AWS DMS Workshop

NoSQL Lab: MongoDB to DynamoDB

AWS ASEAN Team

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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

Agenda

- MongoDB
- Amazon DynamoDB
- Lab Activities

MongoDB

What is MongoDB?

- MongoDB is a document database with the scalability and flexibility that you want with the querying and indexing that you need
- MongoDB stores data in flexible, JSON-like documents, meaning fields can vary from document to document and data structure can be changed over time (ie. schemaless)
- Documents are stored within separate databases on a MongoDB server, and are further subdivided into Collections
- Users can directly access both document as a whole or as a part (accessing individual elements and attributes nested within the objects)

* See https://www.mongodb.com/what-is-mongodb for more information

AWS DMS Support for MongoDB

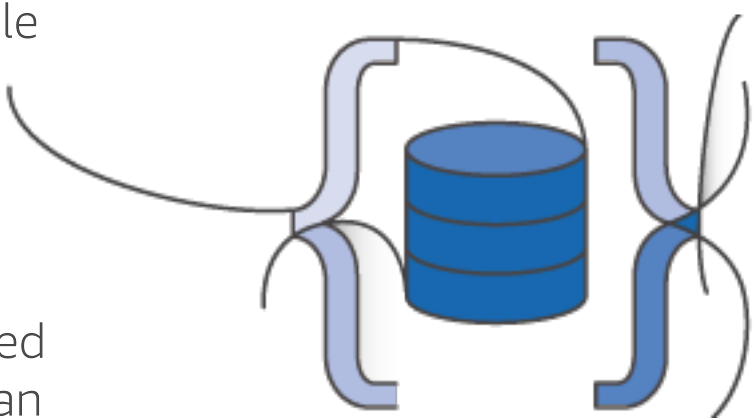
- MongoDB as Source only (Target not supported)
- MongoDB versions supported:
  - 2.6.x
  - 3.x
- Two migration modes:
  - Document Mode (default)
    - the MongoDB document is migrated "as is," meaning that its JSON data becomes a single column in a target table named "_doc"
  - Table Mode
    - the MongoDB is automatically parsed for fields

See http://docs.aws.amazon.com/dms/latest/userguide/CHAP_Source.MongoDB.html for more details

Amazon DynamoDB

What is Amazon DynamoDB?

- a fast and flexible NoSQL database service for all applications that need consistent, single-digit millisecond latency at any scale
- a fully managed cloud database and supports both document and key-value store models
- priced based on both storage and throughput, where throughput is measured in read capacity and write capacity, and can be scaled independently of each other



Lab Activities

Lab Setup: Bootstrapping Your Account

- Create new EC2 key within ap-northeast-1 region
  - Name: **workshop**
  - Not necessary if already completed previous SQL lab
- Launch CloudFormation template:
  - Stack Name: **workshop-cfn-nosql**
  - Creates MongoDB source instance
  - Provisions a DynamoDB target table
- Once launched, all resources will be provisioned in your account, immediately incurring cost!

Lab Steps: AWS DMS & DynamoDB

- AWS DMS always provisions the DynamoDB tables
- Creates 1:1 mapping between source MongoDB tables and DynamoDB tables
    - Provisions each table with 200 read + 200 write capacity units
    - After provisioning/loading, AWS DMS does not reduce that initial throughput, which could result in excessive costs

Lab Steps: AWS DMS & MongoDB

- MongoDB defaults
  - Runs with localhost bindings
    - Need to change MongoDB config file to permit binding on external ports
  - Runs with no user account for access
    - Create a MongoDB privileged user to securely access specific databases

- AWS DMS with incremental change (CDC) requires a MongoDB cluster

Lab Teardown

- Always destroy your Lab Resources after lab completion
- First, teardown AWS DMS resources
  - Destroy in reverse order of creation
  - Tasks, then Endpoints, then Replication Instances
- Next, teardown CloudFormation stack
- Finally, delete workshop key pairs

Thank You For Attending!

Please complete your survey ☺