CASE STUDY

Accelerating Warranty Operations and Enhancing Dealer Experience with MuleSoft Integration

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Key Issues

- Dealer experience lacked consistency across channels
- Legacy command-line interfaces hindered usability
- API specifications were not standardized across systems
- Manual deployment processes increased risk and delayed timelines
- High operational overhead for onboarding new clients and infrastructure
- Integration issues with JWT-based digital signatures in payment systems
- Pressure to meet tight SLAs and Agile delivery expectations

Solutions

Aspire delivered a resilient MuleSoft-based integration platform using microservices and reusable APIs hosted on CloudHub. The architecture supported multi-tenant routing, auto scaling, and secure transaction processing using ActiveMQ.

About the Customer

The customer is a global provider of risk management solutions, serving the automotive, lifestyle, and housing sectors. With a workforce of over 15,000 employees and an annual revenue of $10.4 billion, they offer innovative products that protect against property damage, financial loss, theft, and more. The company plays a pivotal role in enabling warranty coverage during second-hand vehicle purchases, helping both businesses and consumers manage risks efficiently.

Highlights

To scale their automotive warranty business, the customer sought to improve product accessibility and dealer experience. The initiative aimed to support warranty operations for products such as Third-Party Warranty, Vehicle Theft Protection, GAP (Guaranteed Asset Protection), and Exterior/Interior Warranty. The goal was to build a robust backend platform to integrate warranty processes across digital and physical channels enabling consistent contract management for purchases, renewals, and claims. Aspire was brought in to evaluate the existing systems and deliver a middleware solution capable of seamlessly connecting frontend portals with backend infrastructure.

The Challenges

The customer faced a complex set of business and technical challenges that were impeding their efforts to scale warranty operations and enhance dealer engagement:

1. **Fragmented Dealer Experience Across Channel**
   Warranty contract operations such as purchase, renewal,

Automated DevOps pipelines reduced manual effort, ensured zero transaction loss, and improved SLA adherence. Key features such as JWT integration, bundled deployments, and cost-effective reuse of API migration patterns helped the customer meet aggressive timelines while lowering operational overhead.

Benefits

- Reduced claim creation time by 50%, from 20–30 minutes to just 10 minutes.
- Automated CI/CD workflows eliminated manual errors and increased deployment consistency.
- Lower infrastructure costs with multi-tenant support and no need for redundant servers.
- Accelerated go-to-market through reusable deployment patterns and minimized migration efforts.
- Enhanced developer efficiency, cutting down project cycle time by up to 30%.

and claims, needed to be available across mobile apps, web portals, and physical dealership locations. However, the absence of an integrated omnichannel strategy led to inconsistent user experiences, making it difficult to onboard and retain dealers.

2. **Outdated Legacy Interfaces**
   Several backend systems were still relying on legacy command-line interfaces, which were difficult to use and maintain. These outdated systems hindered usability for both internal users and external partners and created barriers to automation and modernization.

3. **Rigid and Redundant Infrastructure Requirements**
   Each new client's addition to the platform required the setup of dedicated server infrastructure, increasing operational costs and slowing down onboarding. The lack of a scalable, multi-tenant architecture led to significant resource duplication.

4. **API Design and Integration Gaps**
   A "contract-first" approach was being used for API development, which required early and precise alignment between source and destination systems. However, the absence of a reference architecture and standardized API governance led to inefficiencies and integration inconsistencies.

5. **Inconsistent Testing Across Multiple Systems**
   The customer's environment involved multiple interdependent systems operating simultaneously. Without a streamlined testing strategy, the team faced challenges in maintaining quality assurance and ensuring seamless functionality across all systems.

6. **Compliance and SLA Pressures**
   Strict service-level agreements (SLAs) applied to the APIs being developed. Meeting performance, availability, and response-time commitments under tight Agile delivery timelines added significant pressure to the development and deployment cycles.

7. **Security Integration Challenges (JWT Limitations)**
   A critical payment platform integration required support for JWT-based digital signatures. However, native limitations in MuleSoft made it difficult to implement this feature, delaying connectivity and posing a security compliance risk.

8. **Manual DevOps and High Technical Debt**
   The existing build and deployment processes were manual and error-prone, consuming valuable development bandwidth. This contributed to mounting technical debt and increased the risk of deployment inconsistencies, negatively affecting time-to-market and platform stability.

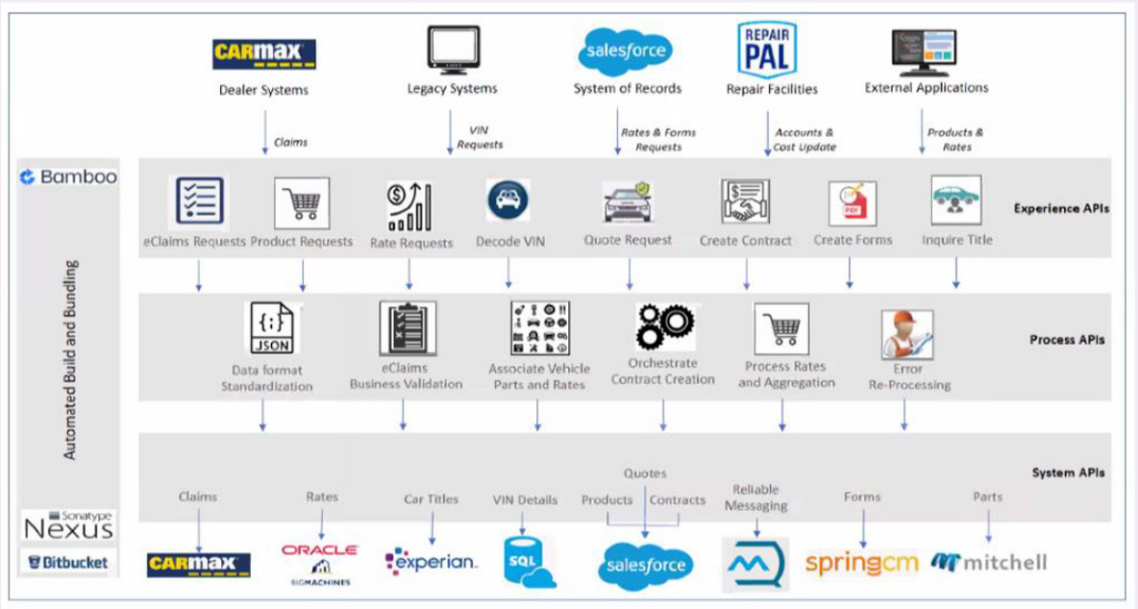
The Solution

Aspire's solution was to establish a MuleSoft-based middleware integration platform to support the customer's digital initiatives within the warranty business. The architecture was designed to be stable, scalable, and performance-oriented, leveraging microservices-based reusable APIs. These APIs were deployed on CloudHub to ensure high availability and auto-scaling across multiple instances. To prevent transaction failures, ActiveMQ was introduced into the integration layer, allowing reprocessing of failed transactions. Aspire also implemented MuleSoft's reference API architecture with a multi-tenant process layer to avoid additional infrastructure requirements. Furthermore, a fully automated DevOps pipeline using Bamboo CI/CD was designed to accelerate deployments and reduce manual intervention:

- **Cloud-Hosted Microservices Architecture:** Built a reusable API using MuleSoft deployed on CloudHub, supporting scalability and auto-provisioning.
- **ActiveMQ Integration:** Integrated native ActiveMQ in the middleware to ensure transaction durability and reprocessing in case of failure.

- **Multi-Tenant Process Layer:** Enabled intelligent client-specific routing without the need for redundant infrastructure or memory allocation.
- **Automated CI/CD Pipeline:** Leveraged Bamboo to automate code promotions from DEV to QA, eliminating manual handoffs and increasing reliability.
- **Bundled API Deployment Strategy:** Designed an applied bundled architecture to group APIs for optimal vCore usage and efficient go-live execution.
- **Reference API Design:** Adopted MuleSoft's best-practice API architecture to ensure maintainability, flexibility, and modular growth.
- **Enhanced Monitoring & SLA Compliance:** Enabled real-time SLA alerts and logging mechanisms to minimize downtime and ensure proactive issue resolution.
- **DevOps-Driven Cost Efficiency:** Reduced project lifecycle costs by streamlining deployment, maintenance, and operational oversight.

Architecture Diagram



The Results

Aspire's MuleSoft-powered integration solution significantly accelerated the customer's ability to deliver a seamless, scalable, and automated warranty management experience. The platform provided operational agility, performance, and cost benefits that aligned with business goals.

KEY OUTCOMES:

- Claim creation time reduced by 50%, dropping from 20–30 minutes to just 10 minutes.
- Zero manual deployment errors due to end-to-end CI/CD automation.
- Flexible and modular architecture enabled faster adaptation to business changes with minimal rework.
- Quicker go-to-market using predefined API migration patterns, cutting operational costs.
- Significant cost savings by eliminating the need for dedicated migration teams and reusing automation frameworks for future integrations.
- Improved maintainability with consistent build, deployment, and monitoring practices.
- Streamlined scalability by introducing multi-tenant API routing without infrastructure duplication.

Technology Snapshot

- **MuleSoft Any point Platform:** Core integration and API lifecycle management
- **MuleSoft 4.0: E**nhanced version with improved DataWeave and connector capabilities
- **MuleSoft API Gateway & Management:** For secured API exposure, throttling, and SLA policies
- **CloudHub:** Scalable, multi-instance cloud runtime for deploying APIs
- **ActiveMQ:** Integrated message broker to ensure reliable and fault-tolerant transaction handling
- **Bamboo CI/CD:** Automation pipeline for continuous integration, testing, and deployment

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