PARASOFT®

CAPITAL Services Improves Software Security & Quality With Test Automation

OVERVIEW

CAPITAL Services is a credit card portfolio management company based in Sioux Falls, South Dakota. Their services provide clients with data and models to drive business decisions and to manage profitability in the credit card portfolios. With a combination of software, statistics, technology and business savvy, CAPITAL Services helps their clients improve customer experience, increase profitability, and reduce compliance risks and costs.

Since software plays such an important role in CAPITAL Services' business, they needed better insight into the quality and security of their software products and services. A big part of this was static application security testing (SAST), test automation with Microsoft .NET support, PCI DSS compliance, and API test automation.

SECURITY
IMPROVED

COSTS
REDUCED

CODE COVERAGE
INCREASED

THE CHALLENGES

CAPITAL Services software deals with highly sensitive information so security, compliance, and risk mitigation are critical for the company. Recognizing the continued complexity of attack vectors and code development, CAPITAL Services looked to improve the visibility into potential security and quality issues. CAPITAL Services needed actionable data to help pinpoint remediation activities and better transparency among QA, development, and management to improve software deployment and delivery.

Before the move to test automation, CAPITAL Services was relying on manual testing. Every change, regardless of how small, meant that a tester had to complete a manual regression test suite. There was little formal measurement of test coverage and overall testing efficiency was poor.

The software development team also required a robust SAST tool that could be formalized across CAPITAL Service's entire codebase. In particular, they were looking for a SAST solution that supported their development environment and industry standards, for example, PCI DSS.

When first engaging with Parasoft, CAPITAL Services outlined the following goals:

» Improve test efficiency and remove the reliance on manual testing.

» Maintain compliance of source code with industry standards such as PCI DSS, OWASP Top 10, and CWE Top 25.

» Improve the security and regression testing of API services and endpoints.

> *"We have been very impressed with Parasoft's engagement with us. When we've had questions and needed help, they've been there, working with us closely, keeping us up to date on the latest innovations. It's been a good relationship."*
>
> —Heath McIntyre, director of software development at CAPITAL Services

THE APPROACH

The first step CAPITAL Services took was to implement SAST across their entire codebase, which includes internal and external-facing applications, and middleware in between that contains their business logic.

Previously, they had used static analysis but only informally. Now, they needed a full SAST solution that could be deployed to every developer, integrated with Microsoft Visual Studio and their build pipelines, and supported their .NET environment. Support for security standards in their industry, like PCI DSS, was a critical requirement.

The next step was adopting test automation for their APIs to better test functionality but also to achieve better test coverage and security testing. CAPITAL Services is also investigating the use of penetration testing within their API test automation solution to further shift left their security testing.

After these first adoption stages, CAPITAL Services has a goal of improving their unit testing practice and increasing code coverage. They've taken the first step by exposing unit test execution results and code coverage to a broader audience where the results from SAST and API testing also get published.

They are still on the journey of maturing their development and test processes to incorporate more automation and test earlier in the software development life cycle.

THE SOLUTION

CAPITAL Services evaluated Parasoft as the top vendor to partner with for addressing their immediate need to standardize their coding practices around security standards like PCI DSS. They recognized that implementing DevSecOps meant providing a solution that was tightly integrated with the developers' toolchain, particularly the IDE and build environment.

CAPITAL Services also recognized Parasoft's alignment with their overall initiative to improve their development and testing processes. Scriptless and easily maintained regression tests of their API layer now run regularly and help identify issues that would go unnoticed prior to partnering with Parasoft.

"Now we run regression tests across everything, so we might catch something we didn't before...that is where our quality has really gone up."

—Heath McIntyre, director of software development at CAPITAL Services

To better collaborate between developers, testers, leads, and project stakeholders, CAPITAL Services also benefits from the aggregation and analytics of data across different automated testing practices to inform their technical decision making during iterative development cycles.

CAPITAL Services adopted Parasoft dotTEST as their SAST and code coverage solution. They also use Parasoft SOAtest for API testing and Parasoft DTP for analytics and project dashboards and reports.

Some critical aspects of their solution include:

» Integration of Parasoft tools in their Microsoft Visual Studio development environment

» Maintenance of PCI DSS compliance with coding standard enforcement with Parasoft dotTEST SAST

» Integration of dotTEST SAST within their build system

» Code coverage measurement with dotTEST

» No-code API test automation through SOAtest, reducing the reliance on manual testing

» Automated regression testing

» Project and portfolio quality insights with Parasoft DTP dashboards

By introducing a SAST tool and test automation into their development workflows, CAPITAL Services improved their testing productivity.

By introducing a SAST tool and test automation into their development workflows, CAPITAL Services improved their testing productivity. The move to automation improved the quality and security of their software. CAPITAL Services also improved the coverage of their tests and reduced the overhead costs related to regression tests.

THE RESULTS

The software quality improvements that CAPITAL Services has seen are a direct result of Parasoft automating their regression testing and bettering testing in general as they moved away from manual testing.

REDUCED OVERHEAD COSTS OF REGRESSION TESTING

Although they still spend the same amount of time in each cycle testing as they did before, they're doing a much better job now. They've increased the overall amount of testing, increased code coverage, and reduced the burden of regression testing.

> *"Before we started automating, we were basically manual testing. Every time we made a change, a tester had to manually regression test everything. So, just getting that kind of automated coverage and ongoing regression testing has definitely helped a lot with efficiency."*
>
> —Heath McIntyre, director of software development at CAPITAL Services

IMPROVED SECURITY

The adoption of a more robust SAST solution has helped CAPITAL Services improve their security. They now spend less time in code reviews since much of the security aspects are analyzed beforehand, which helps them standardize their coding approach across the organization. They have also used the security reports from dotTEST to improve the development team's security knowledge. They better understand what kinds of coding practices to avoid in the future, for example.

INCREASED CODE COVERAGE

For CAPITAL Services' developers, SAST also highlighted areas of the code that needed better test coverage. Reports in these areas of code were indicating "hot spots" of potential poor coding practices. They used this information to improve their coverage in these areas.
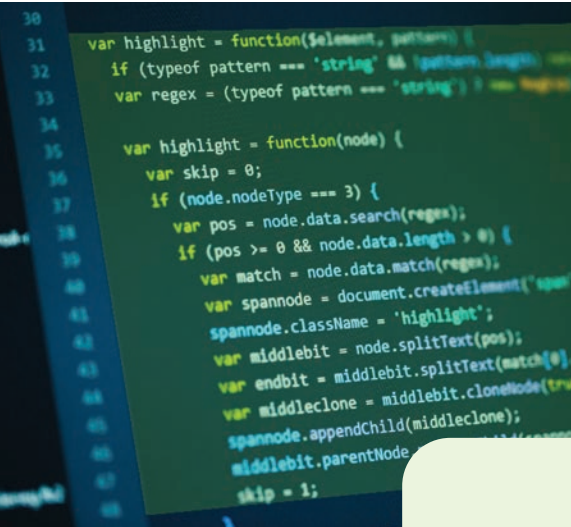
FASTER, MORE EFFICIENT TESTING

SOAtest has helped CAPITAL Services automate their API testing and migrate from a completely manual approach. Now their QA team is getting much more testing done in the same amount of time. Regression testing is automated, which greatly reduces the burden on the team when new changes are implemented. The effect of changes on unforeseen dependencies are now better handled than before.

CAPITAL Services has also matured their development process along with their adoption of automated testing. They are doing things in smaller, iterative steps compared to larger projects that had long, manual QA cycles.

GREATER TRANSPARENCY WITH LEADERSHIP

They have also improved the transparency of the development process to management. The dashboard and reports in Parasoft DTP helped the software team communicate progress more effectively to management. As these metrics trended in the positive direction, they were able to show the efficiencies and improvements made over time.

Critically, CAPITAL Services has been fully engaged with Parasoft and the partnership between the two companies has helped them adopt test automation and identify areas to focus on for improvement.

TAKE THE NEXT STEP

Talk to one of our experts to learn how your development team can improve software security and quality with automated testing solutions.

ABOUT PARASOFT

Parasoft helps organizations continuously deliver quality software with its market-proven, integrated suite of automated software testing tools. Supporting the embedded, enterprise, and IoT markets, Parasoft's technologies reduce the time, effort, and cost of delivering secure, reliable, and compliant software by integrating everything from deep code analysis and unit testing to web UI and API testing, plus service virtualization and complete code coverage, into the delivery pipeline. Bringing all this together, Parasoft's award-winning reporting and analytics dashboard delivers a centralized view of quality enabling organizations to deliver with confidence and succeed in today's most strategic ecosystems and development initiatives—security, safety-critical, Agile, DevOps, and continuous testing.