review?

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



Deliver (2 errors, 1 warnings)
Eclipse Public License
No Unused Imports
Unused imports found
org.eclipse.osgi
resolver/src/org/eclipse/osgi/internal/resol
ImportPackageSpecificationImpl.java
Clean Workspace
Run Tests
Work Items and Comments

Unused imports found

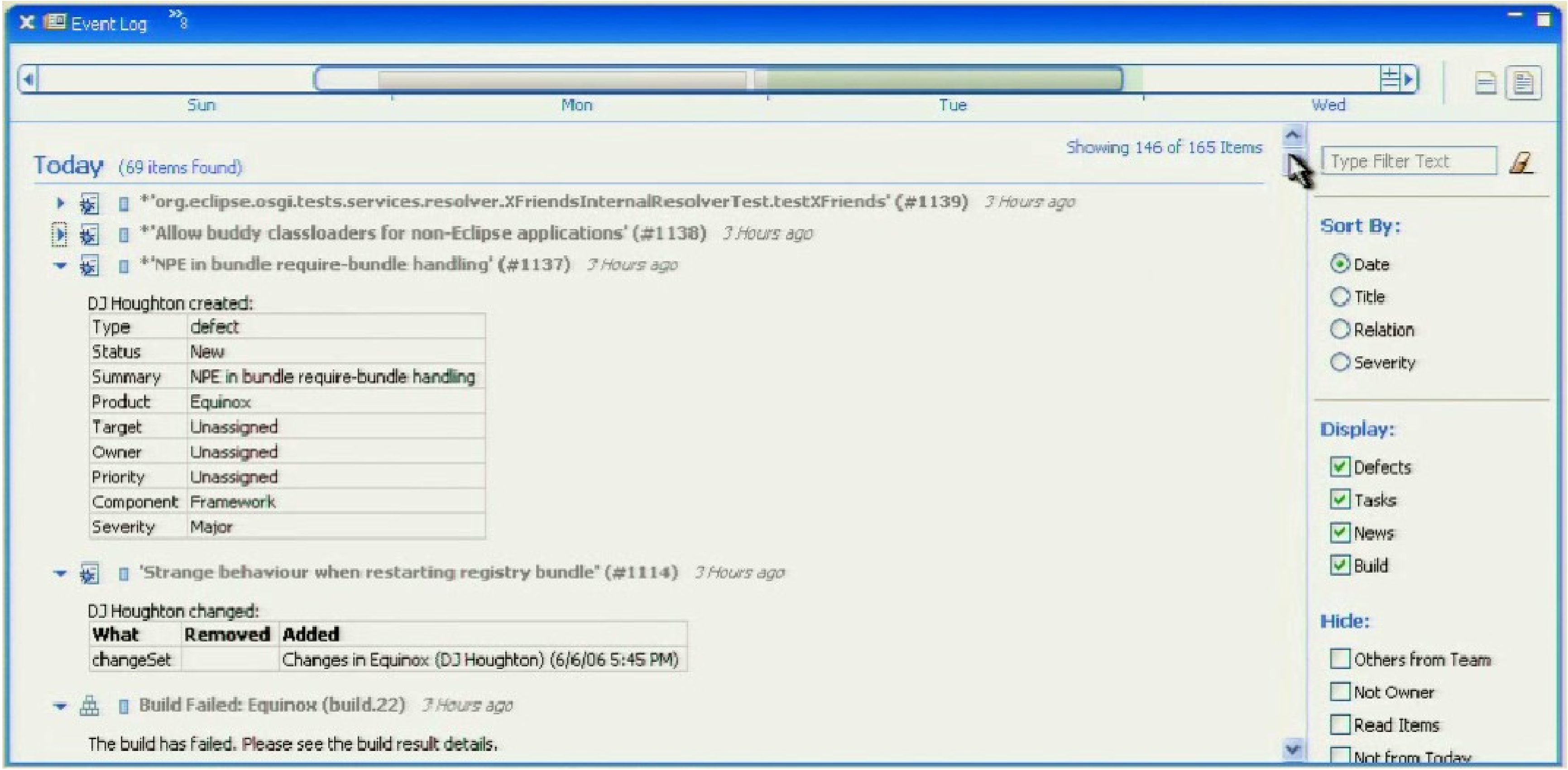
There should be no unused imports in delivered changes.

Unused imports:
The import org.osgi.framework.Bundle is never used

File:
ImportPackageSpecificationImpl.java

Tracking Work and Events

- **Easily view what has happened on the project**
- **Easily drill down into details**



Today (69 items Found)

Showing 146 of 165 Items

Type Filter Text

- *'org.eclipse.osgi.tests.services.resolver.XFriendsInternalResolverTest.testXFriends' (#1139) *3 Hours ago*
- *'Allow buddy classloaders for non-Eclipse applications' (#1138) *3 Hours ago*
- *'NPE in bundle require-bundle handling' (#1137) *3 Hours ago*

DJ Houghton created:

Type	defect
Status	New
Summary	NPE in bundle require-bundle handling
Product	Equinox
Target	Unassigned
Owner	Unassigned
Priority	Unassigned
Component	Framework
Severity	Major

- 'Strange behaviour when restarting registry bundle' (#1114) *3 Hours ago*

DJ Houghton changed:

What	Removed	Added
changeSet		Changes in Equinox (DJ Houghton) (6/6/06 5:45 PM)

- Build Failed: Equinox (build.22) *3 Hours ago*

The build has failed. Please see the build result details.

Sort By:

● Date
○ Title
○ Relation
○ Severity

Display:

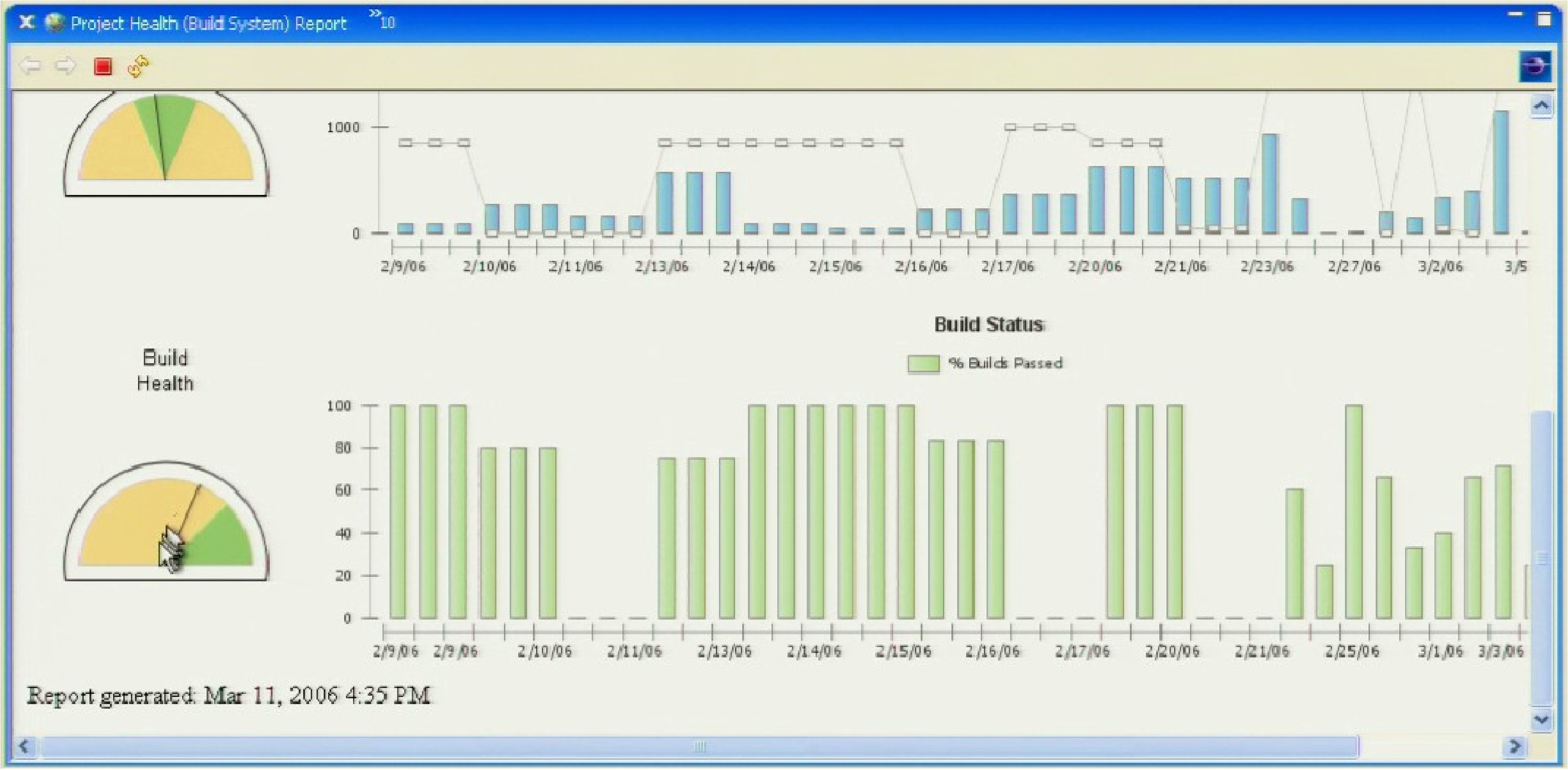
☑ Defects
☑ Tasks
☑ News
☑ Build

Hide:

□ Others from Team
□ Not Owner
□ Read Items
□ Not from Today

Project Health Reporting

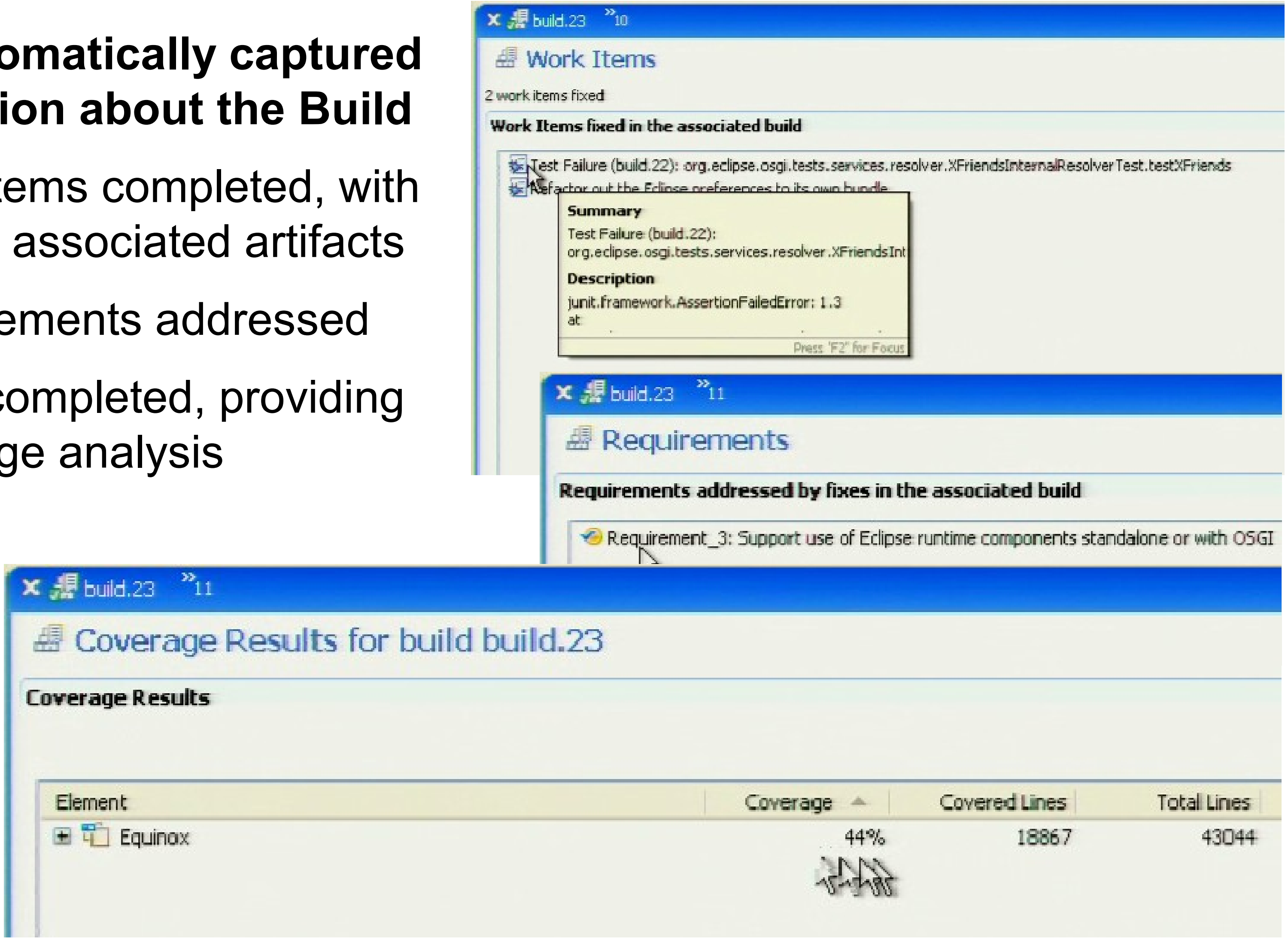
- **Based on data collected in real-time from actual development work**
  - Always accurate
  - No extra effort required to gather data



Report generated: Mar 11, 2006 4:35 PM

Automatically Generating Release Notes for a Build

- **Jazz automatically captured information about the Build**
  - Work Items completed, with links to associated artifacts
  - Requirements addressed
  - Tests completed, providing coverage analysis



2 work items fixed

Work Items fixed in the associated build

Test Failure (build.22): org.eclipse.osgi.tests.services.resolver.XFriendsInternalResolverTest.testXFriends
Refactor out the Eclipse preferences to its own bundle

Summary
Test Failure (build.22):
org.eclipse.osgi.tests.services.resolver.XFriendsInt

Description
junit.framework.AssertionFailedError: 1.3
at

Requirements addressed by fixes in the associated build

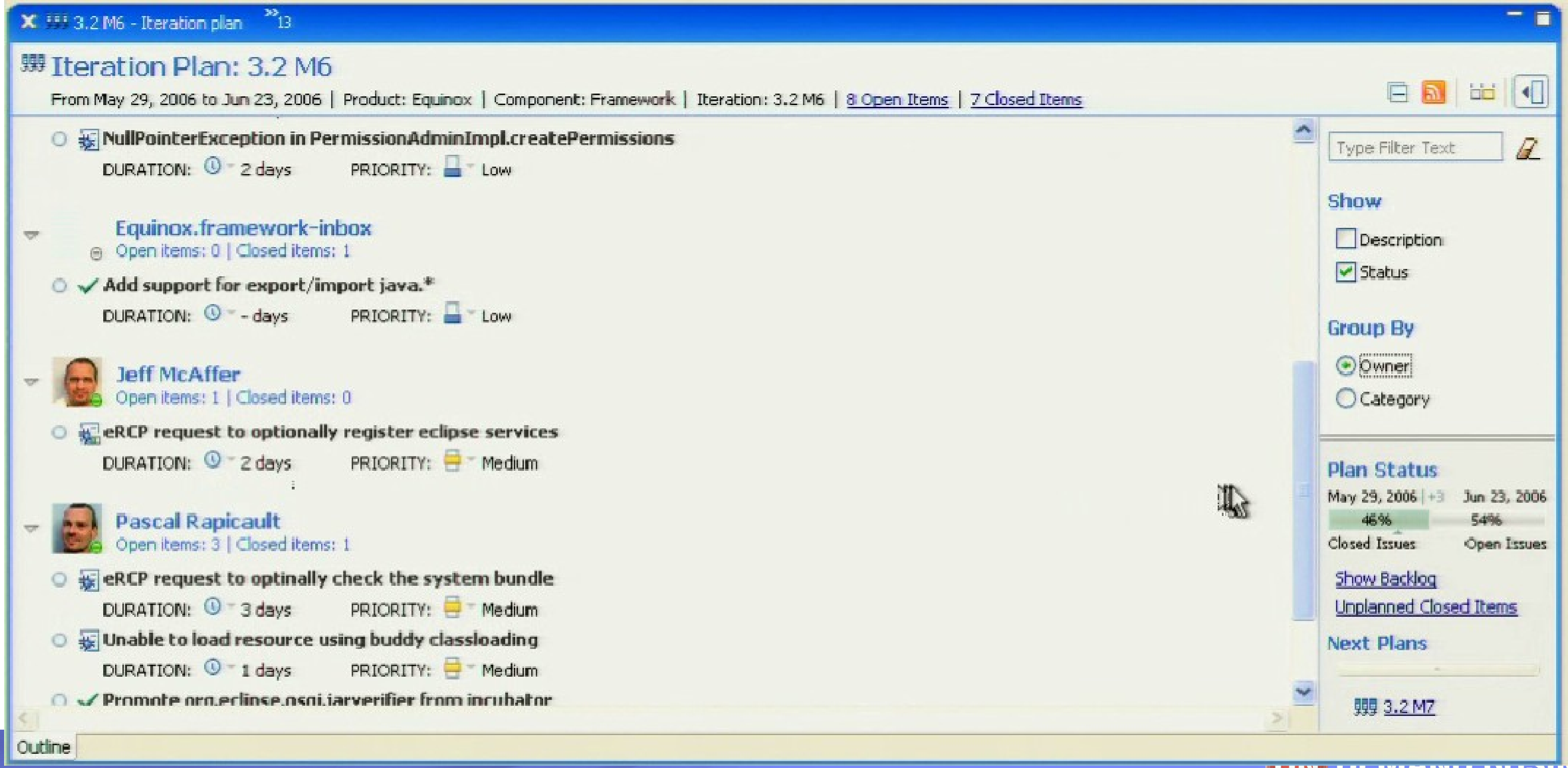
Requirement_3: Support use of Eclipse runtime components standalone or with OSGI

Coverage Results

Element	Coverage	Covered Lines	Total Lines
Equinox	44%	18867	43044

Iteration Planning and Execution

- **Integrates planning with execution**
- **Easily see what needs to be done, what is being worked**
- **Real-time window on project status**



3.2 M6 - Iteration plan

Iteration Plan: 3.2 M6

From May 29, 2006 to Jun 23, 2006 | Product: Equinox | Component: Framework | Iteration: 3.2 M6 | 8 Open Items | 7 Closed Items

○ NullPointerException in PermissionAdminImpl.createPermissions
DURATION: 2 days PRIORITY: Low

Equinox.framework-inbox
Open items: 0 | Closed items: 1

○ ✓ Add support for export/import java.*
DURATION: - days PRIORITY: Low

Jeff McAffer
Open items: 1 | Closed items: 0

○ eRCP request to optionally register eclipse services
DURATION: 2 days PRIORITY: Medium

Pascal Rapicault
Open items: 3 | Closed items: 1

○ eRCP request to optinally check the system bundle
DURATION: 3 days PRIORITY: Medium

○ Unable to load resource using buddy classloading
DURATION: 1 days PRIORITY: Medium

○ ✓ Promote org.eclipse.osgi.jarverifier from incubator

Type Filter Text

Show
☐ Description
☑ Status

Group By
● Owner
○ Category

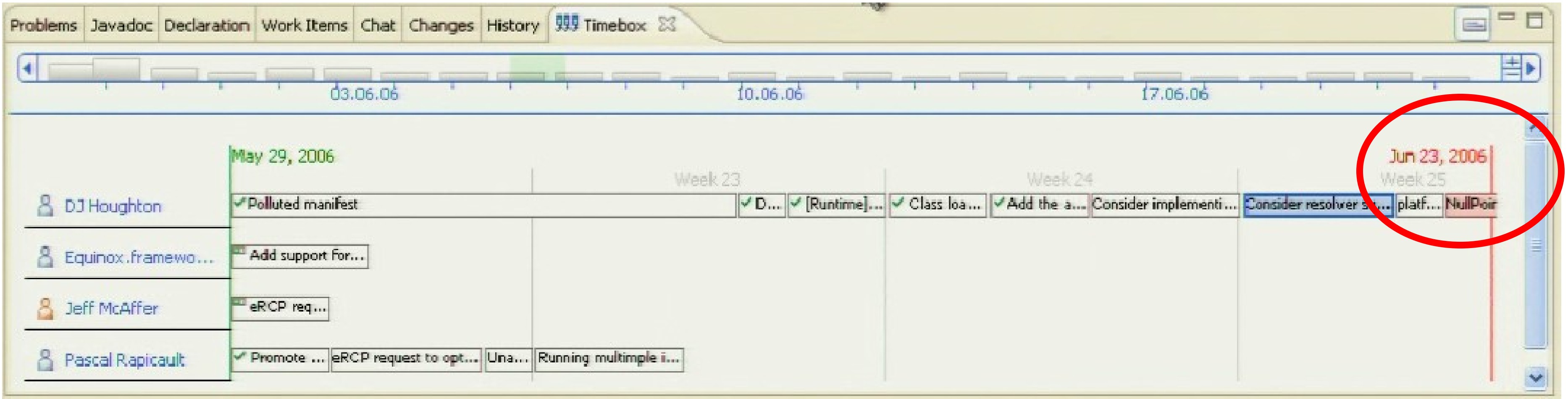
Plan Status
May 29, 2006 Jun 23, 2006
46% 54%
Closed Issues Open Issues

Show Backlog
Unplanned Closed Items

Next Plans
3.2 M7

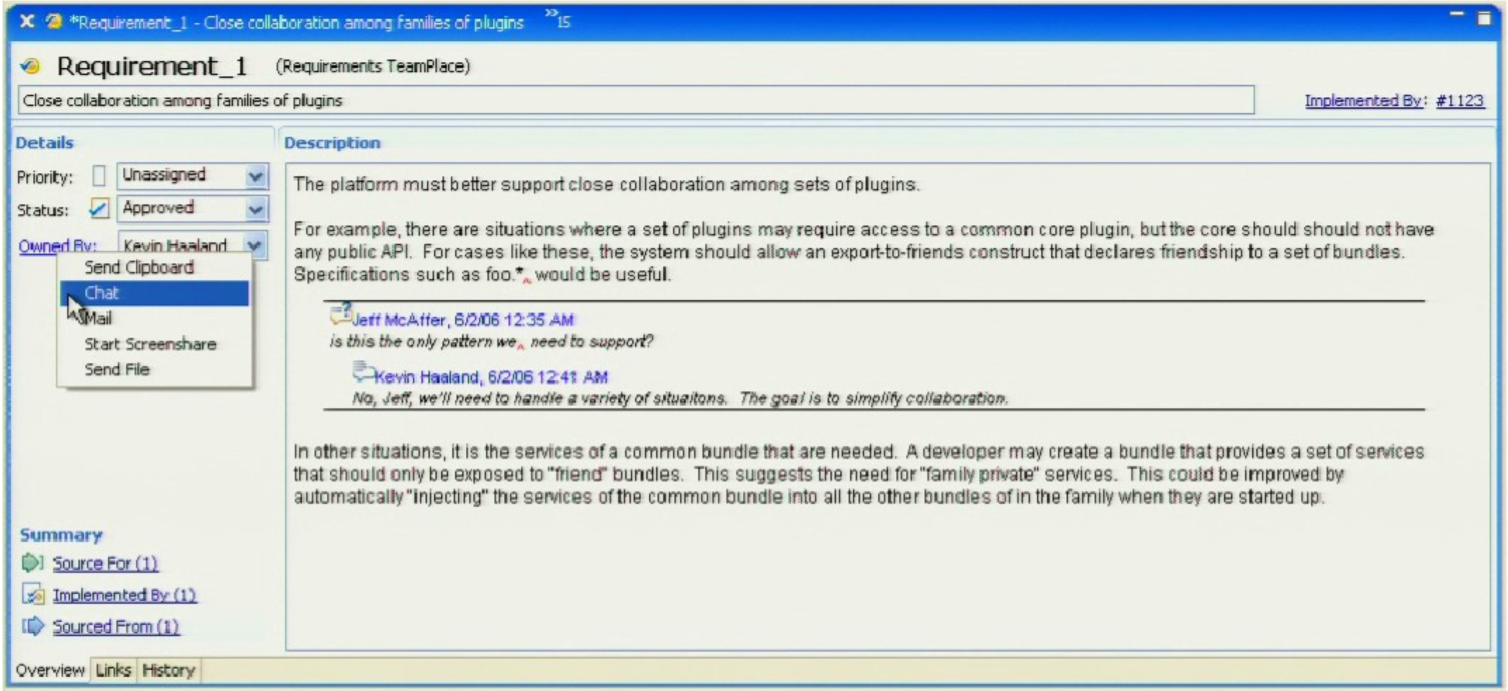
Time-boxing Iterations, Balancing Workload

- **Easily see where tasks will extend beyond Iteration timebox**
- **Enable balancing of workload across team members to ensure that team meets goals**
- **Provides real-time information to help improve project delivery**



Integrating Requirements with Development

- **Not just for development – Jazz covers the entire lifecycle**
- **Discussions, comments and chat integrated into Requirements perspectives**
- **Traceability from sources of requirements, and to implementations of requirements and tests for requirements completeness is automated**



Close collaboration among families of plugins

Priority: □ Unassigned

Status: ☑ Approved

Owned By: Kevin Haaland

The platform must better support close collaboration among sets of plugins.

For example, there are situations where a set of plugins may require access to a common core plugin, but the core should should not have any public API. For cases like these, the system should allow an export-to-friends construct that declares friendship to a set of bundles. Specifications such as foo.* would be useful.

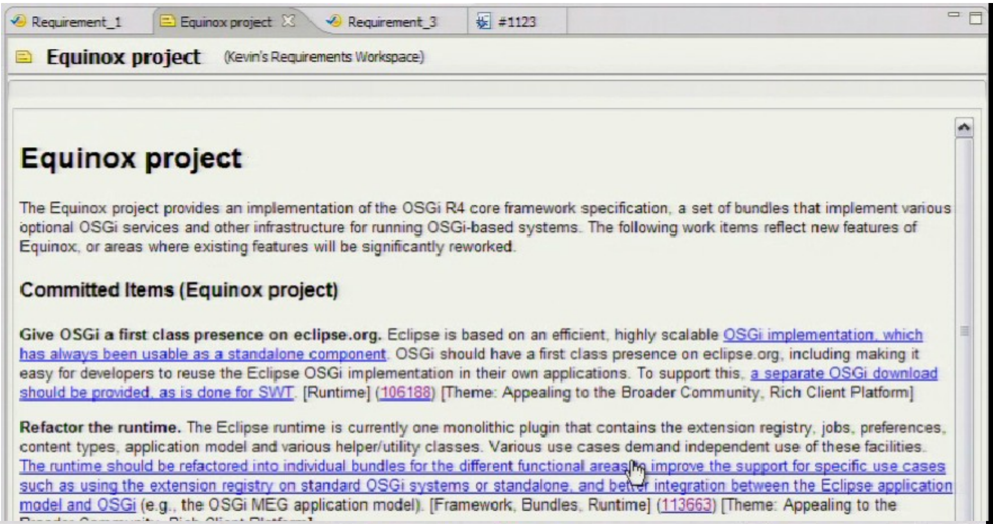
Jeff McAffer, 6/2/06 12:35 AM
is this the only pattern we need to support?

Kevin Haaland, 6/2/06 12:41 AM
No, Jeff, we'll need to handle a variety of situaitons. The goal is to simplify collaboration.

In other situations, it is the services of a common bundle that are needed. A developer may create a bundle that provides a set of services that should only be exposed to "friend" bundles. This suggests the need for "family private" services. This could be improved by automatically "injecting" the services of the common bundle into all the other bundles of in the family when they are started up.

Requirements Definition and Linking

- All text fields in Jazz are "Rich Text" and may include hyperlinks
- Requirements can be captured by importing and marking-up a document
- All Jazz artifacts are versioned



Equinox project (Kevin's Requirements Workspace)

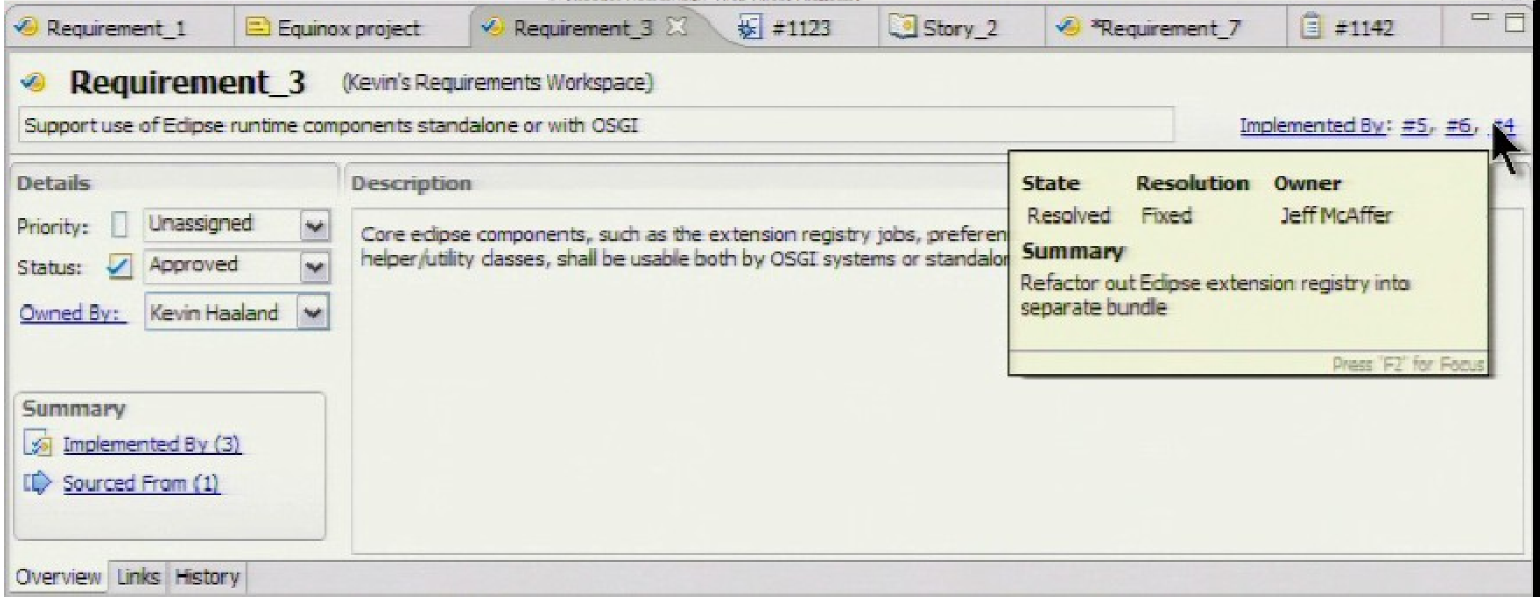
Equinox project

The Equinox project provides an implementation of the OSGi R4 core framework specification, a set of bundles that implement various optional OSGi services and other infrastructure for running OSGi-based systems. The following work items reflect new features of Equinox, or areas where existing features will be significantly reworked.

Committed Items (Equinox project)

Give OSGi a first class presence on eclipse.org. Eclipse is based on an efficient, highly scalable OSGi implementation, which has always been usable as a standalone component. OSGi should have a first class presence on eclipse.org, including making it easy for developers to reuse the Eclipse OSGi implementation in their own applications. To support this, a separate OSGi download should be provided, as is done for SWT. [Runtime] (106188) [Theme: Appealing to the Broader Community, Rich Client Platform]

Refactor the runtime. The Eclipse runtime is currently one monolithic plugin that contains the extension registry, jobs, preferences, content types, application model and various helper/utility classes. Various use cases demand independent use of these facilities. The runtime should be refactored into individual bundles for the different functional areas to improve the support for specific use cases such as using the extension registry on standard OSGi systems or standalone, and better integration between the Eclipse application model and OSGi (e.g., the OSGi MEG application model). [Framework, Bundles, Runtime] (113663) [Theme: Appealing to the



Requirement_3 (Kevin's Requirements Workspace)

Support use of Eclipse runtime components standalone or with OSGI

Implemented By: #5, #6, #4

Details

Priority: Unassigned

Status: ✓ Approved

Owned By: Kevin Haaland

Summary

Implemented By (3)

Sourced From (1)

Description

Core eclipse components, such as the extension registry jobs, preferen
helper/utility classes, shall be usable both by OSGI systems or standalon

State	Resolution	Owner
Resolved	Fixed	Jeff McAffer

Summary

Refactor out Eclipse extension registry into separate bundle

Press 'F2' for Focus

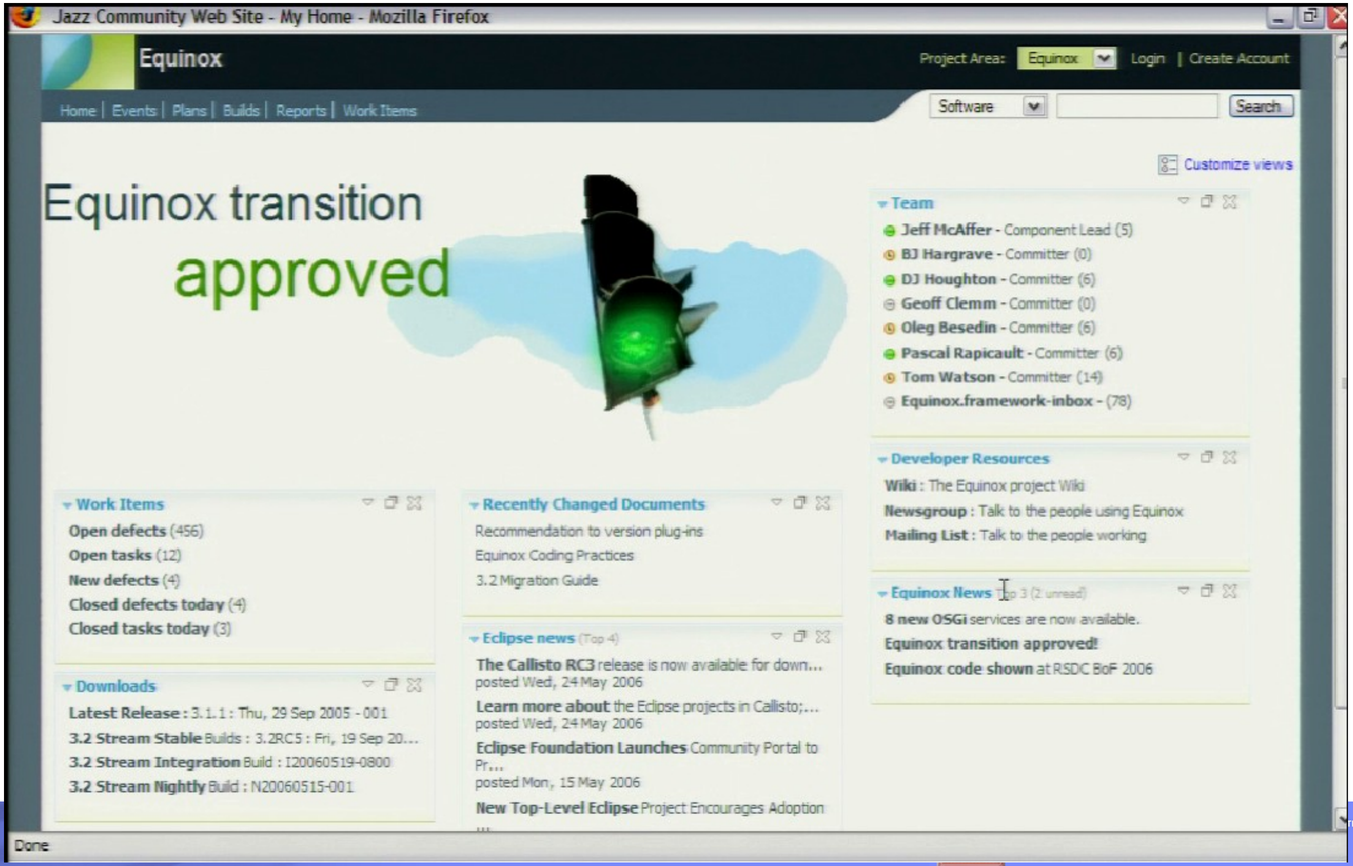
Jazz and Web clients

- **Jazz will support Web clients as well as Eclipse and VisualStudio**
- **External stakeholders or occasional users can get access to information without a “rich client”**

Jazz Web UI utilizes AJAX Technology for a “rich client” style of interaction.

Views are configurable.

Toolkits for ISV partners will assist with the creation of rich web UIs for “plug-in” applications.



Team

- Jeff McAffer - Component Lead (5)
- BJ Hargrave - Committer (0)
- DJ Houghton - Committer (6)
- Geoff Clemm - Committer (0)
- Oleg Besedin - Committer (6)
- Pascal Rapicault - Committer (6)
- Tom Watson - Committer (14)
- Equinox.framework-inbox - (78)

Developer Resources

Wiki : The Equinox project Wiki

Newsgroup : Talk to the people using Equinox

Mailing List : Talk to the people working

Equinox News Top 3 (2 unread)

8 new OSGi services are now available.

Equinox transition approved!

Equinox code shown at RSDC BoF 2006

Work Items

Open defects (456)

Open tasks (12)

New defects (4)

Closed defects today (4)

Closed tasks today (3)

Recently Changed Documents

Recommendation to version plug-ins

Equinox Coding Practices

3.2 Migration Guide

Eclipse news (Top 4)

The Callisto RC3 release is now available for down...
posted Wed, 24 May 2006

Learn more about the Eclipse projects in Callisto;...
posted Wed, 24 May 2006

Eclipse Foundation Launches Community Portal to Pr...
posted Mon, 15 May 2006

New Top-Level Eclipse Project Encourages Adoption ...

Downloads

Latest Release : 3.1.1 : Thu, 29 Sep 2005 - 001

3.2 Stream Stable Builds : 3.2RC5 : Fri, 19 Sep 20...

3.2 Stream Integration Build : I20060519-0800

3.2 Stream Nightly Build : N20060515-001

Jazz Buzz

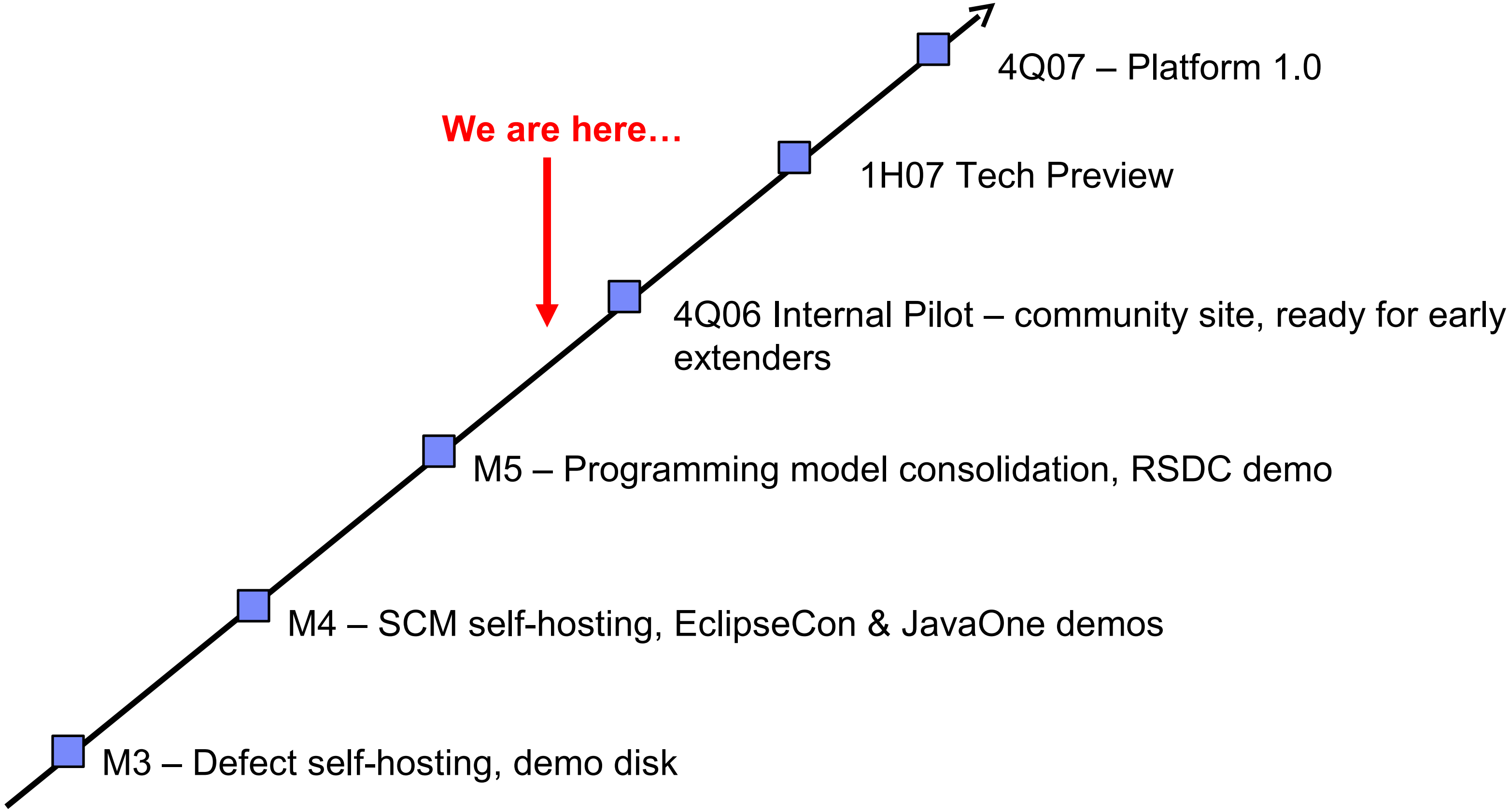
If application development had been invented after Ajax, Bazaar/Subversion and instant messaging, it would look a lot like Jazz.

What they've built is a truly network aware and enabled process and lifecycle. ~ Stephen O'Grady

It really simplifies the whole process. I think Jazz will greatly influence the way … we develop software…~ Gunnar Wagenknecht

Not only the UI is really sweet, the best I've seen on any Eclipse-based application, but the integration between different development tools to make a really seamless workflow, is going to be a killer. Can't wait to get a hold of it. ~ Julio Santos

Jazz Progress



We are here…

4Q07 – Platform 1.0

1H07 Tech Preview

4Q06 Internal Pilot – community site, ready for early extenders

M5 – Programming model consolidation, RSDC demo

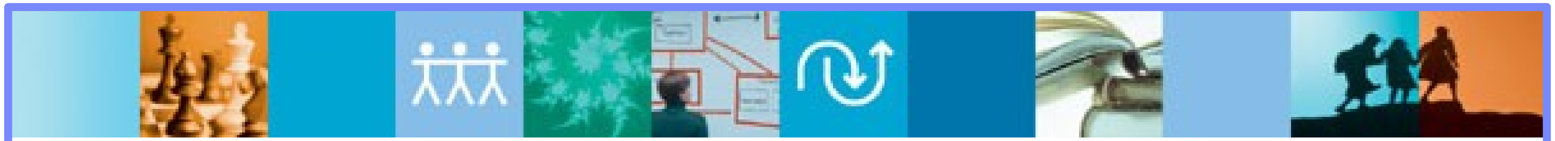
M4 – SCM self-hosting, EclipseCon & JavaOne demos

M3 – Defect self-hosting, demo disk

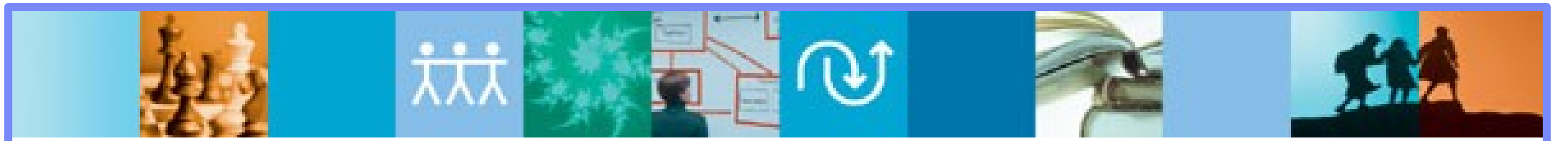
Summary

- **Jazz provides technology that enables rich collaboration for teams developing software and systems solutions**
- **We will build a community of partners and customers around Jazz; we want you to be part of that community**
- **While the work is still in its early stages, we are making good progress**
  - We will work to stabilize and validate the architecture between now and end of 2006
  - We plan to start the first broad community interactions by the end of 1Q2007

Stay Tuned!



Questions



Thank You