



UniCommerce: Powering Seamless Automotive Retail for 450+ Dealerships with a Multi-Tenant E-Commerce Platform

Draft: v1.8

Last Updated: 3rd March 2025

Executive Summary	3
Problem Statement	3
Solution Provided	3
Technical Architecture.....	4
Challenges Faced	5
Results	5
Conclusion	5

Executive Summary

This case study outlines how Atyantik Technologies helped a leading automotive solutions provider deliver a robust multi-tenant e-commerce platform—UniCommerce—tailored for automotive dealerships. Designed to serve over 450 dealer websites across North America, the platform ensures high availability, unified infrastructure, and frictionless digital retail experiences. With a 99.9% SLA and highly optimized onboarding process, the platform enabled rapid scalability while ensuring consistency, compliance, and performance across hundreds of tenants.

Problem Statement

The client, a digital services company specializing in automotive marketing and technology, needed to scale its infrastructure to support hundreds of dealership e-commerce sites. Their previous system suffered from the following limitations:

- Lack of multi-tenancy support led to code duplication and inconsistent feature rollouts.
- Onboarding new dealerships was slow and prone to human error.
- System updates and content deployments varied across clients, causing fragmentation.
- Downtime and performance variability during traffic spikes impacted client trust.

To stay competitive, the client required a unified, scalable architecture capable of:

- Serving 450+ dealers with individual branding and configuration
- Maintaining consistent performance with high uptime SLAs
- Streamlining the onboarding of new dealerships
- Supporting frequent updates without disruption

Solution Provided

Atyantik Technologies designed and delivered **UniCommerce**, a multi-tenant automotive e-commerce platform that centralizes core logic, streamlines updates, and enables customizable experiences per dealership.

Key features included:

- **Multi-Tenant SaaS Engine:** Built with Laravel and Node.js, enabling independent dealership sites to share a single codebase while supporting brand-specific customizations.
- **Dealer Onboarding Workflow:** A React-based admin panel with intelligent wizards allowed sales and support teams to launch new dealers in under 30 minutes.
- **Global Component Library:** Modular UI components ensured consistent UX while allowing for brand-specific overrides.
- **Real-Time Vehicle Feed Integration:** Scheduled ingestion and syncing of vehicle inventory via APIs and flat file parsers, compatible with over 15 DMS and inventory providers.
- **Marketing Automation Tools:** Dealerships could launch promotions, update banners, and manage landing pages through a no-code visual builder.
- **High SLA Infrastructure:** Hosted on a fault-tolerant Kubernetes cluster with autoscaling, reverse proxy cache layers, and zero-downtime CI/CD pipelines.

Technical Architecture

UniCommerce was built with performance and modularity at its core:

- **Frontend:** React with Next.js SSR for SEO-friendly dynamic content.
- **Backend APIs:** Laravel for core business logic and Fastify (Node.js) for real-time data pipelines.
- **Database:** PostgreSQL with multi-schema support per dealership, Redis for in-memory cache, and Elasticsearch for lightning-fast vehicle search.
- **Hosting:** Google Cloud Kubernetes Engine with autoscaling and managed SSL via Cloudflare.
- **CI/CD:** GitHub Actions and ArgoCD for seamless code promotion and rollback.

Security and performance were enhanced using:

- JWT-based authentication with scoped dealer access
- NGINX reverse proxy for CDN and caching
- Monitoring via Prometheus + Grafana dashboards

Challenges Faced

- **Schema Isolation at Scale:** Supporting 450+ active tenants required tight database design and resource isolation strategies.
- **DMS Feed Variability:** Standardizing vehicle feeds from diverse DMS systems with inconsistent formats required custom data transformers.
- **Brand-Specific Overrides:** Implementing a plugin-style override mechanism while keeping core logic centralized was a key architectural milestone.
- **Zero-Downtime Deployments:** With high SLA requirements, we implemented blue/green deployments and database migration versioning to avoid interruptions.

Results

The UniCommerce platform delivered tangible results that empowered the client's dealership network:

- **99.9% SLA** met consistently over 12 months
- **30-minute dealer onboarding** reduced setup time from days to minutes
- **60% improvement in performance scores**, especially for mobile-first UX
- **Unified updates and feature rollouts** across all tenants
- **450+ active dealerships** supported with customizable retail experiences

Conclusion

By building UniCommerce, Atyantik Technologies enabled the client to modernize their automotive retail offering into a truly scalable, enterprise-grade e-commerce ecosystem. This multi-tenant platform not only supports hundreds of dealerships but also futureproofs the business with agility, uptime, and performance at scale. The success of UniCommerce sets a benchmark in the digital transformation of the automotive retail sector.