

Wind River Benefits from Geographically Distributed Development with IBM Rational ClearCase

Overview

■ The Challenge

After a series of acquisitions, the development team at Wind River rapidly grew almost fourfold, and expanded from two development sites to fifteen. The company needed a flexible, scalable software configuration management system to support its new, globally distributed development team.

■ The Solution

Wind River used IBM® Rational® ClearCase® and IBM Rational ClearCase MultiSite® to enable streamlined parallel development across its entire worldwide development organization.

■ The Benefit

Rational ClearCase provided flexibility and scalability that allowed Wind River to staff development projects with skilled resources, regardless of their physical location. With a seamlessly linked worldwide development organization, Wind River is fully capitalizing on the capabilities of its growing team to deliver the quality software that meets customer needs and exceeds expectations.

As the global leader in device software optimization (DSO), Wind River enables companies to develop and run software faster, better, more reliably and at a lower cost. Wind River Platforms tightly integrate a rich set of market-leading operating systems, development tools and middleware with services to provide a complete foundation that meets the specific requirements of a vertical market. Wind River's products and professional services are used in multiple markets including aerospace and defense, automotive, digital consumer, industrial, and network infrastructure.

Founded in 1981, Wind River is headquartered in Alameda, California, with operations worldwide. Like many global development organizations, Wind River started out building software "locally" in an environment in which everyone on the team was in close proximity. Soon after Wind River completed several acquisitions, the company was faced with the challenges inherent in managing a global development team. To use all of the capabilities of this distributed team to its full advantage, Wind River needed a software asset management solution that would enable team members with needed skills to work on any project that required them,

regardless of location. The team also needed a solution that was flexible, scalable, and configurable to support effective communication, parallel development, and sharing of assets among multiple sites.

Joe Mallon, Senior ClearCase Engineer for Wind River, recalls, "Wind River was a single entity, with a main office in Alameda. Through a series of acquisitions we ended up with development offices all over the world. Our development locations grew from two sites to about 15 sites worldwide, including Europe, India, Japan, and several in the United States. It was clear that we needed to manage distributed development and provide access to our material and our assets pretty much everywhere. So, the question became, 'How are we going to do that efficiently?'"

Supporting a New, Global Team

Wind River's Alameda development group and several of the newer teams had been using IBM Rational ClearCase effectively for years to manage parallel development and all of the software assets in the development process. Based on this record of success, the company saw the adoption of IBM Rational ClearCase MultiSite – which provides automatic, error-free replication of software asset repositories for

geographically distributed sites – as the ideal solution for its worldwide development team.

Mallon notes, “We simply would not be able to do the work that we do, were it not for Rational ClearCase and, in particular, Rational ClearCase MultiSite. It enables all of our developers to be able to work on any code in our entire code base. Our largest project includes a few million lines of code, and we have about 350 Versioned Object Bases (VOBS) worldwide. That is a lot of code and it would be almost impossible to manage if we did not have a solution that was as robust as Rational ClearCase MultiSite. It allows us to have projects that are distributed worldwide – we can have engineers in California, France and Japan all working together on the same project. Rational ClearCase MultiSite makes that not only possible, but easy for them to do.”

More Flexibility in Resource Allocation

From a project management and staffing perspective, Rational ClearCase MultiSite has provided clear advantages. Wind River can effectively staff a project, based solely on which engineers have the skills needed to complete the project, without worrying about what site the engineer is working from. This provides great flexibility; and by helping to bring the most appropriate skills to bear for each project, contributes to increased quality and accelerated development at Wind River.

Mallon explains, “All of our assets are managed by Rational ClearCase. Because all of our VOBS can be accessed at all of our locations, a project that needs more resources can choose people from the best our company has to offer, versus being geographically limited. Rational ClearCase MultiSite lets us be flexible and makes the most efficient use of available resources, wherever they may be located. And it really helps us do that quite smoothly. For example, we are no longer limited to doing all the work in France, just because the code-base is in France. If you only have four people available in one location, that does not mean they cannot be utilized. And if you have a hundred people in another location, that does not mean that is the only place you can develop. Those limitations are not in place anymore. It has definitely made it much easier for us to develop across multiple locations.”

He continues, “Rational ClearCase MultiSite is really the extension of all of the capabilities of Rational ClearCase into multiple locations. It is a very important part of our infrastructure. Without it, we couldn’t really do our work as well as we do. It allows work to be done at any time, at any location”.

24 Hour, Multi-platform Development

The ability to streamline a worldwide development effort has also enabled Wind River to implement a development approach that operates virtually 24 hours a day. Mallon

reports, “Because we are able to distribute effort, we can collectively work all 24 hours. By the time the team in Europe is done, we are starting in California. We get a longer work day, and a more fluid work day. Without Rational ClearCase MultiSite, we would not be able to collaborate on projects like we can today. It would be prohibitive. I have a real difficult time imagining what it would be like”.

Broad support for a range of platforms in Rational ClearCase is another key advantage for Wind River and also contributes to the fluidity of the team’s work environment. “Multi-platform support is vital to us. We use Rational ClearCase on Windows® and UNIX®. We are also starting some Linux™ initiatives, so available support for Linux is also very important for us,” says Mallon.

Maximizing the Value of Growth

IBM Rational ClearCase is a scalable solution that is designed to support development teams as they grow and as their needs evolve. Mallon notes that Rational ClearCase has helped Wind River build on the benefits of expanding its development organization. He explains, “The value of Rational ClearCase and Rational ClearCase MultiSite becomes more and more apparent as you grow as a company. This solution lets you add locations and developers easily. It has a wide array of features and is very adaptable. It really does enable a growing organization to harness that growth and direct it in a very

useful way. These Rational products allow you to multiply the value of the growth you are experiencing in development because it gives you the ability to do parallel development and multi-location development effectively.”

Practical Parallel Development

For Wind River, Rational ClearCase enables practical parallel development in two ways. It allows the team to work on multiple versions of the same product, and it also allows multiple developers and development groups to concurrently work on the same project. This ability contributes to high levels of customer satisfaction and continuous, rapid product innovations. Mallon notes, “Our company has a fairly large product portfolio to support and we need to continually improve our products. Doing that would be impossible without the ability to do parallel development. Rational ClearCase really supports parallel development wonderfully. It is a very powerful tool, and it is the most configurable configuration management tool there is in my view. The branching and labeling capabilities are huge assets when you are doing parallel development.”

He adds, “In my experience, Rational ClearCase is the source control tool that allows parallel development most fluidly. Not only is that valuable for us in terms of multiple locations, but also in terms of supporting several different versions of our operating system and our tool set. Parallel development allows us to work on updates to one version, while we

are developing the next. Rational ClearCase provides the facilities that are necessary to keep a product robust and to keep customers satisfied as we are working on the next generation of our products.”

Accessible from Within IDEs

Wind River recognizes the value and convenience of enabling developers to perform software configuration management activities directly from leading Integrated Development Environments (IDEs) such as IBM Rational Application Developer for WebSphere® Software, the open source Eclipse platform and Microsoft® Visual Studio .NET.

“I think the integration of Rational ClearCase with IDEs is very convenient for developers. Anytime you can make source control second nature, you are helping the developer. It should never get in the way of the vital work – creating the code that is the foundation for the company’s success. Integrating version control with the normal environment in which they work helps them because it is much easier to pull something from a drop down menu than it is to have to break your thought process, leave the environment, do work and then come back and pick up where you left off. In addition, there is not a high learning curve for developers using Rational ClearCase – you set your view, you check out, you check in and you are done,” Mallon says. Wind River extends this opportunity to its own customers, as well. The company’s Wind River Workbench provides an extensible framework based on Eclipse and seamlessly

integrates with in-house and 3rd-party plug-ins. This allows developers, working within Wind River Workbench, to access Rational ClearCase capabilities directly from their own development environments.

“A Huge Win for Us”

According to Mallon, the benefits of Rational ClearCase and Rational ClearCase MultiSite – including effective geographically distributed development and parallel development – have translated into competitive advantages for Wind River by helping the development team utilize resources more efficiently and save development time. Mallon reports, “For Wind River, the main advantage of using Rational ClearCase and Rational ClearCase MultiSite is the ability to do distributed development, which means the ability to distribute work as necessary. We have almost around the clock development. We are never at a point where we cannot be developing in some location in the world. We are not limited to working in one office, which would limit us to projects of a certain scale. The scale is limited only by the number of hours in a day. Rational ClearCase MultiSite allows us to staff projects based on needed skill sets, not geographic location. That wouldn’t be possible otherwise.”

He concludes, “Rational ClearCase also streamlines our ability to make code changes, streamlines our ability to work together, and enables the different locations to work with each other. Having a single source control system makes us more efficient in developing software. We are able

to work together more fluidly and we benefit from everything that comes from that -- the ability to bring products to market more quickly and the ability to put together larger projects that can move more quickly. The ability to do parallel development and the site-independent development is a huge win for us, both in terms of time saved, and in terms of better utilization of resources.”



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