Get your database to the cloud

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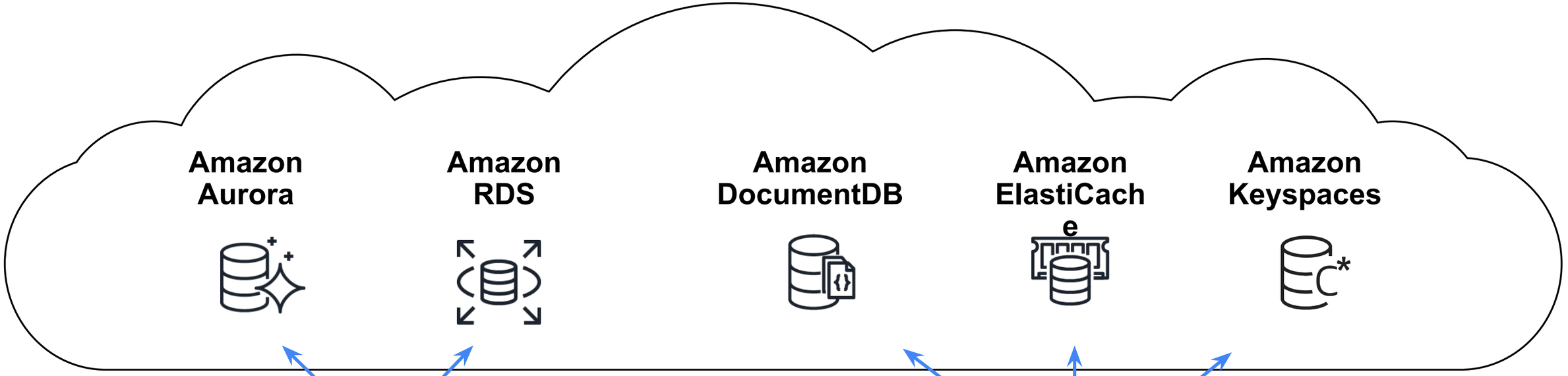
Move to fully managed databases

Migrate on-premises or self-managed databases to fully managed services



Relational databases

ORACLE

MySQL

Microsoft SQL Server

PostgreSQL

MariaDB

Non-relational databases

mongoDB

cassandra

redis

Memcached

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Time consuming, complex, and expensive

- Hardware & software installation and management
- Security and compliance
- Lack of innovation and direct business benefits

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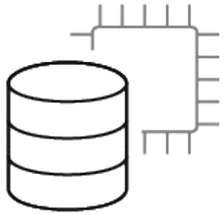
Drivers for migration



Infrastructure

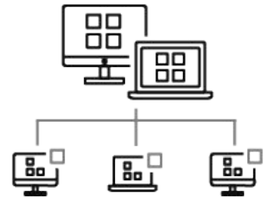
- Hardware end of life
- Lack of redundancy or automation
- Failure at different layers

Cost optimization

- Pay for what you use
- Open source options, license savings
- Fully managed databases

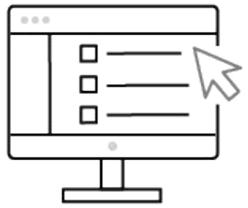
Scalability

- Change instance sizes as required
- Scale across regions as required



Innovation

- Modernize your database tier
- Choose the right database for your workload



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AWS migration tooling

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

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

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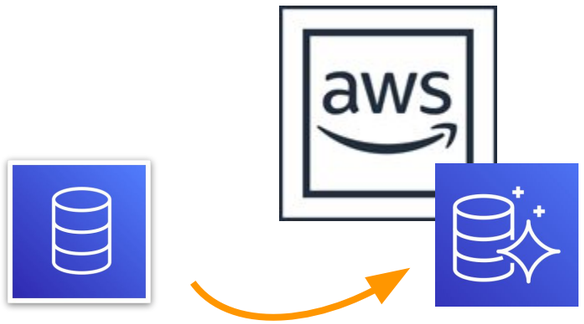
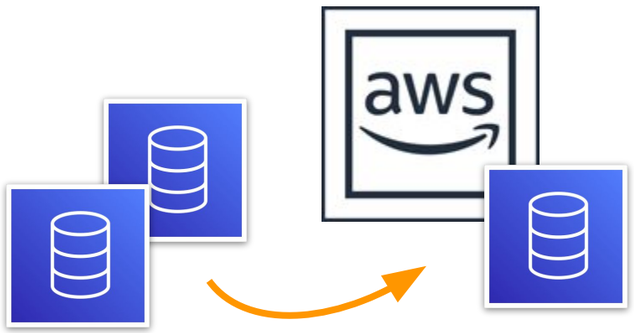
When to use AWS DMS and AWS SCT

Modernize



Migrate

Replicate



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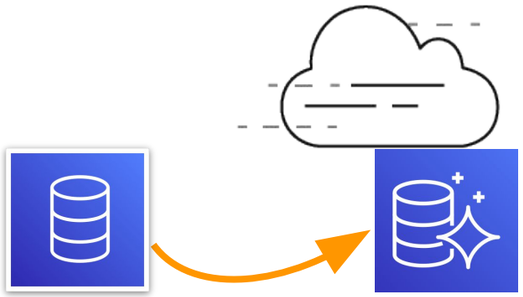
General use cases

Migrate



Migrate business-critical applications

Migrate data warehouses to Amazon Redshift

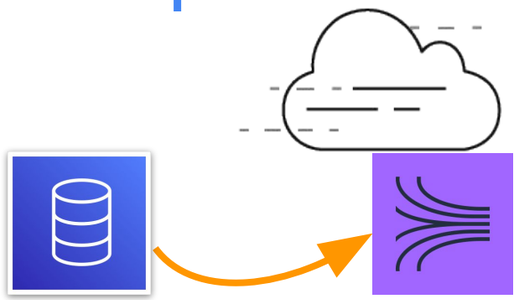
Upgrade to a minor / major version

Consolidate shards into Amazon Aurora

Archive old data to Amazon S3

Migrate from NoSQL to SQL, SQL to NoSQL, or NoSQL to NoSQL

Replicate



Create cross-region read replicas

Run your analytics in the cloud

Hydrate your data lakes

Replicate to streaming platforms

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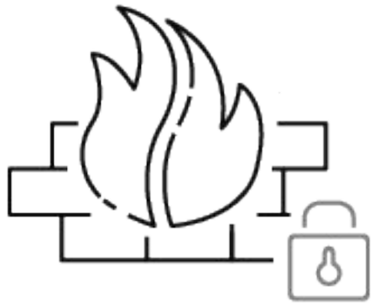
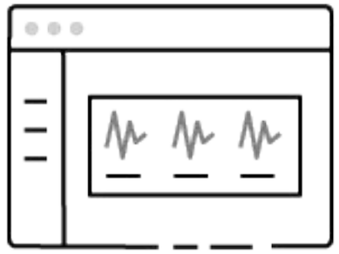
AWS DMS product highlights

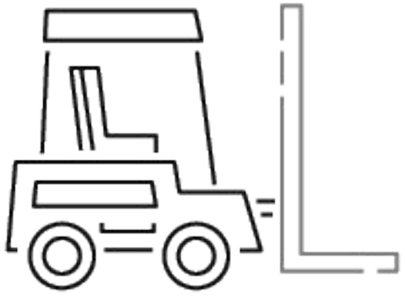


Secure

Assess



Validate



AWS Snowball integration

Monitor

Stream data

Low cost

Multiple options

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AWS Schema Conversion Tool (AWS SCT)

Modernize

- **Modernize your database**

  Convert your Oracle, SQL Server, Sybase ASE, or Db2 for Linux, Unix, and Windows (Db2 LUW) database to PostgreSQL, MySQL, or Amazon Aurora

- **Modernize your data warehouse**

  Convert your Oracle, SQL Server, Netezza, Greenplum,Vertica, or Teradata data warehouse to Amazon Redshift

MySQL

Amazon Aurora

PostgreSQL

Amazon Redshift

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Database migration assessment

Database migration assessment report

Source database:

Oracle Database 12c Enterprise Edition 12.1.0.2.0 (64bit Production), Enterprise edition

Executive summary

We completed the analysis of your Oracle source database and estimate that 98% of the database storage objects and 96% of database code objects can be converted automatically or with minimal changes if you select Amazon RDS for PostgreSQL as your migration target. Database storage objects include schemas, tables, table constraints, indexes, types, collection types, sequences, synonyms, view-constraints, clusters and database links. Database code objects include triggers, views, materialized views, materialized view logs, procedures, functions, packages, package constants, package cursors, package exceptions, package variables, package functions, package procedures, package types, package collection types, scheduler-jobs, scheduler-programs and scheduler-schedules. Based on the source code syntax analysis, we estimate 99.8% (based on # lines of code) of your code can be converted to Amazon RDS for PostgreSQL automatically. To complete the migration, we recommend 6 conversion action(s) ranging from simple tasks to medium-complexity actions to significant conversion actions.

Migration guidance for database objects that could not be converted automatically can be found here

Database objects with conversion actions for Amazon RDS for PostgreSQL

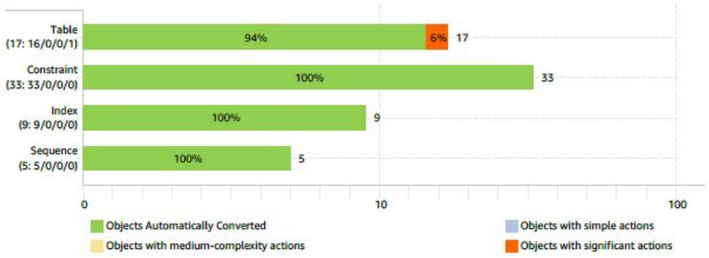
Of the total 64 database storage object(s) and 23 database code object(s) in the source database, we identifed 63 (98%) database storage object(s) and 22 (96%) database code object(s) that can be converted to Amazon RDS for PostgreSQL automatically or with minimal changes.

The target database version is less than PostgreSQL 11.1 (11.1). The converted code might not work properly.

1 (2%) database storage object(s) require 1 significant user action(s) to complete the conversion.

1 (4%) database code object(s) require 1 medium user action(s) to complete the conversion.

Figure: Conversion statistics for database storage objects



- Connect AWS SCT to source and target databases
- Run assessment report
- Read executive summary
- Follow detailed instructions

Database migration assessment report

Source database:

Oracle Database 12c Enterprise Edition 12.1.0.2.0 (64bit Production), Enterprise edition

Package Procedure Changes

Not all package procedures can be converted automatically. Youll need to address these issues manually.

Issue 5584: Converted functions depends on the time zone settings

Recommended action: Review the transformed code, and set time zone manually if necessary.

Issue code: 5584 | Number of occurrences: 2 | Estimated complexity: Simple

Documentation references: http://www.postgresql.org/docs/9.6/static/functions-datetime.html

Schemas.DMS_SAMPLE.Packages.TICKETMANAGEMENT.Private procedures.TRANSFERTICKET: 1463:1469
Schemas.DMS_SAMPLE.Packages.TICKETMANAGEMENT.Public procedures.SELLTICKETS: 1772:1778

Package Function Changes

Not all package functions can be converted automatically. Youll need to address these issues manually.

Issue 5644: Unable automatically convert assign operation of array or global nested table,

Recommended action: Perform a manual conversion.

Issue code: 5644 | Number of occurrences: 1 | Estimated complexity: Medium

Schemas.DMS_SAMPLE.Packages.TICKETMANAGEMENT.Private functions.GET_OPEN_EVENTS: 270:297

Procedure Changes

Not all procedures can be converted automatically. Youll need to address these issues manually.

Issue 5103: Unable to convert hints

Recommended action: Use PostgreSQL methods for performance tuning.

Issue code: 5103 | Number of occurrences: 2 | Estimated complexity: Simple

Documentation references: http://www.postgresql.org/docs/9.6/static/geqo.html

Schemas.DMS_SAMPLE.Procedures.GENERATESEATS: 2041:2089
Schemas.DMS_SAMPLE.Procedures.GENERATE_TICKETS: 290:1184

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AWS SCT data extractors

EXTRACT DATA FROM YOUR DATA WAREHOUSE AND MIGRATE TO AMAZON REDSHIFT

Extract data through local migration agents

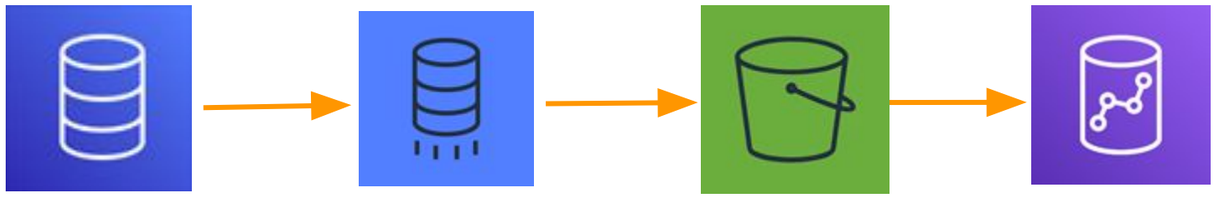
Data is optimized for Amazon Redshift and saved in local files

Files are loaded to an Amazon S3 bucket (through network or Snowball Edge) and then to Amazon Redshift

VERTICA ORACLE

Microsoft SQL Server Teradata

Netezza



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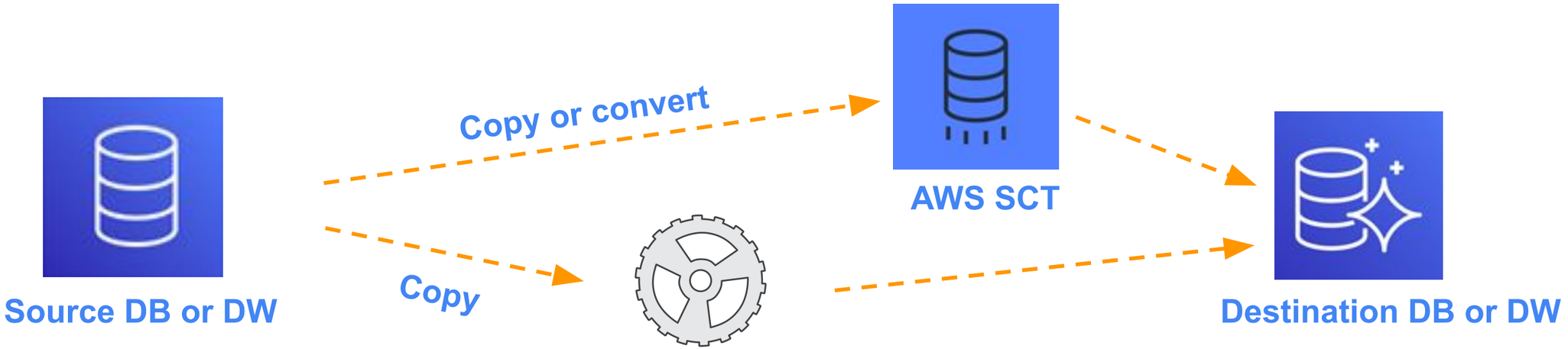
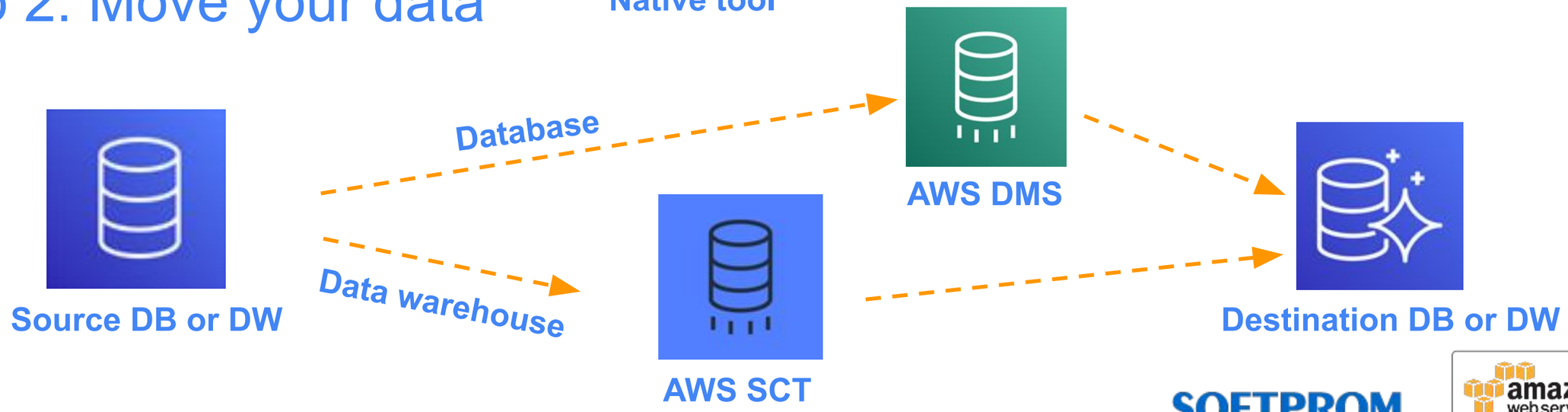
Database migration process

Step 1: Convert or copy your schema



Step 2: Move your data



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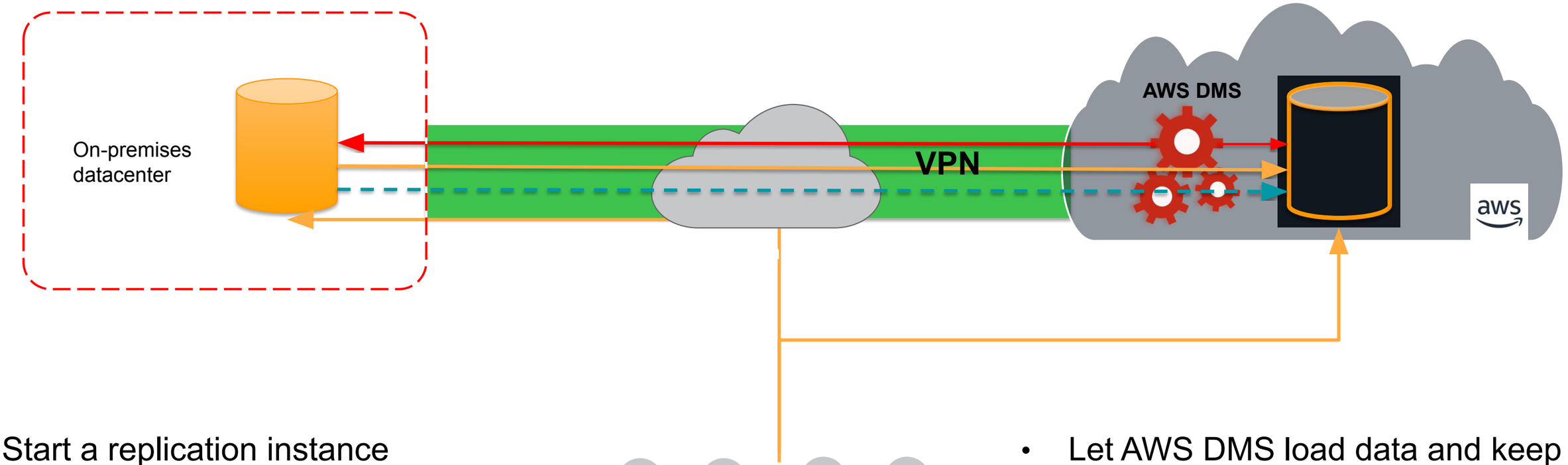
The data migration process



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

Application users

- Let AWS DMS load data and keep them in sync
- Switch applications over to the target after they are in sync at your convenience

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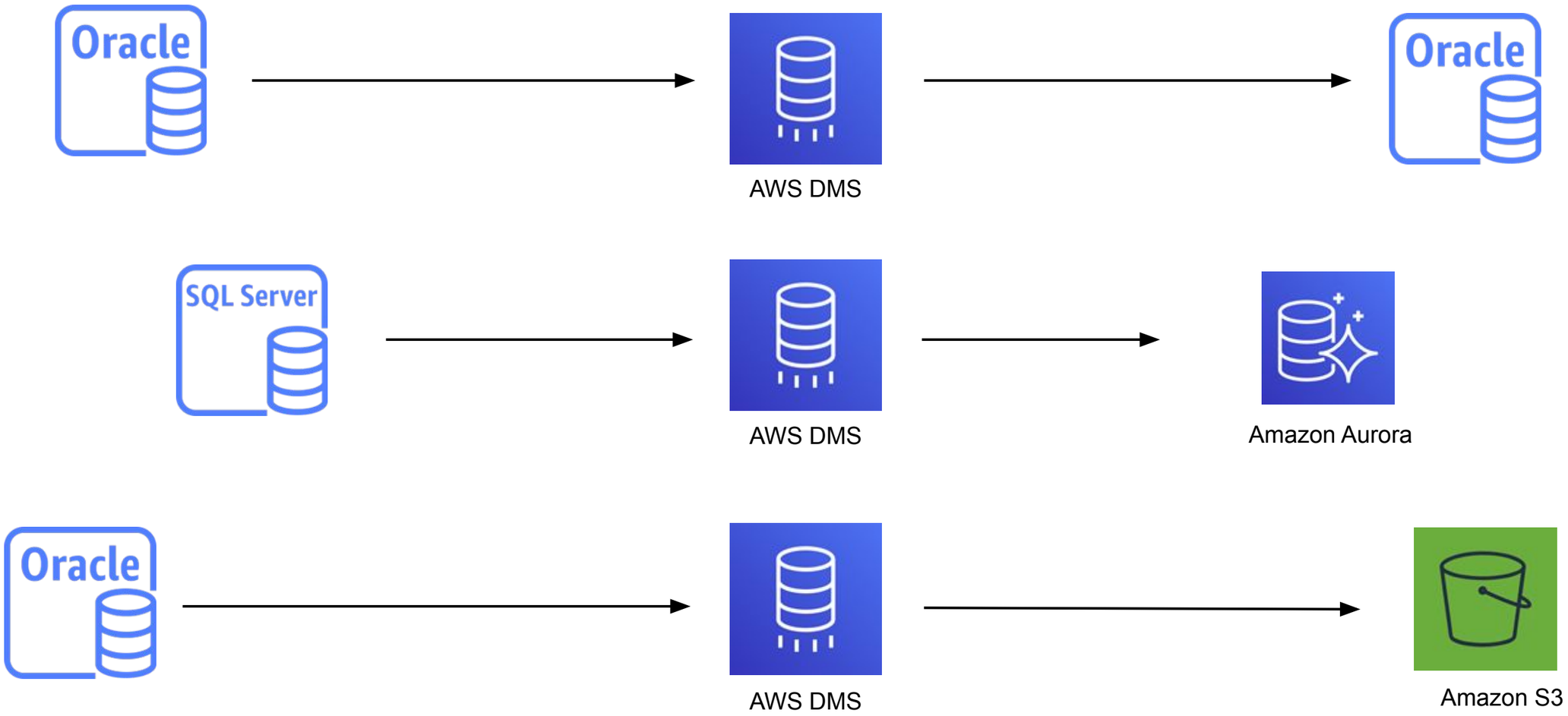
Homogeneous or heterogeneous



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Supported source and targets

Relational

NoSQL

Analytics

Data warehouse*

Sources

Oracle, MySQL, Amazon Aurora, MongoDB, Cassandra, Amazon S3, AWS Snowball, Oracle, SQL Server, Netezza, PostgreSQL, SQL Server, MariaDB, SAP ASE, Db2 LUW, SQL Azure, Greenplum, Teradata, Vertica

Targets

Oracle, MySQL, Amazon Aurora, Amazon DynamoDB, Amazon Elasticsearch Service, Amazon Kinesis Data Streams, Amazon Redshift, PostgreSQL, SQL Server, MariaDB, SAP ASE, Amazon DocumentDB (with MongoDB compatibility), Amazon S3, Amazon Managed Streaming for Kafka

*** Supported via AWS SCT data extractors**

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Additional resources

Getting started guide: Review technical documentation

https://docs.aws.amazon.com/dms/latest/userguide/CHAP_GettingStarted.html

DMS Homepage: Highlights DMS features and benefits

https://aws.amazon.com/dms/

Pricing: Prices for replication instances, storage, and data transfer

https://aws.amazon.com/dms/pricing

Support: Post your questions to our support forum

https://forums.aws.amazon.com/forum.jspa?forumID=216

AWS SDK: Java-based API for creating and managing data migration tasks

https://docs.aws.amazon.com/dms/latest/APIReference/Welcome.html

AWS Command Line Interface: Manage replication tasks with simple commands

https://docs.aws.amazon.com/cli/latest/reference/dms/index.html

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