

# Borland®

THE OPEN ALM COMPANY



Blackboard

## FAST FACTS

### Company

Blackboard Inc. is a global leader in education technology and innovative solutions that improve the experience of millions of students and learners every day.

### Industry

Education/Technology

### Geography

International

### Challenges

- Support for customers' expanding product and platform needs
- Optimize testing and test management to support agile development
- Continuing product development innovation

### Solution

- Lifecycle Quality Management

### Products

- Borland® SilkTest®
- Borland® SilkCentral Test Manager™

### Results

- Reduced testing time; flexibility enables 600 hours of testing each night
- Optimization for agile saves 200,000 hours in just one year
- Openness enables process-based testing, reducing schedules and improving output

## Blackboard Case Study

### COMPANY

Founded in 1997, Blackboard Inc. is a leading provider of e-Education enterprise software applications and services. The company's global clients include primary and secondary schools, higher education, corporation and government markets as well as textbook publishers and student-focused merchants. Working with its clients, Blackboard has pioneered the emergence of the e-Education industry around the world. The company's online learning platform, Blackboard Learn™, includes the most widely-adopted course management system among U.S. postsecondary institutions.

### CHALLENGES

Connecting people and technology, Blackboard is enabling educational innovation everywhere. The company's solutions improve the educational experience of millions of students and learners around the world every day. In just a few years, online educational tools have evolved from 'nice-to-have' technology to mission-critical applications. As an early leader in the space, Blackboard has helped thousands of organizations bring new educational opportunities to their constituents. Innovation and quality have been the company's driving principles since its inception, and have led it to a global leadership position in the education technology market.

As a leading independent software vendor (ISV), Blackboard has a demanding product release schedule. In addition, it must support customers leveraging an increasing number of platforms to meet the diverse IT needs of K-12 education, universities, corporations and government agencies. To support rapid-paced product development and ensure continued quality, the company decided to transition its development organization to a more agile approach.

Quality is a high priority for Blackboard and the company wanted to keep testing front and center as it transitioned to agile. Therefore, the transformation would include the creation of a new, rigorous testing framework. Blackboard planned to make automated testing an integral part of this framework and sought out quality assurance solutions that would support its new agile approach.

"We wanted to create and rollout a set of best practices, and then scale them across all products," said Marc Nadeau, senior director of QA, Blackboard. "To improve efficiencies, we needed to have on-demand scheduling and tools that would support the processes we defined. We needed to find a solution that was flexible and open; one that could meet our current needs and adapt to meet future demands."

### Flexible support for complex, expanding product and platform needs

Blackboard's e-Learning platform customers generally host the product on their own servers, so the company support multiple product versions, as well as many different platforms and browsers. As the company adopted more rapid development cycles, its quality assurance (QA) team needed to speed up testing processes and prevent bottlenecks. To succeed, Blackboard decided to automate as many test processes as possible, and its existing commercial tool did not have the flexibility or scalability necessary to meet this challenge.

### Optimize testing and test management to support agile development

In addition, Blackboard was aggressively expanding its overall product offering through corporate acquisition and new product development. The implementation of agile processes helped speed development, but it also led to new testing challenges. The team needed to do more – and more quickly – without adding additional headcount. It was critical that Blackboard's QA team find new testing tools in order to increase their capacity and efficiency.

**“Borland SilkTest is easier to learn, easier to maintain, and more robust than other products we evaluated. It provides the support we need for our evolving automated testing needs.”**

— Marc Nadeau, Senior Director of QA, Blackboard.

### Support continued product development innovation

Innovation and quality are primary objectives for the product development and QA teams at Blackboard. The nature of agile development practices mean that on any given evening there could be code ready for acceptance testing. Thus, the company could streamline its multi-faceted development and QA process by bringing innovation to test scheduling. As part of its process optimization, the company created an automated, process-driven scheduling system that would be driven through the integration of various test tools.

### SOLUTION

During Blackboard’s shift from waterfall to agile, the pace of change increased significantly and the QA team looked at new tools to support that change and address performance, scalability, reliability, functionality, accuracy and usability. The company reviewed a few automated testing products and found that Borland SilkTest provided a flexible platform for script language, supported an object-oriented approach, and offered the enterprise-class scalability that could meet Blackboard’s evolving test needs. Part of Borland’s Lifecycle Quality Management (LQM) solution, Borland SilkTest provides a single, automated functional testing tool for a broad range of enterprise technologies and environments — without costly connectors, adaptors or add-ins.

“The pace of change was accelerating at an unbelievable rate. We needed a solution that was powerful enough to help us keep pace. Our development organization was going agile, and we needed to adapt – and our QA solutions needed to be able to adapt right along with us,” said Nadeau. “Borland SilkTest is easier to learn, easier to maintain, and more robust than other products we evaluated. It provides the support we need for our evolving automated testing needs.”

Borland’s LQM solution incorporates quality into the software application lifecycle from the very beginning. To further align business priorities and quality expectations with project requirements, development activities and software testing, Blackboard decided to expand its use of Borland’s LQM solution. Following the success of its SilkTest implementation,

the company adopted Borland SilkCentral® Test Manager™ to harness and manage quality-related tasks as the complexity of its multi-configuration testing needs grew.

Even with the multitude platform testing combinations that Blackboard’s products must go through, there is still quite a bit of manual testing required. Borland SilkCentral Test Manager helps improve manual testing and assures consistent, repeatable data collection and reporting. It also has a simple, scalable Manual Test Client that guides testers through the process and assures consistent, repeatable data collection and reporting.

“Borland was the right choice to help us maintain our core objective of quality across a growing product line,” says Nadeau. “Their Open ALM approach also gives us the right technology to bring together all our processes and systems, and deliver innovative, quality product to our clients.”

### RESULTS

#### Reduced testing time; flexibility enables 600 hours of testing each night

With Borland SilkTest, Blackboard’s distributed automation team has automated 50 percent of its functional test hours. SilkTest’s robust, resilient tests are supported by a flexible, object-oriented, fourth-generation scripting language. SilkTest also offers unique features for running tests including a recovery system that allows Blackboard to run unattended tests – anytime. The tool’s flexibility and scalability also allows the company to test six platforms each night, with up to two builds each night — the equivalent of over 600 hours of manual testing each night per build.

#### Optimization for agile saves 200,000 hours in just one year

Blackboard’s growing product line and agile development processes made test optimization an absolute necessity. To do this, Blackboard’s QA team created an innovative new testing framework while leveraging Borland’s tools. Borland SilkTest’s powerful functional and regression test capabilities support the new framework across a broad set of application technologies. The tool increased the company’s reuse and lowered testing costs, with 200,000 hours saved in just one year.

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“We made significant changes to our automation framework again this year to optimize the operation by focusing on automation where it makes the most sense, while working to lower maintenance costs for a growing product portfolio,” according to Blackboard’s senior manager of QA automation, Thomas Lin. “We easily re-automated 80 percent with Borland SilkTest, replaced more manual testing hours, and achieved a significant return on our investment.”

#### **Process-based testing reduces schedules and further improves output**

Blackboard’s culture of innovation led them to create a process-driven testing methodology to speed testing with automation, and implement a new platform to manage all aspects of testing. With Borland SilkCentral Test Manager at its core, the platform allows Blackboard to easily manage all aspects of the application testing process — from establishing testing requirements aligned with end-user needs and specifications, to tracking and resolving issues.

With its Open ALM approach and mature APIs, Borland SilkCentral Test Manager supports the planning, scheduling and executing of tests, seamlessly integrating with Blackboard’s home-grown process-driven test scheduling system. This integration ensures that software testing becomes a managed process that spans the entire software development lifecycle, aligning business and development priorities. With on-demand, Web-based access to project-related information for the company’s 40 QA analysts and 65 manual client testers, the platform improves quality by providing clear visibility into the testing process, and creates new efficiencies that shorten release cycles.

“Borland is invaluable to helping us deliver quality for a growing number of products at a rapid pace,” adds Nadeau. “Their tools have become mission-critical for us to bring our products to clients. Borland tools give us the flexibility and openness to meet today’s unique needs and objectives, as well as future requirements. In addition, their outstanding services, responsive account team, and collaborative approach make them the best strategic solutions partner for our evolving QA needs.”

Borland is the leading vendor of Open Application Lifecycle Management (ALM) solutions - open to customers' processes, tools and platforms - providing the flexibility to manage, measure and improve the software delivery process.