

Data Lake for AI-Driven E-Commerce Analytics

Executive summary

Optiwise was undergoing a company split and needed to deepen its analytics to support an AI-driven e-commerce platform. Threading Clouds executed a **lift-modernize-shift** AWS migration into a new AWS Organization and built a serverless data lake on S3, Lake Formation, Glue, and Athena — transforming Optiwise's analytical depth and elevating its capacity to drive informed decision-making in a competitive market.

The challenge

▶ Company Separation & Migration

Optiwise had to separate and migrate data and infrastructure to a new AWS Organization without disrupting operational capabilities of both companies.

▶ Data Analytics Gap

Existing infrastructure lacked the analytical depth to extract insights from vast e-commerce data to deepen understanding of market dynamics and consumer behavior.

▶ Scalable, Cost-Effective Foundation

The solution had to solve immediate analytical needs and provide a scalable foundation for data-driven innovation as the business grows.

AWS Migration and Data Lake for E-Commerce

During a pivotal company split, Optiwise needed to separate digital assets into a new AWS Organization and stand up a serverless data lake to power AI-driven e-commerce analytics. Threading Clouds delivered both in one engagement, with zero disruption to live operations.



About Optiwise

Founded in 2018, Optiwise revolutionized e-commerce with Optiwise.ai, an AI-driven platform that simplifies selling on Walmart through intelligent content management and optimization. Their team of e-commerce experts, data scientists, and engineers empowers brands with listing optimization, targeted ad campaigns, and real-time performance tracking.

Rahul Shah

CTO, Optiwise

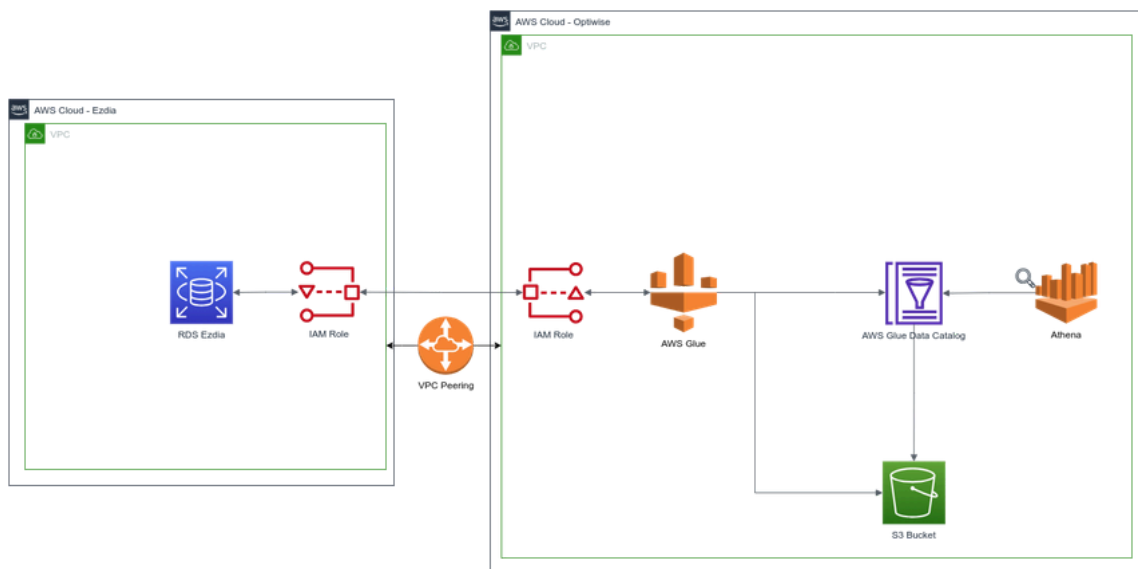
“Threading Clouds transformed our data capabilities during the most complex transition in our company’s history. The data lake they built gave us analytical depth we didn’t have before, and the migration was executed without a single disruption to our operations.”

Why Threading Clouds?

Optiwise needed a partner capable of managing both a complex AWS Organization migration and the simultaneous design of an advanced data lake, without disrupting their production e-commerce platform. Threading Clouds brought deep expertise in AWS migration strategies, data architecture, and serverless analytics services. Our ability to execute the dual challenge of organizational separation and data infrastructure modernization in a single coordinated engagement eliminated risk and accelerated time to value. As an AWS Select Tier Services Partner, Threading Clouds operates across the full stack — from AWS Organizations governance through Lake Formation and Glue to Athena query optimization — giving Optiwise a single accountable engineering partner across migration, data engineering, and analytics enablement.

The solution

Threading Clouds crafted a holistic solution centered on the strategic migration of digital assets to a new AWS Organization and the development of a robust serverless data lake. The migration was carefully planned to ensure zero disruption to ongoing operations, with cutover sequencing validated against production workloads before each step. The data lake was built on AWS S3 for durable, cost-effective storage; AWS Lake Formation for centralized governance, security, and data catalog management; AWS Glue for ETL processing and data integration from RDS Aurora sources; and Amazon Athena for powerful, serverless querying directly against the data lake. VPC Peering connected the source Aurora databases to the Glue processing layer, enabling secure cross-account data movement without exposing source systems to the public network. Lake Formation row- and column-level controls were applied so analytics consumers see only the data they're entitled to.





Results

The engagement delivered key outcomes for Optiwise: a streamlined operational framework and a meaningful uplift in data analytics capability. The migration to the new AWS Organization was accomplished with minimal disruption, laying a stable foundation for operational continuity and future scalability during a critical company separation. The deployment of the data lake significantly improved Optiwise's ability to analyze vast amounts of e-commerce data, leading to more nuanced insights into customer behavior and market trends that support smarter, data-driven decisions across the organization. Analytics that previously required custom development against operational databases now run as serverless Athena queries against governed, cataloged data, with the same governance policies whether the consumer is a dashboard, a data scientist, or an automated workflow.

Benefits

The solution optimized data processing and storage, delivering operational efficiencies and cost reductions that allow Optiwise to respond more agilely to market demands and strategic opportunities. Optiwise now benefits from a scalable, AWS-native data infrastructure capable of supporting the company's growth and evolving data needs without compromising performance or security. The project empowered Optiwise to foster a more data-driven approach across its teams, enhancing their ability to leverage data for strategic advantage and maintain a competitive edge in the e-commerce industry. Because the architecture is fully serverless, capacity scales automatically with data volume and query load.

Optiwise.ai

E-Commerce & Data Analytics

"Working with Threading Clouds has truly been a partnership built on trust and reliability. Their hardworking team has consistently demonstrated their commitment and dedication, bringing valuable strategic insights and technical expertise to our project. We greatly value their contributions and look forward to continuing this strong partnership with Threading Clouds every step of the way."



Next steps

With the data lake operational and the AWS Organization migration complete, Optiwise is positioned to expand its analytical capabilities further. Threading Clouds continues to support Optiwise in optimizing their data pipelines, exploring advanced analytics use cases including machine-learning model training against the data lake, and evolving the infrastructure as data volumes and business requirements grow. Near-term focus areas include enabling additional Lake Formation consumers across the analytics team, layering structured streaming ingestion alongside the existing batch ETL, and refining FinOps controls as Athena query volume scales with adoption.

Key highlights

▶ Smooth Organization Migration

Complete migration to a new AWS Organization with minimal disruption, laying a stable foundation for operational continuity and future scalability during a critical company separation.

▶ Enhanced Analytics Capabilities

Purpose-built data lake using S3, Lake Formation, Glue, and Athena significantly improved Optiwise's ability to analyze e-commerce datasets, delivering nuanced insights into customer behavior.

▶ Scalable, Future-Proof Infrastructure

The serverless, AWS-native data architecture scales automatically with growing data volumes while maintaining cost efficiency, ensuring Optiwise's analytics foundation evolves with the business.

About Threading Clouds

Threading Clouds is an AWS Partner specializing in cloud consulting, DevOps and platform engineering, reliability and operations, and innovation in advanced technologies including generative AI and blockchain infrastructure for SaaS, fintech, and regulated industries. We embed with engineering teams to innovate with confidence by designing, implementing, and managing secure, scalable, and cost-efficient cloud infrastructures.

