AWS DMS Workshop

Core Concepts

AWS ASEAN Team

Revised 2017.10.26

aws

About

This workshop is composed of three parts:

- Part 1: Introduction to core concepts of AWS Database Migration Services (AWS DMS) and the AWS Schema Conversion Tool (AWS SCT)

- Part 2: Lab providing hands-on with a SQL use case, specifically migrating Oracle DB -> Postgres DB

- Part 3: Lab providing hands-on with a NoSQL use case, specifically migrating MongoDB -> Amazon DynamoDB

AWS DMS Workshop
Core Concepts

Agenda

- Challenges of Database Migration

- AWS Database Migration Service (AWS DMS)

- AWS Schema Conversion Tool (AWS SCT)

AWS DMS Workshop
Core Concepts

aws

Challenges of Database Migration

Customers Want to Migrate to AWS, but…

- Migrations create long periods of application downtime
- Migration tools that minimize downtime are expensive
- Migrations seem too complex and expensive, especially across two different platforms
- Migrations still require a copy of data on-premise
- Migrations require skills outside their organization

AWS DMS Workshop
Core Concepts

aws

Traditional Approach to Migrate to AWS

1. Create your AWS account
2. Setup your Virtual Private Cloud (VPC) in AWS
3. Connect to AWS with a VPN or Direct Connect
4. Shutdown and backup your database
5. Transmit the backup to S3
6. Configure an EC2 instance with the DB software
7. Restore the backup
8. Configure EC2 instances for the application
9. Switch the users to use AWS

AWS DMS Workshop
Core Concepts
aws

Traditional Approach to Migrate to AWS
Steps 4-9 could take weeks!

1. Create your AWS account
2. Setup your Virtual Private Cloud (VPC) in AWS
3. Connect to AWS with a VPN or Direct Connect
4. Shutdown and backup your database
5. Transmit the backup to S3
6. Configure an EC2 instance with the DB software
7. Restore the backup
8. Configure EC2 instances for the application
9. Switch the users to use AWS

AWS DMS Workshop
Core Concepts

AWS Database Migration Service (AWS DMS)

aws

AWS Database Migration Service (AWS DMS)

DMS migrates databases to AWS easily and securely with minimal downtime. It can migrate your data to and from most widely used commercial and open-source databases.

AWS DMS Support for NoSQL

Migrate to AWS

- Move from MongoDB to Amazon DynamoDB
- Move from MongoDB to relational DBs

DynamoDB

RDS

Move between NoSQL and SQL

- Re-platform database technology

ORACLE

PostgreSQL

MariaDB

MySQL

Microsoft SQL Server

Microsoft SQL Azure

Amazon Aurora

DynamoDB

AWS DMS Workshop
Core Concepts

aws
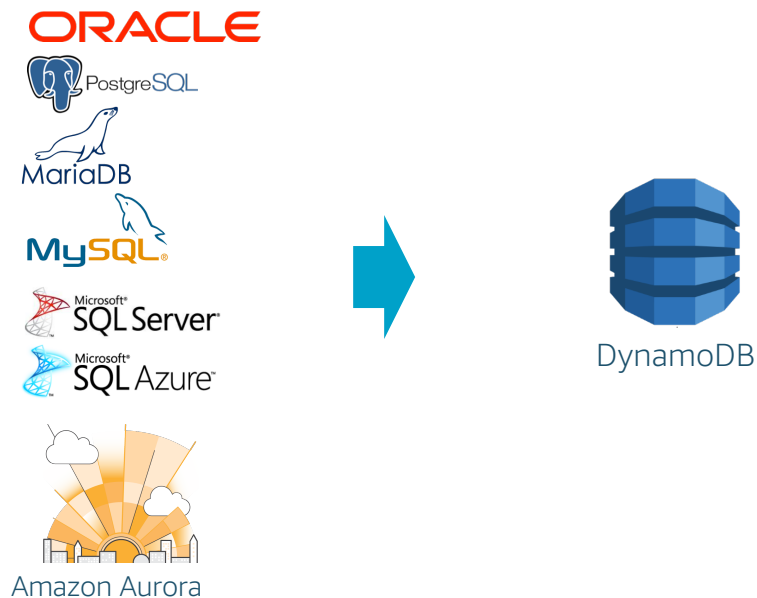
AWS DMS Support for S3 (as Source or Target)

Extract Data from any supported DMS source to S3 and to any DMS target
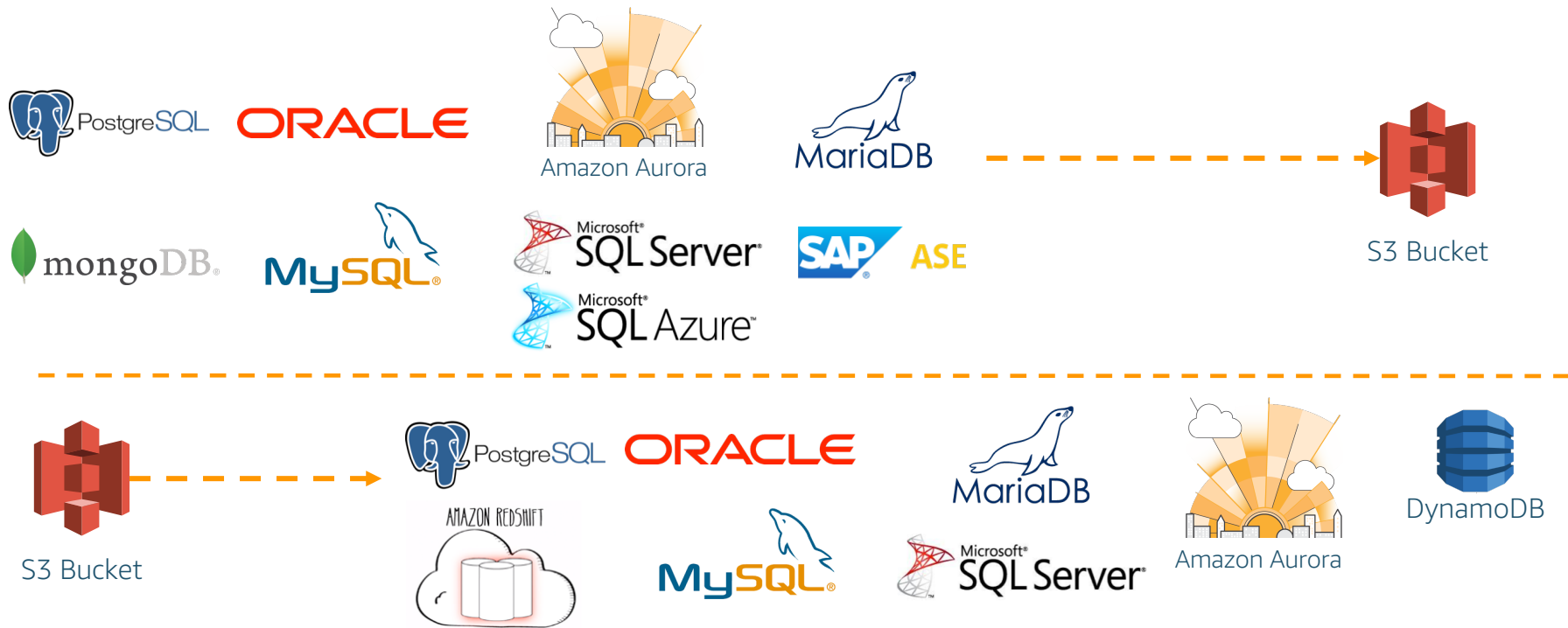
Keep Your Apps Running During the Migration
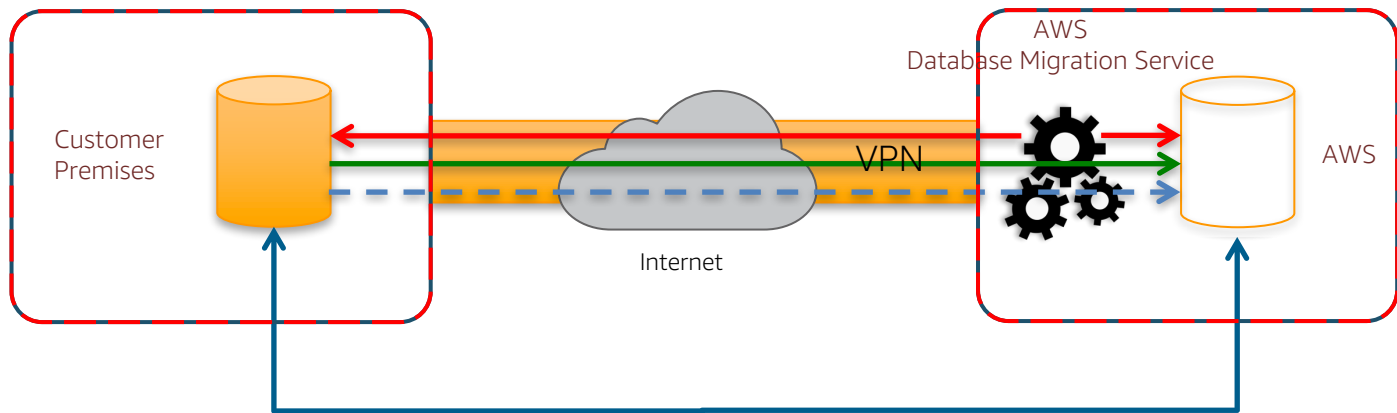
1. Start a replication instance
2. Connect to source and target databases
3. Select tables, schemas, or databases
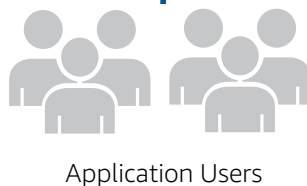
Application Users

4. Let AWS DMS create tables, load data, and keep them in sync
5. Switch applications over to the target at your convenience

AWS DMS Workshop
Core Concepts

aws

AWS DMS Key Concepts

- **Replication instances** are EC2 instances that provide the processing engine for data migrations

- **Endpoints** are wrappers around the source and target databases, used by the the replication instances during data migration

- **Tasks** oversee the data migration process, provide source filters and/or data transforms, and determine if data will continue to be replicated after the initial transfer is performed

AWS DMS Workshop
Core Concepts
aws

AWS Schema Conversion Tool (AWS SCT)

AWS Schema Conversion Tool (AWS SCT)

AWS SCT is a desktop application that helps automate many database schema and code conversion tasks when migrating between database engines or data warehouse engines

AWS DMS Workshop
Core Concepts
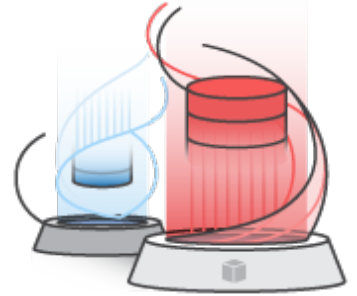
AWS SCT Helps Convert Tables, Views & Code
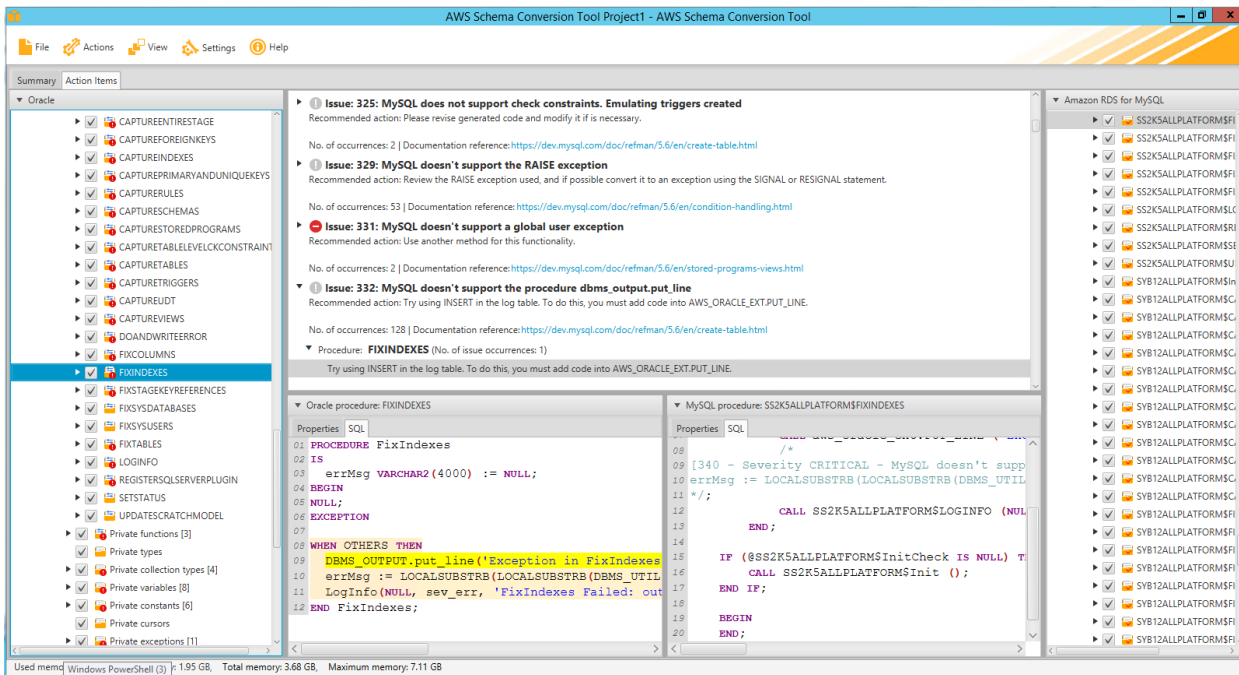
- *Sequences*
- *User-Defined Types*
- *Synonyms*
- *Packages*
- *Stored Procedures*
- *Functions*
- *Triggers*
- *Schemas*
- *Tables*
- *Indexes*
- *Views*
- *Sort and distribution keys*

AWS DMS Workshop
Core Concepts

AWS SCT Assessment Report

AWS SCT provides an Assessment Report to help you plan for any potential conflicts in your planned migration

1. Connect AWS SCT to Source and Target DBs
2. Run Assessment Report
3. Read Executive Summary
4. Follow detailed guidance

Database Migration Assessment Report (Sample)

AWS DMS Workshop
Core Concepts

AWS SCT Pricing and Permitted Use

$0

for software license

Pricing

- Free software license
- For active AWS customers with accounts in good standing

Permitted Use

- Use AWS SCT to migrate database schemas to Amazon RDS, Amazon Redshift, or Amazon EC2-based databases
- To use AWS SCT to migrate schemas to other destinations, contact for special pricing

AWS DMS Workshop
Core Concepts
aws

Next:
SQL Lab: Oracle to PostgreSQL

aws