Rational®

Industry:
Hardware/Software

Organization:
Marconi Communications' Access Group

Description:
Marconi Communications' Access Group, head-quartered in Dallas TX, is engaged in hardware/software development and quality control for Marconi's telecommunications and fiber optics divisions.

Business Problem:
The Access Group needed to replace its aging home-grown defect tracking system with a new system that was customizable, Y2K compatible, and could readily adapt to future needs.

Rational Solution:
Rational ClearQuest

Key Benefits:

- Accelerated development cycle times, enabling higher quality software and improved "time to profit" performance

- Pinpointed defect origins, as well as identified and corrected weak links in Marconi's software development processes

- Geographically separated development team members tracked defects via the Web for increased efficiency, less duplication of efforts, and better team communication

- Development team now "on the same page" without high installation and administration costs of a custom WAN

- Maintained a vital competitive advantage through TL 9000 certification due to expandable database with custom fields and metrics

- Enjoyed enormous savings in time, human resources and travel expenses due to single, centralized server installment

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Marconi Communications Achieves All-around Process Improvement with Rational ClearQuest

With so much happening so quickly, it's easy to see how Marconi Communications' Access Network Systems Group, like any large software development group within a huge international corporation, could be challenged to keep pace with its defect and change tracking needs. The Access Group, headquartered in Dallas, TX, has approximately 800 developers engaged in hardware and software development and quality control for Marconi's telecom and fiber optics businesses.

The home-grown defect tracking system used by the Access Group since 1993 was found to be lacking a number of key capabilities, chief among them being Y2K incompatibility on the backend mainframe. With Marconi also migrating towards a corporate standard of Oracle and Microsoft SQL Server databases, the Access Group began to look seriously at replacing this home grown tool with a new system that could provide the growth, customizability, Y2K compatibility, and concurrent user support that the old system lacked.

The Access Group's search quickly led them to select Rational ClearQuest®, the defect and change tracking solution from Rational Software, as their front-end software. Rational ClearQuest's prime benefits:

- Easily adapts to work the way you work
- Captures and tracks change across the full development lifecycle
- "Design once, deploy everywhere" implementation approach, were ideally suited for Marconi

Furthermore, as users of the Rational ClearCase® change management solution and Rational Rose® modeling solution, Access Group engineers were comfortable and conversant with the common Rational user interface conventions and tight integration that exists between Rational tools. These factors combined to make Rational ClearQuest the logical and preferred choice for the new system.

Fast Implementation, Immediate Benefits

Rational ClearQuest implementation by the Access Group began in May 1999 with the production database launched that November, well in time for Y2K. Since then, Rational ClearQuest use has expanded beyond the Texas-based Access Group to include Marconi's Outside Power Division, which is spread across nine locations in the US, and the South America Customer Service Division. These three divisions use Rational ClearQuest for all their defect and change tracking and enhancements requests for software development and manufacturing.

Metro IT Consulting, a Metro Information Services company, was contracted by the Access Group to implement and administrate Rational ClearQuest. According to Mike Sabot, the Metro Consulting Rational ClearQuest administrator assigned to the project, Rational ClearQuest has brought significant improvements and benefits in all aspects of Marconi Communication's software development process.

"Before Rational ClearQuest they had no way to figure out how big a problem was and its impact," said Sabot. "Some engineering teams didn't even use a documentation approach to fixing a defect. They'd just talk about a problem among themselves and try to fix it. Now, with Rational ClearQuest, we have a method to qualify a problem, track who's gone in there to fix it, and follow that process all the way through test. We can go back and say, 'OK, this problem had to go through X-number of revisions before it was solved' and that information can often indicate whether the problem's a designer issue or a programmer issue. So we're no longer guessing. We have some hard metrics and information to pinpoint where problems are originating and we can pinpoint where the process is falling down, which we couldn't do before. This is a huge Rational ClearQuest benefit that's already resulting in much better software being released much quicker."

Rational ClearQuest has also helped Marconi Communications meet head on, and overcome, the "software development paradox" created by having to bring high-quality software to market at ever-increasing Internet speeds.

Marconi's new bonus plan for its engineering groups is actually based on successfully addressing this paradox, with "time to profit" replacing "time to market." "This means that the sooner you get that product to market with the best possible quality, the sooner it's going to be profitable and the higher bonus you're going to earn," explained Sabot. He noted that while quality is key for Marconi, the product must also be released into the marketplace on time. "Even if you have a good product, customers will pass it by if they think

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it's obsolete," Sabot added. "But it won't be a good product if it's full of bugs. So you've got to deal with both the quality and speed issues in software development and we believe that Rational ClearQuest has helped us to do that effectively."

Customizability: An Important ClearQuest Attribute

One of Rational ClearQuest's capabilities most valued by users and system administrators is its high degree of customizability. Rational ClearQuest can be implemented right out-of-the-box with its extensive predefined processes, layouts, templates, and business rules, or it can be customized to fit nearly every team's existing defect and change tracking process.

This customization capability has proven invaluable for Marconi's Access Group. About the same time that Rational ClearQuest was implemented, Marconi Communications upgraded to TL 9000 qualification, a performance standards certification for the telecommunications industry even more stringent than ISO 9000. TL 9000 adds 128 new defect and change tracking metrics beyond ISO 9000, all of which are easily created in Rational ClearQuest. And with TL 9000 audits occurring every six months, the need to accurately capture, analyze and distribute new data was immediate. "New metrics seem to get developed all the time for us, depending upon the group," observed Sabot. "Rational ClearQuest with its customization capabilities can handle that. The old system used here was very unfriendly to change but ClearQuest is easy to modify. In fact, I've performed over 400 customizations in the software since we installed it."

A good deal of this customization had to do with creating information fields that conformed to the 8D manufacturing process (invented by Ford Motors) Marconi Communications was bringing on line. The main defect system has been customized to track nine different types of defects. Marconi has also created additional record types to help individual software development teams determine project feasibility, cost-effectiveness and approval likelihood.

Given the extent of Marconi's customizations to Rational ClearQuest, Sabot is pleased that the tool is so easy to use. "I think that Rational ClearQuest is an easy and intuitive program to use," he said. "Without actually writing code, there is still plenty that you can customize through the menus. And then to do special stuff you can easily get into the code. That gives you a whole new area where you can enhance things, both internally and externally to the software. I program in Visual Basic externally and I've written executables that use the Rational ClearQuest API."

Web Interface: Another Valuable Capability

Like many other companies, Marconi Communications has development groups consisting of people in different cities, states, and even countries. For such groups the Internet has become the essential conduit for communicating and sharing information. Rational ClearQuest, through its browser-based Web interface, is a tool ideally suited for the geographically diverse software development team.

Rational ClearQuest's Web interface has proven particularly valuable to Marconi. Through this interface, defect status throughout a division can be monitored and updated by anyone with an Internet-connected PC, a browser, and access permission.

From an administrator's standpoint, the Web interface makes life much easier, especially when it's time to install an updated version of Rational ClearQuest. "One good point about Internet access is that it creates a central point of software," noted Sabot. "I put the upgrade onto the server and I don't have to go everywhere to install into each PC. I just go to the Web server, install a new version of Rational ClearQuest, and everybody in the network will automatically have it."

The Web interface has also boosted user concurrency. The Access Group's old system supported a maximum five concurrent users. Now with Rational ClearQuest, 80-90 concurrent users are a common occurrence. With usage continuing to rise, a second server will be installed soon to handle the demand.

Closely Integrated With Other Rational Tools

With over 150 Rational ClearQuest and Rational Suite® site licenses in use, Marconi Communications is a strong advocate of Rational tools and best practices. Along with stand-alone usage, Marconi developers can use Rational ClearQuest from within the Rational Suite DevelopmentStudio and Rational Suite AnalystStudio®. This tight integration of tools and process has always been a distinguishing value-added characteristic of the Rational approach, one that Mike Sabot expects to see expanded within Marconi: "In the near future, we'll be integrating all of the Rational products we use which we've never done before. This will include Rational ClearCase, Rational ClearQuest, Rational RequisitePro®, Rational SoDA®, Rational Rose and other Rational products. This will really help us to quantify improvements in our processes."