Rational® software

IBM Rational Team Concert
for i software.

Working with IBM Rational Developer for i to provide a comprehensive application development environment

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Introduction

Technology is constantly changing. For companies maintaining native IBM i applications written in RPG and COBOL, this means that the development environment has become more complex than ever before. IBM i applications are now integrated with multiple applications on different platforms, and are accessed from graphical clients and rich Web 2.0 user interfaces. Managing a multiplatform development environment presents a unique set of challenges. Other challenges facing today's IBM i IT departments include:

- *Increased regulation. The Sarbanes-Oxley Act, along with similar U.S and international, industrial and governmental regulations, has placed rigorous controls on the security and processes that IT departments implement, making it more difficult to meet audit requirements.*

- *Geographically disparate teams. To deliver high-quality software, all of the stakeholders—including the CIO, line-of-business executives and business analysts—need to collaborate with the software development team. When teams are in different time zones or even different offices, collaboration can be challenging.*

- *Pressure to respond quickly to new business requirements. To stay competitive, companies need IT to respond quickly to new business requirements. Therefore, IT is often challenged to shorten development cycles and do more with fewer resources. In this environment, it's important to optimize the productivity of individual developers and the entire development team.*

- **A lack of common development tools.** *As companies add new technologies to their IT environments—such as Web 2.0—it becomes increasingly difficult to manage software development. Often, these different environments are managed by separate development teams that each have their own processes, software configuration repositories and tools. Using multiple tools can make collaboration more difficult, and can increase costs and project risk.*

Highlights

Based on the extensible IBM Jazz platform, IBM Rational Team Concert for i software works with IBM Rational Developer for i, providing a collaborative software development environment.

Rational Team Concert for i provides collaboration and process capabilities, a repository to store data and a rich Web client.

To overcome these challenges, companies need a single software configuration management (SCM), work item and build management solution that can facilitate collaboration among disparate development teams. Based on the extensible IBM Jazz™ platform, IBM Rational® Team Concert™ for i software works with IBM Rational Developer for i, providing a collaborative software development environment for developing and maintaining native IBM i applications written in RPG and COBOL, as well as Java™, Web and Microsoft .NET applications. It's designed to provide a collaborative software delivery environment that unifies all of the stakeholders involved in the development lifecycle. Rational Team Concert for i builds on the core IBM Rational Team Concert product by providing a team server and build system toolkit for the IBM i environment.

A comprehensive application development environment for the IBM i platform
Rational Team Concert for i is based on the extensible Jazz team server for i and provides collaboration and process capabilities, a repository to store data such as source code and related assets, and a rich Web client that gives occasional users quick and easy access to project status information.

The Jazz Team Server for i and the server components of Rational Team Concert for i run on IBM i using IBM WebSphere® Application Server Express software and the integrated IBM DB2® for i database. The DB2 for i database enables the Rational Team Concert for i repository to participate in all of your existing backup and recovery processes. You can use either IBM i user profiles or Lightweight Directory Access Protocol (LDAP) for authentication, allowing you to leverage your existing user management infrastructure. The development client for Rational Team Concert for i is integrated into Rational Developer for i, providing a comprehensive application development environment for the IBM i platform.

Enhanced development efficiency through greater collaboration
To collaborate effectively, software development teams need:

- *A clear definition of the team structure and project plans.*
- *A common understanding of the work required.*
- *An efficient way to discuss work items.*

Rational Team Concert for i can help you define team structures, organize work items and establish process iterations for each project. Plus, the application provides an associated iteration plan identifying the work items planned for each iteration. Team members can collaborate on projects by viewing existing work items and having online discussions about them with colleagues—regardless of where colleagues are geographically located. Plus, Rational Team Concert for i can automatically notify stakeholders and others team members when there are updates to or comments on the work items they're interested in.

The application enhances collaboration by allowing team members to view existing work items and have online discussions about them with colleagues — regardless of where colleagues are geographically located.

Dashboards and reports that provide greater visibility
Rational Team Concert for i helps you keep stakeholders in the loop using customizable dashboards and reports. The application automatically tracks work progress based on process definitions and iteration plans, helping you eliminate manual status collection and automatically ensure that required reviews and approvals are taking place. As work is performed, the status of each item—including who, what, when and why—along with all of the comments and relevant documents associated with it, are captured, helping to provide historical tracking and facilitate auditing. Stakeholders can then access this information using a customizable dashboard or report. Using a dashboard allows stakeholders to access realtime status information, making it easier to keep projects on track or identify possible issues earlier in the development process and take appropriate action before these issues become significant problems. And development team members can easily see dependencies and target completion dates, which can help work flow more smoothly.

Using a customizable dashboard or report, stakeholders can access information about each work item, including who, what, when and why, along with all of the comments and relevant documents associated with it.

Customizable processes and process guidance can help you automate the implementation of any development process.

Rational Team Concert for i tracks source code modifications, along with who made the change and when the change was delivered to the repository, so you have a comprehensive history of source code modifications.

Out-of-the-box processes that speed time to value

High-performance software teams typically have shorter iteration cycles and frequent stakeholder involvement during the entire development lifecycle. That's why IBM Rational Team Concert for i includes process models based on these principles to help your teams begin operating more effectively. You can use Rational Team Concert for i process models as-is or customize them to support your unique requirements. These customizable processes and process guidance can help you automate the implementation of any development process. The process capabilities of Rational Team Concert for i support just enough process to help the development workflow without getting in the way of developers getting the job done.

Integrated source management that promotes efficiency

Rational Team Concert for i provides an integrated source management solution with version control, workspace management and parallel development support, enabling individuals and teams to work more efficiently. Using the application's version control capabilities, teams can set up multiple streams to manage different versions of their applications. Rational Team Concert for i keeps a record of all source code modifications, along with who made the change and when the change was delivered to the repository, so you have a comprehensive history of all modifications to the source code. Team members are therefore able to link modifications back to the associated work item, see why the modifications were made and link the work item back to the project plan.

The source management component of Rational Team Concert for i provides an extra level of flexibility for developers by allowing them to make changes locally on their machine and check them into a personal repository workspace on the server for backup or review by other team members—before the changes are delivered to the team stream. This feature helps protect developers from potential loss of work if the hard disk in their workstation crashes. It also allows developers to resume work quickly if their workstation fails.

Leveraging IBM Rational Team Concert for i to improve change control and gain project insight

Here's a typical scenario about a fictional midsize company, based on a composite of IBM customers, that replaced its homegrown change management system with Rational Team Concert for i, enabling it to overcome a number of challenges.

The company runs a claims processing application on the IBM i platform. The claims application is written in a mixture of RPG and CL and has a 5250 green screen user interface. In the past, the development team managed changes to the source code using a homegrown change management system that included a complicated set of libraries and commands built on top of basic operating system support for locking and timestamps. To track changes to source code, the development team performed weekly backups. To keep stakeholders informed, the team's project manager held regular status meetings and then distributed a status report via e-mail.

Many companies use inefficient homegrown change management systems that include complicated sets of libraries and commands built on top of basic operating system support for locking and timestamps.

Because it lacked an integrated software delivery environment, the company had been having a number of problems, including:

When companies lack an integrated software delivery environment, they can experience problems such as difficulty with audits and high costs associated with managing multiple SCM systems.

- *Difficulty with audits. Facing increased regulation, the company's internal auditors were concerned about the lack of traceability for source changes. Comparing weekly backups, the development team could determine what changes were made to the source code during any given week, but it was unable to tell who made the modifications, when they were made or why they were made.*
- *An increasingly heterogeneous development environment. The company's IT manager was concerned about how to manage an increasingly heterogeneous—but interrelated—development environment. He also wanted to eliminate the costs of maintaining several different SCM systems used by the company's various development teams, including Microsoft® Visual SourceSafe for .NET development, Subversion for Java development and the homegrown system for RPG, CL and DDS development.*

- *Lack of agility. The homegrown change management system required increasing amounts of maintenance. And any time the company's small team of RPG developers spent maintaining the change management system was time it couldn't spend meeting new business requirements. If it took too long to implement new business requirements, the company could be at a competitive disadvantage.*
- *Poor visibility. IT management didn't have a clear picture of which work items each developer was working on or the number of open defects for each developer. Plus, it took so long to manually create status reports that business stakeholders didn't always have access to up-to-date information.*

Rational Team Concert for i helped the company with all of the issues identified in this scenario by:

Rational Team Concert for i can help companies improve audits, unify disparate development teams, eliminate the work and costs associated with running multiple SCM systems, and give IT management greater insight into resource utilization.

- *Improving audits through greater traceability in source code changes.*
- *Unifying disparate development teams and eliminating the work and costs associated with running multiple SCM systems.*
- *Helping IT management better understand how the development team is being utilized.*
- *Improving project insight by automating the collection of project status information and providing stakeholders with realtime access to project status.*

Detailed tracking helps ease audits

Using the SCM component of Rational Team Concert for i, the company can access detailed information about source code modifications. Related source changes are grouped into change sets, which in turn are associated with a work item. The company therefore has a detailed history of who made modifications to the source, what was modified, when it was modified and why it was modified. And this information is stored for the entire lifespan of the source, which makes it easier to perform audits and stay in compliance with necessary regulations.

A detailed history of source modifications can make it easier to perform audits and stay in compliance with necessary regulations.

Miscommunication between stakeholders and developers about project requirements can delay projects or even cause them to fail. It only makes matters worse when different development teams use different change management systems and work tracking processes.

A unified solution facilitates greater collaboration

Currently, the company is planning to add Web and Web services interfaces to its claims application, which will require input from multiple stakeholders and development teams. As the company prepared to take on this project, it knew that it needed to do things differently than it had in the past. For the project to be successful, the company needed input from many stakeholders and multiple development teams. In the past, such projects had suffered from significant delays, and a few projects had even failed. These poor outcomes were largely the result of miscommunication between stakeholders and developers about project requirements. To make matters worse, the company's different development teams were using different change management systems and work tracking processes, which made collaboration extremely difficult.

Rational Team Concert for i can provide a single collaboration and governance solution for all of the company's development teams, even if teams are using their own source control solutions. Rational Team Concert for i supports a consistent process and workflow, helping deliver:

- *A consolidated view of all of the work that needs to be performed for the project.*
- *The ability to easily record and track dependencies between the work being performed within and across teams.*
- *Better communication and collaboration. Team members can discuss details of the work and easily communicate with the business stakeholders. And all of these discussions are captured as part of the corresponding work item.*

Rational Team Concert for i enables project managers to use consolidated iteration plans and manage cross-team projects as a whole — instead of juggling multiple plans for each development team.

You can use Rational Team Concert for i to manage its Java, Web and Microsoft .NET source files in addition to IBM i source code.

Rational Team Concert for i enables the company's project managers to use consolidated iteration plans and manage the project as a whole—instead of juggling multiple plans for each of the development teams involved in the project. Project managers can easily see the priority, estimated sizing and dependencies for each work item and use this information to identify and resolve conflicts, and mitigate risks in the project plan.

All of the stakeholders involved benefit from having a single collaboration and governance solution because they can now access delivery plans and realtime project statuses. And upper-level management, including the CIO, can make informed investment decisions based on historical and realtime information.

Multiplatform change management helps manage heterogeneous environments
The company's application development environment has grown more complex over the years. It uses some Microsoft .NET applications for executive reporting. And some of the larger brokerage firms have also been asking for a service interface into the claims application so they can directly integrate their own applications with it. Fortunately, the SCM capabilities of Rational Team Concert for i are not limited to native IBM i source code. The company can use Rational Team Concert for i to manage its Java, Web and Microsoft .NET source files in addition to its IBM i source code.

A packaged solution reduces maintenance requirements
By replacing the company's homegrown change management system with Rational Team Concert for i, the company's RPG developers can focus on maintaining and enhancing the business applications instead of maintaining

To make sure all developers are following established processes, Rational Team Concert for i enables you to set up custom work item attributes, workflows and approvals.

Rational Team Concert for i provides greater insight into the development process, enabling management to manage resources more effectively and help teams work more efficiently.

the homegrown change management system. They're now available to spend more time on projects that add value to the business and help meet new business requirements.

Increased visibility helps improve resource management
Using Rational Team Concert for i, the company can set up custom work item attributes, workflows and approvals, enabling the company to make sure all of its developers are following its established processes. The company can use work items to track defects and enhancement requests. And it can use iteration planning capabilities to document and communicate project schedules and establish which work items are targeted for each iteration.

Business analysts, business managers and project managers can all access Rational Team Concert for i through team or personal dashboards to see project plans and access realtime status on their progress. Using work item queries, iteration plans and a customized dashboard, the IT management can gain a better understanding of defect rates for each project and determine what each member of the team is working on. This way, IT management can tell which developers are overloaded and which might be available to take on more work. Having greater insight into the development process enables management to manage resources more effectively and ultimately help the team work more efficiently.

Highlights

Enhance collaboration, improve visibility and help keep projects on track with Rational Team Concert for i.

Summary

An SCM, work item and build management solution that supports disparate development environments can enhance collaboration, improve visibility and help you keep projects on track. Rational Team Concert for i can provide the tools your company needs to support a more effective software development process.

For more information

To learn more about how IBM Rational Team Concert for i software can help you facilitate collaboration among disparate development teams, visit:

ibm.com/software/awdtools/rtci

or

jazz.net

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