Collaborative Enterprise Java Development Powered by IBM Rational Jazz

V Niranjan

Rational Brand Architect

IBM Software

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Agenda

1. The challenges of software development today

2. Agile application development for WebSphere

3. Scenario and demo
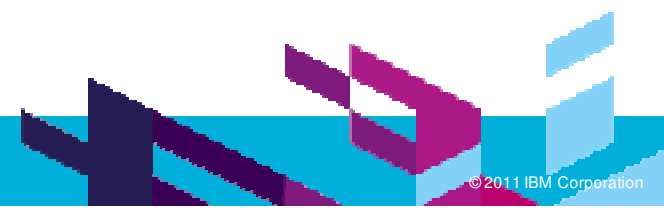
Complexity is the biggest challenge facing organizations today!

"Today's complexity is only expected to rise, and more than half of CEOs doubt their ability to manage it."

IBM 2010 Global CEO Study: 1500 face-to-face interviews, Companies of all sizes across 60 countries, representing 33 industries. (IBM CEO study)

IT software-based applications continue to grow in size and complexity.

Globally distributed teams, outsourcing and dependencies lead to increased challenges in the timely launch of competitive products and services.

Electronics Retailer - Application diagram
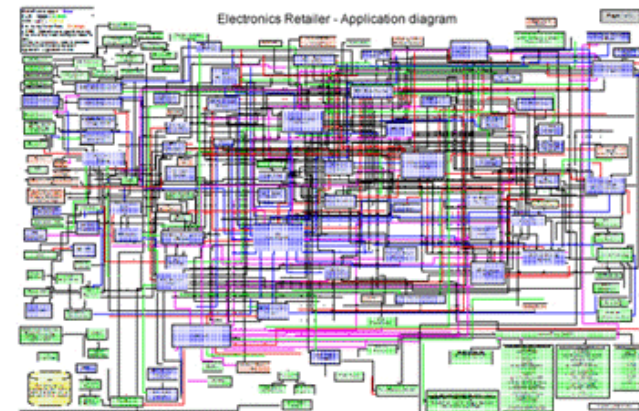
Organizations struggle to balance agility and complexity.

It's not enough to manage development, the design process itself must become more streamlined and efficient.
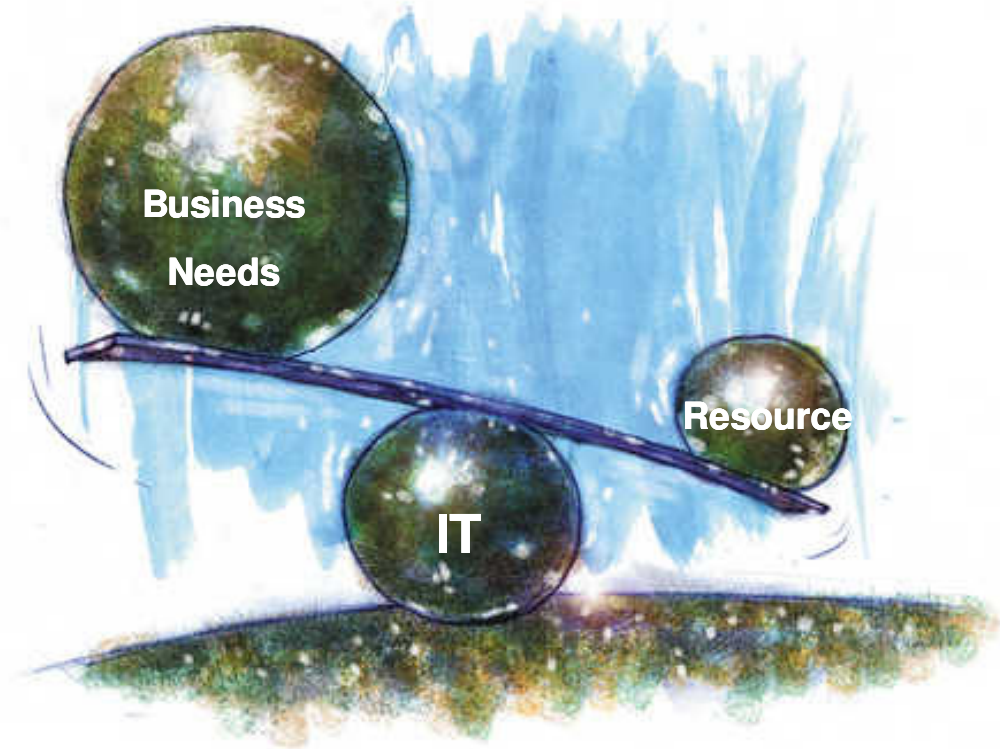
Software Development That Supports IT Agility

- Software Development Must Deliver:
  - ✓ More business solutions
  - ✓ More flexibility
  - ✓ More quality
  - ✓ More business value

    -yet-

  - ✓ Less risk
  - ✓ Less costs
  - ✓ Less or flat resources

Business Needs

IT

Resource

Effective software development promotes a delicate balance of resources, reducing costs while delivering more, higher-quality business solutions.

ALM is about connecting the disciplines

Project/Planning

- Business Drivers
- Iterations
- Sign-off
- Contract
- Risk Assess
- User Involvement

Requirements

- Use Cases
- Nonfunctional
- Sign-off
- Contract
- Risk Assess
- Threat Model
- Test Requirements

Development

- TDD
- Build Management
- Static Analysis
- BVT
- Source Management
- Pair Programming/ Code Review

Testing

- Scenario-Driven Automation
- Exploratory Test
- User Involvement
- Contract Validation

Continuous Learning and Feedback

Source: Gartner Application Architecture, Development & Integration Summit Presentation, The Future and Present of AD, Thomas E. Murphy, December 2008

Defining what "Jazz" means

- Jazz is IBM's initiative for improving collaboration across the software & systems lifecycle

- This initiative consists of three elements:
  - ▸ An open **platform** for lifecycle tool integration
  - ▸ A transparent **community** working together to integrate and develop lifecycle tools
  - ▸ A set of **products** that support the Jazz platform

Platform
- **An architecture for common lifecycle integration patterns**
- **Application frameworks, toolkits, and other helpers for tool providers**

Community
- **Jazz.net – A place where stakeholders collaborate**

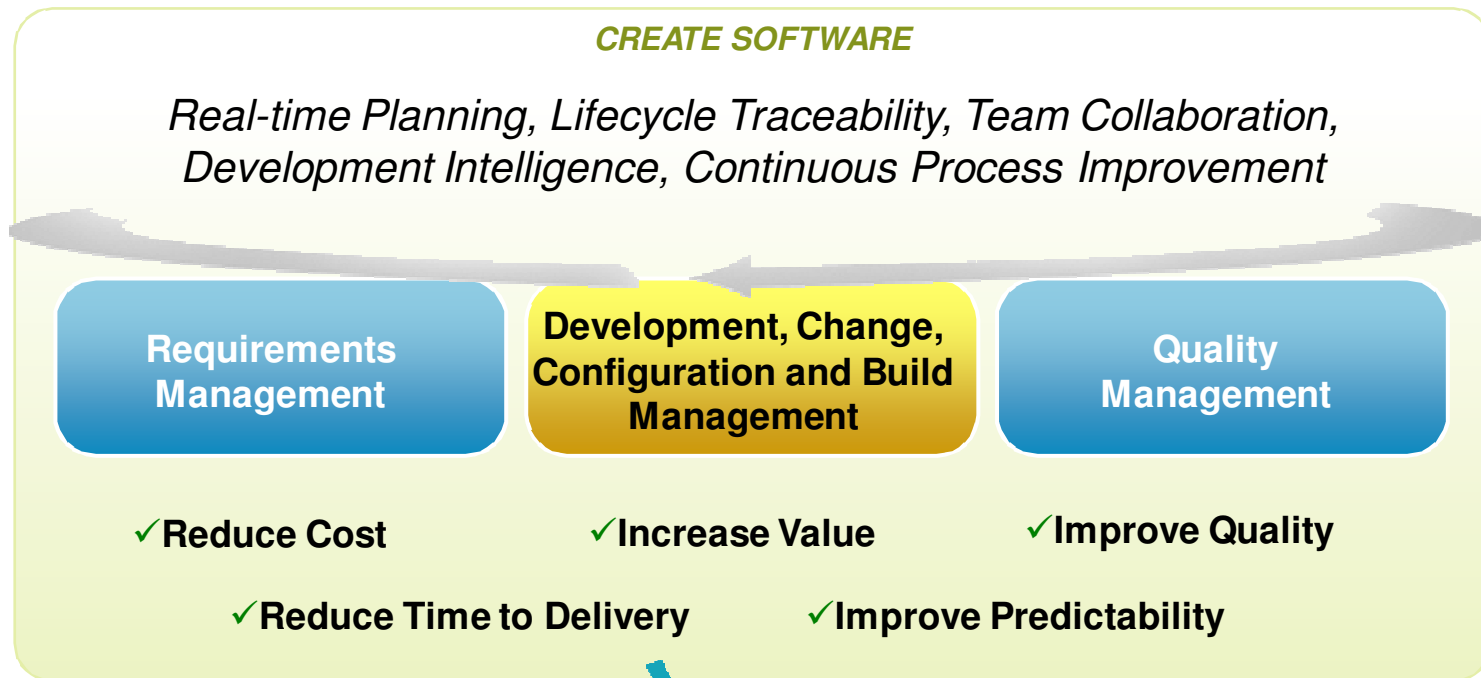 **Enables visibility & influence into the evolution of the Jazz platform and products**

Products
- **Lifecycle tools that support the Jazz platform**

An ALM solution powered by Jazz

**Rational solution for Collaborative Lifecycle Management**

CREATE SOFTWARE

Real-time Planning, Lifecycle Traceability, Team Collaboration, Development Intelligence, Continuous Process Improvement

| Requirements Management | Development, Change, Configuration and Build Management | Quality Management |

✓**Reduce Cost**　　　✓**Increase Value**　　　✓**Improve Quality**

✓**Reduce Time to Delivery**　　✓**Improve Predictability**

*extensions

How can Development become more agile and efficient?

We need a proven and stable set of tools that can handle our entire development process

We need to be able to track and deliver project status to all stakeholders
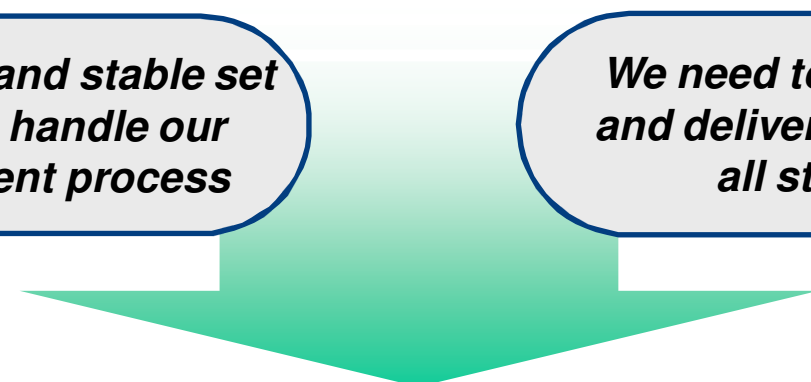
Deploy
Minimize the challenges moving the application from development to production

Develop
Quickly deliver working software that scales and integrates easily?

Collaborative Development

Rational Application Developer

Rational Team Concert

Test, Analyze
Enable teams to build in quality and security, and ensure validation of business requirements along the way

Reuse
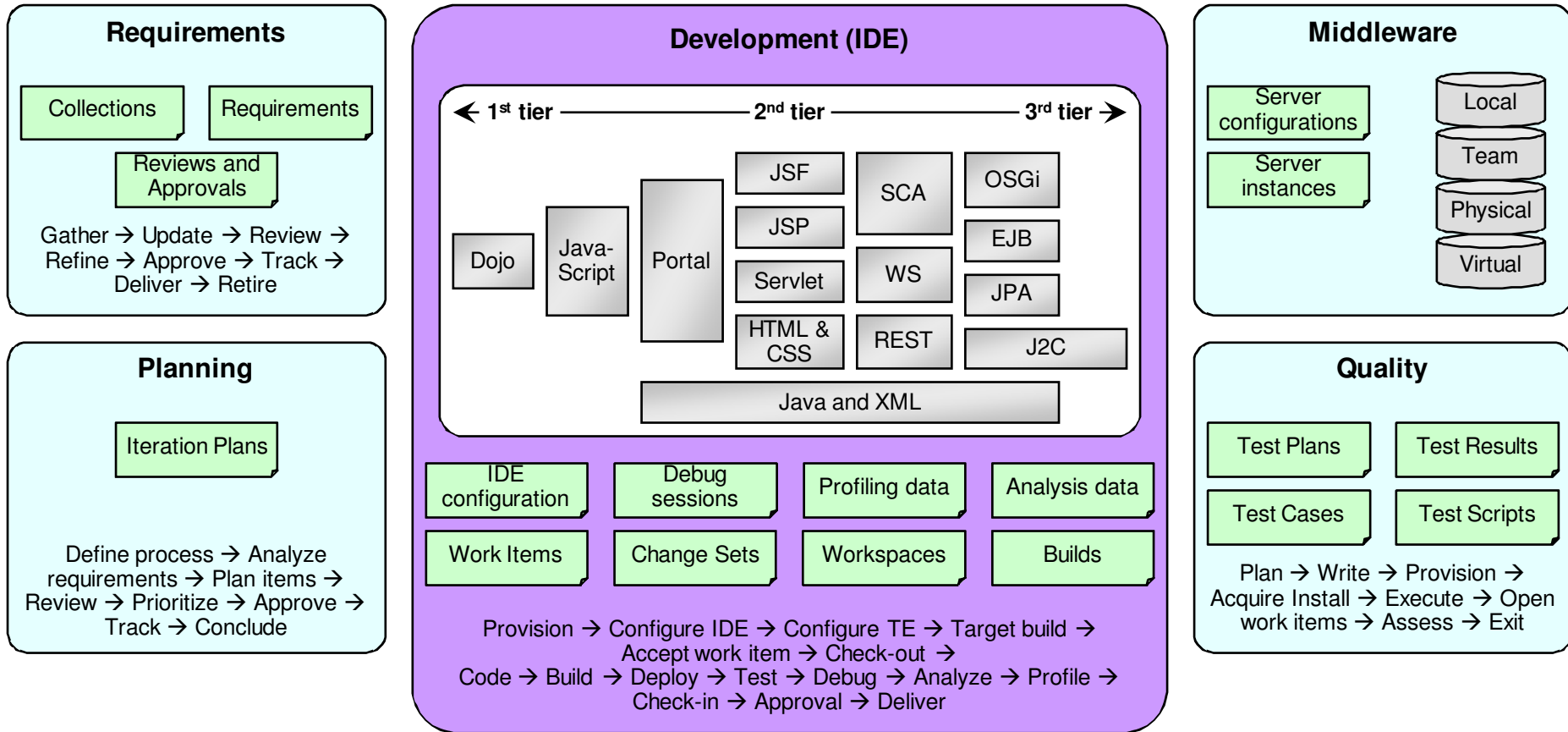*Manage work products and enable reuse across different projects*

Build
Get more visibility and accountability in the builds. Ensure stable builds and that needed fixes get in.

Teamwork
Collaborate with geographically diverse teams to ensure clear communication of joint goals
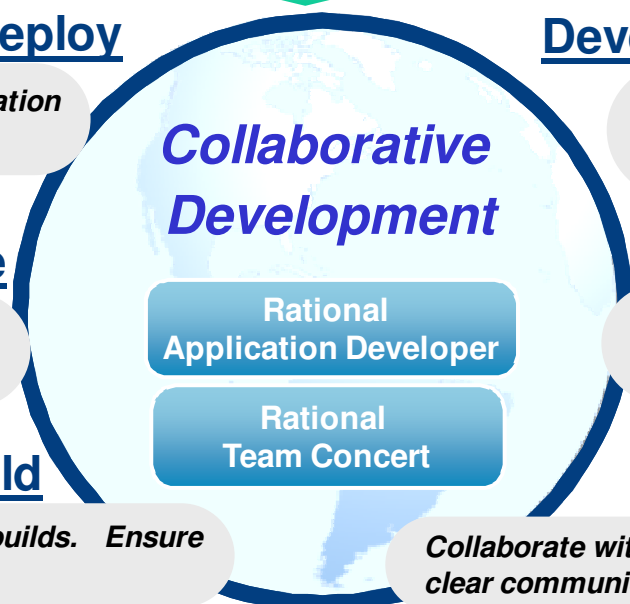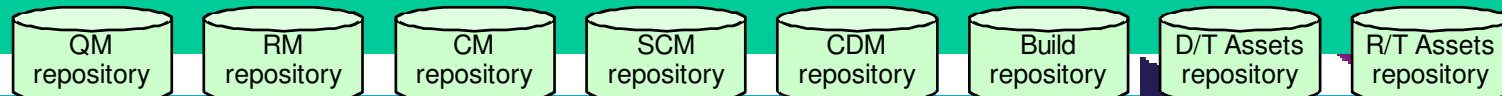
Industry Specialization

Requirements

| Collections | Requirements |

Reviews and Approvals

Gather → Update → Review →
Refine → Approve → Track →
Deliver → Retire

Planning

Iteration Plans

Define process → Analyze
requirements → Plan items →
Review → Prioritize → Approve →
Track → Conclude

Development (IDE)

← 1st tier —————— 2nd tier —————— 3rd tier →

| Dojo | Java-Script | Portal |

JSF	SCA	OSGi
JSP		EJB
Servlet	WS	JPA
HTML & CSS	REST	J2C

Java and XML

| IDE configuration | Debug sessions | Profiling data | Analysis data |
| Work Items | Change Sets | Workspaces | Builds |

Provision → Configure IDE → Configure TE → Target build →
Accept work item → Check-out →
Code → Build → Deploy → Test → Debug → Analyze → Profile →
Check-in → Approval → Deliver

Middleware

Server configurations	Local
Server instances	Team
	Physical
	Virtual

Quality

| Test Plans | Test Results |
| Test Cases | Test Scripts |

Plan → Write → Provision →
Acquire Install → Execute → Open
work items → Assess → Exit

Flexible and Effective Processes: Waterfall ←→ Iterative ←→ Agile (scrum)

OSLC   *Open, standard, loosely integrated resources and services*   **Sametime**

| QM repository | RM repository | CM repository | SCM repository | CDM repository | Build repository | D/T Assets repository | R/T Assets repository |

IDE = Integrated Dev Env (e.g. RAD)   QM = Quality Mgmt   SCM = Source Code Mgmt   D/T = Dev-Time
TE = Test Environment (e.g. WAS)   RM = Req'ts Mgmt   CM = Config Mgmt   CDM = Collab. Dev't Mgmt   R/T = Run-Time

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Agile Application Development for WebSphere

- **Rational Application Developer for WebSphere Software + Rational Team Concert**
  - ▸ Team productivity thru integration of WebSphere development into the application lifecycle.

- Process guidance for WAS with agility
  - ▸ Built-in customizable agile/scrum process ensures best practices for development and maintenance of WAS applications.

- Efficient development thru collaboration
  - ▸ Unified IDE for development for WAS an Portal that lets you collaborate on day t day development tasks.

- Real time, dynamic, transparent planning
  - ▸ Plans fully integrated with execution: Dashboard, views, charts and more improve planning and predictability.

- Enhanced stakeholder participation
  - ▸ Powerful web UI for project leads, members, customers and partners to participate in WAS projects, track status, communicate, submit work items, …

Work items

SCM

Planning

Rational desktop

WebSphere server

Builds

Reporting

Rational Team Concert

JAZZ TEAM SERVER
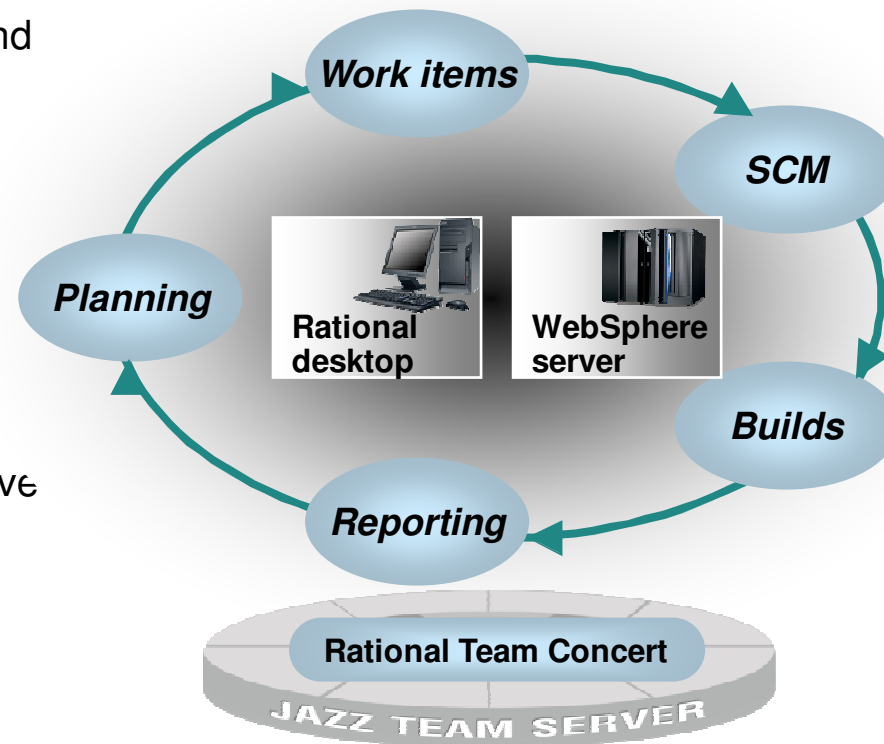
IBM Rational Team Concert for Agile Development
Software innovation through collaboration

- **Collaborate in-context**
  - Integrated release planning and reporting, source control, document collaboration, work item, build management, chat and process guidance

- **Streamline agile development**
  - Out-of-the-box agile process configurations

- **Automate governance**
  - Assess project status and trends in real-time with web-based dashboards, metrics and reporting

- **Scale to the enterprise**
  - Supports teams ranging from a few to thousands of developers and stakeholders

- **Unify diverse teams**
  - Supports J2EE, .NET, IBM i, System z, co-existence with popular toolsets

IBM Rational Team Concert

transparent *integrated presence*
wikis OPEN real-time reporting
chat documents Web 2.0 *custom*
dashboards automated data gathering
EXTENSIBILITY *Eclipse plug-ins* services
architecture **FREEDOM TO CREATE**

Open and extensible on
jazz
✓ Collaborate
✓ Automate
✓ Report

Rational Application Developer - Enterprise Java development from the web to services and beyond

1st Tier
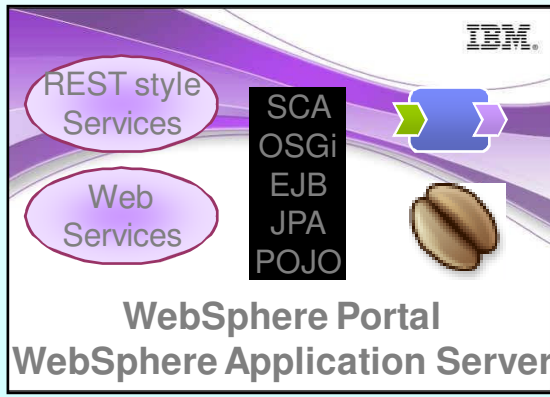
JavaScript
Dojo

JSF

Web
Client

Portal Client

Rich Java UI Client

2nd Tier

REST style
Services

Web
Services
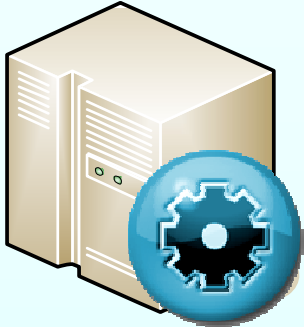
SCA
OSGi
EJB
JPA
POJO

**WebSphere Portal
WebSphere Application Server**

Tomcat   JBoss

IBM
Mashup
Center

WAS
Community
Edition

3rd Tier

• IBM CICS
Transaction
Server

• IBM InfoSphere
DB2

• Oracle

• IBM InfoSphere
IMS

• SAP
• PeopleSoft
• Siebel
...

DB2

IMS

Adopting Agile Development with Rational Team Concert

- **Quality of releases improves 12%***
- **Project governance improvements of 12%**

- **Team productivity increases of up to 50%**
- **Team collaboration performance up 25%***

Manage Source Code

Track Changes

Harness the backlog using Plans and Process Templates

Steer the sprint with Dashboards

Track Builds

Integrates with Existing SCM's

Integrates with build systems

Integrates with Enterprise CM Systems

Scale Development across projects and repositories
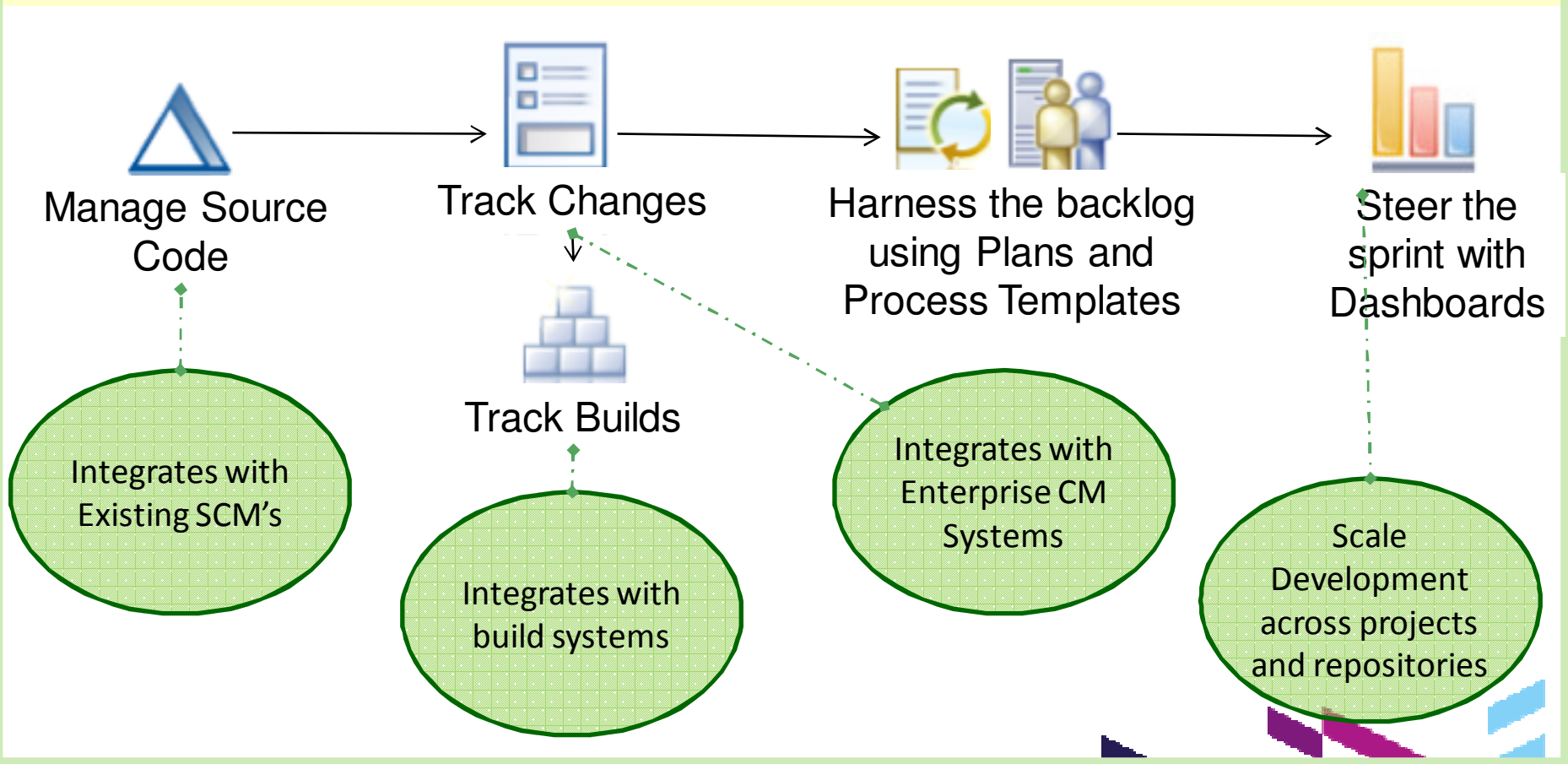
* Based on IBM customer surveys

Collaborative Development with Rational Application Developer and Rational Team Concert

- **Deliver solutions for WAS and Portal at higher quality and pace by tapping into the team**
- **Reduce cycle time to identify, reproduce, investigate and fix problems in the code**

Develop → Unit test → Debug, Profile → Deliver changes and build

Code coverage

Transfer live debug sessions. Exchange profiling data.

Gate delivery of code on coverage results. Measure coverage via RTC builds. Import results. Open defects.
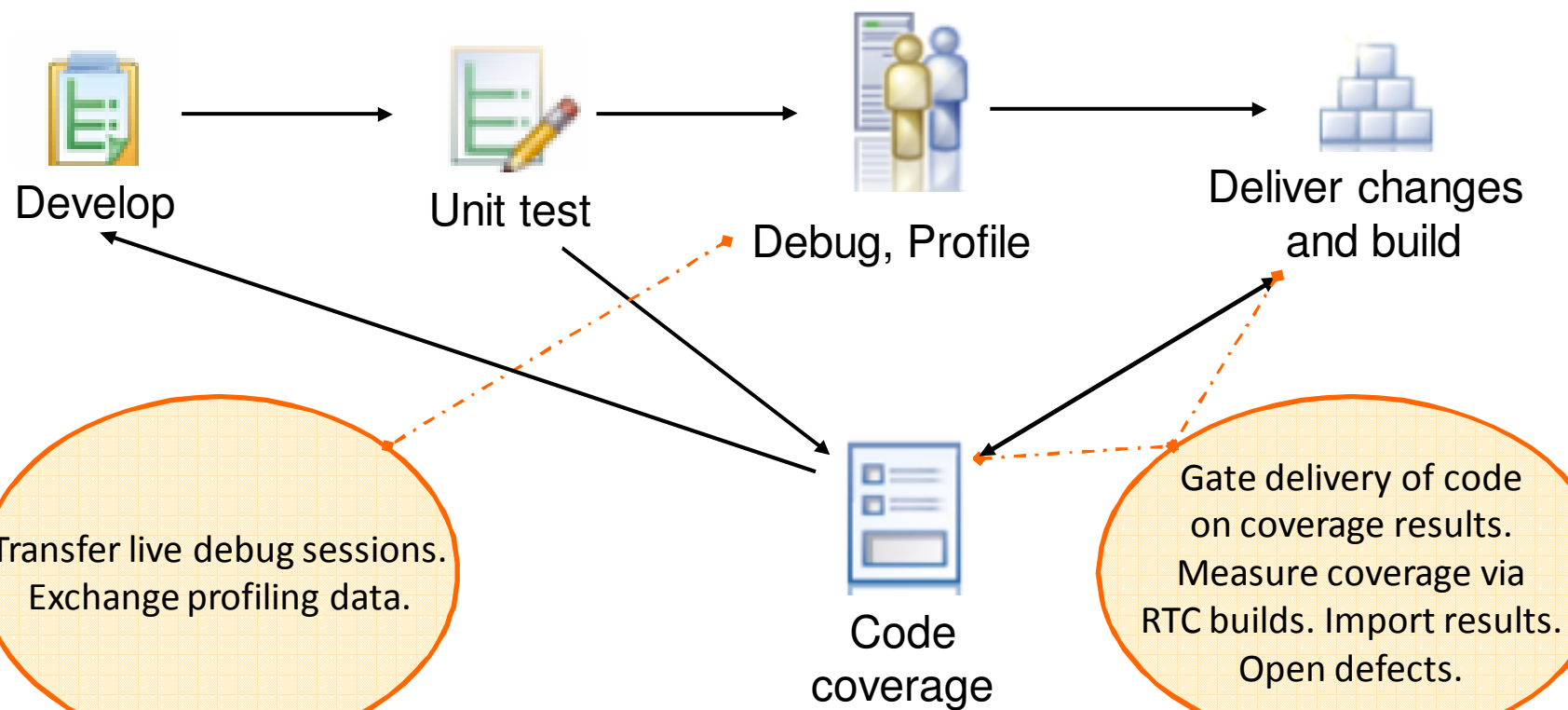
Source: GBS Test Practices study, 2005-2008, over 846 projects

Rational Team Concert integrated into the RAD / RSA shell

Work with your development artifacts in the 'Team Artifacts' view

Develop in RAD and RSA perspectives (Modeling, Java EE, ...)
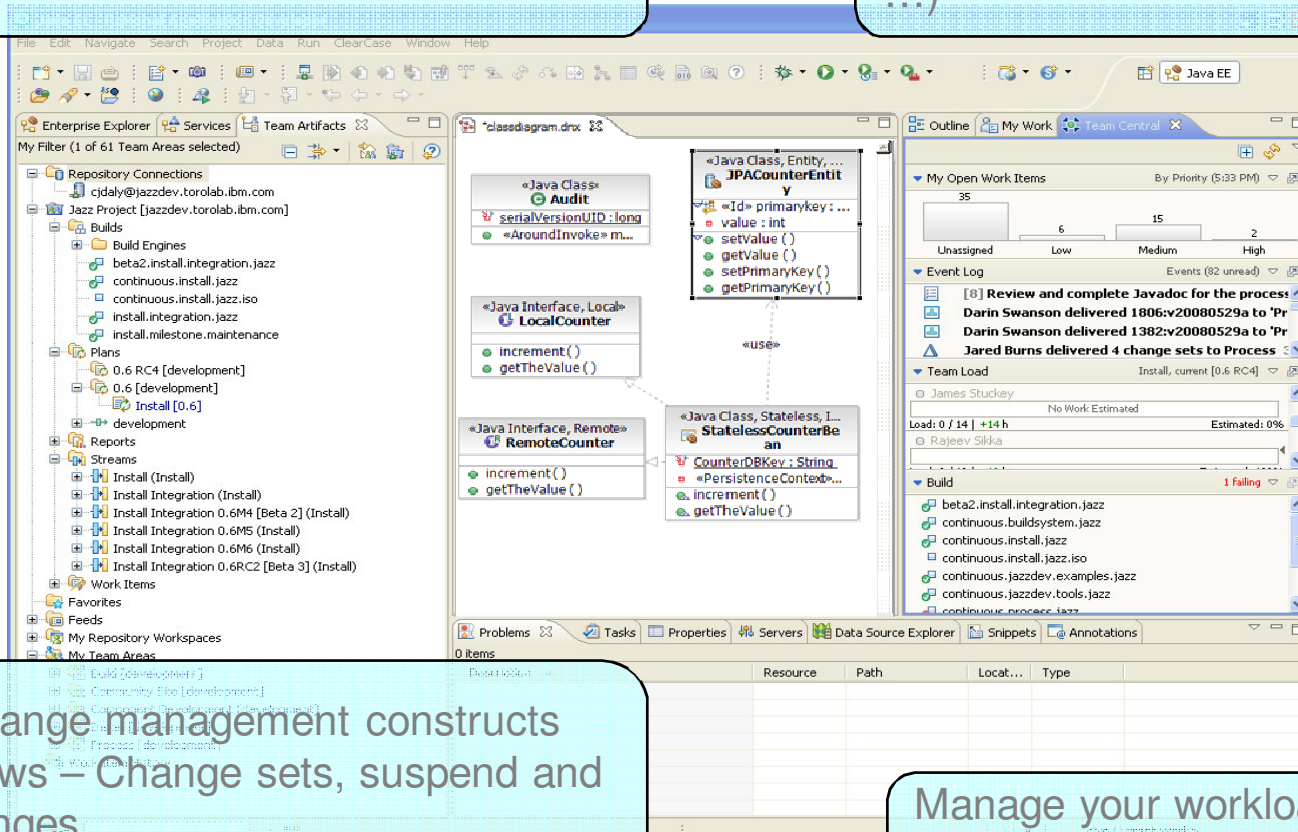
Use Jazz change management constructs and work flows – Change sets, suspend and resume changes.
Workspace hosted on the Jazz server.

Manage your workload in the 'Team Central' and 'My Work' views

Beyond Eclipse

Beyond RAD SE

Debugging is a team sport

- RAD / RSA and RTC together let team members share debug sessions in real time.

Beyond Eclipse

New in v8.0

Beyond RAD SE
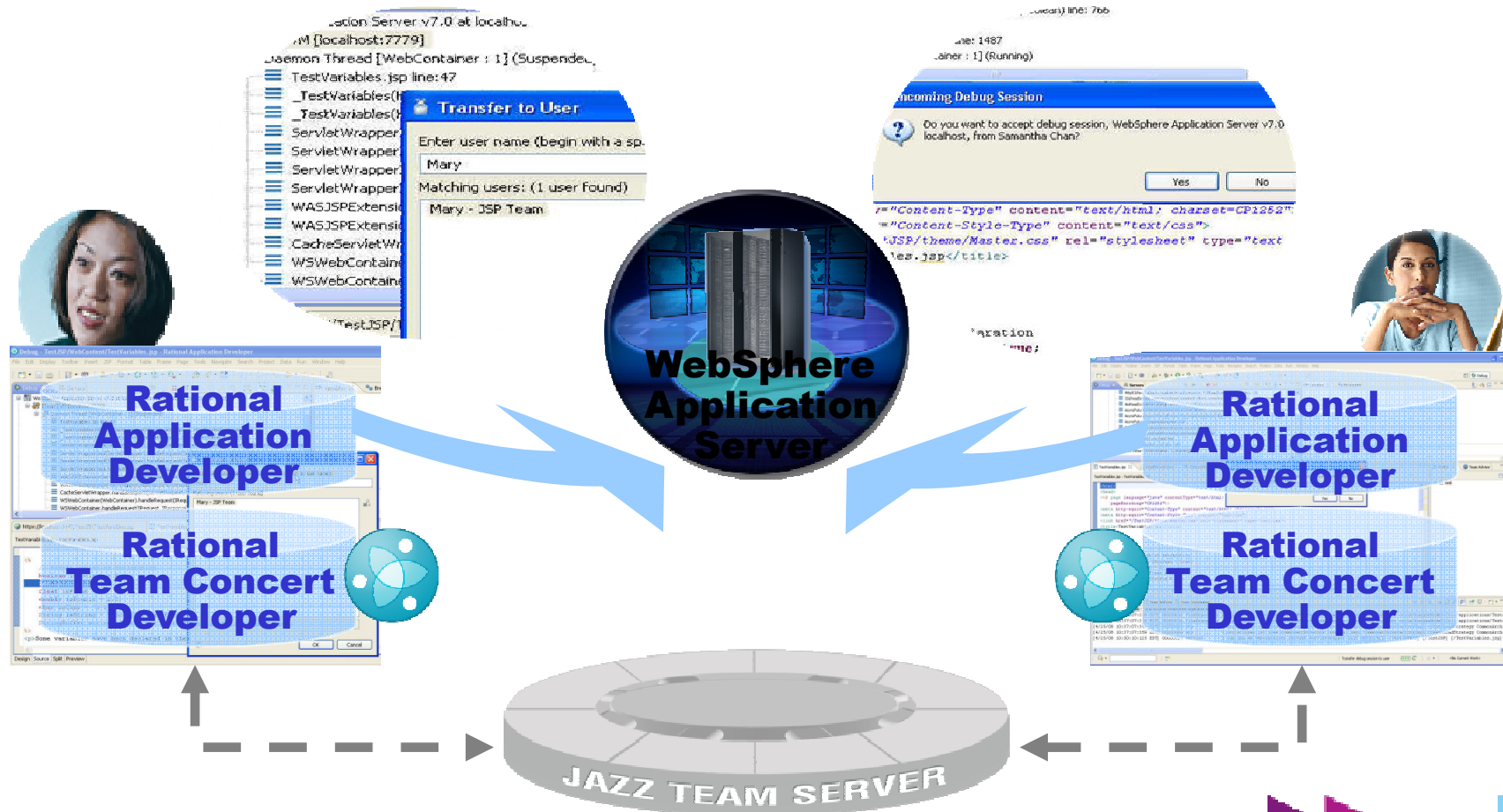
Code quality is a team sport

- Share code coverage information from automated tests

- Analyze and improve test coverage to maximize code quality

Rational Application Developer

Rational Team Concert Developer

Rational Application Developer

Rational Team Concert Developer

JAZZ TEAM SERVER

Code coverage integration with RTC

Beyond Eclipse   **New in v8.0**   **Beyond RAD SE**

- RTC Build details viewer extension – RAD and Web browser
  - ▸ Show summary of code coverage statistics
  - ▸ Additional Code Coverage tab to show detailed coverage statistics report
- Integrated work item search and creation
- Import to local workspace for rich viewing in navigator and source views

Vision

Development Team Europe	Support Team China	Development Team China	Test Team North America	Development Team North America

Consistent Server Configuration

As a developer in a team I need to replicate or get rapid access to my colleagues' application server configurations to achieve and maintain consistent development environments with minimum effort.

Continuous Build

As a developer in a team I need to continuously integrate my changes with those of my colleagues, and initiate, monitor and reuse builds.

…Improve individual and team productivity…

Consistent Server Configuration

Developers can easily share or alter server configurations on their desktop to drive repeatability and automation when using the this platform.

Continuous Build

Build the milestone code from work items that have been checked into the repository. Notification of the build results and content are available to any stakeholder requesting that information.

APPLICATION SERVERS

JAZZ TEAM SERVER

MIDDLEWARE as a SERVICE

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