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American Insurer Gains an Edge by **Modernizing Data Management**

◣ **Case Study**

Overview
Transforming data warehousing

A 110-year-old American jewelry insurance company, holding an "A+ Superior" rating for nearly four decades, wanted to effectively address challenges with data operations management and retain its premier position in the industry.

Zensar's brief:
Deploy an integrated data science application, leveraging business intelligence and cloud capabilities, with these key steps:

- Migrate to Google Cloud Platform (GCP).
- Deploy a containerized environment, leveraging Astronomer Airflow.
- Enable microservices-based application development.
- Put in place 24x7x365 support and maintenance.

Beyond the brief:
Going beyond enabling the business to address its priorities, we delivered a solution that improved security, compliance, and disaster recovery (DR) — all with 30–35 percent lesser operational costs.
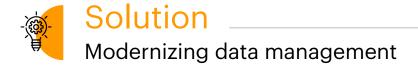
Challenges
Inefficient data management

The client's IT department faced challenges across the entire data lifecycle:

Data integration, orchestration, and storage: The client's IT team encountered challenges with integrating data from diverse sources and addressing risk assessment issues. It struggled to balance tasks such as data storage, pipeline orchestration, and continuous integration.

Data quality, compliance, and security: Escalating demands related to data quality, real-time processing, robust monitoring and security, and compliance requirements overwhelmed the IT staff. Further, concerns about data replication and DR added to the complexity.

Data mining and cost optimization: The evolving industry landscape necessitated data mining for market intelligence, which was not supported by the existing system. In addition, ineffective cost and resource management was hindering IT agility.

Solution
Modernizing data management

We designed a solution to empower decision makers to identify optimal business strategies by analyzing trends and patterns in market data, leveraging cutting-edge data models. And we delivered the solution with a three-pronged approach:

Modernizing the data warehouse
- Collaborated closely with the client's team to engineer a futuristic data warehouse platform, using microservices on Google Kubernetes Engine (GKE).
- Crafted a cloud-based data-driven modernization roadmap, setting the stage for the client's digital evolution.

- Applied Agile methodologies for rapid and seamless delivery of a modern data warehouse platform.

Streamlining operations and processes
- Executed ETL data pipelines, seamlessly transferring data from diverse sources to cloud platforms, including Azure Blob Storage and Google Cloud Storage (GCS).
- Leveraged DevOps for efficient, consistent, and automated deployment, ensuring operational excellence.
- Deployed industry best practices in alignment with GCP Well-Architected Framework.

Optimizing performance and security
- Assumed full ownership of data operations management, focusing on dynamic monitoring and performance optimization.
- Provided 24/7 managed services, guarding the transformed digital estate effectively.
- Combined multiple solution enablers to ensure efficient data ingestion, preparation, storage, and analysis within the GCP environment.

Solution enablers

- **Google BigQuery** serves as the primary data warehouse for storing and analyzing transformed data.
- **GCS** serves as the staging area for data from multiple sources including Azure SQL Server, MongoDB NoSQL APIs, and Amazon Relational Database Service (RDS) for PostgreSQL.
- **Python Data Science** facilitates ETL processes for managing data ingestion.
- **Astronomer Airflow** orchestrates the DAGs for smooth ETL workflows.
- **Vertex AI** ingests advanced market data for machine learning and AI modeling to enable AI-driven insights.

- **Google Dataproc** clusters help process very complex and large data volumes from Amazon RDS.
- **PySpark** jobs help transform and load data efficiently into BigQuery.
- **Google Cloud Identity and Access Management (IAM)** helps manage service accounts and roles, enhancing security and resource access control.
- **Google Cloud Logging and Monitoring** help track BigQuery usage and identify long-running processes.

Impact

Reinforced leadership position

According to internal benchmarks, these results were delivered:

- Reduced operational costs by 30–35 percent
- Rationalized 250 reports
- Cut report generation efforts by up to 30 percent
- Enabled direct-to-consumer (D2C) fulfillment capabilities
- Increased operational efficiency across data distribution centers/data warehouses
- Simplified the integration through automation

Business outcomes: With a cloud-based data-driven modernization roadmap, the solution set the stage for the client's digital evolution and ability to deliver innovative products and services.

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