

The Revere Group Uses IBM Rational Tools To Help Idaho Fish And Game Hit Its Target

Overview

■ The Challenge

The Revere Group was contracted to replace underperforming legacy software with a sophisticated new system to facilitate the sale of Idaho hunting and fishing licenses through multiple channels. With an unmovable deadline just seven months away, the project was placed on an aggressive schedule with little room for wasted time or effort.

■ The Solution

The Revere Group development team used IBM® Rational® RequisitePro® to organize the project's complex business rules, manage requirements, and define use cases. The team also used IBM Rational ClearQuest® and IBM Rational ClearCase® to effectively manage change throughout the project and across multiple locations. To mitigate risk and help ensure on time delivery, the team applied the iterative development approach of RUP®.

■ The Benefit

The team completed the project successfully and on time, while meeting every interim milestone date along the way. In its first four months of operation, the system had an

uptime of more than 99 percent as it processed more than 324,000 licenses, permits and applications.

Based in Chicago, Illinois, The Revere Group is a business and technology consulting firm focused on helping organizations improve performance through the application of technology combined with the right changes in people and process. With a strong record of helping clients achieve exceptional results, The Revere Group has established a broad customer base across many industries, including government, consumer and business services, financial services and insurance, education, healthcare, and manufacturing and distribution.

The Revere Group has successfully managed many mission-critical applications for companies that rely on the high availability of underlying infrastructure of networks, data architecture, messaging, and systems management components. These components are critical for business continuity and their ability to support systems that can increase revenues, contain costs and position clients at a competitive advantage.

On a project for the Idaho Fish and Game Commission (IDFG), a

development team from The Revere Group was faced with a significant challenge – one that would require the commitment, expertise, and teamwork that has become a hallmark of the company's success. Given its track record of accomplishments on similar efforts, The Revere Group was confident in its ability to achieve the goals of this project.

The Revere Group was engaged by GTECH, a leading global information technology based in Rhode Island, to complete a Web-based, point-of-sale licensing system that simplifies and streamlines the sale of hunting and fishing licenses in Idaho. The system integrates satellite communications and a database of 1.5 million hunters and anglers to enable license sales through three channels: the Internet, a call center, and at more than 450 license vendors throughout the region.

Short on Time, Long on Regulations, and Widely Distributed

These requirements alone would not represent an extraordinary challenge for The Revere Group. The true test was imposed by the project's short and unmovable deadline, and by the sheer number of regulations that had to be incorporated. IDFG's existing system was not performing well during the periodic upsurge in usage

that coincided with the start of various hunting and fishing seasons; and the commission needed the new system to go live as soon as possible to avoid this situation. The project's other major challenge centered on the need to accurately implement the more than 3,000 fish and game regulations mandated by the state.

Glenn Stout, Senior Functional Specialist for The Revere Group, recalls, "One of the main reasons we were replacing their legacy system was that there were certain performance issues that had to be addressed. The key issues for us were to manage the very aggressive timeline and to handle the massive number of business rules that were involved. Business rules are a key component to this system because there are many different kinds of licenses and their sale is governed by complex rules. For example, in some cases customers can only purchase a certain license if they already own another and they buy a particular package. Also, the state of Idaho is separated into 78 different sections and a few different zones. Another rule might restrict the hunting of elk in a specific zone between two dates. Another may restrict licenses to only state residents over the age of 18. And, then there are varying costs for each kind of license."

The Revere Group also recognized the potential for communication difficulties, given the distributed nature of the project. "GTECH was on the east coast, the customer was in Idaho, and our development team was in the Chicago area. We needed a solution that would enable clear

communication throughout the user acceptance process," explains Stout.

Pulling it All Together

With the success of the project dependent on effectively addressing all of these issues, The Revere Group team decided to use IBM Rational tools and IBM Rational Unified Process® to drive the development effort. Specifically, the team used IBM Rational RequisitePro for requirements management, IBM Rational ClearQuest for defect and change tracking and IBM Rational ClearCase for software asset management. In addition the team used IBM Rational Application Developer for WebSphere® Software as their Integrated Development Environment (IDE). The team applied the tools using an iterative development approach, one of the best practices of IBM Rational Unified Process, or RUP. "We used Rational ClearQuest, Rational ClearCase, Rational RequisitePro and RUP to really pull this entire project together," says Stout.

Managing Requirements and Business Rules

On the IDFG project, complying with the state's regulations and requirements for fishing and hunting was vital. IBM Rational RequisitePro enabled the team to manage requirements and use cases using familiar Microsoft® Word documents, while providing powerful database capabilities to sort, analyze and prioritize and assess the impact of change. Stout recalls, "We were given approximately 75 use cases when we started. We combined and distilled those and ended

up with about 70 use cases, which includes both customer facing and administrative use cases. Along with that there was the large number of complicated business rules which were a key component to this system. There was a lot of complexity built into the project and the only way we could keep it all straight was by using Rational RequisitePro. We collected all the business rules and put them into Word documents. From there, we used Rational RequisitePro to organize them into the appropriate use cases. When anyone reviewed the use cases they could easily see exactly what business rules applied to them."

Stout adds, "A real benefit of Rational RequisitePro is that all changes, modifications, or corrections to the business rule are captured, the entire history is there if we need it. Also, one of the most powerful aspects of having RequisitePro on your side when you are doing system development is the ability to trace requirements. We can show anybody who wants to see — testers, developers, business analysts, customers — exactly what we created. We can show it all — from use case to business rule to supplementary requirement to feature in a single report — in one document. That is the power of the integration of Rational tools."

Improved Developer Efficiency

While effective management of requirements played a big part in helping The Revere Group meet its release date, IBM Rational ClearCase also helped by accelerating development through increased individual productivity and a shortened learning curve for new developers.

At The Revere Group, Rational ClearCase is seamlessly integrated with IBM Rational Application Developer for WebSphere Software, and is also made available via Web interface for remote developers.

Stout notes, “Because Rational ClearCase is integrated within the development environment our developers are able to work seamlessly in one application. They can check-in and check-out code without bouncing between applications. That saves us a lot of time and effort.” He adds, “The integration improved productivity from a learning curve perspective as well, because it made the two applications seem like one. New users didn’t have to learn two separate interfaces. So, when we added new people to the team they were able to get up to speed very quickly. It reduced the ramp up time for our developers and that contributed to improved productivity overall.”

With its previous version control tool, The Revere Group was not able to reliably manage all of its software assets, which created potential problems. Rational ClearCase eliminated this issue. “It really is head and shoulders above our previous process in which some of our artifacts were not in a change control environment. Now we have everything in Rational ClearCase, and everything goes much smoother. For example, we typically had from 25 to 30 developers working at any given time, they were all able to build and seamlessly push versions out to the WebSphere Application Server without any problems. It really worked well,” says Stout.

Improved Customer Satisfaction

When used together, IBM Rational ClearCase and IBM Rational ClearQuest provide a complete software configuration management (SCM) solution. The Revere Group development team used Rational ClearQuest not only for change and defect tracking, but also to help improve communication within its teams and with GTECH and IDFG. The Rational ClearQuest Web interface provided all three groups with the ability to add or update defects and with easy access to defect reports.

Stout explains, “I don’t know that we would have been successful at all on this project without IBM Rational ClearQuest. It was that important for communication. We had three different interested parties spread across the United States. There was a real customer focus on defect tracking, and the only way to be able to discuss defects in a reasonable way was to have everyone in the same environment. We were able to get on a conference call and have everybody use the Rational ClearQuest Web interface to walk through all the open defects and talk about the project. We were able to customize the interface and put our own field and attributes. We could ensure the defects reports were well formed and detailed, so we were able to fix the problem correctly the first time. And, we were able to make sure that we were working on the things that the customer felt were most important. Empowering the users to submit defects and enhancement requests really helps us make better products in the end.”

Linking Defects, Requirements and Code Changes

According to Stout, The Revere Group realized significant advantages as a result of using IBM Rational tools in combination. Together, the tools enabled the team to associate individual defects to requirements and to the source code changes that were implemented to address them. He explains, “We were able to enter defects in Rational ClearQuest and link them directly to the business rule or requirement in Rational RequisitePro that was affected. This enabled us to trace back and see what business rule or requirement was not working correctly, and from there we could assign a priority to the defect based on the level of importance of the requirement. In addition, when the developer fixed the problem we had a seamless link between what the defect was, what the requirement was, and where the code was that was fixed to correct the issue. This was really helpful, because in any large application you can forget where changes were made — by being able to see what changes happened at what point we were able to roll back changes if there were any adverse side effects caused by any particular fix.”

Rational Unified Process Provides a Process Framework

Throughout the IDFG project, the development team from The Revere Group followed an iterative development process and other software engineering best practices of IBM Rational Unified Process. The team customized RUP to meet the specific needs of the project; they established an initial inception

phase, followed by three iterations of elaboration, construction and transition. Each of these three iterations had a scheduled due date within the overall project.

Stout recalls, "We met every single date along the way. We worked extensively with the customer on getting the requirements correct in the inception and elaboration phases. As this approached 80 percent completion, we prepared to hand it off to the construction team, so they could get started on it. During the transition phase customer acceptance tests were conducted by both GTECH and the customer."

A Successful Deployment and a Competitive Advantage

Not only did The Revere Group meet all the interim deadlines on the project, they also met the most important final release date. "We were able to go live on time without a problem. We were able to increase the performance of the overall application, and address the performance problems the original system showed under peak user loads. We received a very positive memo from the management of the Idaho Fish and Game Commission. He thanked us, and he told us he couldn't believe that we made it on time. I am positive we were able to do this because we used Rational Unified Process and the Rational tool set. There is no doubt in my mind." In its first four months of operation, the system processed more than 324,000 licenses, permits and applications and its uptime was over 99 percent.

Looking ahead, The Revere Group sees a competitive advantage from its use of IBM Rational tools and RUP. "We are operating at CMM (the Software Engineering Institute's Capability Maturity Model) Level 2. We have a goal of achieving Level 3 and we feel that Rational Tools are going to help us get there. We also find that more and more companies and potential clients are familiar with RUP and Rational tools. They are using use cases and they want to work with firms that are like minded. I believe it's a competitive advantage for us to be on the same page as many of our clients with regard to the tools and processes we use to develop their applications," says Stout.

At a fundamental level, Stout says, Rational tools allow The Revere Group developers to fully leverage their core capabilities and expertise. "I feel that Rational RequisitePro, Rational ClearQuest, Rational ClearCase, Rational Application Developer for WebSphere Software and the other Rational tools that we've used really allow our development teams to do what they do best. They allow developers, testers, analysts, project managers, and all the people involved with system development to focus on developing software applications. They help us develop flexible, resilient solutions that enable our customers to be more responsive to changing needs and market forces. And, they keep us out of the meeting rooms and endless telephone conferences. Similarly, without them, my time would be spent running around trying to keep everyone up

to date on things – instead of doing what I do best – develop software," he concludes.



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