

Client

Spirent Communications

Technologies

C++, Java, CORBA, Jython, Python

Testimony

"They successfully implemented the framework, communicated it effectively to my technical and team leads, and worked diligently on the hardest part of the engagement, that being the rollout to the larger organization. I was very happy with their performance, and faced with similar situations, would not hesitate to use them again."

Pat McGarry
Director of Software
Development

Automated Quality Framework Case Study

The Problem: *Spirent Communications* is a manufacturer of telecom testing equipment and a supplier of network management software. Their product offerings included a number of large legacy systems written primarily in C++ with some Java. These systems are cross-platform, and have versions for various operating systems such as AIX, HP-UX, and Solaris to name a few.

In order to reduce software defects and make it feasible to refactor and improve legacy code, Spirent decided to institute automated unit testing as a development practice. They had limited in-house experience, however, with automated unit testing, particularly in C++. It was recognized that bringing in outside expertise would allow them to jumpstart the introduction of unit testing into their processes.

The Solution: Stelligent first performed an assessment to determine the baseline state of the code, likely trouble areas, and potential testing needs and challenges. The assessment involved interviews with developers, direct examination of code, and determination of objective code metrics. Open source and commercial tools and libraries that might be useful in testing were also assessed. The resulting report included a detailed proposal regarding appropriate components for an automated unit testing infrastructure, which would potentially be extensible to address automated integration testing issues as well.

Stelligent then implemented the proposed technical infrastructure. Open source tools such as JUnit and CppUnit were used as the core. Both of these were extended to provide additional capabilities. As testing of data access code was needed, DbUnit was selected for use with Java and a matching, custom, capability was developed for C++. Because running the system normally involved many CORBA services, mechanisms were developed for "mocking" these interfaces, as well as other widely used interfaces that contributed to excess internal coupling. This facilitated testing code in a more isolated fashion.

Stelligent integrated the automated unit testing framework into the existing multi-language, multi-platform, multi-environment build system. This involved significant challenges, which Stelligent addressed in ways that produced a uniform experience whether developers were working in C++ or Java. The design was such that unit testing data would be available via Stelligent's Convergence™ Quality Assurance Dashboard.

Stelligent documented the technical infrastructure and worked with Spirent to develop a plan for engaging developers. The human element in any such engagement is critical and Stelligent conducted training sessions, on the framework itself and on how to address the challenges of testing legacy code. Stelligent also provided experts to serve as mentors to developers who had been identified to become internal unit-testing champions.

The Benefits: In constructing a unit testing framework, Stelligent was able to operate from a "big picture" perspective. This meant that many issues not likely to be anticipated by those new to unit testing were accounted for and addressed. It also led to a unity of design that created a relatively seamless experience for developers. Barriers to adopting automated unit testing are especially high for legacy systems; however, Stelligent's training and mentoring lowered these initial barriers. Every aspect of Stelligent's strategy was designed to facilitate adoption on a faster schedule than would otherwise have been feasible. The testing framework continues to be used as a means of ensuring quality *early and often* in the Spirent code base.

For more information, contact sales@stelligent.com