

# Implemented Test Automation Framework for the World's Largest Learning Company



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*aspire*   
SYSTEMS  
*attention. always.*

## THE CUSTOMER

Our customer is the world's largest learning company with 40K employees in more than 70+ countries helping people of all ages to make measurable progress. They provide a wide range of educational products and services to institutions, governments and to individual learners.



## THE CHALLENGE

Our customer is piled up with various products which are specialized for online schools, students, institutions across the country serving specific needs. For each product, there are around 2000+ test cases to be executed in different environments manually before deploying it into production. Some of the key challenges are listed below:



### Business Challenges

- 1 Lack of test automation framework for the entire product line up
- 2 No effective Go-to-market product release strategies
- 3 Time-consuming manual testing of products by software quality engineering team
- 4 Delayed product release due to manual testing
- 5 Slower time to market



## Technical Challenges

- 1 Compatibility issues across various browsers and device combos
- 2 Reproducing the issues for developers took additional time and effort from the testing team
- 3 With no Regression Test Suite in place, new feature enhancement to existing functionalities resulted in new defects
- 4 Non-availability of manual test execution for 2000+ test cases to certify the stability of applications
- 5 Frequent issues in hotfix testing impacted the regular testing task

## THE SOLUTION



Our customer could readily start automating the number of product they hold by building their script on top of base framework with proven best practices.



Aspire analyzed the customer's pain area and proposed "Test Automation" the only solution to meet the current business as well as technical challenges. After a detailed analysis of the existing situation and customer requirement, Aspire's Quality Engineering Solution Team implemented the robust and solid Automation Framework addressing all the products to meet the customer expectations. Aspire designed a core framework with Selenium WebDriver and TestNG.

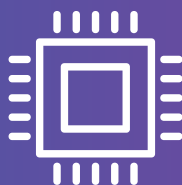
The framework design was completed within a short span of time using expertise in this field. The framework was implemented by binding leading open source components to make use of advantages from each of them in order to optimize the framework.

## Key Activities of Quality Engineering Solution Team

- 1 Implemented Base Test Automation Framework which addresses entire product lineup
- 2 Base framework supports extensibility and modularity
- 3 Test Automation Scripting for each product was built on top of the base framework
- 4 Framework supports test execution in all the client environments (Nightly, QA, and Production)
- 5 Framework supports almost all the browsers, devices like iPad and Android Tablets

## TECHNOLOGY SNAPSHOT

- 6 It connects with other system/applications to run end-to-end test scenarios
- 7 Framework also supports RESTApi to play with test data instead of spending more time in test data generation and setup through the application
- 8 More than one product is being automated within short span of time in parallel since the framework covers common requirements and supports modularity
- 9 Design model has resulted in addressing the ongoing changes in application without affecting the execution of test suite  
  
Framework design provided flexibility in selecting the intended test cases to be executed based on the impact of the changes or hot fix etc.,
- 10 Implemented Smoke and Regression Test Suite
  - ➡ Resulted in reduction of turnaround time in verifying the Hot Fixes
  - ➡ Reduction in regression cycle time which in turn resulted in the reduction of cost and time
- 11 Every release is being propagated to live on completion of regression testing



Test Automation Tool: Selenium 2.0 (Web Driver)

Scripting Language: Java, C#

Data Source: MS Excel

Build Management: Tool Gradle

Testing Framework (Unit): TestNG

Static Code Analyzer: CheckStyle

Browser: All

Devises: Ipad and Android Tablets

Continuous Integration: Jenkins

Design pattern: Page object with loadable component

Cloud Connector: Sauce Labs

## BEST PRACTICES

## KEY BENEFITS

### How did the Solution Work?

- 1 Regression Test Suite addressed the unveiling of defects due to enhancement of existing functionality before end of the sprint and was fixed as well.
- 2 Continuous Integration of Automation Suite has reduced the turn-around time in addressing the test in various browsers and devices intended for newly implemented functionality as well as regression testing of existing feature on daily basis.
- 3 Due to Automation Implementation, the manual testing team focused mainly on new features and their related testing which have resulted in building high-quality features by unveiling issues related to impact as well as new changes.

Implementation of continuous integration results in validation of new functionality / test script on daily basis across the browsers / devices.

The test scripting is stated completed one and only if the scripts pass in CI in all the intended environment and supported browsers / devices.



- ➡ Customer was happy and implemented the automation framework to other products as well
- ➡ Continuous integration resulted in unveiling of issues caused by new enhancement in application at an earlier stage
- ➡ Reduced the turn-around time for compatibility testing
- ➡ ROI of smoke and regression test suite reaped benefit as the turn-around time to Go market was reduced by 10 – 15%



## RESULTS & ROI

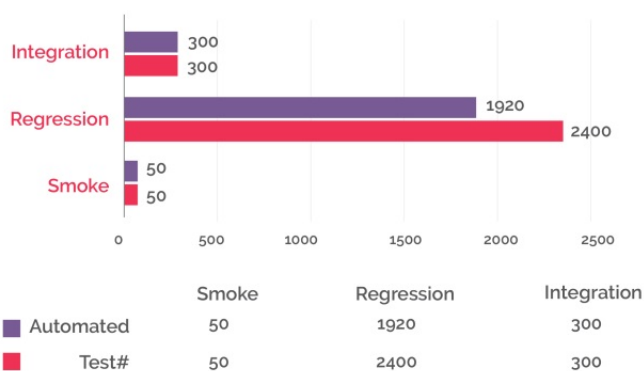


With Smoke Automation, the time required was reduced to 10% as compared to the earlier manual effort

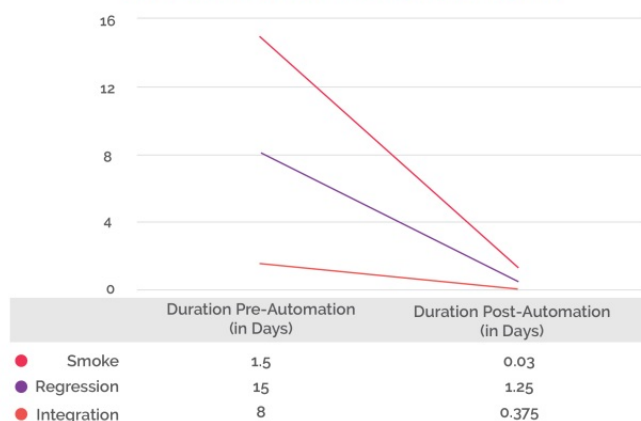


With Regression Automation Suite, the time required to complete the regression cycle was reduced to 5% compared to the earlier manual effort

Automation Coverage



Turnaround Time (Pre/Post Automation)



Total Savings- Last 1 year

Module	# of runs	Time save (Hrs)
Smoke	48	856.8
Regression	24	22752
Integration	12	1500

Time Duration to Automate

Module	Resources	Duration
Smoke	3	20 days
Regression	10	8 months
Integration	6	1 month

Maintenance effort

Module	Hours/month
Smoke	12
Regression	80
Integration	25

## FUTURE IMPACT



Our customer could readily start automating the number of product they hold by building their script on top of base framework with proven best practices.

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## ABOUT ASPIRE

Aspire Systems is a global technology services firm serving as a trusted technology partner for our customers. We work with some of the world's most innovative enterprises and independent software vendors, helping them leverage technology and outsourcing in our specific areas of expertise. Our core philosophy of "Attention. Always." communicates our belief in lavishing care and attention on our customer and employees.

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