

# Performance and Security Test Case Study

## Aeronautical Industry

Revision: 01  
Document No. SL-CS-025-2-12-07  
Issued: February 12, 2007



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## Introduction

SysTest Labs is an independent, global leader in Software Testing and Quality Assurance. In 1996 SysTest Labs opened the doors to a full-service QA Testing Lab, headquartered in Denver, Colorado. Today, SysTest Labs has provided service to over 300 customers ranging from start-up dot-coms to Fortune 100 companies. SysTest Labs is a complete QA and Software Testing company, designed to reduce the costs and timely nature of software testing while increasing productivity. SysTest Labs' Commercial Services division offers a full range of software testing and quality assurance services that are customized to meet our client's schedule and budget needs including comprehensive Load, Stress and Performance testing, analysis, and support for your projects.




## Executive Summary

This case study explores SysTest Labs highly successful performance and security project performed for an Aeronautical Industry client. SysTest Labs consultants and analysts designed and developed performance test scripts for the automation of a subset of functions of the web site of a leader in the Aeronautical Industry that could be executed, maintained and updated by our current companies test staff. The focus was on E-link functionality to model and profile current E-Link user scenarios on the operational system.

The project began with the collection of statistical performance data on existing system for data access and data downloads. The automated scripts generated in HP/Mercury LoadRunner for this activity allowed our on-site staff to assess the current system impacts on performance, response times, and previously undiscovered security issues. The primary goal was to produce the automated performance scripts for assessment of future impacts by analyzing "what if" scenarios. These scenarios included:










-  Viewing & Printing industry vital documents via the clients E-Link program.
-  First-time install of on-line time sensitive documentation.
-  Download and install of on-line upgrades.
-  On-line downloading of industry vital documents.
-  Search and retrieve of a single document.

To achieve these testing goals SysTest Labs completed the following tasks:

-  Created data-driven test scripts required to replicate key E-Link user scenarios by the creation of re-usable actions using HP/Mercury LoadRunner;
-  Developed automated scripts based on the re-usable actions; and
-  Identified actionable application improvements.

Challenges that were overcome were multiple user IDs (up to 50), hardware Access/Permissions for monitoring, national security related E-Link User Scenarios, and hardware scheduling conflict.










SysTest Labs provided the following deliverables for our Aeronautical Industry client's Performance and security test effort.

-  Load & Performance Software Proof Of Concept (POC)
-  Selection of the optimum tool
-  Test Plan
-  Automated Test Scripts
-  Setup and maintenance of the LoadRunner controller
-  Setup and maintenance of LoadRunner Agents
-  Test Results
-  Analysis and Recommendations
-  Development of two (2) Programmer's Guide and Weekly Progress Reports

## Results & Recommendations – the Client ROI

### Results

The test execution results findings consisted of:

-  No valid login/session management functions in the client's application.
-  Verify Password procedure is called repeatedly throughout user sessions.
-  Passwords are not encrypted.
-  It was discovered the client's application is available for download without logging in.
-  Anyone monitoring the site with a packet sniffer could get the URL.
-  Clients and public can create a favorites or shortcut to get to proprietary data directly.
-  Anyone monitoring the site with a packet sniffer could get client login credentials and use the application for free.
-  Duplicate download commands exist in the application, when selecting a Coverage Area.
-  Bandwidth can be reduced by 40% in some cases or 3.9MB each time the US 48 State Coverage area is opened.

### Return On Investment

The results of SysTest Labs performance and security test capabilities and analysis has allowed this Aeronautical Industry client to improve their performance, security, and customer satisfaction in the critical business transition arena of their core business. By meeting and exceeding the client's expectations SysTest Lab's consultants and analysts have increased software



capitalization and accelerate time to market for this industry leading client. Through the development of SysTest labs re-usable automation architecture for the client's environment our active automation development increased capitalization of staff hours and produced cost avoidance through the elimination of additional hardware expenditures and un-needed development expenditures while proactively mitigating 'No Go' decisions.