

Thomson Financial – Corporate Group Drives Full-Lifecycle, Geographically Distributed Development with IBM Rational

Overview

■ **The Challenge**

Following a series of acquisitions, Thomson Financial needed to lower costs and rapidly integrate a range of product offerings to respond to customer needs. To accomplish this, the company needed to unite its worldwide development team with a common process and tools.

■ **The Solution**

The Corporate Group adopted IBM Rational Unified Process® to provide its team with a consistent, proven development process and a common language. In addition, the team adopted IBM Rational tools for requirements management, software artifact management, defect tracking and model driven development. IBM Rational Services provided training and support worldwide.

■ **The Benefit**

Costs for the pilot project were cut by 50 percent, from an estimated \$400,000 to \$200,000. Quality and stability of products is increasing, as is the team's focus on effectiveness. A stable infrastructure has been established for improved software reuse and efficient distributed development.

As a part of the Thomson Corporation, Thomson Financial provides information and technology solutions to the worldwide financial community. Through the widest range of products and services in the industry, Thomson Financial helps clients in more than 70 countries make better decisions, be more productive and achieve superior results.

After a series of acquisitions, the company had a broad range of product offerings and a number of talented development teams. But Thomson Financial also faced a challenge – it needed to establish a federated development effort that united several geographically distributed teams working on well-architected, reusable components and systems. This would enable the company to lower costs while rapidly developing new features and products through improved communication, sharing of artifacts and knowledge transfer between development groups.

Rajiv Gupta, Vice President of Technology for Thomson Financial – Corporate Group, recalls, “We saw an increased need for software deliveries, including the integration of disparate products into ‘smoother’ offerings. We wanted to decrease the time to market of new features while maintaining high

quality standards and lowering the cost of development and operations. At first, we had too few people doing too many things. And after the acquisitions, our development groups were using many disparate processes, tools, techniques and technologies, which made it difficult to share knowledge and work together efficiently.”

Establishing priorities, finding a solution

After identifying the broader challenges, Thomson Financial – Corporate Group determined several areas in its development efforts that would need to be improved to achieve the company's objective of more effective globally distributed development. In particular, the following issues were singled out:

- Inefficient sharing of code between multiple locations
- Roles and responsibilities were being adopted and executed ad-hoc
- No standard development artifacts
- Communications were not formalized, including communication of requirements
- Some groups used tools, while others did not
- A significant knowledge gap of products, business context and processes

The company then established a set of priorities to address these technical challenges. Gupta explains, "One of our top priorities was to set up a code sharing infrastructure. Another priority was to establish a common process for all our development groups that would help us decide what software artifacts we needed and which roles we would use, as well as enable us to implement a clear communication strategy."

Wary of the potential costs and difficulty involved in adopting a variety of non-integrated products, Thomson Financial – Corporate Group wanted a solution that comprised a proven development process, integrated tools and a global support team. With these requirements in mind, a solution from IBM Rational became the obvious choice. Thomson Financial – Corporate Group adopted IBM Rational Unified Process®, or RUP®, to provide its team with a consistent, yet customizable process platform. In addition, the team began using IBM Rational RequisitePro® for requirements management, IBM Rational ClearCase® MultiSite for software artifact management, IBM Rational ClearQuest® for defect tracking, and IBM Rational Rose® XDE Developer for Visual Studio for model driven development.

Gupta explains, "We were looking for a complete solution, not point products. We wanted everyone to work with a common process. We also wanted training and support for our teams worldwide. Taking all that into

consideration, we felt that IBM Rational had the best offerings available."

RUP provides a foundation

Wanting to customize the Rational Unified Process as little as possible, the Corporate Group development team took a development case approach in which RUP is configured and adapted to a project's needs. Gupta continues, "RUP helped us decide on which artifact sets we would use for requirements, change requests and architectural models." RUP also provided guidance on what roles would be followed in the development process, which helped Thomson Financial – Corporate Group clearly delineate the responsibilities of its U.S. based offices and those of its offshore development teams. "A common process across sites is a key to success. Working within that process and using the iterative approach of RUP allowed us to mitigate business and technical risks on the project," says Gupta.

The Thomson Financial – Corporate Group team had another reason to select RUP as its core process. Many of the company's biggest customers also use RUP in their development initiatives. These customers requested – sometimes even mandated – that Thomson Financial use RUP to facilitate collaboration on joint development projects. "RUP has worldwide acceptance. Plus there were other groups within Thomson Financial, as well as our customers that were already using RUP," Gupta adds.

Getting started with clearly defined requirements

The Thomson Financial team's initial project with RUP and IBM Rational tools was a data gathering application used to collect the financial information Thomson Financial provides in its Web-based solutions and data feeds. The U.S. team began by defining requirements in IBM Rational RequisitePro. "The business context and the business knowledge, as well as the architectural decisions, are driven from our team in the U.S. We used Rational RequisitePro for requirements gathering and analysis," Gupta explains.

After the initial set of requirements were established in Rational RequisitePro, Thomson Financial's analysts and architects created use case diagrams and sequence diagrams in Unified Modeling Language (UML) using Rational XDE to further refine the project's requirements and architecture. "The use of UML enabled us to document and collaborate more effectively. And, it assisted in knowledge transfer -- helping our teams in the U.S. communicate clearly with the development team overseas," says Gupta.

Layered architecture promotes reusability, scalability and flexibility

Throughout the project, the development team followed a layered architecture approach, which limits inter-subsystem dependencies, and results in a more loosely coupled system that is easier to maintain.

Gupta explains, “The layered architecture is a big part of our federated development effort. It is an approach promoted by RUP, and it has definitely been very helpful. A good architecture should be able to support changes. By creating a layered architecture in Rational XDE and being more disciplined about the architecture, we were able to make changes when we needed to. The system was not brittle and we were never at a point where we could not accommodate change.

“The benefits of a layered architecture are reusability, scalability and flexibility. We have three groups that are responsible for the three major layers. The database layer is owned by the Content Technology group here in the U.S. We have another group that is responsible for Web services, and the business units are responsible for the applications and application components. The layered architecture allows us to drive requirements for all three groups as well as have a more robust and stable architecture.”

Effective distributed development

Of all the IBM Rational solutions deployed by Thomson Financial – Corporate Group, none was more important to the team’s geographically distributed development efforts than IBM Rational ClearCase MultiSite. Rational ClearCase MultiSite provides software asset management (SAM) for all artifacts in the development process, including requirements, design models and code. It also

provides Thomson Financial with automatic, error-free replication to facilitate parallel development between its geographically distributed sites. In that capacity, Rational ClearCase MultiSite played a key role in the communications infrastructure of the project.

Gupta notes, “With Rational ClearCase MultiSite, we can easily share our requirements in Rational RequisitePro, our models in Rational XDE, as well as our code and other artifacts between our teams worldwide. So whether our developer is offshore or in New York it doesn’t matter, they are working off the same development branch.”

Initially, the connection between the various development sites had a relatively low bandwidth. But this was not a problem, because Rational ClearCase MultiSite updates team members by only transmitting incremental changes that appear in project repositories. “We liked Rational ClearCase MultiSite for its efficient replication, its security and its ability to address one of our top priorities – establishing a code and artifact sharing infrastructure.

Tracking change

The combination of Rational ClearCase and Rational ClearQuest for flexible defect and change tracking across the project lifecycle provided a complete software configuration management solution that effectively addressed the needs of Thomson Financial’s global team. As project

manager, Gupta used reports generated by Rational ClearQuest to help monitor the project, and the entire team used it to track defects and other changes. Gupta reports, “We used the Rational ClearQuest Web interface for change request management. It was a major communication tool for our systems analysts and developers. We feel that it is important to use automation and tools like Rational ClearQuest wherever possible to reduce risk by preventing things from ‘falling through the cracks’ and keeping a log of activities.” Together, Rational ClearCase and Rational ClearQuest provide the Thomson Financial – Corporate Group team with comprehensive workflow support and a consistent process for submitting, assigning, resolving and verifying modifications. With flexible workflow support, teams can define unique workflows for each type of change request or enable e-mail notification and submission options that notify team members when change requests are updated.

Costs reduced, quality increased

According to Gupta, Thomson Financial has made great strides since adopting IBM Rational tools, and his team has learned what approaches are most effective for the organization as well. Gupta notes, “We know that a common process across all of our sites is crucial to our success. Teams and individuals have to understand and buy into the roles, responsibilities and artifacts needed. And an upfront investment in tools, process and people is essential.”

For Thomson Financial – Corporate Group, that investment has been already paid in dividends. Gupta reports that project costs were cut by more than 50 percent as a result of using federated development approach enabled by IBM Rational tools and RUP. “Our costs for the project were approximately \$200,000. We estimated the project would cost close to \$400,000 without IBM Rational tools, our new approach and offshore development. In addition, the quality and stability of the products we deliver is increasing, as is our focus on effectiveness. We are working towards Capability Maturity Model® Integration (CMMI®) Level 3 certification by the end of this year in our offshore facilities.” And Gupta expects the return on investment to be even greater as Thomson Financial begins producing and leveraging more reusable components in the months ahead.

With RUP, IBM Rational tools and support from Rational Services, Thomson Financial now has a stable infrastructure to support its business goals of delivering quality software products at lower costs and its technical goal of employing modern software engineering processes and tools. Gupta concludes, “IBM Rational tools and methodology have enabled our distributed team to develop effectively. Certainly from a process and artifact perspective, there’s no question about it. Without a standardized process, standard

artifacts and automated tools, it would be difficult. It would be like manufacturing without automation.”



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