

Migrating Oracle Database to AWS

Quick Provisioning. Easy Management. Reduced Cost

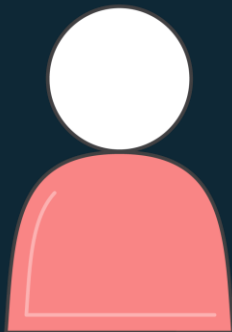
Joyjeet Banerjee

Enterprise Solutions Architect

Agenda

- Hosting Oracle Database on AWS
- Benefits of Managed Relational Database Services
- Migrating Oracle Database to RDS
- Migrating Oracle Database to EC2
- Oracle Database Options and Migration Impact
- Oracle Applications and Migration Impact
- Amazon Aurora
- Migrating Oracle database to Aurora

If You Host Your Databases On-Premises



you

App optimization

Scaling

High availability

Database backups

DB s/w patches

DB s/w installs

OS patches

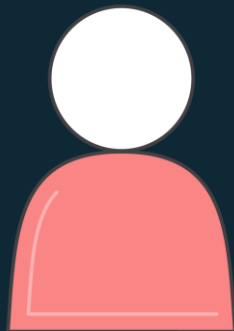
OS installation

Server maintenance

Rack & stack

Power, HVAC, net

If You Host Your Databases in Amazon EC2



you

App optimization

Scaling

High availability

Database backups

DB s/w patches

DB s/w installs

OS patches

OS installation

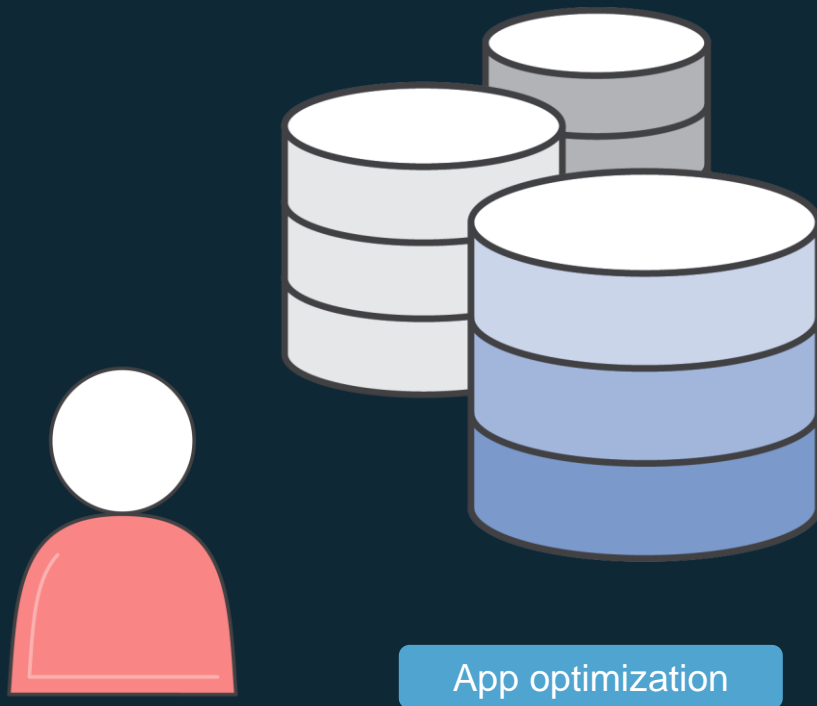
Server maintenance

Rack & stack

Power, HVAC, net



If You Host Databases On Amazon RDS



Scaling

High availability

Database backups

DB s/w patches

DB s/w installs

OS patches

OS installation

Server maintenance

Rack & stack

Power, HVAC, net



Choosing The Right Solution For Your Needs

Amazon RDS For Oracle

- **We recommend you consider RDS first**
- Focus on tasks that bring value to your business
- Focus on high level tuning tasks and schema optimization
- Lack of in-house expertise managing databases



Oracle On Amazon EC2

- You need full control over the DB instances
- Control over backups, replication and clustering
- Use features and options not available in Amazon RDS
- Size and performance needs exceed Amazon RDS offering

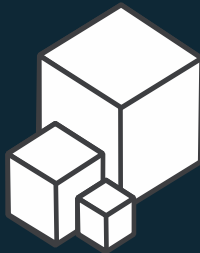


Fast provisioning

Multiple ways to start and manage your Amazon RDS for Oracle resources



Amazon RDS
**Management
Console**



AWS Command Line
Tools (**CLI**)



AWS **SDKs**



AWS **CloudFormation**
templates

Fast provisioning: AWS Management Console

The screenshot shows the AWS Management Console interface for creating a new database instance. The top navigation bar includes the AWS logo, 'Services', 'Edit', and user information (Sergei Sokolenko, Oregon, Sup). The left sidebar shows a progress bar with four steps: Step 1: Select Engine, Step 2: Production?, Step 3: Specify DB Details (current step), and Step 4: Configure Advanced Settings.

The main content area displays a green success message: "Your DB Instance is being created." with a note: "Note: Your instance may take a few minutes to launch." Below this, there is a section titled "Connecting to your DB Instance" with a warning: "You will be unable to connect to your database instance unless you have previously authorized access on your chosen security group." and a link "Go to the Security Groups Page".

There is also a section for "Related AWS Services" featuring "Amazon ElastiCache" with a description: "Add a managed Memcached or Redis-compatible in-memory cache to speed up your database access." and a link "Click here to learn more and launch your Cache Cluster".

At the bottom, there are configuration options for "Backup Retention Period" (7 days), "Backup Window" (No Preference), "Maintenance" (Auto Minor Version Upgrade: Yes, Maintenance Window: No Preference). A "Step" button is visible next to these options.

At the bottom right, there are buttons for "Cancel", "Previous", and "Launch DB Instance". A small asterisk and "Required" text are visible near the "Launch DB Instance" button.

Select Oracle Edition

Tell us your use case

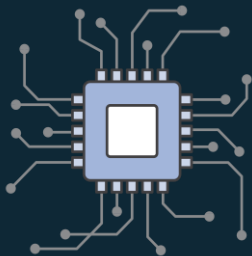
Specify DB Details

Configure Advanced Settings

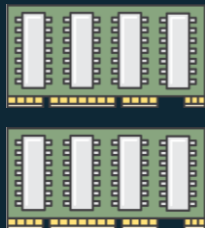
You're Done!

Scaling Compute And Storage On Amazon RDS

RDS DB Instance Class



Compute
Capabilities
vCPUs



Memory
Capabilities
GB of RAM



Network
Performance
MB/s (Throughput)

RDS Storage Type



Storage
Performance
I/O Throughput

Instance class families:

General Purpose (**M1,2,3,4**)

Memory Optimized (**R3**)

Burstable Capacity (**T2**)

Range of DB instance classes:

From: 1 vCPU and 1 GB of RAM

To: 64 vCPU and 244 GB RAM

Storage types:

Magnetic

Provisioned

General Purpose **aws**

Simple And Fast Compute Scaling On Amazon RDS

RDS Dashboard

Instances

Reserved Purchases

Snapshots

Security Groups

Parameter Groups

Option Groups

Subnet Groups

Events

Event Subscriptions

Notifications

◀

Modify DB Instance: sso36pora

Instance Specifications

DB Engine Version

Oracle 11.2.0.4.v3

DB Instance Class

db.m3.xlarge — 4 vCPU, 15 GiB RAM

Multi-AZ Deployment

Storage Type

Allocated Storage*

Provisioned IOPS

Settings

DB Instance Identifier

db.m3.2xlarge — 8 vCPU, 30 GiB RAM

New Master Password

db.r3.large — 2 vCPU, 15 GiB RAM

Network & Security

Contains the compute and memory capacity of the DB Instance.

Details: db.m3.xlarge

Type	Standard - Current Generation
vCPU	4 vCPU
Memory	15 GiB
EBS Optimized	500 Mbps
Network Performance	High
Free Tier Eligible	No

High Availability via Amazon RDS Multi-AZ

Do It Yourself Oracle

[Set up Oracle RAC clusters](#)

[Alternatively, set up primary and standby instances using Active Data Guard](#)

[Create and manage DNS entries](#)

[Detect instance failure conditions](#)

[Detect network failure conditions](#)

[Detect storage failure conditions](#)

[Decide when to fail-over....](#)

[Re-establish primary secondary connections.](#)

Amazon RDS Multi-AZ

Instance Specifications

DB Engine	oracle-se1
License Model	bring-your-own-license ▼
DB Engine Version	11.2.0.4.v7 ▼
DB Instance Class	db.m4.large — 2 vCPU, 8 GiB RAM ▼
Multi-AZ Deployment	Yes ▼ - Select One - No Yes
Storage Type	Yes
Allocated Storage*	10 GB

Potentially ~100+ Manual steps

Few clicks or One API call

Taking Care Of Backups And Maintenance

Backup

Backup Retention Period days

Backup Window

Maintenance

Auto Minor Version Upgrade

Maintenance Window

- Automated or manual backups
- Restore any backup to a point in time
- Automated patch management

Cross-Region Disaster Recovery in AWS

Choose cross-region snapshot copy for even greater durability, ease of migration

- Copy a database snapshot to a different AWS Region
- Restore in the case of a regional disaster
- Or use it to migrate a database to a different region

Make Copy of DB Snapshot?

Source DB Snapshot	rds:sso36pora-2016-04-09-12-14 ⓘ
Destination Region	US West (Oregon) ⓘ
New DB Snapshot Identifier	South America (São Paulo) ⓘ
Copy Tags	US East (N. Virginia) ⓘ
Enable Encryption	Asia Pacific (Tokyo)
	Asia Pacific (Singapore)
	Asia Pacific (Sydney)
	EU West (Ireland)
	Asia Pacific (Seoul)

Migrating Oracle Database to RDS

Data Pump

- Cross Platform
- Cross Version

Golden Gate

- EC2 Instance for Replicat process
- Zero Downtime
- Cost

Database Migration Service

- Most cost effective
- Zero Downtime

Migrating Oracle Database to EC2

RMAN Backup Restore

- Platform
- Version

Golden Gate

- EC2 Instance for Golden Gate
- Zero Downtime
- Cost

Database Migration Service

- Most cost effective
- Zero Downtime

Data Guard

- Zero Downtime

Oracle Database Options and Migration Impact

RAC

- Performance vs HA
- VMware and Flashgrid

ASM

- EC2
- RDS

Multitenant

- EC2

Data Guard

- EC2

Oracle Applications and Migration Impact

E-Business Suite

- EC2

PeopleSoft

- EC2
- RDS

Siebel

- EC2
- RDS

J D Edwards

- EC2
- RDS

ISV Applications

- RDS
- EC2
- Case to case basis

Custom Applications/COTS

Have you considered Amazon Aurora ?

What is Amazon Aurora?

Cloud-optimized relational database

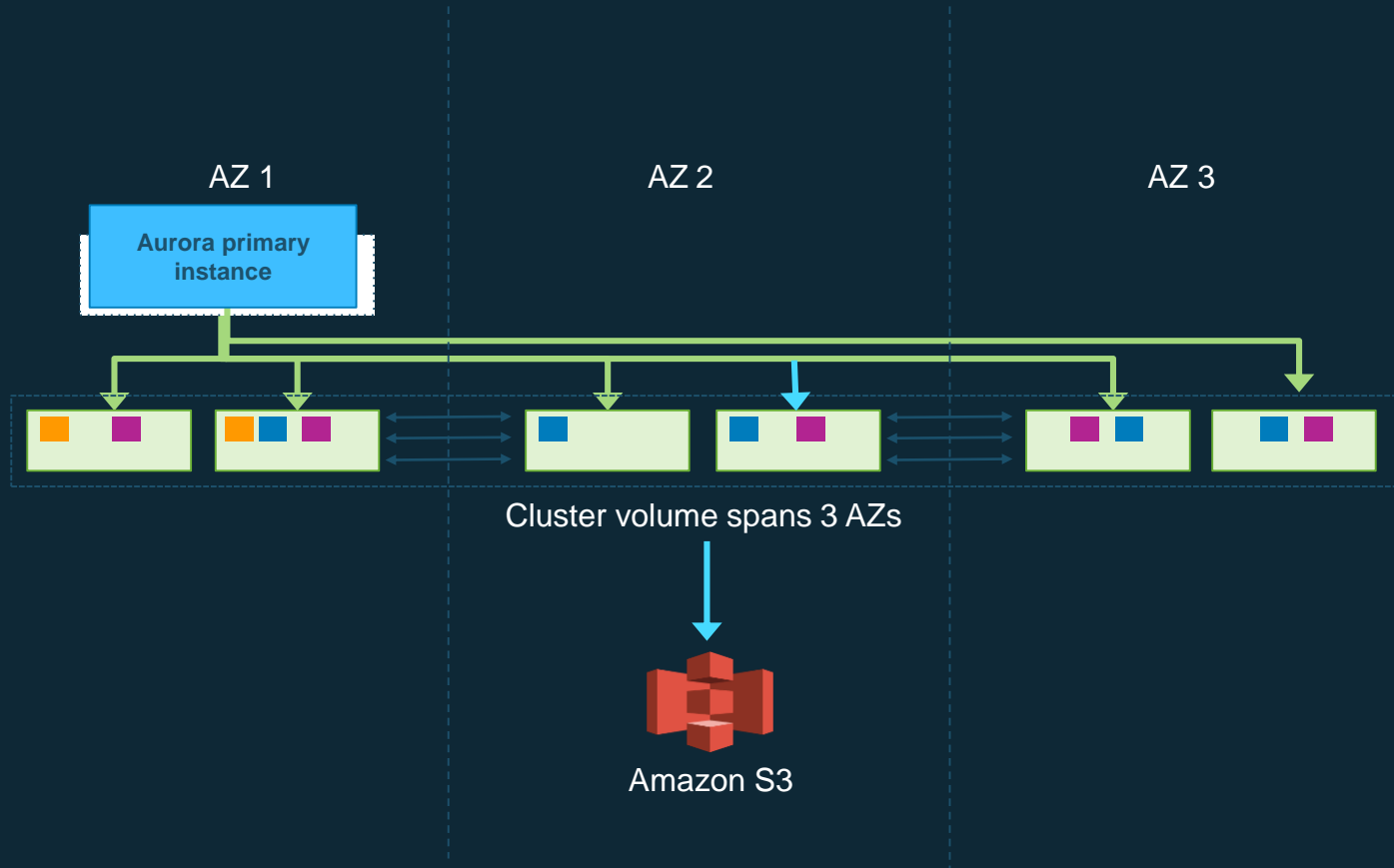
**Performance and availability of
commercial databases**

**Simplicity and cost-effectiveness of
open source databases,**

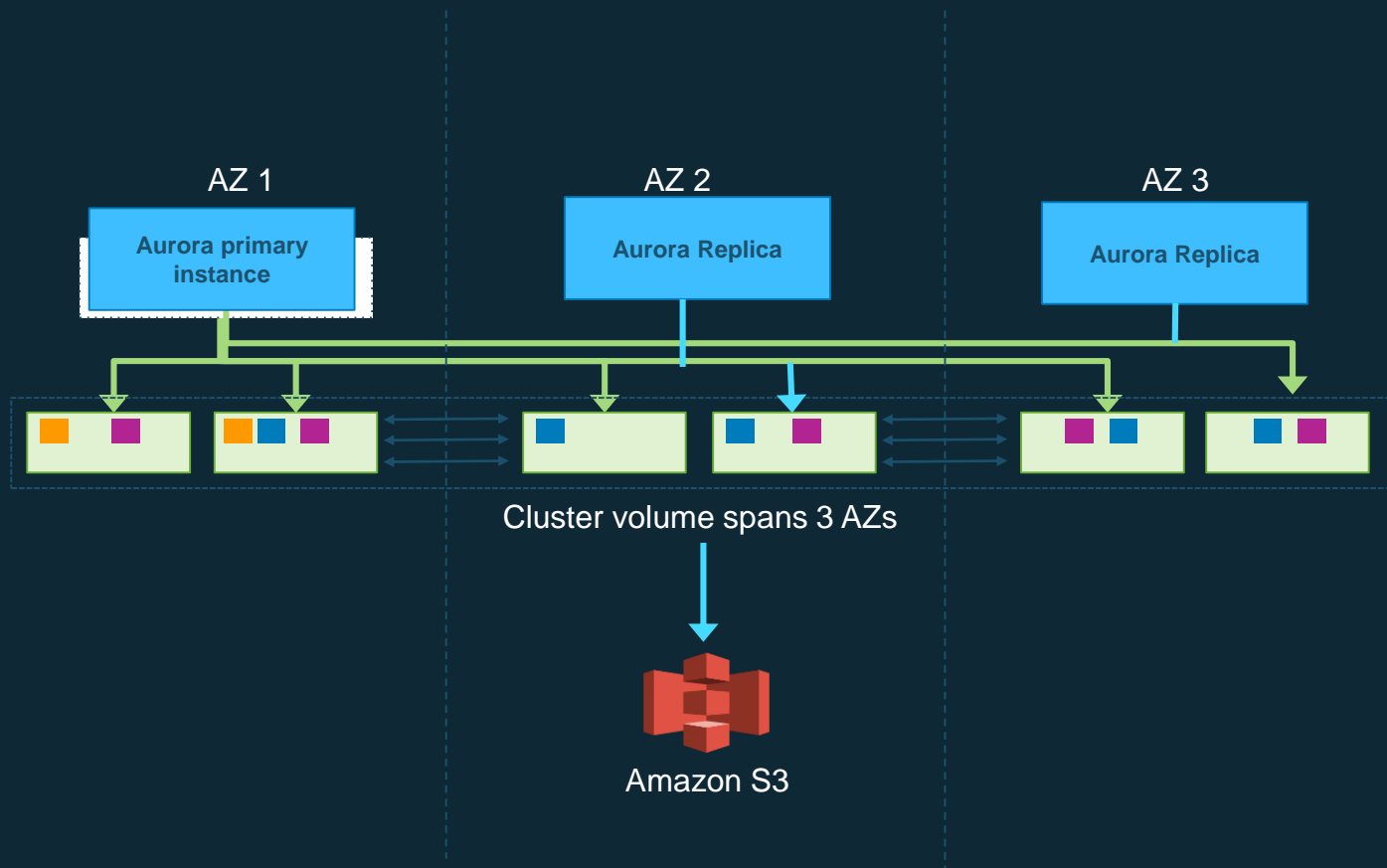
Amazon Aurora



Aurora cluster



Aurora cluster with replicas



What are DMS and SCT?

AWS Database Migration Service (DMS) easily and securely migrates and/or replicate your databases *and* data warehouses to AWS



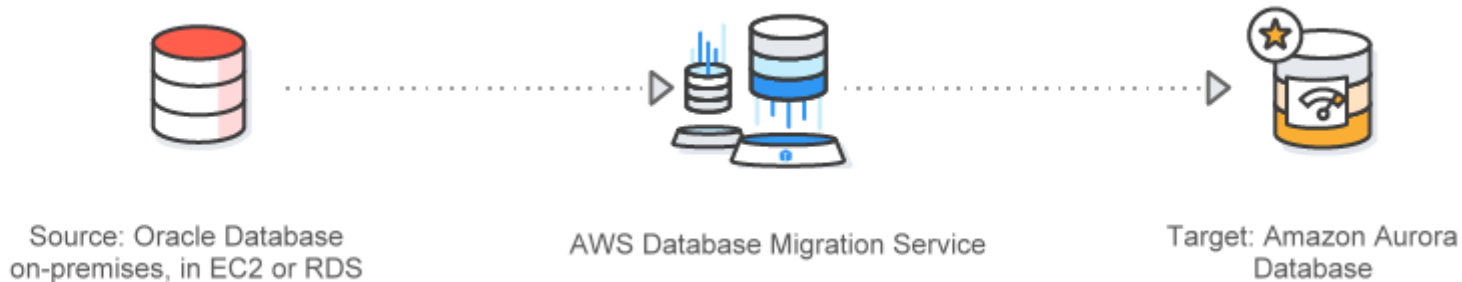
AWS Schema Conversion Tool (SCT) converts your commercial database and data warehouse schemas to open-source engines or AWS-native services, such as Amazon Aurora and Redshift

Database migration process

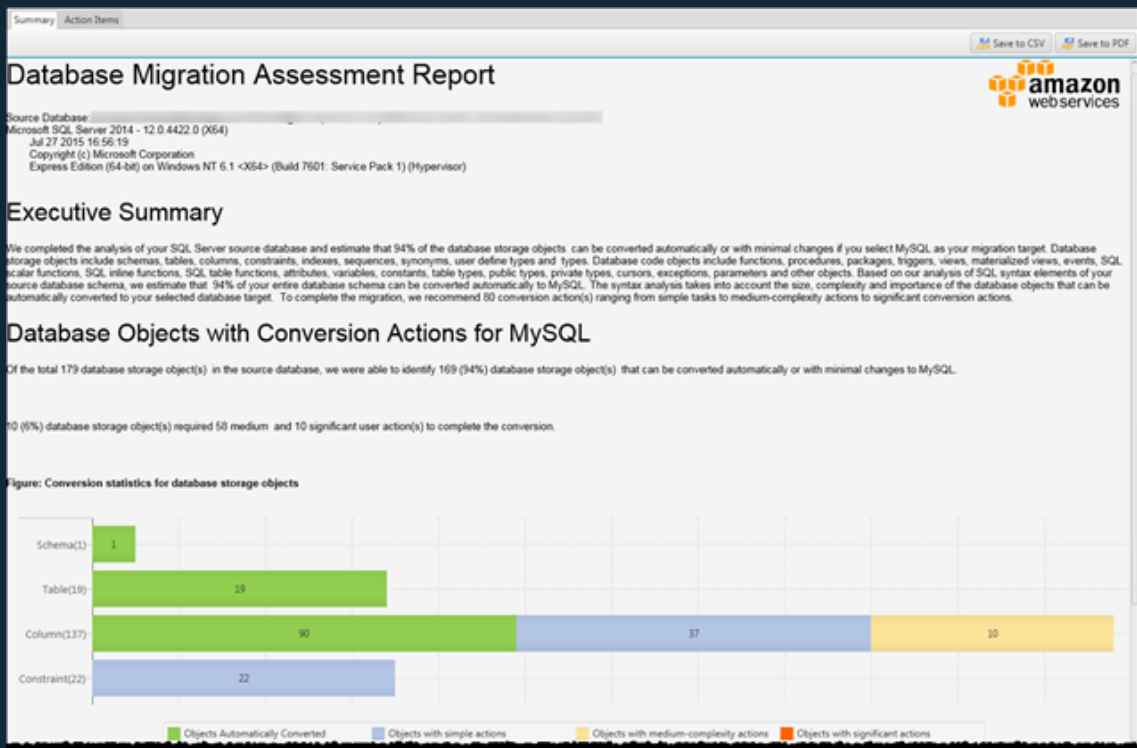
STEP 1:



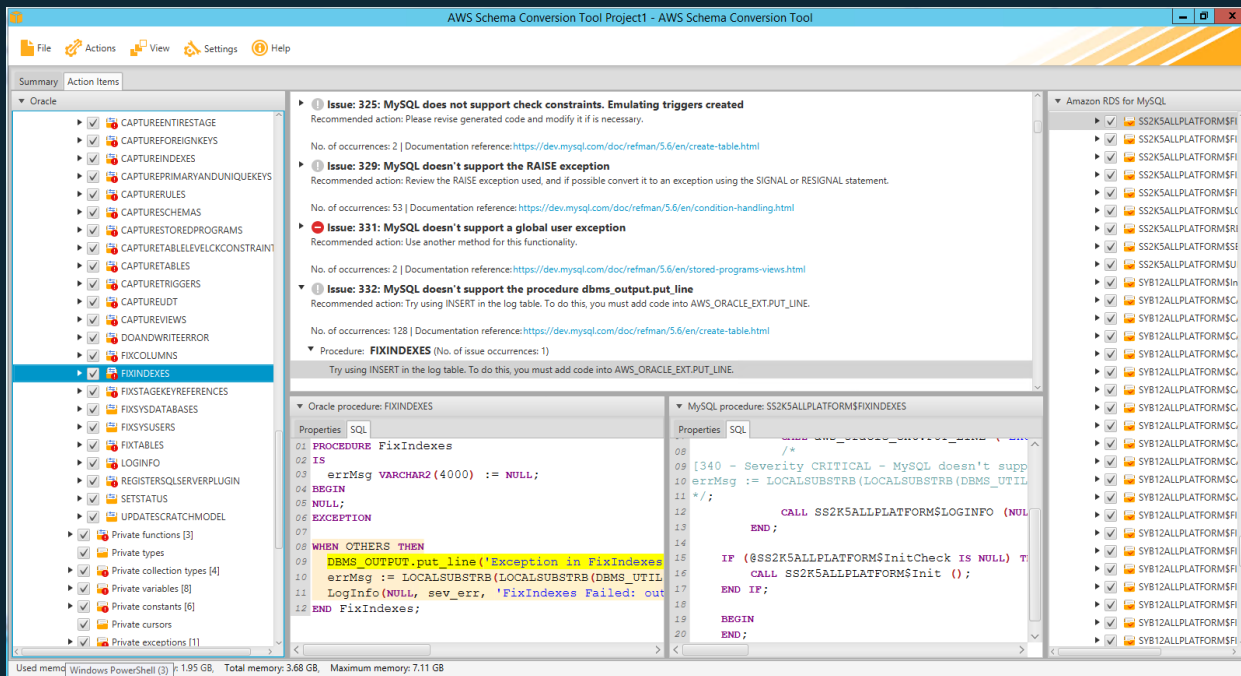
STEP 2:



SCT guidance



SCT helps with converting tables, views, and code



Sequences
User-defined types
Synonyms
Packages
Stored procedures
Functions
Triggers
Schemas
Tables
Indexes
Views
Sort and distribution keys



AWS Database Migration Service



ORACLE

Amazon Aurora



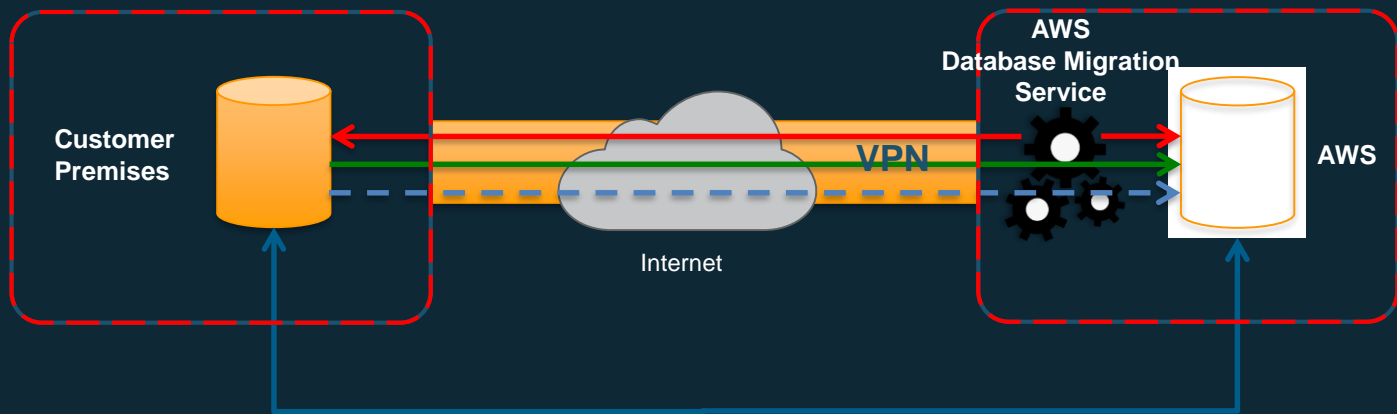
Start your first migration in 10 minutes or less

Keep your apps running during the migration

Replicate within, to or from Amazon EC2 or RDS

Move data to the same or a different database engine

Keep your Apps Running During the Migration



Start a replication instance
Connect to source and target
databases
Select tables, schemas, or databases



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

AWS database migration partners

slalom

**apps
associates**
extreme expertise

TriNimbus
Cloud Management Solutions

logicworks

DATAPIPE

USTGlobal®
Innovation • Information • Technology

DB-BEST
TECHNOLOGIES

iTMethods.

Cloud Innovator
MZMEGAZONE

Pythian
love your data®

CLOUDNEXA

KNOWARTH
DELIVERING EXCELLENCE

REAN
CLOUD

BRLink

Minjar

TRIANZ
Execution Matters.

BigData
Systems

2NDWATCH
AWS

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