NerveWire Accelerates Time to Market for Clients with Rational Tools and Services

Industry:
Services-Consulting

Organization:
NerveWire, Inc.

Description:
NerveWire is a leading management consulting and systems integration firm focused on Inter-Enterprise Collaboration. NerveWire works with clients to help them break down internal barriers and extend their reach to companies by integrating information, technology, processes and people inside their business, as well as with their customers and suppliers.

Business Problem:
NerveWire wanted a competitive advantage in the Inter-Enterprise Collaboration market, and needed an integrated set of development tools backed by professional services and a proven process

Rational Solution:
Rational ClearCase, Rational ClearQuest, Rational RequisitePro, Rational Rose, Rational Unified Process

Key Benefits:
Delivered complex software systems in less time, reducing time to market for themselves and their clients

Reduced project risk by validating models through sequence diagramming, state diagramming, and forward engineering for prototype tests

Enhanced team collaboration by enabling easy access to vital requirements information throughout the project life cycle, Reverse engineered third-party components and existing client software to shave one month off typical three to six month projects

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Based in Newton, Massachusetts, NerveWire is a leading management consulting and systems integration firm focused on Inter-Enterprise Collaboration. NerveWire works with Global 2000 clients to help them break down internal barriers and extend their reach to companies by integrating information, technology, processes and people inside their business, as well as with their customers and suppliers. Over the past two years, NerveWire has built an impressive client list that includes Fortune's top five securities firms and top three network communications firms. One element of NerveWire's success is based on its ability to deliver high quality solutions in a short time. According to NerveWire's Technical Architect Melissa Marquis, a secret to NerveWire's short time to market is the skillful application of Rational tools and Rational Services.

Technical developers as well as business and technical architects at NerveWire use a range of Rational tools throughout their development life cycle including:

• Rational® Rose® – for model-driven development

• Rational ClearCase® – for software configuration management

• Rational RequisitePro® – for requirements management

• Rational ClearQuest® – for defect and change tracking, and

• Rational Unified Process® – as a guide to best practices for software development.
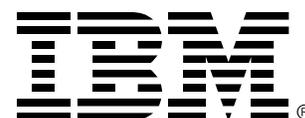
Marquis is confident that these tools and resources have shortened NerveWire's development life cycle, "In our early phases of

requirements and design, Rational tools and processes greatly increase our efficiency by allowing NerveWire architects to examine complex business problems and identify gaps and areas of risk or high complexity. In the design phase, we use Rational Rose to create models that give our architects and our clients a complete view of the system. Rational Rose allows us to validate our model through sequence diagramming, state diagramming, forward engineering for prototype tests and then, the final implementable object model. Since NerveWire's business and technical architects are well-versed in the Unified Modeling Language (UML) and NerveWire's own development process, our client's time to market is significantly reduced."

A Consistent Starting Point

Most of NerveWire's projects are developed in Java on the Sun™ Solaris platform. A project can involve anywhere from 10 to 60 people. The size of the team often fluctuates because they bring in expertise as needed depending on the complexity of the project. But no matter how many people are working on a project, and no matter how complex it is, every project starts at the same point – with the process. Marquis reports, "We used the Rational Unified Process as a starting point in creating NerveWire's methodology activities and process workflows." The Rational Unified Process is an online knowledge base of customizable guidelines, templates and examples for all development activities. It is tightly integrated with the entire Rational toolset, allowing development teams to take full advantage of Rational product features, the Unified Modeling Language, and other industry best practices.

Marquis is convinced that NerveWire is better able to satisfy client needs because they have a proven process in place. She adds, "Early on

NerveWire made a commitment to develop a methodology. At other companies we always talked about it, but nobody ever invested the time in it. I'm really impressed that NerveWire made that decision, and dedicated people solely to that effort. We've extended the Rational Unified Process to meet our market's needs and to focus on the Inter-Enterprise Collaboration market. We feel very strongly that we need a repeatable process. We need something we can measure ourselves by and make sure that we're continually improving. Rational has the tools to enable those best practices. It's built into the system, which allows NerveWire to focus on our clients' needs."

From Requirements to Models to Code

Once NerveWire has gained a clear understanding of a particular client's needs they develop use cases, establish project requirements using Rational RequisitePro and decide upon a set of deliverables for the client. Rational RequisitePro is a powerful, easy to use requirements management solution that promotes better communication, enhances team collaboration, and integrates deeply with Rational Rose. By enabling easy access to vital requirements information throughout the project life cycle, Rational RequisitePro provides the NerveWire team with the necessary details, context and relationships for effective collaboration.

From this point Marquis and the NerveWire team rely on Rational Rose, the industry-leading visual modeling tool, to drive the project forward. Marquis describes the early stages of this process, "When we get through defining our use cases – which are based on Rational processes – we bring those use cases into Rational Rose. We then break our project into logical areas of functionality, and each group is able to update their view. The technical architects can see what the business consultants have recently updated. When the business consultants give us their version of the use case, it's our job to take it down to the next level and subsequent levels. We use Rational Rose heavily as we move from requirements gathering into design. We put the requirements under a microscope using Rational Rose to discover system boundaries and interfaces that will meet our requirements for seamless integration. As we validate our design against client requirements, we start reverse engineering all the third-party products and any exist-

ing software from the client."

Rational Rose can generate models from existing code bases in a number of languages, including Java. For NerveWire this ability to "reverse engineer" models of components from outside sources is a considerable advantage, and a huge time-saver. Marquis continues, "We use Rational Rose to examine the software components to see how we can create an interface that is flexible but also precise. Reverse engineering saves us an enormous amount of time, especially when we're dealing with new products. Rational Rose gives us the opportunity to look at those APIs and really get an idea of how they work and to see how we can seamlessly integrate with those APIs. The Rose model creates a sense of cohesiveness because we can view our model from many different angles. Our project lifespan is generally three to six months, sometimes longer, and reverse engineering cuts a month off that time."

Just as Rational Rose can reverse engineer models from source code, it can forward engineer source code from models. The developers and architects at NerveWire are taking full advantage of this capability as well. Marquis notes, "After we create the application architecture through the construction of sequence diagrams, we analyze and forward engineer the models. The ability to give the code Rational Rose generates to the front-end JSP developers while the server side development is being completed is a huge, huge win. Being able to generate stubs enables us to focus on the implementation and increases our productivity. We save weeks – if not a full month – of project time, which is crucial to accelerate our clients' market position."

By combining forward and reverse engineering, the NerveWire team ensures that the models reflect the most recent changes made to the underlying source code, and that the source code is in step with any changes made to the models. For NerveWire, this round-trip engineering eliminates the burden of manually maintaining synchronized models and code, and it allows their clients to have an up-to-date window on the project. "Another huge win is the ability to keep the code and the model in sync. Otherwise it becomes a maintenance nightmare. The benefit for our clients is that they have a clear view of the technology application architecture without having to dig through source code. It enables us to explain the application architecture to someone who

may be less technical and show them the model so they can see first hand how it really works," says Marquis.

Rational Rose has become an indispensable and invaluable part of the development process at NerveWire. "Rational Rose is the most important tool to me because its part of my every day job. Once we've modeled and forward engineered our system, we move into development mode. We develop the components against what we've validated in Rational Rose. At this stage, there may be some minor coding details, but generally once we do the Rose work, we are there. Rational Rose allows us to keep our focus on our client's needs," Marquis concludes.

Delivering More Than Just Software

Software is just one of the deliverables NerveWire provides to its clients – but a critical one, since it represents the culmination of business vision, strategies, business and technology architecture, and collaboration needed for their clients' success. NerveWire's other essential deliverable is the transfer of knowledge related to its development process. At the end of a project NerveWire does not just hand off a piece of software, they also include the thought process that makes using and extending these complex systems a reality for their clients. To achieve this goal, NerveWire uses Rational ClearCase and Rational ClearQuest on their projects to help get their clients involved in the development process from the start. Rational ClearCase is a software configuration management tool that integrates with Rational ClearQuest, a defect and change tracking tool, to form a comprehensive solution for managing change throughout the development life cycle.

"We immediately establish a project center that includes Rational ClearCase, to ensure that everyone is working on the most current files," points out Marquis. "We use Rational ClearCase to manage major and minor point releases, as well as to schedule parallel development with our clients. With Rational ClearCase we're able to branch off of a main product release and have developers work in isolation. Simultaneously, we can work on the major pieces of functionality that our clients need most immediately."

In addition to managing development with Rational ClearCase internally, the NerveWire team also uses Rational ClearCase to bring their clients into the development process. Marquis explains, "NerveWire believes it is important for our client to also get into the process of developing whenever feasible. Our clients can figure out how to work with the application as NerveWire plays a mentoring role, and that's really critical. We can continue to code and bring out major releases as a client is learning the environment, or the client can work on the major release with us. To aid us in the knowledge transfer process, our clients use the Rational ClearCase Web interface to get involved in the project and see the same views that we see without having to physically be in the same location with us. The other benefit is that we can give them a branch to work in, as a kind of playground, and it will not affect the production branches and releases. They are able to tinker with it to figure out how the process works without destabilizing any code, because we all work independently and are isolated from one another's changes. At the end of the project we hand off code and models to our clients, and Rational ClearCase allows us to do that in a very managed way."

Rational ClearCase has also played a big part in reducing NerveWire's time to market by speeding up the process of merging multiple branches of source code back together. Rational ClearCase automatically merges obvious, non-conflicting code changes, but flags those that need attention from a project lead. Additionally, Rational ClearCase assures high quality releases because no source code changes are lost or overwritten. "Rational ClearCase's merge manager allows us to take a heavily QA'd and unit tested branch and merge it into another branch that is about to get released. That is another huge win, because we're not using a crude file compare utility. We can clearly see what changes should be incorporated – not just mash them together – which creates a level of stability that we wouldn't have without ClearCase. It saves us an enormous amount of time. We had two major releases recently on a huge project with complex business requirements. If we had to do the merge without Rational ClearCase, it would easily have taken a dedicated staff a

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month to complete. With Rational ClearCase it was a day. We've completed some merges in as little as an hour, depending on the complexity of the release."

Tracking Enhancements

NerveWire also uses Rational ClearQuest to keep its clients involved in the development process, and to keep its projects on track. Rational ClearQuest is a flexible defect and change tracking tool that captures, tracks and manages all types of changes to provide a clear picture of the current state of the project. Marquis reports that Rational ClearQuest is miles ahead of ad hoc defect tracking systems such as free-form e-mail messages. "Relying on e-mail to communicate changes, bug fixes and enhancement requests with our clients is not sufficient for obvious reasons. When you get a request via e-mail, one message generates four or five more to determine version numbers, severity and so on. Additionally, there is no standard way to capture information, no single view of the information, and no process for using that information and bringing it into new releases. Rational ClearQuest has a very intuitive interface for capturing the information we need as developers to determine exactly where the problem is – the platform, snapshots of screens, the release and build number. With the tabbed interface we can look at enhancement requests or a particular piece of functionality that needs work to figure out where the functionality needs to go and where the supporting documents that functionality requires can be found."

As with Rational ClearCase, NerveWire uses Rational ClearQuest to get its clients involved in the development process, and to smooth the transition at the end of the process. Marquis continues, "Rational ClearQuest is our means of communication for NerveWire, within the development team, as well as with the client. Our client uses the Rational ClearQuest Web interface to add enhancement requests, and they find it very intuitive. When it's feasible for our clients, we work in integrated teams with a single view of the entire architecture in Rational Rose, of all the enhancement and bug tracking in Rational ClearQuest, and all the source code in Rational ClearCase. This is crucial to delivering our clients' solutions successfully."

Rational Services: A Part of The Team

In addition to leveraging Rational tools, NerveWire used Rational consultants and training to get the most out of their products and their process. Once again, NerveWire was able to save a valuable month or two. Marquis explains, "NerveWire realized early on that we wanted a repeatable process. Part of that was bringing in Rational consultants to help us get there. We use Rational's training to keep us updated on changes in the industry like UML 2.0. "

She continues, "We attend Rational University courses both at NerveWire and at Rational. We also have Rational consultants come to our office to conduct training workshops with us. Whenever we need them they are there on the spot. They worked side-by-side with our colleagues to make sure they were using the tools correctly from the start of the project. They were practically part of the project team for the first three months and significantly expedited the completion of the project. If we had done some of these things wrong or if we had to spend time training people on the semantics of the tool instead of focusing on the technical details it would have been a disaster."

Solving the Biggest Problem

For the NerveWire team, one of the biggest challenges lies in managing the complexity of projects. According to Marquis, with Rational they have been able to work with that complexity instead of working against it. "The technology has become and will continue to be enormously complex. Our mission is to help our clients envision, architect and build collaborative, industry focused strategies and solutions by integrating information, technology, process and people inside their businesses, as well as with their customers and suppliers. Rational products help us do that efficiently and with great accuracy. NerveWire has a distinct competitive advantage in using Rational products, and that results in time savings for our clients. They're in a very competitive market, as are we. With Rational, NerveWire is able to deliver software much faster." And that makes NerveWire's impressive list of clients very impressed.

About Rational

Rational provides a software development platform that improves the speed, quality, and predictability of software projects. This integrated, full life-cycle solution combines software engineering best practices, market-leading tools, and professional services. Ninety-six of the Fortune 100 rely on Rational tools and services to build better software, faster. This open platform is extended by partners who provide more than 500 complementary products and services.