Case Study: A Fortune-500 Financial Services Company

PostgreSQL to Oracle Migration using Cloud Data Migrator

Problem Statement

Our Client wanted to integrate their platform as fast as possible with minimal changes or disruption to its operating environment that consisted of hundreds of databases. There were significant environ- mental differences between two sides that required using some clever, out-of-box thinking. Our Client hired Cloudly in order to solve this problem and directed that we consider using AWS RDS Oracle environment for running a PoC of Our Client application.

Customer Profile

Our Client acquired the Company in order to enhance delivery of personal-ized shopping offers and rewards to consumers in 2012. After the acquisi-tion, the Company technology platform based on PostgreSQL needed to be migrated into an Oracle backend environment as Our Client's default database backend. This technology platform had five different PostgreSQL databases powering a comprehensive offer and reward management capabili-

Solution Approach

To find best solution approach for migration, Cloudly did an assessment on one postgreSQL databases from Our Client. Table 01 is represent outcome of initial assess-ment phase. Based on the complexity of the databases, two major approaches were used for this database migration:

1. Direct equivalent that will be automatically translated, e.g., Tables, Views, etc.
2. Direct equivalent that will be manually translated, e.g., Custom data type, Triggers, Functions / Procedures, etc.

	Database 01
Tables	475
Views	148
Sequences	21
Triggers	125
Functions	53

Execution & Delivery

Cloudly team undertook the project over a period of twelve weeks and delivered a fully functional Oracle equivalent database of the original PostgreSQL database to Our Client. The Oracle database ran in AWS RDS Oracle environment as a PoC successfully. There were significant challenges with some of the custom data types, triggers and functions that all had to be manually migrated:

Weeks 1-2	Weeks 3-8	Weeks 9-12
• Complete Assessment of PostgreSQL database • Run scripts for automated translations • Tabulate and confirm solution approach for each failed case • Develop a full blueprint and migration plan	• Fully resolve all automated translation errors and create the Tables and Views • Manually translate Custom data types, triggers, functions and procedures • Develop test cases for full schema and data testing as well as test data for PoC	• Finalize all translation, data migration and test scripts • Run full schema migration tests and validation between source and destination databases • Migrate data and confirm fully functional PoC on AWS RDS Oracle

Cloudly Profile

CloudlyIO was founded by a group of cloud experts of Silicon Valley, who started working on Amazon Web Services (AWS) platform when there were only two services available: EC2 and S3. They successfully migrated over 100 customers in North America, Europa, Asia and Australia over a period of five years. This experience showed them how migrating to cloud, esp. databases was one of the daunting challenges that almost all businesses who wanted to use public clouds for their workloads were facing. They decided to do something about it and built an automated database migration platform called: Cloud Database Migrator (CDM), which leverages AWS Database Migration Service (DMS) and automates various parts of the workflows, such as, provision- ing of resources, validation of migrations and reporting of migrated features.

Business Benefits

Cloudly successfully completed the PoC of migrating Our Client complex PostgreSQL database into Oracle equivalent and proved that it is possible to migrate an open source database into a licensed database. This is typically not a popular use case on cloud; however, there are specific cases where a customer may prefer using a licensed database due to security, compliance and industry-specific reasons, especially, in the financial and healthcare sectors. This allowed customer to quickly validate:

- The ability to migrate from PostgreSQL to Oracle environments that is required in Client's data centers
- The capability of AWS RDS Oracle for elastically scaling databases against demand
- The speed of integrating an acquired technology, which may have different database backend
- The risks of losing fidelity and features of source database that may impact offerings in the target environment

Outcomes

At the end of project, customer had a completed PoC on their very complex database and the set of deliverables from Cloudly:

- Complete migration blueprint incl. detailed instructions of all automated and manual steps
- All schema translation, data migration and validation scripts
- An Oracle schema that is compatible with version 11i and equivalent of source PostgreSQL
- Sample test data for testing post-migration compatibility
- Complete demonstration and documentation of the PoC

Cloudly

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