



# Oracle Cloud Infrastructure Database Migrations

Exam 1Z0-1194-24



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Cloud Architect, Oracle Corporation



# Different Migration Types

## ***Offline Migration***

- One-time copy of the database
- Requires applications to be offline during migration

## ***Physical Migration***

- Blockwise copy of database files
- Requires database vendors and versions be same on source and target
- No filtering or transformation
- Tools: RMAN, DataGuard

## ***Direct Connection***

- Source database can be accessed directly from target network
- Requires VPN/FastConnect for On-Prem

## ***Online Migration***

- Initial copy of database followed by change data capture during migration
- Applications can stay online during migration

## ***Logical Migration***

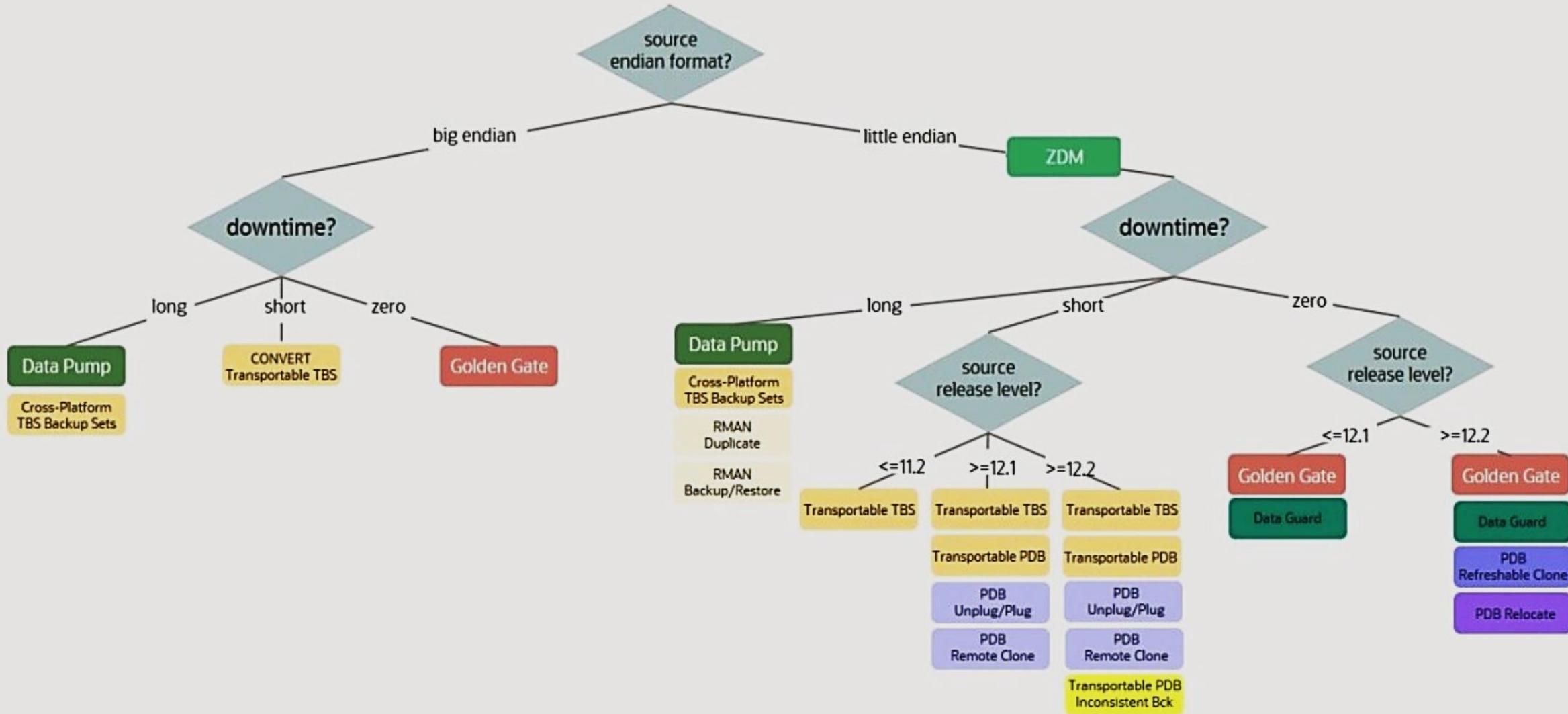
- Logically interpret database contents and copy to database in target format
- Source and target can be different
- Tools: Datapump, GoldenGate

## ***Indirect Connection***

- Source database cannot be accessed directly, behind firewall
- Requires migration tool with agent



# Database Migration Decision Tree



# Migration requirements and constraints

What you should know before you design a migration strategy...

Source Database	Target Database	Runtime Constraints
<ul style="list-style-type: none"><li>• Database version</li><li>• Database size and number of database tables</li><li>• Workload Type</li><li>• Usage and performance requirements</li><li>• Single/Multi-tenant Architecture</li><li>• Endian format</li><li>• Character set</li></ul>	<ul style="list-style-type: none"><li>• Database Type</li><li>• Database version</li><li>• HA and DR requirements</li></ul>	<ul style="list-style-type: none"><li>• Bandwidth and Connectivity</li><li>• Fallback Capability</li><li>• Down-time requirements for migration</li><li>• Project resources available for migration</li></ul>

# Tools for all Steps of the Migration Process



## Profile Estate

Review and prioritize by least effort and ongoing TCO

- [Oracle Estate Explorer\\*](#)
- [Cloud Services Advisor](#)



## Methods

Select the simplest migration method

- [Migration Method Advisor](#)
- Cloud Migration Advisor\*



## Preparation

Ensure source compatibility with target

- Cloud Premigration Advisor Tool (CPAT)
- Embedded in OCI DM



## Execution

Choose zero downtime or offline migrations

- [OCI Database Migration](#)



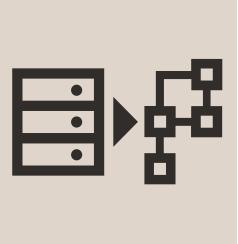
## Validation

Ensure synchronization for ongoing online migrations

- GoldenGate Veridata

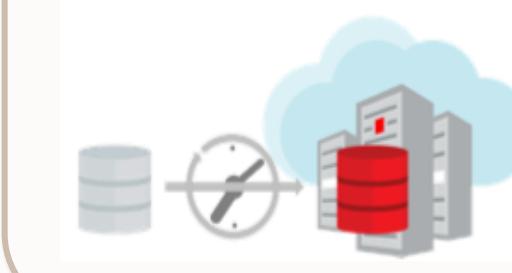
# Oracle Solutions to migrate databases to Oracle Cloud

## OCI Database Migration (DMS)



- Fully managed
- Graphical guidance
- Online and offline migrations
- Autonomous Database target
- Based on Zero Downtime Migration

## Zero Downtime Migration (ZDM)



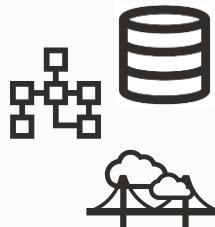
- User Managed Expert Tool
- Fleet Migrations
- Logical and Physical Migrations
- Migrations to ExaCC

## SQL Developer



- Developer Experience
- Fine-grained transformations

## Database Tools



- Manual use of DB Tools (RMAN, Data Guard, Datapump, GoldenGate)
- Full expert control
- Special use cases (bi-directional replication, etc.)

# Cloud Premigration Advisor Tool (CPTA)

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- Cloud Pre mig Advisor (CPAT) Analyzes DB for Suitability of Cloud Migration (Doc ID [2758371.1](#))

## SOLUTION

The Cloud Premigration Advisor Tool can perform analysis of both the source and the target database instance and provide information about the suitability of migrating the source database to an Oracle Cloud offering.

This document describes what CPAT does, where to get it, and how to use it.

## Cloud Premigration Advisor Tool (CPAT)

CPAT is a Java based tool that connects to an Oracle database instance in order to perform a series of checks. Each check is designed to evaluate a particular set of objects or conditions to ensure a successful migration to an Oracle Cloud offering.

Once the checks are performed CPAT will generate a report indicating what was found. Reports contain both summary information and details for each check including the check "result" (e.g. **Passing**, **Review Suggested**, **Review Required**, **Action Required**) and what "relevant data" was found in the source database. CPAT can generate reports in HTML, TEXT, and JSON format.

## Downloading and Extracting CPAT from the Zip File

This CPAT can be downloaded from [here](#). Note that the CPAT application itself is not tied to a particular database version. Therefor there is a single download for CPAT and that one download can be used for all supported versions of the Oracle database (11.2.0.4 and higher)

Once downloaded use a standard unzip utility to unzip the CPAT kit.

## Supported Database Versions

# CPTA Sample commands

```
./premigration.sh -help  
  
./premigration.sh -version  
  
./premigration.sh -updatecheck  
  
./premigration.sh --connectstring jdbc:oracle:oci:@ --sysdba --targetcloud atpd --pdbname TESTECM_PDB1  
  
./premigration.sh --connectstring jdbc:oracle:oci:@ --sysdba --targetcloud atpd --pdbname TESTECM_PDB1  
  
./premigration.sh --connectstring jdbc:oracle:oci:@ --sysdba --targetcloud atpd --pdbname TESTECM_PDB1 --  
reportformat json  
  
./premigration.sh --connectstring jdbc:oracle:oci:@ --sysdba --targetcloud atpd --pdbname TESTECM_PDB1 --  
reportformat html
```



# Oracle Cloud Database

Range of options



**ORACLE**  
Cloud  
Infrastructure  
**Compute /  
Storage**



**ORACLE**  
Database  
Cloud Service  
**Virtual  
Machines**



**ORACLE**  
Database  
Cloud Service  
**Bare  
Metal**



**ORACLE**  
Database  
Cloud Service  
**Exadata  
Cloud Service**



**ORACLE**  
Autonomous  
Database  
**Transaction  
Processing**



**ORACLE**  
Autonomous  
Database  
**Data  
Warehouse**

The Right Cloud Database for Every Use Case

100%  
Administrator  
Operated

Economic,  
Managed DB Service,  
100% Configurable

Max Performance & Consolidation,  
Integrated Database HW/SW

Fully Autonomous Operation,  
Dynamic Scalability

# Oracle Multitenant



# Plug/Unplug

## Migration Methodology

### Source databases:

- CDB Databases 18c, 19c
- Non-CDB or CDB Databases 12c
- Non-CDB Databases 11g (via Upgrade)



### Target databases:

- DBaaS VM, DBaaS BM, ExaCS, ExaCC
- Versions: 12c, 18c, 19c

### When to use

- ✓ Source DB is Little-endian
- ✓ Supports small to large databases
- ✓ Migrate from non-CDB to CDB
- ⚠ Requires knowledge of migration tools like RMAN and Data Pump
- ⚠ Requires some down-time
- ⚠ Upgrade before migrate for 11g and lower versions



Simple



Flexible  
Architecture



Enterprise fleet-  
scale migrations



Free



# Recovery Manager (RMAN)

# Recovery Manager (RMAN)

Reliable and Versatile offline migration tool

## Source databases:

- CDB/PDB Databases 12c, 18c, 19c
- Non-CDB Databases 11g, 12c, 18c, 19c



## Target databases:

- DBaaS VM, DBaaS BM, ExaCS, ExaCC
- Versions: 12c, 18c, 19c

## When to use

- ✓ Cross-platform migration possible
  - ✓ Allows point-in time recovery
  - ✓ Migrate from non-CDB to CDB
  - ✓ Small to Large Database size
- ⚠ Requires knowledge of various RMAN methods
- ⚠ Requires some down-time



Point-in-Time  
Recovery



Interoperability  
with versions



Enterprise fleet-  
scale migrations



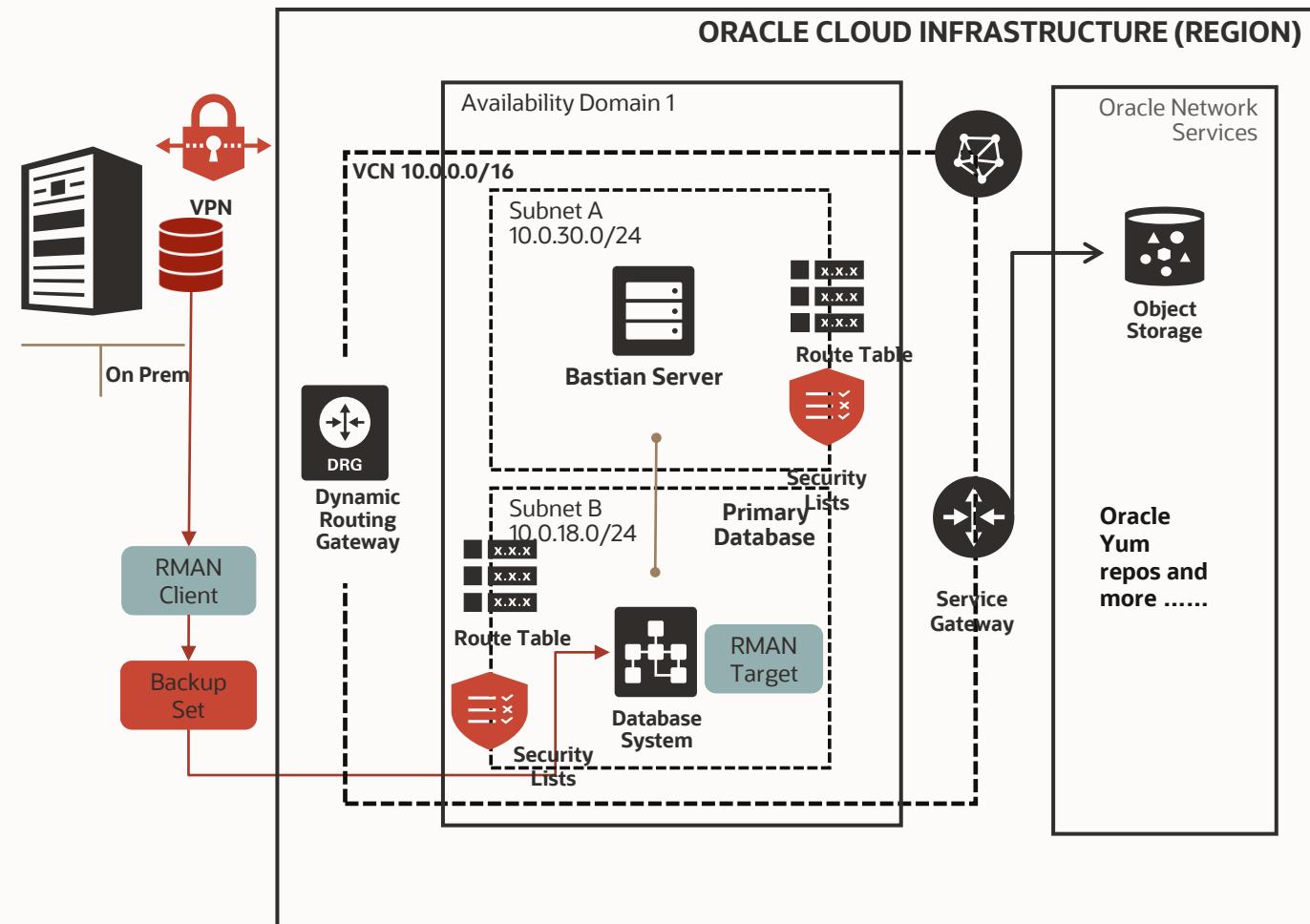
Free



# RMAN Reference Architecture

## Migration Steps

- On-premises Target Database – perform backup & recovery operations
- RMAN Client – command line interface to interpret and execute
- RMAN Methods
  - RMAN Cross-Platform Transportable PDB
  - RMAN Cross-Platform Transportable Tablespace Backup Sets
  - RMAN Transportable Tablespace with Data Pump
  - RMAN DUPLICATE from an Active Database
  - RMAN CONVERT Transportable Tablespace with Data Pump



# M5 Cross Endian Platform Migration using Full Transportable Export/Import and RMAN Inc Backups (Doc ID [2999157.1](#))

## PURPOSE

Cross platform database migration is the process of moving databases to a new platform, including Exadata Database Machine, Exadata Cloud@Customer, Exadata Database Service, etc. This note provides a simple, reliable, and fast migration solution with minimal downtime.

The information below will guide you in performing a cross platform (Big Endian to small Endian, vice versa, or same platform when Data Guard option is not available) database migration.

## DETAILS

[Prerequisites](#)

[High level migration workflow](#)

[Detailed migration workflow](#)

[Migration process explained](#)

[Appendix](#)

Cross platform database migration is the process of moving databases to a new platform, including Exadata Database Machine, Exadata Cloud@Customer, Exadata Database Service, etc. This note provides a simple, reliable, and fast migration solution with minimal downtime.

The information below will guide you in performing a cross platform (Big Endian to small Endian, vice versa, or same platform when Data Guard option is not available) database migration.

Note:

1. This procedure only supports Oracle Database 19.18 or higher on source and destination.



# RMAN Convert Cross platform process



Big-endian

users01.dbf  
users02.dbf  
data01.dbf  
data02.dbf  
...  
...



# RMAN Convert Cross platform process



Big-endian

users01.dbf  
users02.dbf  
data01.dbf  
data02.dbf  
...



Little-endian

users01.dbf  
users02.dbf  
data01.dbf  
data02.dbf  
...

# RMAN Convert Datafiles to Little Endian

```
C:\>RMAN TARGET /  
  
Recovery Manager: Release 12.1.0.1.0 - Production  
  
Copyright (c) 1982, 2012, Oracle and/or its affiliates. All rights reserved.  
  
connected to target database: ORAWIN (DBID=3462152886)  
  
RMAN> CONVERT DATAFILE  
2>'C:\Temp\sales_101.dbf',  
3>'C:\Temp\sales_201.dbf'  
4>TO PLATFORM="Microsoft Windows IA (32-bit)"  
5>FROM PLATFORM="Solaris[tm] OE (32-bit)"  
6>DB_FILE_NAME_CONVERT=  
7>'C:\Temp\', 'C:\app\orauser\oradata\orawin\'  
8> PARALLELISM=4;
```



# RMAN Convert Tablespaces to Little Endian

```
$ RMAN TARGET /  
  
Recovery Manager: Release 12.1.0.1.0 - Production  
  
connected to target database: salesdb (DBID=3295731590)  
  
RMAN> CONVERT TABLESPACE sales_1,sales_2  
2> TO PLATFORM 'Microsoft Windows IA (32-bit)'  
3> FORMAT '/tmp/%U';  
  
Starting conversion at source at 30-SEP-08  
using channel ORA_DISK_1  
channel ORA_DISK_1: starting datafile conversion  
input datafile file number=00007 name=/u01/app/oracle/oradata/salesdb/sales_101.dbf  
converted datafile=/tmp/data_D-SALESDB_I-1192614013_TS-SALES_1_FNO-7_03jru08s  
channel ORA_DISK_1: datafile conversion complete, elapsed time: 00:00:45  
channel ORA_DISK_1: starting datafile conversion  
input datafile file number=00008 name=/u01/app/oracle/oradata/salesdb/sales_201.dbf  
converted datafile=/tmp/data_D-SALESDB_I-1192614013_TS-SALES_2_FNO-8_04jru0aa  
channel ORA_DISK_1: datafile conversion complete, elapsed time: 00:00:25  
Finished conversion at source at 30-SEP-08
```



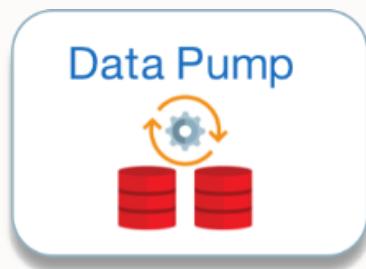
# Datapump expdb / impdp

# Data Pump

Fast, full offline database migration tool

## Source databases:

- CDB/PDB Databases 12c, 18c, 19c
- Non-CDB Databases 11g, 12c, 18c, 19c



## Target databases:

- DBaaS VM, DBaaS BM, ExaCS, ExaCC
- Versions: 12c, 18c, 19c

## When to use

- ✓ Supports small to large databases
- ✓ Supports cross-endian and character-set
- ✓ In-flight Upgrade possible
- ✓ Changes to database structure possible
- ⚠ Requires knowledge of various methods
- ⚠ Requires some down-time



Simple



Interoperability  
with versions



Enterprise fleet-  
scale migrations



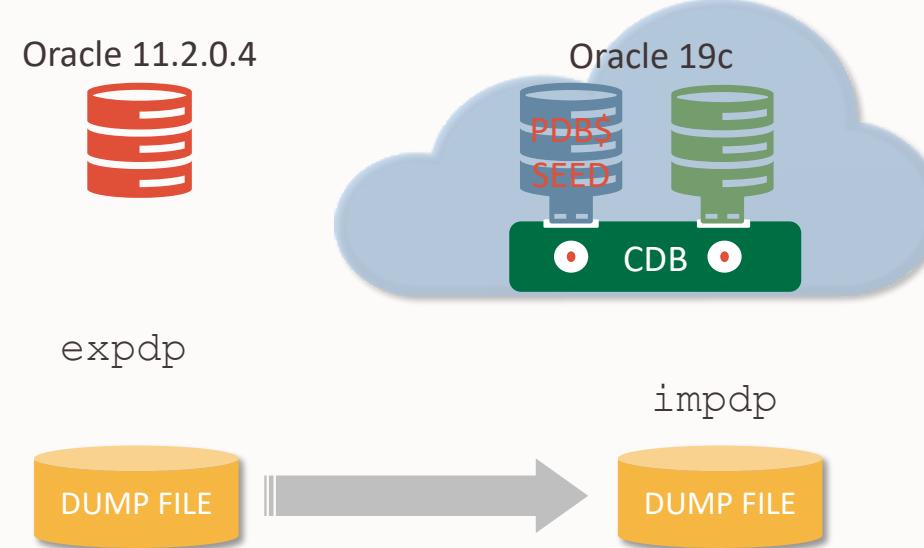
Free



# Data Pump

## Features and Capabilities

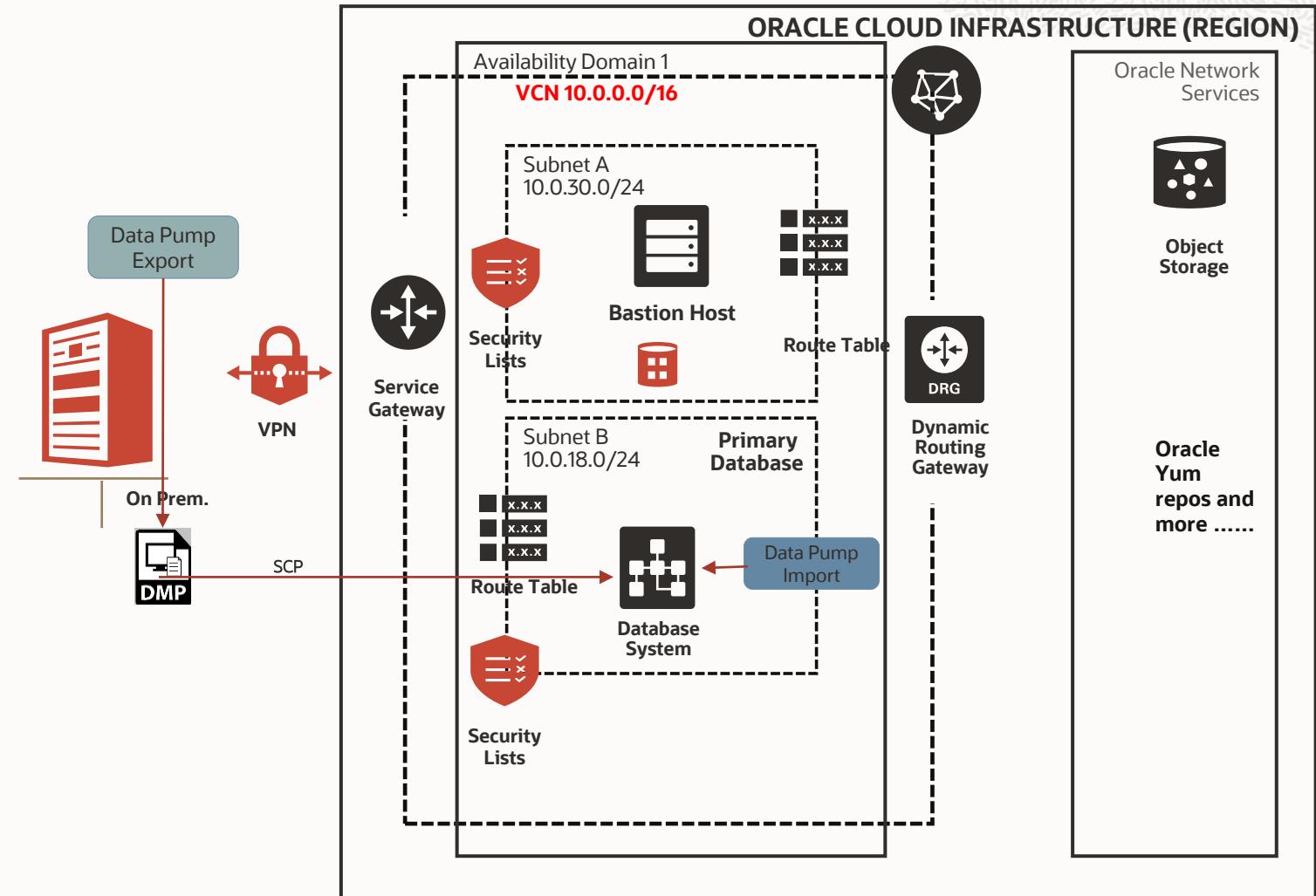
- Oracle Data Pump enables high-speed movement of data and metadata from one database to another
- Oracle Data Pump is available on Oracle Database 10g & later
- There are five different modes of data unloading
  - **Schema Mode** - default mode, specific schemas
  - **Table Mode** - specified set of tables dependent objects
  - **Tablespace Mode** - the tables in the specified tablespace
  - **Transportable Tablespace Mode** - only the metadata for the tables and dependent objects within a specified set of tablespaces
  - **Full Export Mode** - entire database



# Use Case: Data Pump Migration Conventional Export/Import

## Migration Steps

- Invoke Data Pump Export on-premises DB
- Secure copy the dump file to the OCI Database System
  - On OCI DB System invoke Data Pump Import
  - Validate the import



# Oracle Data Guard



# Data Guard

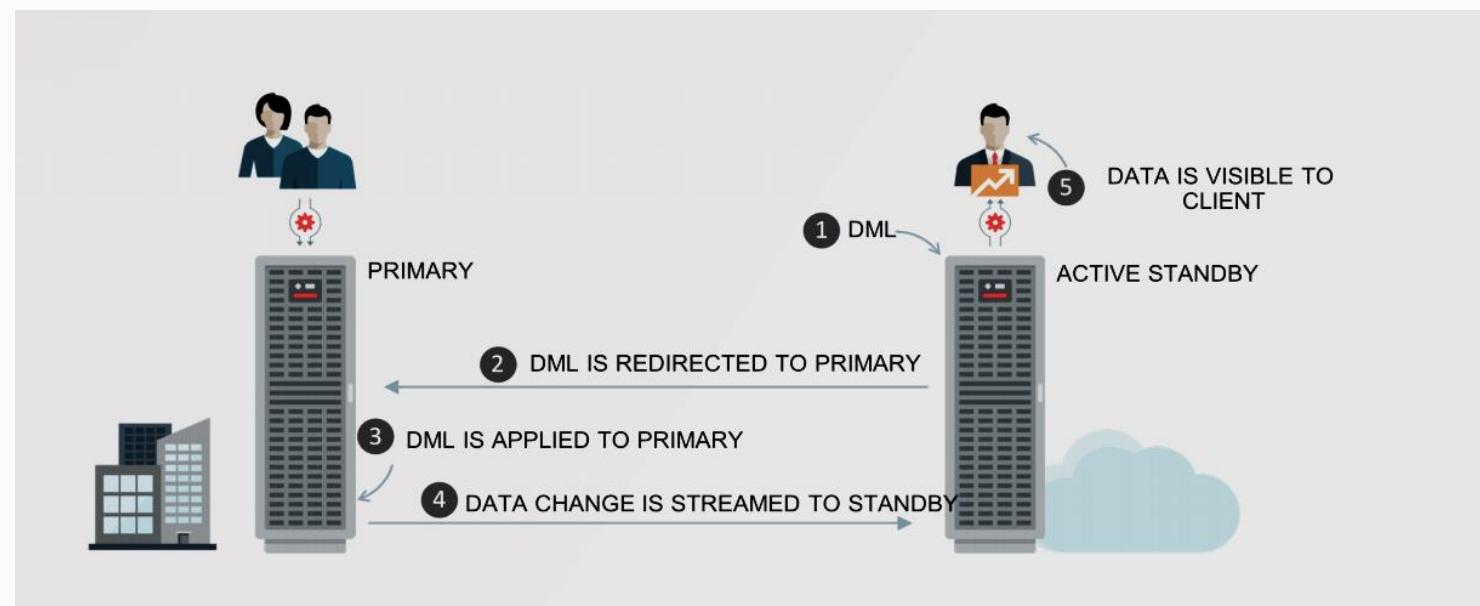
## Real-time Data Protection & Availability

### When to use

- ✓ Provides HA and DR solutions
- ✓ Minimal downtime migration
- ✓ Source version 11.2.0.4, 12.1.0.2, 12.2.0.1, 18, 19
- ✓ Only for Little Endian platforms  
Only non-CDB to non-CDB or PDB to PDB
- ⚠ No structural changes
- ⚠ No upgrade to new version

**Oracle Data Guard** ensures high availability, data protection, and disaster recovery for enterprise data.

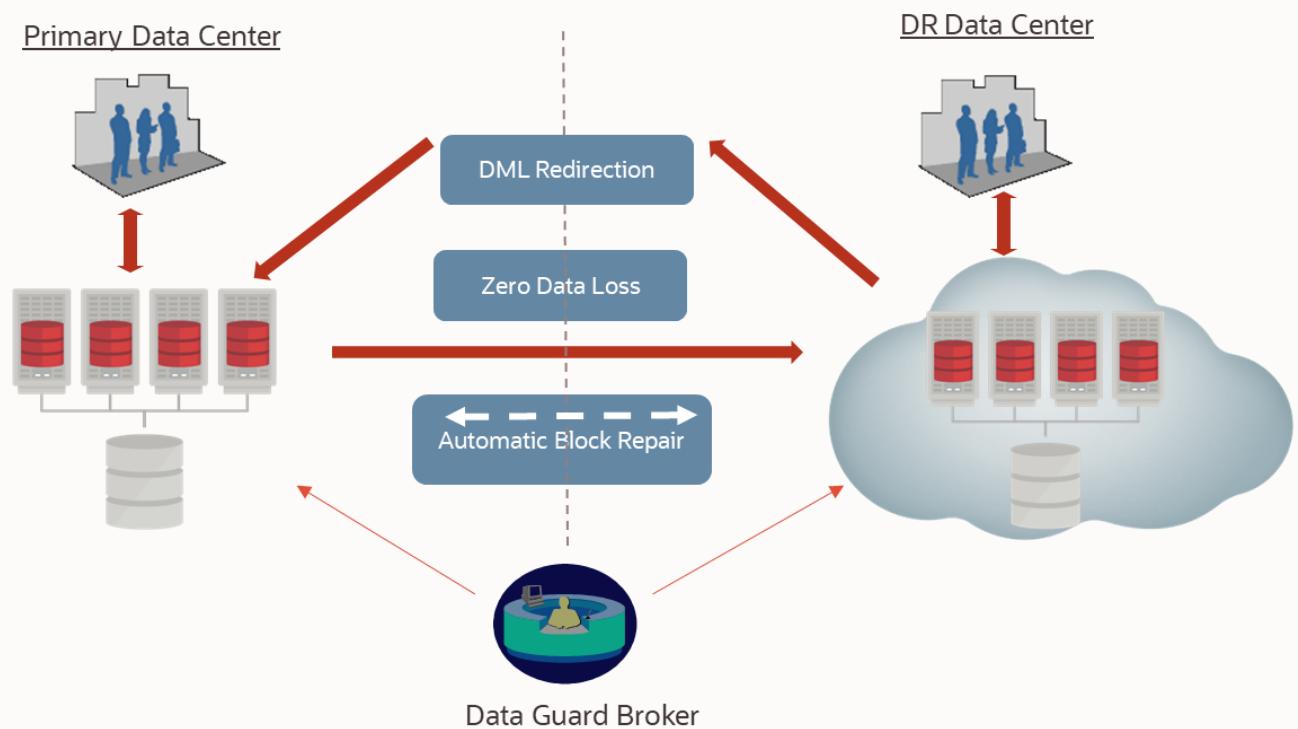
It provides a comprehensive set of services that create, maintain, manage, and monitor one or more standby databases.



# Active Data Guard

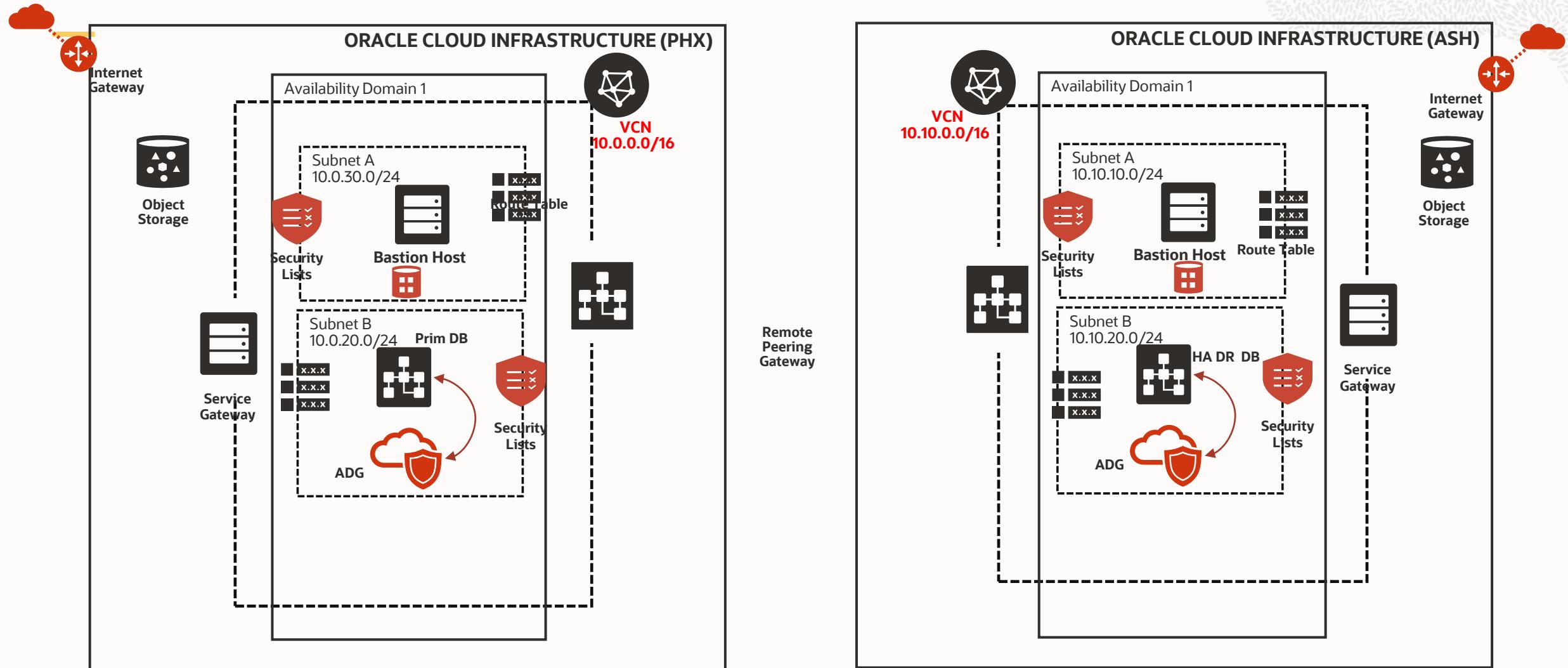
Oracle solution for Active Disaster Recovery

- Eliminates single point of failure
- Efficiently uses network bandwidth
- Provides unique levels of data protection
- Fast-Start failover to the standby
- Switchover to a standby
- Read Write mode on Standby.
- A True Sync between Primary and Secondary Instances.



# Disaster Recovery Across Regions – Reference Architecture

## Active Data Guard



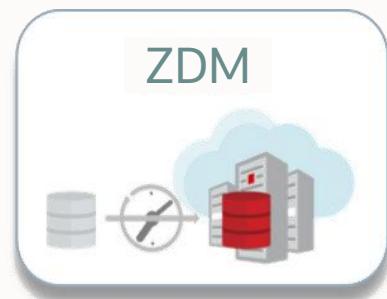
# Zero Downtime Migration (ZDM)

# Zero Downtime Migration (ZDM)

Simple migration tool for lift and shift use cases

## Source databases:

- CDB/PDB Databases 12c, 18c, 19c
- Non-CDB Databases 11g, 12c, 18c, 19c



## OCI Target database:

- DBaaS VM, DBaaS BM, ExaCS, ExaCC
- Versions: 11g, 12c, 18c, 19c

## When to use

- ✓ Free, easy to use tool
- ✓ Small to Large Database sizes
- ✓ Lift and Shift like to like versions
- ✓ Requires no downtime
- ⚠ In-Flight upgrade not possible
- ⚠ Cross-endian/ Cross-platform not possible



Simple



MAA Enabled



Enterprise fleet-  
scale migrations

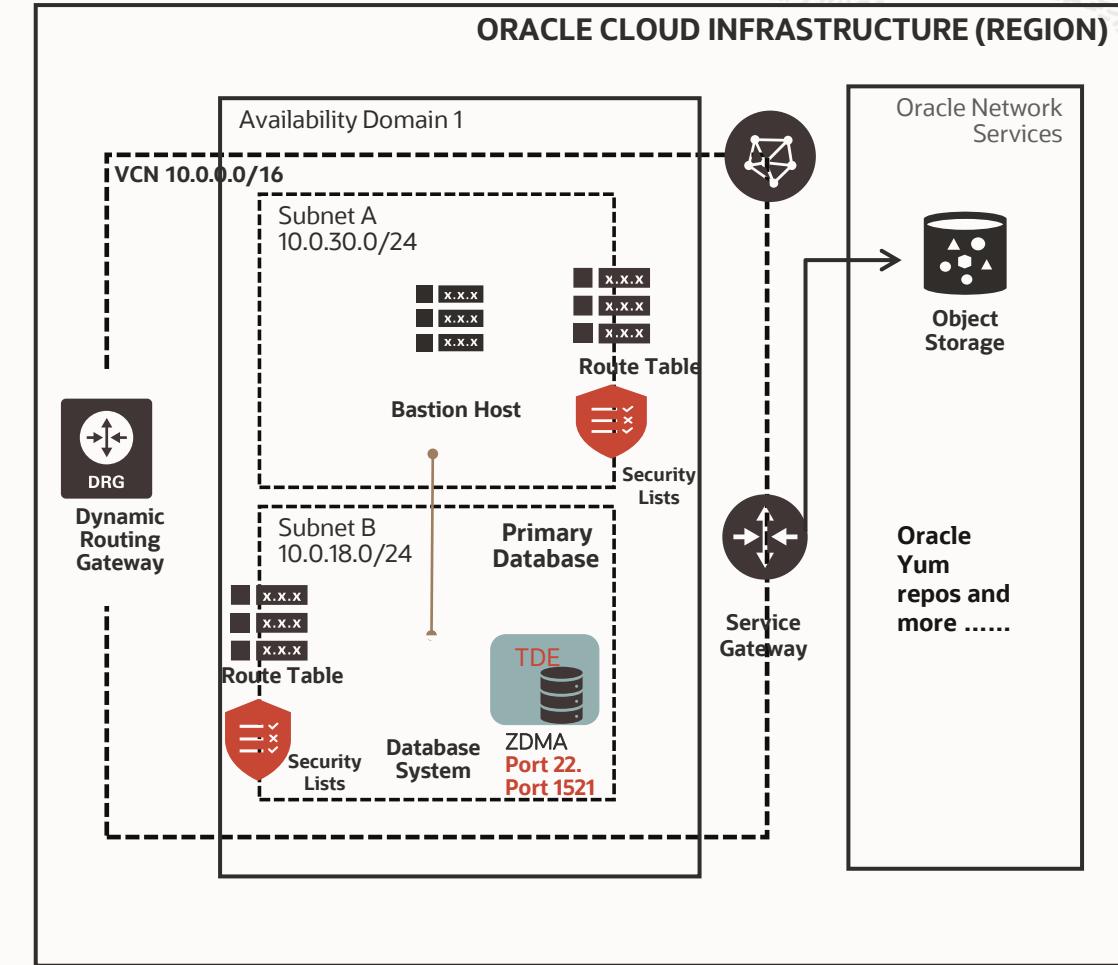
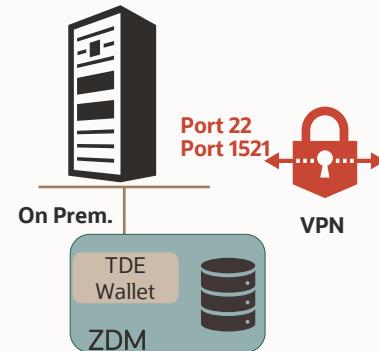


Free

# Migration Process using Zero Downtime Migration Tool

## Migration Steps

1. Network Configuration
2. Installing ZDM Tool
3. Setting up communication
4. Checking Encryption Wallet
5. Configuring ZDM Tool
6. Migration pre-check
7. Migrate the Database



# Oracle Zero Downtime Migration Prerequisite

- Linux Host for ZDM node (Oracle Linux 7)
- 100G of local filesystem free storage
- ZDM group and zdmuser as part of group & glibc-devel and expect packages must be installed

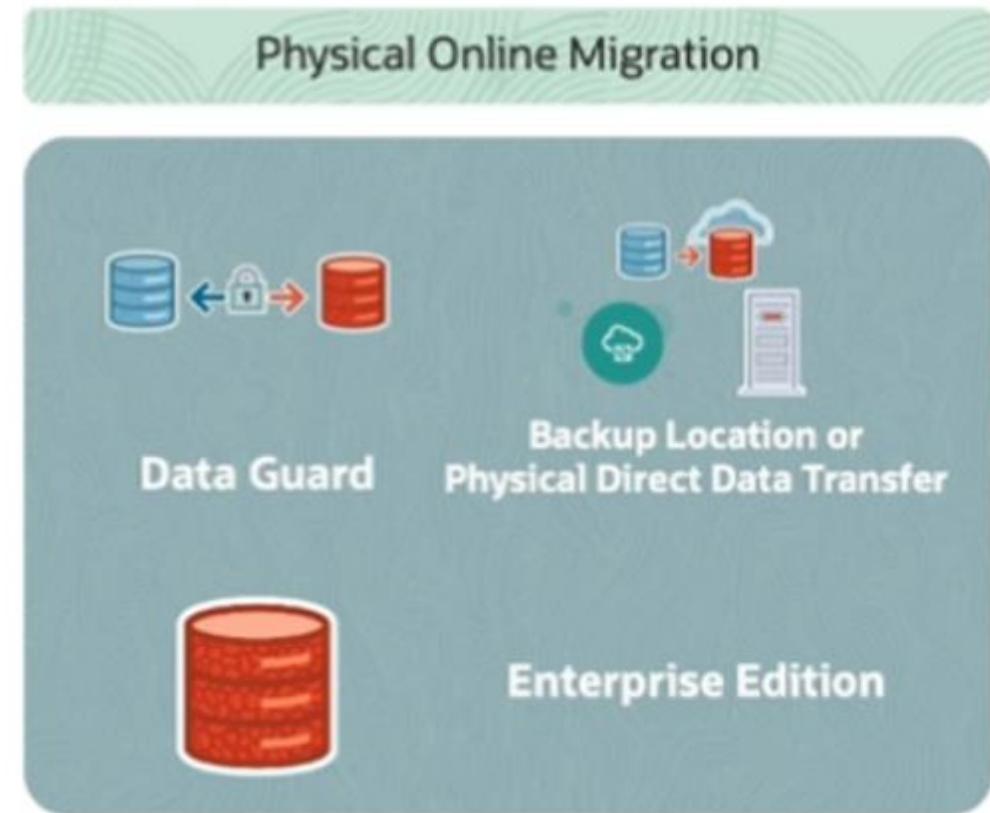
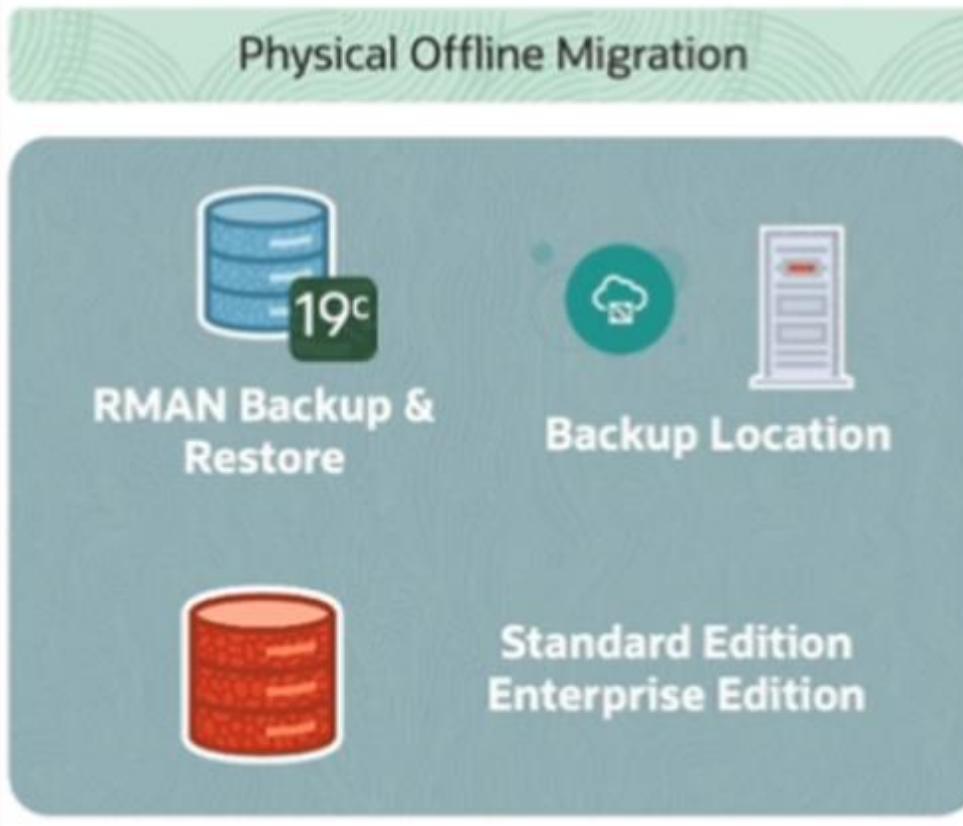
## Installation

- As zdmuser :  

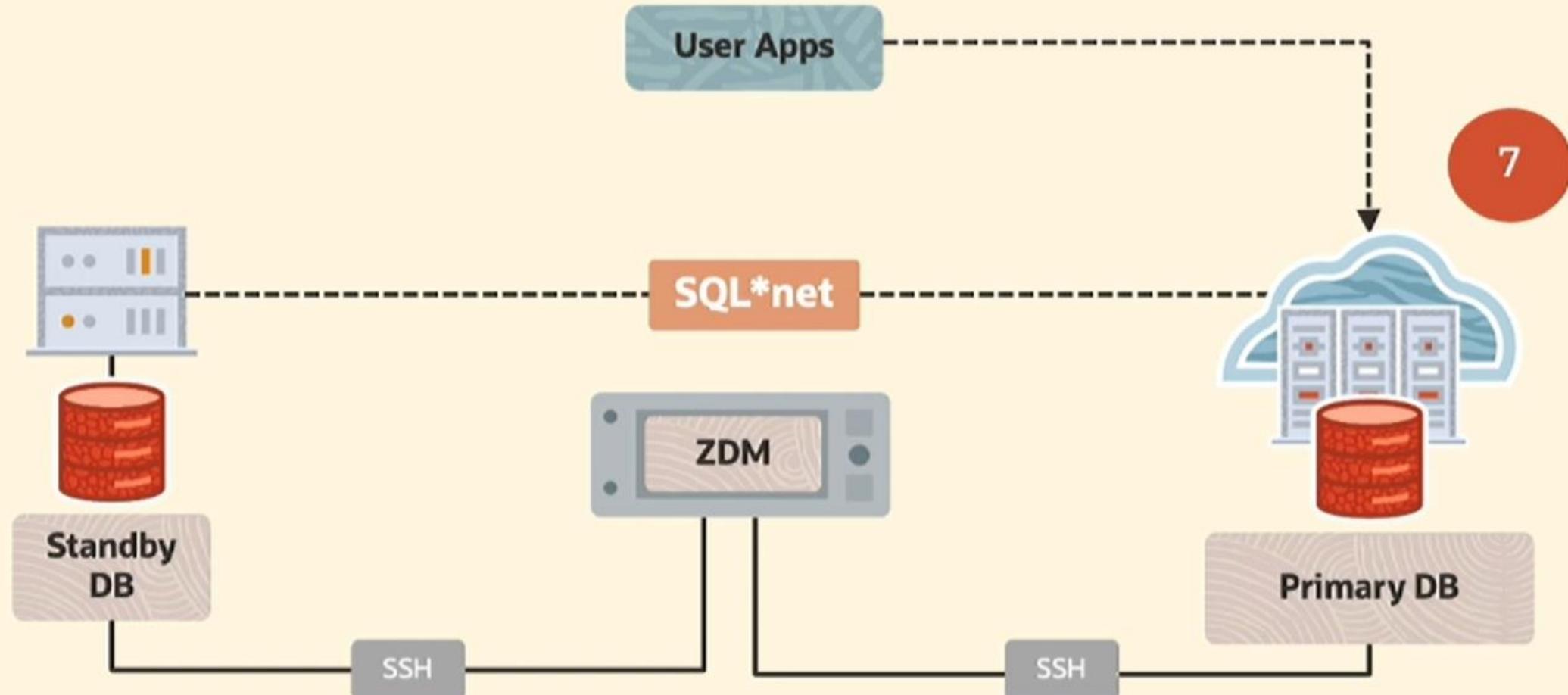
```
./zdminstall.sh setup  
oraclehome=zm oracle_home  
oraclebase=zm_base_directory  
ziploc=zm_software_location - zm
```
- oraclehome **ZDM** toolkit installation home
- oraclebase **ZDM** config files, logs and other artifacts
- ziploc **ZDM** compressed shiphome file



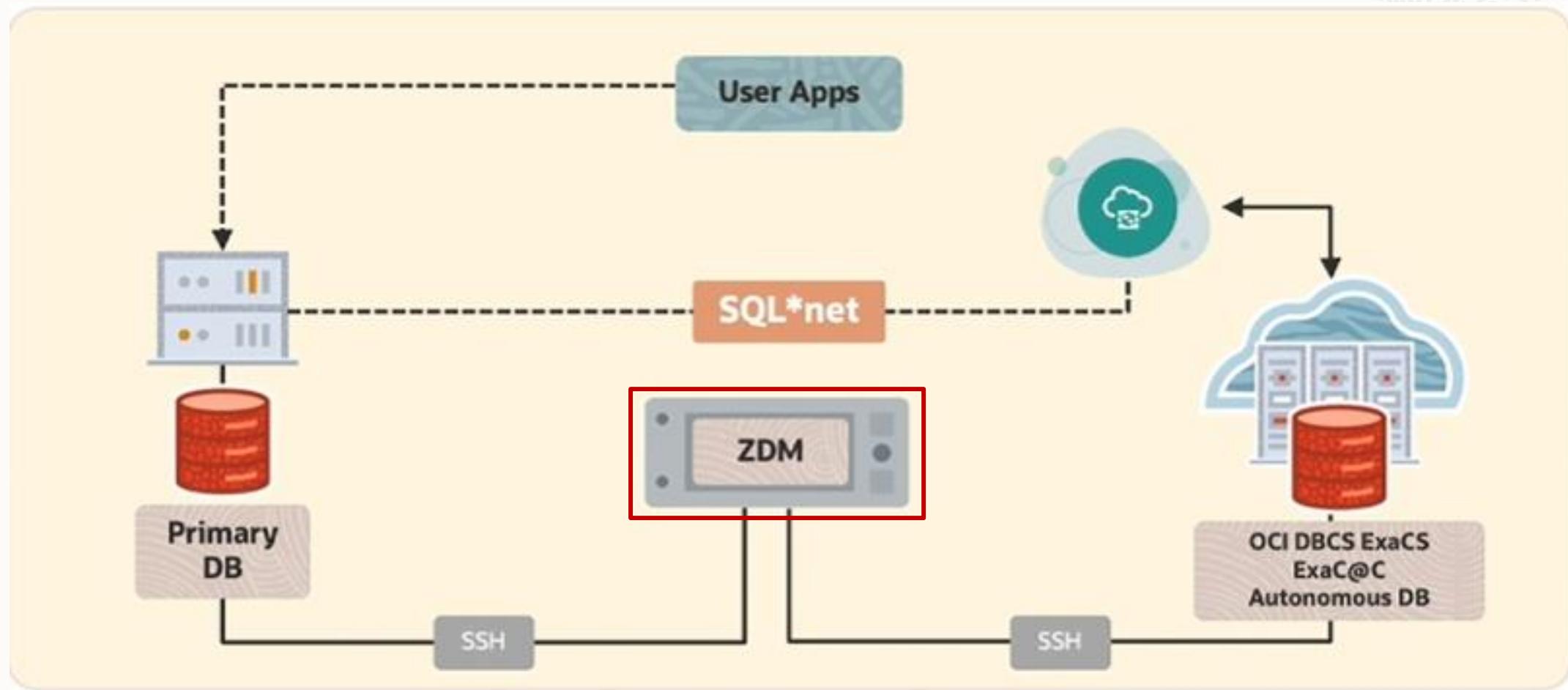
# ZDM | Architecture physical Migration



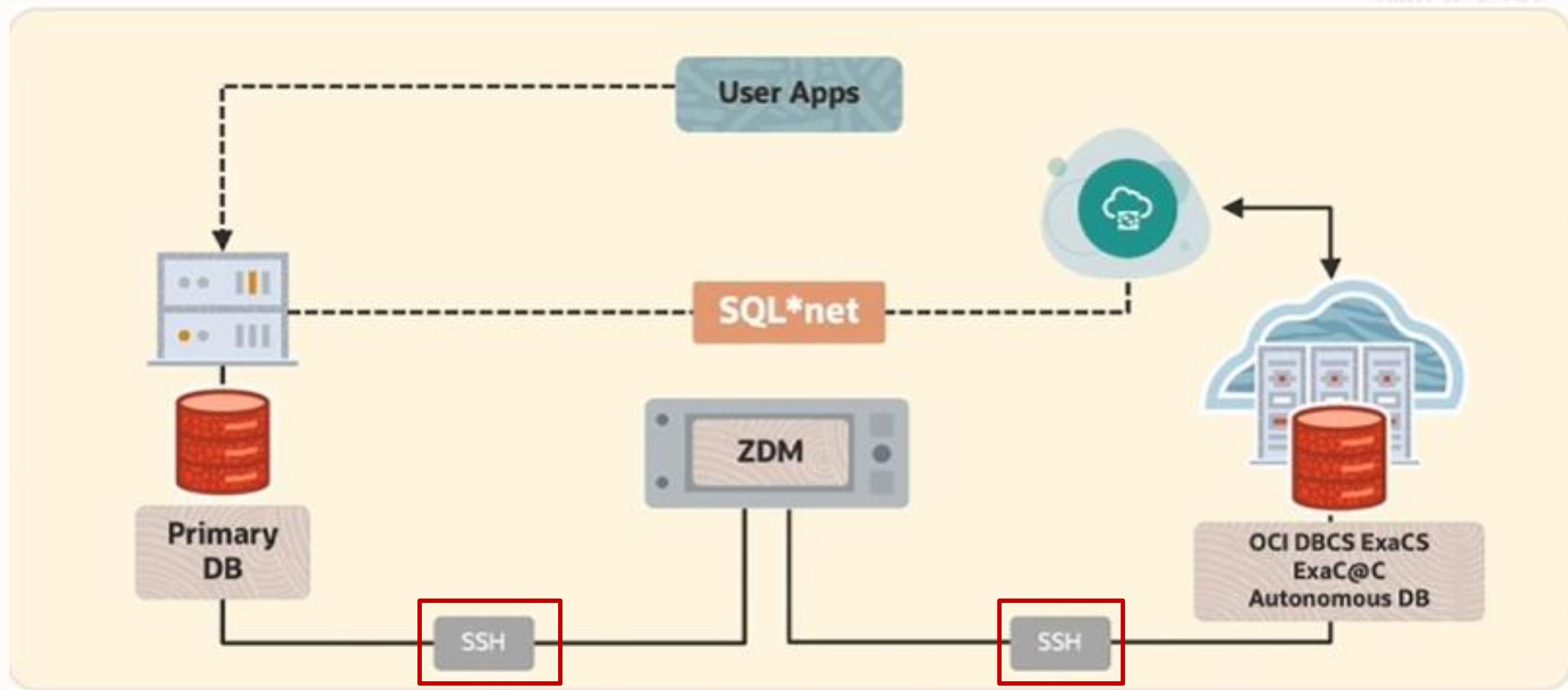
# ZDM | Architecture Physical Migration



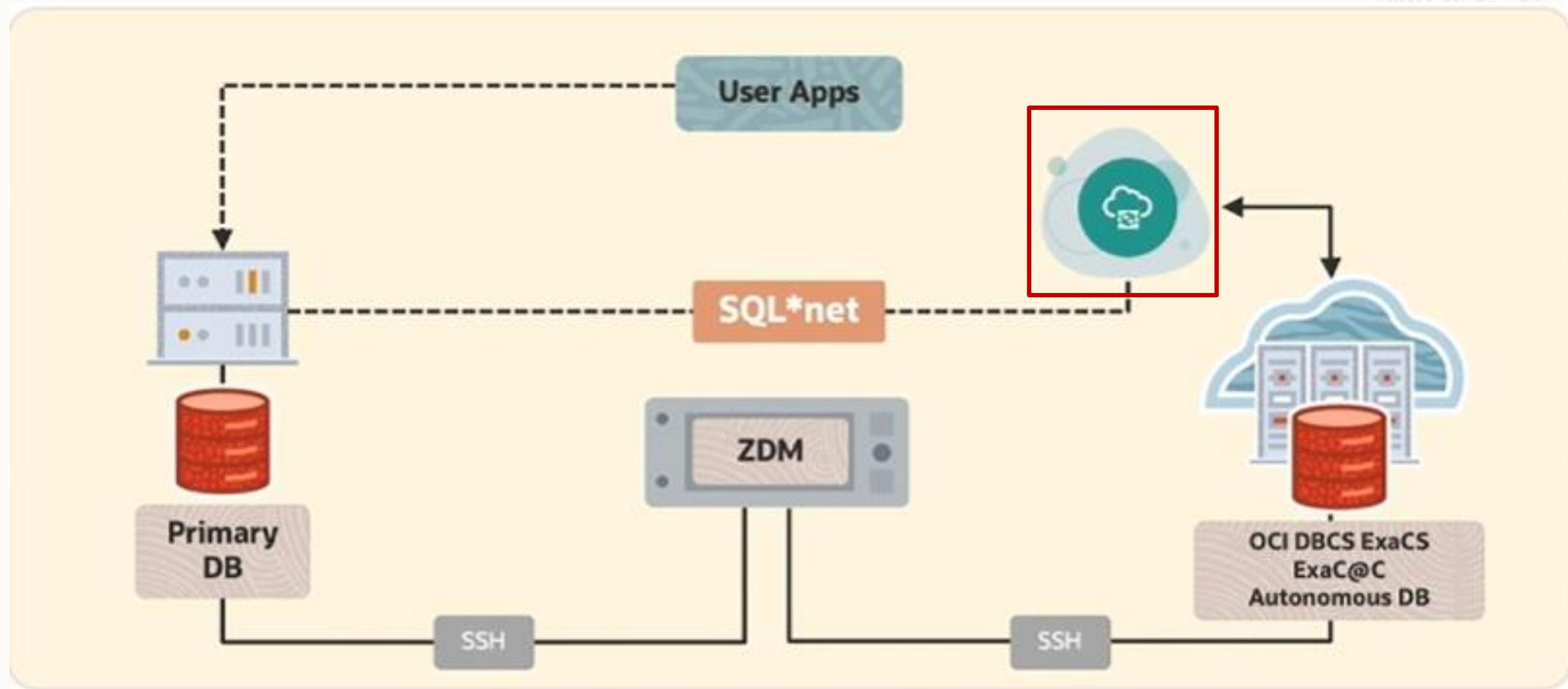
# ZDM | Architecture Physical Migration



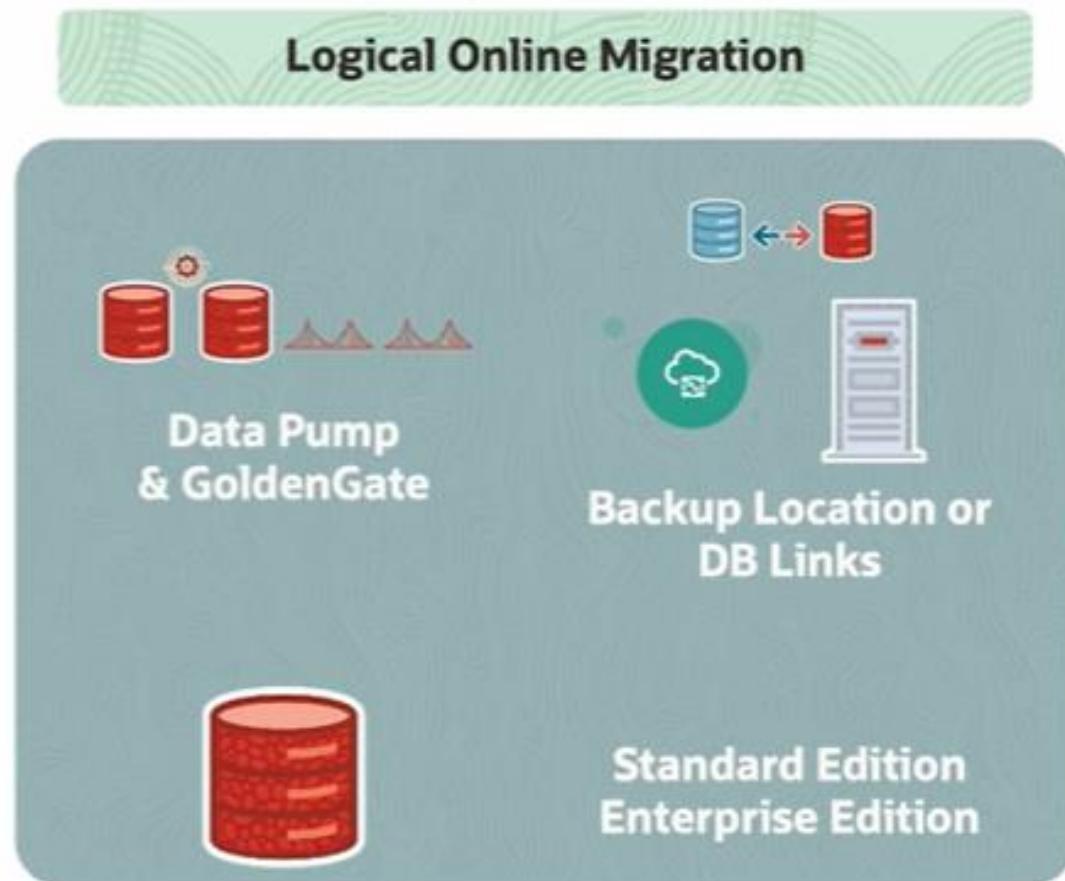
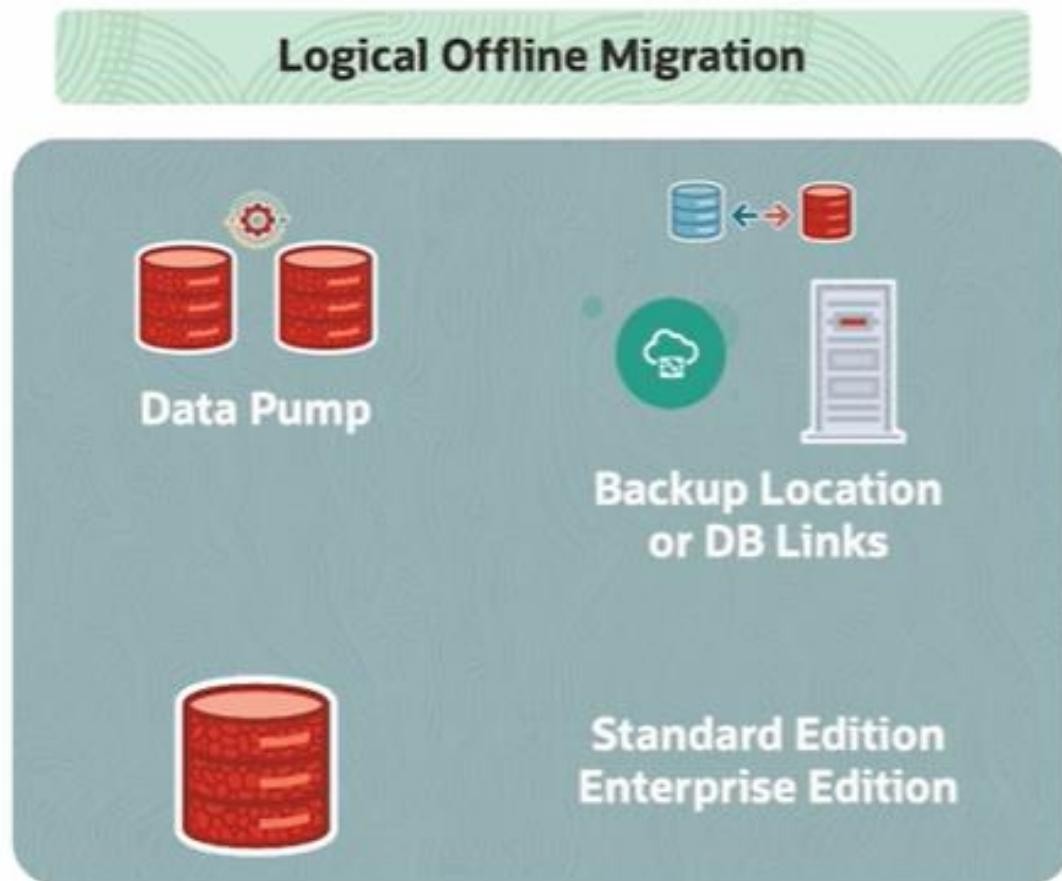
# ZDM | Architecture physical Migration



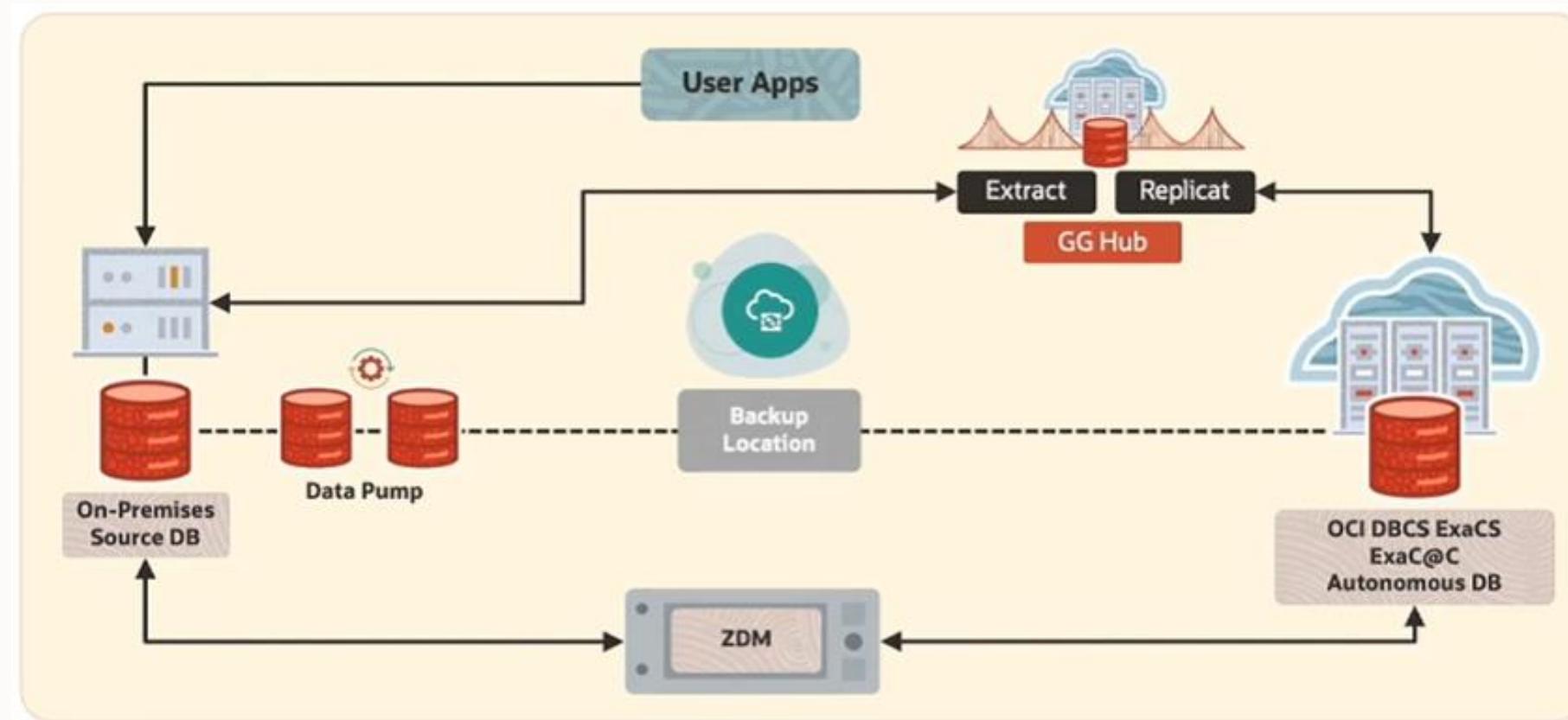
# ZDM | Architecture physical Migration



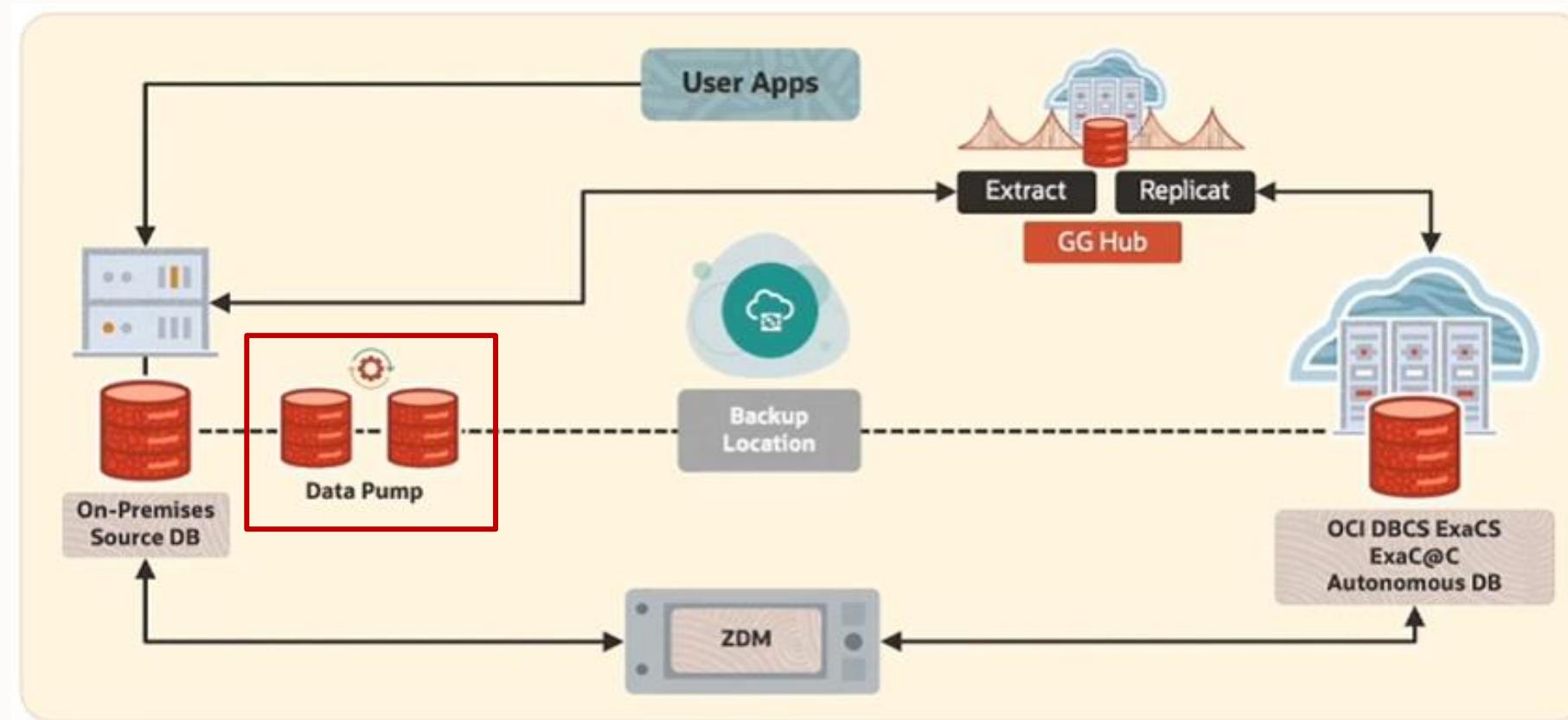
# ZDM | Architecture Logical Migration



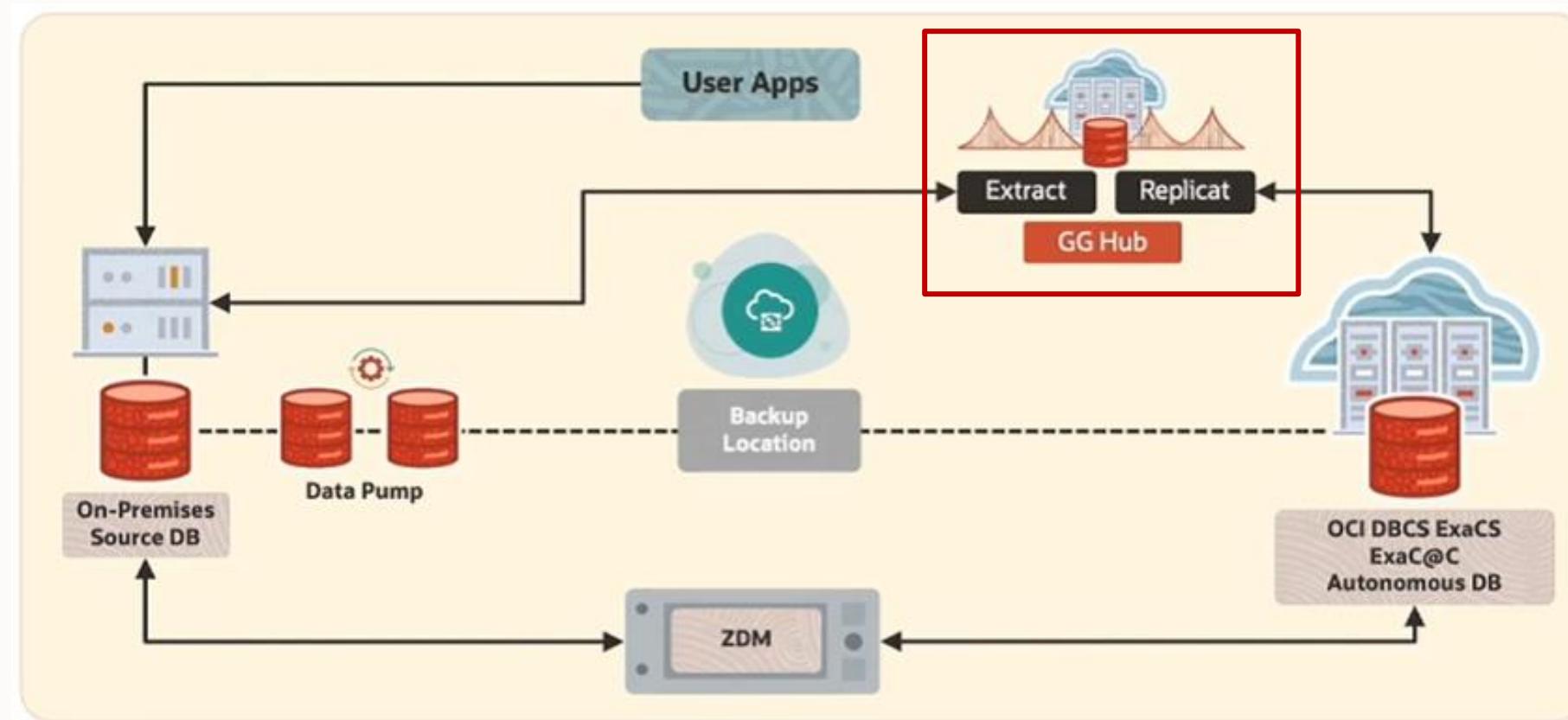
# ZDM | Architecture Logical Migration



# ZDM | Architecture Logical Migration



# ZDM | Architecture Logical Migration



# OCI Database Migration (DMS)



# Oracle Cloud Infrastructure – Database Migration

Fully managed, easy to use database migrations into Oracle Cloud

## Database Migrations

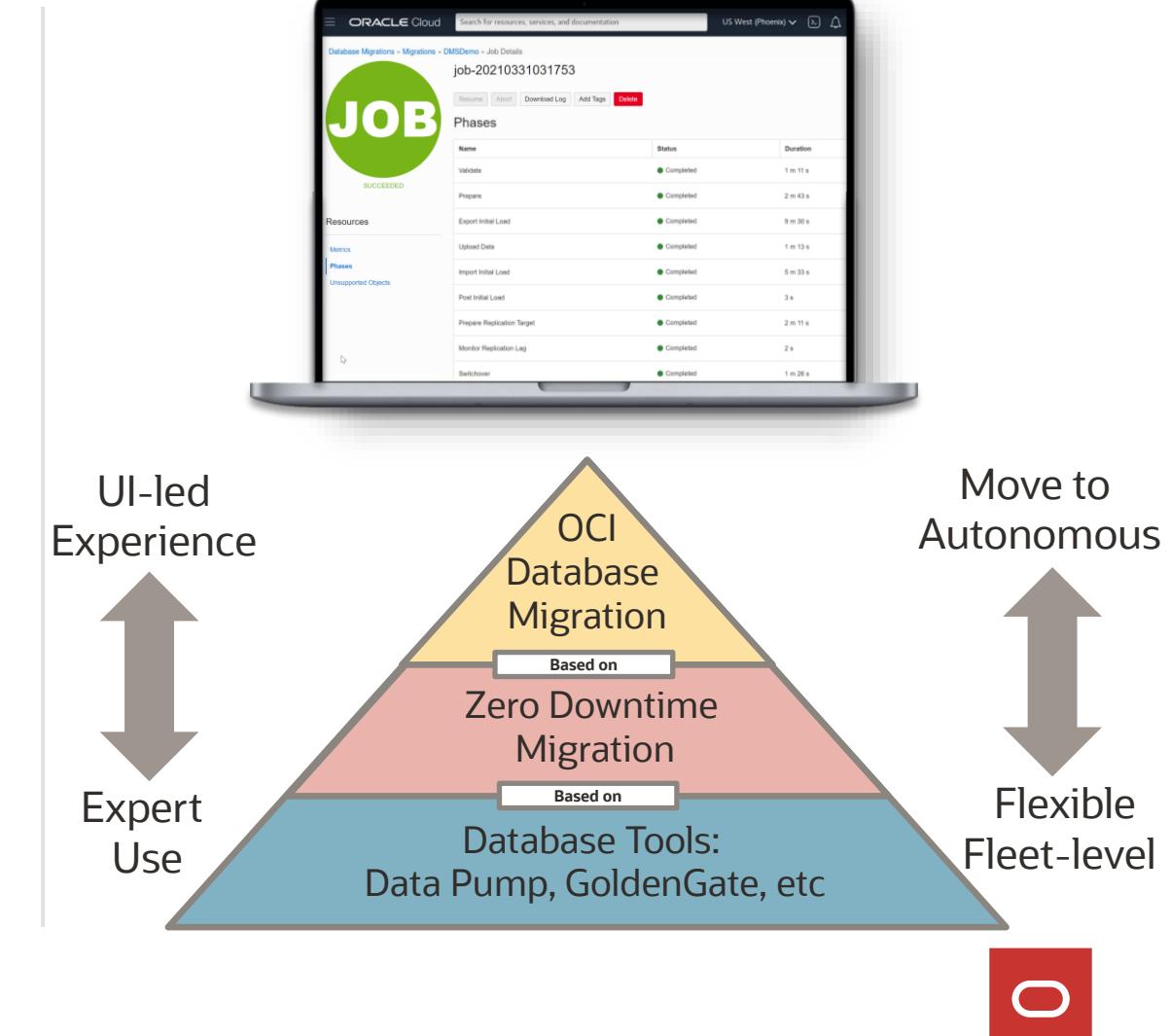
- Reduce cost and improve performance in Oracle Cloud
- Migrate databases, free for 6 months per migration

## Core Use Cases

- Machine-assisted migrations for Oracle Databases, Data Marts and Data Warehouses into Oracle Cloud

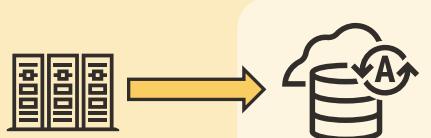
## Differentiated Use Cases

- Simplifies underlying technologies and resources
- Logical Offline and Online Migrations
- Schema/Metadata Migration
- Based on enterprise-strength Oracle tools Zero Downtime Migration, GoldenGate, and Data Pump

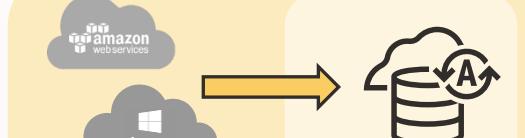


# OCI Database Migration - Use Cases

## All Source Locations



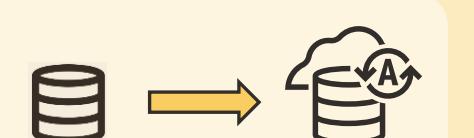
Migrate On-Premises  
to OCI Cloud



Migrate Third-party  
Cloud to OCI Cloud

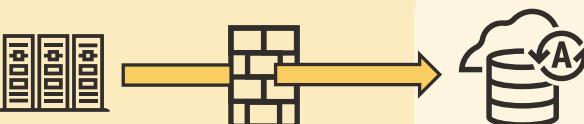


Migrate Oracle legacy  
cloud to OCI Cloud

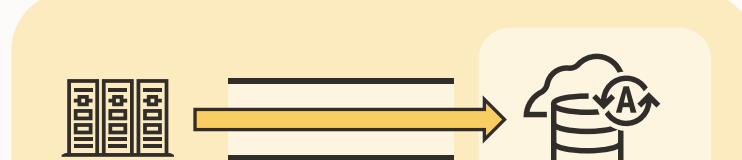


Migrate Within OCI  
Cloud

## With or Without Direct Connection



Offline Migration from behind  
firewall using Agent



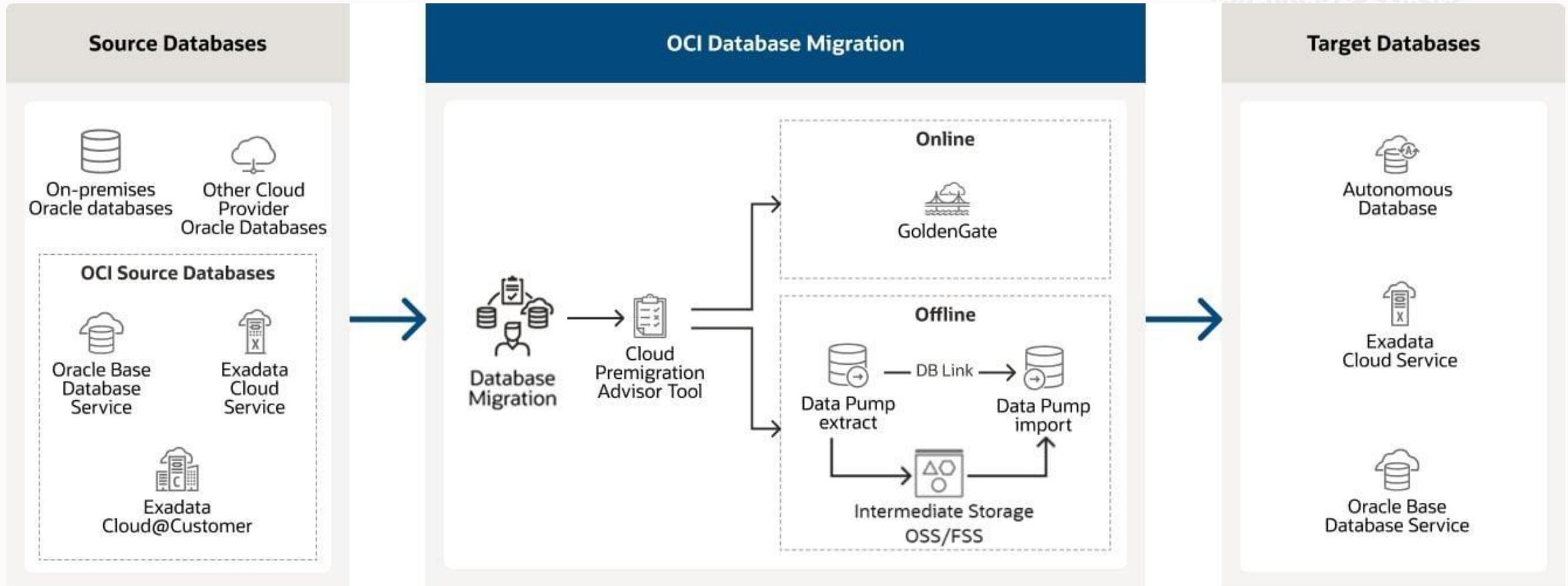
Offline Migration using  
FastConnect/VPN connection



Online Migration using  
FastConnect/VPN connection

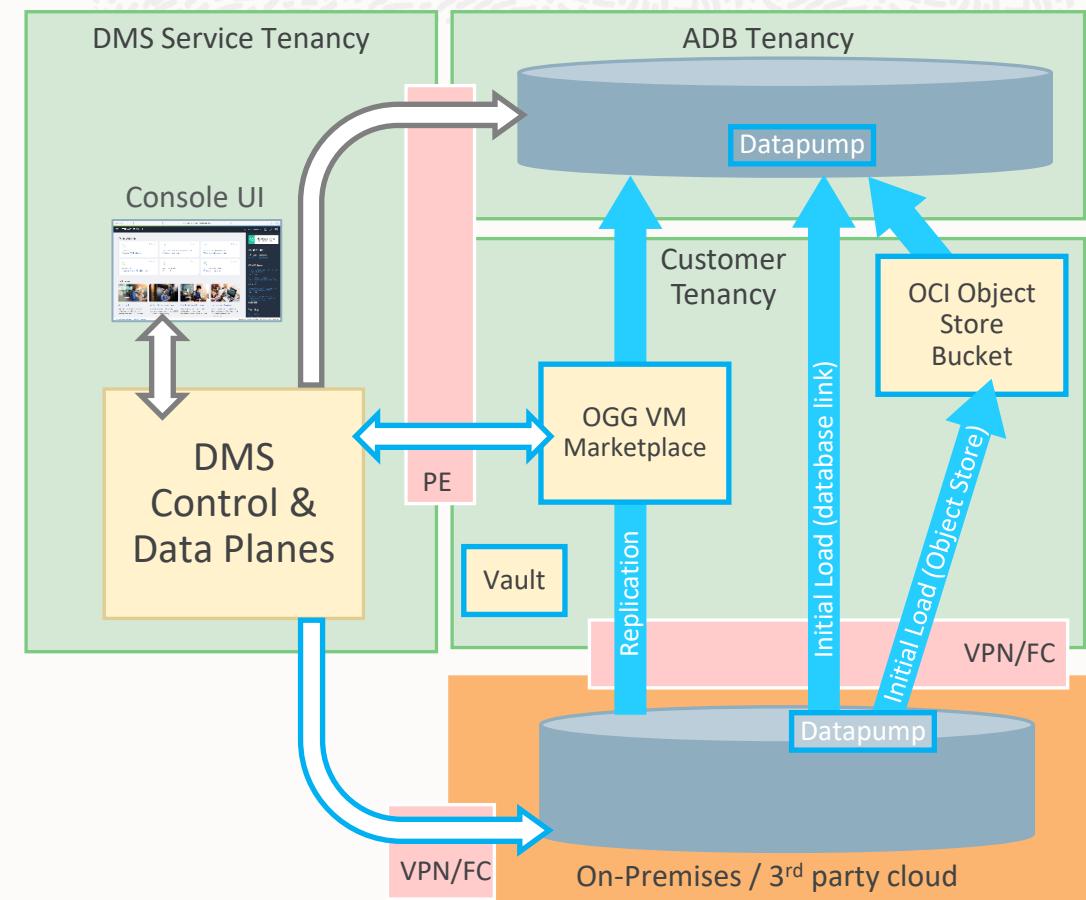


# How OCI Database migration works

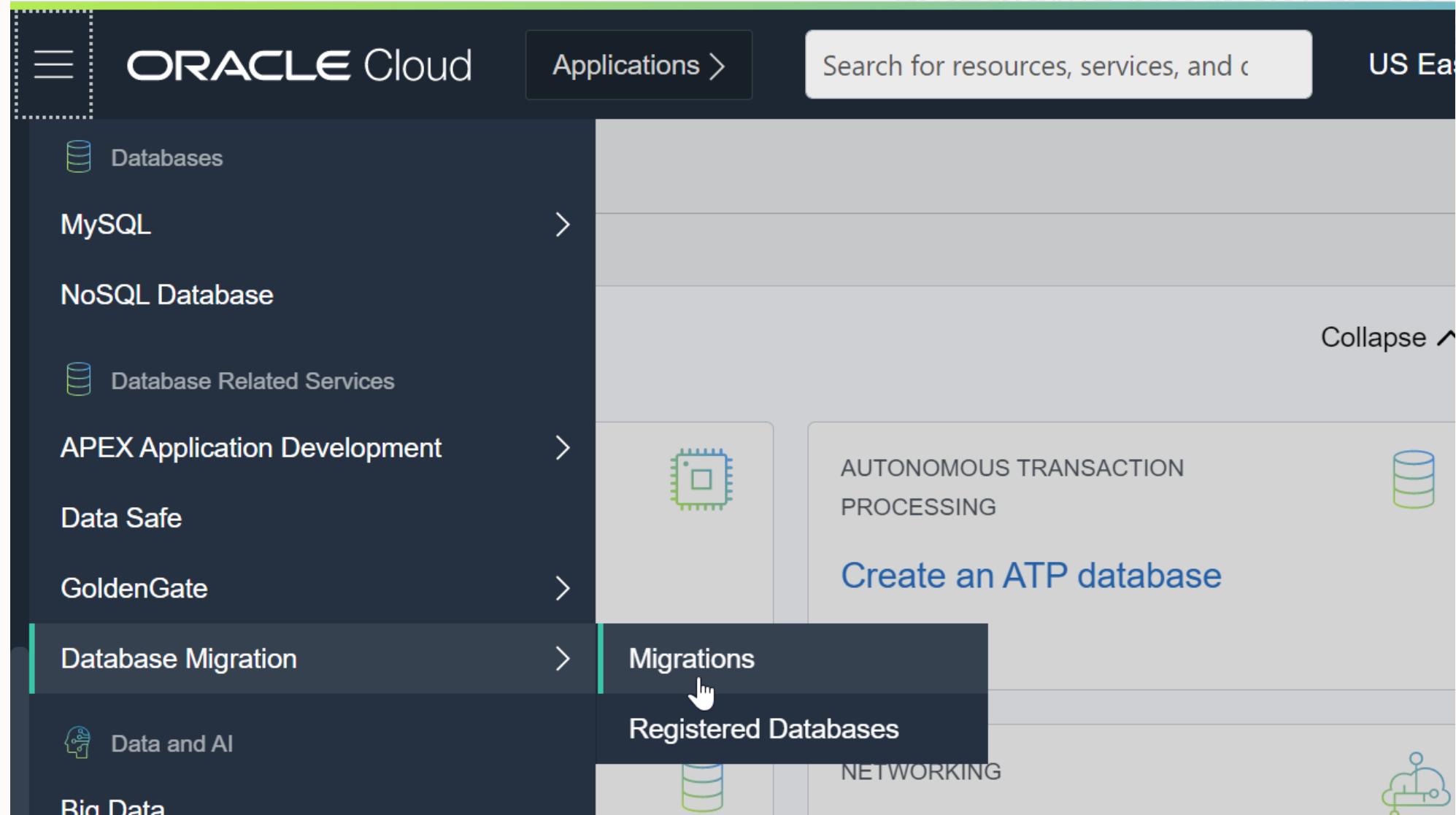


# Migration Steps – Direct Online Migration

1. Configure all prerequisites:
  - Set up VPN or FastConnect to access source DB
  - Provision Target DB
  - Provision OGG VM, Object Store, and Vault
  - Configure source and target DBs for replication
2. Create Migration in DMS
3. Evaluate Migration
4. Start Migration
  - a. Export source DB to target DB using Datapump over dblink
  - b. Create and start OGG replication from source DB to target DB starting with all changes after initial load
5. Complete Migration



# Step 1: Open Database Migration on the OCI Console



# Step 2: Register Source and Target Databases

Provide reusable connection information and credentials for databases

## Register Database

[Help](#)

**1 Database Details**

Name: MySourcePDB

Compartment: DMS\_LA  
ggsstage (root)/DMS\_LA

Vault in DMS\_LA [\(Change Compartment\)](#)  
DMS\_Vault

Encryption Key in DMS\_LA  
[\(Change Compartment\)](#)  
DMS\_Key

Select Database  
 Manually Configure Database

Database Type: Database (Bare Metal, VM, Exadata)

Database System in DMS\_LA  
[\(Change Compartment\)](#)  
SourceDB

## Register Database

[Help](#)

**1 Database Details**

Name: MyTargetATP

Compartment: DMS\_LA  
ggsstage (root)/DMS\_LA

Vault in DMS\_LA [\(Change Compartment\)](#)  
DMS\_Vault

Encryption Key in DMS\_LA  
[\(Change Compartment\)](#)  
DMS\_Key

Select Database  
 Manually Configure Database

Database Type: Autonomous Database

Database in DMS\_LA [\(Change Compartment\)](#)  
TargetATP



# Step 3: Create Migration

Select migration method and other settings to move a database to the cloud

### Create Migration

[Help](#)

**1 Add Details**

Name  [Change Compartment](#)

Compartment  [Change Compartment](#)

ggsstage (root)/DMS\_LA

Direct connection to source database  
The source database is directly accessible from the Cloud

No direct connection to source database  
Requires you to download and install an agent to use as a bridge to the source database

Vault in DMS\_LA [\(Change Compartment\)](#)  [Change Compartment](#)

Encryption Key in DMS\_LA [\(Change Compartment\)](#)  [Change Compartment](#)

**2 Select Databases**

**3 Migration Options**

[Next](#) [Cancel](#)

### Create Migration

[Help](#)

**1 Add Details**

**2 Select Databases**

**3 Migration Options**

**Source Database**

Registered Database in DMS\_LA [\(Change Compartment\)](#)  [Change Compartment](#)

Database is pluggable database (PDB)

Registered Container Database in DMS\_LA [\(Change Compartment\)](#)  [Change Compartment](#)

**Target Database**

Registered Database in DMS\_LA [\(Change Compartment\)](#)  [Change Compartment](#)

[Previous](#) [Next](#) [Cancel](#)

### Create Migration

[Help](#)

**1 Add Details**

**2 Select Databases**

**3 Migration Options**

Initial Load  Datapump via Database Link  Datapump via Object Storage

Object Storage Bucket in DMS\_LA [\(Change Compartment\)](#)  [Change Compartment](#)

**Export Directory Object**

Name [\(i\)](#)  Path [\(i\)](#)  [Change Compartment](#)

Use Online Replication

GoldenGate Hub URL [\(i\)](#)

GoldenGate Administrator Username

GoldenGate Administrator Password

**Source Database**

GoldenGate Deployment Name

[Previous](#) [Create](#) [Cancel](#)



# Step 4: Validate Migration

Confirm all prerequisites, permissions, and connectivity to source and target

The screenshot shows the Oracle Cloud Migration Service (OCM) interface. On the left, there is a large green circle with 'DM' in white, labeled 'ACTIVE'. In the center, there is a yellow circle with 'JOB' in white, labeled 'IN PROGRESS'. The main area displays the 'MyMigration' page.

**Migration Information:**

- OCID: ...lgaxuq [Show](#) [Copy](#)
- Compartment: ggsstage (
- Created: Wed, Mar 31, 2021
- Encryption Vault: [DMS\\_Vault](#)
- Encryption Key: [DMS\\_Key](#)

**Validation Status:** Validation in progress at phase "Validate Target" (Phase 1 of 5).

**Job Information:**

- OCID: ...jdwsna [Show](#) [Copy](#)
- Type: Evaluation
- Created: Wed, Mar 31, 2021, 03:06:33 UTC

**Resources:** Metrics, Phases (selected), Unsupported Objects

**Phases:**

Name	Status	Duration
Validate Target	Started	3 s
Validate Source	Pending	1 s



# Step 5: Start Migration

Initiate the migration job to move database into the cloud

The screenshot shows the Oracle Database Migration Service (DM) interface. On the left, there's a large green circle labeled 'DM ACTIVE'. Below it, under 'Resources', there are tabs for 'Metrics' (selected), 'Jobs' (highlighted with a blue border), and 'Excluded Objects'. In the center, there's a 'Jobs' section with a table:

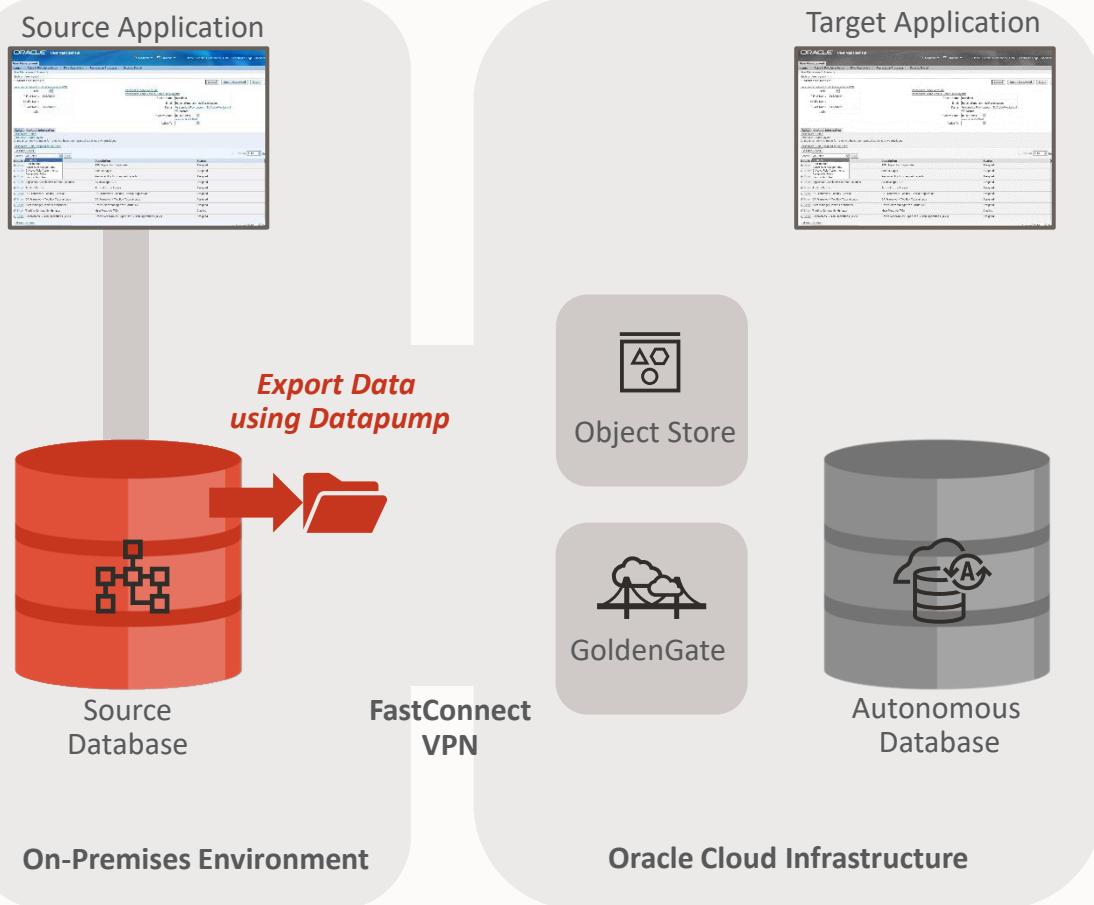
Name	State
<a href="#">job-20210331031341</a>	Succeeded

On the right, the main area is titled 'MyMigration'. It shows a 'Migration Information' card with details like OCID, Compartment, Created date, Encryption Vault, and Encryption Key. A large orange circle labeled 'JOB IN PROGRESS' is prominently displayed. A message box says 'Migration validation completed and can be started from the Start action button.' The 'Start' button is highlighted with a red box and a cursor icon. Another message box indicates 'Migration in progress at phase "Prepare" (Phase 2 of 10)' for job ID 'job-20210331031753'. Below this, there are tabs for 'Job Information' and 'Tags'. At the bottom, there are sections for 'Resources' (Metrics, Phases, Unsupported Objects) and 'Phases' (Validate: Completed, Prepare: Started 50%).



# Start Migration – Export Initial Load

Current DB state is exported to files using datapump



## Phases

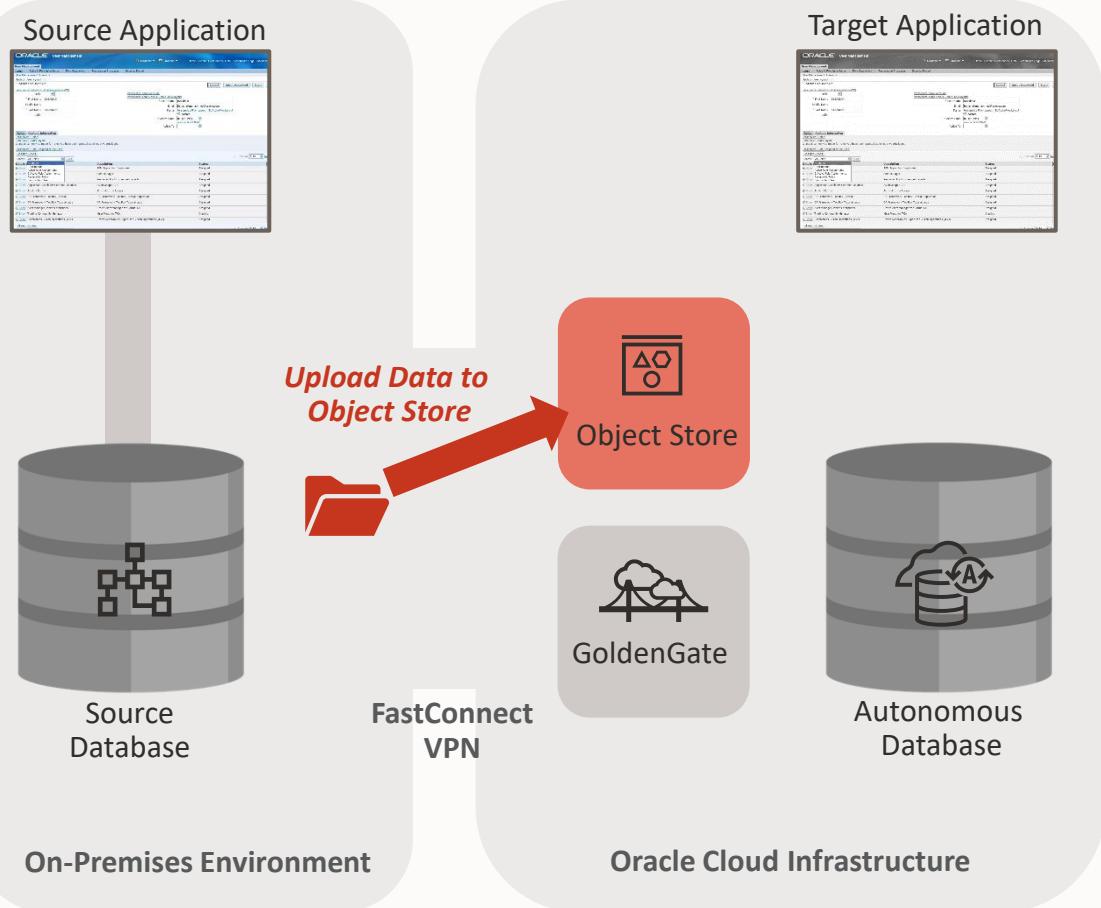
Name	Status	Duration
Validate	Completed	1 m 11 s
Prepare	Completed	2 m 43 s
Export Initial Load	Started <div style="width: 66%;"> </div> 66%	3 m 38 s
Upload Data	Pending	—
Import Initial Load	Pending	—
Post Initial Load	Pending	—
Prepare Replication Target	Pending	—
Monitor Replication Lag	Pending	—
Switchover	Pending	—
Cleanup	Pending	—

Showing 10 Items < 1 of 1 >



# Start Migration – Upload Data

Datapump export is uploaded to Object Store



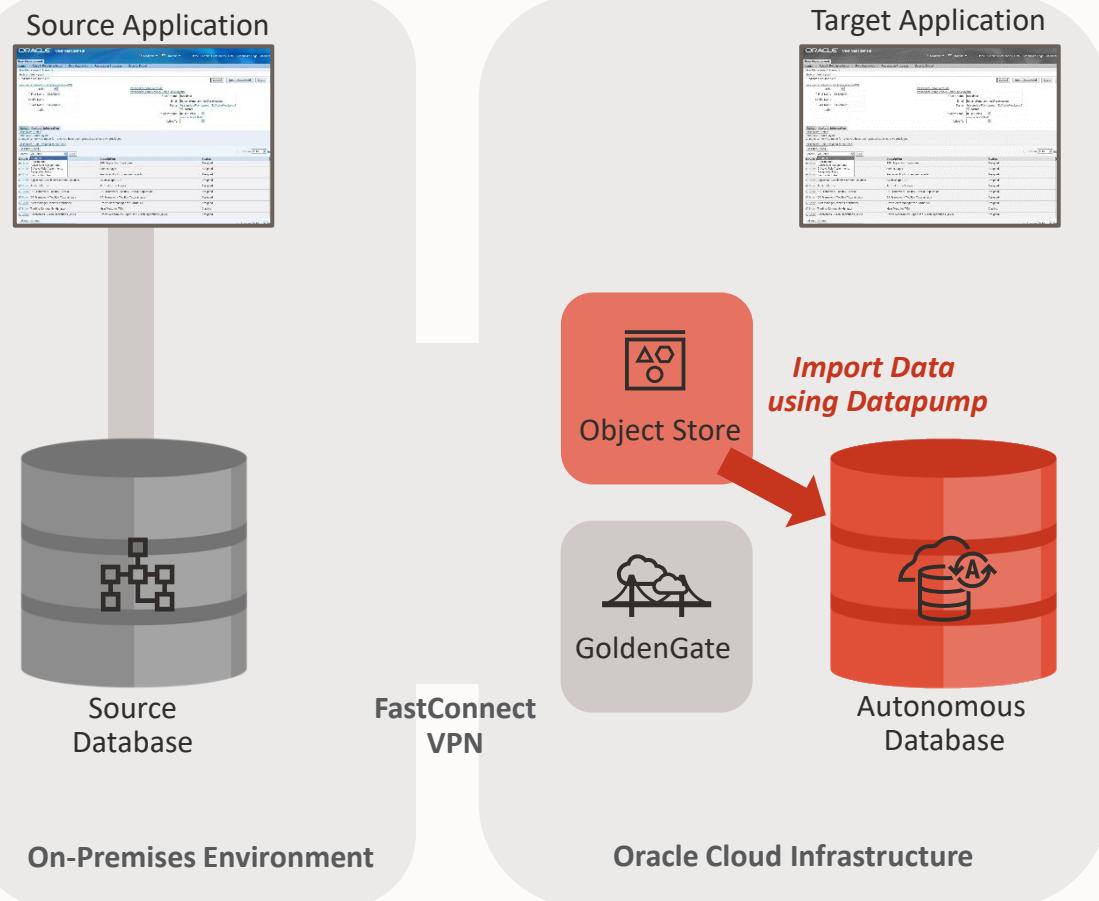
Phases		
Name	Status	Duration
Validate	Completed	1 m 11 s
Prepare	Completed	2 m 43 s
Export Initial Load	Completed	9 m 30 s
Upload Data	Started	26 s
Import Initial Load	Pending	—
Post Initial Load	Pending	—
Prepare Replication Target	Pending	—
Monitor Replication Lag	Pending	—
Switchover	Pending	—
Cleanup	Pending	—

Showing 10 Items < 1 of 1 >



# Start Migration – Import Initial Load

Exported dump files are imported to ADB



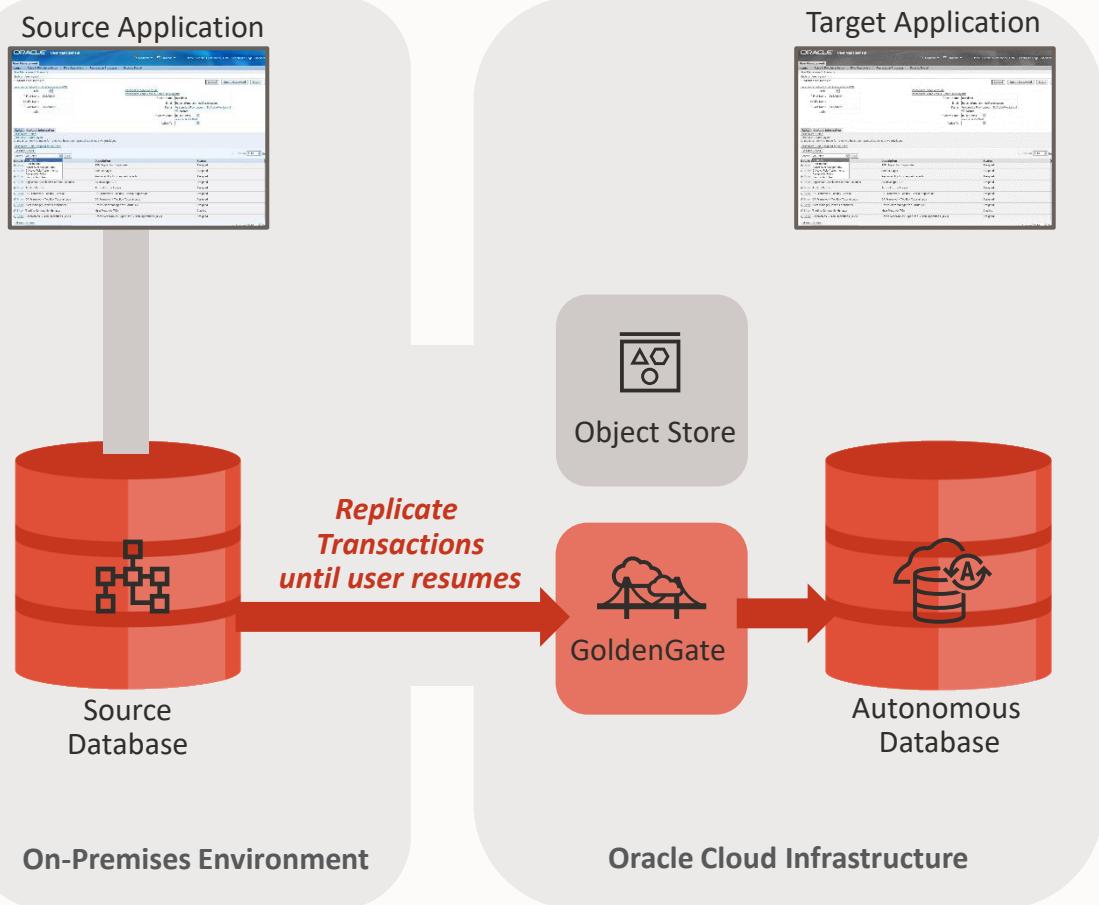
Phases		
Name	Status	Duration
Validate	Completed	1 m 11 s
Prepare	Completed	2 m 43 s
Export Initial Load	Completed	9 m 30 s
Upload Data	Completed	1 m 13 s
Import Initial Load	Started 50%	3 m 30 s
Post Initial Load	Pending	—
Prepare Replication Target	Pending	—
Monitor Replication Lag	Pending	—
Switchover	Pending	—
Cleanup	Pending	—

Showing 10 Items < 1 of 1 >



# Start Migration – Replication

DB transactions are replicated using GoldenGate until user resumes the next phase



## Phases

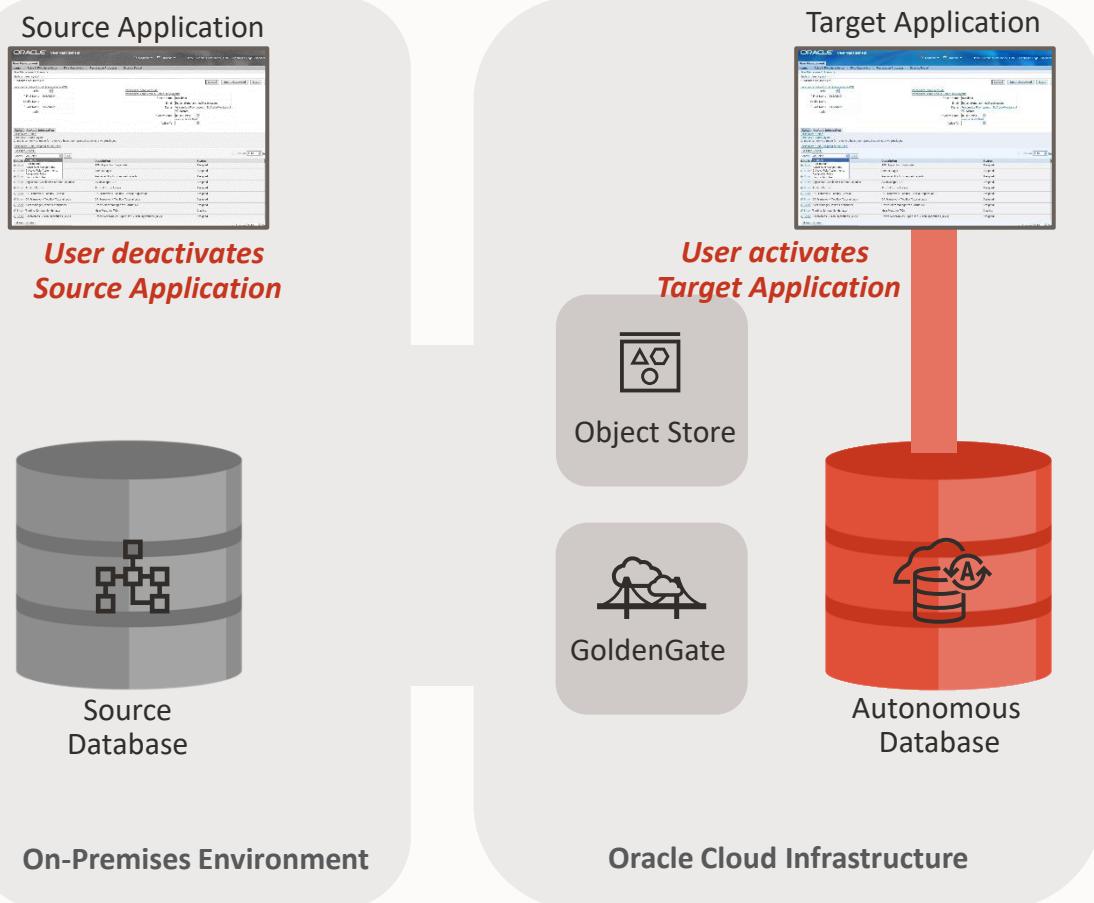
Name	Status	Duration
Validate	● Completed	1 m 11 s
Prepare	● Completed	2 m 43 s
Export Initial Load	● Completed	9 m 30 s
Upload Data	● Completed	1 m 13 s
Import Initial Load	● Completed	5 m 33 s
Post Initial Load	● Completed	3 s
Prepare Replication Target	● Completed	2 m 11 s
Monitor Replication Lag	● Completed	2 s
Switchover	● Pending	—
Cleanup	● Pending	—

Showing 10 Items < 1 of 1 >



# Start Migration – Switchover

Wait until last transaction is replicated to let user switch over applications



## Phases

Name	Status	Duration
Validate	● Completed	1 m 11 s
Prepare	● Completed	2 m 43 s
Export Initial Load	● Completed	9 m 30 s
Upload Data	● Completed	1 m 13 s
Import Initial Load	● Completed	5 m 33 s
Post Initial Load	● Completed	3 s
Prepare Replication Target	● Completed	2 m 11 s
Monitor Replication Lag	● Completed	2 s
Switchover	● Completed	1 m 26 s
Cleanup	● Pending	—

Showing 10 Items < 1 of 1 >



# Migration Succeeded

### job-20210331031753

[Resume](#) [Abort](#) [Download Log](#) [Add Tags](#) [Delete](#)

[Job Information](#) [Tags](#)

**OCID:** ...2jxcka [Show](#) [Copy](#)      **Type:** Migration  
**Created:** Wed, Mar 31, 2021, 03:17:53 UTC

#### Resources

[Metrics](#) [Phases](#) [Unsupported Objects](#)

#### Phases

Name	Status	Duration
Validate	Completed	1 m 11 s
Prepare	Completed	2 m 43 s
Export Initial Load	Completed	9 m 30 s
Upload Data	Completed	1 m 13 s
Import Initial Load	Completed	5 m 33 s
Post Initial Load	Completed	3 s
Prepare Replication Target	Completed	2 m 11 s
Monitor Replication Lag	Completed	2 s
Switchover	Completed	1 m 26 s
Cleanup	Completed	39 s

Showing 10 Items < 1 of 1 >



# Resources

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- **Migration and Integration workshop (Oracle University)**

<https://mylearn.oracle.com/ou/course/oracle-db-cloud-migration-and-integration-workshop/122248/168832>

- **Oracle Lift Services site**

<https://www.oracle.com/br/cloud/cloud-lift/>

- **Frequently Asked Questions (FAQs) for Oracle Cloud Lift Services**

<https://www.oracle.com/br/a/ocom/docs/cloud/faq-oracle-cloud-lift.pdf>

- **Mike Dietrich – Upgrade your Database now**

<https://mikedietrichde.com/>

- **Real Application Test Product Page**

<https://www.oracle.com/manageability/enterprise-manager/technologies/real-application-testing.html>

- **Real Application Test (RAT) Technician Overview**

<https://www.oracle.com/a/otn/docs/enterprise-manager/wp-19c-rat-em.pdf>



# Oci Database Migration (DMS) – Link's

- OCI Database Migration Product page

<https://www.oracle.com/cloud/database-migration/>

- OCI Database Migration Documentation

<https://docs.oracle.com/en/cloud/paas/database-migration/dmsus/getting-started-oracle-cloud-infrastructure-database-migration.html#GUID-30481DFD-08D7-4D38-A952-3D81138AB71C>



# Oracle Recover Manager (Rman) – Links

- **Getting Started with Recovery Manager (RMAN) (Doc ID 360416.1)**

<https://support.oracle.com/epmos/faces/DocumentDisplay?id=360416.1>

- **Oracle Database 19c Backup and Recovery user guide**

<https://docs.oracle.com/en/database/oracle/oracle-database/19/bradv/index.html#Oracle%C2%AE-Database>

- **Oracle Database 19c Multitenant Administrator guide**

<https://docs.oracle.com/en/database/oracle/oracle-database/19/multi/index.html#Oracle%C2%AE-Multitenant>

- **M5 Cross Endian Platform Migration using Full Transportable Data Export/Import and RMAN Inc Backups (Doc ID 2999157.1)**

<https://support.oracle.com/epmos/faces/DocumentDisplay?id=2999157.1>

- **Golden Gate Veridata Get started**

<https://docs.oracle.com/en/middleware/goldengate/veridata/12.2.1.4/index.html>



# Zero Downtime Migration (ZDM) - Links

- **Zero Downtime migration product page**

<https://www.oracle.com/database/zero-downtime-migration/>

- **Zero Downtime Migration 21.4 documentation**

<https://docs.oracle.com/en/database/oracle/zero-downtime-migration/21.4/>

- **Migrating and Upgrading Oracle Databases to OCI with Oracle Zero Downtime Migration (ZDM) demo**

<https://www.youtube.com/watch?v=WPkqwnXGSjo>

- **Zero Downtime Migration Release Notes**

<https://docs.oracle.com/en/database/oracle/zero-downtime-migration/21.4/zdmrn/index.html#GUID-A1A467DC-FC06-4409-AF7F-BF0186CD8C54>

- **Zero Downtime Migration Licensing Information User Manual**

<https://docs.oracle.com/en/database/oracle/zero-downtime-migration/21.4/zdmli/index.html#GUID-0E273386-149E-4A98-823A-388C60752632>

- **livelabs - Zero Downtime Migration: Logical Online Migration to Oracle Autonomous Database**

<https://apexapps.oracle.com/pls/apex/dbpm/r/livelabs/view-workshop?wid=937>



- **Livelabs - Zero Downtime Migration - Logical Offline Migration to ADB**

<https://apexapps.oracle.com/pls/apex/dbpm/r/livelabs/view-workshop?wid=850>

- **livelabs - Zero Downtime Migration : Physical Offline Migration to Co-Managed Databases in OCI**

<https://apexapps.oracle.com/pls/apex/r/dbpm/livelabs/view-workshop?wid=3568>

- **Oracle Zero Downtime Migration (ZDM) & Oracle Advanced Cluster File System**

<https://www.oracle.com/a/tech/docs/oracle-zdm-logical-migration-acfs.pdf>

- **Oracle Zero Downtime Migration – Logical Migration Performance Guidelines**

<https://www.oracle.com/a/tech/docs/zdm-gg-performance.pdf>

- **Oracle Zero Downtime Migration (ZDM)- Logical Online Migration from On-Premises to Oracle Autonomous(ADB)**

<https://www.oracle.com/a/tech/docs/oracle-zdm-logical-migration-to-autonomous-guide.pdf>

- **Oracle Zero Downtime Migration (ZDM) - Logical Migration Upgrade from On-Premises to DBCS and ExaCS**

<https://blogs.oracle.com/maa/post/oracle-zero-downtime-migration-214>

- **Oracle Zero Downtime Migration (ZDM) Physical Migration Step by Step Guide**

<https://www.oracle.com/a/tech/docs/oracle-zdm-step-by-step-guide.pdf>



ORACLE



## 1Z0-1194-24 : Oracle Cloud Database Migration Professional 2024



- Number of Questions **50**
- Format **Multiple Choice**
- Duration **90 minutes**
- Passing Score **68%**

# Oracle Cloud Database Migration Professional 2024



## In this Learning Path you will learn to :

- **Identify Cloud Migration Scenarios**
- **Oracle Tools Overview**
- **Evaluate Migration Methods**
- **ZDM/DMS**

# Skill Check

## Skill Check: Database Migration to OCI

(Answer all questions in this section)

1. Which is not a benefit of database migrations?

- Applications can stay online during migration.
- Improve performance in Oracle Cloud
- Increase cost
- Fully managed

1. Which is not a benefit of database migrations?

- Applications can stay online during migration.
- Improve performance in Oracle Cloud
- Increase cost (\*)
- Fully managed

✓Your answer is Correct.

**Explanation:** Database migrations reduce cost and improve performance in Oracle Cloud.

# Skill Check

## Skill Check: Database Migration to OCI

(Answer all questions in this section)

2. Which is false about the Cloud Pre-Migration Advisor Tool (CPAT)?

- It is not integrated in DMS.
- It helps determine the suitability of migrating an Oracle database instance to one of Oracle's cloud offerings.
- It makes suggestions for remedial changes and/or parameters to use for the data.
- It optionally generates remedial scripts for failing checks that can be run against the source database.

2. Which is false about the Cloud Pre-Migration Advisor Tool (CPAT)?

- It is not integrated in DMS. (\*)
- It helps determine the suitability of migrating an Oracle database instance to one of Oracle's cloud offerings.
- It makes suggestions for remedial changes and/or parameters to use for the data.
- It optionally generates remedial scripts for failing checks that can be run against the source database.

✓ Your answer is **Correct**.

**Explanation:** CPAT is integrated in DMS and validates the source database for compatibility as part of the migration.



# Skill Check

## Skill Check: Database Migration to OCI

(Answer all questions in this section)

3. What does the cloud migration advisor collect and convert into detailed technical advice during a migration process?

- Hardware specifications and server configurations
- Database metadata details about the current environment
- Network configurations and bandwidth requirements
- User feedback and preferences

## Skill Check: Database Migration to OCI

(Answer all questions in this section)

3. What does the cloud migration advisor collect and convert into detailed technical advice during a migration process?

- Hardware specifications and server configurations
- Database metadata details about the current environment (\*)
- Network configurations and bandwidth requirements
- User feedback and preferences

✓ Your answer is **Correct**.

**Explanation:** The cloud migration advisor gathers information about the database metadata of the current environment and then provides detailed technical advice regarding potential migration targets and methods based on this data.



# Skill Check

## Skill Check: Migration Types and Methods

(Answer all questions in this section)

### 1. What does Recovery Point Objective (RPO) signify?

- The overall length of time to recover workloads before impacting critical business processes
- The time taken to recover workloads without affecting critical business processes
- The maximum allowable downtime for critical business processes
- The maximum amount of data loss acceptable during a disaster recovery event

### 1. What does Recovery Point Objective (RPO) signify?

- The overall length of time to recover workloads before impacting critical business processes
- The time taken to recover workloads without affecting critical business processes
- The maximum allowable downtime for critical business processes
- The maximum amount of data loss acceptable during a disaster recovery event (\*)

✓ Your answer is **Correct**.

**Explanation:** Recovery Point Objective (RPO) refers to the maximum acceptable amount of data loss that an organization is willing to endure during a disaster recovery event. It specifies the point in time to which data must be recovered in order to resume normal operations without causing significant harm to the organization's critical business processes.



# Skill Check

## Skill Check: Migration Types and Methods

(Answer all questions in this section)

2. Which migration method utilizes Data Pump and GoldenGate tools?

- Logical Migration
- Indirect Connection
- Direct Connection
- Physical Migration

## Skill Check: Migration Types and Methods

(Answer all questions in this section)

2. Which migration method utilizes Data Pump and GoldenGate tools?

- Logical Migration (\*)
- Indirect Connection
- Direct Connection
- Physical Migration

✓Your answer is **Correct**.

**Explanation:** Logical Migration involves logical interpretation of database contents and copying them into the target database format using Data Pump and GoldenGate tools.



# Skill Check

1. Which is not a key capability of the OCI Database Migration Service (DMS)?
  - It's a fully managed, cloud native, database migration service that makes migrations easy and reliable.
  - It provides data validation and migrates both schemas and metadata.
  - It provides only logical online migrations.
  - It's based on enterprise-strength Oracle tools: Zero Downtime Migration, GoldenGate, and Data Pump.
  
1. Which is not a key capability of the OCI Database Migration Service (DMS)?
  - It provides data validation and migrates both schemas and metadata.
  - It's a fully managed, cloud native, database migration service that makes migrations easy and reliable.
  - It's based on enterprise-strength Oracle tools: Zero Downtime Migration, GoldenGate, and Data Pump.
  - It provides only logical online migrations. (\*)

✓ Your answer is **Correct**.

**Explanation:** Our key capabilities are to provide both logical offline and online migrations.



## Skill Check

---

3. Which database connection requires VPN/FastConnect for On-Prem?

- Hybrid Connection
- Indirect Connection
- Offline Connection
- Direct Connection

3. Which database connection requires VPN/FastConnect for On-Prem?

- Hybrid Connection
- Indirect Connection
- Offline Connection
- Direct Connection (\*)

✓ Your answer is **Correct**.

**Explanation:** With Direct Connection, we need to have VPN or FastConnect connections—that is, we need private connectivity—between our on-premises data center and Oracle Cloud.