

Novell drives software quality with Coverity for customer satisfaction and competitive advantage



More reliable products

Software defects are detected and resolved much earlier in the software development process in full support of Novell's commitment to engineering excellence. In addition, by addressing defects in legacy code, Novell has been able to reduce its technical debt.

Reduced risk of service downtime

Higher quality software means there is far less chance of client system outages, helping to minimize the need for supplementary, unbilled technical support.

Faster time to market

Engineers are able to identify and address issues in a shorter timeframe, making them more productive. This helps to shorten time-to-market for new software releases.

Greater customer satisfaction and revenue growth

By developing and releasing more reliable products, reducing the risk of service downtime and driving developer productivity, Novell is able to boost customer satisfaction and drive revenue growth.

Business Overview and Challenge

Thousands of organizations around the world use Novell's collaboration, endpoint management and file and networking products to make the workplace more productive, secure and manageable. The company's products, which include Novell GroupWise[®], Novell ZENworks[®] and Novell[®] Open Enterprise Server, focus on today's social, mobile and multi-platform world to help customers stay competitive, minimize costs, and get more value from the software they already own. Novell's worldwide team also provides a range of services to its large customer base, including support, training, and consulting.

Novell's file and networking services help its customers control and automate file storage, simplify network management, install printers easily and automate disaster recovery of key business systems. System downtime in any of these critical services would lead to reduced customer satisfaction rates, a potential loss of clients and ultimately a negative impact on revenue. Novell's endpoint management products make it easy for IT staff to ensure the employee working environment is patched, compliant, secure and properly equipped. Novell's collaboration products (such as email, calendaring, team workspaces and document management) help people connect with each other and work together.

With a 30-year pedigree in software development, Novell has a reputation for quality and innovation. The company's focus on engineering excellence and lasting customer and partner relationships has led to the expansion of its development capabilities. For example, the Novell GroupWise engineering team has grown by a third since August 2011 because of its commitment to deliver greater customer value faster by releasing products more frequently.

Thomas Sanders, a Project Manager at Novell, comments: "Because of the company's initiative to focus on the innovation and engineering excellence that put Novell on the map, we are collaborating more closely with our customers, so we can identify and prioritize the new functionality that they need to successfully do business."

Every new feature or product release developed by Novell's engineering team must meet rigorous quality standards. "We develop operating system services and workforce productivity products. Tolerance for failures in this type of enterprise software is very low. Therefore software quality is paramount," says Sanders.

“Coverity’s development testing platform provides metrics that will enable us to keep a closer rein on the quality of shipped products.”

Thomas Sanders
Project Manager, Novell

With more than 23,000 customers around the world, a software defect in any of Novell’s products has far-reaching ramifications. “Our customers need greater levels of product reliability to achieve their business goals,” comments Sanders. “If we fail to meet these expectations, there is a risk that customers could turn to other suppliers promising better reliability - even if their solutions are not as feature-rich.”

Improving software reliability and quality, however, can come with a high price tag – especially when a defect has already been released into production. Novell is committed to playing its role in reducing this expensive tab. As Sanders explains: “Our goal is to decrease the number of reported customer issues post-release by reducing the number of defects that escape detection during our development and build cycle.”

With technical debt accrued during decades of development and new code being generated on a daily basis, the company has set itself a massive challenge to further improve quality. Although Novell had already taken steps to drive down software defects as part of its ongoing engineering excellence initiative, it was missing one critical piece of the prevention puzzle: Development Testing.

“Development Testing via static analysis can be used for both detection and prevention, and was the next logical addition to our engineering excellence initiative,” explains Sanders. “Providing greater software reliability, in a market with tight budgets is a challenge. We believe Coverity will help us meet that challenge.”

With a globally distributed development operation, Novell needed a flexible static analysis solution that could be used by its dispersed internal development teams and partners. Novell’s growing product portfolio is built, enhanced and maintained by a mix of original and new developers who have different levels of understanding of the code. This makes it difficult to know the full impact of code changes.

Novell also uses a number of open source components and libraries, which occasionally come with their own defects that can have a negative impact on both final product quality and development efficiency. These third-party libraries often serve as a foundation for key product features and the product inherits reliability from the stability of the underlying foundation.

Solution Evaluation

Novell began its search for a static analysis solution in May 2011 with a list of approximately 30 solutions – some commercial, some open source. Two products – one of which was Coverity® Static Analysis - were shortlisted for a hands-on evaluation.

Novell’s criteria were simple: it wanted a solution that would find serious software problems; produce few false positives; and cover the programming languages it uses (primarily C, C++, Java, and C#). “We carried out evaluations in multiple languages and looked at the quality of the defects discovered. Both solutions met our initial criteria, so the choice came down to price and preference,” says Sanders.

“Providing greater software reliability, in a market with tight budgets, is a challenge. We believe static code analysis will help us meet that challenge.”

Thomas Sanders

Project Manager, Novell

There were a number of technical factors that convinced Sanders and his colleagues that Coverity was the preferred choice:

- Easier build integration
- Accuracy of defect reports
- Branches and streams architecture
- Open standards enabling integration with other solutions

Novell was also impressed with Coverity’s strength as a company and its flexible approach to licensing. As Sanders explains: “Given our deep code and ongoing development activities, we wanted a licensing structure that was not based on lines of code or the number of users. With a more open model, we have eliminated the need to commit resources to licensing audit and compliance activities. Coverity stands out in development testing and has a clear roadmap for its products.”

Coverity Deployment and Benefits Realized

Novell began its deployment of Coverity Static Analysis in January 2012, with Coverity Services assisting with both build integration and training. Consultants were sent to three of Novell’s development centers. At each site they provided developer training and worked directly with the build engineers to integrate the analysis with existing product build processes. The training accelerated the Coverity deployment by establishing best practice procedures and configuration options.

Once the implementation is complete (towards the end of 2012), Coverity Static Analysis will be fully embedded in the daily engineering process at Novell with all of the company’s developers using the solution.

Novell is focusing first on code developed and maintained in its various development centers. Since its product portfolio includes open source, as well as third-party software it plans to eventually extend its code analysis activities to cover these other elements.

“Our initial focus is to reduce the number of software defects that escape detection and are then released to customers – and we are already seeing some great results,” comments Sanders. “For example, Coverity identified a buffer overflow, which we initially thought was a false positive. However, on closer inspection, we realized that although the code was correct for an English-only build, it would cause unpredictable results in an international build and therefore needed to be changed prior to release.”

An analysis of the company’s Dynamic File Services product, a component of Novell File Management Suite, has achieved similar success. Coverity Static Analysis found and eliminated many serious, but subtle, unknown defects in existing code. These defects were not manifested using any other testing technique.

With different teams using different development methodologies, the flexibility of the Coverity solution is key for Novell. As Sanders explains: “Teams using iterative methodologies can define user stories to reduce the number of high or medium risk defects discovered by the Coverity solution. While developers using desktops IDEs can identify and clean-up all defects before checking code into the central repository.”

To aid continuous improvement and performance measurement, Novell has developed a wiki site to catalog its growing knowledge about software defect prevention and produced a series of baseline software integrity reports. Progress can be easily measured against these baselines.

“As part of our engineering excellence initiative, we have defined several reliability criteria that must be achieved before the product can ship. Coverity Static Analysis provides additional metrics that will enable us to keep a closer rein on the quality of shipped products,” comments Sanders. “As a result, we will be able to meet customer expectations.”

As the impact of improved software reliability starts to cascade through the company’s operations and product portfolio, Novell will be able to use a number of other metrics to measure the success of its Coverity implementation and overall code quality. For example:

- License renewal volumes
- On-time delivery of new releases
- Customer satisfaction levels
- Customer-reported defects

“We have already seen some improvement in developer productivity since deploying the Coverity solution, which will help us keep up with our aggressive commitment to more product releases,” comments Sanders. “Improving product reliability will also make it easier for our global sales team, marketing department, and support organization to make the business an ongoing success.”

Conclusions

To maintain its reputation for engineering excellence and its customer base, Novell needs to ensure its products meet the highest quality standards. This means eliminating all software defects from its products before they reach customers. By raising its software quality bar even higher, Novell is able to boost customer satisfaction and grow revenue. Development testing not only helps ensure the quality of software and services Novell offers to its customers, but also contributes to enhanced developer productivity, faster time-to-market and ultimately greater customer satisfaction and a stronger bottom line.

For More Information:
sales@coverity.com

Coverity Inc. Headquarters
185 Berry Street, Suite 6500
San Francisco, CA 94107 USA

U.S. Sales: (800) 873-8193
International Sales: +1 (415) 321-5237
www.coverity.com