

Silk Test  
Silk Central Test Manager  
CaliberRM  
StarTeam

# Invertix Corporation

Productivity gains and cost savings through open source Agile development and transparent test processes



## Overview

Founded in 1999, Invertix is an experienced prime contractor and fast growth business that delivers quick-react operational innovations and efficiencies to DoD and IC clients. Invertix provides visionaries, technologies, resources and solutions that span the technology continuum from RF sensors, communications, and hardware platforms, to cloud infrastructure, big data analytics, secure middleware services and widget-based visualization. Its software systems promote Government Open-Source solutions to the IC's most complex data problems. More than a quarter of Invertix's 170 employees are former members of the military and the company works directly with US Military installations to inform and ease the transition from soldier to the private sector.

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### HOLLIE LOPES

Program Test Manager and Software Development Center Manager  
Invertix

## Challenge

### A GROWING BUSINESS IN A SENSITIVE ENVIRONMENT

Operating in such a sensitive and fast-paced environment brings with it the need for extensive governance and reporting in its development and testing environment. The lack of tools made this a manual and time-consuming process. Application requirements were logged in MS Word, identified defects were documented in Rally (an existing tool), and test scripts were captured in MS Excel. There was no traceability or transparency between each of the steps in the process.

Various functional business areas, such as change and configuration management, information assurance, integration as well as development and testing, needed to work together to support a comprehensive, Agile development and testing environment, but the lack of tools meant each area was operating within a vacuum and projects, processes and resources were not integrated to focus on the bigger picture.

As well as needing to provide clear processes to its clients, it was obvious the internal structure needed addressing so that the software development lifecycle was better defined and streamlined throughout the business. Hollie Lopes, Program Test Manager and Software Development Center Manager at Invertix, jokes about the “napkin theory”: “Our requirements used to be defined by jotting them onto a napkin—not exactly a scalable process for a growing business!”



## At a Glance

### ■ Industry

Computer Services

### ■ Location

United States

### ■ Challenge

The organization needed to automate testing processes and improve communication internally and externally.

### ■ Solution

Use automated testing solutions to experience productivity gains and cost savings through open source Agile development and transparent test processes from Micro Focus.

### ■ Results

- + Achieved full ROI within two years
- + Provided clarity and insight by producing over 200 weekly governance reports
- + Customized the Silk toolset to adapt to very specific circumstances
- + Achieved full program management and test traceability

## Solution

### THE NEED TO CUSTOMIZE

Although Invertix started investigating the market for off-the-shelf tools that could help bring structure and process to its development and testing environment, it soon realized that a high level of customization would still be required and its in-house development skills would be tested to the limit to ensure the tools would deliver the value-add it hoped they would. It was absolutely vital that the requirements were clearly understood and the architecture was defined before implementation. Lopes comments on the selection criteria and evaluating the various options: "A number of vendors were invited to the table, but Micro Focus was selected for its ability to customize the tools and integrate them to create a seamless and transparent end-to-end testing environment. We also valued the expertise of its customer and technical support as we were really pushing the boundaries with the tools." Internal coordination was also very important, as the organization was so siloed in its approach. Lopes's team worked with the integration and security teams to gain their buy-in early on and help solidify the implementation across networks.

Micro Focus® Silk Central™ Test Manager (SCTM) was introduced first and forms the main testing repository for Invertix. Carolina Buckler, Software Engineer, was instrumental in proposing and establishing an effective testing environment, which was a complex task with 75 plus widgets running on a web-based platform. Five hundred test scripts are used with millions of data sources. Already the customization capabilities were put to the test as 120 users across three functional areas—analysts, information assurance and testing—all needed the tool to perform in a slightly different way. Buckler explains, "Each division executes and names its tests differently, using a naming convention specific to its functional area or clients. SCTM needed to support three independent workflows on these unique test plans for each of the divisions."

### EFFECTIVE REPORTS MANAGEMENT

Integration with the Micro Focus StarTeam® tool proved to be the solution. This enabled the team to more effectively track and manage defects that are identified within the testing process as well as produce comprehensive BIRT (Business Intelligence and Reporting Tool) reports. Emerson Sklar, Test Engineer, was closely involved in the development of the BIRT reports and their automatic distribution: "Effective reporting is key to us as it allows us to easily visualize the tremendous amount of information and statistics stored within our databases. By presenting this information in a format that is easy to understand, we provide the client with both a high-level and in-depth look at their current processes, highlighting each critical area and testing statistic. Our ability to produce these vital reports has been drastically increased, which is great news for our clients." Each week, over 200 reports are generated, which are loaded onto portals, securely accessible by specific internal and external customers, and broken down by platform and components.

In its own right, StarTeam provides a great defect tracking management solution. It highlights bugs and documentation issues, as well as enhancement requests. Rally, the tool initially in use for defect tracking, is a good requirement management tool, but in a complex environment like Invertix where multiple workflows need to be supported, a more robust and purpose-built solution was required. Within two-and-a-half months of acquiring StarTeam, the team was up and running with the system and reaping the benefits of the integration with the full testing suite of tools.

### INTERNAL VALUE-ADD

As Lopes' team fulfills an internal IT function, as well as its customer-facing work, it was felt there should be a helpdesk to support the users. Jon Guzman, system administrator, took the lead on this task and developed an online helpdesk ticket system, based on StarTeam, where users can request support and suggest

enhancements to the entire application lifecycle management (ALM) suite of tools. Jon is responsible for maintaining the helpdesk function as well as solving any integration and installation issues users may encounter.

Steve Torban manages the training and education of the ALM user base. In addition to creating user documentation and training programs, he continually gathers feedback from the team to adapt the material to the frequently changing environment. He comments, "A properly trained user introduces fewer discrepancies and enables the system administrators to focus on more pressing tasks. By ensuring our training and reference material properly reflects our needs, and by adhering to the ITIL notion of Continual Service Improvement (CSI), we can help show significant progress and properly support the future of the program."

## Results

### PROFILE-BASED ACCESS

Invertix operates a business model that supports its highly confidential clients. Effective processes are key to guaranteeing the security of sensitive information. Access to governance reports and information is restricted and profile-based, ensuring no unauthorized access at any point. These rules apply both internally and externally as different Invertix divisions will have different levels of security clearing and work with different clients preventing them from interacting with other clients. The processes are there to assist users by making certain report fields mandatory, for instance, and enhance the productivity across the organization.

An unexpected benefit of this is highlighted by the entire team: "The visibility and clarity has increased so much within the organization. Reliable, traceable data points with an auditable history remove the human element of bias and misunderstanding. This has the potential to be a double-edged sword as the tools, lacking any intent or preconception, will highlight proficiencies

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and deficiencies in all parties equally, encouraging everyone to operate on a level playing field and to increase the quality of their work.”

#### **CHANGE REQUIREMENTS THROUGH CALIBERRM**

Micro Focus CaliberRM™ fulfills its traditional role as a requirements management tool but also uniquely manages change requests specifically for new application requirements. This customization was introduced because this particular environment is so complex and sensitive it needed a more robust tool to manage the overall change request process. Its integration into StarTeam and SCTM provides end-to-end productivity and traceability that is vital, especially in the introductory period, to provide structure and process. Requirements logged in CaliberRM are then synced back into SCTM. Sklar summarizes how this integration benefits the organization: “With our ALM solution, ideas can start as a change request in either StarTeam or CaliberRM, become a testable requirement in CaliberRM, get attached to

test scripts in Silk Central Test Manager, and then trace back to StarTeam for any resultant defects. This provides us with unparalleled clarity into our development and testing lifecycle.”

#### **WHAT’S NEXT FOR THE TEAM?**

Lopes and the team have achieved, against great odds, the victory of implementing and automating three major ALM tools in just 18 months, but there is more to come. Micro Focus Silk Test™ will join the ALM tool set and, with Team Inspector, a continuous build, integration, and test coordination tool integrated into StarTeam, will form the basis of an ALM farm with levels of test automation to support the business going forward. Invertix will supplement manual testing procedures with repeatable, automated testing. In addition, state-driven testing will be introduced, enabling the nontechnical members of the test team to leverage the automated test generation process as well.

The team will concentrate more on Agile testing and mini-sprints within the development and

testing cycle, which will allow them to be more responsive to client requests and build a better-quality product.

The current testing environment is used for all unclassified clients and information. The next step is to extend this to the classified environment, and the team is confident that this will be a smooth transition, transparent to its clients.

A last word goes to Lopes: “Moving from the ‘napkin theory’ to transparent governance reporting across the entire software development life cycle provides clear benefits, both current and future, to all involved. The cost reductions we’ve achieved with this exercise are already significant. The amount of redundancy across the organization has reduced drastically and we expect to achieve full return on investment within two years. Working with Micro Focus has been a wonderful experience. We were and are on a journey together and we’re taking application testing where we never thought it could go.”

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