Rational. software

Valtech India Systems uses IBM Rational Rhapsody software to improve productivity, lower development costs.

Overview

- ***Challenge***
  Valtech needed to create a new object-oriented process for global development in response to an avionics customer's request.

- ***Solution***
  The IBM Rational Rhapsody software tool was chosen to help developers reuse objects and requirements in a concurrent engineering environment.

- ***Key benefits***
  Valtech increased productivity by 40 percent and reduced defects by 75 percent while lowering development costs for the customer.

The story

Valtech India Systems is the global development arm of Valtech, a leading embedded systems software developer. Two core technology beliefs drive customer service at the company—agile development, provided by Valtech's Pulse approach, and open source technologies, delivered through Valtech Highway, an open source framework. When a major avionics customer suggested a move to object-oriented (OO) technology for future projects, Valtech was challenged to create a new process for global development. One of the drawbacks of the company's old process was the inability to reuse requirements on multiple projects with similar components.

> *"Rhapsody was the environment we needed to achieve our time-boxed agile development process and maintain CMM level 5."*
>
> *– Cdr. R.N. Ramachandran, practice head, Valtech India Systems*

"Everything had to be started from scratch in each project," said R.N. Ramachandran, practice head, Avionics and Aerospace Division, Valtech India Systems. "Our customer wanted us to take advantage of software component reuse driven by requirements using [object-oriented analysis and design/Unified Modeling Language (OOAD/UML)] and to follow an evolutionary iterative and incremental paradigm for concurrent engineering. This approach would help Valtech improve productivity and quality as well as reduce the cost of offshore development for our customer."

Better communication, no duplication

Valtech's customer evaluated several tools and mandated that Valtech use the IBM® Rational® Rhapsody® development tool for all future projects. Rational Rhapsody was chosen because of its high architectural-level reusability, smooth communication across multiple development sites and robust support for the concurrent engineering paradigm. The solution supports compliance with airborne systems software standards DO-178B, Level B, as well as human-machine interface (HMI) design and simulation development environment (avionics domain using the Ada 95 language).

In June 2005, Valtech implemented the Rational Rhapsody tool in its global development center in Bangalore, India, requiring only minimal assistance from IBM support services. Developers got up to speed quickly and immediately improved communication among multiple teams.

"The first thing we noticed was better communication," Ramachandran said. "Everyone can work a single model using the same attribute or object. Communication is simple since each developer can see what the other is doing. They reduce development time by reusing architectures and components, ensuring that there is no duplication of effort. This is a unique value to distributed development. Rhapsody is best at providing these benefits."

On a daily basis, Rhapsody helps streamline the agile development process at Valtech. Application synchronization is done through local and remote Concurrent Versions System (CVS) servers and the Eclipse integrated development environment (IDE). Each individual developer compiles the changed modules and continues with the build. Every six weeks, Valtech delivers the current build to the customer for review. Any bugs or defects found by the customer are fixed, and a baseline is created.

The Rational Rhapsody tool supports Valtech's approach to incremental development and testing, which helps ensure quality despite the complexities of a multi-site, offshore development environment. When asked for feedback, Valtech employees said they were impressed with the flawless code quality, which is checked by the client with IBM Rational Logiscope software and another code analysis product before acceptance.

"Rhapsody is the complete development environment we needed to achieve our six-week agile time-boxed development process and to maintain [Capability Maturity Model (CMM)] level 5 for our business," Ramachandran said. "Rhapsody also enables us to achieve UML 2.0 compliance, which is very important to Valtech's commitment to industry standards."

The benefits

According to Ramachandran, Rhapsody addresses Valtech's business challenges by escalating productivity, reducing defect density in production and post delivery, and promoting process improvement.

"Model stability is very important to us, and Rhapsody delivers this," Ramachandran said. "Valtech does high-level design, so the model design needs to be strong to support the development activity. Rhapsody delivers this ability to our teams, which results in improved productivity."

Rhapsody helped Valtech:

- *Promote true global development.*
- *Increase productivity by 40 percent.*
- *Reduce defects from initial usage by 75 percent.*
- *Improve time to market—always on target with six-week deadline.*

In the future, Valtech is considering the IBM Rational Rhapsody Developer for C++, C, and Java for its reverse engineering capabilities. "We're looking forward to using Rhapsody on our next project with this customer," Ramachandran said. "We'll recommend it to other customers as well."

About the IBM Rational Rhapsody development tool

IBM Rational Rhapsody is a leading UML/Systems Modeling Language (SysML)–based model-driven development tool for embedded systems and software engineering. Rhapsody allows both function- and object-oriented design techniques to coexist in one environment.

For more information

To learn more about IBM Rational Rhapsody, contact your IBM marketing representative or IBM Business Partner, or visit:

ibm.com/software/rational

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Produced in the United States of America
June 2009

RAC14042-USEN-01