

Modernizing Data Infrastructure: AI-Assisted Migration to AWS Redshift for Enhanced Performance

CASE STUDY



About Client
Microfinance
company

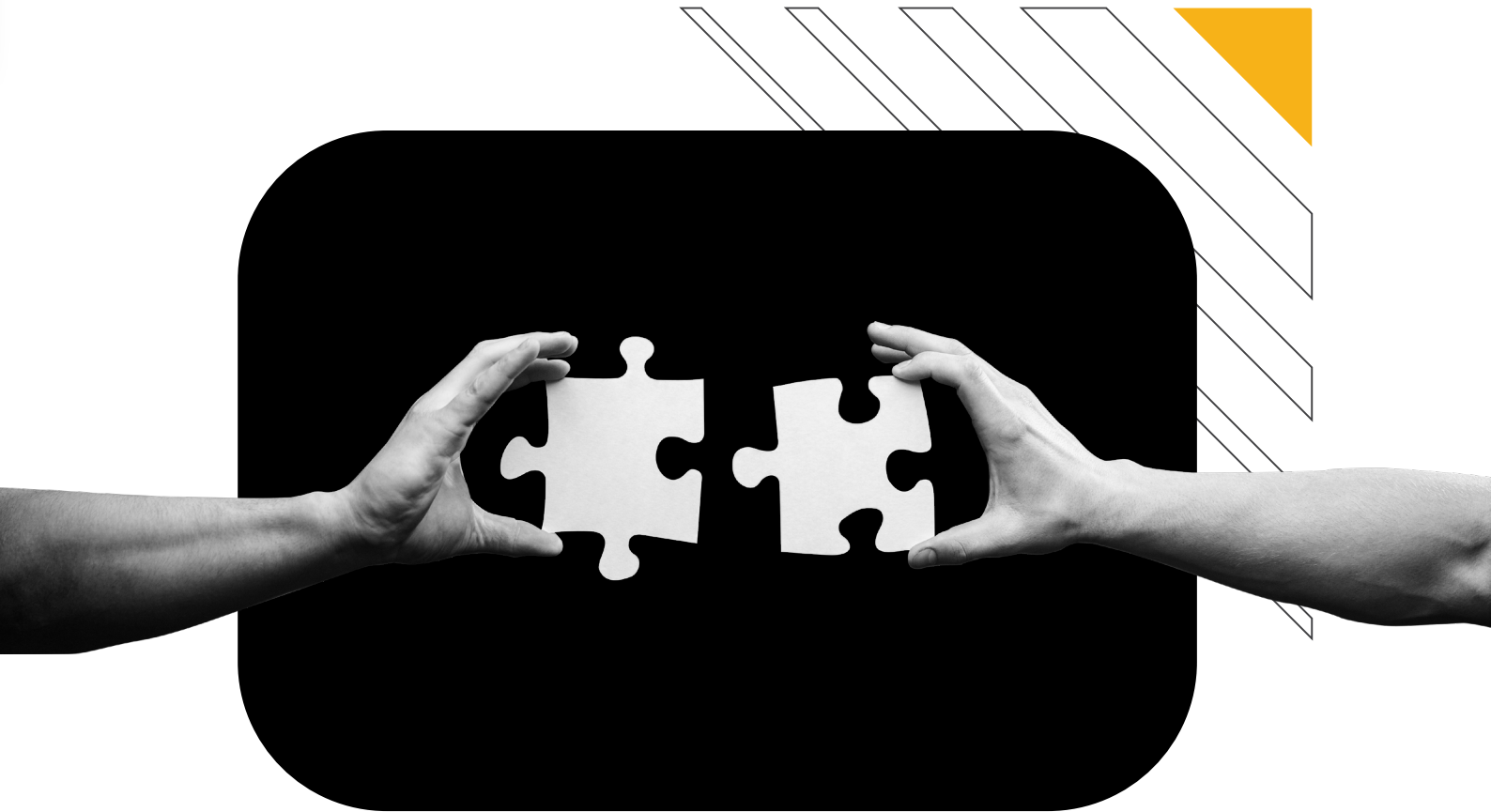


Industry
Financial Services



Service
Data warehousing with
AI-assisted code migration





Business **Need**

The client required a more efficient and centralized data warehousing system to overcome performance issues and reporting delays in their existing setup. These included:

- ▼ Establish a dedicated data warehouse to consolidate information from all application databases
- ▼ Improve the performance of MIS reporting processes
- ▼ Reduce delays in report generation
- ▼ Meet and maintain Service Level Agreements (SLAs)
- ▼ Optimize data storage and retrieval for reporting purposes
- ▼ Centralize data from various sources for more efficient analysis
- ▼ Enhance scalability to handle growing data volumes
- ▼ Improve data consistency and accuracy across reports
- ▼ Reduce strain on application databases during reporting processes
- ▼ Enable more complex and insightful data analysis capabilities

Business Challenge

Before the new implementation, the client faced several obstacles in their data management and reporting processes, including:

- ▼ Lack of a dedicated data warehouse
- ▼ Inefficient data storage and retrieval for reporting purposes
- ▼ Performance issues and SLA breaches
- ▼ Delays in generating reports due to suboptimal database design

Business Solution

To address the client's challenges, a comprehensive solution was designed and implemented, including:

- ▼ Analysis and remodeling of the current codebase to meet data warehousing standards
- ▼ Conversion of the existing codebase to AWS Redshift format using Gen AI (ChatGPT)
- ▼ Implementation of a centralized data warehouse using AWS Redshift
- ▼ Enhancement of ETL processes for efficient data transformation and loading
- ▼ Optimization of SQL queries for improved reporting performance

Technology Stack

The solution leveraged a mix of modern technologies and services. These included:

- ▼ ChatGPT for code conversion
- ▼ AWS Glue, S3, and Lambda functions for data extraction and ingestion
- ▼ AWS Redshift for data warehousing
- ▼ AWS Step Functions for process orchestration

Project **Differentiator**

This project stands out due to its innovative use of technology and efficient approach, including:

- Utilization of ChatGPT for large-scale code conversion
- Quick and accurate migration of hundreds of SQL scripts
- Creation of an end-to-end data extraction and ingestion layer using AWS services

Business **Impact**

The implementation resulted in significant improvements for the client. The overall business impact included:



Dramatic reduction in report generation time from 6-10 hours to 1.5 hours



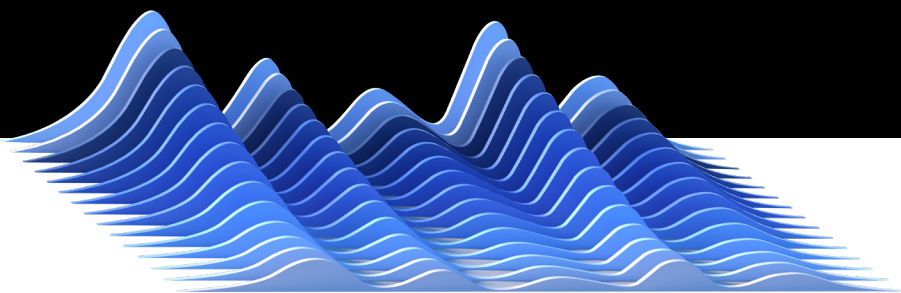
Successful conversion of hundreds of SQL scripts and thousands of lines of code with an accuracy rate of 80%-90%



Creation of a centralized, high-performance data warehouse



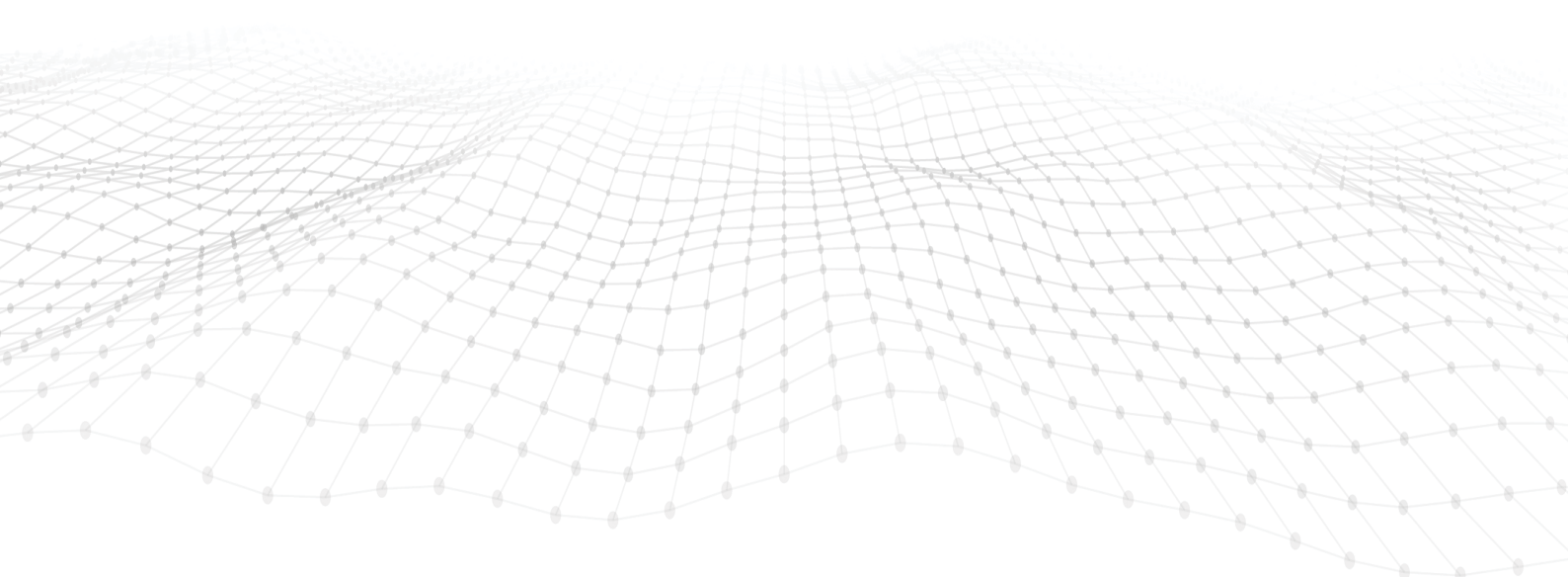
Separation of application, storage, and data warehouse layers for improved efficiency



Conclusion

The project successfully solved the client's data management and reporting challenges by implementing a modern, cloud-based data warehousing solution. Through the innovative use of AI for code

conversion and AWS services, this project benefited from major performance improvements and a far more efficient data infrastructure.



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