



Assurant Health Delivers Software Systems on Time and Under Budget Using IBM Rational Tools

Overview

■ **The Challenge**

As the development team at Assurant Health continued to take on increasingly complex projects, the lack of integrated and automated development tools made it difficult to effectively manage the scope of its larger initiatives. Recognizing the opportunity to increase efficiency by replacing its manual development process with a more automated approach, the company needed effective tools for a full development life cycle solution.

■ **The Solution**

Assurant Health began using a range of IBM® Rational® development tools, including tools for requirements management, issue and change tracking, business modeling, test management, and automated testing. In addition, the development team also relied on the IBM Rational Unified Process® (RUP®) to provide guidance on how to apply the tools throughout the development process.

■ **The Benefit**

IBM Rational tools have enabled the development team to make more informed decisions based on comprehensive, quantifiable project information from requirements to defects. Combined with improvements in efficiency, this capability helped the

In business for more than a century, Assurant Health provides health insurance coverage for more than one million people across the United States. Assurant Health develops and provides a wide range of individual medical, small group, short term and student health insurance products. With almost 3,000 employees, Assurant Health is headquartered in Milwaukee, and has operations offices in Minnesota, Idaho, and Florida, as well as, sales offices across the country. Assurant Health is part of Assurant, a premier provider of specialized insurance products and related services in North America and selected other markets.

As a leader in the health insurance market, Assurant Health is committed to providing ongoing flexibility and choices in health financing solutions, as well as, choice of providers. The

company's software development organization, which comprises more than 600 project managers, business analysts, developers and testers, plays a key role in delivering on that commitment.

Assurant Health relies on this team to deliver quality software systems on time, and at low cost. In the past, achieving all of these goals was challenging, particularly on the team's largest and most complex development initiatives. Dave Steingart, IT Manager at Assurant Health, recalls, "We realized that we were having difficulty in managing the scope of one of our largest projects. The project's requirements just kept growing, and it was difficult getting our arms around all of them. That is when we began looking at tools for requirements management and visual modeling, as well as, an iterative development approach to help us better understand the size and the scale of this project."

In addition, the team's manual processes for requirements management, defect tracking, testing and test management represented opportunities for improvement in both individual productivity and efficiency

across its distributed development team. “We had basically a manual process; we used Microsoft Office® tools for requirements and for testing and logs and so forth. We did not have enterprise tools that we could leverage,” says Steingart.

Selecting IBM Rational

Seizing the opportunity to increase operational efficiency, Assurant Health adopted a broad range of tools from the IBM Software Development Platform, including:

- IBM Rational RequisitePro® for requirements management
- IBM Rational Rose® Enterprise for visual modeling of business processes
- IBM Rational ClearQuest® for defect tracking and workflow management
- IBM Rational TestManager for management of test plans and assets
- IBM Rational Robot for automated functional and regression testing

The development team also used IBM Rational Unified Process, or RUP, to complement its established software development process by providing how-to guidance for development activities throughout all phases of the project. Steingart notes, “We had a process that could be thought of as a matrix framework – with roles going across the top and phases of the project going down. In each of those cells, we implemented activities and templates from RUP.

We really drew from RUP in terms of artifacts, activities, guidelines, and concepts – in particular in the areas of requirements management and test management. The process we had in place already defined *what* to do, and, for us, RUP showed *how* to do it.”

New Project, New Approach

The first project to use IBM Rational tools was a new insurance product that would enable the company to offer add-on products to its core policies. The system would support the company’s more than 200,000 independent agents. “The project was something we call a corporate main event. It was a major project for our company; it had a high profile and was very important to the business. My role was to support the implementation of IBM Rational tools. For this project we focused primarily on requirements management and test management. The project manager was familiar with iterative development and many of the principles of RUP, and was enthusiastic about using IBM Rational tools to help manage the project,” notes Steingart.

Leveraging the integration of IBM Rational tools, the development team was able to establish traceability throughout the project – from requirements to testing. Steingart explains, “We were able to begin our real full-blown implementation of the tools on that project. We used Rational RequisitePro for requirements management and Rational TestManager for testing management. We were able to trace them together

and that was a real benefit for us. We were able to get control of the requirements because of Rational RequisitePro then we linked those requirements to tests and defects. We could ensure that we had test coverage because we linked the requirements; and we were able to ensure the quality of tests by linking to defects in Rational ClearQuest. That worked very well for us. We had a lot of confidence that we had the requirements covered and we had the defects measured all the along the way. In the past, we really didn’t know. We thought we had everything covered, but you never really know until you are able to see it all connected and see it in reporting and in graphs. That is what we can do now.”

Adoption through Execution Starts with Requirements Management

Steingart is helping to roll out the IBM Rational tools at Assurant Health using an “adoption through execution” strategy. In this approach, a small team of trained resources serve as Requirements Manager and Test Manager on new projects, and provide mentoring for both process and tools as they help out on the project. Steingart explains, “We introduced the Requirements Manager role to help control the requirements a little bit easier. We do not allow just anybody to go in and change requirements, because that could throw off the development team. We centralized that role around Rational RequisitePro, and that gives us the ability to, not only control requirements, but institute a

management process. When something changes, it is easy to see its impact – to see if it just introduced a ripple effect that changes everything. It is very helpful to be able to do that. Without a tool like Rational RequisitePro, you cannot do it, or it requires a lot of overhead to do.” The ability to manage requirements more effectively has far reaching benefits, including improving the development team’s ability to control costs and deliver on time. “We now have a way to control scope and that is really important. In the overall scheme of things, that is extremely important to project success. Rational RequisitePro helps us control that better than we could before; it provides richer and more robust information for us to work with,” says Steingart.

Business Modeling with IBM Rational Rose Enterprise

At Assurant Health, modeling business processes and use cases in IBM Rational Rose Enterprise provides an effective way of clearly communicating business needs to the company’s business community and its development team. According to Steingart, IBM Rational Rose Enterprise – which is included in IBM Rational Rose XDE™ Developer – and the Unified Modeling Language (UML) are instrumental in delivering systems that truly meet the needs of the business. “We use Rational Rose modeling as part of the requirements-gathering process to model business processes. It provides clarity about what the requirements really are, and what the business

processes are. We can implement a high-level use case model and activity models which clearly define what users really want,” says Steingart.

He adds, “In addition, we realized a benefit that we did not expect. When we model business processes, it forces the business to think through what they are really asking for. It provides a much better picture of the system that is going to be developed than we would have had before because now we have a complete picture from end to end. Business modeling has forced the requirements team to really drill down to a much deeper level than they might do otherwise.”

Before adopting Rational Rose, business analysts at Assurant Health used diagramming software which limited their ability to create accurate models of business processes. “UML helps us visualize the processes better. Unlike a flowchart, UML gives, in my opinion, a broader and richer picture of what the process is going to be from the top down. We are able to go from identifying actors and processes down to activities and at the same time we can see the whole picture,” Steingart says.

Defect and Change Tracking

Tracking defects and other issues is key to project management at Assurant Health. IBM Rational ClearQuest enables project managers to assess project status and get detailed information on individual problem reports. It also provides a

clear channel of communication between testers and developers. Steingart reports, “Rational ClearQuest really helps us with monitoring project status, especially quality. Its charts and reports give us a snap shot of project quality. It helps eliminate surprises and manage expectations. For instance if we see that there are more defects being logged than are being fixed, a good project manager or test manager can take that information to the core project team and show them that we are still relatively far from being done. When we see that we are fixing more than we are finding, we know that we are starting to turn the corner. Our defect rates start going down which means we are starting to find all of them.”

With a clear view of project status, the team is ultimately able to deliver higher quality software more consistently. “Rational ClearQuest provides a view of that data that we did not have before. That information has enabled better planning and better monitoring of our project deliveries. It helps us communicate the real status of the project, and that all contributes to better quality and delivering projects on time. On a more practical level, it improves communication across the software development team throughout the life cycle.”

Distributed Development

With its development team spread across three states – Wisconsin, Minnesota, and Florida – Assurant Health is using IBM Rational tools to enable effective geographically

distributed development. Development teams have Web browser access to requirements in Rational RequisitePro and defects in Rational ClearQuest, which ensures that everyone on the team has convenient, secure access to up-to-date project information. Steingart notes, "The Web interfaces to Rational RequisitePro and Rational ClearQuest have been a big help because they make it easy for distributed locations to get access to all our data. Distance is almost immaterial nowadays, but what does matter is getting the needed information to all your locations. The Web interfaces allow us to have the same information everywhere, no matter where they happen to be. And that is really the key. Right now we have three offices, but we are starting to do more outsourcing and we are finding that these tools help control that kind of work."

Workflow Management

Apart from using IBM Rational ClearQuest as a software development tool, Assurant Health has also used it to create two customized workflow management solutions for its legal and case management departments. Steingart explains, "If you think about using Rational ClearQuest to manage issues, you can see how it can be used to log an incident or question related to a business process, instead of a software development project. You can route that issue as you would a defect, and customize a workflow for

different business units. We have customized two applications for workflow management – Legal Compliance Workflow Management and High Risk Case Workflow Management. We found Rational ClearQuest works very nicely for this. It sends e-mails and notifications, and it acts as a single repository." These applications enabled Assurant Health to replace manual processes with automated ones. The applications have also helped Assurant Health meet compliance requirements that include state regulations and its own internal policies. "The applications we developed based on Rational ClearQuest are automating workflow and enforcing a defined workflow and discipline around a business process. And they provide everyone with access to consistent information. It is easier for our business units to make the right decisions now because the same information is available to everyone. Every issue gets resolved. Nothing falls through the cracks, there isn't any miscommunication. These custom Rational ClearQuest applications really enhance our communications across business units and they have been very well received across the company," says Steingart.

Managing the Test Process

When Assurant Health added the role of Requirements Manager for its projects, it also added the role of Test Manager. Within the company's development organization, the Test Manager is ultimately responsible for

the quality of the delivered application, and is also responsible for the test plan, managing all testing resources, and the entire test management process. Steingart notes, "We want to ensure we deliver quality. To help us do that we instituted test management concepts along with the Rational TestManager and Rational Robot. Our test management process really revolves around Rational TestManager, which gives us the ability to manage all of our scripts, to see what has passed and what failed, and to provide us with test coverage metrics. Of course, the testing team also uses Rational ClearQuest to understand and track all the information for each defect found."

Automated Testing

In a test environment that includes mainframe systems, Microsoft .NET, Visual Basic and Citrix, testers at Assurant Health depend on Rational Robot to create automated test scripts for a wide range of front ends. "We are using Rational Robot to get at data wherever it happens to be. We are really increasing our usage of Rational Robot as much as we can," says Steingart.

Rational Robot is helping to free testers to spend more time on difficult tests by automating many of the most tedious and repetitive testing chores. "We focus on looking for opportunities to build automated test scripts for regression testing of high volume, highly repeatable tests. They are typically not very challenging – the

tests that testers hate to do. We automate those so the tester can concentrate on complicated, difficult tests that are not easy to automate. We augment the tester; we provide them time to test difficult scenarios while Rational Robot runs the high volume, real boring tests. We have had a lot of success with that," says Steingart.

Assurant Health's quality assurance team is incrementally building up a powerful suite of automated tests. Steingart reports, "We start with one test, as a proof-of-concept almost. Everyone sees the value of that, and we build our automation test suite in that way, with small incremental tests. So, our investments are in many small projects. That is exactly how we are building our automation. We engage different systems, different testers, and different tests, and automate them one by one. Little by little we begin to build our test suites up, so more and more of that test scenario can be automated. We are experiencing a growing benefit using test automation. The benefits should grow over time and they have been – we have seen that."

Higher Quality, Lower Costs, On Time

In the end, the value of adopting a new set of software developed tools is not measured in terms of improved requirements management, defect tracking or test automation. It is best measured by examining the team's ability to create high-quality software, on time and within budget. Across all three of these dimensions, Assurant

Health's first complete project was a remarkable achievement. Steingart explains, "It was a very successful project. It was delivered on time, and more than 30 percent under budget. And it was very high quality. The deployment was very smooth. To me, quality means that you are not having any problems with what you put into production, and that certainly is the case for this project. There were other factors, including good project management, but IBM Rational tools played an important role."

According to Steingart, one of the key benefits of IBM Rational tools is access to project information that was simply not available before. The benefits of this information are manifested in a number of positive ways, including higher confidence in the quality of the applications being developed and better control over projects which leads to more on time, on budget deliveries. He explains, "Information is one of the biggest benefits I see. With IBM Rational tools, we have more information about the projects we are being asked to develop. We have more information about the quality of that development effort. We are able to see requirements better, we are able to see test coverage better and we are able to see defect quality metrics better than we have been able to before."

Success on early projects paved the way for more rapid adoption of IBM Rational tools throughout the development organization. Steingart

concludes, "As people used the tools on one project, they wanted to bring them along to their next projects. And then their peers would see them, and would want to use them to. Word spread through the adoption through execution approach and people started to ask for the tools rather than us trying to force them to change their ways. After the initial successes, it sort of snowballs on its own. So the new approach and the new tools have started to carry; they have started to create a life of their own as we move forward. And we're starting to see the benefits of accelerated development, lowered costs and improved quality throughout the organization."



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