



AUTOMATING HSIT TESTING FOR A LEADING EUROPEAN MULTINATIONAL AEROSPACE CORPORATION

Overview

Cyient collaborated with a global aerospace leader manufacturing commercial airliners, to improve the functionality of critical aviation components. The focus was on verification and validation (V&V) of their Flight Attendant Panel (FAP), a pivotal component in managing and monitoring cabin systems on Airbus 320 aircraft. The FAP acts as a central control hub, allowing flight attendants to oversee and control lighting, emergency systems, lavatory functions, and other essential features.

CyFAST, Cyient's Test Automation Accelerator, is a transformative solution for fully automating high-level system integration testing (HSIT). Offering a potent combination of lower operational costs, higher productivity, and the ability to leverage existing test assets, CyFAST stands out with its Web-based remote testability with the Robot Framework as test runner agent. The platform ensures increased reliability and simplifies the test case writing process with its user-friendly plain English language interface. As a comprehensive automation solution, CyFAST not only streamlines processes but also establishes a cost-effective and efficient approach to high-level system integration testing.

The Challenge

- Our customer relied on a Java-based test tool to verify the functionality of the FAP application. However, this tool required the manual loading of new test scripts for each test case. Worse, they had to continuously click the "proceed" button or physically press buttons on FAP (Flight Attendant Panel) screens to progress to the next step of the test case.
- With nearly 70 pages and 1400 item IDs involving various scenarios to be manually verified, this labor-intensive process not only consumed time but also posed a significant risk of errors.
- Also, it was less reliable as no test evidence was being captured.

The Cyient Solution

Cyient developed a specialized Robot Framework library to create an efficient automated testing solution for the FAP device. This custom library served as the foundation for the testing approach, facilitating seamless communication with the FAP device through a socket channel for PDL (Page Description Language) commands. Key aspects of the approach included:

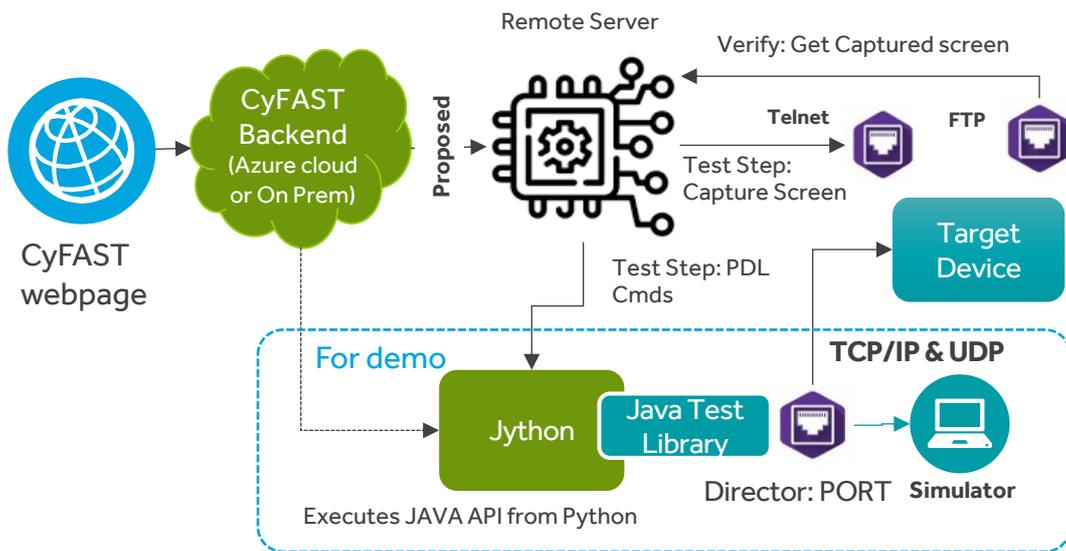
- **Command communication:** The library allowed the sending of commands to the FAP device and verification of responses, automating the testing process.
- **Evidence capture:** To enhance validation, the library supported capturing evidence such as screenshots and logs. Screenshots were obtained via Telnet commands, and the results were downloaded using FTP, providing visual proof of test outcomes.
- **Centralized handling:** All interactions with the FAP device, including command exchange and evidence capture, were efficiently managed by the single library. This centralized approach simplified the testing process and minimized the complexity associated with multiple tools.

Furthermore, the tests were authored in the **Gherkin format** of the Robot Framework, a deliberate choice to enable easy onboarding for new testers without necessitating extensive programming knowledge. This comprehensive testing approach ensured robust validation while enhancing accessibility for the testing team.

The Results

- To fully leverage the capabilities of CyFast, the existing test scripts needed to be rewritten in a Gherkin Language (BDD) format. While this transition incurred some initial effort, it was a one-time investment and ensured the alignment of testing practices with best-in-class methodologies
- The most remarkable outcome of the automation process was a substantial reduction in test case execution time. With CyFast, the execution effort for a single test case, along with validation results, was reduced to a mere one second. This was a dramatic improvement compared to the 15 minutes required for a similar task with the previous tool.
- The successful execution of 21 test cases using CyFast demonstrated its scalability. Based on the performance of these initial 21 test cases, it was assumed that CyFast could efficiently handle the execution of 600 test cases. This scalability was crucial for accommodating the extensive testing requirements of the project.

Technical Solution



DESIGNING TOMORROW TOGETHER

To ensure the software is thoroughly tested and dependable, having lengthy testing cycles, proficient test engineers, and allocating adequate time, effort, and funding have become imperative.

CyFast offers a brilliant cross-platform solution with capabilities for Distributed Testing, Customizable Reports, and End-to-End Traceability, ensuring high flexibility and scalability for customers' ongoing needs. We, at Cyient, are evolving CyFast towards "Future needs of Automation Testing with Cognitive Intelligence".

cyient.com

Cyient (Estd: 1991, NSE: CYIENT) partners with over 300 customers, including 40% of the top 100 global innovators of 2023, to deliver intelligent engineering and technology solutions for creating a digital, autonomous, and sustainable future. As a company, Cyient is committed to designing a culturally inclusive, socially responsible, and environmentally sustainable Tomorrow Together with our stakeholders.

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