



ITWorx automates integration testing using IBM Rational Functional Tester software.

Overview

■ **Challenge**

ITWorx wanted to verify the quality of complex product deployments, but the company lacked a way to automate its costly and error-prone manual tests.

■ **Solution**

Using IBM Rational Functional Tester software, ITWorx recorded and automatically executed hundreds of test scenarios. The company also used IBM Rational AppScan software to identify security vulnerabilities.

■ **Key Benefits**

ITWorx has tested more than 500 deployments, and it has saved more than 900 days of testing effort. The company has eliminated tedious manual integration tests, reduced costs and gained a competitive advantage by consistently delivering high-quality deployments.

As the largest software professional services firm in Egypt, ITWorx provides business intelligence, service-oriented architecture (SOA) and application development outsourcing services to Global 2000 companies and government agencies in North America, Europe and the Middle East. ITWorx serves the financial services, education and telecommunication industries as well as independent software vendors (ISVs).

The company's education line of business customizes and deploys Microsoft® Learning Gateway software for customers in the United Kingdom, United Arab Emirates and Qatar. Microsoft Learning Gateway is an e-learning framework that helps stakeholders in the education process—school administrators, teachers, parents and students—communicate via a portal. A successful

deployment requires careful configuration and integration of several Microsoft components, including Exchange Server, Active Directory, Office SharePoint Server, Internet Security and Acceleration (ISA) Server, SQL Server and Live Communications Server.

“Microsoft Learning Gateway is a complex integration of many platforms, and each installation is like a complete deployment of an IT environment,” explains Dr. Tarek Nabhan, products division manager at ITWorx. “Every deployment is unique, and each school has its own custom configuration. To make the deployment process flexible, we have close to 200 different parameters—including URLs, domain names and ISA options—that we can configure. This is a manual process, and the potential for making mistakes is very high. As a result, we need thorough integration testing to assure each deployment is functioning properly.”

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Key Components

Software

- IBM Rational AppScan
- IBM Rational Functional Tester

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—Dr. Tarek Nabhan, products division manager, ITWorx

A single configuration requires two and a half days of painstaking manual tests to verify about 200 different use case scenarios. “Because we had to deploy to hundreds of schools, we knew we had to automate the testing process,” says Nabhan. “We rely on IBM Rational® Functional Tester [software] for automated integration testing of every system we deliver. As a result, we can compete more effectively because we deliver with predictable results and predictable quality. When a customer asks you to deploy a system for all the schools under their authority, you must ensure quality; otherwise they will never ask you to do it again.”

Recording test cases

To create a test suite, two ITWorx test engineers began by setting up an ideal deployment, in which all components were properly integrated and functioning correctly. They then used IBM Rational Functional Tester to record scenarios for various business processes. For example, the testers recorded the actions needed to assign a grade on a student project and then identified verification points that confirmed the grade was communicated to the student and, if necessary, to the parent. In a little less than a month of effort, the two testers built up a test suite of nearly 200 scenarios.

“We were surprised that the whole effort required only two test engineers, because the product we were testing is very complex with a huge number of configuration parameters,” says Nabhan. “The scripts they recorded were very flexible. The testers inserted variables in the scripts so that they could easily change a domain name or URL to test a new deployment. Other than that they didn’t have to edit the test scripts at all, even though each browser-based user interface is customized to meet individual customer needs.”

More uses for IBM Rational Functional Tester

ITWorx has also used Rational Functional Tester to automate the steps needed to repair a predeployment configuration problem that had been identified by automated testing. “We found a problem that had been propagated to the configuration settings for some 100 schools,” Nabhan explains. “We used Rational Functional Tester to record a script that automated the steps needed to fix that particular problem. We then executed this script for each school that was affected, and Rational Functional Tester fixed the problem, saving a lot of time and manual effort.”

The company is using Rational Functional Tester on other projects as well, including a realtime stock monitoring system that ITWorx is developing for a client. “This financial services application is an ongoing project with multiple milestones and frequent enhancement requests from the customer,” says Nabhan. “Rational Functional Tester is particularly effective for this kind of effort because our investment of time in creating functional tests pays off as we execute the same test scenarios in future milestones and as we complete the change requests.”

Testing for security vulnerabilities

At ITWorx, security vulnerabilities are considered major software defects. ITWorx testers use IBM Rational AppScan software to scan and test for Web application vulnerabilities as they are testing product integration and functionality. “Security is a critical issue for all ITWorx projects. It is particularly important for education products, because some of the stored information—for example, exam questions—is very sensitive. So we use Rational AppScan together with Rational Functional Tester to assure security,” says Nabhan. “We recognize that security, functionality and performance—all of them must be tested together. That is why we use Rational AppScan company wide on every project at ITWorx, and it is why we are looking forward to using IBM Rational Performance Tester [software] to validate the scalability of our applications.”

Testing time reduced by months

To date, ITWorx has tested more than 500 deployments using Rational Functional Tester. While each deployment would have required two and a half days of work effort to test manually, using Rational Functional Tester ITWorx was able to test each deployment in just half a day. Since the tests run unattended, the testers could spend most of that time on other work. All together, Nabhan reports that Rational Functional Tester has saved ITWorx 943 days of work, representing hundreds of thousands of dollars in cost savings in one year.

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“The time and cost savings have been huge, and we expect them to continue to grow as we deploy the product to more schools. But for us, the more important benefit of Rational Functional Tester is being able to always ensure the quality of our deliverables,” says Nabhan. “Also, performing a manual test hundreds of times is extremely boring and error prone. If we still were doing manual testing, I can’t imagine we would be error free as we are with Rational Functional Tester, and I don’t think we would be able to retain our testers. That is very important for us. At ITWorx, Rational Functional Tester has saved time, relieved people from tedious work and, most importantly, improved quality.”

For more information

To learn more about IBM Rational Functional Tester and IBM Rational AppScan software, contact your IBM representative or IBM Business Partner, or visit:

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