Convergent Manufacturing Technologies, Inc. (Convergent)

Overview
Convergent’s vision is a world where composites manufacturing is a low risk activity in all phases, from initial design to production. It provides software and associated technologies to make this a reality. Convergent’s products include sophisticated software and hardware used for computer simulation and evaluation of manufacturing risk in producing complex composite structures used in the aerospace industry.

Challenge
Thousands of aerospace manufacturing, research, and education clients use Convergent’s RAVEN Simulation Software to quickly evaluate how critical material properties evolve during the cure cycle. RAVEN helps shorten cycle times and can trouble-shoot problems with existing processes.

RAVEN is a solution under constant development, as Mike Zobac, Software Developer at Convergent, explains: “We are constantly adding features to our software in response to customer requests, and new developments in composite manufacturing technologies. With so many moving parts in the solution, software testing is important for us and this was done manually. After developing a new feature or a bug fix, the development team would test this before committing the code. The problem with this is that there was never quite enough time for testing and the manual testing effort took our developers away from core product enhancement work. And, as is inevitable in a manual process, mistakes would be made and faulty code would be issued. Thankfully this never led to any serious customer issues, but it made us realize that test automation could help us build a more robust and reliable testing process.”

Solution
Convergent is committed to open source software and tried an open source testing solution first. However, RAVEN is very graphics-heavy and Convergent needed a testing solution which could support this. When Zobac came...
across Silk Test™ he realized this could be the answer: “Silk Test is built around screenshot comparisons which is exactly what we needed for our graphical solution. We conducted a proof-of-concept in which we tested all our scenarios and Silk came through with flying colors.”

Silk Test was implemented in-house and when help was needed Micro Focus® was on hand. Zobac comments: “The Silk documentation is excellent and any minor issues were solved very quickly through customer support. We had some quite unusual testing requirements and custom controls. However, Silk is so easily scriptable I have yet to come across something that I haven’t been able to make work.”

It became clear that the partnership between Silk Test and Silk Central™ could be beneficial to Convergent, using Silk Test to create the test cases and Silk Central to organize the testing schedule and reporting. Convergent created around 70 test cases. Now, close to 40 standard tests are automatically run to test any new features. These exercise the UI and regression testing ensures the test results are consistent between different code builds. All code is included in the tests to determine if new code changes have had an adverse effect on existing code. Tests are routinely run overnight and in the morning Silk Central will email the test results in an at-a-glance dashboard format so that it is instantly clear if tests have failed and corrective action needs to be taken.

The key-word driven integration between Silk Test and Silk Central means that tests can now be created and run from within Silk Central helping the Convergent team be more efficient.

Silk is also used for instant testing feedback, as Zobac explains: “For an urgent customer request, we can implement, test, and release a feature the same day, using the Silk processes. When we commit the code we trigger the testing process and watch the results dashboard real-time. This gives us confidence that we are delivering quality code to our customers.”

**Results**
The rigorous and more streamlined testing process has instilled a deep confidence in the Convergent development team. The code it delivers to its customers is reliable and of high quality.

Zobac concludes: “Using Silk to automate our test effort, we estimate a development productivity improvement of at least 15%, which enables our developers to focus on core features and enhancing the solution for our customers. We are confident in the quality of our solution. The number of products we deliver is increasing all the time and our use of Silk tools will expand accordingly. It is now a vital part of our development life cycle.”