



CASE STUDY

Branded payments leader retired technical debt

Blackhawk modernized its database and retired its technical debt by adopting Amazon Managed services. Blackhawk's migration, facilitated by Mactores, led to a 4x performance increase, 60% code optimization, cost reductions, and near-zero downtime.



Case Study Summary

- Blackhawk Network's Marketplace Application had high annual costs and struggled with increased demand during the holiday season.
- Mactores DB Migration team assessed the application and database code and facilitated the migration of Hazelcast to Amazon ElastiCache.
- AWS SCT and AWS DMS were used for schema transformation and data migration, while Mactores Code Converter ensured compatibility with PostgreSQL.
- Blackhawk experienced a 4x performance increase, 60% code optimization, and cost reductions in licensing and enterprise support after the migration.
- Mactores Migration Framework helped achieve near-zero downtime, minimized disruptions, and saved over \$250,000 in resource effort costs.

About The Customer



Blackhawk Network delivers branded payment programs to help meet today's most challenging business objectives. They operate in the prepaid, gift card, and payment industries, selling branded physical and digital gifts, phones, prepaid debit, and incentive cards online and through a network of global retailers.



Customer Situation

Blackhawk developed their Marketplace Application using Java, Hibernate, Hazelcast, and Microsoft SQL as the backend. The application stack's annual cost on AWS infrastructure, including Hazelcast, Microsoft SQL, and Windows licensing, amounted to approximately USD \$900,000.

The Microsoft SQL database cluster comprised multiple data ingestion pipelines, a 20-node Hazelcast cluster supporting 40 microservices, and a BI platform that served as the reporting layer for the entire platform.

During the holiday season, the application experienced a significant increase in query volume, handling between 3 to 5 million daily queries, which was nearly four times the typical volume. This surge in demand strained the system, necessitating scaling while simultaneously driving up costs.



“Mactores is very detailed and great to work with and they are very knowledgeable in all AWS services.”

-Bipin Velkur, Senior Director of Engineering

Our Approach

The Mactores DB Migration team conducted a comprehensive analysis of the Blackhawk application and database object codes, taking into account stored procedures, views, and functions. They also evaluated the prerequisites for the successful migration of Hazelcast to Amazon ElastiCache.

To achieve the desired outcome, the team employed AWS SCT to transform the schema from MSSQL to PostgreSQL and used AWS DMS for a one-time migration and ongoing changes, ensuring a near-zero cutover window. The DB object code was converted with Mactores Code Converter to guarantee compatibility with the PostgreSQL schema and related application code references.

By leveraging Mactores Code Analyzer, the team identified necessary alterations to the application source code, guaranteeing seamless integration with PostgreSQL. Simultaneously, they pinpointed the code dependency for Hazelcast integration with MSSQL. The Mactores Code Converter was utilized to facilitate the adoption of Amazon ElastiCache and replicate Hazelcast to Redis on Amazon ElastiCache. Lastly, all SSIS integration packages were transitioned to Amazon Glue using Mactores SSIS to Apache Spark Converter, culminating in a successful migration process.

Business Outcomes

Following the Mactores Automation and Migration process outlined in the case study, Blackhawk reaped substantial rewards in terms of both performance enhancements and cost reductions. The company achieved a notable 60% code optimization, which translated into a remarkable 4x improvement in overall performance.

Moreover, Blackhawk successfully lowered its expenditures by over **\$300,000** in licensing and enterprise support costs. This significant saving was made feasible through the migration from Microsoft SQL and Hazelcast to AWS Managed Services, empowering the company to allocate resources more effectively and further improve its business operations.

In addition to these benefits, Blackhawk also saved more than **\$250,000** in resource effort costs, thanks to Mactores Automation and the migration framework. This additional saving further demonstrates the value of a well-executed migration strategy and showcases the efficiencies gained through automation.

Technical Outcomes

Blackhawk achieved several impressive technical outcomes following the migration process. By transitioning from Microsoft SQL Server on EC2 instances to Amazon Aurora PostgreSQL serverless, the company experienced a **4x** performance increase and a **70%** reduction in operational efforts, thanks to the serverless database architecture.

Utilizing Mactores Code Converter, the Blackhawk engineering team was able to test the application code and ensure seamless integration with various backends and third-party systems, streamlining the development process.

Furthermore, the Mactores Migration Framework played a crucial role in mitigating risks for Blackhawk during the migration. By adhering to an agile migration process, the company successfully achieved near-zero downtime, minimizing disruptions to their operations and ensuring a smooth transition to the new systems.

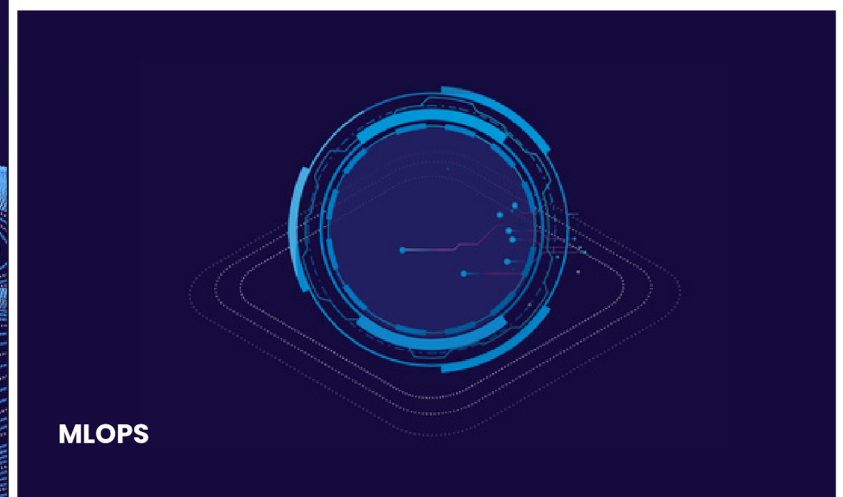
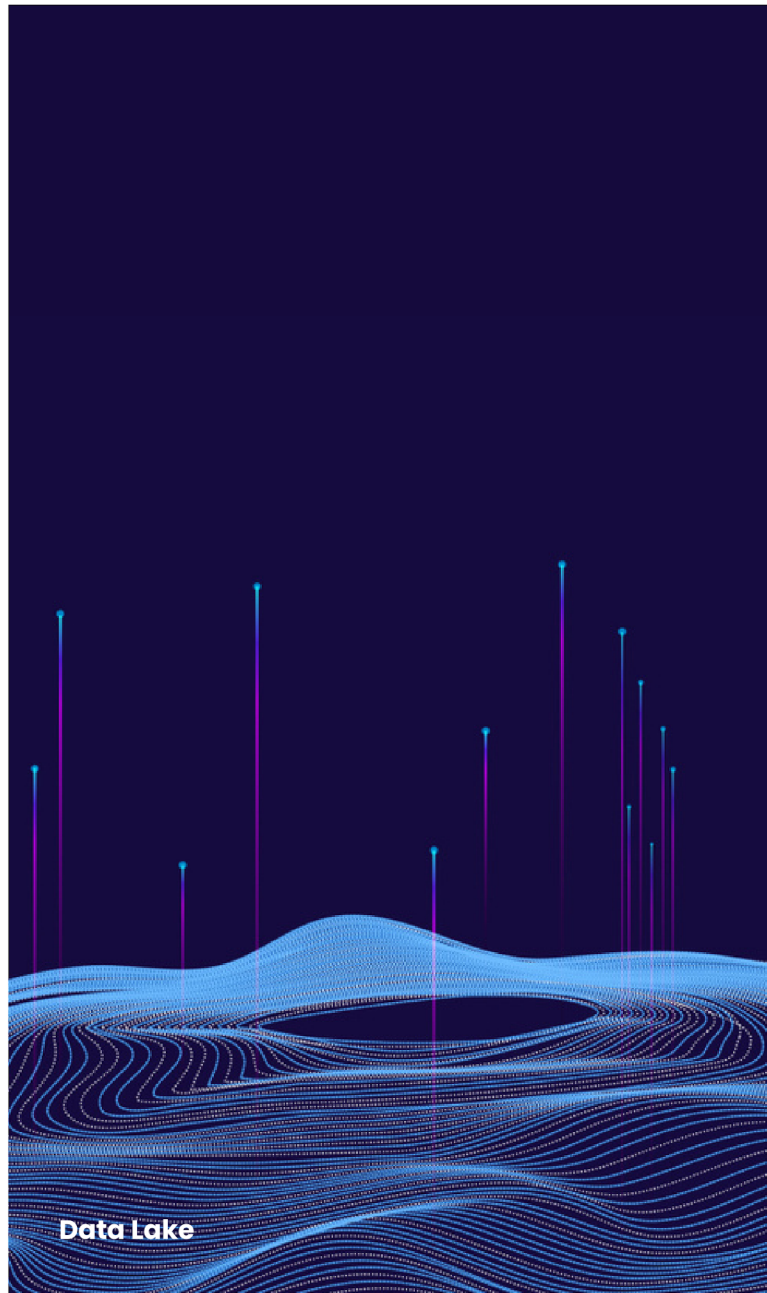


Getting Started

Blackhawk started with an immersion day to discuss their situation, which led to a 2-day workshop to ideate the path forward for Blackhawk's situation.

This workshop led to a four-week Proof of Concept, and upon the success of the POC, Blackhawk accelerated their migration using Mactores Accelerators in 16 weeks.

Our Solutions



Our Process

Digital transformation via assessments, migration or modernization

We work alongside your tech team to assess and strategize what you need and how to implement the right data solutions on time, on budget and with c-suite buy in.



Assess

- Discovery Automation
- Future State Assessment
- GAP Analysis
- End State
- Road Map
- TCO



Migrate

- Strategy
- Execution
- Migrate
- Migration Acceleration



Modernize

- StrategyFuture State
- Design
- Build
- Automate

AWS Validated Competencies



AWS Validated Service Deliveries



www.mactores.com/lets-talk

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