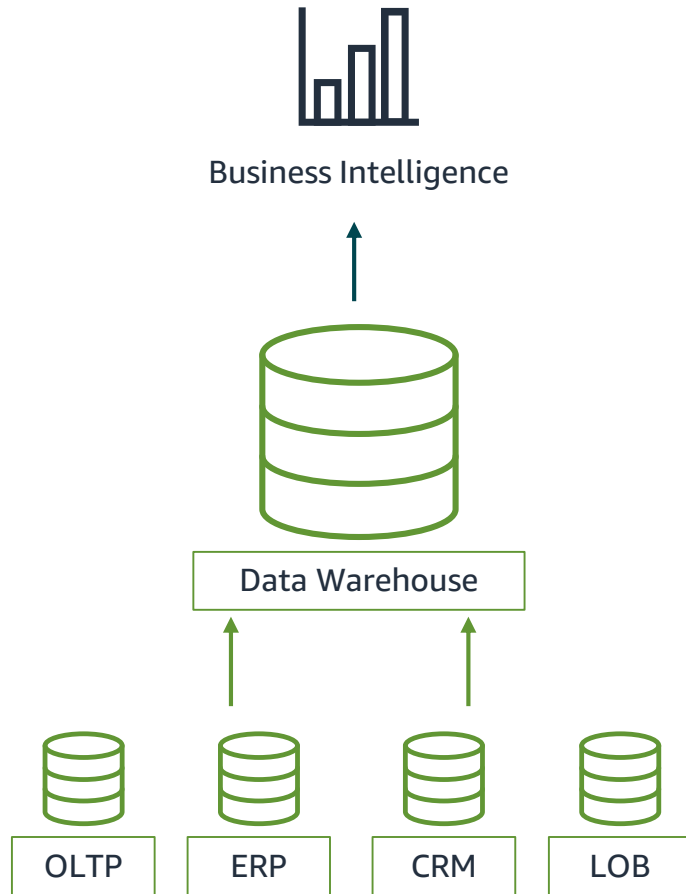# Enterprise Data Warehouse Offload and Migration (Level 200)

David McAmis, Partner Solution Architect

Traditional Data Warehousing

Business Intelligence

Data Warehouse

OLTP ERP CRM LOB

Relational data

TBs-PBs scale

Schema defined prior to data load

Operational reporting and ad hoc

Large initial capex + $10k-$50k / TB / Year

Amazon Redshift – 10x faster at 1/10th the cost

Fast
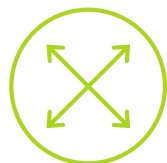Delivers fast results for all types of workloads

Simple
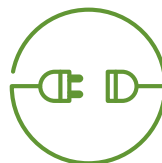Create and start using a data warehouse in minutes

Cost-effective
No upfront costs, start small, and pay as you go

Scalable
Gigabytes to petabytes to exabytes

Integrated
Integrated with S3 data lakes, AWS services and third-party tools

Secure
Audit everything; encrypt data end-to-end; extensive certification and compliance

aws | intel

Data Warehouse Migration

- How quickly and easily can I migrate my on-premises data warehouse to the cloud?

- How can I minimize application downtime during the migration?

- How can I start offloading data to leverage the compute power of the cloud?

- Are there ways to automate schema conversion and conflict analysis?

- Can I migrate off commercial databases or data warehousing appliances?

What are DMS and SCT?

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

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

We have migrated over 70,000 unique databases. And counting…

AWS Database Migration Service

AWS Database Migration Service

Simple to Use

Minimal Downtime

Supports Most Widely Used Databases

Low Cost

Fast and Easy to Set-up

Reliable

When to use AWS DMS

- Migrate databases to AWS with minimal downtime
- Database consolidation on AWS
- Continuous data replication with high availability
- Offload data warehouse data to run analytics in the cloud using Amazon Redshift
- Migrate data warehouses to Amazon Redshift
- Good network connectivity between your data center and AWS
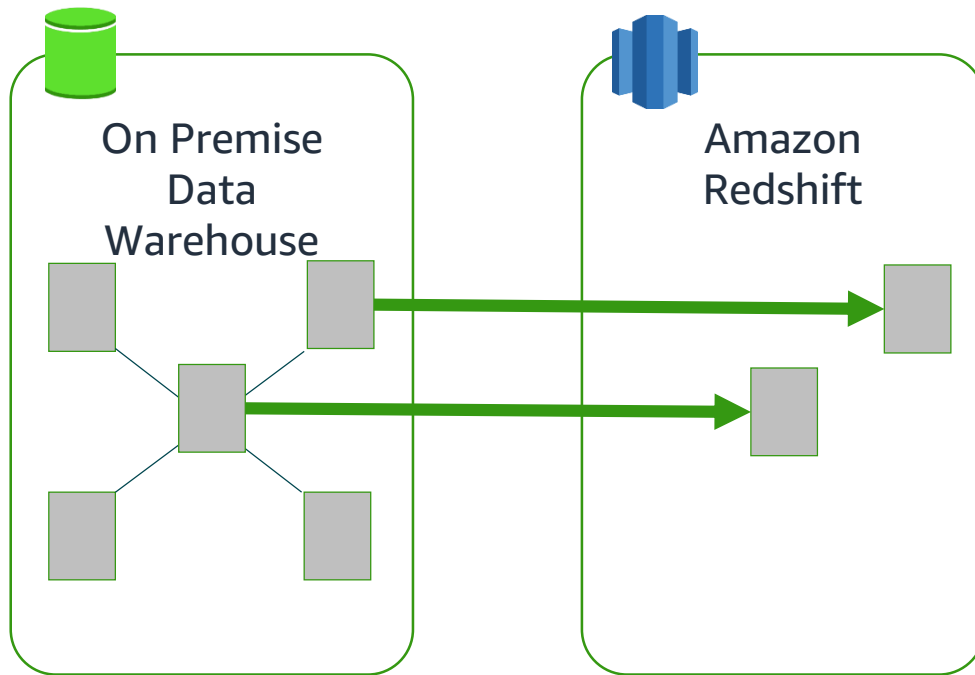- Source database engine is supported

Sources

ORACLE
Microsoft SQL Server
MySQL
mongoDB.
PostgreSQL
Amazon S3
MariaDB
SQL

Targets

Amazon S3
Microsoft SQL Server
MariaDB
Amazon Redshift
MySQL
PostgreSQL
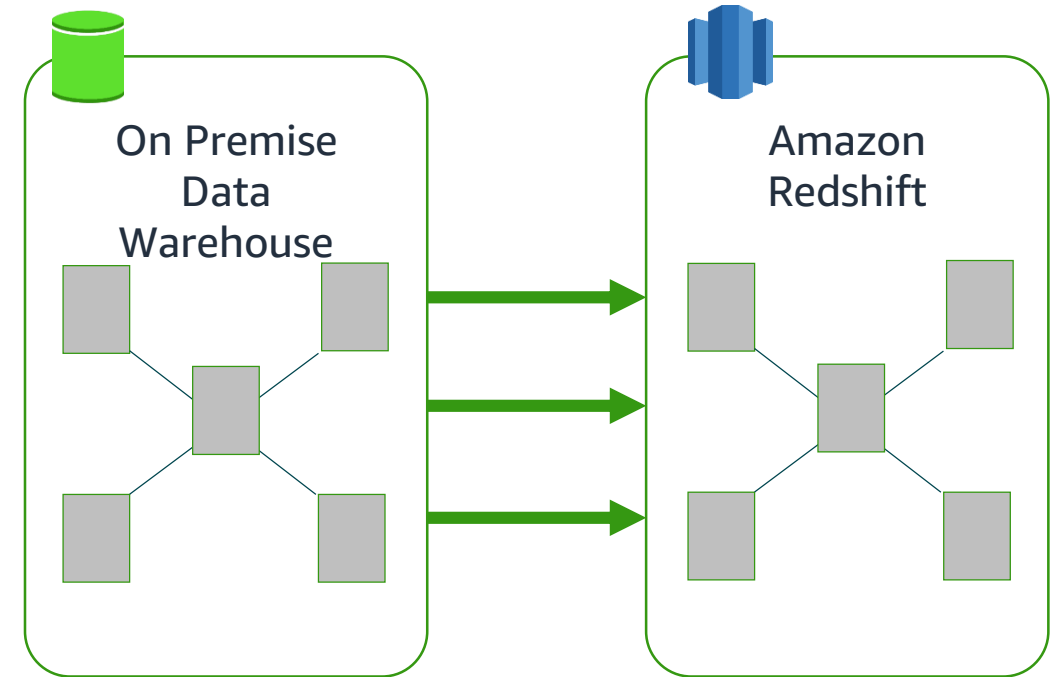Amazon Aurora
Amazon Dynamo DB
ORACLE

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Offload vs Migration

Offload vs Migration

Offload data warehouse data to run analytics in the cloud using Amazon Redshift

Migrate entire data warehouse to Amazon Redshift
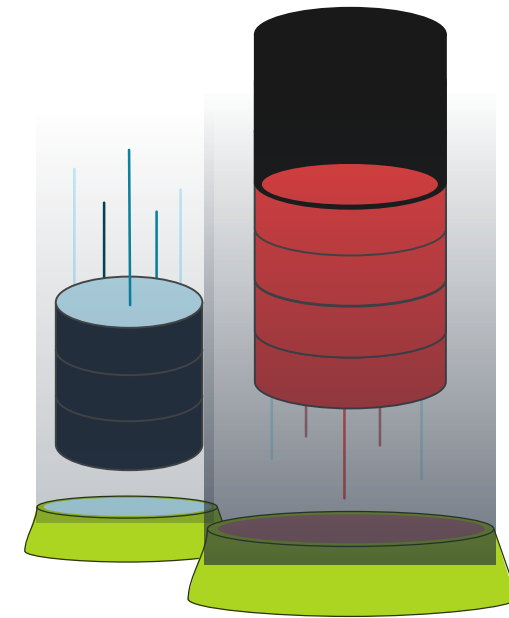
AWS Schema Conversion Tool

AWS Schema Conversion Tool

Automate many database schema and code conversion tasks when migrating from source to target database engines

Convert data warehouse schemas

Code browser that highlights places where manual edits are required
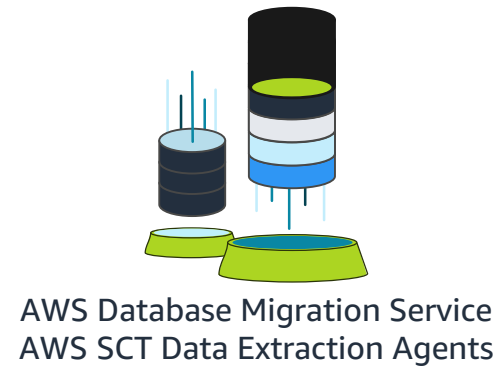
Secure connections to your databases with SSL
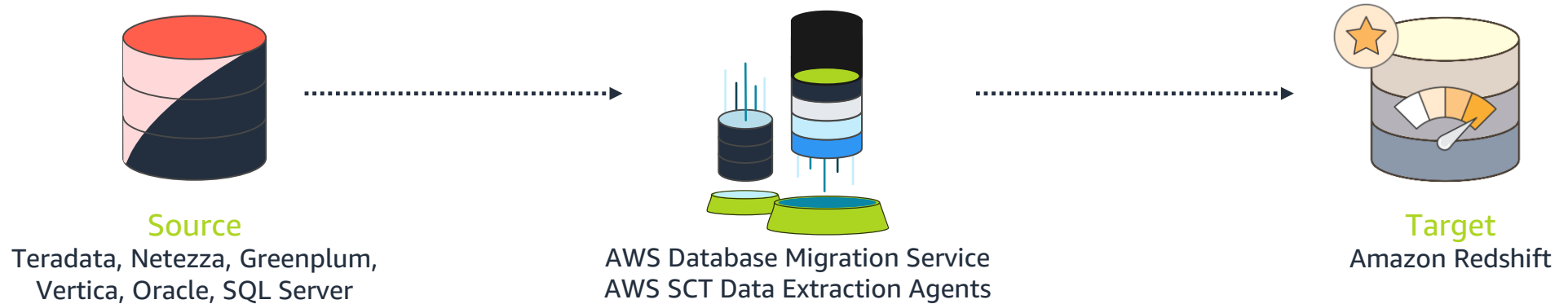
Data Warehouse Migration Process

Step 1

Source
Teradata, Netezza, Greenplum,
Vertica, Oracle, SQL Server

AWS Schema Conversion Tool

Target
Amazon Redshift

Step 2

AWS Database Migration Service
AWS SCT Data Extraction Agents

Data Warehouse Migration Process

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Teradata, Netezza, Greenplum,
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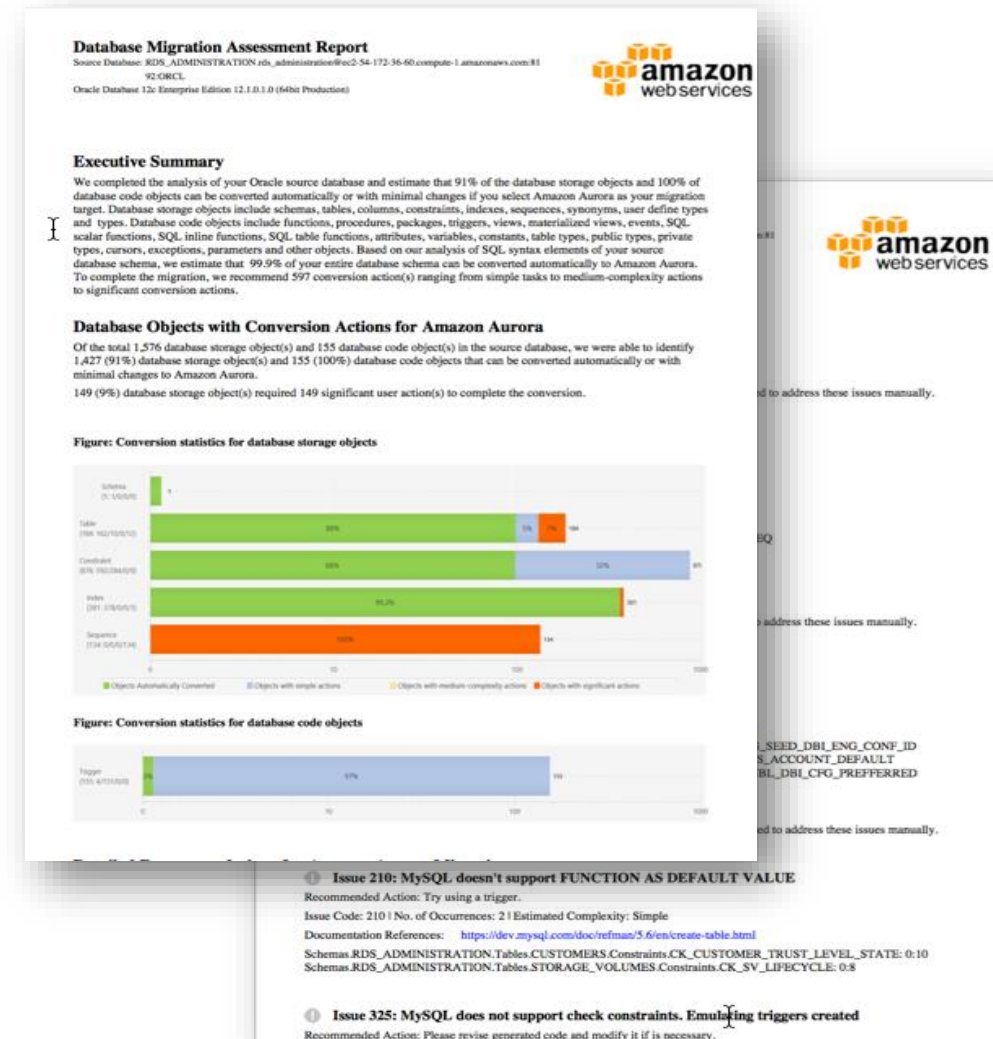AWS Database Migration Service
AWS SCT Data Extraction Agents

Target
Amazon Redshift

Database Migration Assessment

- Connect AWS SCT to source and target databases

- Run assessment report

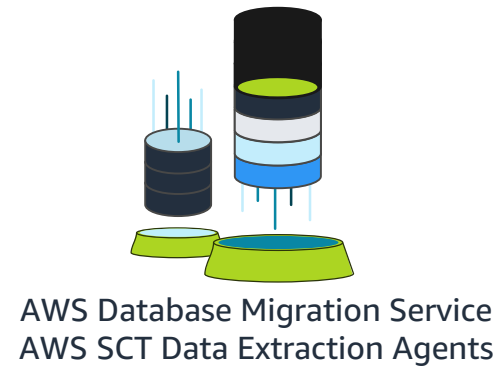- Read executive summary

- Follow detailed instructions
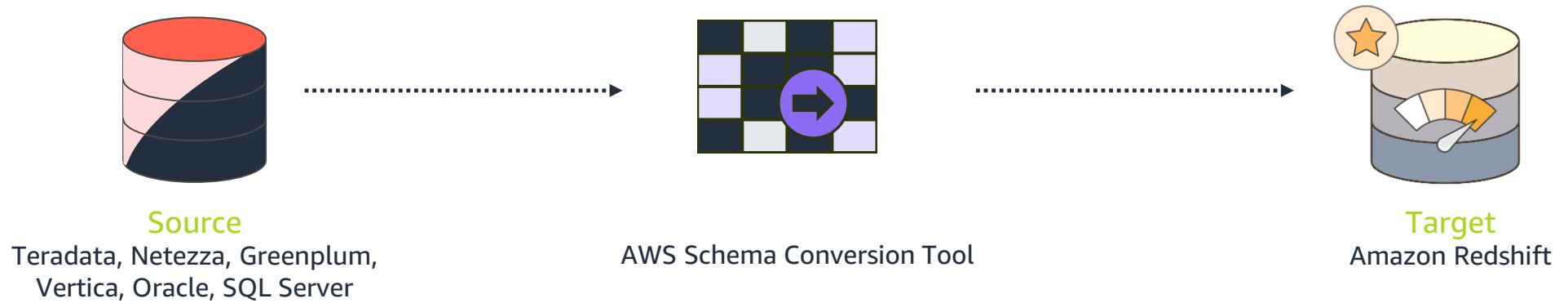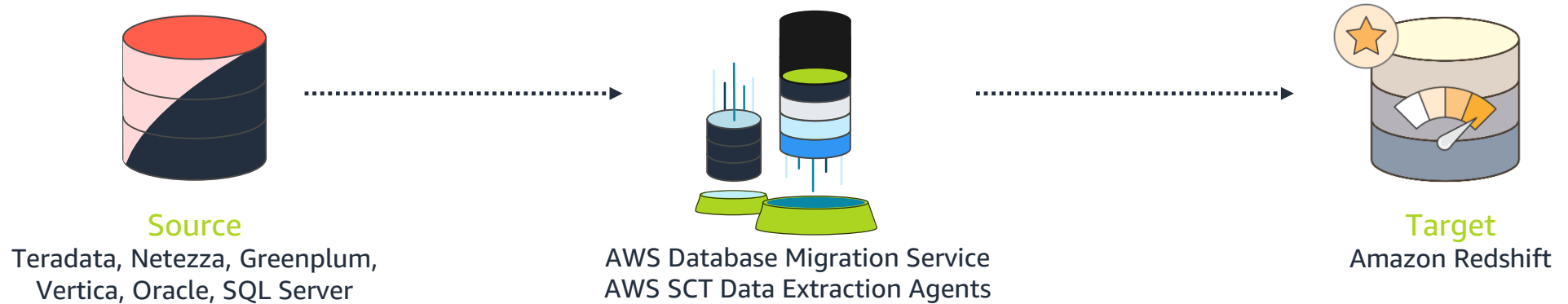
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AWS Database Migration Service
AWS SCT Data Extraction Agents

Target
Amazon Redshift

AWS SCT Data Extraction Agents

- Extracts 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 AWS Snowball) and then to Amazon Redshift

AWS SCT   Amazon S3 bucket   Amazon Redshift
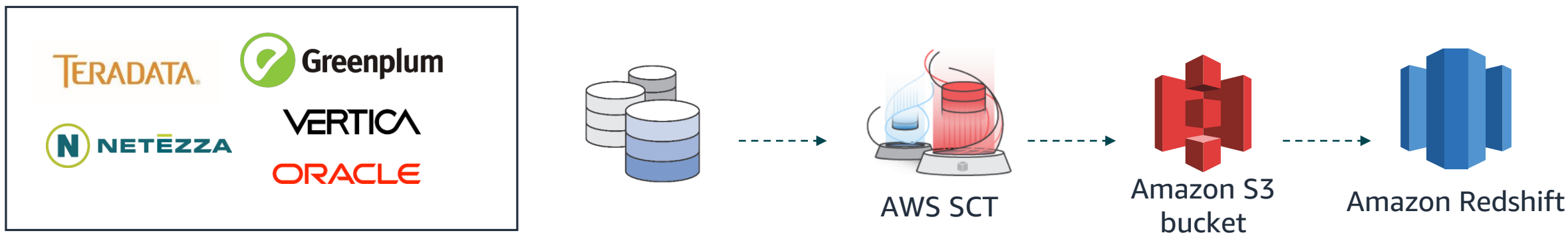
AWS SCT Data Extraction Agents

Extraction Agents can be installed on:

- macOS
- Windows
- Red Hat Enterprise Linux (RHEL) 6.0
- Ubuntu Linux (version 14.04 and later)

And the agents support the following source data warehouses:

- Greenplum Database (version 4.3 and later)
- Netezza (version 7.0.3 and later)
- Teradata (version 13 and later)
- Vertica (version 7.2.2 and later)
- Oracle (version 10 and later)
- Microsoft SQL Server (version 2008 and later)

When to use AWS SCT Data Extractors

- Migrate databases to AWS

- Large-scale data migrations (TB-PB)

- Offload data warehouse data to run analytics in the cloud using Amazon Redshift

- Migrate data warehouses to Amazon Redshift

- Source database engine or data warehouse appliance is supported

- When you need the option of using your network to transfer the data or using the AWS Snowball service
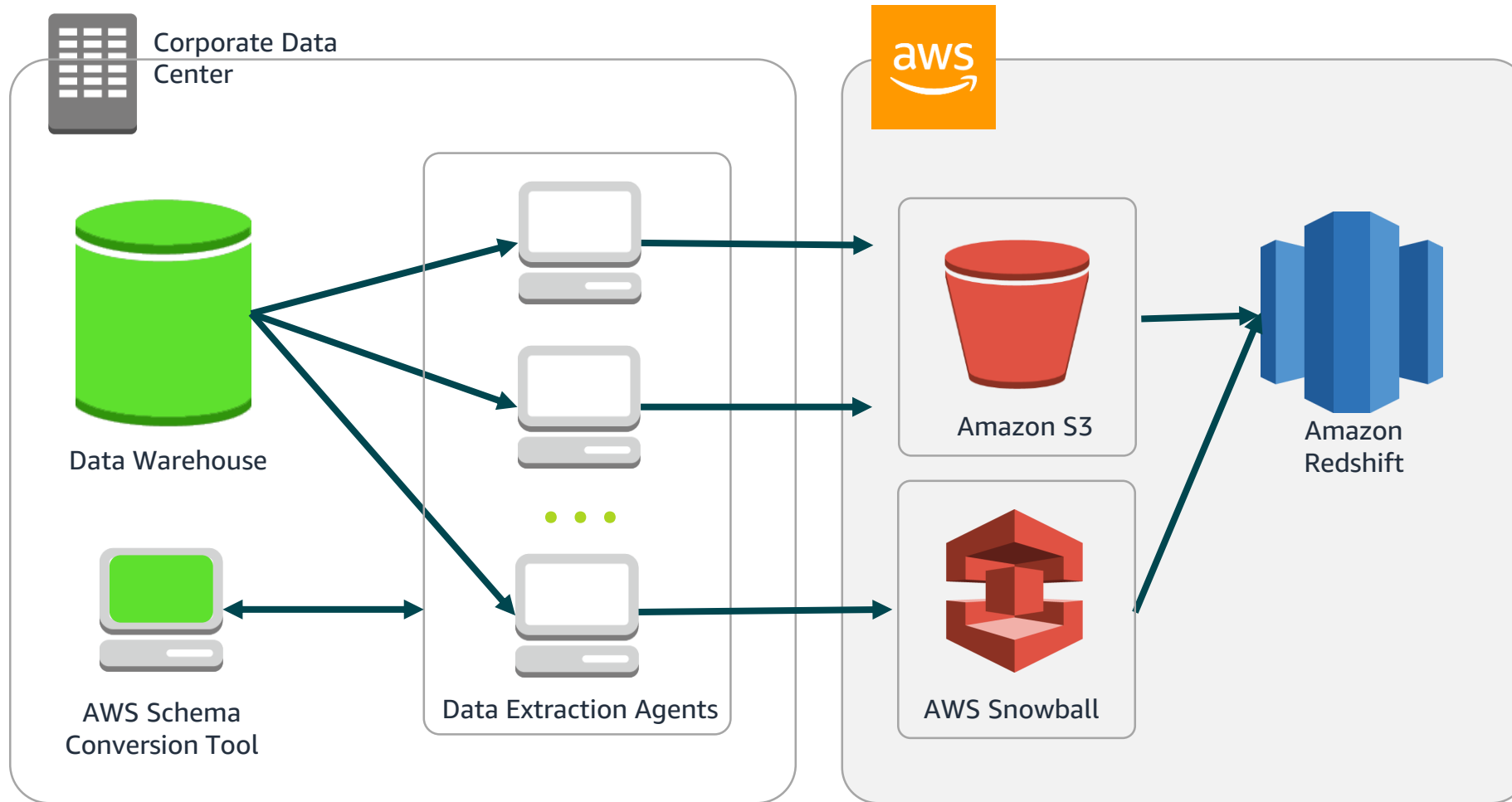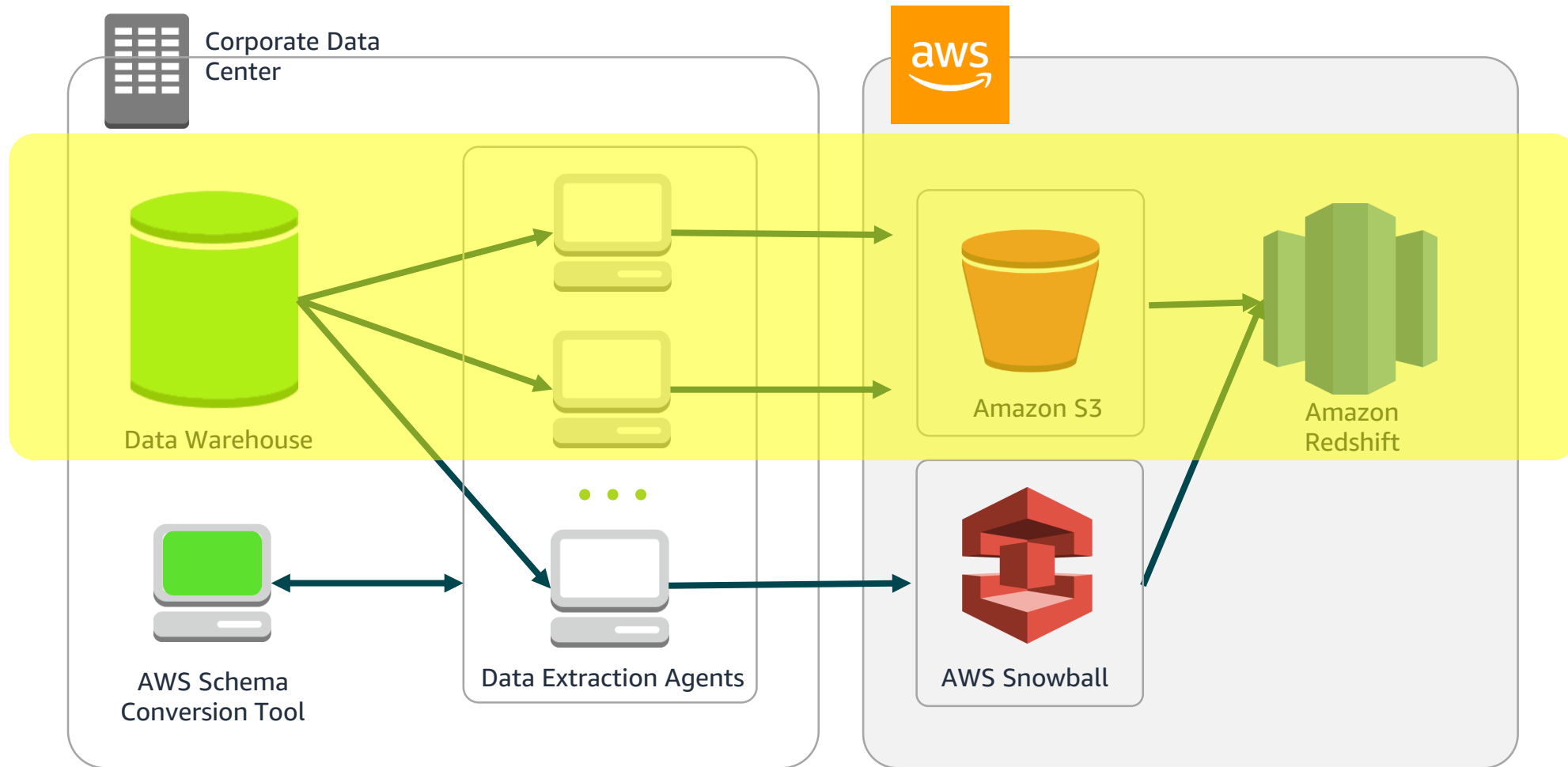
Sources

ORACLE   Microsoft® SQL Server®

Greenplum

VERTICA   TERADATA.

N NETEZZA

Targets

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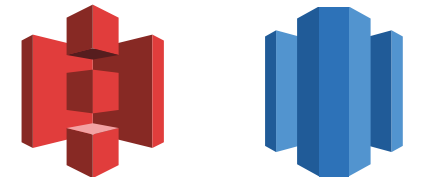
Using the Data Extraction Agents

Data Warehouse Offload Workflow

Data Warehouse Offload Workflow

Corporate Data Center

Data Warehouse

AWS Schema Conversion Tool

Data Extraction Agents

aws

Amazon S3

Amazon Redshift

AWS Snowball

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Data Warehouse Offload Tasks

Convert Data Warehouse Schema

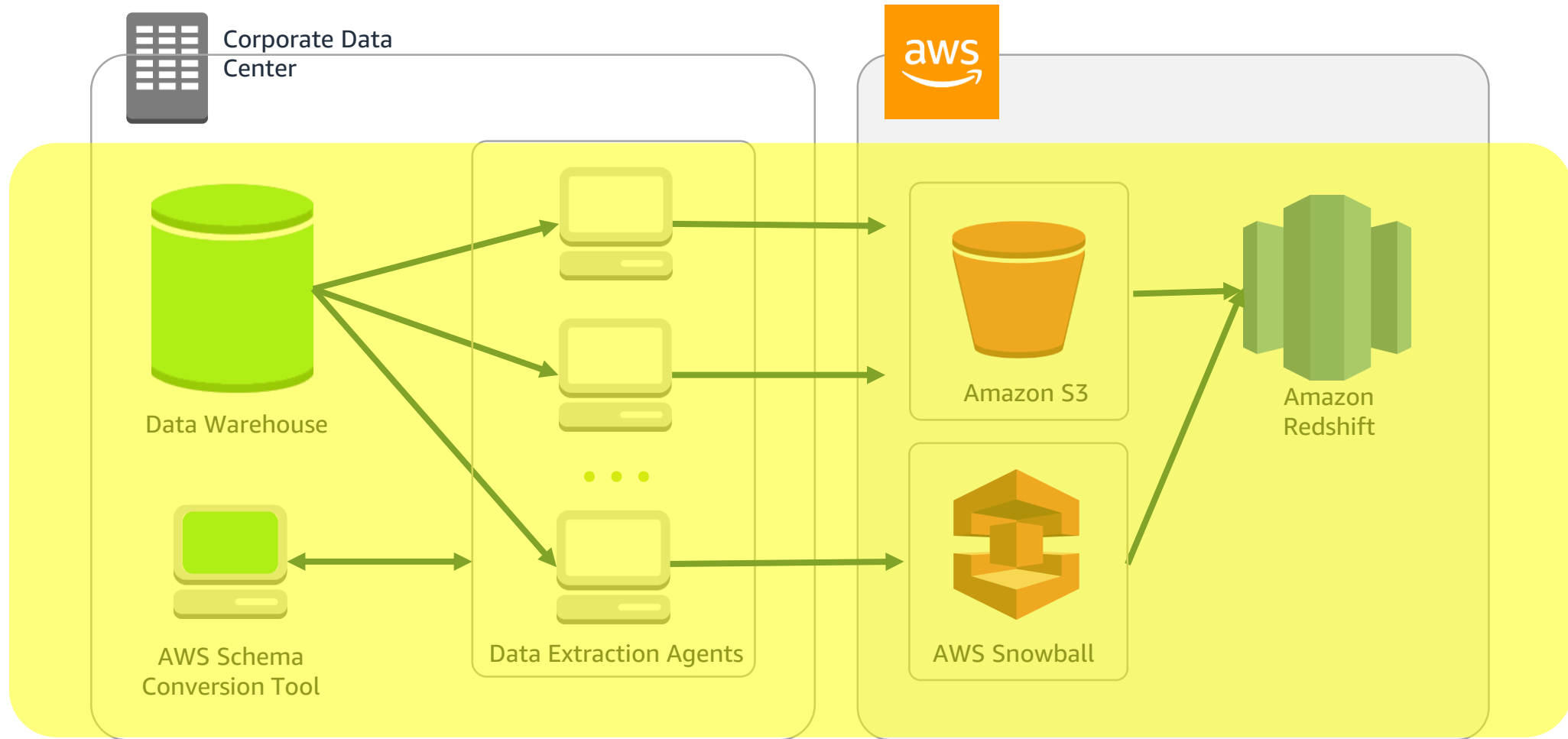**Install & Register Data Extraction Agents**

Create Data Extraction Filters

Create & Run Data Extraction Tasks

Data Warehouse Migration Workflow

Data Warehouse Migration

AWS Snowball

AWS Snowball is a petabyte-scale data transport solution that uses secure appliances to transfer large amounts of data into and out of the AWS cloud
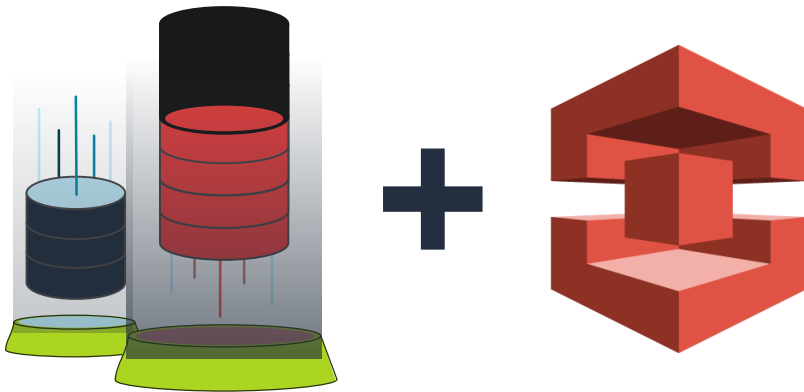
- Simple, fast, and secure data transfer
- 1/5 the cost of high-speed internet
- Can transfer up to 90 PB of data

AWS Snowball

Using AWS DMS/SCT and Snowball together

Common use cases

- Migrate large databases (over 5TB)
- Migrate many databases at once
- Migrate over slow network
- Push vs. Pull

Data Warehouse Migration Tasks

Convert Data Warehouse Schema

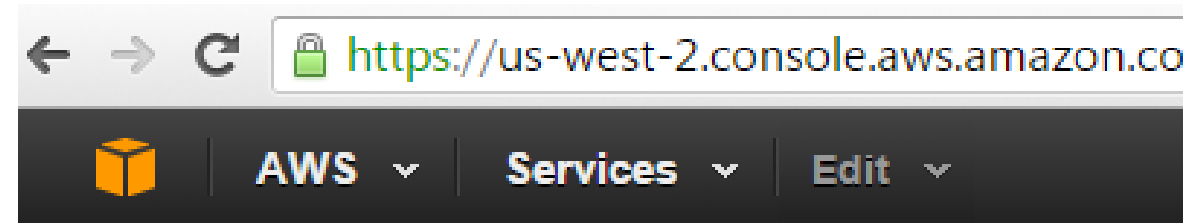**Acquire and Configure Snowball Device (If required)**

Install & Register Data Extraction Agents

Create Data Extraction Filters

Create & Run Data Extraction Tasks

Additional Resources

AWS Database Migration Service
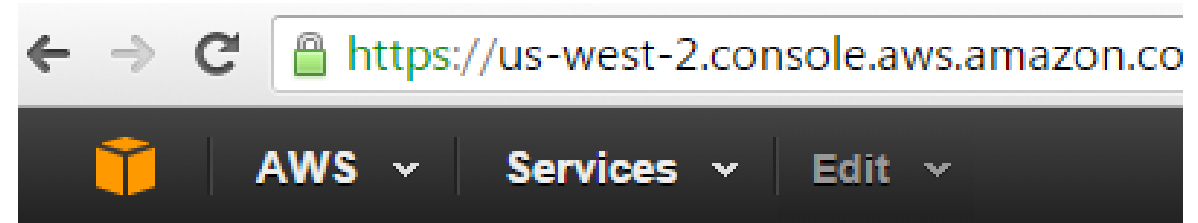
AWS Database Migration Service

Getting Started Guide: Review technical documentation.

AWS Database Migration Service

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Features and benefits: Highlights DMS features.

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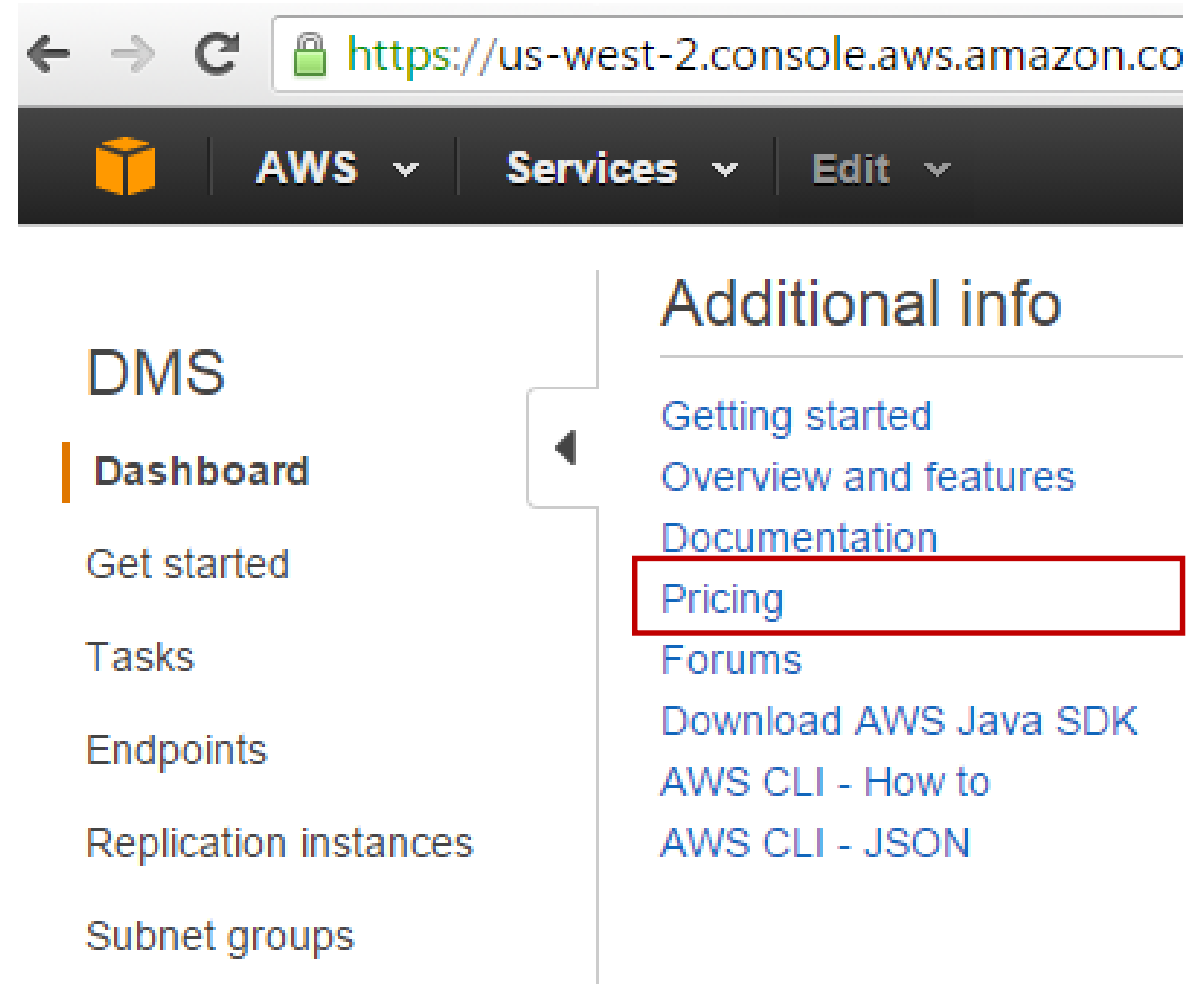**Pricing:** Prices for replication instances, storage, and data transfer.

AWS Database Migration Service

Getting Started Guide: Review technical documentation.

Features and benefits: Highlights DMS features.

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

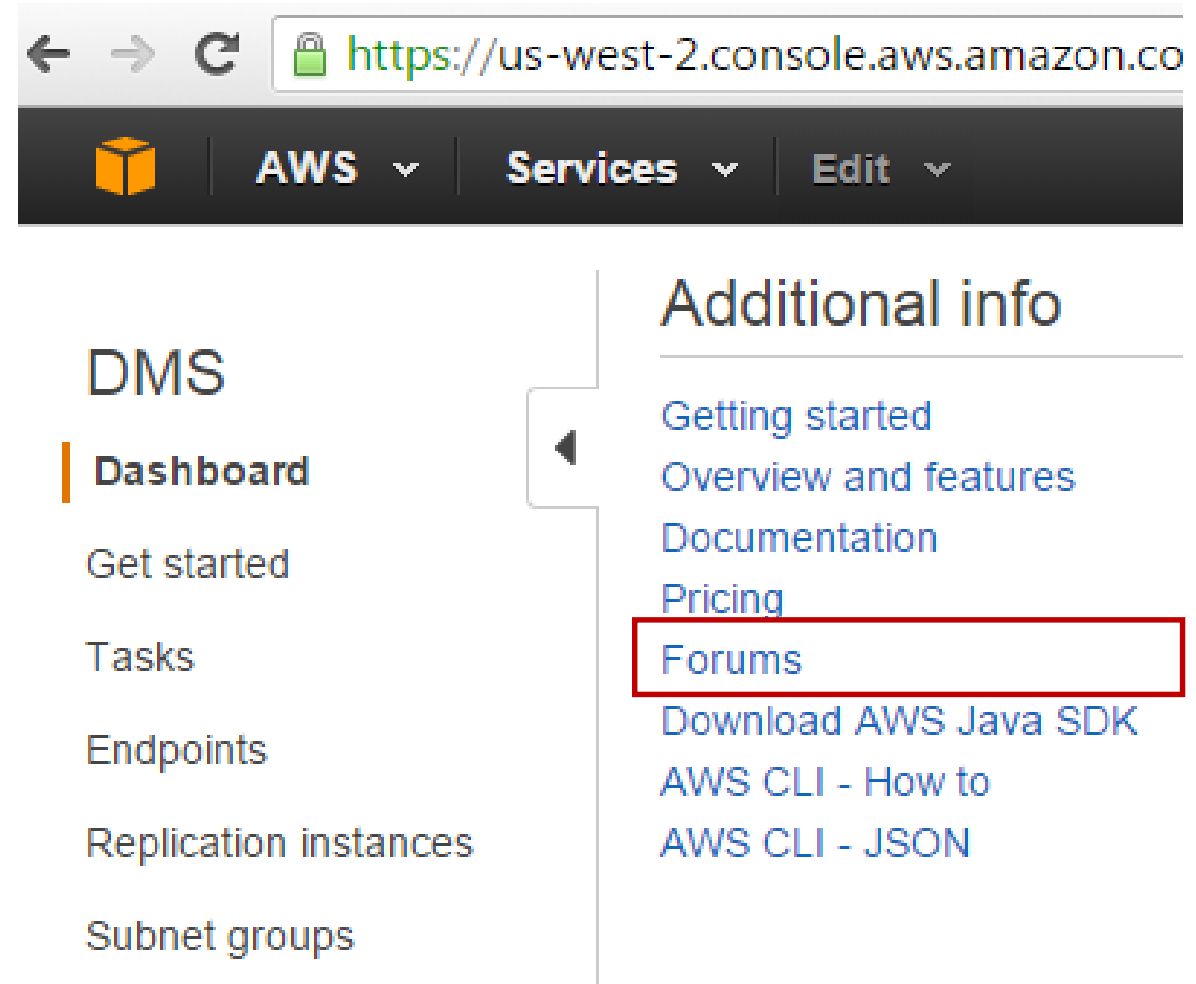**Support:** Post your questions to our Support forum.

AWS Database Migration Service

Getting Started Guide: Review technical documentation.

Features and benefits: Highlights DMS features.

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

Support: Post your questions to our Support forum.

Java SDK: Java-based API for creating and managing data migration tasks.
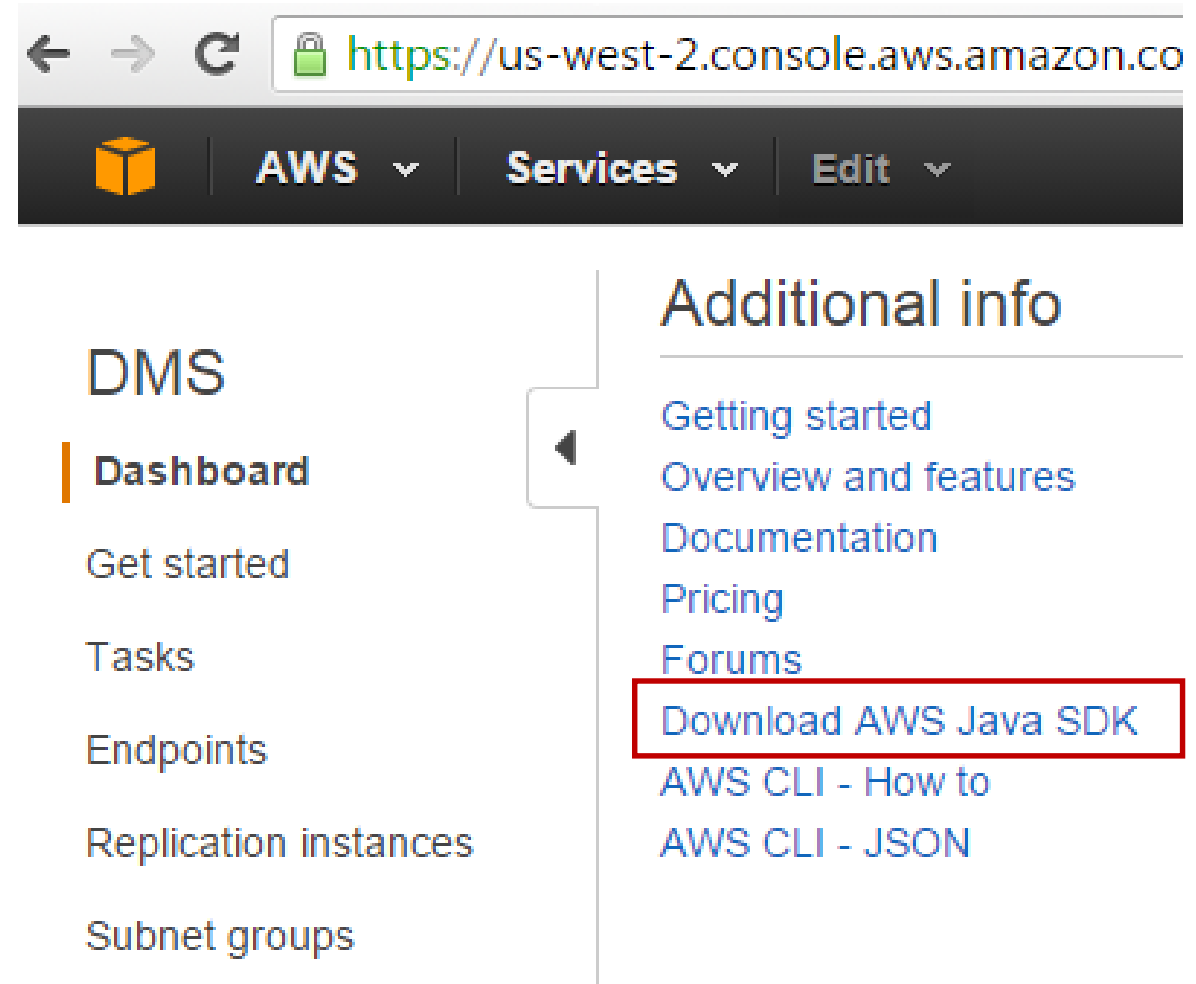
AWS Database Migration Service

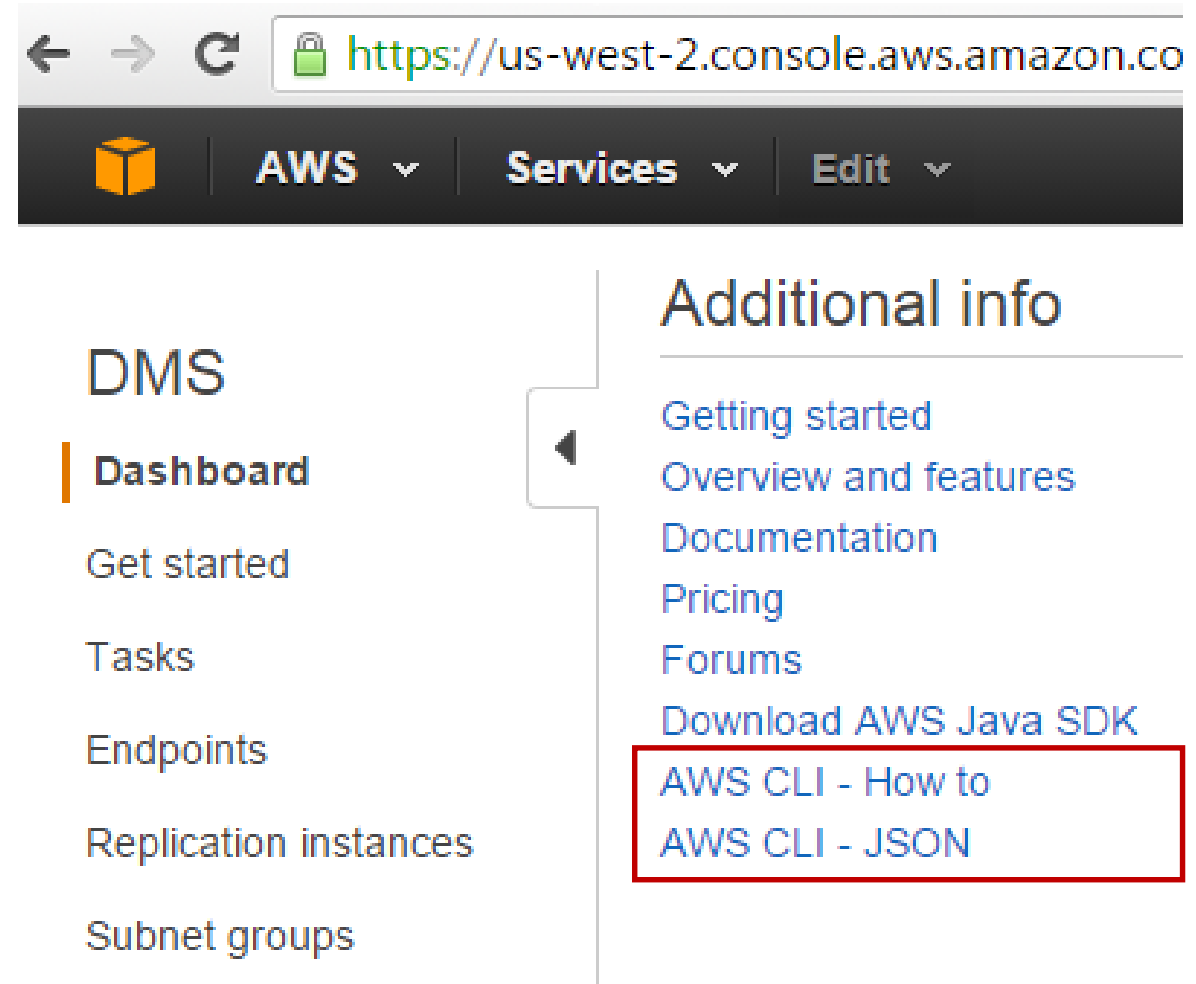**Getting Started Guide:** Review technical documentation.

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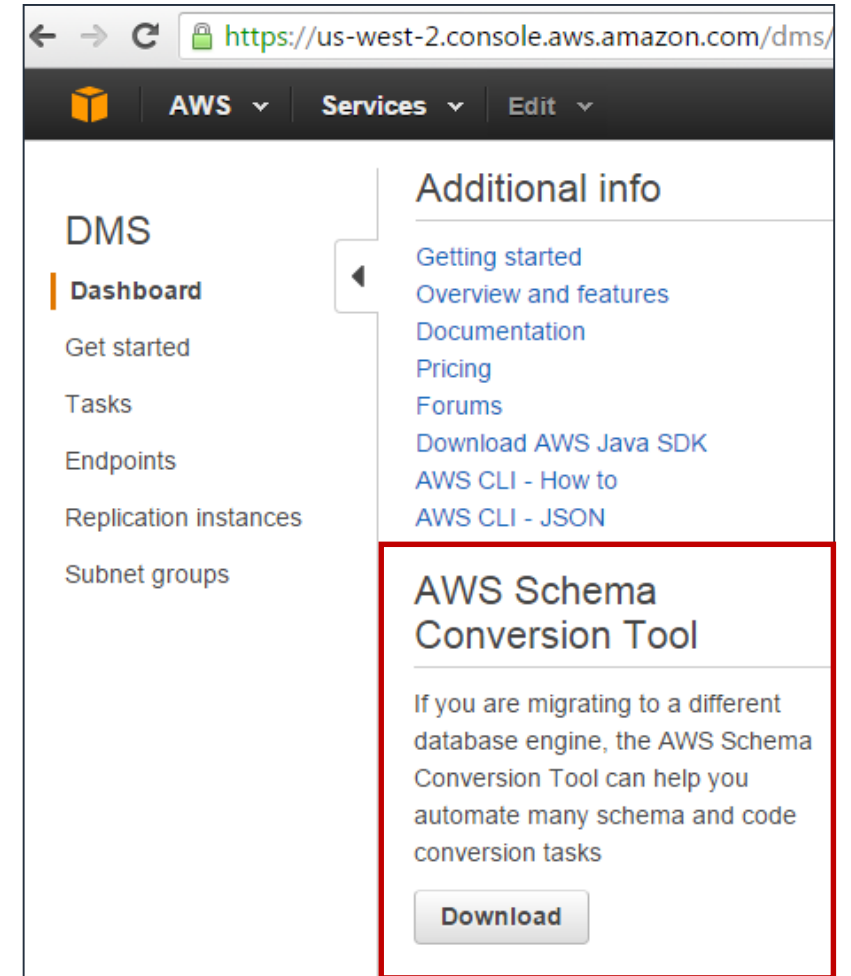
Java SDK: Java-based API for creating and managing data migration tasks.

AWS Command Line Interface: Start and stop replication tasks with simple commands.

AWS Schema Conversion Tool

User Guide: Review technical docs at

aws.amazon.com/documentation/SchemaConversionTool/

or choose the **Download** button.

AWS Schema Conversion Tool

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Download area: Get installation files for the Schema Conversion Tool.

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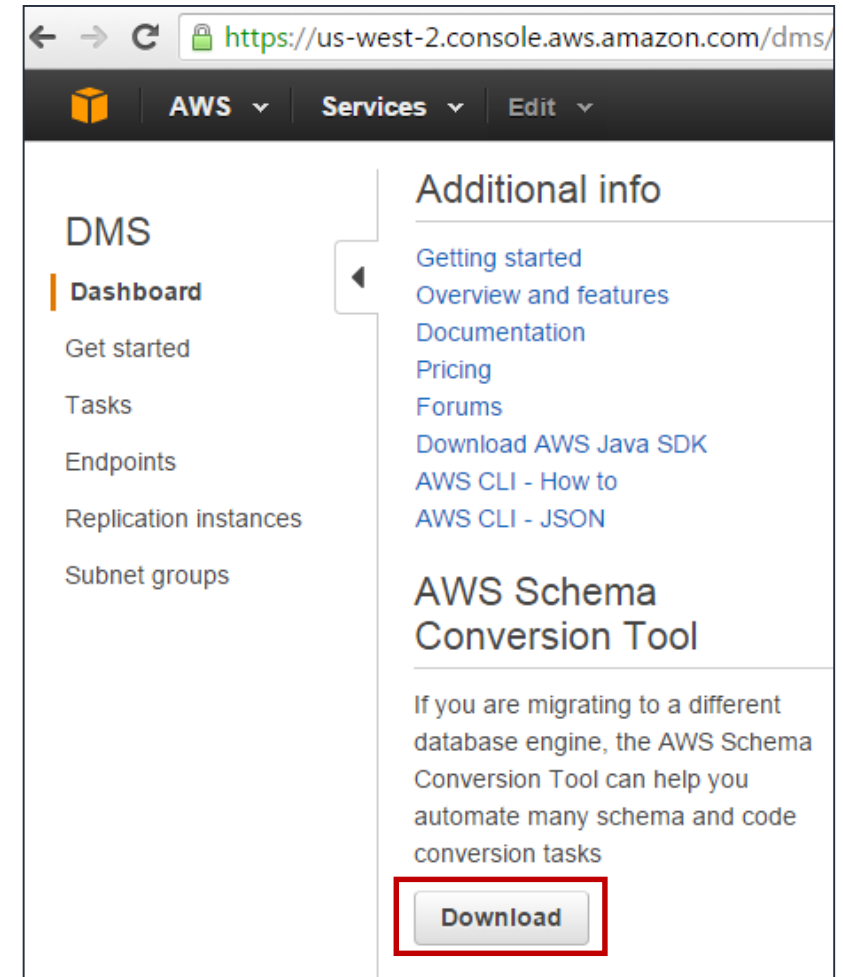
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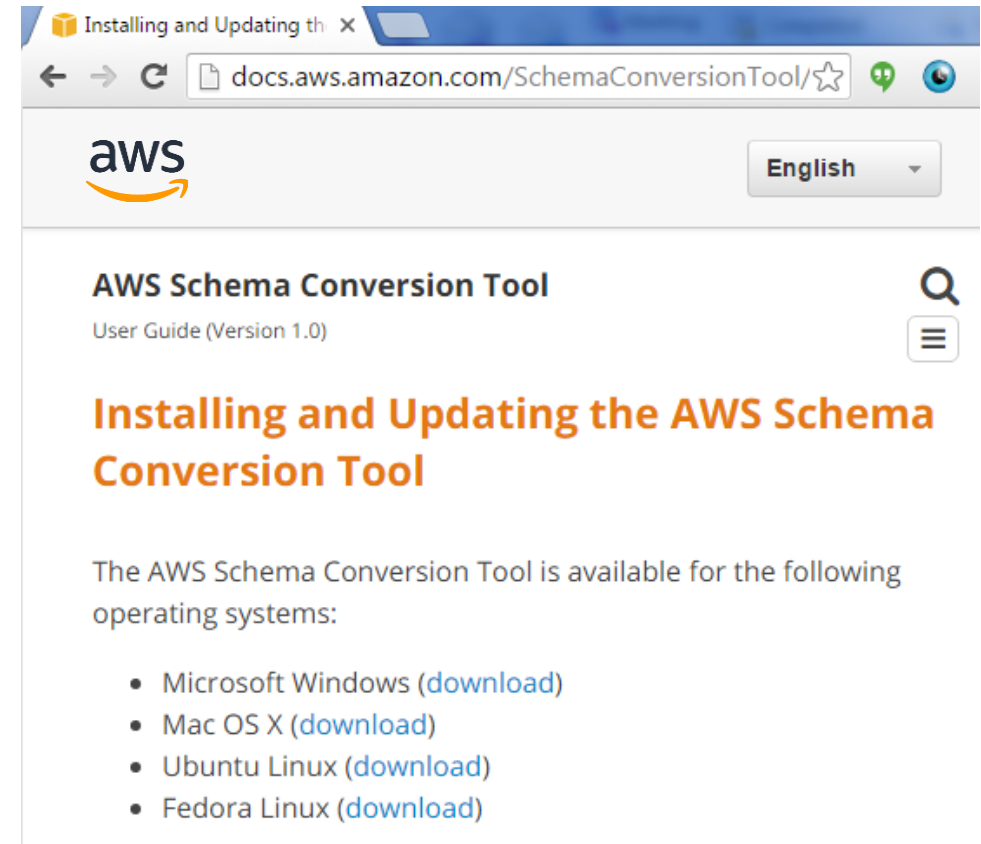**Download area:** Get installation files for the Schema Conversion Tool.

Support forums: Ask questions and review how-to guides.

https://forums.aws.amazon.com/forum.jspa?forumID=208.

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AWS Competency Partners

APN Partners who have demonstrated technical proficiency and proven customer success in specialized solution areas.

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AWS Marketplace

A digital catalog with thousands of software listings from independent software vendors that make it easy to find, test, buy, and deploy software that runs on AWS.

aws service delivery

AWS Service Delivery Partners

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Learn more at the AWS Partner Network Booth

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