

United Guaranty Reduces Development Risks, Cuts Testing Costs, and Expedites Loan Processing

To retain its competitive position in the industry, United Guaranty made a key business decision to modify its business model from that of a traditional mortgage lender to that of an online service provider. Today, the company provides the industry's most comprehensive Internet portal for the origination and servicing of mortgage insurance loans.

To achieve its business model transition, the company would need to re-engineer its core applications and infrastructure, and chose the Java J2EE platform for this. In the early stages of transition, United Guaranty found its existing development processes were challenged by the move to e-commerce. Critical software errors were not being found through the existing quality assurance processes. Initial deployed versions of the applications contained errors, such as connection leaks, that caused the applications to sporadically become unavailable disrupting the business operations dependent on them.

To help resolve these problems United Guaranty turned to Parasoft, using Parasoft Development Testing Platform with Parasoft Jtest to identify and eradicate critical software errors as the application code is developed. Parasoft's Development Testing Platform is now part of United Guaranty's daily software development process, and the high severity errors like those that affected their early deployments are caught and resolved as part of development. The use of Parasoft's Development Testing Platform has enabled United Guaranty to deliver the applications needed on schedule and with the reliability and high-availability required to support its new business model. The company estimates that the time and resources that Parasoft's automation and breadth of testing provide saves the company more than \$400,000 annually.

Challenge

The mortgage insurance industry is highly competitive. To retain its competitive position in the industry, United Guaranty needed to improve operational efficiency and significantly reduce the time and cost of underwriting a loan. The company committed itself to transition primarily from traditional paper-based underwriting to an online provider of mortgage insurance. This transition would allow them to reduce costs and overhead and expedite processing. With an e-infrastructure its mortgage-lending customers and its underwriters would be able to originate mortgages, underwrite loans, and track and verify their status at any time from any location.

To address the transition, United Guaranty began developing MI Guide, a comprehensive suite of Java J2EE e-commerce applications and infrastructure that covers all major aspects of loan origination, underwriting, and servicing. MI Guide when fully deployed would provide a paperless automated workflow, enabling originators (mortgage lenders) to submit loans online for mortgage insurance coverage and have their requests processed as part of a complete online system.

As little packaged software existed to meet United Guaranty's needs, MI Guide would be developed internally and be designed as a set of software modules consisting of Web-based applications, business processes, and common services.

Jtest is an extremely effective tool to identify critical software errors.
We don't see repeat errors, and our developers get constant reinforcement of their progress as they improve their code.

It has eliminated the prospect of being summoned to the executive suite late at night to explain why an online application has become unavailable again. Jtest has allowed developers to take greater personal responsibility for the quality of their own code."

Early versions of the applications were plagued with reliability issues that affected their ability to sustain the high-availability required of them. IT development staff was being called into late-night meetings to determine why the applications were failing. It was found that connection leaks caused by the way the underlying application code was written were making the applications intermittently unavailable. To ensure that these errors would not continue to plague the performance of its production applications nor affect new applications being developed, United Guaranty would need to find a way to identify and resolve them, and without significant overhead on development which faced an aggressive delivery schedule.

The Solution

United Guaranty's IT development group began using Parasoft Jtest to help reduce the time and effort to find critical reliability errors. In the initial deployment, Jtest's automated code analysis capabilities were configured to focus just on identifying the half a dozen coding errors that were causing connection leaks. With the successful elimination of the occurrence of these connection leak errors, the company has expanded its use of Jtest overtime.

Today, Jtest is configured to regularly scan United Guaranty code and identify the presence of over 60 types of significant coding errors. United Guaranty has used the Jtest RuleWizard to create a custom set of coding guidelines that identifies coding errors specific to their development practices and application structure. The company enforces application of those guidelines requiring that all code pass compliance with them before any code can be promoted to integration testing.

To automate and facilitate regular execution of Jtest, United Guaranty has integrated Jtest into the company's automated build process. Analysis of code for identification of any of the 60 target coding errors is done automatically when developers submit their code to the centralized build process. Results of the analysis are routed to developers via e-mail for their evaluation and action.

The Benefits

Since the company started using Jtest, it has identified and corrected more than 500 critical errors in the MI Guide® applications. Before the use of Jtest, developers were spending a considerable amount of time finding and fixing software errors. After Jtest was integrated into the development process, the time spent finding and fixing errors was reduced significantly, giving developers at least 10% more time for creating new software capabilities.

This additional productivity is equivalent to adding four employees to the company's team of 40 Java developers. With a fully loaded annual cost per developer of \$110,000, the annualized overhead savings is approximately \$440,000 per year. More importantly for United Guaranty, its production

systems have become much more stable compared to the environment prior to installing Jtest, and customers have become accustomed to the high-availability of MI Guide.

Conclusion

Parasoft has allowed United Guaranty's IT development organization to control the quality of applications it produces and consistently meet the high application availability and reliability required to support the company's transition to an e-commerce mortgage insurer. The MI Guide suite of applications provide United Guaranty with the ability to rank as one of the top mortgage insurance providers in the industry. The integration of Jtest into the development process has increased development effectiveness, significantly reducing the time and cost to deliver the quality e-commerce applications that the company requires. It has lowered development risk by enabling development to consistently deliver high-reliability applications on schedule. The bottom line: by providing improved productivity and higher code reliability Jtest is saving the company more than \$400,000 each year while ensuring systems meet customer expectations.

"Jtest has helped us deliver the high reliability applications that we needed to complete United Guaranty's transition to an on-line mortgage insurance provider. It has reduced development risk by enabling us to consistently deliver the quality applications we need on schedule."

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