

# **Cloud Migration utilizing SAP BO for National Stock Exchange: A Case Study**

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## **About our client**

The client, National Stock Exchange is one of India's leading financial markets. The client has evolved into a sophisticated, electronic market that, based on the volume of equity trading, is ranked fourth in the world. The wholesale debt market opened for trading, followed soon after by a cash market section. The client intends to accelerate India's economic development by creating investment opportunities, facilitating access, and empowering its stakeholders. They work more diligently, intelligently, and quickly to deliver impact across the investment ecosystem. In a world where form changes by the second, the client constantly reinvents the future.

A completely integrated business model for the client includes exchange listings, trading services, clearing and settlement services, indices, market data feeds, technological solutions, and financial education programs. The client also monitors adherence to exchange rules and regulations by clearing and trading members.

The client, a forerunner in technology, assures the dependability and performance of its systems by fostering an innovative culture and making technology investments. The client believes that the size and breadth of its products and services, sustained leadership positions across multiple asset classes in India and globally, enable it to be extremely responsive to market demands and changes and to deliver innovation in both trading and non-trading businesses to provide market participants and clients with high-quality data and services.

## **The Problem Statement**

The Project Statement received by Applied Cloud Computing (ACC) Pvt. Ltd. outlined the migration of the National Stock Exchange (NSE) data from their On-Premise Environment to a Cloud Environment. NSE provided live data for this project which was processed, filtered, and analysed before being migrated to the required Cloud Database. The information was sensitive and had to be migrated within the allotted timeframe to match the sync. As a Cloud Migration Competency certified AWS Advance Consulting Partner, ACC offered its in-depth knowledge and expertise in AWS to assist the client in achieving continuous growth and expansion.

## **ACC Solution**

To ensure continuity and enable the client to respond swiftly to keep ahead of a quickly changing business climate, building a new AWS environment specific to their needs was essential. The ACC team refactored and updated the entire infrastructure. The data was transferred to the Amazon S3 bucket for verification before being transferred to Snowflake via

AWS Snowball. Reports received from the client were imported into a developer server. Necessary tests were run through these reports before deploying them to the production server. SAP BO was utilized for data analysis and visualization, and client-side business users were granted access.

The entire process improved performance; enabled faster transfers; decreased technology costs; and expanded scalability. As part of the project, ACC implemented numerous AWS services and infrastructure upgrades.

### **Here are a few examples**

#### **1. AWS EC2**

ACC utilized Amazon EC2, a cloud service that provides secure and scalable compute capacity, for the application/computing tier. Using Amazon EC2 eradicates the need for initial hardware investment, allowing for faster application development and deployment. Launch as many or as few virtual servers as necessary, configure security and networking, and manage storage using Amazon EC2. Amazon EC2 enables you to scale up or down in response to fluctuating needs or popularity spikes, reducing the need to forecast traffic.

Benefits of AWS EC2 -

- Elastic web-scale computing
- Completely controlled
- Flexible cloud hosting services
- Designed for use with other Amazon web services
- Reliable and Secure

#### **2. AWS Server Monitoring**

ACC has utilized Cloud watch i.e., the automated server monitoring tool offered by AWS. Amazon CloudWatch offers DevOps engineers, developers, site reliability engineers (SREs), IT managers, and product owners a monitoring and observability solution.

CloudWatch provides data and actionable insights for app monitoring, system-wide performance changes, and resource optimization. Logs, metrics, and events from CloudWatch are utilized to collect monitoring and operational data. This service provides complete visibility of AWS resources, applications, and services running on AWS and on-premises, as well as a single view of operational health. Server monitoring detects abnormal behavior in your environments, triggers alarms, analyses logs and metrics side-by-side, takes automated actions, troubleshoots issues, and discovers insights to keep your applications running smoothly.

Benefits of AWS Server Monitoring –

- Offers simplicity for fundamental functions
- Visibility for all AWS monitoring data on a single platform
- Effectively collects metrics for AWS environments

- Boosts and optimizes the operational performance of AWS and on-premises resources

### **3. AWS Snowball**

ACC utilized AWS Snowball to accelerate the transfer of data to the cloud. AWS Snowball offers secure, rugged devices that allow bringing AWS computing and storage capabilities to edge environments and transfer data into and out of AWS. This service utilizes physical storage devices to transfer large amounts of data between Amazon Simple Storage Service (Amazon S3) and the on-premises data storage location at speeds greater than the Internet. The service also provides powerful interfaces for creating jobs, tracking data, and monitoring the status of your jobs until their completion.

Benefits of AWS Snowball –

- Transfer terabytes of data to the cloud without restrictions on storage capacity or processing power.
- Accelerate application performance in disconnected, harsh edge environments and execute compute workloads with minimal or no network connectivity.
- Protect data in transit with Snowball's ruggedized chassis, integrated logistics, and tamper-evident box, and swiftly deliver your data to its destination.

### **4. Snowflake Database**

ACC has utilized the Snowflake database to deliver the data cloud on AWS. Within the Data Cloud, organizations consolidate their siloed data, discover and share governed data with ease, and execute a variety of analytic workloads. Snowflake provides a unified and consistent experience across multiple public clouds, regardless of the location of the data or users.

Benefits of Snowflake Database –

- Performance and speed
- Storage and support for structured and semi-structured data
- Concurrency and accessibility
- Seamless data sharing
- Availability and security

### **5. AWS SNS Service**

ACC also utilized Amazon Simple Notification Service (Amazon SNS), which is a fully managed messaging service for both application-to-application (A2A) and application-to-person (A2P) communication. Using Amazon SNS topics, the publisher systems can fan out messages to a large number of subscriber systems for parallel processing. The A2P functionality enables you to send messages to users at scale via SMS, mobile push, and email.

Benefits of AWS SNS –

- Simplifies and reduces costs with message filtering and batching
- Ensures accuracy with message ordering and deduplication
- Increases security with message encryption and privacy

- Increases durability with message archiving, delivery retries, etc.

## 6. SAP Business Objects Tools

ACC utilized SAP Business Objects Tools which is a collection of reporting and analytics tools for business intelligence (BI) platforms. It is comprised of several reporting applications that enable users to discover data, analyze to derive insights, and prepare reports that visually represent the insights. SAP BO is designed to simplify reporting and analysis for business users, allowing them to create reports and execute processes such as predictive analytics without the assistance of data analysts.

Benefits of SAP BO tools –

- Information Clarity and Insight – provides your business users with the ability to easily create ad-hoc queries and manage powerful data analysis to gain deeper business insight, regardless of the complexity of your database platform.
- SAP BO solutions reduce TCO (Total Cost of Ownership) by providing a single, integrated, scalable, and highly available enterprise platform for business intelligence.
- Effectively Streamlines Business Intelligence Operations – implementing SAP BO solutions effectively streamlines business intelligence operations by enhancing the information request process for business users. Less time would be spent by the IT department intercepting and interpreting information requests. This also enables users to define information needs, generate queries, and analyze and share information with less reliance on IT.
- Maintain Long-Term Operational Sustainability and Financial Growth – SAP BO provides a framework for data extraction and analysis that enables business leaders to make data-driven managerial decisions that will improve the bottom line and maintain long-term operational stability and efficiency.

### **Other Benefits**

Digital Experience – Since all of your data is stored in the cloud, it is accessible regardless of what happens to your physical hardware. Additionally, migrating to the cloud enables your organization's members to access essential data and business information from anywhere in the world and on any device. This contributes to digital transformation, offers an enhanced customer experience, and equips users with flexible, modern tools.

Security and Compliance - Following the "shared responsibility" model, the cloud's systems, networks, and applications must be configured and maintained securely. As part of their "shared responsibility," AWS designed its cloud offering with security as the top priority. Built-in security and compliance safeguard the most mission-critical workloads and most

Cost Effective - the cloud providers handle maintenance and upgrades hence clients that migrate to the cloud can significantly reduce their IT operations costs. The client can then

devote more resources to innovation, including the creation of new products and the enhancement of existing ones.