



Case Study

Retail Infrastructure Transformation

Location
United Kingdom

Industry
Retail

Challenge

When the client, a major British e-commerce and technology company, (operating as a global online retailer and brand owner), approached Zenitech, they faced a critical infrastructure crisis that was directly impacting their bottom line during the most crucial trading periods of the year.

Their existing order messaging platform, the message-oriented middleware responsible for handling all order processing and data flow between their e-commerce websites and automated warehouse systems, was showing signs of instability.

The stakes couldn't have been higher. Even brief system failures lasting just 15 to 30 minutes during peak trading meant cancelled orders and lost revenue. With traffic surging during major sales events, the company needed absolute reliability.



Solution

Zenitech took full ownership and accountability for their messaging infrastructure challenge, building a new ActiveMQ-based messaging system designed from the ground up for reliability and scale.

Building a stable messaging platform

Zenitech's primary objective was to build a new messaging platform that would be significantly more scalable and reliable than the legacy system. The team developed a greenfield solution implementing "Messaging as a Service" to replace the existing architecture, working across messaging technologies including ActiveMQ, Kafka, RabbitMQ and Artemis.

The new system was built to handle all messaging for orders and data flow across their operations, including the critical connection between the website and the automated warehouse where robots collect and pack orders. This infrastructure supports all THG brands, as the underlying infrastructure is shared across the entire group, handling over 25,000 transactions per second at peak.

Infrastructure and automation

The team delivered comprehensive application infrastructure and middleware, alongside infrastructure automation to ensure the platform could be maintained and scaled efficiently.

To ensure complete visibility and proactive issue resolution, the team deployed extensive monitoring solutions.

Performance assurance

Critical to their success during peak trading periods (like Black Friday and Cyber Monday), the team implemented rigorous load testing protocols to ensure the infrastructure could handle extreme traffic



volumes. This proactive approach to assuring stability extended across all their brands, with the team's work focused purely on the server-side infrastructure supporting the online and e-commerce operations.

The team also delivered DevOps infrastructure support, including patching of virtual machines, and provided infrastructure for the LiveRamp application.

Outcomes

The new messaging system built by Zenitech has fundamentally transformed their ability to capitalise on peak trading opportunities, delivering reliability that was previously unimaginable.

Zero incidents across four years

Since Zenitech built, deployed and maintained the new messaging system, they have experienced zero incidents across four years of operation. This includes flawless performance during the most demanding trading periods of the year, when even minutes of downtime would translate to significant lost revenue.

Most impressively, the infrastructure has handled traffic volumes three times larger than anything previously tested, all without a single failure. This reliability has been achieved whilst the system processes hundreds of orders per second during peak periods, demonstrating the robustness of Zenitech's solution.



Executive recognition

The impact hasn't gone unnoticed at the highest levels. Zenitech received recognition from top-tier management specifically for their performance during the Black Friday period, where the company achieved zero issues, a stark contrast to the critical failures experienced under the previous system.

The transformation from an unstable, unreliable platform to one with absolute stability became evident very soon after deployment. This has been the foundation of a partnership that has continued for five years, with further collaboration planned for their Google Cloud Platform migration.

Business confidence restored

Most fundamentally, Zenitech has delivered what they needed most: stability. The assurance of no downtime or incidents during critical trading periods has restored business confidence in the infrastructure, allowing them to focus on growth rather than crisis management. The key outcome, absolute reliability when it matters most, has transformed the messaging infrastructure from a business liability into a competitive advantage, enabling them to handle hundreds of orders per second during peak periods without any concerns about system failure.

Technology used

Infrastructure: Kubernetes, Azure Devops, Linux servers, Vmware, Openstack.

Monitoring solutions: Dynatrace, ELK, Zabbix, Grafana, Nagios, Graphite, Prometheus.
Automation: Git, Jenkins, Ansible, Git-Actions, Python.

Messaging tools: ActiveMQ, Kafka, RabbitMQ, Artemis

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