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Major Defense Contractor Revolutionizes Testing Productivity with SpiraTest from Inflectra

SpiraTest and RemoteLaunch implemented to automate testing of ordnance route planning

Industry
Defense

Objective
Streamline the testing of complex embedded mission systems while at the same time having integrated real-time requirements traceability and support for agile methods

Approach
Looked for an integrated tool that could centralize their testing processes and provide productivity improvements for their system testing.

Business Outcomes

- Reduced time to test all user stories in a release by 99% from 3 months to 3 hours
- Ability to have real-time visibility of how well tested all of the requirements are
- Documentation generated automatically from the data in SpiraTest instead of taking manual person hours per cycle.

Technology Outcomes

- Demonstrated that you can automatically test embedded C++ mission systems
- Platform for integrating all new automated testing systems
- Testing approach shared with IV&V teams to optimize independent testing

"It blew the doors off what we can do. What used to take three months manually now takes only three hours!"

– Software Development Lead.

Centralizing requirements and testing, while automating and streamlining the testing process

The customer was looking for a way to have a centralized repository for managing the requirements and testing activities for their mission system programs. They were able to replace their previous manual methods using a combination of tools from Inflectra and plugins they developed in-house to give them a world-class automation facility that is now being used by other programs and customers.

Agile & Testing in Mission Systems
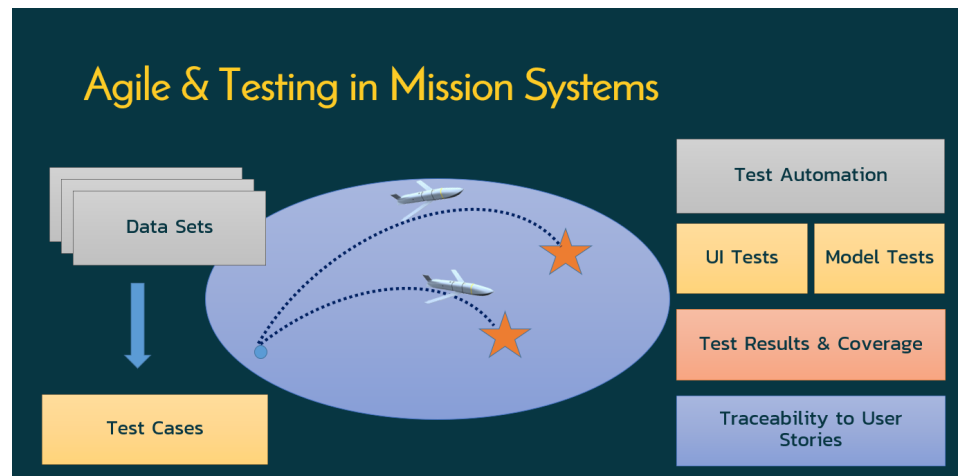
Background

The customer is a recognized designer, developer and manufacturer of precision engagement aerospace and defense systems for the U.S. and allied militaries.

They develop, manufacture and support advanced combat, missile, rocket, manned and unmanned systems for military customers that include the U.S. Army, Navy, Air Force, Marine Corps, NASA and dozens of foreign allies.

The program in question is a long-range, conventional, air-to-ground, precision standoff missile for the U.S. and allied forces. Designed to destroy high-value, well-defended, fixed and relocatable targets.

Challenge

Prior to using SpiraTest, the testing of the route planning software used by the customer program was primarily tested by manual methods.

Any automated testing being done relied on ad-hoc tools and uncoordinated processes.

Manual methods won't cut it

The customer was looking to replace its use of manual methods of tracking requirements and test cases (based on Excel sheets and Microsoft Word documents) with a modern requirements and test management system. In addition, they were looking for ways to automate the testing of the route planning system and have that automated testing be fully integrated into the new test management system.

Furthermore, they needed an integrated tool that fully supported within the same tool, in different views: Agile / Scrum, Requirements Management, Risk Management, and Change Management all mapped to Automation Test Management, seamlessly integrating into their CI pipeline based on Jenkins and BitBucket.

Solution

The customer did an extensive tool evaluation to replace their existing manual solution. SpiraTest was the only application that offered integrated requirement and test case management, with traceability down to the test step level— needed for testing mission systems.
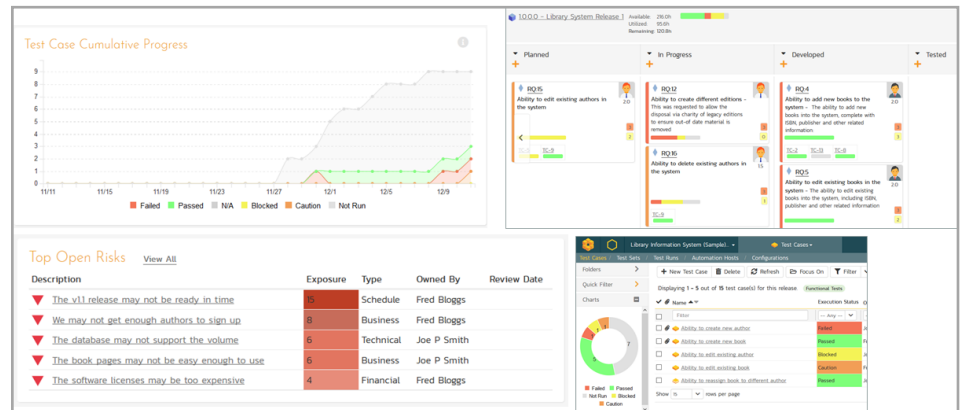
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Solution at a Glance

Shifting testing left, behind the UI

The RemoteLaunch add-on for SpiraTest allows SpiraTest to integrate and orchestrate different automated testing tools, with the results seamlessly incorporated into the SpiraTest quality dashboard.

The customer used the standard RemoteLaunch plugin for TestComplete to integrate their existing UI testing scripts quickly and easily. However in order to automate earlier in the lifecycle ("shifting left"), the team used the RemoteLaunch SDK to create custom plugins that connected to the different systems "behind the UI". They created a program-specific plugin that was able to interact with the code used to render the route maps, and another custom plugin that was able to connect to legacy C++ code running inside MatLab that was instrumental in planning the mission routes.

Benefits

SpiraTest and particularly RemoteLaunch and its extensible plugin architecture with open SDK was the real game changer for the customer. They were able to integrate and test multiple platforms using the different plugins and have all of the test results centrally available in SpiraTest.

Traceability baked into the tools

The ability to trace back the test results from the different platforms and systems into the central set of requirements has saved the customer significant time over the previous manual efforts. Instead of managing documents, the team can simply generate the required test and requirements documents from the authoritative data in the system.

Integrate risk & agile management

Building on the success of SpiraTest, the customer upgraded to Inflectra's SpiraPlan toolset which added agile planning and risk management functionality. Instead of having to feed requirements into a separate planning tool, they could now track requirements, user stories, sprints and project risks all from within the same tool.

Leading the way

The customer demonstrated the new automation capability to their users and other stakeholders.

"It was an epiphany."

The work done on the program is now being used as a template for other programs and teams within the customer's organization as well as the wider defense community.

Learn more at:

www.inflectra.com