

Migrating India's Leading Exchange from **On-premise to Cloud**

CASE STUDY



About Client

India's leading exchange



Industry

Capital markets



Service

Data analytics

Business **Need**

The client's existing on-premise data center was limited in scalability and flexibility and time-consuming and expensive to maintain. During the Covid-19 pandemic, the stock trading surged to 3x within 5-6 months, and the on-premise data center

reached its full capacity. Planning for and adding more capacity to the on-premise data center required a lot of time and huge costs. Therefore, the client needed a modern, flexible, and scalable option with improved speed, reliability, and security.

Business **Challenge**

In today's hyper-connected world, the cloud is no longer an option but a necessity to ensure scalability, flexibility, efficient data processing, and cost optimization. By embracing the cloud, an organization can move forward toward digital transformation. **The client, India's leading exchange, was using an on-premise data center to manage their data.** The on-premise data center could be scaled up to support **2x stock** trading volume.

In March 2020, the entire world came to a halt. During the lockdown, more and more people started trading in stocks from home and stock trading witnessed a huge **3x jump within 5-6 months**. The client's on premise data center reached its maximum capacity and adding more capacity to the on-premise data center was time-consuming and required huge costs and infrastructure.

The lack of flexibility and scalability in the existing on-premise data center made it challenging to manage the sudden surge and ever-evolving customer needs. Moreover, due to the existing data center hitting its peak, all new initiatives (surveillance, investigation, regulatory, analytics, etc.) had to be put on hold. The client wanted a robust, scalable, and agile data capacity that supported rapid scale-ups and scale-outs with minimal investments and disruptions.

The client decided to evaluate if the cloud would be the right option for the organization's future. However, the data could reside only within India due to regulatory requirements. Further, to minimize any disruptions, the data migration for >560 TB of data from on-premise to cloud would need to be done as efficiently and quickly as possible. The lack of documentation and low transparency added additional layers of complexity to the challenge.

Business **Solution**

With our domain expertise and vast experience, NSEIT evaluated the available options and selected **Snowflake on Amazon Web Service (AWS)**. Being a cloud-native platform, Snowflake eliminated the requirement for physical infrastructure, enabling agility, flexibility, and scalability. The AWS data center was in Mumbai, thus meeting the regulatory requirement of data residing within India.

After selecting the preferred cloud service, we began the mammoth task of migrating the humongous data (**~3,000 Greenplum tables comprising >560 TB data**) to the cloud. We established a **10GBPS dedicated line** from the stock exchange data center to the AWS data center to ease the migration.

NSEIT, with our domain expertise and talented workforce, sprang into action, and we:

- Partnered with Snowflake on AWS to enable scalability, flexibility, and faster data processing

- Used metadata-driven Spark-based frameworks to **migrate >560 TB of data within 24 days** and created audit control mechanism which enabled a reconciliation framework to ensure high data accuracy
- Created a replication service to replicate incremental data daily from on premise data warehouse to Snowflake

We partnered with DataSwitch for:

- DDL conversion to achieve **95% accuracy** and save **80%** of the time
- Conversion of Informatica Workflows into Apache Airflow DAGs and Mappings into SnowSQLs to achieve more than **65% accuracy** and saving significant time in coding efforts
- Conversion of UNIX scripts embedded with Greenplum SQLs into Snowflake compatible SQLs to save more than **75%** of efforts in code conversion

Tech **Stack**



Business **Impact**

Modern and Scalable Cloud

Architecture - The agility of Snowflake enables rapid scale-up and scale-out

- ▼ Cost Benefits - No physical infrastructure and pay-as-you-go cloud enables cost savings
- ▼ No data redundancy and enhanced data accuracy - 95% accuracy in DDL conversion and saved over 85% of time

Rapid data migration – Migrated ~3,000 tables with >560 TB data within 24 days

- ▼ Real-time reporting
 - ▼ Freedom to kick-start new initiatives without any infrastructure requirements
- Improved speed, reliability, availability, and security

About **NSEIT**

NSEIT Limited is a digital native technology company that engineers world-class solutions to help our global customers accelerate their digital transformation journeys. Our key service pillars are Application Modernization, Business Transformation, Data Analytics, Infrastructure &

Cloud Services, and Cybersecurity, through which we create intuitive digital experiences and tangible business impact. For over two decades, our innate drive for excellence has made us the partner of choice for global organizations. At NSEIT, we fuel digital progress.

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