

AWS Schema Conversion Tool to Migrate Heterogeneous Databases

Database Migration Case Study

Executive Summary

Brightfield is a leading augmented analytics company driving the economics of digital transformation in the new world of work. The environments of the software applications are entirely on-premises (Oracle Databases and microservices). Their Augmented Analytics Platform, named Talent Data Exchange (TDX), provides a suite of analytical applications that help optimize both, extended workforce, and employee talent segments.

Oracle databases are mission-critical systems for any organization, but being dependent on a particular vendor is a risky and costly situation. Brightfield seeks to begin the migration of their Oracle Databases to Amazon RDS MySQL because of the benefits, innovations, and improvements that open-source databases and cloud computing platforms, such as AWS, offer.

The Challenge

In heterogeneous database migrations, where the source and target database engines are different, such as from Oracle to MySQL, the schema structure (data types, indexes, functions, stored procedures, views, and triggers) and code must be transformed before the data migration starts. For this reason, the work should begin with the following first step:

- Convert the source schema and code to match the target database.

Why AWS

The **AWS Schema Conversion Tool** makes heterogeneous database migrations predictable by automatically converting the source database schema and a majority of the database code objects, including views, stored procedures, and functions, to a format compatible with the target database.



AWS Schema
Conversion Tool

About Customer



Brightfield is an Artificial Intelligence and Big Data Analytics company that optimizes contract labor and performance for employers and staffing firms.

“High available and secure architecture.”

- Speeds innovation and allows you to work with production data
- Easily migrates critical workloads to the cloud
- Helps customers avoid hundreds of thousands of dollars in lost revenue
- The solution follows security best practices

The Solution

AWS Schema Conversion Tool was used to convert the source Oracle database schema and code to match that of the target MySQL database. Before performing the conversion, an analysis was executed by running a **Database Migration Assessment Report**, which served to understand the scope and effort required for the conversion, as well as to detect which action items of the source Oracle database schema structure could not be automatically converted to the target **Amazon RDS MySQL DB**. Once the potential issues in the schema conversion were detected, all of those action items that could be translated automatically were applied from the **AWS Schema Conversion Tool** and those that were not, were handled manually over the target database. The conversion process was performed in the following high-level steps:

- Create the necessary Mapping Rules to change the data type of columns and change the names of objects.
- Create a local version of the converted schema for review, without applying it to the target DB instance.
- Create a **Database Migration Assessment Report** with details of the schema elements that cannot be converted automatically.
- Apply the converted schema from the local project to the target Amazon RDS DB instance.
- Handle Manual Conversions on the target database schema.

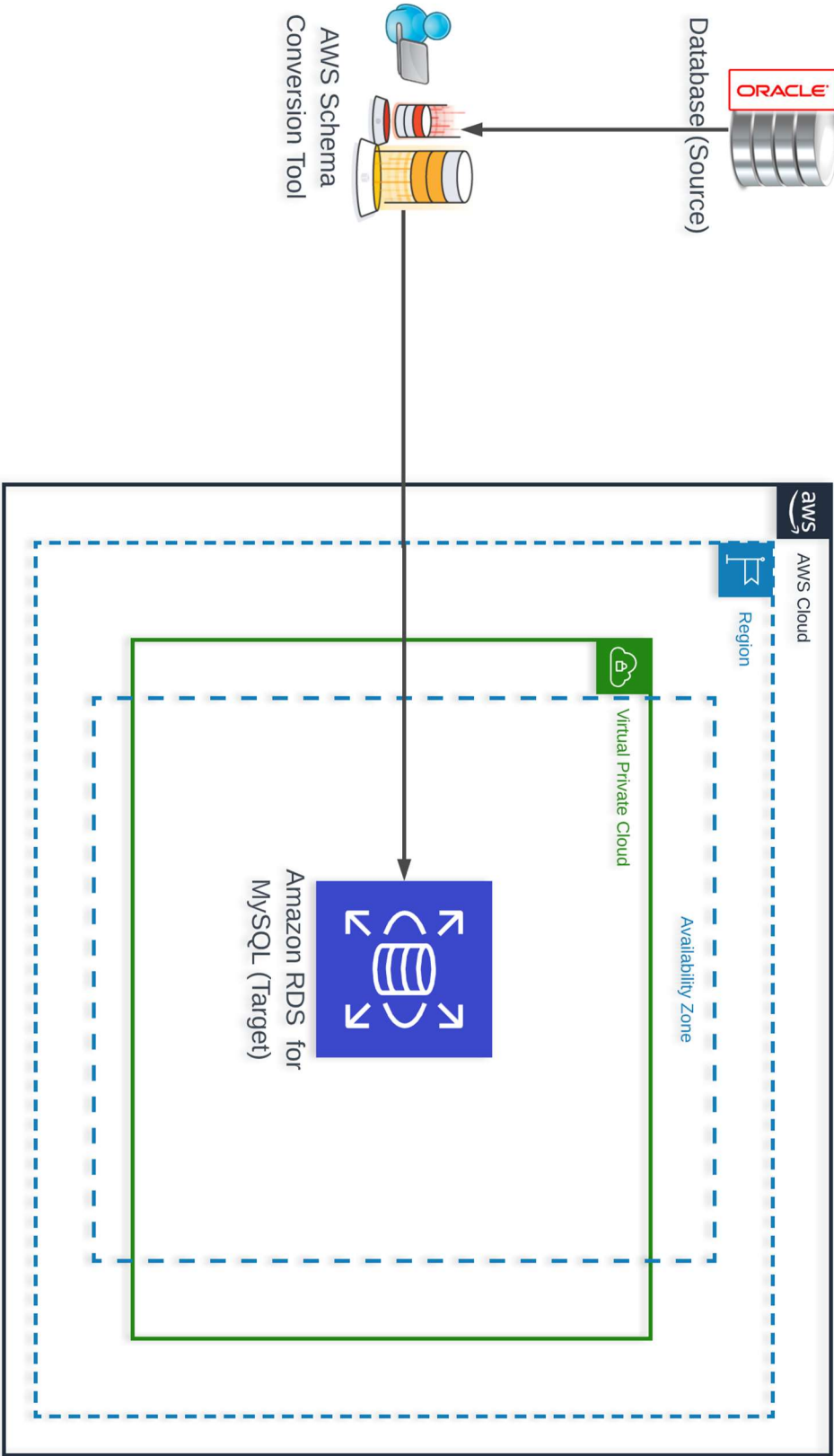


Results and Benefits

The final product was a MySQL database schema that was entirely converted with the **AWS Schema Conversion Tool** to copy the existing on-premises database schema to an Amazon RDS DB instance running different engines.

Oracle’s list pricing is based on a per-core model with additional costs for features such as partitioning and high availability. Some of the cost benefits of migrating the databases are removing the licensing fees and the pricing model of the AWS Cloud. Besides, having the information in a managed service like RDS, makes it easy to operate and scale the database instances in the cloud.

SCT Solution Diagram



Next Steps

Now that the MySQL schema has been converted, our goal is to replicate this schema on all the AWS RDS instances that will be part of the Database migration. Consequently, we will use the Database Migration Service to define next steps to move the data from on-premise to the AWS cloud.

AWS offers the possibility of carrying out a database migration without affecting the operation of the company following the pattern of reference architectures, standards and implementation conventions following AWS best practices.

Benefits

Superior Performance

This infrastructure provides a fast, resilient and high availability environment for the application.

LOW TCO

Save money by replacing physical hardware with expensive license fees, with AWS you pay for what you use.

Fully Managed

Reduce your operational costs and overhead by leveraging the fully managed resource provisioning, maintenance, and backup that AWS services provide.

About IO Connect Services

IO Connect Services is a company specializing in Information Technology Consultancy Services. All our team members have one thing in common: our enthusiasm for technology and our passion for customer service excellence. We provide services in all North America, LATAM and Europe. Our headquarters are located in the NYC metropolitan area, and we also have offices in Guadalajara, Mexico and Madrid, Spain.