Rational software

IBM Rational Software Development Conference 2006

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6240

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From Closed to Open Development

Reflections from the Eclipse Trenches

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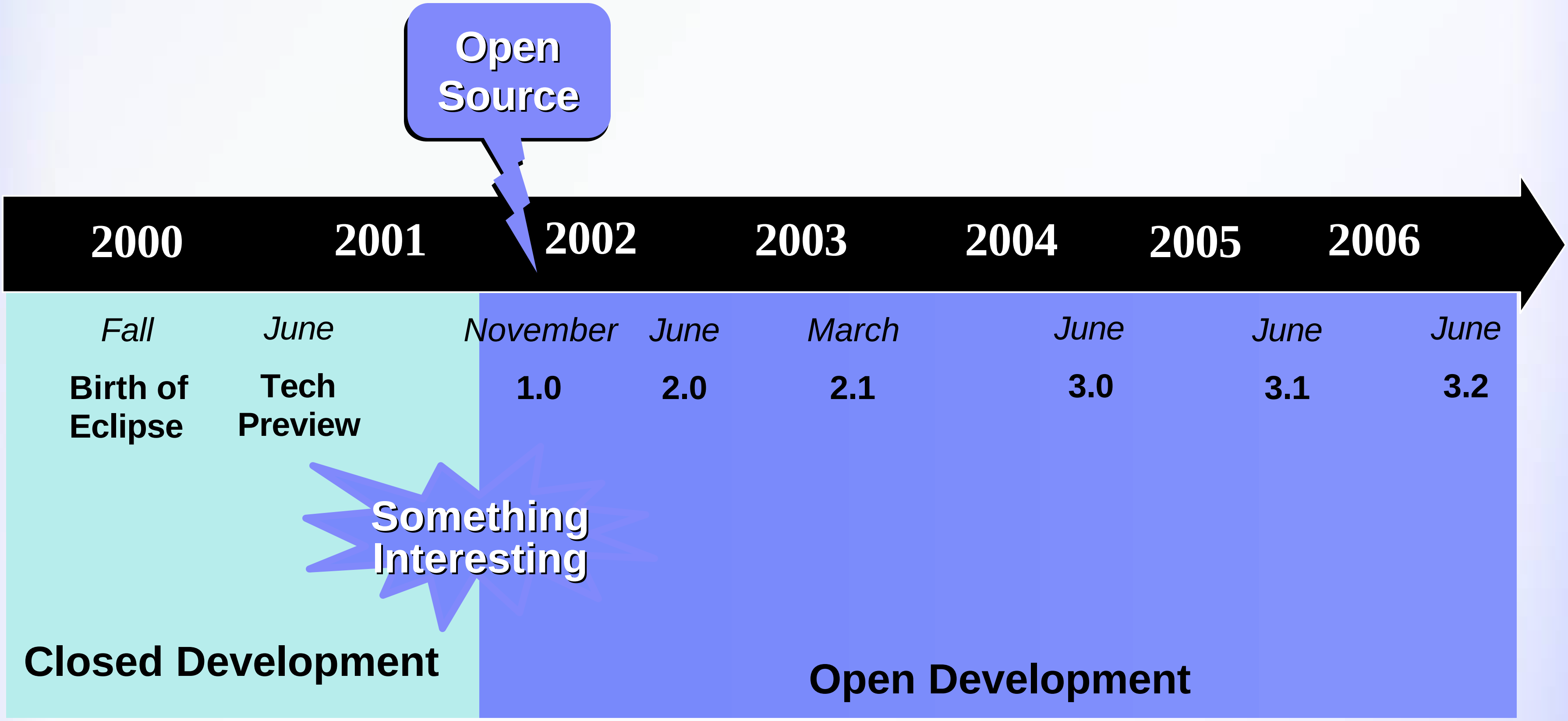
Agenda

- Closed development
- Transitioning to open development
- Open development
- Lessons learned

Background

The Eclipse timeline



Open Source

2000 2001 2002 2003 2004 2005 2006

Fall **Birth of Eclipse**

June **Tech Preview**

November **1.0**

June **2.0**

March **2.1**

June **3.0**

June **3.1**

June **3.2**

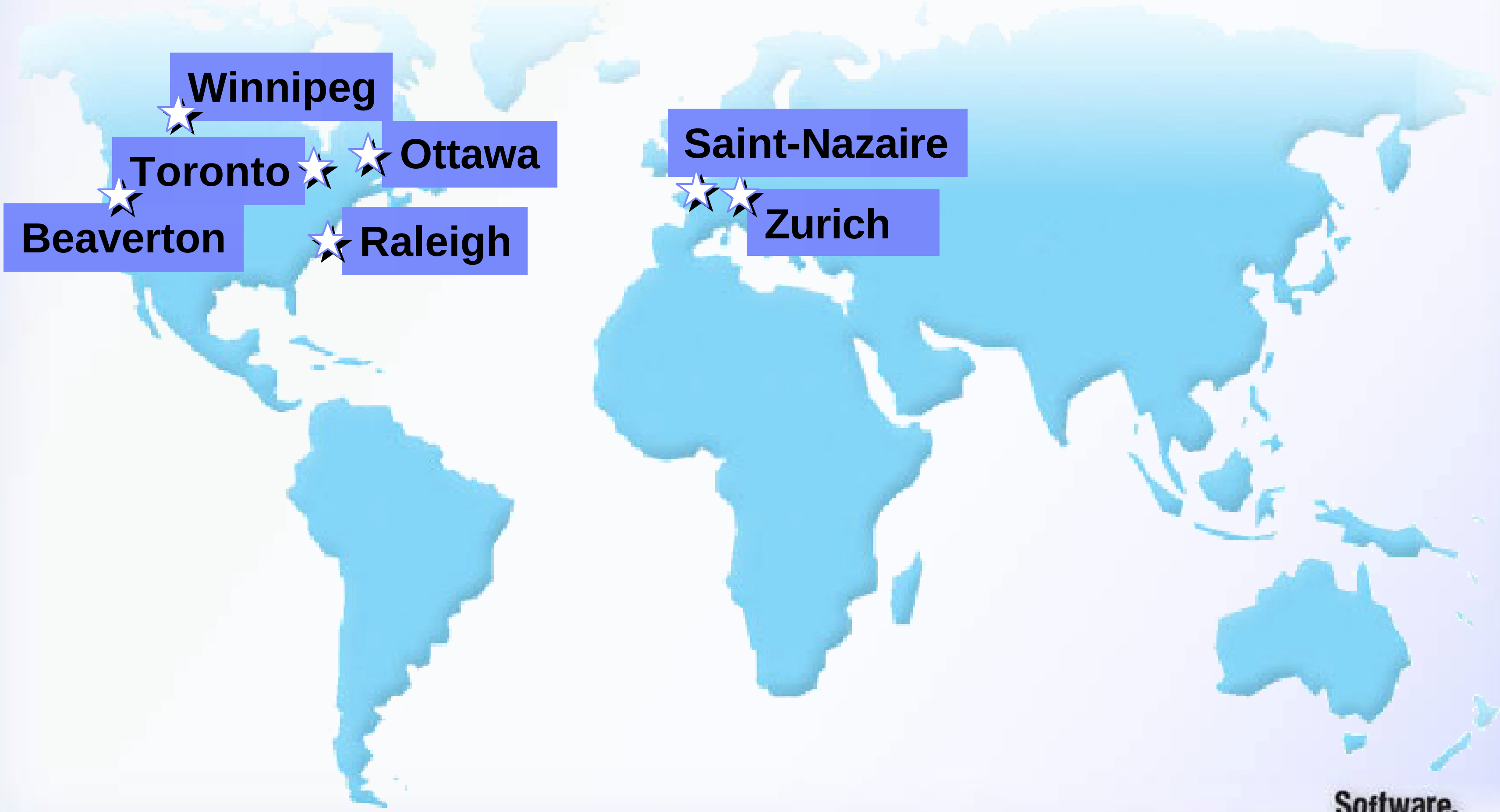
Something Interesting

Closed Development

Open Development

Developers all over the world

Globally Distributed Development


Winnipeg
Ottawa
Toronto
Beaverton
Raleigh
Saint-Nazaire
Zurich

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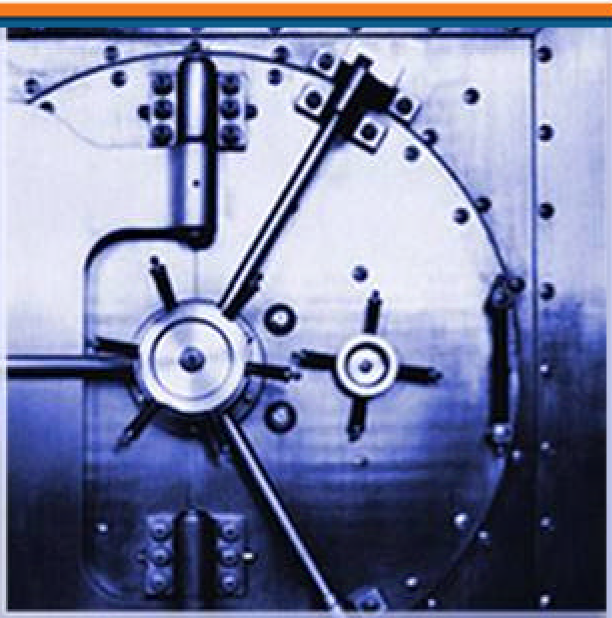
Closed development

- The Swiss Bank approach to software development
  - If it hasn't shipped it doesn’t exist
- Strong firewall between developers and customers
- Shipping matters



Our culture
We ship software

- Our objective is to ship software
  - Anything that contributes to this goal, even indirectly, is considered good
  - Anything that does not is bad
- Developer recognition is based on the ability to ship quality software on time
- Our culture: “*If you ship, then you may speak.*”
- Our question: “*Did they ever ship anything?*”
- Our insult: “*Yes, but they never ship anything!*”

Shipped...

- ✓ ENVY/Smalltalk
- ✓ VisualAge for Java
- ✓ VisualAge for Java, MicroEdition
- ✓ Eclipse

VisualAge for Java
eclipse

Transitioning to open development

Project rules defined in the project's charter[1]

- **Who may change the source code?**
  - **Who is responsible for delivering?**
  - **Who decides about the architecture?**
- **Public "meritocracy"**
  - **Only a small number of developers can modify the source code: Committers**
  - **Peer pressure among committers – continuous reviewing**
  - **Continuous review and feedback by the community**

Proven results ⇒ increased responsibility

[1] http://www.eclipse.org/eclipse/eclipse-charter.html

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November 2001

Reaction from the development team

You want us to do what?

Why are we doing this again?

blic?

Answer all those dumb questions?

Have technica discussions in public?

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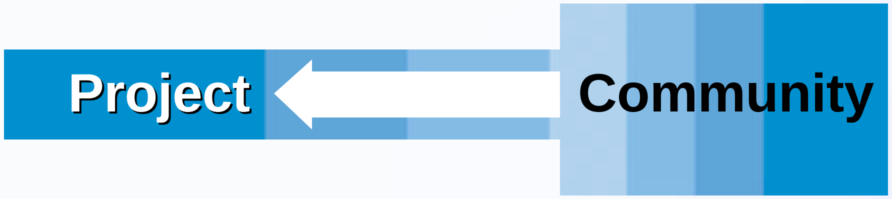
Transitioning to open development

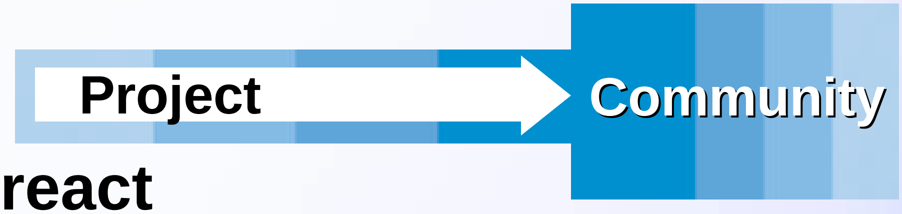
Open up

- Learn to become more transparent
  - Provide visibility into the process
  - Takes practice: Continuous learning together
- Invest in delivering community interaction
  - Prime the feedback loop
- Break down the firewall
  - Enable direct interactions between developers and customers

Open development
Having a community is cool!



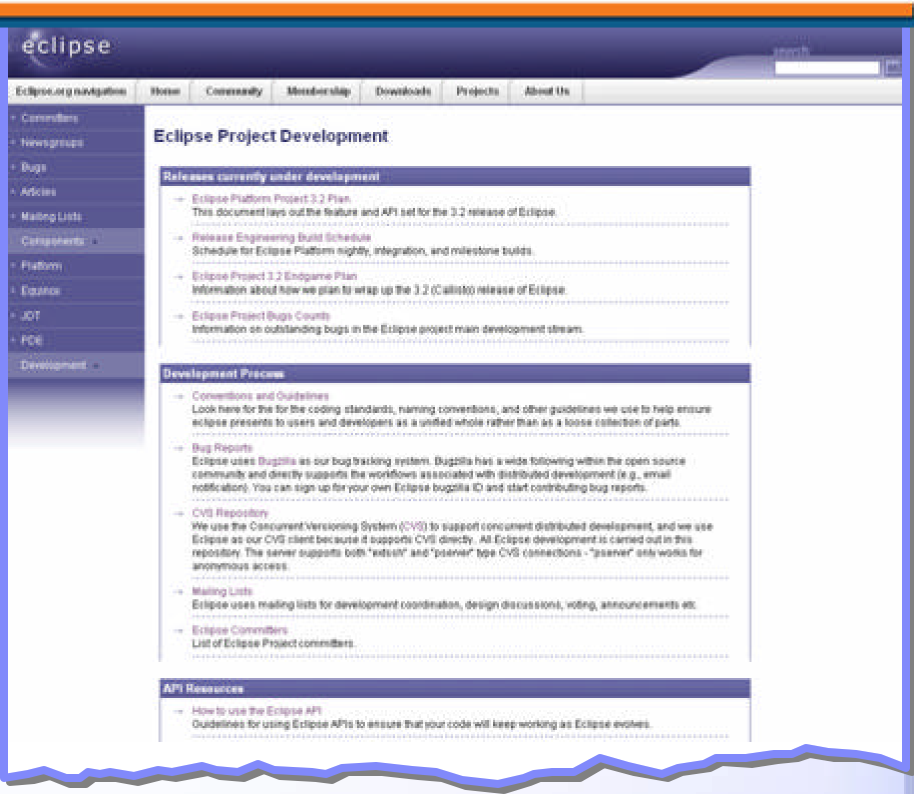
- Community gives project
  - Answer user questions
  - Report defects and request features
  - Validate technology by extension
  - Validate technology in a new configuration
  - Submit patches and enhancements



- Project gives community
  - Listen to feedback and react
  - Demonstrate continuous progress
  - Transparent development

Open development
Interacting with the community

- Where do I start?
  - Project portal
- How can I use the project to do XYZ?
  - Newsgroups
  - A wiki
- What is going on in the project?
  - Mailing lists



Eclipse Project Development

Releases currently under development

- Eclipse Platform Project 3.2 Plan
  This document lays out the feature and API set for the 3.2 release of Eclipse.
- Release Engineering Build Schedule
  Schedule for Eclipse Platform nightly, integration, and milestone builds.
- Eclipse Project 3.2 Endgame Plan
  Information about how we plan to wrap up the 3.2 (Callisto) release of Eclipse.
- Eclipse Project Bugs Counts
  Information on outstanding bugs in the Eclipse project main development stream.

Development Process

- Conventions and Guidelines
  Look here for the for the coding standards, naming conventions, and other guidelines we use to help ensure eclipse presents to users and developers as a unified whole rather than as a loose collection of parts.
- Bug Reports
  Eclipse uses Bugzilla as our bug tracking system. Bugzilla has a wide following within the open source community and directly supports the workflows associated with distributed development (e.g., email notification). You can sign up for your own Eclipse bugzilla ID and start contributing bug reports.
- CVS Repository
  We use the Concurrent Versioning System (CVS) to support concurrent distributed development, and we use Eclipse as our CVS client because it supports CVS directly. All Eclipse development is carried out in this repository. The server supports both "extssh" and "pserver" type CVS connections - "pserver" only works for anonymous access.
- Mailing Lists
  Eclipse uses mailing lists for development coordination, design discussions, voting, announcements etc.
- Eclipse Committers
  List of Eclipse Project committers.

API Resources

- How to use the Eclipse API
  Guidelines for using Eclipse APIs to ensure that your code will keep working as Eclipse evolves.

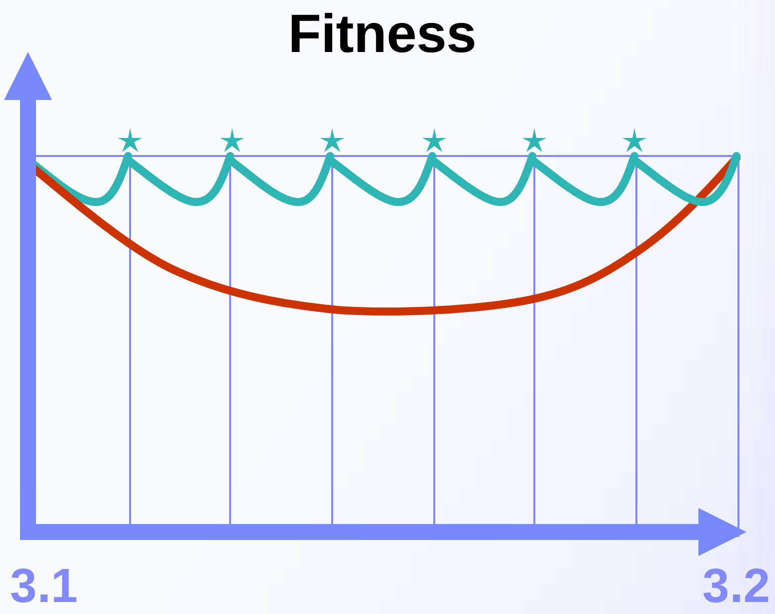
- Don’t forget face-to-face
  - Code camps: Project developers work with you on your problem
  - Sprints: Developers meet to collaborate on project

Open development

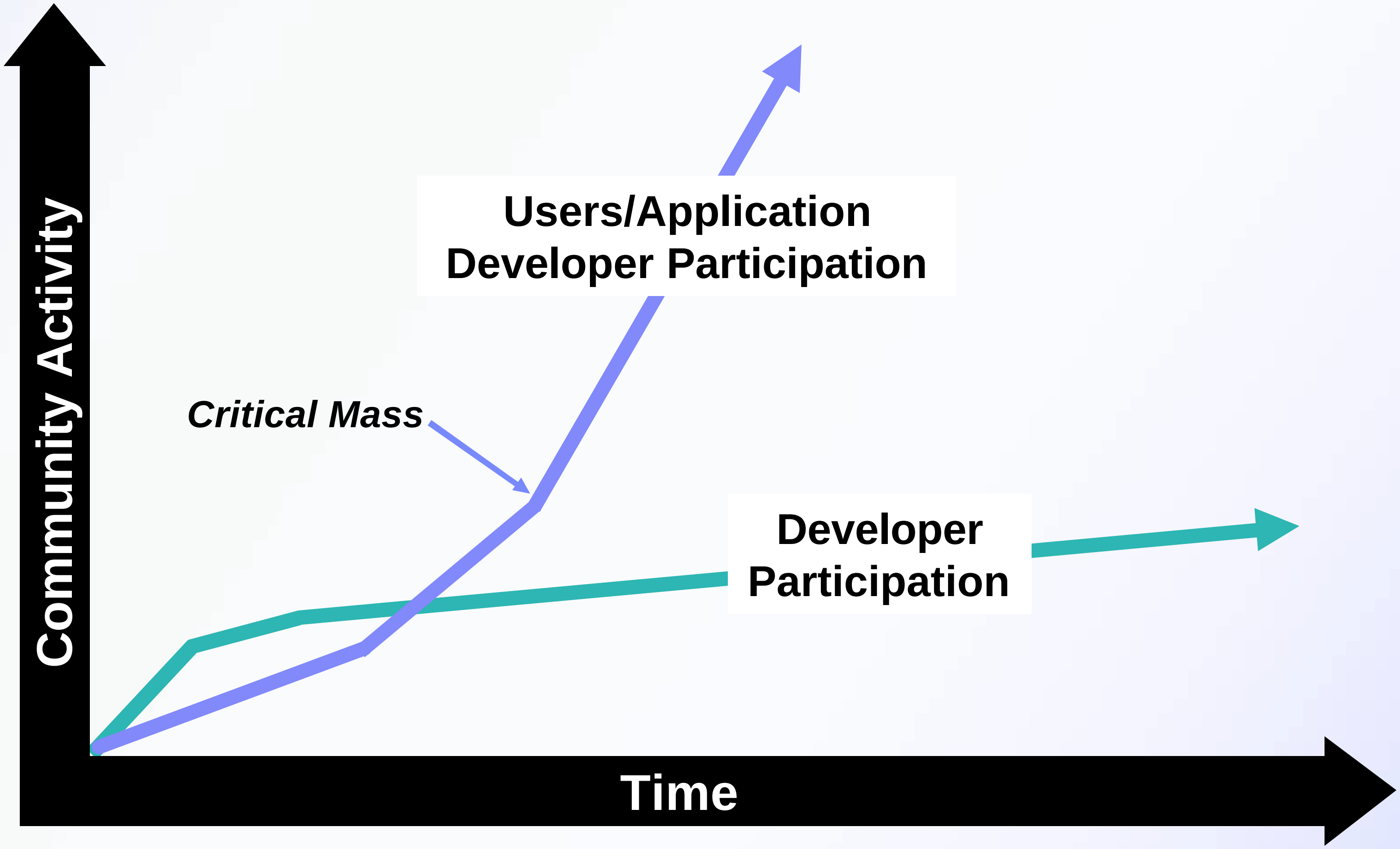
Shipping to the community

- Live betas
  - Continuous listening
  - Continuous feedback
  - Continuous improvements

- This requires…
  - A healthy project
  - Quality any time, all the time

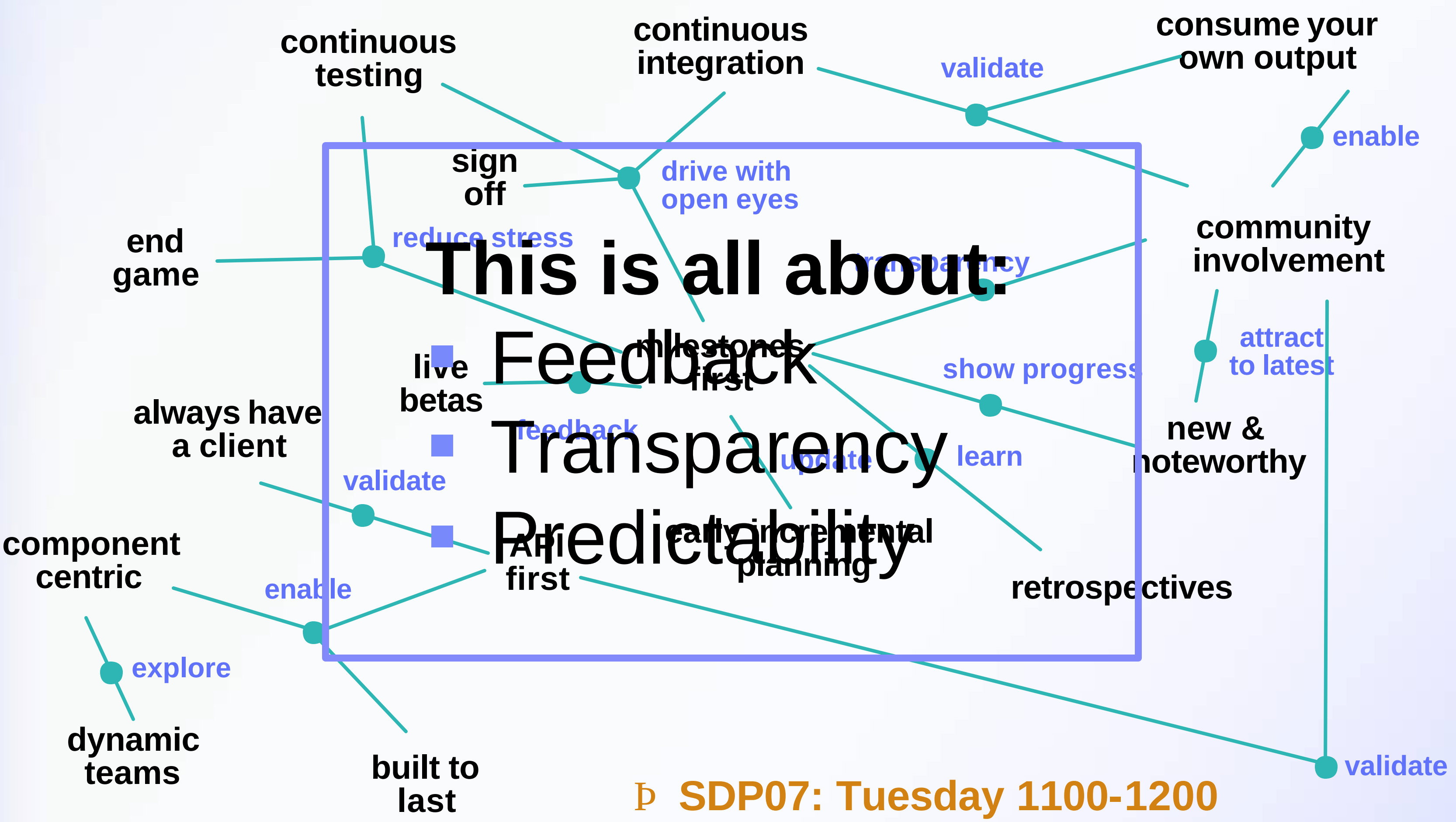


A community reaching critical mass



Open development

The Eclipse way: Practices...



continuous testing

continuous integration

validate

consume your own output

enable

sign off

drive with open eyes

community involvement

end game

reduce stress

transparency

milestones first

live betas

show progress

attract to latest

always have a client

feedback

update

learn

new & noteworthy

validate

early incremental planning

API first

component centric

enable

retrospectives

explore

dynamic teams

built to last

validate

This is all about:

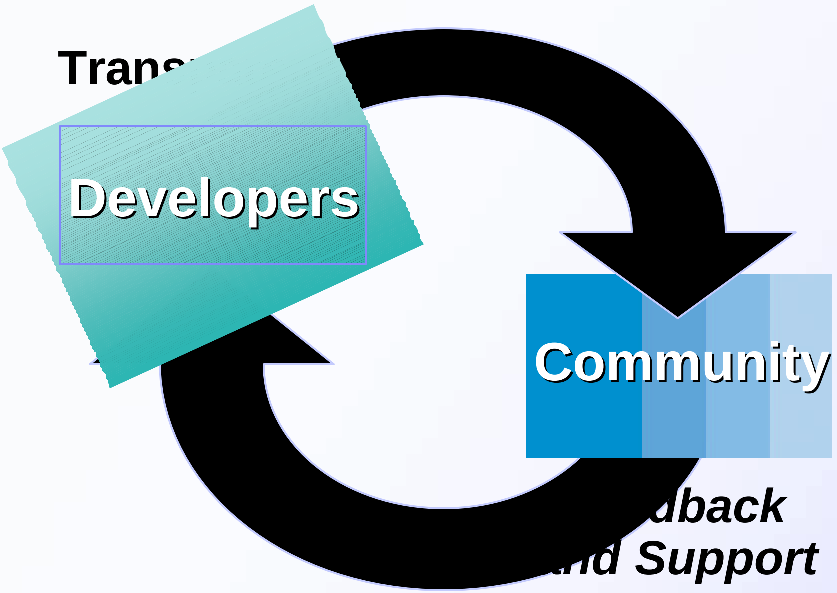
- Feedback
- Transparency
- Predictability

Þ **SDP07: Tuesday 1100-1200**

Lessons learned

Transparency and predictability enable feedback

- **Transparency helps existing development**
  - **Better understanding of current status**
  - **Responding to feedback takes time, but pays off**
- **Use same communication channels inside as outside**
  - **Helped communication in our globally distributed team**


Trans
Developers
Community
dback
nd Support

Lessons learned

The "village effect"

- **A large organization can act like a smaller organization**
- **Development team becomes a face**
  - **Visible accountability**
- **Communication flows are visible for all to see**
  - **Reacting to change – agility**

Summary

- Transparency improves health
  - Make things visible even if unpleasant
  - Encourages feedback

- Ensures we build products our community wants

- We didn’t get all this right initially!
  - Continuous improvements
  - Stay aware, adapt, change

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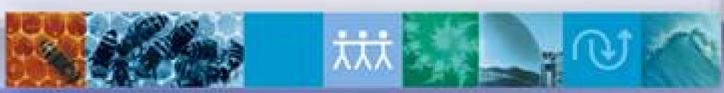
IBM Rational Roadmap

Dr. Lee R. Nackman
Vice President
Product Development
& Customer Support
IBM Rational software

Martin Nally
Chief Technical Officer
Distinguished Engineer
IBM Rational software



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Agenda

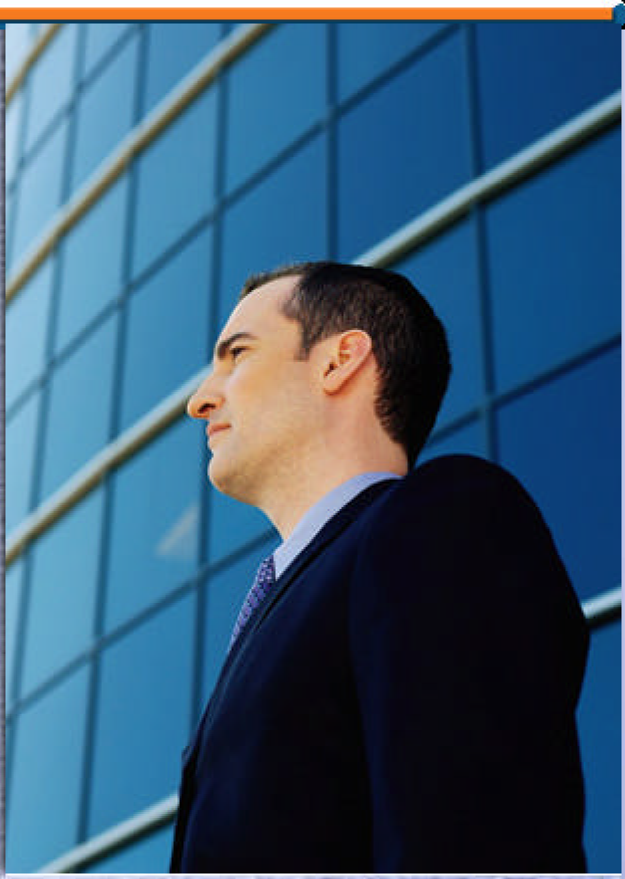
- **Innovation in processes and their governance**
- Version 7 enhancements in IBM Rational's governance platform
- Looking to the future

The genius of open source

- Process
  - RUP
  - Agile
  - …
- Community
  - Driven by the Internet
- Transparency
- Governance

Governance defined

- **Chains of responsibility, authority and communications to *empower* people**
- **Measurement, policy and control mechanisms to *enable* people to carry out their roles and responsibilities**



Apache governance model

Board of Directors

- **Governs the Apache Foundation**

Project Management Committees

- **Composed of committers**
- **Govern the projects**

Centralized

- **Infrastructure and security**
- **Licensing**
- **PR and liaison**

Principles

- **Meritocracy**
- **Roles**
- **Collaborative consensus-based process**
- **Do-ocracy: Power of those who do**

The Apache Software Foundation
http://www.apache.org/

Source: www.apache.org/foundation/how-it-works.html

Eclipse governance model

Starts with concepts from Apache

And adds

- **Vendor (vs. individuals) roles and responsibilities**
- **Executive management organization**
- **Architecture council**
- **Planning council**
- **Requirements council**

Source: www.eclipse.org/org/documents

Effective governance

- Top-down imposed governance fails unless developers benefit too
- Process, governance, and auditing need to be part of the day-to-day activity, not “extra work”
- The keys:
  - Process
  - Automation
  - Information that supports decision making
  - Appropriate mechanisms for real-time guidance

Other business drivers

- Strategic alignment
- Geographically distributed development
- Compliance
- Flexibility → Service-oriented architecture

IBM Rational's quest

Business-Driven Development

Enabling organizations to *govern* the business process of software and systems development

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.

Governance in the enterprise

- Organizational transformation
  - Documentation of best practices
  - Definition of customized processes
  - Process guidance in tools
  - Mentoring and services

- Managing the portfolio and strategic alignment
  - Starting and stopping projects
  - Allocation of financial and human resources
  - Return on investment
  - Managing risk

Governance platform desiderata

- Tools support process automation
  - Including approval processes

- All software project data is managed and linked
  - Business goals and policies
  - Requirements
  - Code, tests and documentation,
  - Defects, build results, test results
  - Deployment packages

- Good analytics and reporting on data

Agenda

- Innovation in processes and their governance

- **Version 7 enhancements in IBM Rational's governance platform**

- Looking to the future

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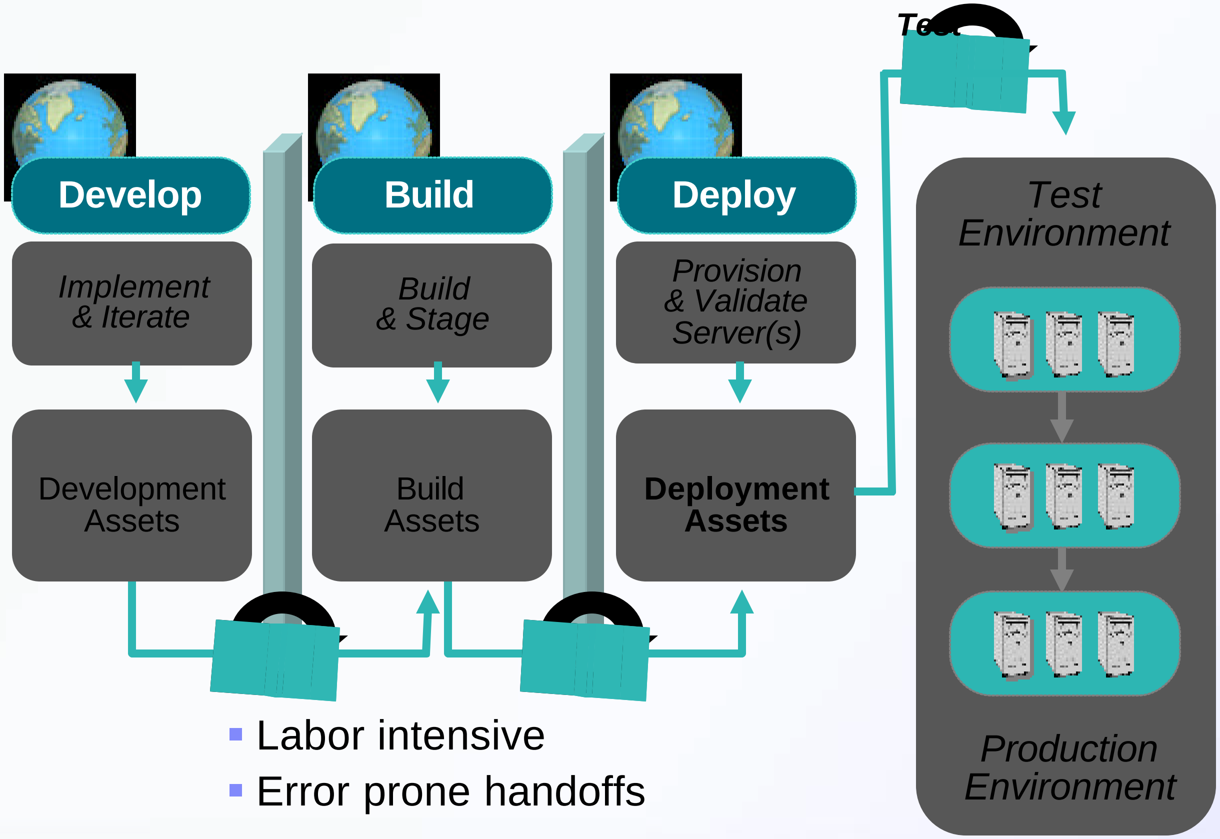
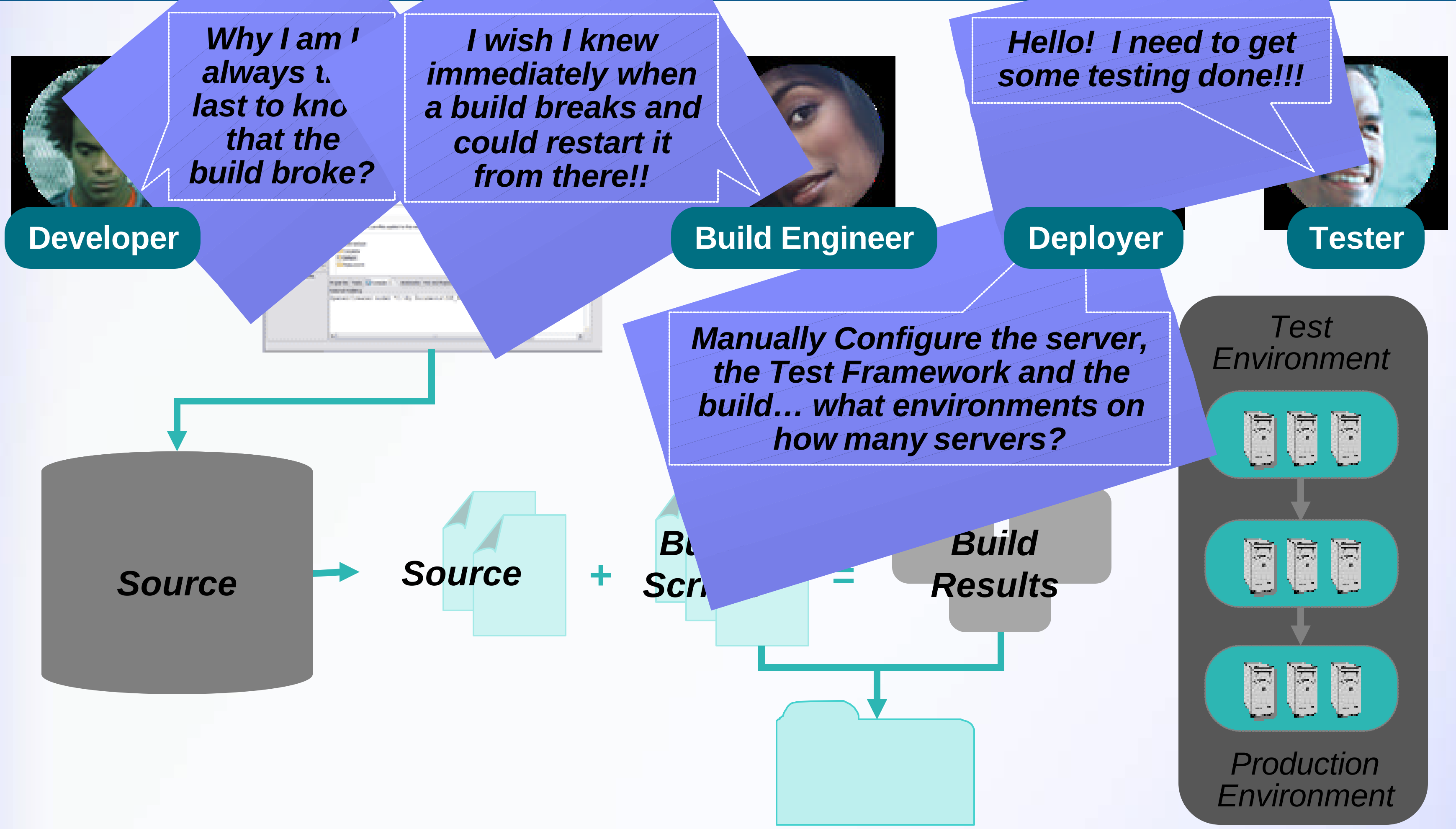
Challenge

Integrating roles for better governance


Test
Develop
Implement & Iterate
Development Assets
Build
Build & Stage
Build Assets
Deploy
Provision & Validate Server(s)
Deployment Assets
Test Environment
Production Environment

- Labor intensive
- Error prone handoffs

A typi al de yment cycle



Why I am I
always t
last to kno
that the
build broke?

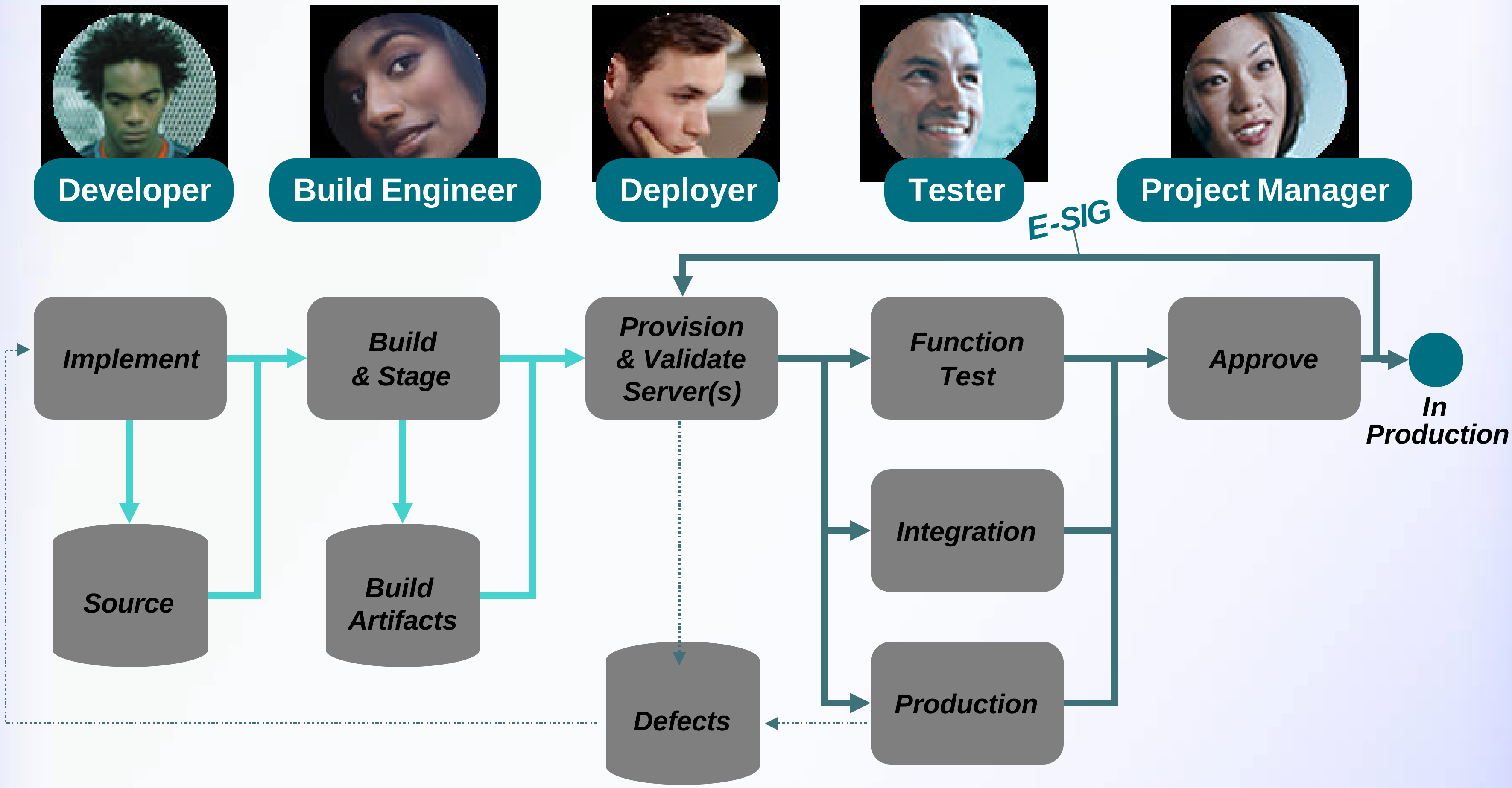
I wish I knew
immediately when
a build breaks and
could restart it
from there!!

Hello! I need to get
some testing done!!!

Manually Configure the server,
the Test Framework and the
build… what environments on
how many servers?

Developer
Build Engineer
Deployer
Tester
Source
Source
+
Bu
Scri
=
Build
Results
Test
Environment
Production
Environment

Orchestration of the roles



Developer

Build Engineer

Deployer

Tester

Project Manager

E-SIG

Implement

Build & Stage

Provision & Validate Server(s)

Function Test

Approve

In Production

Source

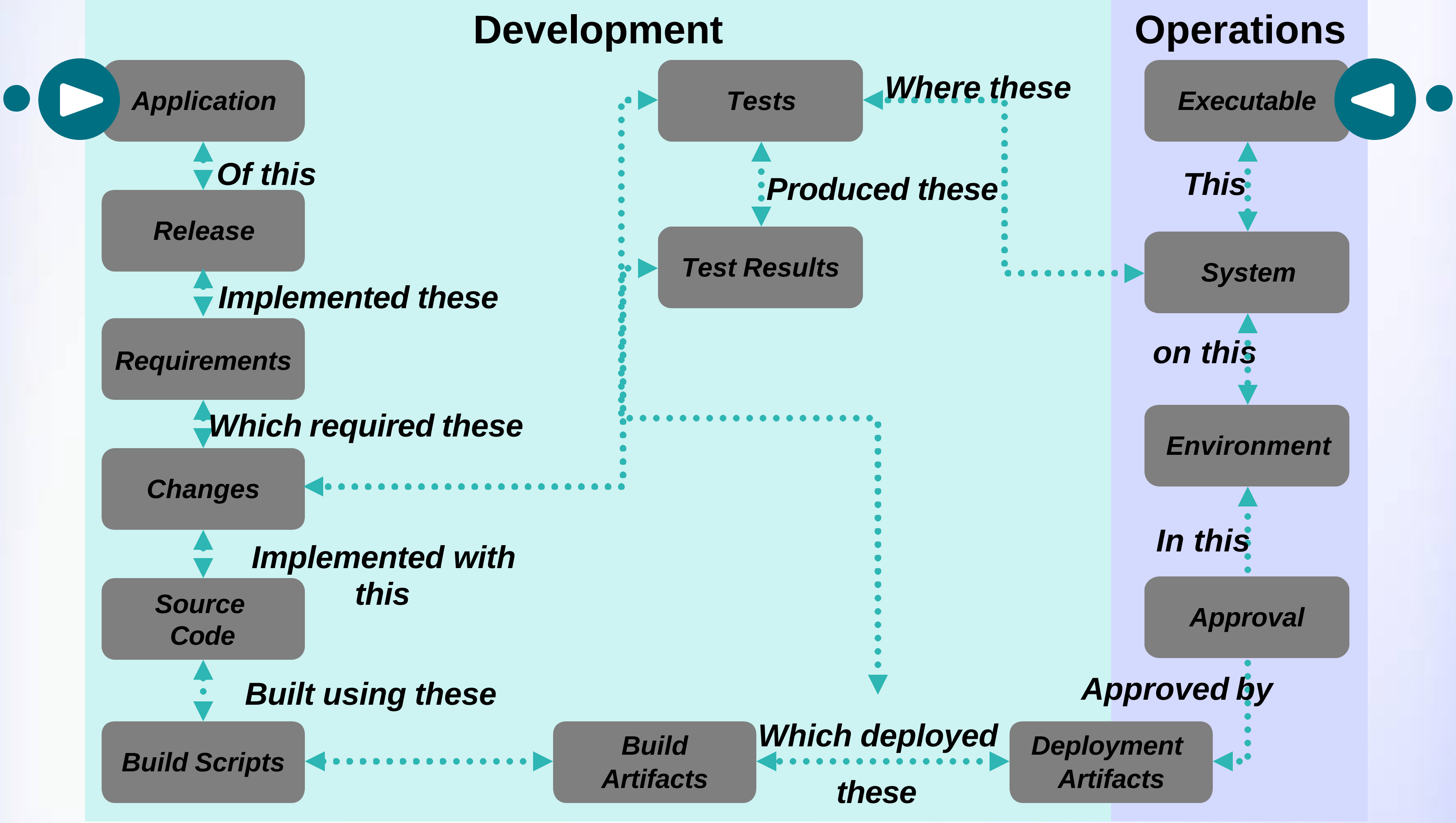
Build Artifacts

Integration

Production

Defects

Traceability among the artifacts


Development
Operations
Application
Of this
Release
Implemented these
Requirements
Which required these
Changes
Implemented with this
Source Code
Built using these
Build Scripts
Build Artifacts
Which deployed these
Deployment Artifacts
Tests
Where these
Produced these
Test Results
Executable
This
System
on this
Environment
In this
Approval
Approved by

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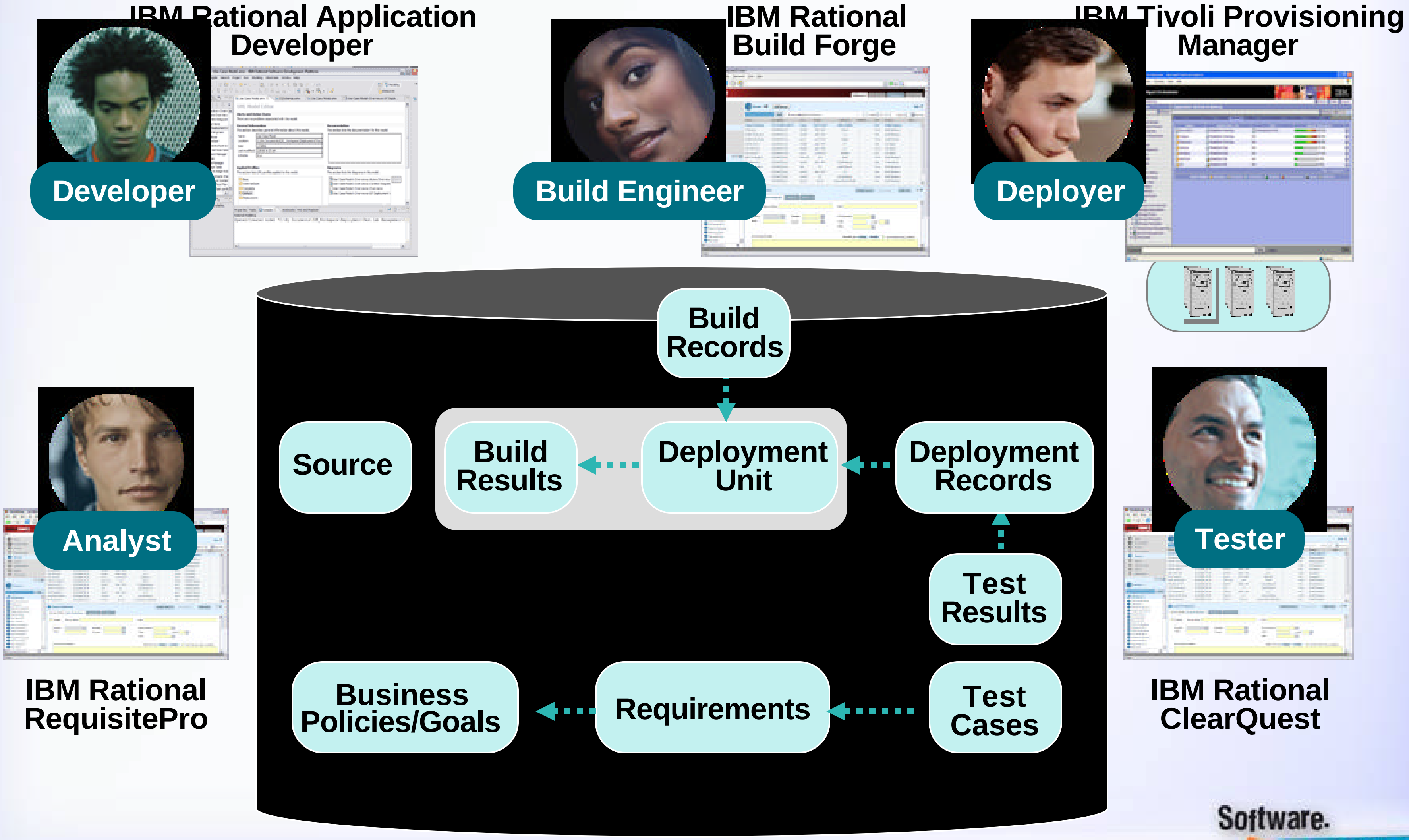
Version 7: Managing and automating the process



IBM Rational Application Developer

Developer

IBM Rational Build Forge

Build Engineer

IBM Tivoli Provisioning Manager

Deployer

Analyst

IBM Rational RequisitePro

Tester

IBM Rational ClearQuest

Build Records

Source

Build Results

Deployment Unit

Deployment Records

Test Results

Business Policies/Goals

Requirements

Test Cases

Challenge
Geographic distribution

- Performance over wide-area networks
- Tool deployment costs
- Local language support
- Team communication and visibility

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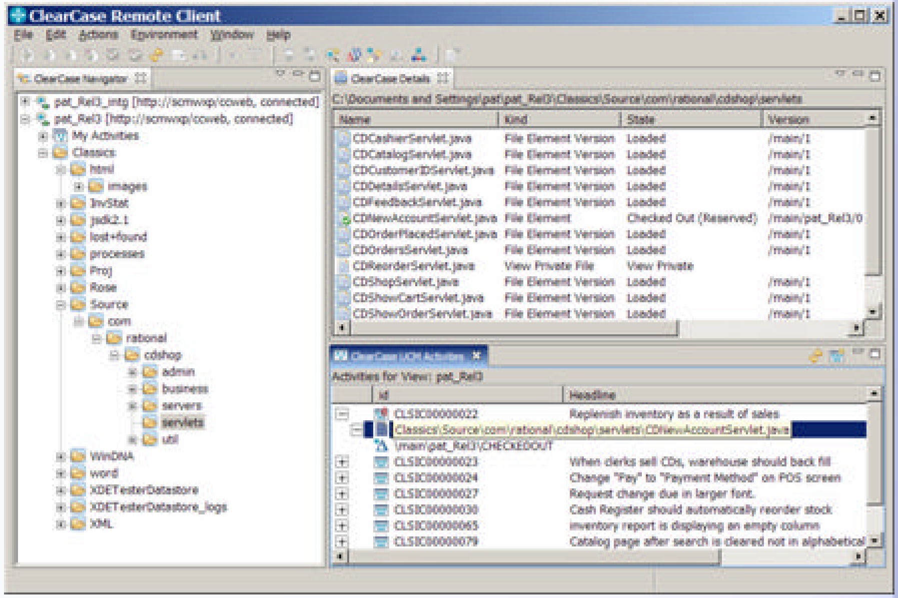
Version 7
Client improvements

IBM Rational ClearCase Remote Client

- **Improved scalability**
- **Enhanced UCM support**
- **UNIX platform support**
- **Added translations**


ClearCase Remote Client
File
Edit
Actions
Environment
Window
Help
ClearCase Navigator
pat_Rel3_intg [http://scmwxp/ccweb, connected]
pat_Rel3 [http://scmwxp/ccweb, connected]
My Activities
Classics
html
images
InvStat
jsdk2.1
lost+found
processes
Proj
Rose
Source
com
rational
cdshop
admin
business
servers
servlets
util
WinDNA
word
XDETesterDatastore
XDETesterDatastore_logs
XML
ClearCase Details
ClearCase UCM Activities

C:\Documents and Settings\pat\pat_Rel3\Classics\Source\com\rational\cdshop\servlets

Name	Kind	State	Version
CDCashierServlet.java	File Element Version	Loaded	/main/1
CDCatalogServlet.java	File Element Version	Loaded	/main/1
CDCustomerIDServlet.java	File Element Version	Loaded	/main/1
CDDetailsServlet.java	File Element Version	Loaded	/main/1
CDFeedbackServlet.java	File Element Version	Loaded	/main/1
CDNewAccountServlet.java	File Element	Checked Out (Reserved)	/main/pat_Rel3/0
CDOrderPlacedServlet.java	File Element Version	Loaded	/main/1
CDOrdersServlet.java	File Element Version	Loaded	/main/1
CDReorderServlet.java	View Private File	View Private	
CDShopServlet.java	File Element Version	Loaded	/main/1
CDShowCartServlet.java	File Element Version	Loaded	/main/1
CDShowOrderServlet.java	File Element Version	Loaded	/main/1

Activities for View: pat_Rel3

id	Headline
CLSIC00000022	Replenish inventory as a result of sales
Classics\Source\com\rational\cdshop\servlets\CDNewAccountServlet.java	
\main\pat_Rel3\CHECKEDOUT	
CLSIC00000023	When clerks sell CDs, warehouse should back fill
CLSIC00000024	Change "Pay" to "Payment Method" on POS screen
CLSIC00000027	Request change due in larger font.
CLSIC00000030	Cash Register should automatically reorder stock
CLSIC00000065	inventory report is displaying an empty column
CLSIC00000079	Catalog page after search is cleared not in alphabetical

IBM Rational ClearQuest Web

- **Web platform scalability enhancements**
- **Link between record types**
- **UCM change set versions**

IBM Rational RequisitePro Web

- **Performance enhancements**
- **Improved Rational ClearQuest integration**
- **Usability improvements**

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Version 7

Language support improvements

- ClearQuest supports mixed operating system locales
  - Share common code page regardless of system language
- New Translations
  - Rational ClearQuest client
    - Simplified Chinese
  - Rational ClearCase for Microsoft Visual Studio 2005 and Rational ClearCase Remote Client
    - German, French, Italian, Brazilian Portuguese, Spanish, Japanese, Korean, Simplified and Traditional Chinese

Version 7

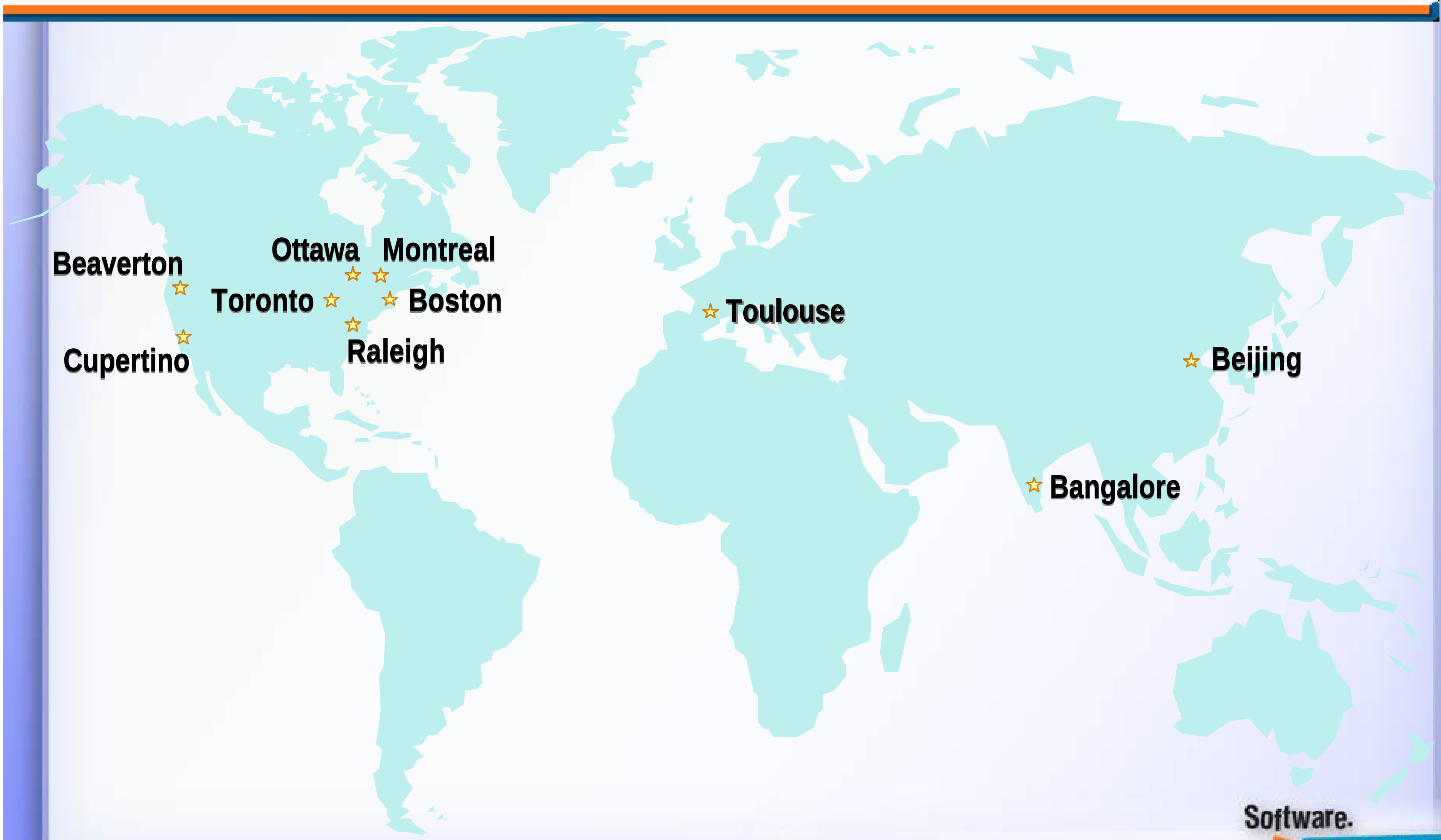
Unified process infrastructure

- **Traceability based on Rational ClearQuest**
  - **Lifecycle workflow**
  - **Ties together work of multiple roles**
  - **Provides approval mechanism and audit trail**

- **Benefits**
  - **Replication for global support**
  - **Globalization**
  - **Scalability to very large teams**
  - **Single repository**

Version 7

Internal deployments


Beaverton
Ottawa
Montreal
Toronto
Boston
Raleigh
Cupertino
Toulouse
Beijing
Bangalore

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Version 7
Enhancements in 4Q

Design & Construction / Software Quality

- **Supports Eclipse 3.2, JDK 5, and latest WebSphere**
- **Continued improvement in performance and memory usage**
- **Simplification and usability improvements**
- **Componentization**
  - **Flexible install with optional installable features**
  - **Small, focused component offerings targeted at specific user segments**
- **Improved product deployment**
  - **Configurable silent installs and managed updates**
- **Enhanced MDD support**
- **SAP support in Rational Functional Tester**

Version 7

In action

- **Track Sessions throughout the week including:**
  - **CCM02 What's New with IBM Rational ClearQuest**
  - **RA02 What's Happening with IBM Rational RequisitePro**
  - **CCM03 What's New with IBM Rational ClearCase**
  - **SQ06 Test Management Live**
  - **CCM12 Introducing Build and Deployment Tracking**
  - **SQ03 The Rational Approach to Test Management**
- **Technical Workshops**
  - **Build and Deployment Tracking Deep Dive**
- **Nine Partner Solutions already validated on Version 7**
- **And More!**
  - **Solution Center Demos, BOFs, Expo Spotlight Theater**

Agenda

- Innovation in processes and their governance
- Version 7 enhancements in IBM Rational’s governance platform
- **Looking to the future**

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Version 8

Themes

- Further improvements in lifecycle management
- Working in a distributed environment
  - WAN performance
  - Web client functional parity (RPM, ReqPro, CQ)
  - Improved web server infrastructure
- Security
- Consumability
- Total cost of ownership

Jazz

Next generation governance platform

- **New architectural approach driven by**
  - **Simplicity from consistency across the lifecycle**
  - **Improved productivity, communication and collaboration**
  - **Lower total cost of ownership**
  - **Scalable consumability**
    - **From small teams to large enterprise**
  - **Focus on highly distributed individuals and teams**

Jazz scope

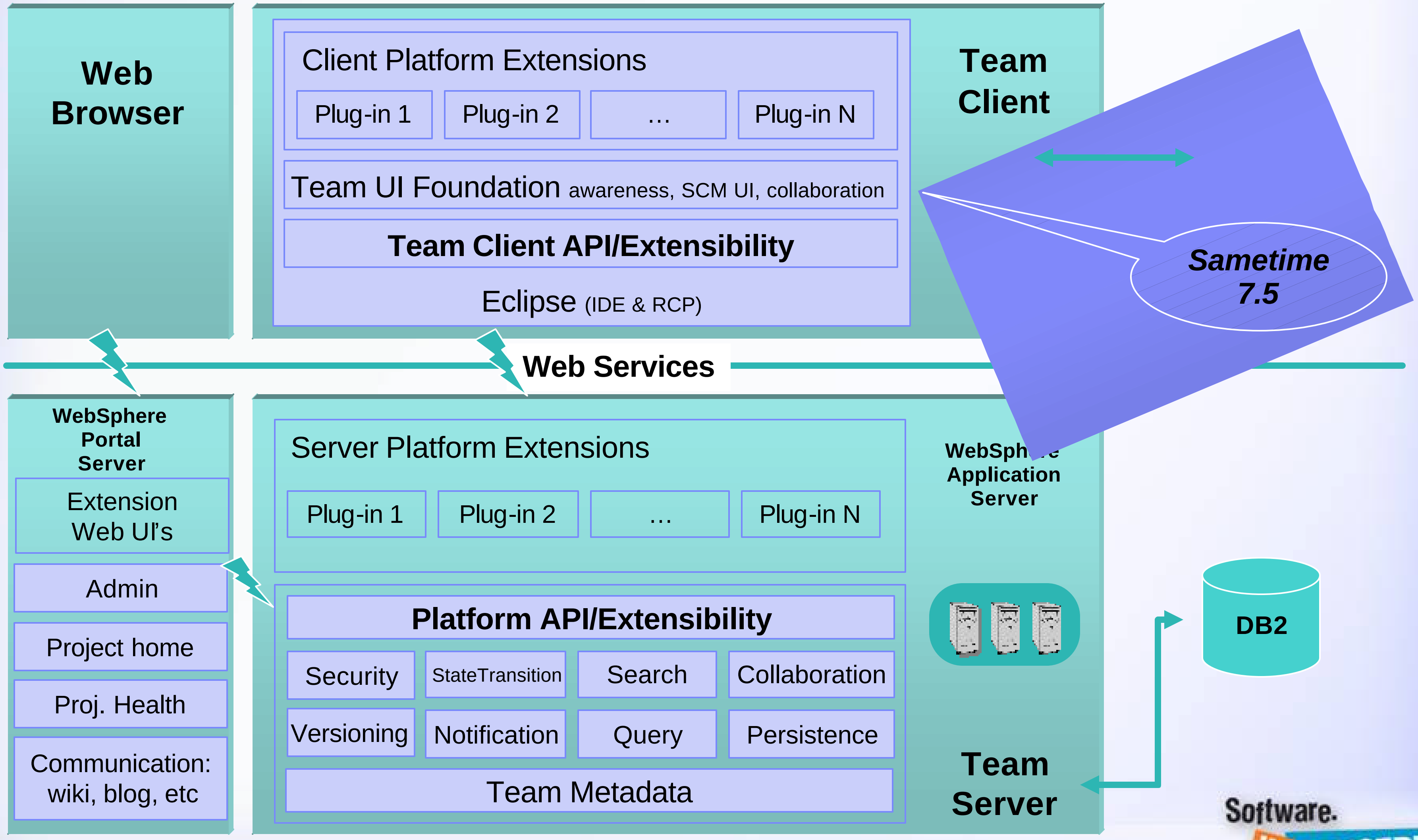
A project team platform for:

- **Artifact and data storage, linkage, tracing, searching, reporting**
- **Process automation, definition, and guidance**
- **Build integration**
- **Project health**
- **Requirements**
- **Test**
- **Project planning**

Hosts project practitioner tools for:

- **Analyst**
- **Architect**
- **Developer**
- **Tester**
- **Deployer**

Jazz platform mega-layer cake



Web Browser

Client Platform Extensions

Plug-in 1 | Plug-in 2 | … | Plug-in N

Team UI Foundation awareness, SCM UI, collaboration

Team Client API/Extensibility

Eclipse (IDE & RCP)

Team Client

Sametime 7.5

Web Services

WebSphere Portal Server

Extension Web UI's

Admin

Project home

Proj. Health

Communication: wiki, blog, etc

Server Platform Extensions

Plug-in 1 | Plug-in 2 | … | Plug-in N

Platform API/Extensibility

Security | StateTransition | Search | Collaboration

Versioning | Notification | Query | Persistence

Team Metadata

WebSph e Application Server

Team Server

DB2

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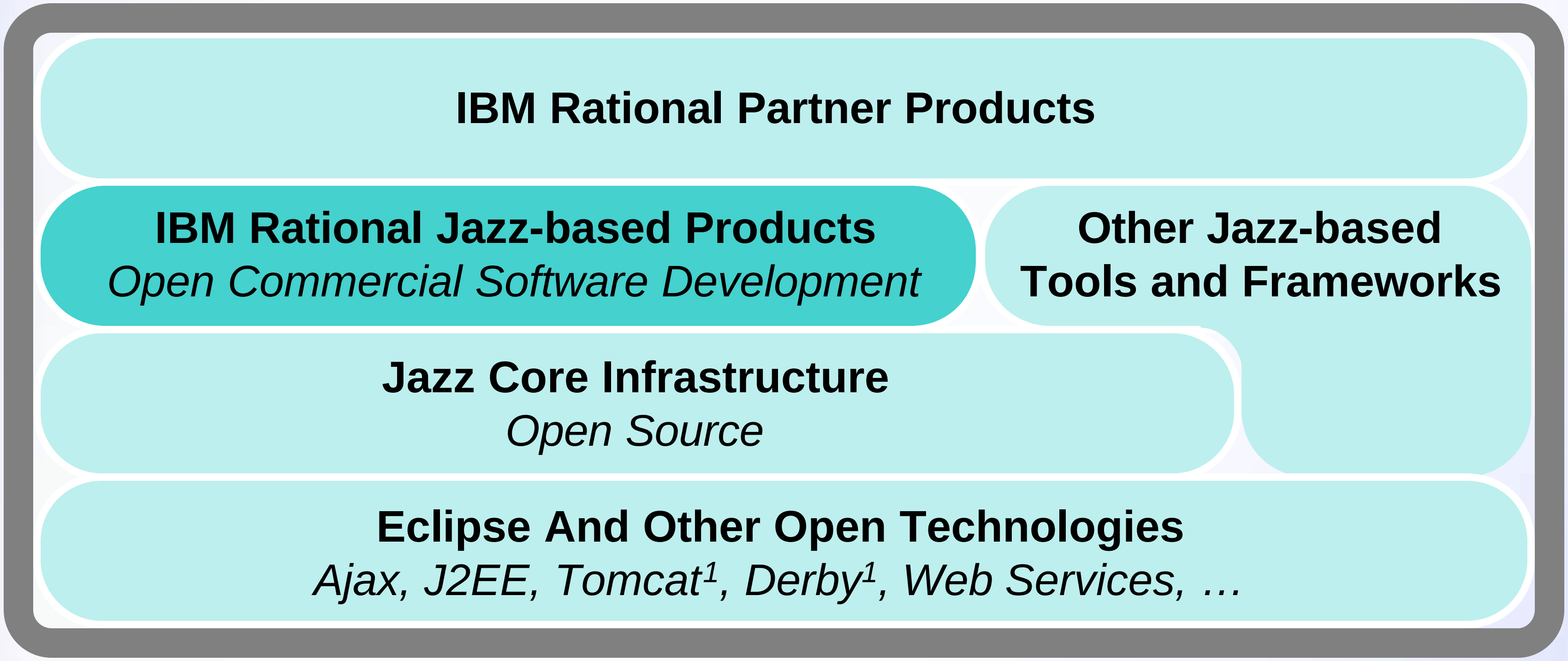
The Jazz ecosystem



IBM Rational Partner Products

IBM Rational Jazz-based Products
Open Commercial Software Development

Other Jazz-based Tools and Frameworks

Jazz Core Infrastructure
Open Source

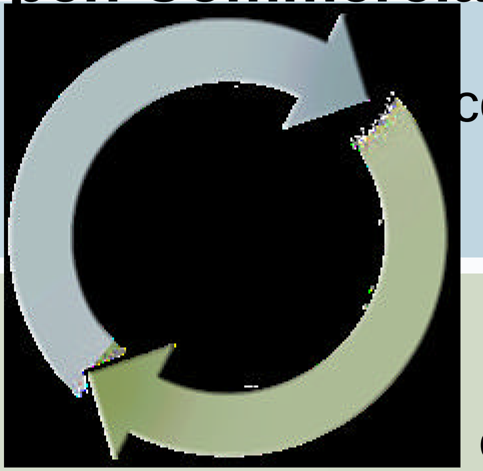
Eclipse And Other Open Technologies
Ajax, J2EE, Tomcat[1], Derby[1], Web Services, …

[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

Open-Source

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

Mutually Complementary and Transparent

JazzBOF

Jazz Team Collaboration Platform
Technology Demo and Reception

Erich Gamma, John Wiegand and Team
IBM Rational

Tuesday, June 6, 2006 7:30 - 8:30 pm
Southern Hemisphere III, Walt Disney World Swan and Dolphin Resort

Refreshments will be served

Everyone Welcome!

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Summary

- Good governance
  - Creates business advantage,
  - Empowers and enable practitioners
- Process and governance should become part of the organization's culture and day-to-day work
  - A key enabler is process automation and information integrated into productivity tools
- We're investing for both evolution and revolution

Thank You

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Panel Discussion

- **Lee Nackman,** Vice President Product Development and Customer Support, IBM Rational software
- **Martin Nally,** Chief Technical Officer, Distinguished Engineer, IBM Rational software
- **Erich Gamma,** Rational Distinguished Engineer
- **John Wiegand,** Rational Distinguished Engineer
- **Elizabeth Friday,** Vice President Customer Support
- **Bill Philbin,** Vice President Engineering, Rational Software, IBM Software Group

Open source makes my management nervous because of IP concerns – how do I reassure them without spiking their coffee with Valium?

Where did the name Eclipse come from?

Has anyone given any thought to providing the Rational customer base some of the regression test suites for the products?

This would allow my group to spend less time regression testing our machines after every OS patch, product update, etc.

Will IBM be more open about bugs and RFE’s like open source and Eclipse?

Where are the 2006 pins?

Rational. software

IBM Rational Software Development Conference 2006

Software.
IN CONCERT.

Today

More Breakout Sessions

Hands-on Workshops

Meet the Innovator and Birds-of-a-Feather Sessions

Lunch (seating by Product Interest)
12:00 p.m. – 1:30 p.m.

- **Sponsored by** WIND RIVER

Exhibit Hall & IBM Solution Center, Reception
4:30 p.m. – 8:00 p.m.

- **Sponsored by** IBM® Rational® Build Forge formerly BUILDFORGE

Spotlight Theater Presentations

Ready for Rational Pavilion

Great China Hall

Don’t Forget

Get your game card stamps for the “In Concert.” Giveaway

Tomorrow

Guest Speaker
Benjamin Zander
8:00 a.m. – 9:30 a.m.

- **The Art of Possibility.**

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