Success Story | Digital Engineering

Boosting Application Turnaround for A Tech Product Company

Our client is a prominent technology product company based in the United States that offers a range of products across various industries. Their solutions help businesses enhance their revenue by improving sales and marketing efforts. One of their offerings is a fully automated platform that caters to a specific industry. This product utilizes data mining to identify and attract business opportunities, manage inventory, and provide other functionalities through an intuitive and user-friendly interface.

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How Did It All Start

The client keeps building and releasing regular feature upgrades to enhance their product. They perform manual as well as automation tests before releasing new versions. The client used C#, Selenium Grid, MS Test, MS Azure to run their automated tests in the Azure pipeline. They have followed Page Object Modal with Page factory design in their testing framework and maintained the codebase in the Azure repository.

A nightly build was triggered automatically and ran all the automated tests in the QA environment in separate virtual machines (VM). These VMs let individuals emulate computers and run tests from different operating systems on a single physical machine.

The client's automated tests often failed due to the inefficiency of the VMs. Furthermore, the VMs also gave way to memory issues, high operating costs, and difficulty in maintaining and upgrading the Selenium Grid. The flaky nature of the client's existing test framework caused more and more automated test failures every time. These issues impacted the nightly test runs, and the QA team had to restart it manually every time.

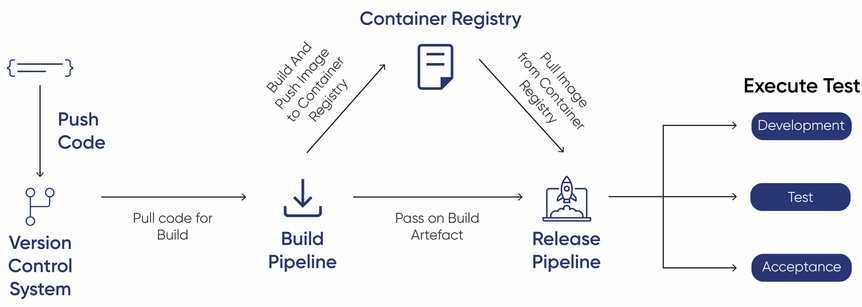
The overall test execution time increased and led to poor performance. It also slowed down the testing team's productivity as they were no longer able to differentiate between a test that had a bug and one that they were wasting their time on because of an invalid fail. The framework was also devoid of wrapper classes, and that led to a lack of code reusability.

What Did We Do

When the client came to TVS Next with all the issues mentioned above, we decided to investigate the tests that were going flaky. To identify the problem, we familiarized ourselves with the common reasons for flaky tests in this environment.

We quarantined the flaky tests, fixed them, and got them to run again. We investigated the daily QA run in Azure, performed root cause analysis, and flagged the reason for the issues early on. To overcome the problems caused by VMs, we started running the automated tests in docker containers.

Architecture



The Docker platform enabled the client to isolate and securely run multiple containers on the same host machine. Due to the lightweight of the containers, the client was able to share them easily. Because the containers had everything needed, the client could run tests independent of what was installed on the host machine. The client can now run wholly isolated tests in Dev, Test, Acceptance, and Production environments

The Business Outcome

30% reduction in test timing

Elimination of VM issues

Parallel test execution through containers

Ability to scale testing to infinity

Exploratory testing to aid the development team

Broke-free from OS dependencies in testing