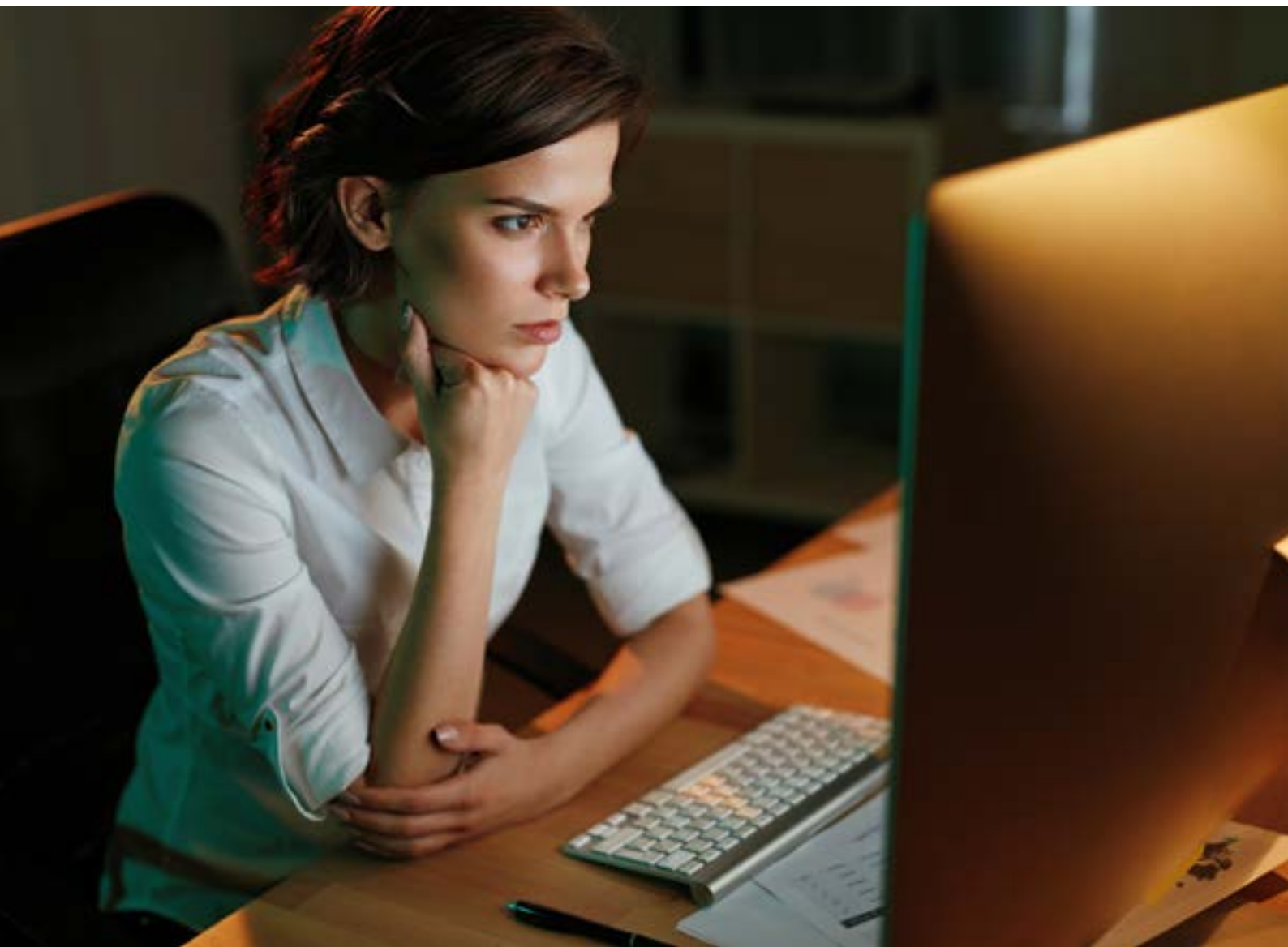




A New Paradigm Of Testing: How We Developed, Configured, And Ultimately Deployed Our 15 Day Test Strategy For A Leading Insurer





This white paper illuminates how **Aspire Systems designed and delivered an optimized suite of testing strategies for a leading insurance company.**

It is a drill-through exposition on how we built automation and application optimization thinking across the testing life cycle. Further, the readers will discover how we synthesized the best practices of application augmentation and how it was possible for us to boost the speed of critical business systems by harnessing time-testing testing methodologies.

Global business enterprises are in need of a complex mix of products and services. Application delivery teams go to a great extent to break down inefficiencies and enhance the chances of success when building highly complicated systems. When it comes to large-scale application-development projects, increasing pressures to deliver application and feature-rich software product in a tight timeframe pushes the limits of a company's capability. Businesses use a number of levers to optimize product delivery amid the ever-changing business landscape.

The need to deliver quality web and cloud applications, coupled with shortening test and release cycles, makes the delivery process more complicated. Though the commitment to customer satisfaction underpins all the copious endeavors, the execution leaves much to be desired.

As if that is not enough, clients expect nothing less than continuous improvement in service quality and push the developers to meet the performance requirements and emphasize the quality of business-critical applications. Even technologically advanced enterprises simply don't have the luxury of crafting products that comes with end-to-end functionality and integrated solutions in response to pressing business needs.

When it comes to testing, on the other hand, everything from test design to execution and reporting, the complex process tiers are replete with legacy systems in a test environment. Moreover, in a typical enterprise-grade software project, half of the budget accounts for the testing. It is becoming increasingly difficult for businesses to align and optimize testing resources amid increased testing volumes. Process fragmentation and risks regarding quality issues eventually expand to a more complex testing life cycle.



The Problem: A Flawed Application With Unusual Exit Rate

Our client was a mutual insurance company which has been operating for more than 100 years. The company's stated mission is to **"build trust and foster lasting relationships"** with the customers. As a step toward robust user experience, they undertook a project to completely rebuild and modernize their existing online life insurance application. Their goal was to **transform the single-page life insurance application (SPA) into a platform with a multi-step process**. They had decided to update the styling, add some new features and additional integrations. They wanted the application to load fast without malfunctions such as daunting page reloads and to have simple and convenient navigation.

But on the downside, A large-scale application transition change came with a high level of risk. When the company began to initiate Quality Assurance by the end of the project, they encountered a few major issues. They were starting to get a high volume of pop-up errors throughout the application process – and they were happening intermittently. To make the matters worse, it was difficult to reproduce the errors and identify the root cause of failures.

With both of these major errors occurring, the company had to ensure a responsive and scalable application experience, track the poor application performance, and understand its impact. Being a consumer web portal, the company resolved to conduct extensive compatibility testing and performance baselining to ensure that the user application performs over a wide range of technical specifications.

It was important for the enterprise to thoroughly benchmark the performance of the **newly upgraded platform**. The team was unable to reliably replicate the problem. In the screen-to-screen navigation on the application, the speed was incredibly slow. As more users came to use the process and application at the same time, the system could not handle the surge in workloads and there were instances of slowdown and outage of the application.

The Innovative, Meticulous Testing Methodology Of Aspire Systems

With the proliferation of digital applications for customers, it is increasingly vital for companies to methodically introduce new forms of practices, methodologies, and technologies. Keeping that in mind and also to provide a seamless, frictionless user experience, Aspire Systems resorted to accelerated testing and increased test coverage. This move was designed to maximize the company's productivity in a time span of just 15 days.

There were 3 globally distributed teams who took up the task. Interdependency among work streams was thus effectively handled. As one team did test design and wrote the test cases, test scenarios, and automated the test script development, the next team reviewed the test cases and helped with the script maintenance effort. This collaborative process provided more accountability, better coordination, and shorter iterations. Tested real user experience was an added advantage. We optimized the customer experience by testing real user journeys. **Continuously tracking this through the application enabled us to apply collective intelligence and effectively quantify the factors that influence software quality.**

Unlike the typical software development life cycle that involves a period of iteration, and a weeks-long review by a large team of testers after all the comprehensive quantification of changes, Aspire Systems' 15-day testing strategy enabled the release to be deployed faster. There was a clear shift from siloed testing of the application to more holistic test execution.

Test Optimization: Need For Speed Accomplished

In order to enhance the coverage of coverable test scenarios at a faster rate, Aspire Systems designed an innovative strategy that would catch most of the faults in the software without taking more than the scheduled time for testing. With the pairwise approach, we could cover **4000 data combination in only 275 test cases**. This algorithm helped us reduce test cases and thus empowered us with faster and easier testing capabilities. Pairwise testing helped our team of testers identify the optimum number of combinations. It significantly reduced the test set size and created the least number of tests with the highest amount of coverage.

From creating test parameters, defining test scenarios, and deploying execution, the pairwise approach optimized a mix of values, mitigated risks, and upheld measurable application quality standards.

It was necessary to document all the testing evidence — the test failures and non-reproducible errors. A lack of software documentation and fragmented testing processes result in poor resource control and monitoring. We provided comprehensive testing documentation that helped us to keep track of every step of testing processes including planning, and case execution.



We provided the client with an issue summary, browser performance metrics, test time, application specifics, browser HAR file, complete video recording, screenshots of checkpoints, roadmap to reproduce the issues, and expected vs. actual result. The best-in-class business process, application, and data model software documentation helped us develop a roadmap for testing in the long run that produces consistent, impressive ROI.

Test Automation: Design High-Impact Tests

The confluence of our capabilities to run rapid test cycles to release flawless apps, combined end-to-end customer experiences, helped the client with high performance up times and response times. To ensure maximum coverage, low-cost maintenance and minimal manual intervention, we turned to test automation. Automation was inevitable as a faster turnaround time was needed to build stability.

We also had to deal with

8 Microsites **17** different browsers and mobile device combinations.

Our hyper-testing approach for regression and compatibility tests helped us realize clarity on objectives, transparency, checkpoint reviews at every step of the way, immediate feedback, and collaborative reporting. Our core strategy involved using our core framework of **Selenium + TestNG** and we integrated with the SauceLabs execution platform.

For functional and non-functional tests, we followed a unified approach in identifying issues and our own homegrown, reliable test automation framework **AFTA 3.0** came to assist us with all the predefined components. It helped us to **automate the test cases 25% faster**. **JMeter** was used for **performance and load testing** to evaluate the application's responsiveness and **improve their testing procedures**.



Automation was the key to hunt bugs proactively and isolate tests feature-wise. The tightly knit automation from test-case generation, test optimization, to analytics, provided us with repeatable outcomes, and quicker testing turn-around time.

More Than Just A Search For Defects: A New Way Forward

Navigating the complex landscape of high exit rate due to intermittent, non-reducible pop-ups throughout the portal was a big challenge for Amica. It inevitably brought a host of challenges: inefficient testing contributed to increased risks and they discovered unexpected issues late in the project development lifecycle.

Aspire Systems deployed a host of pre-built automated test suites to improve reliability, increase repeatability, and identify critical issues as they are introduced. Gone are the days when our client was plagued by delays and missed timelines for the go-live of the life insurance portal. The robust documentation and business-friendly reports provided them with actionable metrics to diagnose and fix the issues.

Not only were they able to see a decrease in the number of failures and the failure rate during subsequent test cycles, but throughout the process and the additional testing the client was able to increase the speed. The application performed with the desired quality from screen to screen even with huge concurrent users. They were able to go live sooner with digital products that delight customers.



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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