Case Study on

Automation of End-to-end Testing of Client Product Line using Qualisystems

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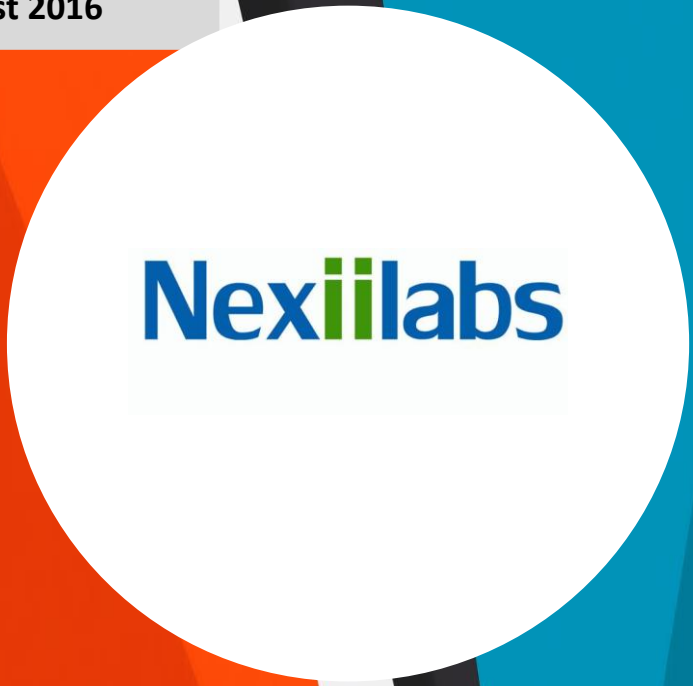

Client

The client is a leading information technology firm headquartered in Waltham, Massachusetts specialized in copy data virtualization software which runs in a virtual environment and within the IBM SVC, as an appliance.

Business Unit

Storage Management and Data Protection

Product CDS

Copy Data Virtualization frees strategic data from increasingly commoditized infrastructure, replacing the many siloed systems in use today, to protect and access copies of the same production data. It replaces all the software licensing and capital intensive hardware tied up in Backup, Snapshot, Disaster Recovery, Business Continuity, Dev & Test, Compliance, Analytics, and other systems with a single, radically simple approach that does one thing : Make whatever data, from whenever it was created, available wherever needed.

Business Requirement

To implement test automation for end-to-end testing of client product line using Qualisystems Framework. Customer's expectation is to put a robust test automation framework in place through implementation of APIs between QualiSystems and product, ensuring committed performance, maintainability, backward compatibility and consistency.

Challenges Feed

The major roadblocks to creating such a quality design with a newer framework involved the efficient use of available manpower with desired skills and optimum utilization of available hardware and its knowledge.

Understanding the new framework in no time	Nexii engineers are expert manual and automation testers in Storage & Virtualization domain but we were working on this framework (having no PoC available) for the first time.
Expecting a framework better than existing one	Reducing time and effort for setup and tear down by establishing pre- & post-flight guidelines
Reduce maintenance effort	Time-efficient creation and maintenance of test artifacts by following consistent use of APIs, abstraction & agnostic guidelines, and error escalation methods
Optimum Test Bed utilization	Automated scheduling and lock down of test equipment during testing using the Reservation system.

Nexii's Approach

QualiSystems' CloudShell as a test automation framework offers pre-built tools and libraries which enables a tester to create test cases in optimal amount of time with minimal programming knowledge. At Nexii, we used a combination of pre-built tools and libraries provided by CloudShell and built new libraries which represent different functionalities of client CDS as well as created automated workflows using CloudShell authoring.

- With minimal guidance, Nexii team absorbed the architecture and operational knowledge of the product in less than 3 weeks – owing to our experience in Storage domain.
- By way of exploring the QualiSystems Framework and product (through manual execution and tweaking the initial scripts), Nexii team logged around 12 new valid defects.
- Our expert SQA team - comprising 1 Storage domain champion, 4 SQEs and 1 technical lead - completed writing of new, customized libraries and, wrappers 2 days before the scheduled timeframe including review and review comments incorporation.
- Nexii Team designed required Python pattern sets (REST Commands and JSON Parsing) for Reusable functions.
- Provided test automation strategies to leverage available licenses.

- Extended ‘Robot test automation framework’ by creating new keywords.
- Wrote python scripts to perform testing on brocade switch using robot framework using SSH Library

Results

- 80% of the regression test cases got automated by the scripts written by Nexiilabs – making execution less tedious and less vulnerable owing to more automation & less manual efforts.
- Maximized ROI through tested reusability, better resource allocation within 3 months of project kick-off.
- No. of valid defects logged for one round of automation exceeded the projected for regression cycles.
- Risk based testing on critical application functions and optimization of test and release cycles by 40%.

- Improved productivity and optimized cost by 20% through compression of test cycles
- Shortened the time-to-market by 30% using automation and compressed testing cycles