

Revolutionizing Retail: Modernizing Integration Platforms with MuleSoft

ORGANIZATION

XTIVIA’s client is a prominent department store chain operating across 16 states with nearly 300 locations. They specialize in offering an extensive range of apparel, footwear, accessories, cosmetics, home furnishings, and wedding registry services. The organization is committed to delivering exceptional customer experiences through innovation and technology, ensuring seamless omnichannel retailing for its diverse clientele.

CHALLENGE

As a technology leader in the retail sector, the client faced challenges in scaling its mission-critical systems, which handle high-volume, high-velocity data movement between on-premises and cloud environments. The need for ultra-low latency and high-performance integration exposed several limitations of the existing integration platform, including:

- **Inefficient Load Balancing:** Deployed jobs in Load Balance mode did not distribute workloads effectively, resulting in uneven resource utilization.
- **Fault Tolerance Gaps:** Failover mechanisms were inadequate, requiring manual intervention when jobs failed unless the job server was completely down.
- **Suboptimal Multithreading:** Parallelized jobs consumed excessive CPU and memory resources, leading to inefficiencies and performance bottlenecks.
- **Data Sharing Challenges:** The platform lacked robust mechanisms for seamless data sharing across jobs compared to modern integration technologies.
- **Limited Cloud Connectivity:** A restricted number of cloud connectors hindered high-throughput messaging and efficient data integration with cloud-based systems.

TECHNICAL SOLUTION

XTIVIA collaborated closely with the client to modernize their integration platform using the **MuleSoft Anypoint Platform**. The solution encompassed a comprehensive lifecycle approach, addressing the client’s needs from proof of technology to production deployment:

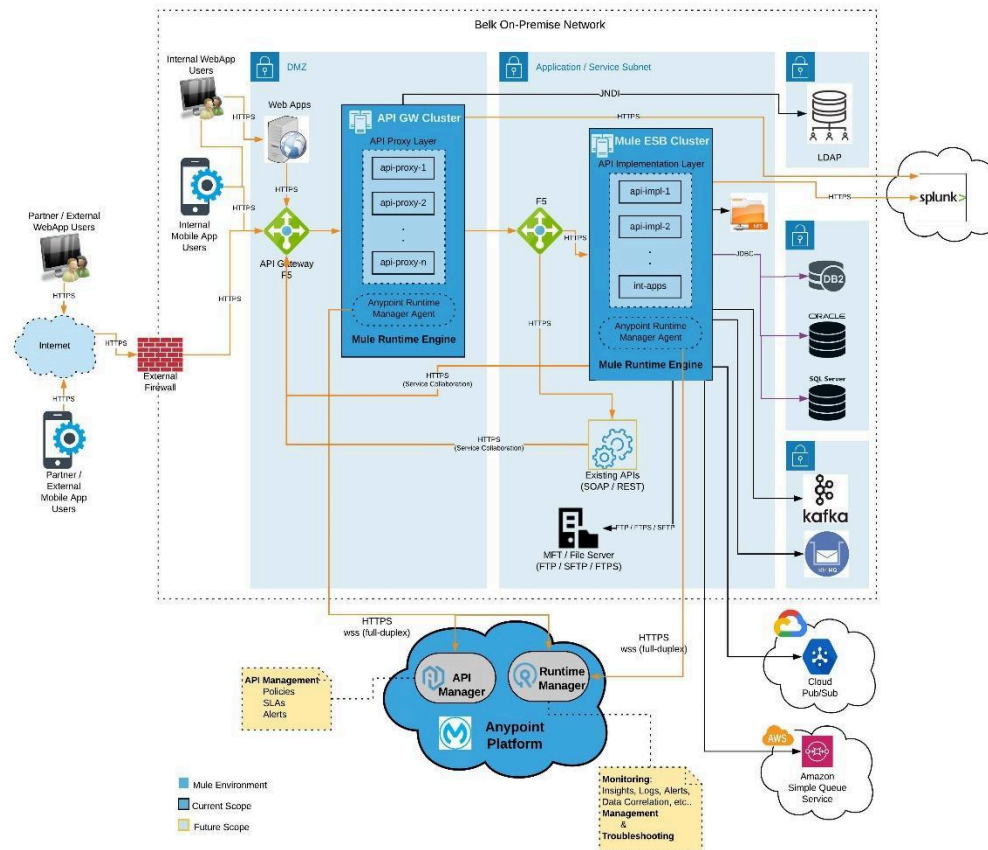
Proof of Technology (PoT)

XTIVIA conducted a detailed assessment of existing use cases, data sources, and integration patterns. Common use cases were prototyped to validate MuleSoft’s capabilities in addressing the client’s high-velocity, low-latency requirements.

Use case	Description	Throughput requirement	PoC Results	Status
Pub-sub (batch)	Integrate on-premise data source with cloud target using pub/sub	60,000 messages/hour (17/sec)	2,000+ message/sec	
File transfer	Data format transformation and file transfer	10 tps 1024KB message size	100+ tps?	
Streaming	Integrate on-premise data source with cloud target via streaming pattern	2,500 messages/sec normal volume 6,000 messages/sec peak volume	7,500+ tps	

Secure Environment Setup

- **Perimeter Security:** MuleSoft API Gateway was provisioned within a secure DMZ to ensure enterprise-grade security.
- **Integration Layer:** The ESB was deployed in the internal network with traffic routed via an F5 load balancer for enhanced performance and fault tolerance.
- **MuleSoft Cloud Hosting:** Control planes such as API Manager, Monitoring Dashboard, and Runtime Manager UI were securely hosted in MuleSoft Cloud to streamline operations.



API Development

XTIVIA developed APIs tailored to enable seamless data flow across on-premises and cloud environments. Key integrations included:

- **Salesforce Marketing Cloud to IBM MQ and Google Pub/Sub** for order flow synchronization.
- **Order Movement:** From on-premises IBM MQ to cloud destinations such as **Google Pub/Sub, Azure Storage, Google Storage,** and an **NSF Shared Location.**
- **Workday Integrations:** Workday to Manhattan Active® Omni for item synchronization, and Workday to Lawson for order synchronization.
- **Chargeback Pricing:** RMS to Chargeback integration for real-time price calculations.
- **Inventory Management:** RMS to Manhattan Active® Omni item synchronization.
- **Automated Testing:** Comprehensive MUnit tests ensured robust unit testing and validation.

BUSINESS RESULT

The implementation of MuleSoft APIs delivered transformative outcomes for the client:

- **Curbside Pickup Enablement:** Rapid deployment of APIs facilitated seamless curbside pickup during COVID-19.
- **Omnichannel Retailing:** Integration with SaaS platforms like Salesforce, Manhattan WMS, Chargeback, and Lawson enabled a unified customer experience.
- **Scalable & Elastic Platform:** The modernized integration platform supported seasonal order surges, ensuring business continuity during peak periods.

KEYWORDS

MuleSoft Anypoint Platform, MuleSoft Runtime Manager, MuleSoft Anypoint Monitoring, API Modernization, Integration Platform Modernization, Omnichannel Retailing, High-Velocity Data Integration, Cloud-Native Integration, API Gateway Security, Enterprise Integration Modernization, Multicloud Integration, Elastic API Platform

SOFTWARE

Mule Runtime, MuleSoft Anypoint Platform, MuleSoft Anypoint Monitoring

ABOUT XTIVIA

At XTIVIA, we've been providing IT solutions and consulting services for over 30 years with a wide range of services, including technology assessments, IT service and asset management, software development, data analytics, cloud migration, DevSecOps, ERP, and enterprise content management. Dedicated to each discipline, ensuring that our clients receive the best possible service. Through strategic acquisitions, we've acquired talented people who are experts in their industries, passionate about what they do, and committed to providing exceptional service to our clients. Whether you need to improve your IT infrastructure or implement new software solutions, XTIVIA is here to help you achieve your business goals. XTIVIA has offices in Colorado, New York, New Jersey, Texas, Virginia, and India. www.xtivia.com