A cloud-based TMS company enhances its Security and Performance through Test Automation

TRIGENT
OVERCOMING LIMITS

Summary

Trigent developed a unified platform for shippers, carriers, and other stakeholders to get quotes, exchange information, and transact business across different systems in use by the parties in the ecosystem. It helped the client grow their market and integrate new TMS and supply chain software vendors within a shorter span of time. Shippers get an optimized rate for their shipment, the carriers' network benefit from end-to-end visibility in the supply chain model.

Technology Stack

Java   Selenium   JUnit 5   APACHE JMeter™

About the client

The client is a leading provider of the cloud-based transport management system. They introduced the industry's first multimodal transportation management system (TMS) offering unlimited rating, booking, and tracking of Full Truck Load (TL), Less Than Truckload (LTL), and parcel freight.

The Free Shipper solution enables shippers to compare rates across multiple transportation carriers, shipment modes, freight load, destinations, and service days. It also allowed consumers to get one consolidated POD for the transaction. The Freight Intelligence solution uncovers new opportunities for cost reduction and supply chain improvements by leveraging predictive analytics.

Business challenge

The multi-carrier transport model required multiple platforms across the partner network to function as one. Each carrier partner-operated different systems offered diverse web services and used different terms for the same attribute or parameter. As partners operated independently, the onus was on the client to architect a solution that integrated data into a single environment. The architecture needed to scale to support individual carrier partners and be versatile to support diverse customer business needs. Customer orders needed to be formatted to be compatible with partner system capabilities.

Dynamic comprehensive solution by Trigent

The solution had to meet multiple business needs with a complex network of interfaces.

A platform to request offers from carriers for a customer shipment, receive quotes	APIs that convert the requests and quotes into formats as supported by different carriers
Rating engine to process the quotes and present the optimized cost/rate for the customer	Front end UX for customer, carrier, and other stakeholders

The challenge was to simplify the complex routing logic and architect and deliver an intelligent solution. Trigent developed a phased approach to developing the solution.

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Trigent Software Inc.
2 Willow Street, Suite #201, Southborough, MA 01745

Standardized flows; design & development of the engine

- Integrated more than 100 logistics companies with different formats and requirements on a single platform
- Designed and developed custom APIs for the client TMS (over 250 till date)
- Developed end-to-end workflow from getting rate quotes, booking, cancelations, retrieving BOL, POD, invoice documents, transit time, and tracking shipment

Responsible testing approach & intelligent automation

Trigent worked closely with the client's engineering team and operated as an extended team of the client. We integrated quality right from the requirements gathering and design phase and worked with all stakeholders to ensure rigorous QA before the application was pushed to production. Trigent built a test automation strategy that covered the key business process flows, user experience, technology integrations, and performance. Trigent's automation engineers developed robust automation test suites using Selenium for UI Testing, JUnit for Unit Testing, and JMeter for Performance Testing. Innovative testing methods reduced the chronic "backlog" issue—shortening cycle times and accelerating time-to-innovation. Our test automation framework reduced the test execution time by 70% and improved QA efficiency.

Designed for scaled performance & enhanced security

Trigent's QA testing team integrated security and performance testing as part of the rapid onboarding process of carriers. Our team ensured that the quality of both the functionality and experience of the platform was intact when it was scaled up. They assessed potential risks early on, made vulnerability checks, and put a robust system together to quality test every new addition to the platform. Security testing was done to protect sensitive information and business data, manage risks of data leakage, flawless functioning, significantly mitigate risks.

Client benefits

Our solution helped the client to rapidly grow their customer database in a short span of time. The company successfully added over 200 new customers in less than 5 months. Our QA framework with streamlined QA process, ensured timely and high-quality delivery.

Reduced customer onboarding time from 3-6 weeks to 1-3 days

Ability to add multiple carriers in shorter lead times

Scaled to process 750k+ rate quotes requests per day

Defect leakage to production reduced to 5%

Quality checks were added when new carriers were added

Our engagements continue with the client as we focus on accelerating new feature developments with a deeper understanding of the business. As we continue to deliver value, our relationship is now 5+ years and growing stronger.

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