



Aspire's End-to-End Testing Strategy Reduces **96% Testing Efforts** for a **Top American Retailer**





About The Customer

The customer is a leading American department store chain. They have stores in 16 Southern states and also have a growing digital presence. They offer a wide assortment of national brands and private label fashion apparel, shoes and accessories for people from all age groups along with cosmetics, a wedding registry and a large selection of quality merchandise for the home.

Challenges

To meet the broader industry imperative around “omni-channel retailing”, it became necessary for the retailer to make active changes in the form of in-store renovations and technology enhancements.

Founded in 1888, the chain suffered from a diluted brand identity in the early digital age and presently wanted to live up to its future vision of investing in technological enhancements to serve their customers.

Key Challenges During Transition

On the technology front, our customer needed to move to Salesforce Commerce Cloud for a unified and consistent customer experience and the following challenges were faced.

- Due to incremental changes during the transition, iterative phases of releases were planned and the customer could not compromise on test coverage.
- Exhaustive testing was required to mitigate challenges such as configurable behavior, integration-level dependency and constantly changing product data.
- It was also necessary to accommodate compatibility with multiple browsers and achieve integration.



The customer was also facing issues with integration of the New POS systems and Sales Audit system using offline operations. The following are the list of key challenges our customer faced during the transition from their **existing legacy system to the new POS and pricing systems:**

- Customer & Transaction Data Migration from Existing POS connected system to Current POS
- Testing Transactions data sync between the New POS and Old POS transaction
- Data replication without any lag and Data feed testing
- Testing diverse types of Price changes and stacked promotions and various levels of Promotions & Coupons with multiple combinations of Inclusions & Exclusions.
- Payment service Integration Testing and Testing different layers of the Payment systems
- To ensure that the Pricing systems are well integrated with the Store systems and eCom systems
- To have multi-level of price changes & Promotions categories
- To have multiple rounds of regressive testing since the Pricing system is integrated with multiple end systems and customer-facing systems
- That is when Aspire suggested their flagship Retail automation framework DCqaf, Xstore POS and Oracle RPM to help the customer overcome the challenges. In order to mitigate the risks associated with incomplete test coverage during the transition, they needed an expert partner that can take care of the quality assurance aspect.





Solutions

With an implementation as large and complex as a new digital commerce application, Aspire's DCqaf (Digital Commerce Quality Automation Framework) had the potential to interact with several varied components that together constituted their overall testing landscape.

Salesforce Commerce Cloud

Aspire's client engagement happened in the following manner:

- As a large number of distinct components had to come together for the retail product, Aspire's team first understood their specific business needs to ensure full coverage of requirements based on priority
- The test-case flows were dynamically controlled by the framework based on the site behaviour
- Test Scripts were designed to verify the configurable behavior along with the core functionalities like Order Total, Discount/Coupon Calculation and integrations like Tax Calculation and Address Validation
- Compartmentalized testing approach was followed to ensure zero defect leakage, ensuring complete coverage of each component tested
- Customized DCqaf to provide complete automation coverage over various 3rd party tools like Fraud Management, Tax Calculation, Customer Verification, etc
- Mobile App Automation using Appium for iOS and Android devices were performed effectively to cover the end to end functionalities
- The cohesive nature of the framework helped to leverage cross-browser testing and generate customized reports for business owners to validate the test results



POS and Pricing Systems

Aspire pitched in their POS and Pricing systems, using the experience and expertise in providing excellent testing services with a Retail domain capability. As a part of the transformation process, the following were done:

- A customized DCqaf provided complete testing coverage over various 3rd party tools like Fraud Management, Tax Calculation, Customer Verification, etc. with test scripts designed along with core functionalities like POS Operations, Order Total, Discount/Coupon Calculation, Promotions and Pricing.
- Aspire took the complete ownership of Testing the POS Application and Pricing systems and its integration layers to deliver it with good quality. Currently, the New POS is piloted to 4 stores and it is running through without any key issues.





Solution in Detail

List of Key areas of POS and Pricing system in which Aspire helped the customer on testing till E2E and Integration part

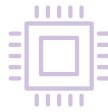
General POS Operations	<ul style="list-style-type: none"> • Perform Sales (Regular, Send Sale & Online Orders) • Voiding Transactions • Layaway Transactions • Suspend & Resume Transactions
Return/Exchange	<ul style="list-style-type: none"> • Performs Return Transactions with/Without Receipts • Performs Exchange Transaction With/Without receipts • Cross Channel Returns • Account Look-up Returns
Promotions & Discounts	<ul style="list-style-type: none"> • Apply multiple types of Promotions to the Products. • Applying Item/Transaction level discount • Providing Associate Discount/Offer • Coupons • Price changes • Zone level Promotion & Price changes • Simple Promotions • Complex Promotions • Layered promotion • Associate discounts
Tenders	<ul style="list-style-type: none"> • Providing different types of Tenders like <ul style="list-style-type: none"> • Cash • Credit/Debit Cards • Instant Credit • Gift Cards • Foreign Currency • Check... Etc. • Account Payment



Reports	<ul style="list-style-type: none"> • Performs diverse types of Reports like <ul style="list-style-type: none"> • EOD Report • Sales Analysis Report • Data Analysis Report • Time Analysis Report • Discounts Report • Layaway Report • Price Change Report • Tender Report ...Etc.
Sales Audit Verification	<ul style="list-style-type: none"> • Verified all the different types of transactions in ReSA. <ul style="list-style-type: none"> • Regular sales • Returns • Account Payments • Post Voids/Cancel transactions • Online Order transactions
Price changes & Clearance	<ul style="list-style-type: none"> • Regular price & Original price changes • Multiple Markdown sequences
List of Integration systems to perform testing with New Pricing systems	<ul style="list-style-type: none"> • OMF • EDW • MDO • PMF • Ecom • POS • Coupon • RMS
List of testing which Aspire will be performing as part of New Pricing Systems	<ul style="list-style-type: none"> • Smoke Testing • System Testing • Integration Testing • Regression Testing • End – End Testing



Technology Snapshot



- » **Testing framework:** Selenium, Appium
- » **Cloud-based testing platform:** Sauce Labs, Browser Stack
- » **Programming language:** Java
- » **Unit testing framework:** TestNg, Junit
- » **Automation tool:** Maven
- » **Version control tools:** SVN, GIT
- » **Defect tracking tool:** JIRA
- » **Continuous Integration tool:** Jenkins
- » **Development environment:** Eclipse, Netbeans
- » **Test management system:** TestLink

Results and ROI

Here are some of the key benefits that the customer derived:

- Using re-usable components helped to accelerate their automation efforts
- Automation reduced 96% of the overall manual efforts and improved test efficiency while also optimizing the time spent on business critical Salesforce Commerce Cloud Configuration
- A zero percent defect leakage was maintained throughout the engagement
- Supported parallel execution and ensured integration to perform cloud-hosted cross-browser testing for web and mobile application
- Cloud-based parallel Cross-Browser Testing effectively reduced the total cost incurred and provided maximum savings
- Prepared around 750 Test cases as part of Regression suite for POS Testing and reported around 1000+ defects during the Implementation phase.



Web Automation Testing Status					
	Total Test Cases	Automated	Automation % Coverage	Manual Effort (Hours)	Automation Effort (hours)
Desktop	1300	1120	82	320	10-12
Mobile	1200	1020	86	290	9-11

Cloud based parallel Cross-Browser Testing effectively reduced the total cost incurred and provided maximum savings

Total Savings – Month on Month					
Month #	No. of Resources	Total Cost of Development/ Maintenance of Automation Scripting in \$	Automation % Coverage	Cost Savings in \$	Cost Savings in %
Month 1	10	\$33000	30%	\$0	0%
Month 2	10	\$33000	60%	\$0	0%
Month 3	8	\$26600	80%	\$5,400	19.39%
Month 4	6	\$20200	100%	\$11,800	38.79%
Month 5	3	\$10200	100%	\$21,400	69.09%

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Future Impact

With a powerful test automation solution, Aspire empowered the customer with greater automation capabilities for the continuous delivery of applications at a faster speed to market. Our Integrated Digital Commerce Quality Automation Framework would give our customers a competitive edge with their customer promotions and loyalty programs in an industry evolving at breakneck speed, rapidly delivering exciting, new features to customers. It would ultimately boost its customer acquisition strategy and improve bottom lines.



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