

ORACLE

University

Oracle Database@AWS Professional

Student Guide
D1112399GC10

Learn more from Oracle University at education.oracle.com



Copyright © 2025, Oracle and/or its affiliates.

Disclaimer

This document contains proprietary information and is protected by copyright and other intellectual property laws. The document may not be modified or altered in any way. Except where your use constitutes "fair use" under copyright law, you may not use, share, download, upload, copy, print, display, perform, reproduce, publish, license, post, transmit, or distribute this document in whole or in part without the express authorization of Oracle.

The information contained in this document is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

Restricted Rights Notice

If this documentation is delivered to the United States Government or anyone using the documentation on behalf of the United States Government, the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software" or "commercial computer software documentation" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

Trademark Notice

Oracle®, Java, MySQL, and NetSuite are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

Third-Party Content, Products, and Services Disclaimer

This documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Table of Contents

Oracle Multicloud	14
Multicloud Introduction	14
What is Multicloud?	15
OCI Distributed Cloud offers exceptional flexibility and choice	16
Multicloud Benefits	17
OCI-Azure Interoperability	18
Oracle Database@Azure	19
Oracle Database@Google Cloud	20
Oracle Database@AWS	22
Oracle Database Multicloud Solutions – in all leading hyperscalers	24
Oracle Cloud Infrastructure Global Footprint	25
Multicloud Use Cases	26
Objectives	27
Oracle Database Multicloud Capabilities Help Enterprises Modernize	28
The Same Oracle Database Capabilities - available everywhere	29
Oracle Database Multicloud Solutions - the best of both worlds	30
Oracle Interconnect for Azure	31
Oracle Interconnect for Google Cloud	32
Key Oracle Database Multicloud Use Cases	33
Move to Cloud - Lift & shift without refactoring	34
Move to Cloud - key differentiators and benefits	35
Build Innovative Applications with Cloud-First Capabilities	36
Build Innovative Applications - key differentiators and benefits	37
Reduce Complexity and Cost	38
Reduce Complexity and Cost - key differentiators and benefits	39
Fidelity Investments relies on Oracle Database@AWS to innovate faster and scale more efficiently	40
Summary	41
Module 1	42
What is Oracle Database@AWS?	42

Objectives	43
What is Oracle Database@AWS?	44
Oracle Database@AWS Benefits	45
Oracle Database@AWS Architecture – OCI Child Site	46
Oracle Database@AWS Architecture – Exadata Infrastructure	47
Oracle Database@AWS Architecture – ODB Network	48
Oracle Database@AWS Architecture – ODB Peering	49
Comparing Oracle Database@AWS Database Services	50
Summary	51
Onboard Prerequisites for Oracle Database@AWS	52
Objectives	53
What is Onboarding Oracle Database@AWS?	54
Prerequisite to Onboarding Oracle Database@AWS	55
AWS Account	56
Policies	57
Onboard Tasks by AWS Users	58
OCI Tenancy Account	59
Summary	60
Requesting Purchase Offer for Oracle Database@AWS	61
Objectives	62
Request Offer for Oracle Database@AWS	63
Request Private Offer	65
View Private Offer	67
Purchase Private Offer	68
Summary	71
Link to Oracle Database@AWS	72
Objectives	73
Linking to Oracle Database@ AWS	74
Activate Oracle Database@AWS Subscription	76
Verify Subscription Mapping	77
Verify Limits	79
Verify the Compartment for Oracle Database@AWS Resources	80

Oracle Database@AWS Dashboard	81
Summary	82
Module 2	83
Getting Started with Oracle Database@AWS	83
Objectives	84
Resources for Oracle Database@AWS	85
Oracle Database Network – ODB Network	86
Oracle Exadata infrastructure for Oracle Database@AWS	87
Oracle VM Clusters	89
Oracle Database Services in Oracle Database@AWS	90
OBD Peering	91
Summary	92
Service Responsibilities for Oracle Database@AWS	93
Objectives	94
Oracle Database@AWS	95
Transfer more responsibility to the service while lowering costs	96
Shared Responsibility	97
Summary	98
Oracle Database Services for Oracle Database@AWS	99
Objectives	100
Oracle Database Services in Oracle Database@AWS	101
Autonomous Database on Oracle Database@AWS	102
Autonomous Database on Dedicated Exadata Infrastructure	103
Exadata Database on Oracle Database@AWS	104
Complete Oracle Database & Exadata capabilities in the cloud	105
Automated Scaling	106
Summary	107
Oracle Database@AWS	108
Objectives	109
Oracle Database Network (ODB)	110
High-Level Architecture	111

High-Level Architecture – Single Availability Zone	112
Detailed Architecture – Single Availability Zone	113
Oracle Database Network (ODB) OCI Resources	114
AWS ODB Peering – GA Capability	115
AWS Hub and Spoke Design	116
Lattice	117
VPC Lattice Integration	118
Key functionalities of VPC Lattice with ODB Network	119
Deleting the ODB	120
Summary	121
Create Oracle Exadata Infrastructure for Oracle Database@AWS	122
Objectives	123
Resources for Oracle Database@AWS	124
Creating Resources for Oracle Database@AWS by Role and by Task	125
AWS Dashboard	126
Create Exadata Infrastructure for Oracle Database@AWS	127
Exadata Infrastructure for Oracle Database@AWS	132
Summary	135
Create Oracle VM Clusters for Oracle Database@AWS	136
Objectives	137
SSH Keys for Oracle VM Clusters	138
Create VM Clusters for Oracle Database@AWS	139
Create Exadata VM Cluster for Oracle Database@AWS	140
Exadata VM cluster	147
Create Autonomous VM Cluster for Oracle Database@AWS	149
Autonomous VM Cluster for Oracle Database@AWS Details	150
Autonomous VM Cluster	151
Summary	152
Provision Oracle Exadata Databases for Oracle Database@AWS	153
Objectives	154
Create Exadata Database	155
Summary	162

Provision Oracle Autonomous Container Database for Oracle Database@AWS	163
Objectives	164
Create Autonomous Container Database	165
Autonomous Container Database	172
Summary	173
Provision Oracle Autonomous Databases for Oracle Database@AWS	174
Objectives	175
Create Autonomous Database	176
Autonomous Database	180
Summary	181
Connectivity to Oracle Databases in Oracle Database@AWS	182
Objectives	183
Connecting to Oracle Databases in Oracle Database@AWS	184
Network for Connecting to Oracle Database@AWS	186
Obtain Client Credentials for Connection	188
Summary	195
Connecting to Oracle Databases in Oracle Database@AWS	196
Objectives	197
Connecting to Oracle Database@AWS with an EC2 instance	198
Summary of EC2 instance	199
Configure Client Connection for Database@AWS	200
Configure Client Connection	201
Obtain Client Credentials	202
Oracle Tnsnames.ora	203
Resolving service names during database connections.	204
Connecting to Oracle Database in Database@AWS	205
Accessing data from Oracle Database	206
Connecting to Oracle Database in Database@AWS	207
Summary	208
Module 3	209
 Oracle Database@AWS: DNS Configuration – ODB Network	209

Objectives	210
DNS Configuration – Big Picture	211
DNS Configuration – ODB Network	212
DNS Resolution – Oracle Database	213
ODB Network – Configuring Endpoints	214
ODB Network	215
OCI Custom Domain Name and Private Resolvers’ Endpoint	216
Summary	218
Oracle Database@AWS: Networking Topologies	219
Objectives	220
AWS Hub and Spoke Design	221
Oracle DB@AWS Hub and Spoke Design – Single Region/Single Account	222
Oracle DB@AWS Hub and Spoke Design – Cross Account/Cross Region	223
AWS Hub-and-Spoke Third Party Firewall	224
AWS Hub-and-Spoke On-Premises Applications Topology	225
AWS Cloud WAN for Oracle Database@AWS	226
Summary	227
Oracle Database@AWS: Disaster Recovery Networking Scenarios	228
Objectives	229
Cross-Region Object Storage Replication Option for User Implementation	230
Oracle RAC & Oracle Active Data Guard	231
Exadata Database Service@AWS MAA Gold Level - cross-AZs	232
Oracle Active Data Guard for ExaDB-D on Oracle Database@AWS	234
What is included in Gold MAA on Oracle Database@AWS?	235
Exadata Database Service@AWS MAA Gold Level - cross-regions	236
Exadata Database Service@AWS Active Data Guard Far Sync	238
Exadata Database Service@AWS Local and Remote Standby	239
Exadata Database Service@AWS Two Remote Standbys	240
Oracle Active Data Guard for ExaDB-D on Oracle Database@AWS	241
Configure Oracle Active Data Guard in OCI Console	242
Summary	243
Module 4	244

Identity and Access Management	244
JSON Policy Document Structure	245
AWS Identity-based policy elements	246
Sample Identity-based Policy	247
Auto-Created OCI Policies during Onboarding	248
Auto-Created OCI Policies during Onboarding	249
IAM Feature Support in Oracle Database@AWS	250
Troubleshooting Identity & Access	253
Troubleshooting OD@AWS Identity & Access	254
Troubleshooting OD@AWS Identity & Access	255
Troubleshooting OD@AWS Identity & Access	256
Data Protection	257
Data Security	258
Security and Compliance	263
Oracle Database@AWS Security	264
Securing Your Databases	265
Encryption: OCI Vault	267
Oracle Database@AWS Compliance Certifications	268
Module 5	271
Zero-Downtime Migration: Overview	271
ZDM Features	272
ZDM Supported Environment	273
ZDM – How It Works	274
ZDM Intermediate Storage Options in AWS	277
Oracle Advanced Cluster File System (ACFS)	279
NFS Server on AWS EC2 VM	280
Amazon S3 Storage Gateway	281
Amazon Elastic File System	282
Amazon FSx for OpenZFS	283
ZDM Physical Online Migration to ExaDB-D on Oracle Database@AWS	284
ZDM Physical Online Migration to ExaDB-D on Oracle Database@AWS	285

ZDM Physical Offline Migration to ExaDB-D on Oracle Database@AWS	288
ZDM Physical Offline Migration to ExaDB-D on Oracle Database@AWS	289
ZDM Logical Online Migration to ExaDB-D on Oracle Database@AWS	292
ZDM Logical Online Migration to ExaDB-D on Oracle Database@AWS	293
Monitoring and Logging Oracle Database@AWS	296
Monitoring Resource Metrics Using Amazon CloudWatch	297
Metrics Monitored for ExaDB-D Resources	298
Monitoring Resource Events Using Amazon EventBridge	299
Oracle Database@AWS Events and Filtering	300
Logging OD@AWS API Calls Using AWS CloudTrail	301
ZDM Logical Offline Migration to ExaDB-D on Oracle Database@AWS	302
ZDM Logical Offline Migration to ExaDB-D on Oracle Database@AWS	303
ZDM Logical Offline Migration to ADB-D on Oracle Database@AWS	306
ZDM Logical Offline Migration to ADB-D on Oracle Database@AWS	307
Module 6	310
Backup Destinations for Oracle Database@AWS	310
Objectives	311
Destinations for Automated Backup	312
Create Oracle Object Storage	313
Create Oracle Object Storage	314
Zero Data Loss Autonomous Recovery Service (ZRCV)	315
Summary	316
Backup Oracle Databases for Oracle Database@AWS	317
Objectives	318
Automatic Backup for Exadata database	319
Configure Automatic Backup	320
Backup Exadata Database	321
Automatic Backup for Exadata Database	322
Backup for Autonomous database for Oracle Database@AWS	323
Configure Backup Settings for the Databases in Autonomous Container Database	324
Automatic Backup for Autonomous Database	325

Manual Backup Autonomous Database	326
Backup Autonomous Database – Manual and Long Term	327
Autonomous Database – Manual Backup	328
Autonomous Database – Long Term Backup	329
Summary	330
Restore Oracle Databases for Oracle Database@AWS	331
Objectives	332
Restore Exadata Database	333
Restore Autonomous Database	334
Restore Autonomous Database	335
Summary	336
Autonomous Recovery Service for Oracle Database@AWS	337
Objectives	338
Zero Data Loss	339
Space-Efficient Encrypted Backups	340
ZRCV as an Immutable Service	341
Database-Integrated, Continuous Anomaly Detection	342
Summary	343
Implement Autonomous Recovery Service for Oracle Database@AWS	344
Objectives	345
Prerequisites for Recovery Service	346
Configure Automatic Backups	347
Policy-Based Backup	350
Policy-Based Backup Location	351
Monitoring Autonomous Recovery Service	352
Fast, Database-Integrated Restore to Any Point-in-Time	353
Restore with Autonomous Recovery Service	354
Summary	356
Module 7	357
High Availability in Oracle Database@AWS	357
Oracle Database Foundational High Availability Architecture	358

High Availability in Exadata Database Service in Oracle Database@AWS	359
High Availability in Autonomous Database Dedicated in Oracle Database@AWS	360
Disaster Recovery in Oracle Database@AWS	361
OCI Autonomous Recovery Service (RCV)	362
Oracle Active Data Guard	363
Cross-AZ Disaster Recovery for Oracle ExaDB-D in Oracle Database@AWS	364
Cross-AZ Network Traffic Options for Disaster Recovery in Oracle Database@AWS	365
Cross-Region Disaster Recovery for Oracle ExaDB-D in Oracle Database@AWS	366
Cross-Region Network Traffic Options for Disaster Recovery in Oracle Database@AWS	367
Availability SLOs	368
Module 8	369
Monitoring and Logging Oracle Database@AWS	369
Monitoring Resource Metrics Using Amazon CloudWatch	370
Metrics Monitored for ExaDB-D Resources	371
Monitoring Resource Events Using Amazon EventBridge	372
Oracle Database@AWS Events and Filtering	373
Logging OD@AWS API Calls Using AWS CloudTrail	374
Module 9	375
Best Practices for Operational Efficiency	375
Operational Efficiency: Best Practice #1	376
Operational Efficiency: Best Practice #2	377
Operational Efficiency: Best Practice #3	378
Operational Efficiency: Best Practice #4	379
Operational Efficiency: Best Practice #5	380
Operational Efficiency: Best Practice #6	381
Operational Efficiency: Best Practice #7	382
Operational Efficiency: Best Practice #8	383
Operational Efficiency: Best Practice #9	384
Best Practices for Reliability & Resilience	385
Reliability & Resilience: Best Practice #1	386
Reliability & Resilience: Best Practice #2	387

Reliability & Resilience: Best Practice #3	388
Reliability & Resilience: Best Practice #4	389
Reliability & Resilience: Best Practice #5	390
Reliability & Resilience: Best Practice #6	391
Reliability & Resilience: Best Practice #7	392
Best Practices for Performance & Cost Optimization	393
Performance & Cost Optimization: Best Practice #1	394
Performance & Cost Optimization: Best Practice #2	395
Performance & Cost Optimization: Best Practice #3	396
Performance & Cost Optimization: Best Practice #4	397
Performance & Cost Optimization: Best Practice #5	398
Performance & Cost Optimization: Best Practice #6	399
Performance & Cost Optimization: Best Practice #7	400
Performance & Cost Optimization: Best Practice #8	401
Performance & Cost Optimization: Best Practice #9	402
Best Practices for Security	403
Security: Best Practice #1	404
Security: Best Practice #2	405
Security: Best Practice #3	406
Security: Best Practice #4	407
Security: Best Practice #5	408
Security: Best Practice #6	409
Security: Best Practice #7	410
Security: Best Practice #8	411
Security: Best Practice #9	412

Oracle Multicloud

Multicloud Introduction

What is Multicloud?

In a multicloud architecture, an organization uses several public or private cloud services from different providers to deliver IT services.



OCI Distributed Cloud offers exceptional flexibility and choice



Multicloud

Our products work with your other providers, including Oracle Interconnect for Azure, Oracle Interconnect for Google, Oracle Database Service at Azure, Oracle Database Service at Google Cloud, and Oracle Database at AWS.



Public cloud

Access cloud services in 45+ global locations including Commercial, US Government, UK Government, US National Security Regions, and EU Sovereign (2025).



Hybrid cloud

We bring cloud services to you, including Oracle Exadata Cloud@Customer, Oracle Roving Edge Infrastructure, OCI Observability and Management, and Oracle Database.



Dedicated cloud

We build a cloud just for you, with all 100+ OCI services running in customer data centers, including OCI Dedicated Region and Oracle Alloy.

Multicloud Benefits

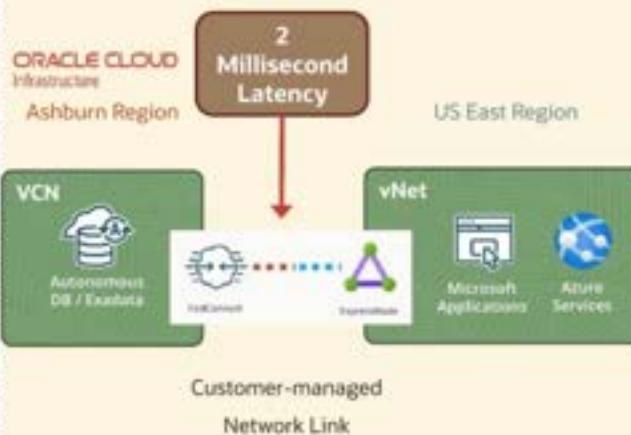
- **Increased flexibility:** Not being limited to only what one provider offers, a solid multicloud approach helps maximize flexibility across the business.
- **Reduced vendor lock-in**
- **Improved disaster recovery** This can reduce single points of failure thanks to greater geographic reach.
- **Optimized cost management:** A multicloud environment allows organizations to pick and choose their platforms and vendors, giving them greater flexibility to compare prices and choose the most cost-effective provider.
- **Enhanced performance and availability:** Multicloud management allows organizations to optimize resource allocation among clouds for better performance.
- **Access to best-of-breed services from different providers:** A multicloud approach gives organizations the ability to choose the offerings that best fit their needs.
- **Greater geographical reach**
- **Regulatory compliance**



OCI-Azure Interoperability

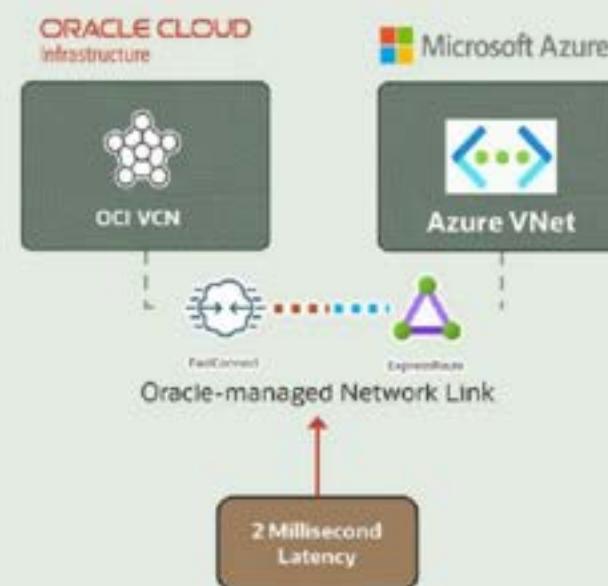
Oracle Interconnect for Microsoft Azure

2019



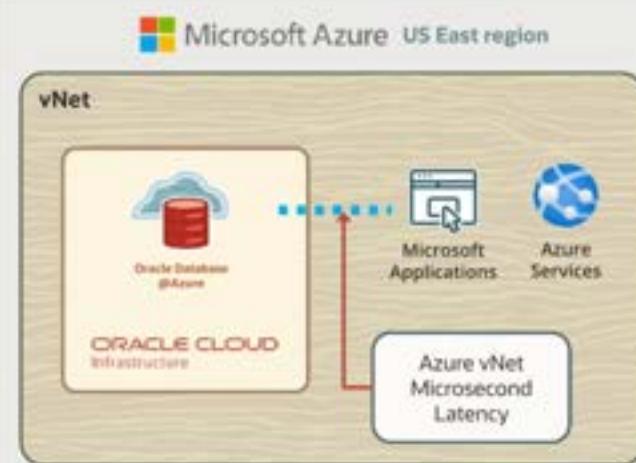
Oracle Database Service for Azure

2022



Oracle Database Service at Azure

2023



Oracle Database@Azure

30+ live and planned regions



Oracle Database@Google Cloud

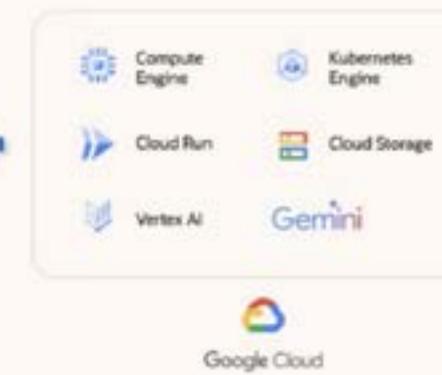
Oracle and Google Cloud deliver Oracle database services on OCI in Google Cloud data centers.



Enterprise grade data management services

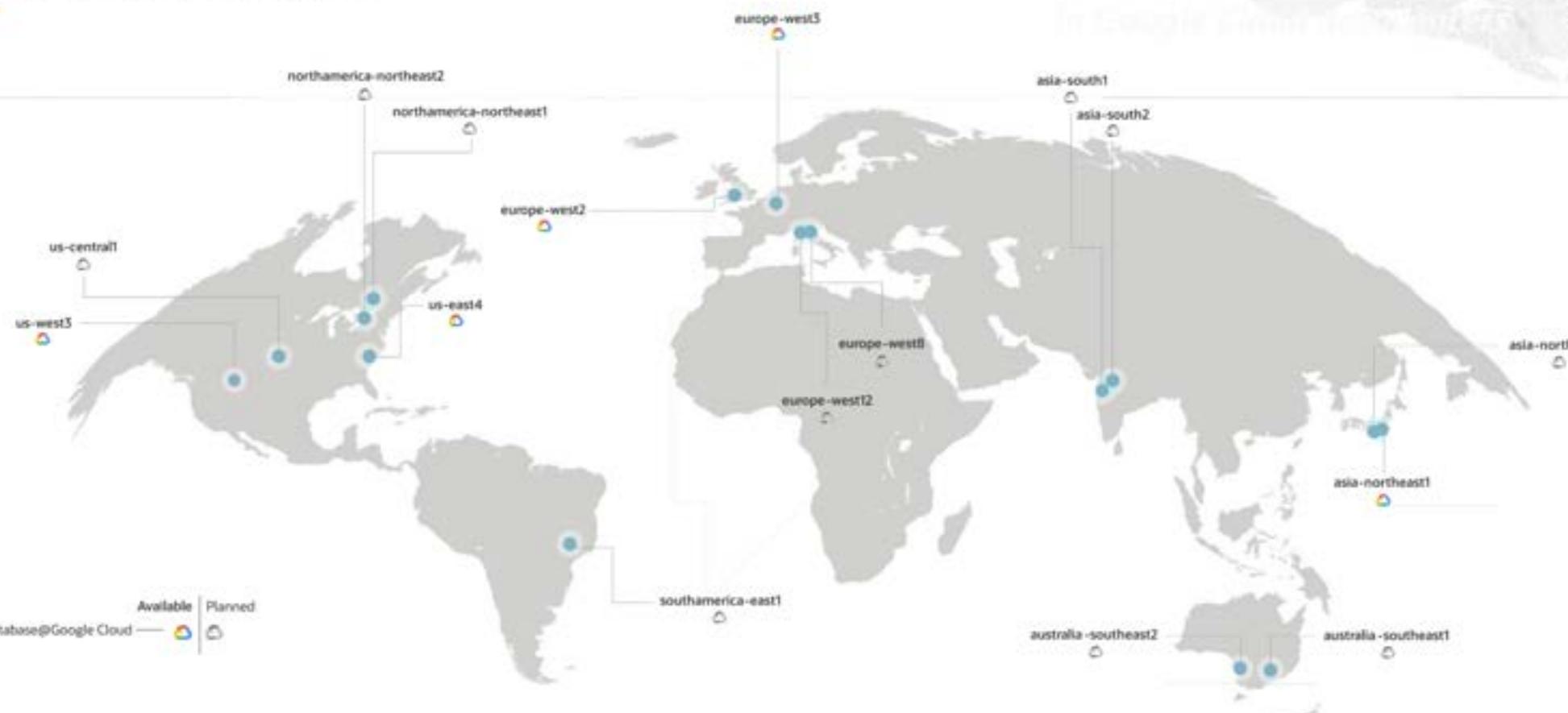


Innovative cloud services



Oracle Database@Google Cloud

15+ live and planned regions



Available | Planned

Oracle Database@Google Cloud

Oracle Database@AWS

Oracle and AWS are partnering together to provide a unified experience for collaborative support, purchasing, management, and operations. You can pay for Oracle Database services using your existing AWS Private Pricing Agreements, and use your existing Oracle license benefits and discount programs.



Oracle Database@AWS

Oracle and Amazon Web Services deliver Oracle database services on OCI in AWS data centers.

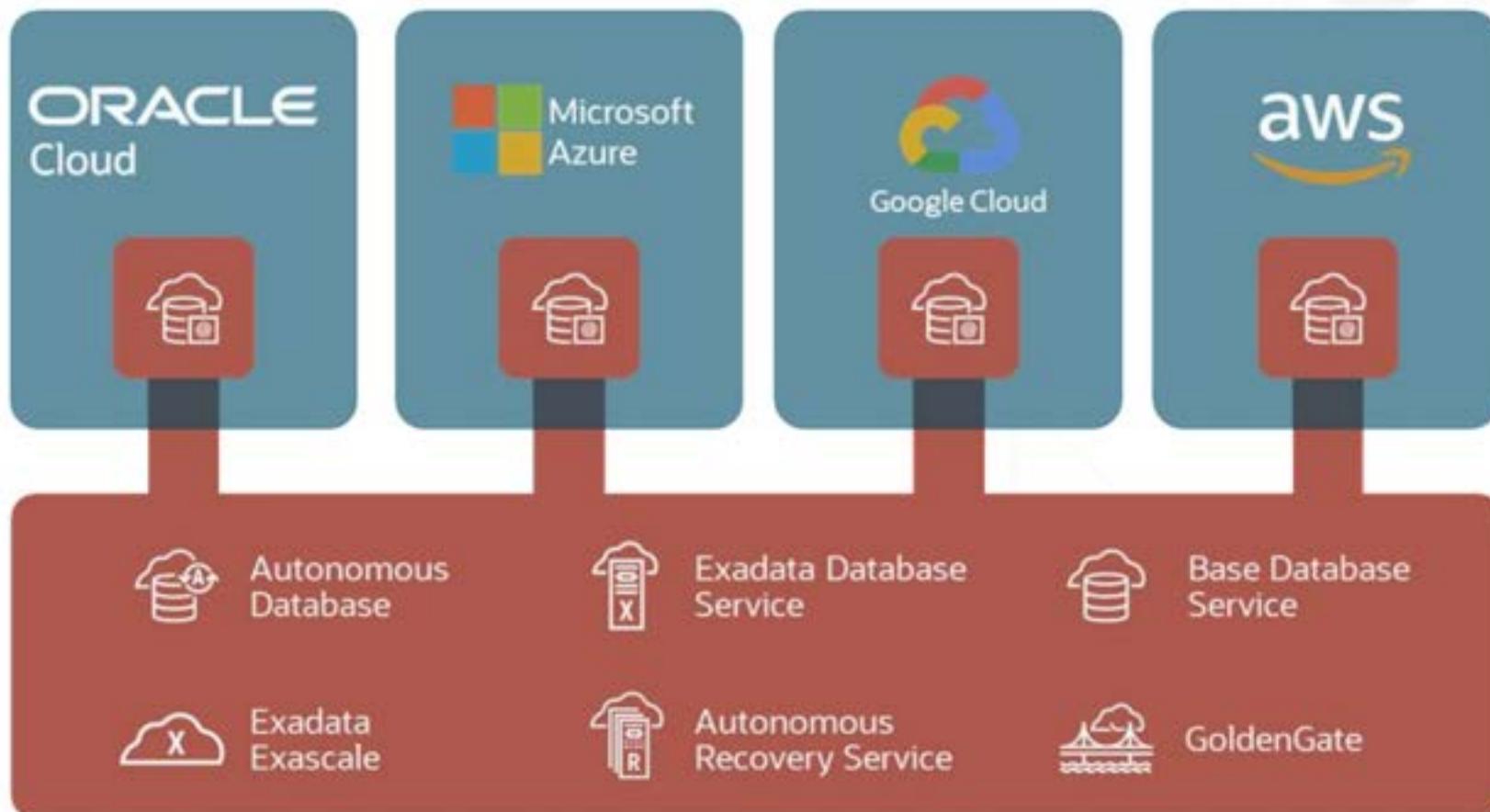


Oracle Database@AWS

20+ live and planned regions



Oracle Database Multicloud Solutions — in all leading hyperscalers



Oracle Cloud Infrastructure global footprint

50+ live and planned regions¹



¹Some regions have not been publicly announced and are therefore not shown on the map

Oracle Multicloud

Multicloud Use Cases

Objectives



Multicloud capabilities for modernizing enterprises

Oracle Database multicloud solutions

Oracle Interconnect

Key Oracle Database multicloud use cases

Oracle Database Multicloud Capabilities Help Enterprises Modernize



Adopt a Gen AI Strategy

Use Oracle Database to bring AI to business data



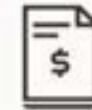
Improve Productivity

Run Oracle Database workloads faster and more efficiently with a choice of services on Oracle Exadata



Reduce Risks

Easily move to cloud and gain Oracle Maximum Availability Architecture benefits



Lower Costs

Consume less, manage less, leverage existing licenses, and use cloud vendor credits

Available only with Oracle Database on Oracle Exadata

Source: 451 Research from S&P Global Market Intelligence



The Same Oracle Database Capabilities — available everywhere



On-premises

Private cloud

Multicloud

Oracle Database Multicloud Solutions

- Full Exadata Cloud automation, features, and performance
- Use existing Cloud Vendor credits
- Sub-millisecond latency

Having the same capabilities makes it easy to migrate from on-premises, IaaS, or PaaS services



Oracle Database Multicloud Solutions – the best of both worlds

A choice of services directly from the hyperscaler's marketplace and Cloud Portal

Hyperscaler Region
(AWS | Azure | Google Cloud | OCI)



Hyperscaler Portal
Hyperscaler APIs
Hyperscaler's private connection with customers

Hyperscaler Services



Hyperscaler Managed Infrastructure

Oracle Database Services

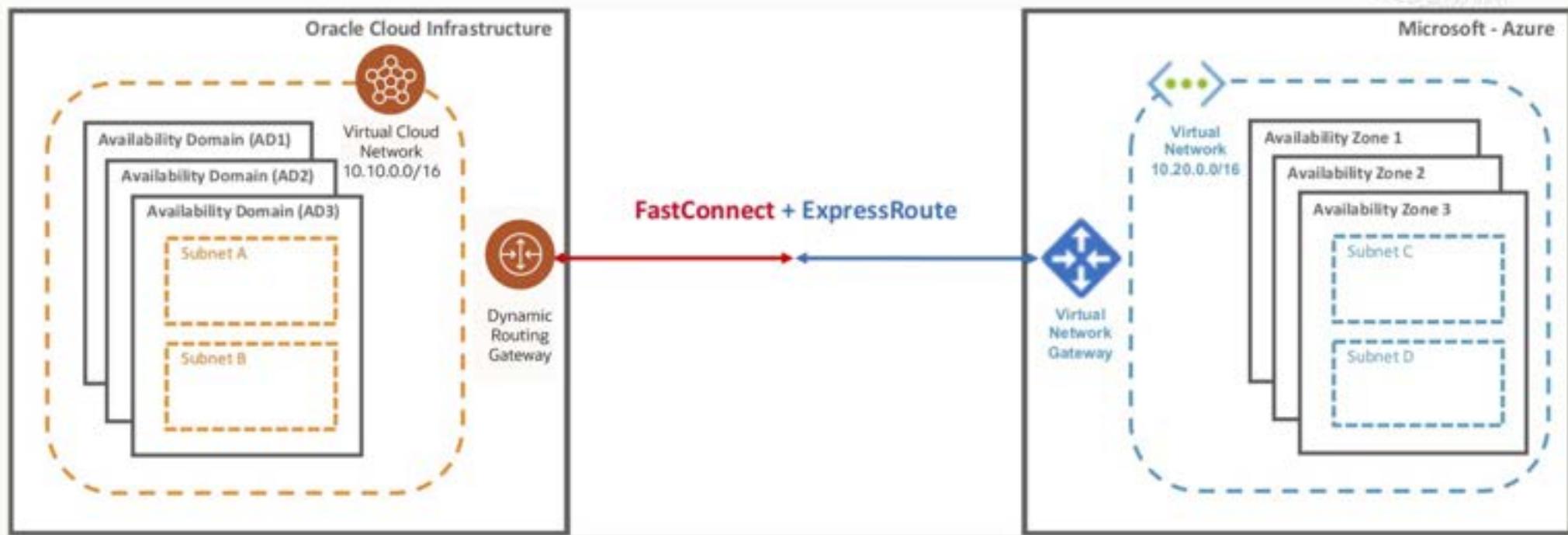


Oracle Managed Infrastructure

Delivers low latency between applications and Oracle Database

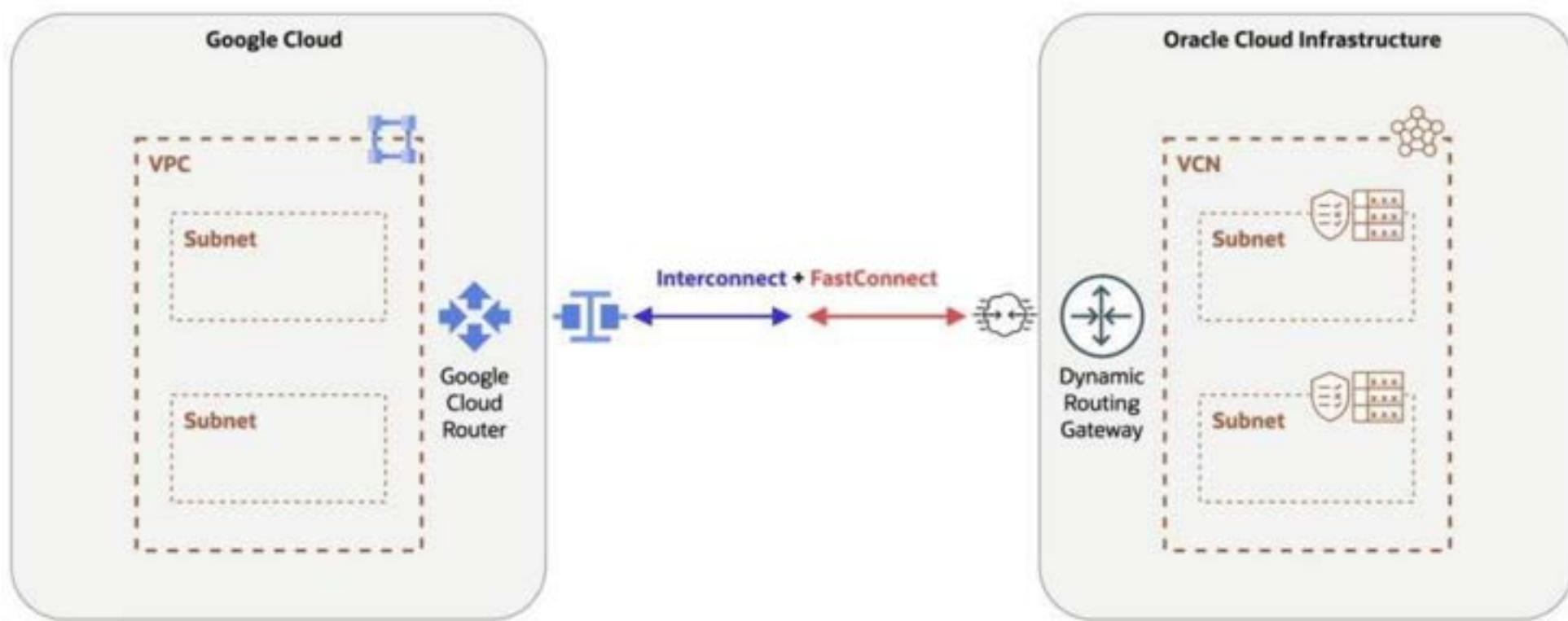
Available services vary by hyperscaler

Oracle Interconnect for Azure





Oracle Interconnect for Google Cloud



Key Oracle Database Multicloud Use Cases



Move to Cloud

- Lift & shift on-premises to cloud
- Database consolidation on Exadata
- Oracle MAA in multicloud solutions



Build Innovative Apps

- Bring AI to business data
- Innovate on new & existing apps
- Combine in-database AI with hyperscaler services & frameworks



Reduce Complexity and Cost

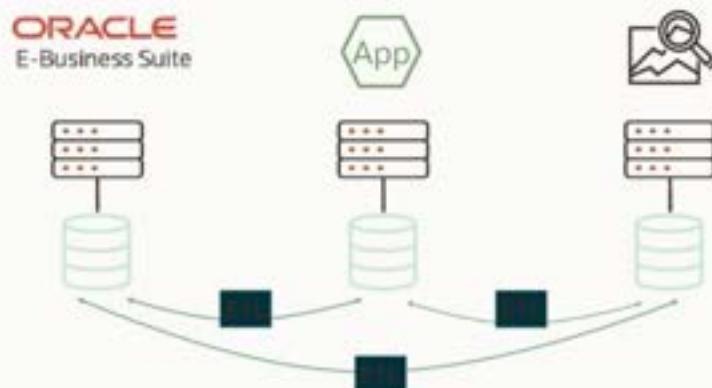
- Use fewer databases & platforms
- Cut administration with automation
- Pay for Oracle Database services with existing hyperscaler credits

Move to Cloud – Lift & shift without refactoring



Legacy on-premises environments

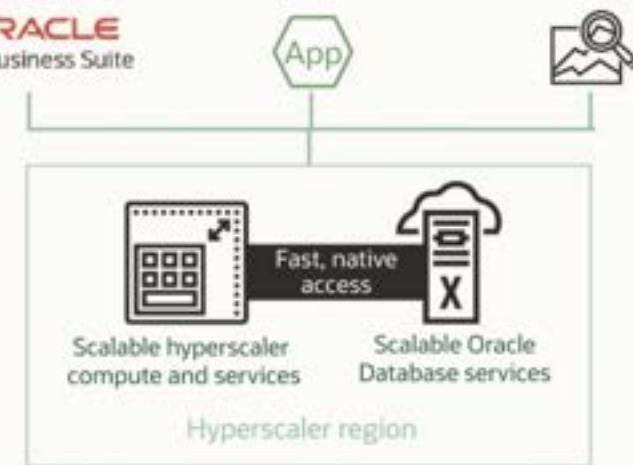
- Isolated databases and inefficient infrastructure
- Data synchronization and integration with ETL
- Manual administration of each database



Oracle Zero Downtime Migration

Oracle multicloud—lift, shift, and modernize

- Many databases efficiently consolidated on Exadata
- No-ETL data sharing and integration
- Automated administration of database fleets



Reduce migration times, complexity, and costs with Oracle Database, Exadata, and MAA

Move to Cloud – key differentiators and benefits



Extreme Performance

Accelerate Oracle Database workloads with 14µS database I/O latency and up to 6.4 Tbytes/S scans for analytics and AI.

Extreme Scalability

Scale infrastructure and consumption online with Oracle RAC, up to 1000s of CPU cores and Pbytes of storage.

Extreme Cost Optimization

Save up to 50% by using less infrastructure and licenses, consuming less with online scaling, and administering less.

Extreme Availability

Minimize downtime with built-in Exadata redundancy, Oracle RAC, Oracle MAA, and online scaling & patching.

Extreme Resiliency

Protect critical data with always-on encryption, easy-to-provision HA and DR, and database-aware real-time protection.

Extreme Simplicity

Migrate smoothly to the cloud with Zero Downtime Migration and use all Oracle Database and Exadata capabilities.

Migrate and Consolidate to Oracle Database multicloud solutions

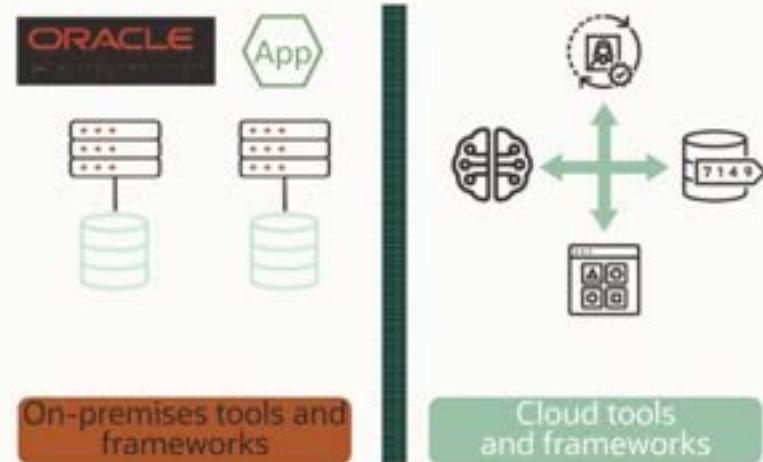
50% savings based on Wikibon analysis of Exadata Cloud vs on-premises deployments.

Build Innovative Applications with Cloud-First Capabilities



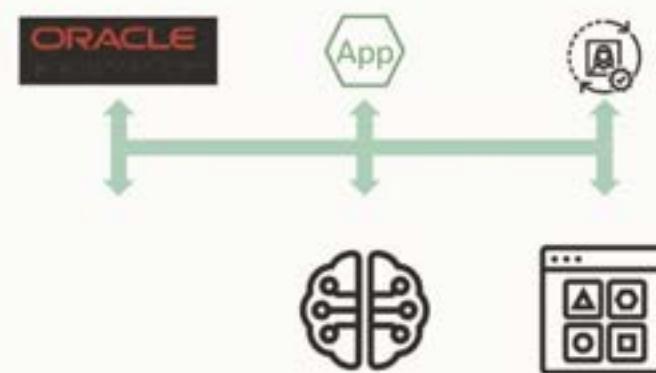
Limited innovation for critical applications

- AI and integration frameworks not on-premises
- Mission-critical Oracle Database capabilities not in all leading hyperscalers
- High on-premises to cloud latency



Cloud-based innovation for all applications

- Choice of AI and integration frameworks for all data
- Mission-critical Oracle Database capabilities available
- Low latency between applications and databases



Build Innovative Applications – key differentiators and benefits



Collocate Apps and Data

Run mission-critical applications and databases in the same data center with sub-millisecond access latency.



Use AI with Business Data

Search AI vector and business data together in Oracle Database to get better results.



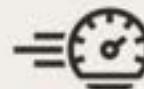
Integrate Hyperscaler Services

Combine database results with hyperscaler data, foundation models, and frameworks.



Any Data, Workload, or Dev Style

Innovate without adding complexity to IT environments or apps by using converged Oracle Database capabilities.



High Throughput

Accelerate analytics and AI and analyze more data with up to 6.4 TB/s of scan throughput from flash.



Fast Transactions

Accelerate OLPT with database I/O that's up to 70X faster than block storage.

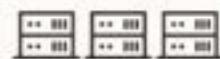
Maximize the value of business data with AI and hyperscaler cloud services

Reduce Complexity and Cost



Fragmented on-premises and cloud deployments

- Many isolated systems and database licenses
- Manual administration of each database
- Purchase from many vendors and leave hyperscaler commitments unused



On-premises x86



Database administrators



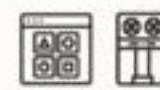
On-premises RISC



Database licenses



Cloud IaaS



Backup solutions

Unified multicloud environments

- Exadata infrastructure with shared licenses
- Low administration with database lifecycle automation
- Purchase through the hyperscaler's marketplace using existing hyperscaler commitments



Exadata
multicloud platforms



Database administrators



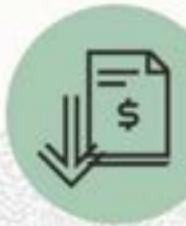
Database licenses



Backup solution

Streamline operations, optimize investments, and maximize capabilities

Reduce Complexity and Cost – key differentiators and benefits



Leverage Oracle Investments

Use Oracle Database licenses with BYOL and earn up to 33% towards Oracle Tech license support with Oracle Support Rewards.



Automate Management

Reduce administration by up to 65% with Autonomous Database.



Consume Hyperscaler Commitments

Purchase Oracle Database services through **hyperscale marketplaces** using existing cloud commitments and get one bill.



Reduce Database Licenses

Oracle Database licenses on multicloud services cover 2X the cores of IaaS



Gain Cloud Economics

Only pay consumption for actual usage with online scaling, Autonomous Database elastic pools, and per-second billing.



Advanced features at no added cost

Use built-in AI Vector Search, Machine Learning, JSON Relational Duality, Spatial, Graph, and more.

Streamline operations, optimize investments, and maximize capabilities

65% administrative savings from IDC Business Value of Oracle Autonomous Database, June 2025

Fidelity Investments relies on Oracle Database@AWS to innovate faster and scale more efficiently.



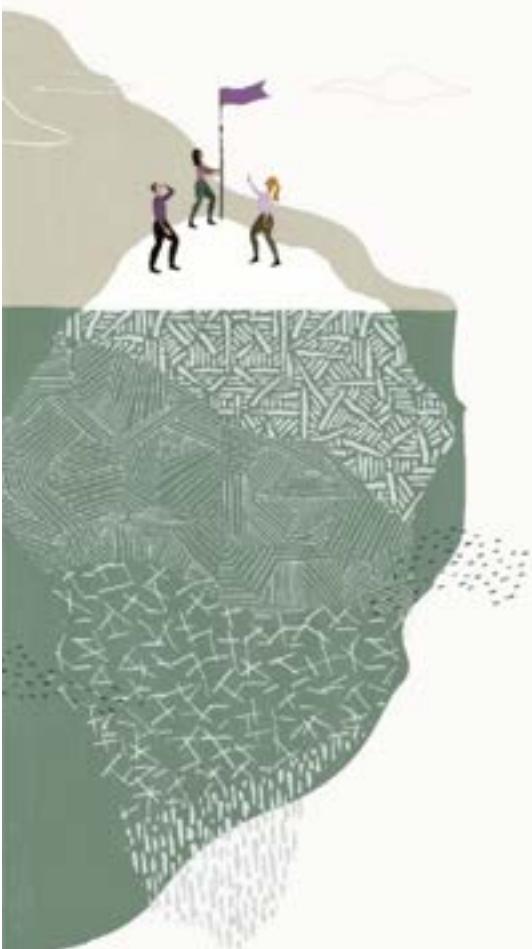
Fidelity Investments is a privately held global financial services company headquartered in Boston, Massachusetts. Founded in 1946, it has become one of the world's largest asset managers, serving tens of millions of individual investors and managing a wide range of financial services

"Digital modernization through innovation, technology, and strong relationships with trusted service providers is critical to supporting that mission. Oracle Database@AWS demonstrate the collaborative effort of industry leaders to provide companies like Fidelity with the optionality necessary to deploy our most critical workloads to cloud, which ultimately delivers better outcomes for the clients and businesses we serve."

Joe Frazier

Head of Architecture and Platform Engineering,
Fidelity Investments

Summary



Multicloud capabilities for modernizing enterprises

Oracle Database multicloud solutions

Oracle Interconnect

Key Oracle Database multicloud use cases

Oracle Database@AWS

What is Oracle Database@AWS?

Objectives



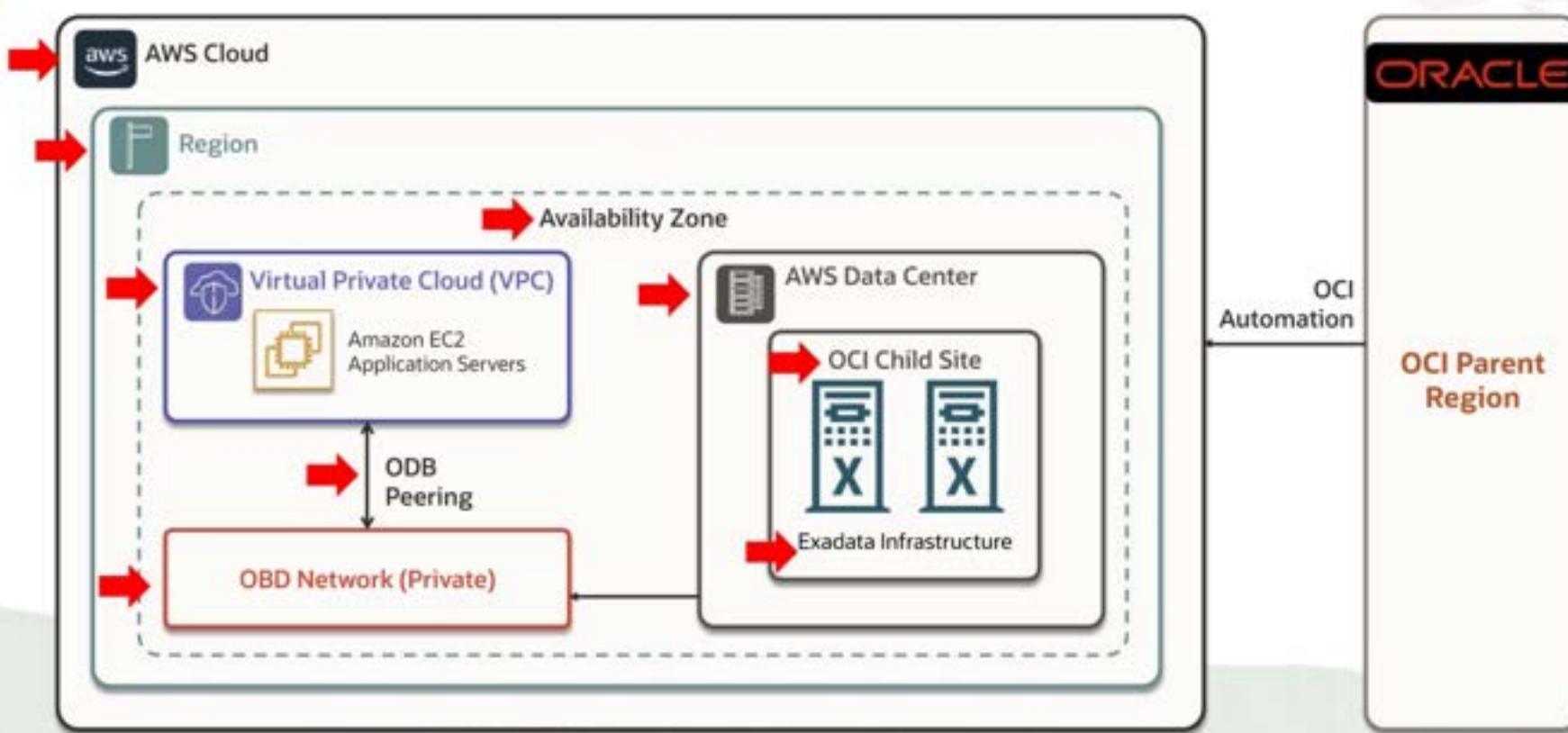
Describe Oracle Database@AWS service

Explain the key benefits of Oracle Database@AWS service

Illustrate the key components of Oracle Database@AWS architecture

Compare Oracle Database@AWS Database Services

What is Oracle Database@AWS?



Oracle Database@AWS Benefits

Oracle Database@AWS offers a powerful and flexible solution for running Oracle workloads directly within AWS.



Simplified
Migration



Low Level
Connectivity



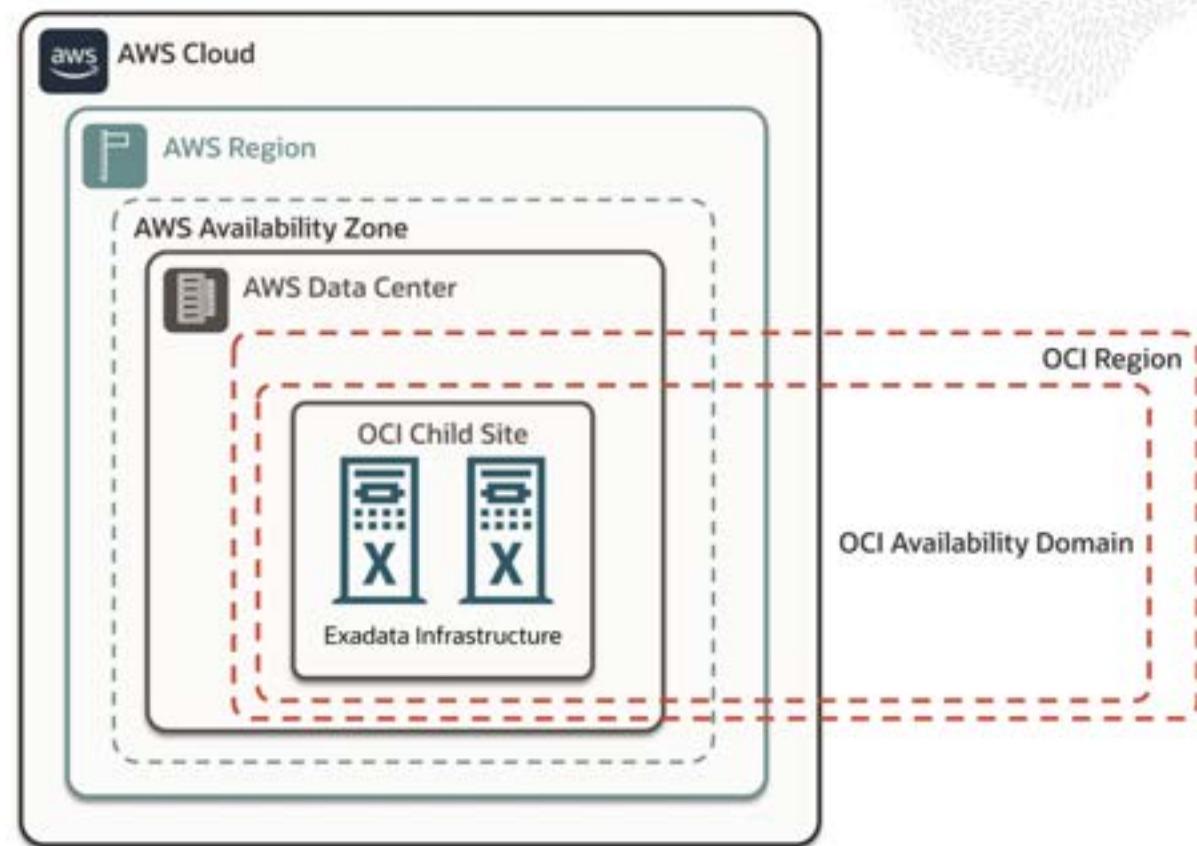
Simplified
Billing, Mgmt.
& Ops



Seamless
Integration

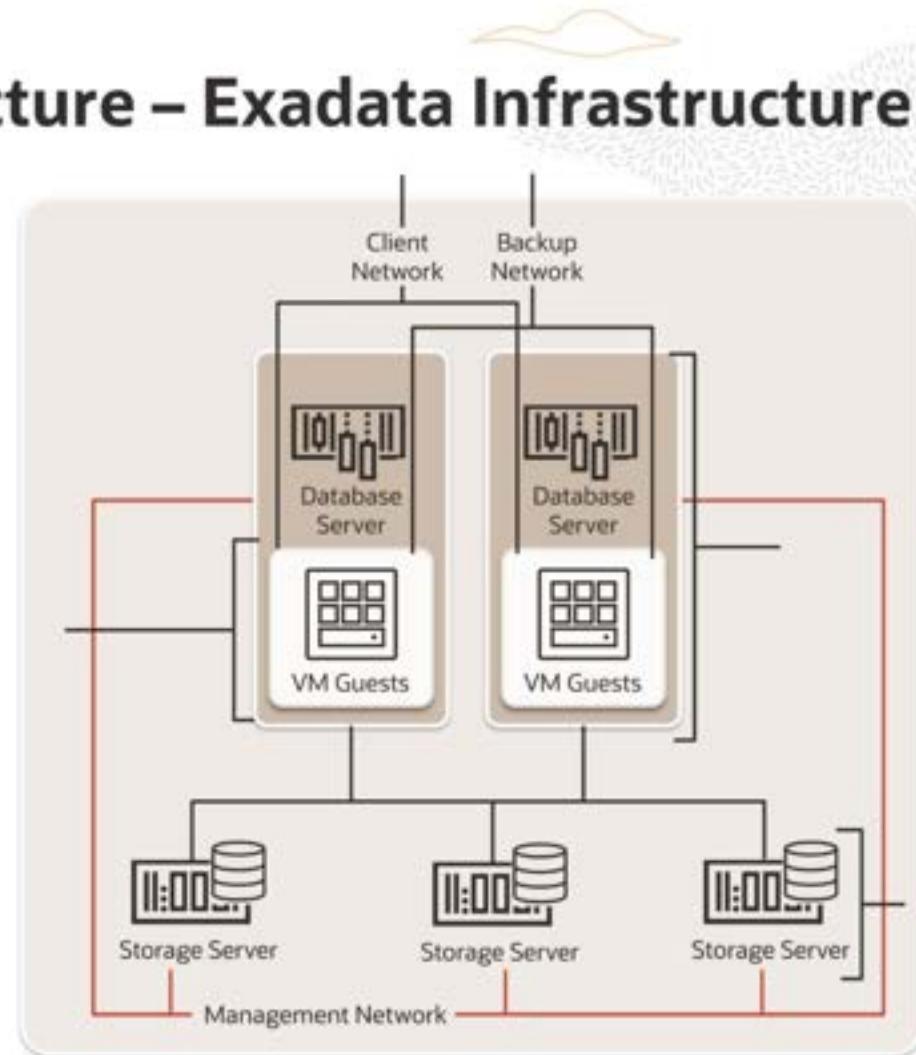
Oracle Database@AWS Architecture – OCI Child Site

- OCI is hosted in OCI regions and ADs.
- OCI ADs are isolated data centers within an OCI region.
- OCI Child Site extends OCI's AD into AWS Availability Zone.
- Exadata infrastructure resides in an OCI Region (logically) and in an AWS Region (physically).



Oracle Database@AWS Architecture – Exadata Infrastructure

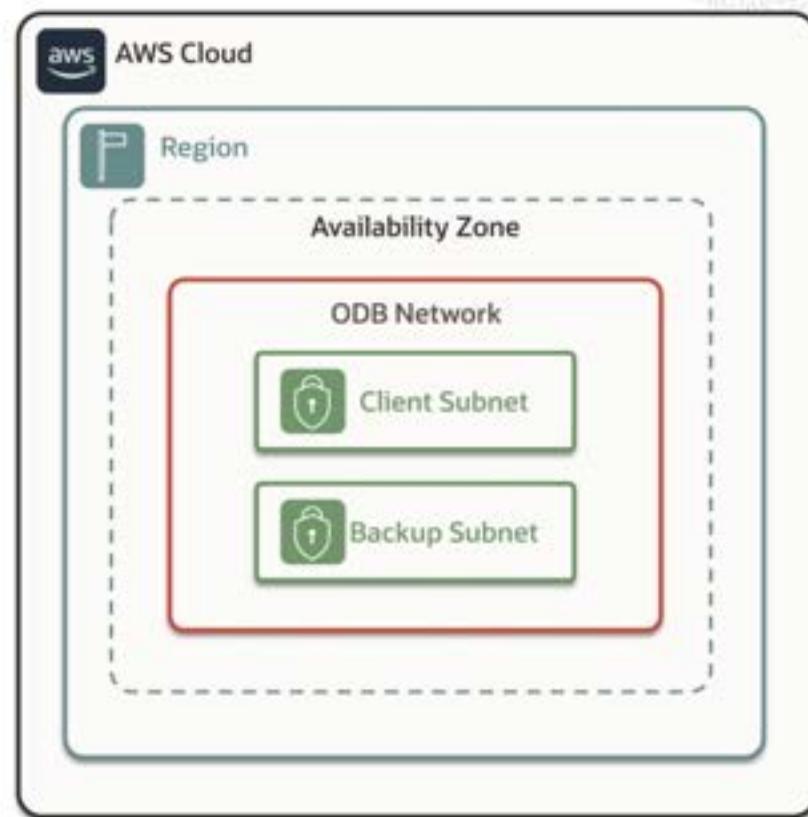
- Exadata Infrastructure – Physical database and storage servers in AWS.
- Database and storage servers connected by high-speed, low-latency network fabric.
- Each database server hosts one or more VMs.
- AWS console, CLI, or APIs can be used to create VM clusters on Exadata infrastructure.
- When creating Exadata Infrastructure, specify:
 - Total number of database servers
 - Total number of storage servers
 - Exadata system model (X11M)
 - AWS Availability Zone





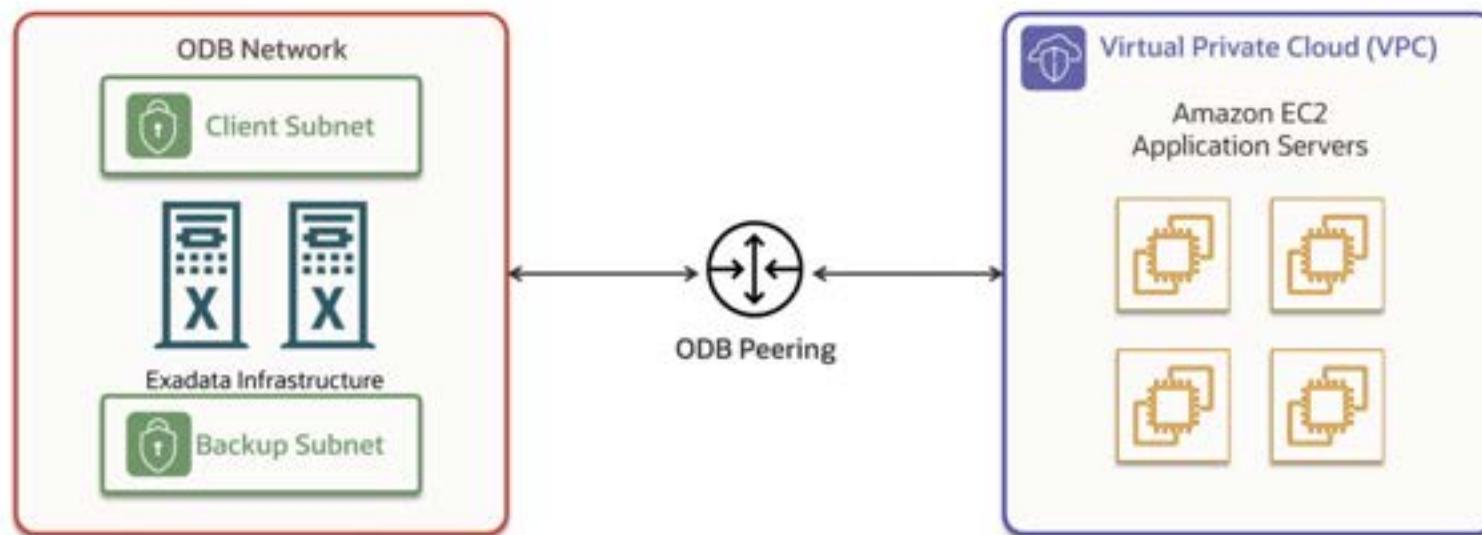
Oracle Database@AWS Architecture – ODB Network

- Isolated network for Exadata, includes client and backup subnets.
- Specify ODB Network when creating the Exadata Infrastructure.
- Maps directly to the network in OCI child site to enable communication between AWS and OCI.
- Client CIDR addresses — ODB network requires a client subnet CIDR for Exadata VM clusters.
- Backup CIDR addresses — ODB network requires a backup subnet CIDR for managed database backups of VM clusters.



Oracle Database@AWS Architecture – ODB Peering

- Connects AWS VPC to ODB network for application access
- Specify ODB Network when creating the Exadata Infrastructure.
- To allow multiple VPCs to access OD@AWS resources in one ODB network, you can use AWS Transit Gateway or AWS Cloud WAN.

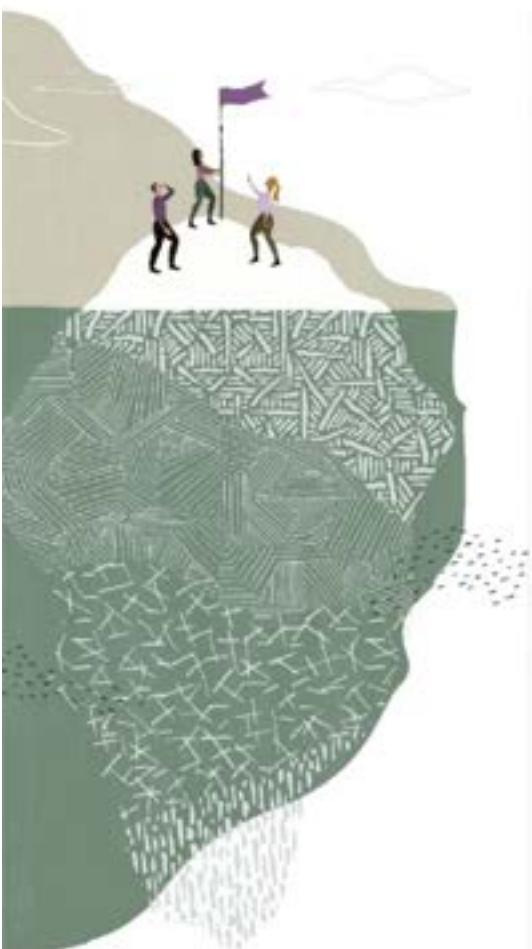




Comparing Oracle Database@AWS Database Services

Feature	Oracle Exadata Database Service	Oracle Autonomous Database
Usage	Fully managed dedicated infrastructure; database operational monitoring (customer)	Fully managed database service; database operational monitoring (Oracle)
Scalability	Very high – manual sizing of disks, compute, clusters	High – automatic elastic scaling
Performance	Ultra-low, Exadata-level	Comparable with optimized automation
Migration Ease	High – full Exadata compatibility	High – similar migration tools available
Management	Manual management and administration	Fully managed with automated admin tasks (& optional self-tuning)
Feature Set	Full Oracle feature set including RAC	Full set, optimized for autonomy
Integration	Seamless with EC2, VPC, IAM, CloudWatch, S3, etc.	Equally seamless across AWS ecosystem

Summary



Describe Oracle Database@AWS service

Explain the key benefits of Oracle Database@AWS service

Illustrate the key components of Oracle Database@AWS architecture

Compare Oracle Database@AWS Database Services

Oracle Database@AWS

Onboard Prerequisites for Oracle Database@AWS

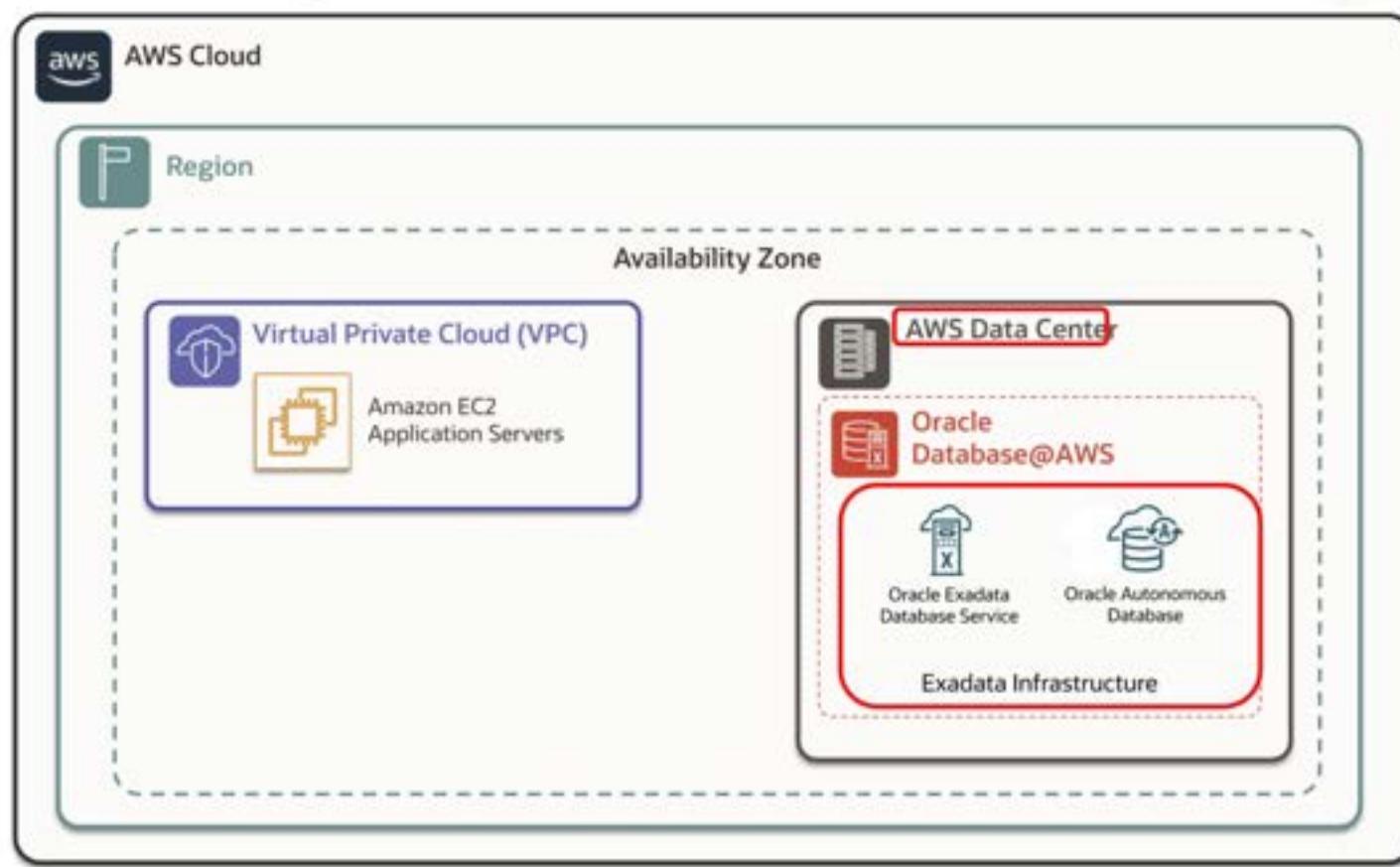
Objectives

A stylized illustration of a person in an orange shirt and dark pants climbing a green mountain. A white grid pattern runs down the side of the mountain. Above the climber is a large, colorful cloud composed of various patterns and colors like purple, brown, and orange. A stream of small white binary digits (0s and 1s) flows down from the top of the mountain towards the climber.

Onboarding

Prerequisite resources for Onboarding

What is Onboarding Oracle Database@AWS?



Prerequisite to Onboarding Oracle Database@AWS



- AWS Account** The AWS account where resources will be provisioned and managed
- IAM Policies / SCPs** Policies to grant permissions to users and restrict permissions from accounts
- OCI Tenancy Account** OCI Tenancy account linked to AWS account as part of Onboarding

AWS Account

AWS Account

The AWS account where resources will be provisioned.

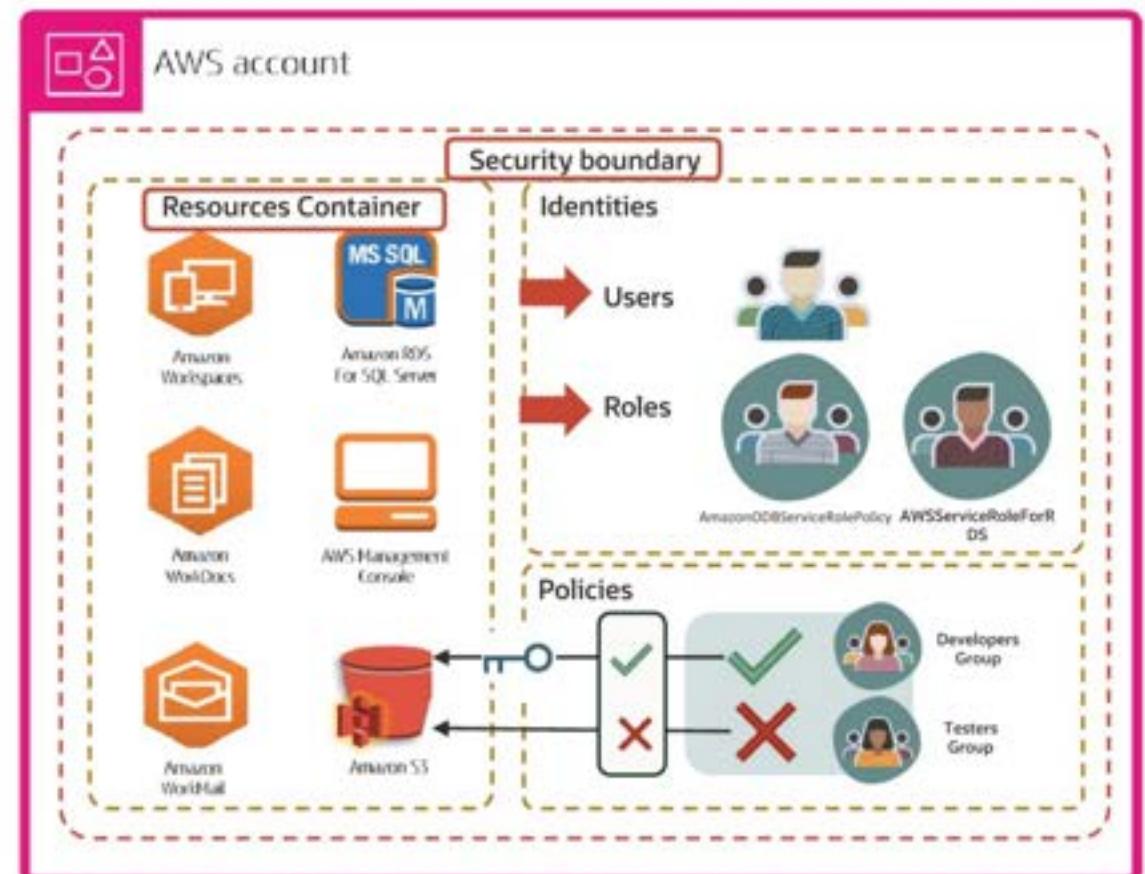


Users

► Requests and accepts offer for Oracle Database@AWS

► Create the resources for Oracle Database@AWS

► Granted access by owner to specific resources



Policies

AWS IAM Policies

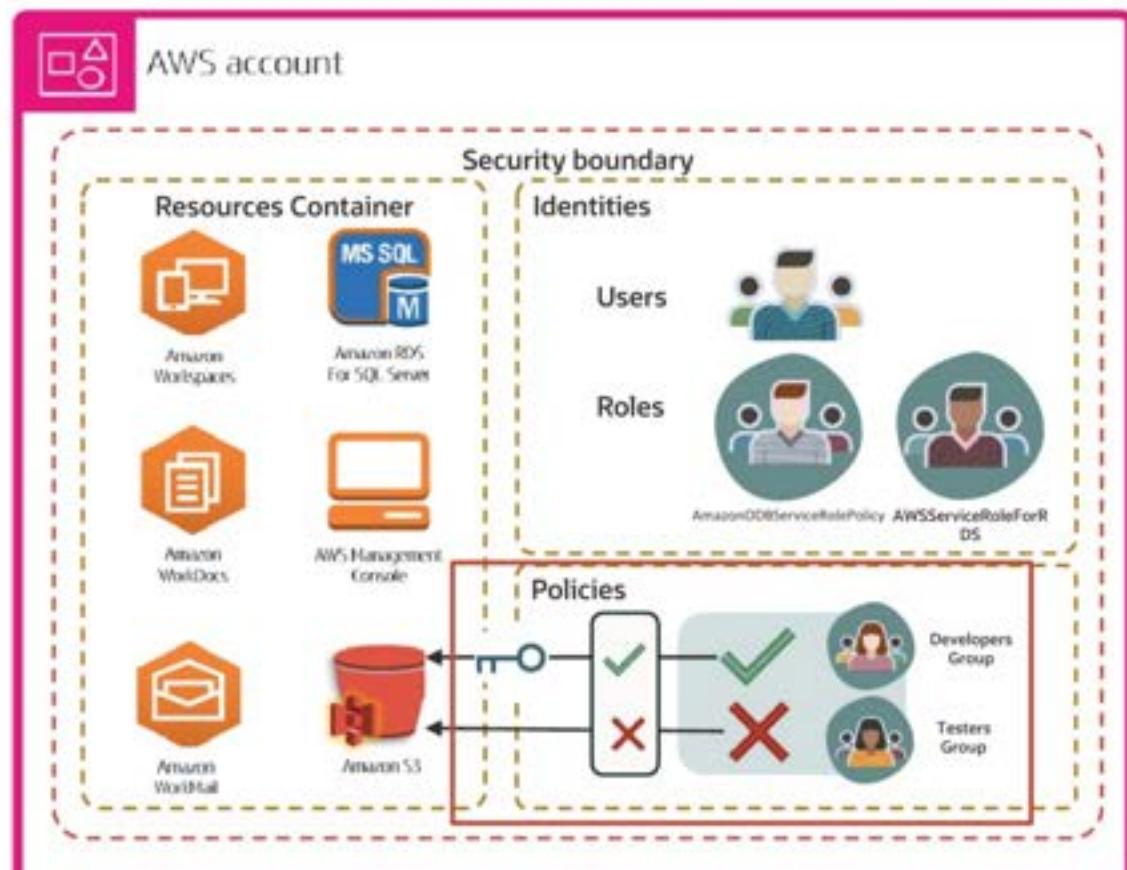
Policies, to grant users and roles for onboarding activities



▶ aws-marketplace:AcceptAgreementRequest

▶ odb>CreateOdbNetwork

▶ ec2>CreateOdbNetworkPeering



Onboard Tasks by AWS Users



AWS
administrator

Who and What

- AWS account with administrative privileges
- User is assigned policies with permissions required for onboarding

Tasks Requiring Permissions

Request Private Offer

Purchase Offer



OCI
Administrator

Who and What

- Tenancy account with administrative privileges
- User is added to a group with policies that have permissions required for onboarding

Tasks Requiring Permissions

Link OCI Account

Verify and Register

OCI Tenancy Account

OCI Tenancy Account

OCI Tenancy account linked to AWS account as part of Onboarding.

OCI Tenancy = Oracle Cloud Infrastructure Account

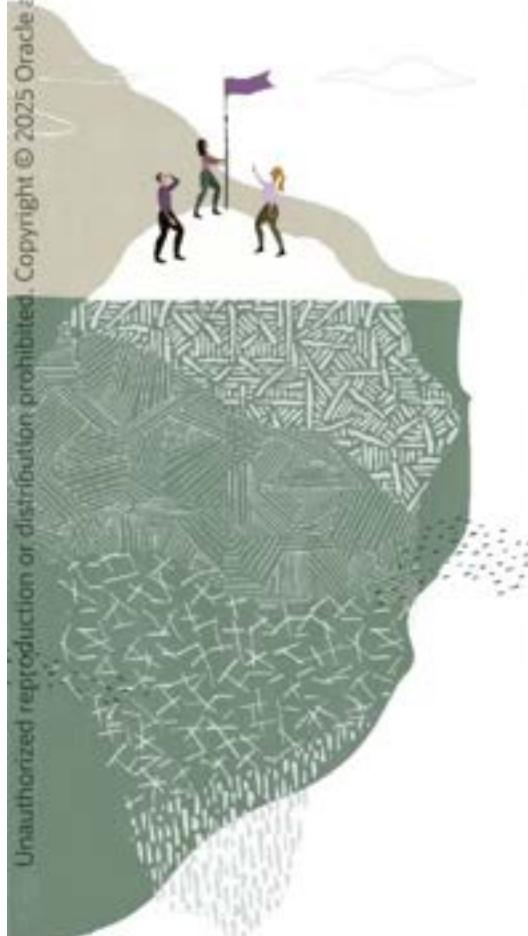


Policies

- Allows group Developgrp to use all-resources in compartment FinApps
- Allows group Admingrp to manage all-resources in compartment FinApps and ManufactApps
- Allows group Admingrp to manage all-resources in compartment ManufactApps
- Allows group Developgrp to read subscription in tenancy
- Allows group Admingrp to read compartments in tenancy



Summary



Onboarding

Prerequisite resources for Onboarding

Oracle Database@AWS

Requesting Purchase Offer for Oracle Database@AWS

Objectives



Describe what a Request Offer for Oracle Database@AWS is

Explain the Process Flow for Private offer for Oracle Database@AWS

Explain the detailed information when viewing the Private Offer

Request Offer for Oracle Database@AWS



AWS Marketplace English ▾ Sign In or Create a new account

About Categories Delivery Methods Solutions Resources Your Saved List

Become a Channel Partner Sell in AWS Marketplace Amazon Web Services Home Help

AWS Marketplace > Databases > Software as a Service (SaaS) > Oracle Database@AWS

Oracle Database@AWS Info
Sold by: Oracle America, Inc.

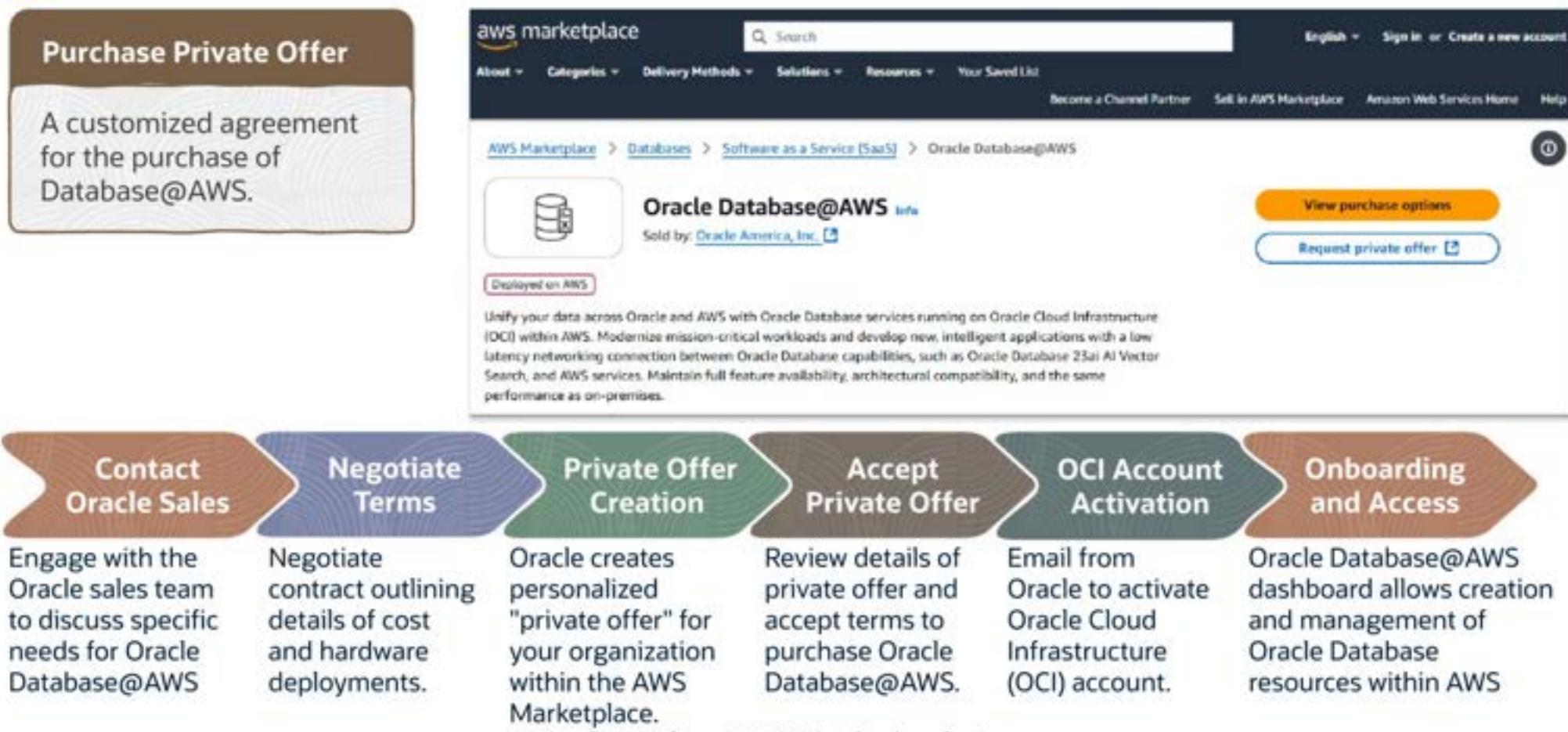
View purchase options

Request private offer

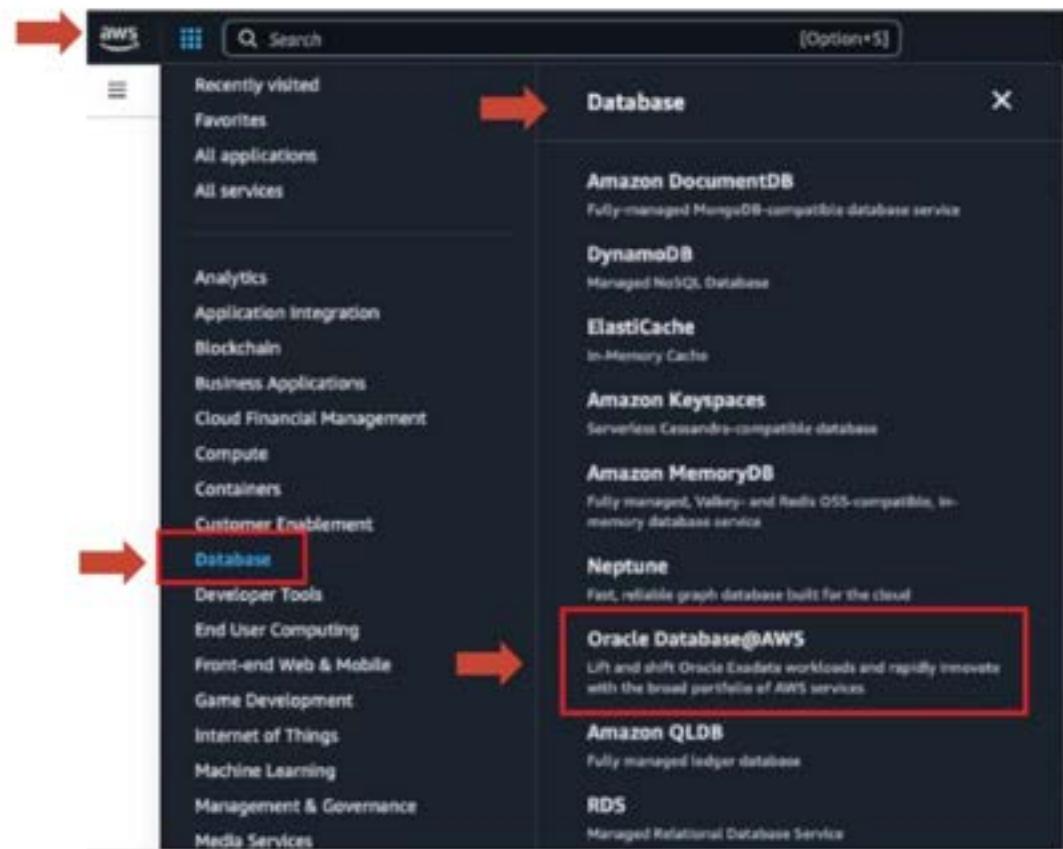
Deployed on AWS

Unify your data across Oracle and AWS with Oracle Database services running on Oracle Cloud Infrastructure (OCI) within AWS. Modernize mission-critical workloads and develop new, intelligent applications with a low latency networking connection between Oracle Database capabilities, such as Oracle Database 23c AI Vector Search, and AWS services. Maintain full feature availability, architectural compatibility, and the same performance as on-premises.

Request Offer for Oracle Database@AWS



Request Private Offer



Request Offer

- Open the AWS console
 - > In the navigation menu, select Database
 - > Under Database,
 - > Select Oracle Database@AWS.
- On the product page for Oracle Database@AWS
 - > Select Request Private Offer



Request Private Offer



The image shows two versions of a landing page for "Learn about Oracle Database@AWS". The top version is a standard landing page with a "Select your region" dropdown highlighted by a red arrow. The bottom version is a modified version where the entire form section has been expanded into a full-width modal, also highlighted by a red arrow pointing to the "Request Information" button.

Learn about Oracle Database@AWS

Accelerate cloud migration and innovation with OCI Oracle Database services running in AWS. Quickly build and modernize applications with capabilities like Oracle Database 23c AI Vector Search and Amazon Bedrock.

Innovate with OCI Oracle Database services running in AWS

Modernize mission-critical workloads and develop new applications with flexibility, choice, and control, by natively accessing innovative Oracle Database 23c and AWS service capabilities with low latency.

Migrate Oracle Database workloads to AWS

Achieve the same high levels of database performance available in OCI and gain extreme availability with the combination of Exadata, Oracle's Maximum Availability Architecture (including RAC), and multiple AWS Availability Zones.

Simplify management and operations

Oracle Database@AWS provides a unified experience for collaborative support, purchasing, management, and operations.

Almost there! To request more information about Oracle Database@AWS, please complete this form.

Select your region

Learn about Oracle Database@AWS

Accelerate cloud migration and innovation with OCI Oracle Database services running in AWS. Quickly build and modernize applications with capabilities like Oracle Database 23c AI Vector Search and Amazon Bedrock.

Innovate with OCI Oracle Database services running in AWS

Modernize mission-critical workloads and develop new applications with flexibility, choice, and control, by natively accessing innovative Oracle Database 23c and AWS service capabilities with low latency.

Migrate Oracle Database workloads to AWS

Achieve the same high levels of database performance available in OCI and gain extreme availability with the combination of Exadata, Oracle's Maximum Availability Architecture (including RAC), and multiple AWS Availability Zones.

Simplify management and operations

Oracle Database@AWS provides a unified experience for collaborative support, purchasing, management, and operations.

Almost there! To request more information about Oracle Database@AWS, please complete this form.

North America

First Name* Last Name*

Work Email* Phone*

United States Post Code*

Your Role* Company*

By filling and submitting this form, you acknowledge and agree that the use of Oracle's website is subject to the Oracle.com Terms of Use. Additional details regarding Oracle's collection and use of your personal information, including information about access, retention, modifications, deletion, security, notice, transfer and other topics, is available in the Oracle Privacy Policy.

Request Information

View Private Offer

The image shows two screenshots illustrating the process of viewing a private offer.

Top Screenshot: A browser window showing the Oracle Database@AWS migration portal. The main heading reads "Oracle Database@AWS" and "Easily and quickly migrate Oracle Database to AWS with minimal changes". Below this, a sub-section says "You can establish low-latency connections between Oracle Database@AWS and applications deployed in AWS services, including Amazon RDS." To the right, a "Getting started" box contains two buttons: "Request private offer" and "View private offers". A red arrow points from the "View private offers" button to the second screenshot below.

Bottom Screenshot: A browser window showing the AWS Marketplace private offers page. The left sidebar has a menu with "Private offers" highlighted by a red box. A red arrow points from this menu item to the same "Private offers" link in the main content area. The main content area displays a table titled "Available private offers (1)". The table includes columns for "Offer ID", "Product", "Seller of record", "Publisher", "Expiration", and "Received". The single entry in the table is "offer-a1eip4twgts" with the details: Product "Oracle Database@AWS", Seller of record "Oracle Marketplace", Publisher "Oracle Marketplace", Expiration "1/31/2025", and Received "11/15/2024".



Purchase Private Offer

aws marketplace

AWS Marketplace > Oracle Database@AWS > Subscribe to Oracle Database@AWS

Oracle Database@AWS Info

To create a subscription, review the pricing information and accept the terms for this software.

Your purchase of Oracle Database@AWS is complete. Next, set up your account and complete registration on the vendor's website. If you're unable to complete registration, return through the [Manage subscriptions](#) page on AWS Marketplace.

Financing for AWS Marketplace purchases AWS Marketplace now accepts line of credit payments through the PNC Vendor Finance program. This program is available to select AWS customers in the US, excluding NV, NC, ND, TN, & VT.

Offer details
Choose the offer you'd like to use for your subscription.

Offer type

Private offer
Private offers are a purchasing program that allows sellers and buyers to negotiate custom prices and end-user licensing agreement (EULA) terms for software purchases in AWS Marketplace.

Public offer
Public offer is an offer provided by the software vendor available to most AWS customers.

Offer summary

Offer ID offer-rs2bmtddhuray	Offered by Oracle America, Inc.	Offer extended Nov 15, 2024	Offer expires Jan 03, 2025
---------------------------------	------------------------------------	--------------------------------	-------------------------------

You already have contract(s) for this product.
If needed, you can [modify](#) the existing agreement and set up your account on the [vendor's website](#).

Purchase Private Offer

Contract configuration
Review your contract details for the selected offer.

Contract details

Contract duration	Start date	End date
9 months	Nov 25, 2024	Aug 25, 2025

Pricing details and unit configuration
Pricing is based on contract duration and additional usage. You pay upfront or in installments according to your contract terms with the vendor. This entitles you to a specific quantity of use for the contract duration. Usage-based pricing is in effect for overages or additional usage not covered in the contract. These charges apply on top of the contract price; if you choose not to renew or replace your contract before the contract end date, access to your entitlements will expire.

Available units (1)
Select the units you want to buy. Usage-based charges apply in addition to contract fees.

Units	Description	Cost/unit
Commit	Committed - OracleDB@AWS committed spend amount	\$0.01/Units

Usage cost (2)
We charge additional costs based on your usage that are not included in the contract terms.

Units	Cost/unit	Purchase order number
Overage - OracleDB@AWS average amount charged at USD\$1/becdt	\$0.01/Units	-
Usage - OracleDB@AWS used amount	\$0.00/Units	-

Total amount
Total contract cost **\$0.01**

Contract currency United States Dollar | USD (\$)

Tax details Additional taxes may apply

[Download EULA\(AU\)](#)

Terms and conditions
By subscribing to this software, you agree to the pricing terms and the seller's End User License Agreement (EULA). You also agree and acknowledge that AWS may, on your behalf, share information about this transaction (including your payment terms) with the respective seller, reseller or underlying provider, as applicable, in accordance with the AWS Privacy Notice. AWS will issue invoices and collect payments from you on behalf of the seller through your AWS account. Your use of AWS services is subject to the AWS Customer Agreement or other agreement with AWS governing your use of such services. Your use of AWS services is subject to the AWS Customer Agreement or other agreement with AWS governing your use of such services. If you are receiving a private offer from a channel partner, you may click here (for CPPD transaction) or here (for SPPO transaction) for more information on the channel partner.

Purchase order (PO) number
You can assign unique purchase order numbers to charges to include them on your invoices. [Learn more](#)

Purchase order number options

- No purchase order
- One PO number for all charges
Assign one PO number for all fixed and usage-based charges associated with this order.
- Separate PO numbers for fixed and usage-based charges
Assign one PO number for all fixed charges and another PO number for all usage-based charges.

Purchase details

Offer ID offer-ns2bmtdlburay	Offered by Oracle America, Inc.	Total contract cost \$0.01	Contract duration 9 months
Number of units selected 1	Tax details Additional taxes may apply	Purchase order numbers -	

[Accept](#)

Unauthorized reproduction or distribution prohibited. Copyright © 2025 Oracle and/or its affiliates

Oracle Database@AWS Professional 69

Purchase Private Offer



Screenshot of the AWS Marketplace interface showing the "Accepted and expired offers" section.

The screenshot shows the AWS Marketplace dashboard with the following elements:

- Left sidebar:** AWS Marketplace, Discover products, Procurement insights, Manage subscriptions, Private offers (selected), Vendor Insights, Private Marketplace, Settings.
- Top navigation:** Search bar, Option+5, Global dropdown (john.adams@example.com).
- Main content area:** Title "Private offers" with a "Info" link. Below it are two tabs: "Available offers" and "Accepted and expired offers" (highlighted with a red box and a red arrow pointing to it). A sub-section titled "Accepted and expired offers (1)" displays a single offer entry.
- Offer details:** Offer ID: offer-rs2bm0ddsuray, Product: Oracle Database@AWS, Active agreement: agmt-2n180w2yu9g04dq4dfdb62d1, Seller of record: Oracle America, Inc., Publisher: Oracle America, Inc., Expiration: 1/3/2025, Received: 11/15/2024.

Summary



Describe what a Request Offer for Oracle Database@AWS is

Explain the Process Flow for Private offer for Oracle Database@AWS

Explain the detailed information when viewing the Private Offer

Oracle Database@AWS

Link to Oracle Database@AWS

Objectives



Describe what an Oracle Cloud account for Oracle Database@AWS is

Add an Oracle Cloud account to Oracle Database@AWS subscription

Verify Resources for Oracle Database@AWS subscription

Describe what a Dashboard for Database@AWS is

Linking to Oracle Database@ AWS

Administrator responsibility for managing your My Oracle Support users and access. Oracle recommends that you enable multiple Customer User Administrators. Learn more about the [My Oracle Support Customer User Administrator](#).

You can manage your support requests by going to the [Oracle Support Center](#) after activating your services.

Subscription ID: xxxx

- Oracle Database@AWS Cloud Credits - Rate Card - Currency Unit (B110611)

Add to existing cloud account

Create new cloud account

Order Details:

Order Number: xxxx

Order Date: Mon, Nov 11, 2024, 07:24 PM UTC

Customer Support Identifier (CSI):

The screenshot shows the Oracle Cloud Activation process. A red arrow points from the 'Create new cloud account' button on the left to the 'Create new cloud account' section on the right. Another red arrow points from the 'Create New Account' button at the bottom right of the activation form back to the activation summary page.

Your Subscriptions
 Order Reference: B110611-CLOUD-AWS-PROF-001

Create New Account

Terms of Use

Oracle Database@AWS Professional

74

Linking to Oracle Database@ AWS

Administrator responsibility for managing your My Oracle Support users and access. Oracle recommends that you enable multiple Customer User Administrators. Learn more about the [My Oracle Support Customer User Administrator](#).

You can manage your support requests by going to the [Oracle Support Center](#) after activating your services.

Subscription ID: xxxx

- Oracle Database@AWS Cloud Credits - Rate Card - Currency Unit (B110611)

Add to existing cloud account

[Create new cloud account](#)

Order Details:

Order Number: xxxx

Order Date: Mon, Nov 11, 2024, 07:24 PM UTC

Customer Support Identifier (CSI):



ORACLE
Cloud

Cloud Account Name *

[Next](#)

Forgot your cloud account name? [Get help](#)
Do you have a Traditional Cloud Account? [Sign in](#)

Not an Oracle Cloud customer yet?

[Sign Up](#)

Activate Oracle Database@AWS Subscription

The screenshot shows a web-based subscription management interface. At the top, there's a navigation bar with 'Cloud', a search bar, and location information 'US East (Ashburn)'. Below the header, the title 'Add subscription' is displayed. A sub-header says 'Tenancy name: odbzpartnerdbqapreprod3'. A table lists one subscription: 'ORACLEDBAWS' with 'Subscription ID' 90086145 and a detailed description of Oracle Database@AWS Cloud Credits - Rate Card - Currency Unit - B1t0611. A note below the table states 'Adding subscriptions to a tenancy cannot be undone.' A prominent red arrow points to the 'Add subscription' button at the bottom left of the table area. Another red arrow points to the 'Close' button at the bottom right of the main content area.

Thanks for adding your subscriptions. You're almost done!

We'll email you with further instructions when your subscriptions are ready, so you can get your services up and running.

[Learn more about managing your administrative roles](#)

Close

Verify Subscription Mapping

The screenshot shows the Oracle Cloud interface for verifying subscription mapping. At the top, there's a search bar with the placeholder "Subscription map..." and a magnifying glass icon. Below the search bar, the navigation bar includes "Get started" (underlined), "Resources" (which says "No results were found."), and a "Services" dropdown menu. The "Services" menu is open, showing a list of items: "Subscription Mapping" (highlighted with a red box and a red arrow pointing to it from the search result), "Documentation", "Unmapping Subscriptions", "Creating Subscription Mappings", "Listing Subscription Mappings", "Subscription Mapping Management", and "Marketplace". Under "Marketplace", it says "No results were found." At the bottom of the search results, there's a link "Advanced resource query".

Subscription Mapping ⓘ

The Subscription Mapping page helps tenancies view and map subscriptions within the organization. To use IaaS, PaaS, and SaaS services, a tenancy requires a subscription. This page helps the parent tenancy can then access subscription service entitlements, rate card, credits, and other subscription details of the parent tenancy, allowing the child tenancy to use Oracle services.

Subscription ID	Subscription type	Mapped tenancies ⓘ	Expiration date
3333 XXXXXXXX	ORACLEDBATAWS	1	Mon, Nov 10, 2025, 23:59:59 UTC

Verify Subscription Mapping



Subscription Mapping

The Subscription Mapping page helps tenancies view and map subscriptions within the organization. To use IaaS, PaaS, and SaaS services, a tenancy requires a subscription. This page helps the parent tenancy can then access subscription service entitlements, rate card, credits, and other subscription details of the parent tenancy, allowing the child tenancy to use Oracle services.

Subscription ID	Subscription type	Mapped tenancies	Expiration date
330 XXXXXX	ORACLEDBATAWS	1	Mon, Nov 10, 2025, 23:59:59 UTC

Organization > Subscription Mapping > Subscription mapping details



330 XXXXX

Subscription mapping details

Subscription overview

Subscription ID: 330 XXXXXX
Subscription OCID: ...jukwwq Show Copy
Subscription type: ORACLEDBATAWS

Mapped tenancy

Mapped tenancy: odbzproc Parent tenancy
Mapped tenancy OCID: ...ikyka Show Copy
Mapped date: Wed, Nov 13, 2024, 01:09:32 UTC

Subscription dates

Subscription start date: Mon, Nov 11, 2024, 00:00:00 UTC
Subscription end date: Mon, Nov 10, 2025, 23:59:59 UTC
Subscription description: ANNUAL

Verify Limits

The screenshot shows the OCI console with the 'Cloud' icon selected in the top navigation bar. A red arrow points to the 'Cloud' icon. Another red arrow points to the 'Governance & Administration' tab in the main menu. A third red arrow points to the 'Limits, Quotas and Usage' section. A fourth red arrow points to the 'Service' dropdown set to 'Database'. A fifth red arrow points to the 'Scope' dropdown set to 'cExG:US-ASHBURN-AD-3'. A sixth red arrow points to the 'Subscription' dropdown set to '330 xxxx -ORACLEDBAWS'. A seventh red arrow points to the 'Compartment' dropdown set to 'odt:xxxxxxxxxxxxx (root)'. A eighth red arrow points to the 'Usage' column value '0'. A ninth red arrow points to the 'Available' column value '2'.

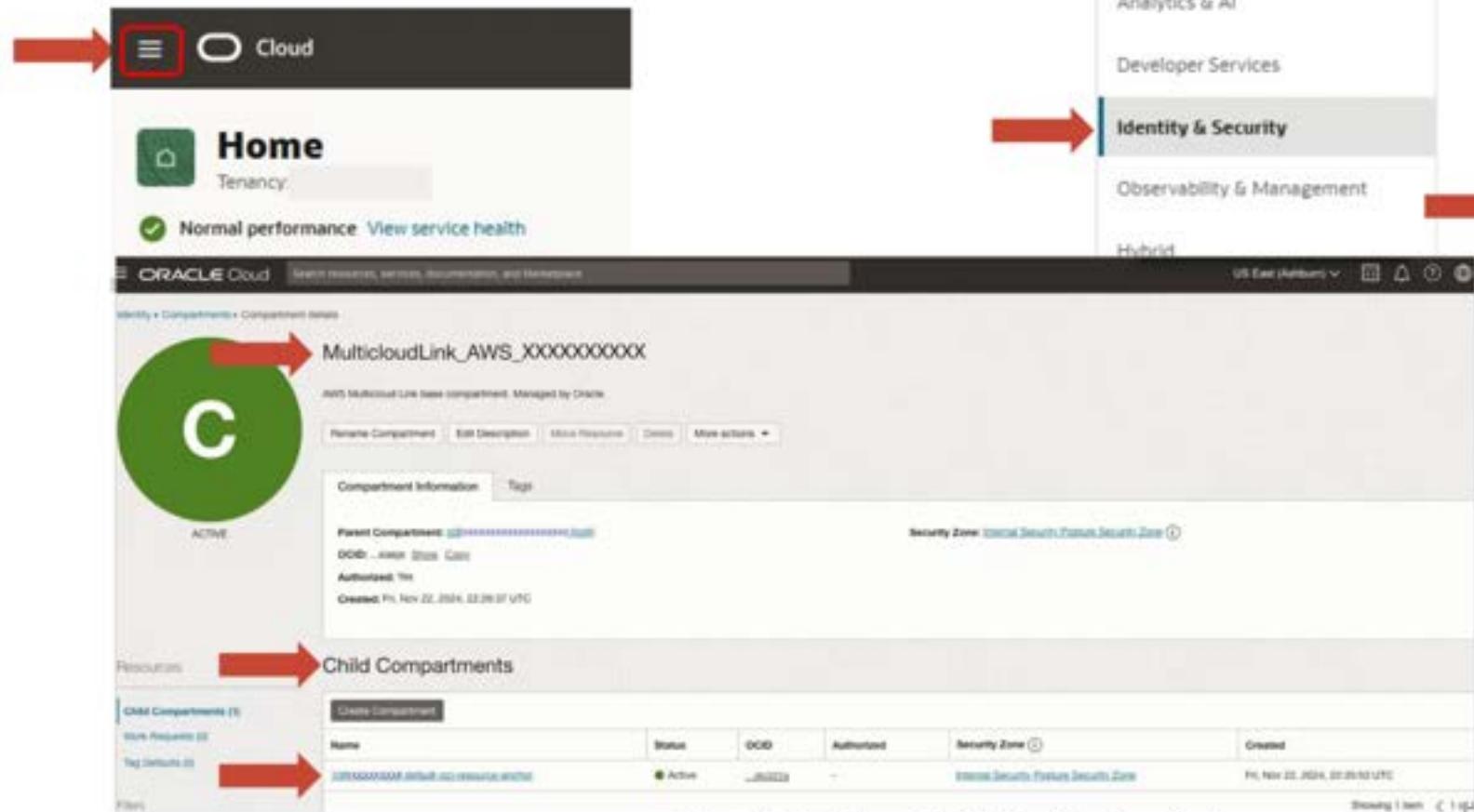
Limits, Quotas and Usage

Your tenancy has [limits](#) on the maximum number of resources you're allowed to use. You can use [quotas](#) to allocate resources to compartments. If you're an administrator in an eligible account, you can request a service limit increase.

When Subscription is set to "None", the limit applies to the displayed region or selected availability domain. [Learn More](#)

Description	Limit Name	Service Limit	Usage	Available
Exadata X9M Database Server Count - 126 Cores	exadata-database-server-x9m-count	2	0	2
Exadata X9M Storage Server Count - 64 TB	exadata-storage-server-x9m-count	3	0	3

Verify the Compartment for Oracle Database@AWS Resources



Oracle Database@AWS Dashboard

The screenshot shows the Oracle Database@AWS Dashboard. At the top, there's a navigation bar with the AWS logo, a search bar, and a 'Dashboard' button. Below the header, the main title is 'Oracle Database@AWS' followed by the subtitle 'Easily and quickly migrate Oracle Database to AWS with minimal changes'. A subtext explains that you can establish low-latency connections between Oracle Database@AWS and applications deployed in AWS services, including Amazon EC2. To the right, a 'Getting started' box contains three buttons: 'Dashboard' (highlighted with a red arrow), 'Request private offer', and 'View private offers'. Below this, there are sections for 'Benefits and features', 'Pricing', and 'Documents'.

Benefits and features

- Migrate Oracle Databases to AWS**
You can easily and quickly migrate your Oracle Exadata workloads to Oracle Exadata Database Service on Dedicated Infrastructure or Oracle Autonomous Database on Dedicated Exadata Infrastructure within AWS with minimal changes.
- Unify data across Oracle and AWS Oracle**
Database@AWS allows you to generate deeper insights and develop new innovation by using zero-ETL integrations to unify data across Oracle and AWS for analytics, machine learning, and generative AI.
- Simplify management and operations**
With Oracle Database@AWS, you are able to utilize a unified experience for collaborative support, purchasing, management, and operations.

Getting started

- Request a private offer or view your available private offers to use Oracle Database@AWS
- Dashboard**
- Request private offer
- View private offers

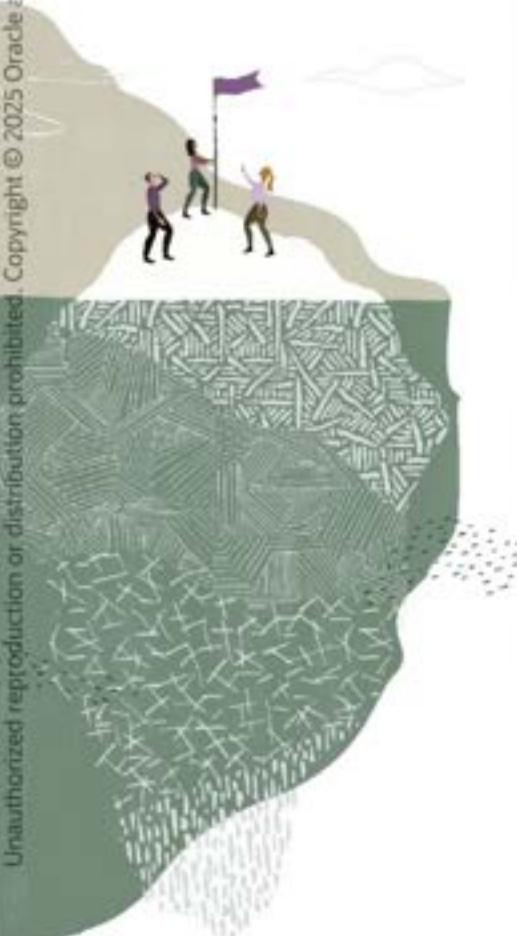
Pricing

Purchase Oracle Database@AWS through the AWS Marketplace. Pricing is the same as for Oracle Exadata Database Service running on OCI.

Documents

- AWS documentation
- OCI documentation
- Contact OCI support
- Contact AWS Support

Summary



Describe what an Oracle Cloud account for Oracle Database@AWS is

Add an Oracle Cloud account to Oracle Database@AWS subscription

Verify Resources for Oracle Database@AWS subscription

Describe what a Dashboard for Database@AWS is

Getting Started with Oracle Database@AWS

Objectives



ODB Network

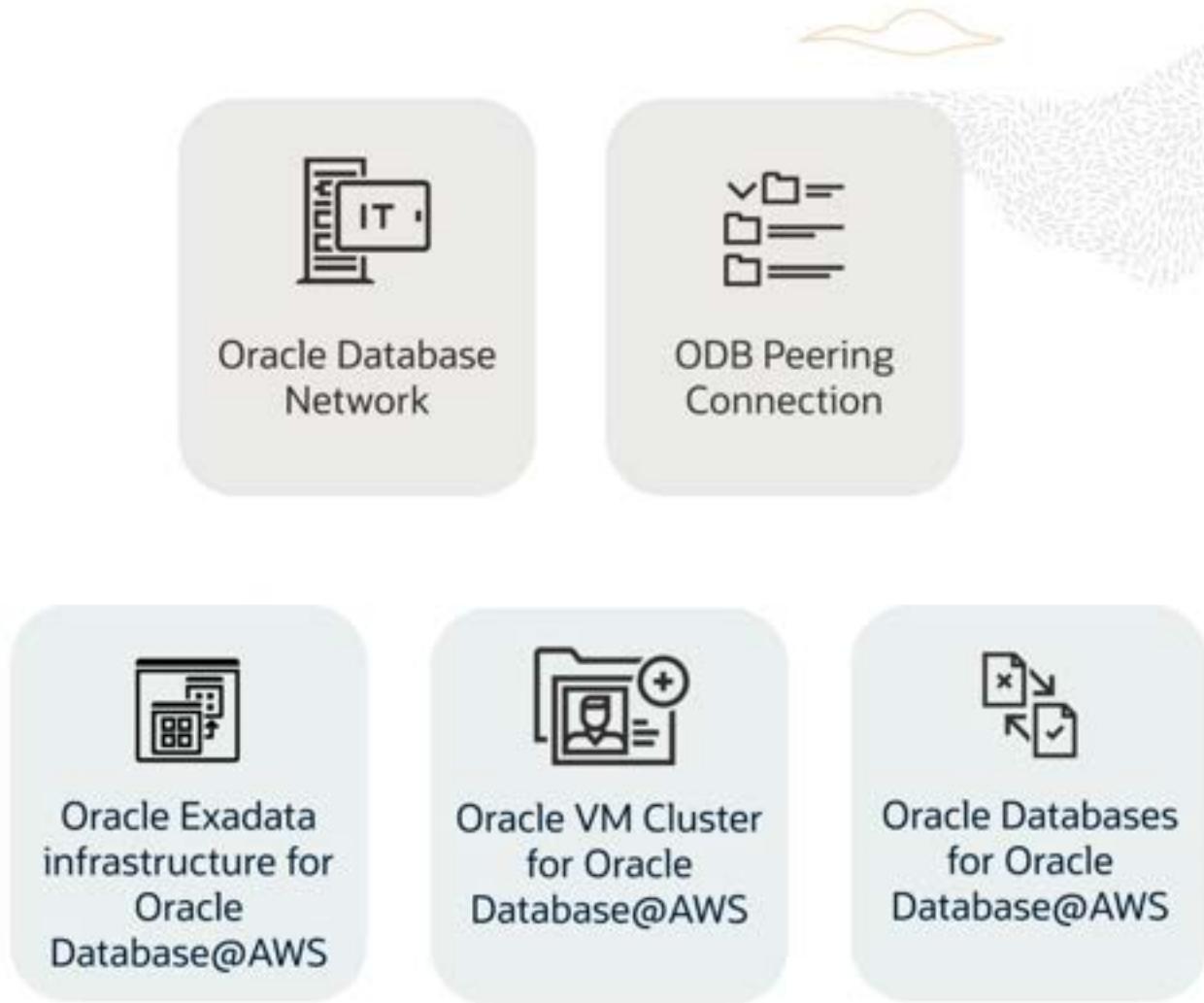
Oracle Exadata Infrastructure

Oracle VM Clusters

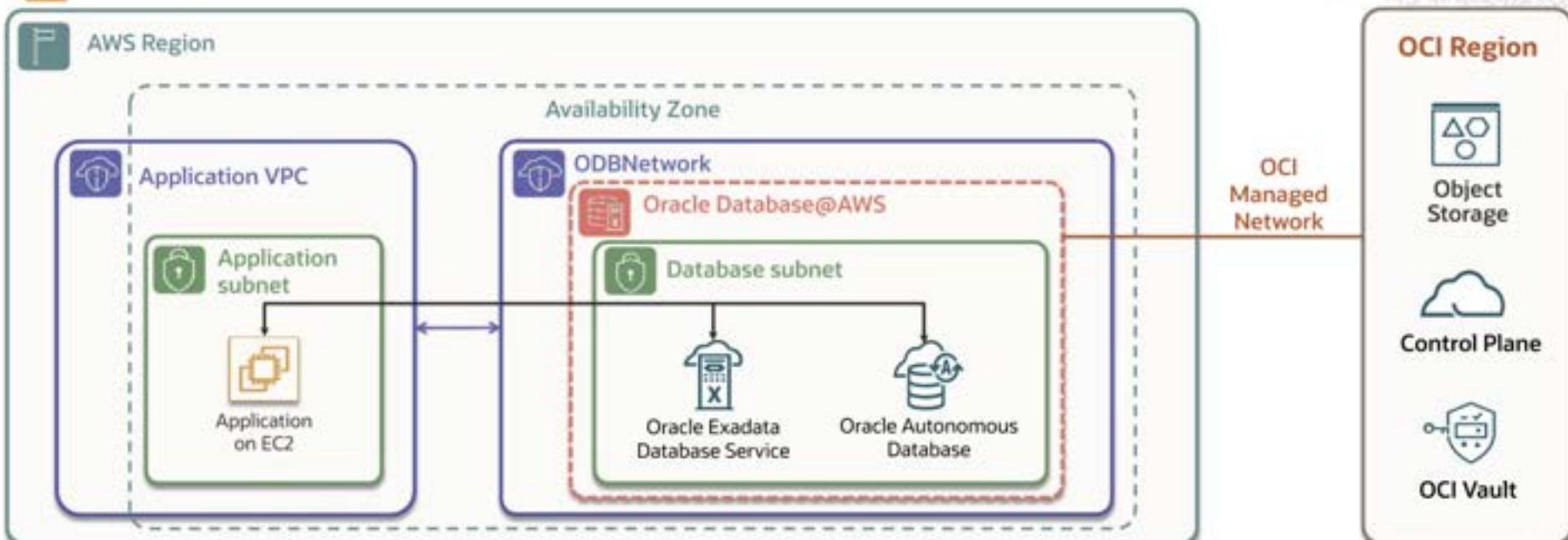
Oracle Database Services

ODB Peering Connection

Resources for Oracle Database@AWS



Oracle Database Network – ODB Network



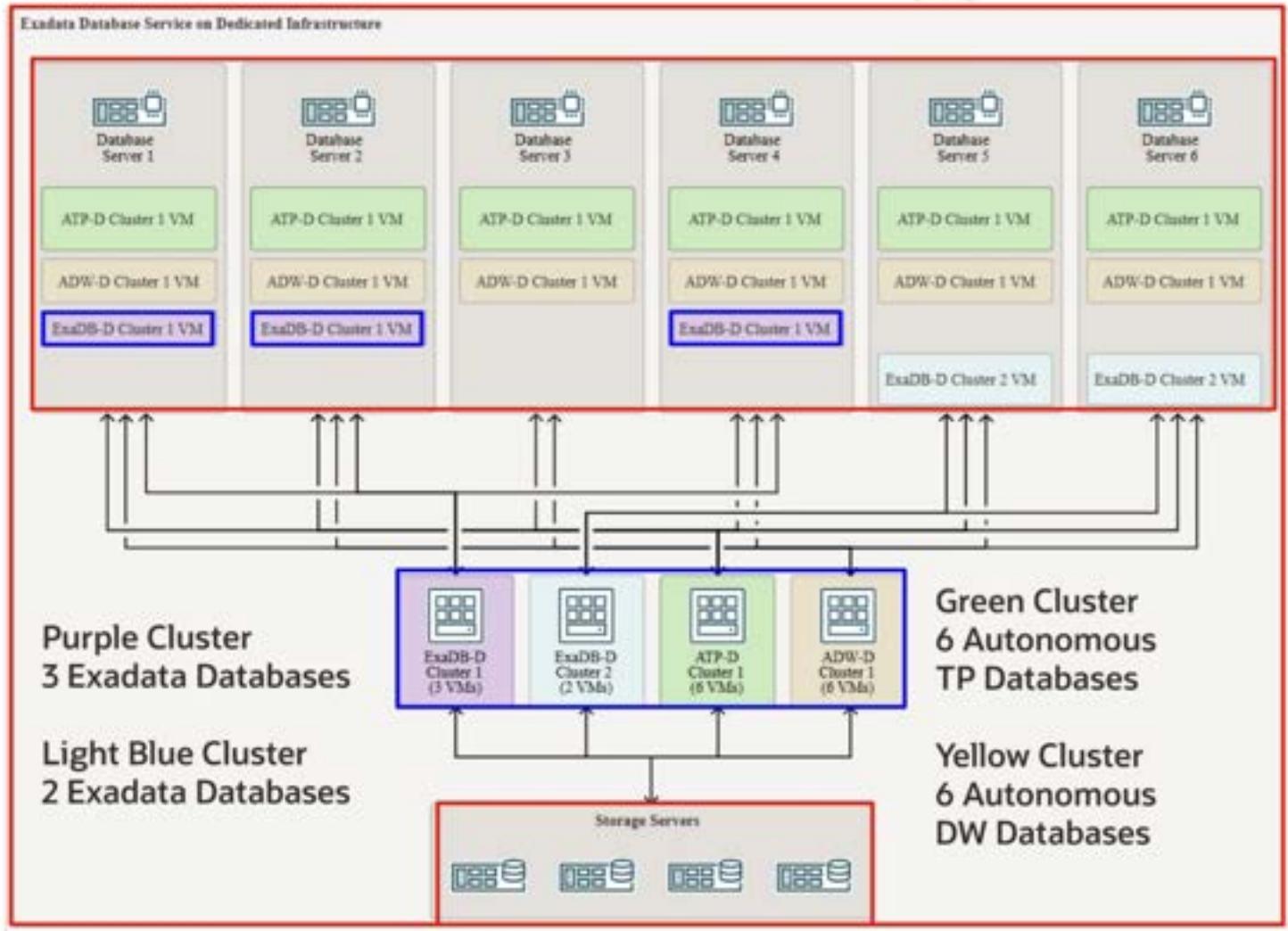
► A private isolated network that hosts OCI infrastructure in an AWS Availability Zone (AZ).

► Network infrastructure specifically designed to provide connectivity for Oracle Database services within cloud environments

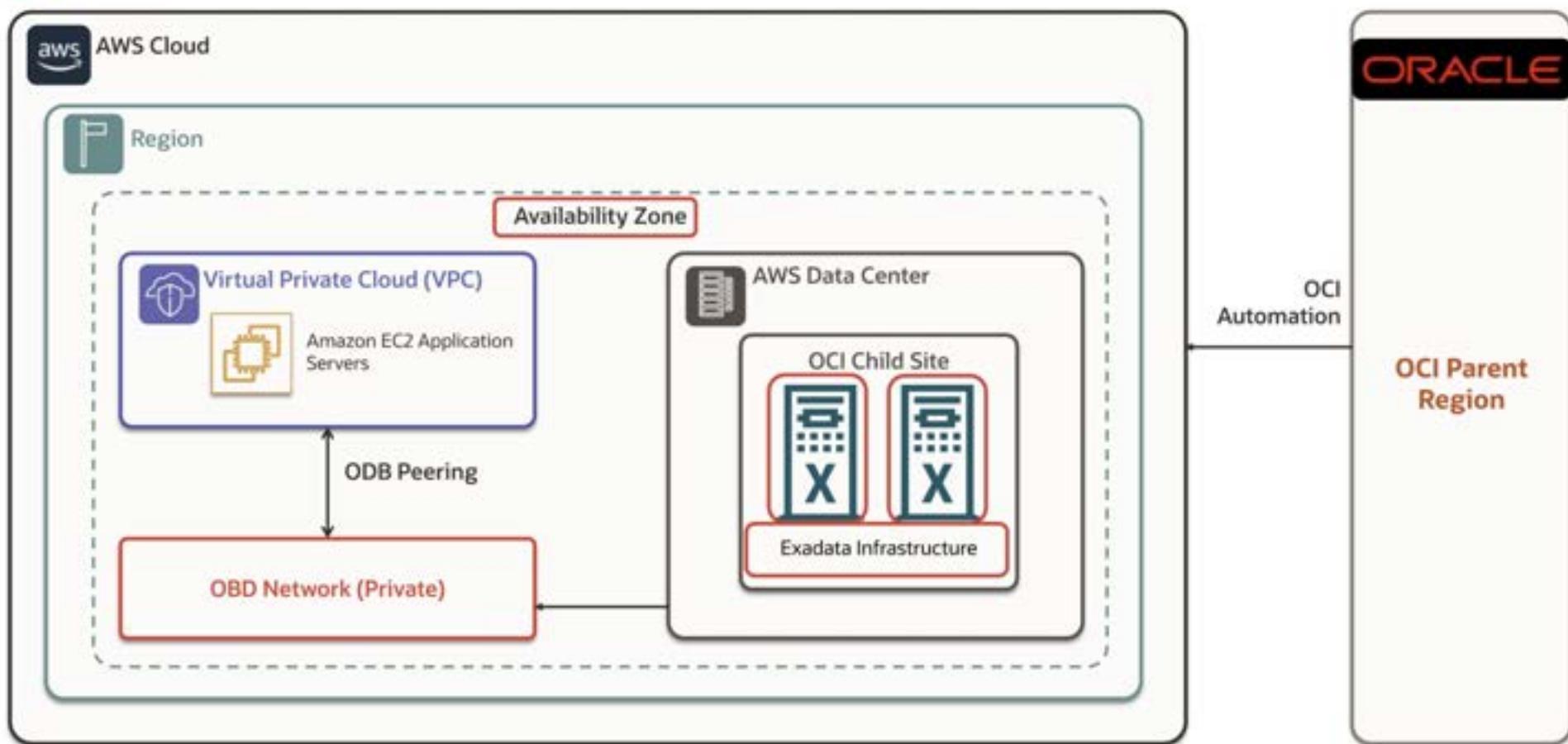
► Maps directly to the network that exists within the OCI child site, it is the communication between AWS and OCI.

► A private and secure connection between AWS and OCI, where the Oracle Exadata infrastructure and Oracle Database services reside.

Oracle Exadata infrastructure for Oracle Database@AWS



Oracle Exadata Infrastructure for Oracle Database@AWS

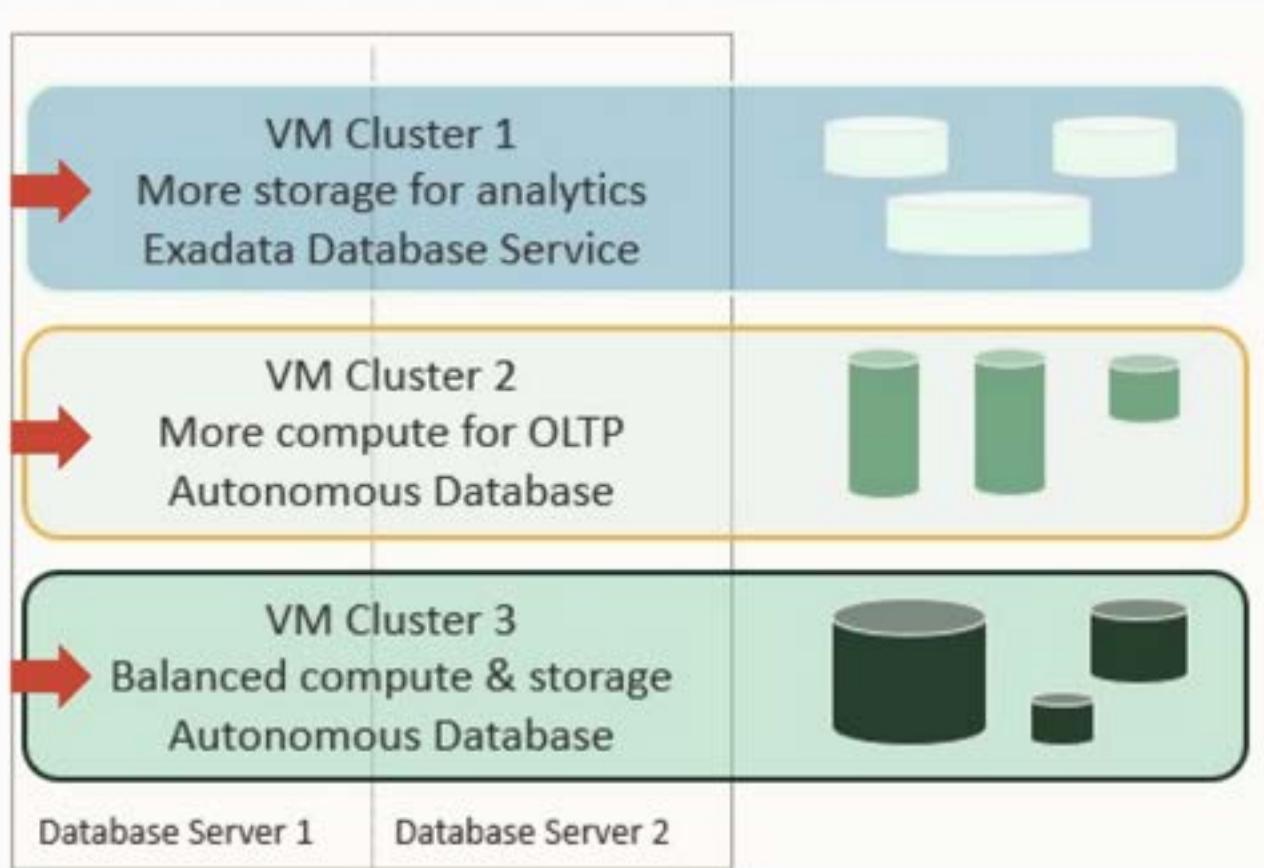


Oracle VM Clusters

Oracle VM Clusters

A group of virtual machines (VMs) provisioned on an Oracle Exadata Infrastructure.

Provides a layer of abstraction and isolation, to manage resources and configurations for specific databases and applications.





Oracle Database Services in Oracle Database@AWS

Autonomous Database



Fully managed with complete automation

- Eliminates administration

→ Oracle Autonomous Database Service on Dedicated Exadata Infrastructure

Exadata Database Service



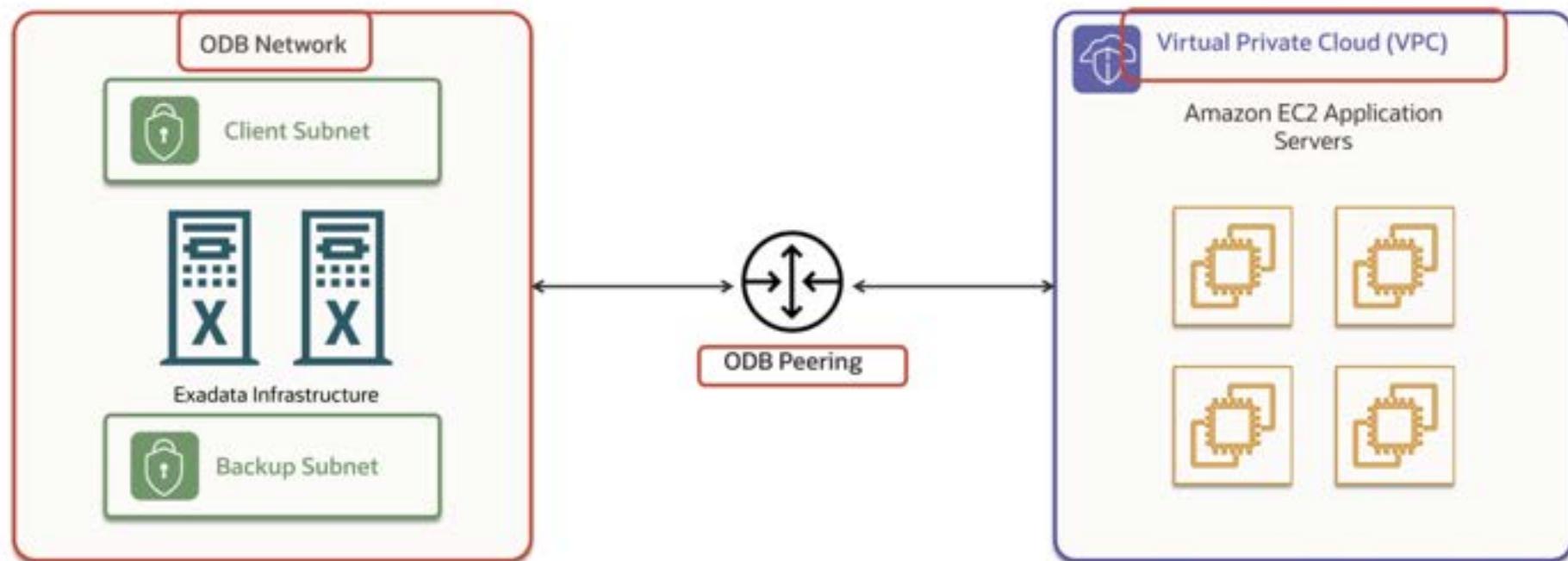
Flexible with full administrative control

- Root access to customize database environments
- Customer controlled database
- Infrastructure managed by Oracle

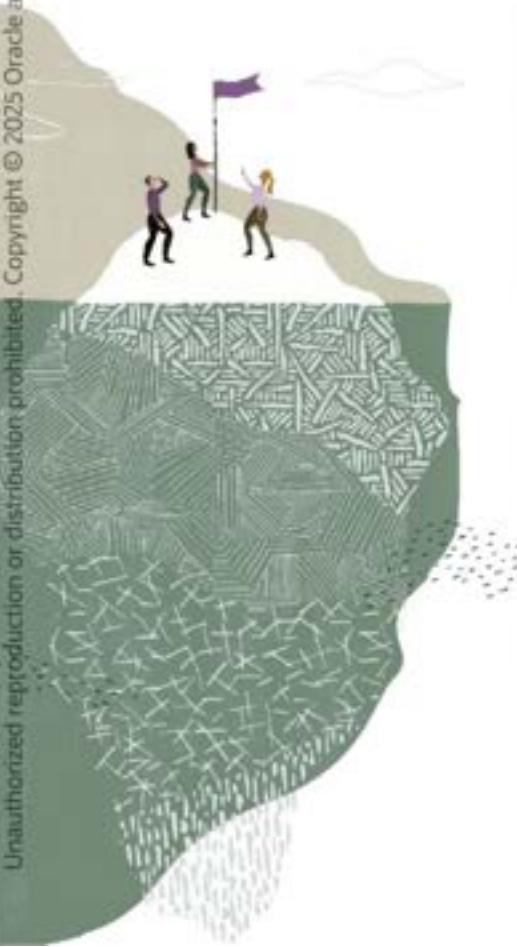
→ Oracle Exadata Database Service on Dedicated Exadata Infrastructure

OBD Peering

- ODB peering is a user-created network connection that enables traffic to be routed privately between an Amazon VPC and an ODB network.
- There is a 1:1 relationship between a VPC and an ODB network.



Summary



ODB Network

Oracle Exadata Infrastructure

Oracle VM Clusters

Oracle Database Services

ODB Peering Connection

Oracle Database@AWS

Service Responsibilities for Oracle Database@AWS

Objectives



Oracle and AWS Services for Database@AWS

More responsibilities to services

Share responsibility model

Oracle Database@AWS

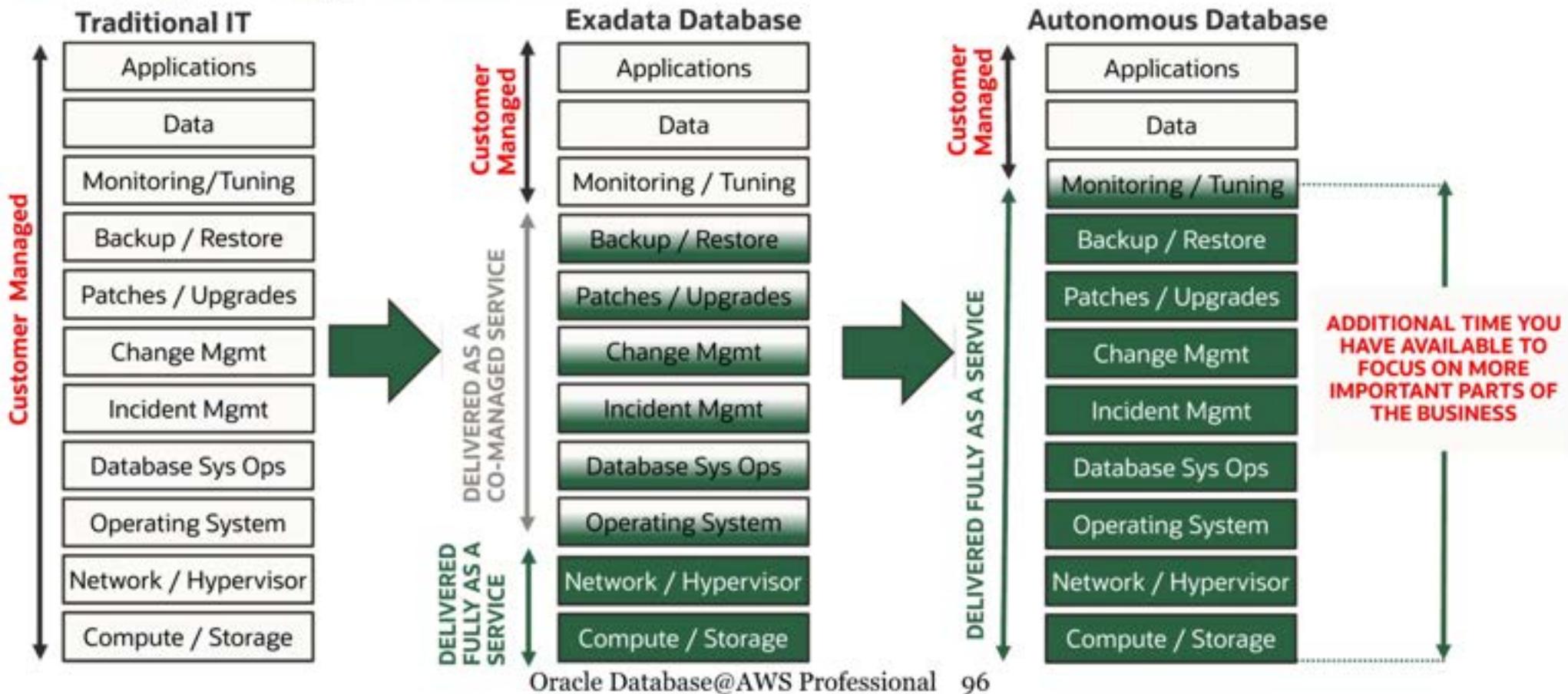


Oracle Database@AWS is a collaboration between Amazon Web Services (AWS) and Oracle for customers to deploy and run Oracle Database services, including Oracle Autonomous Database and Oracle Exadata Database Service, directly within AWS data centers.



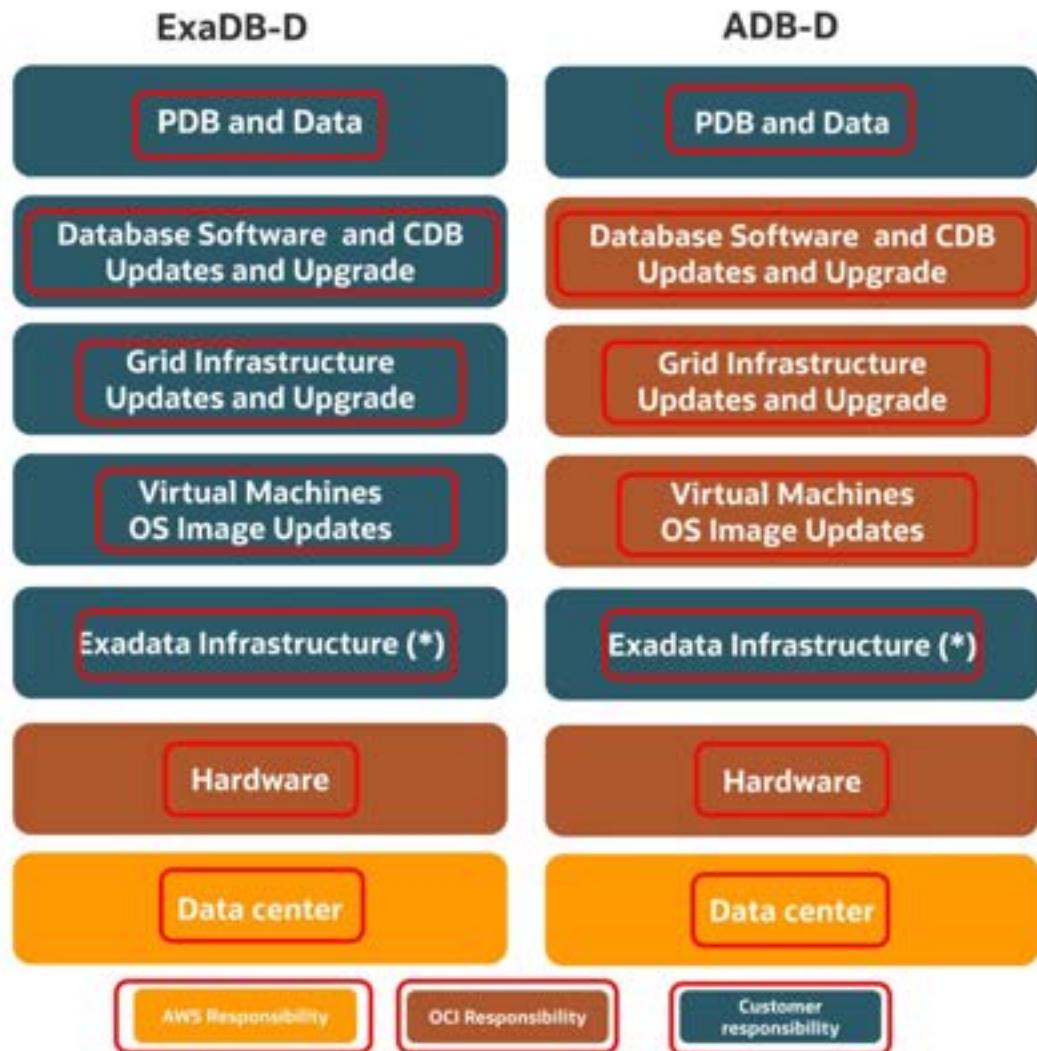
Transfer more responsibility to the service while lowering costs

Same cost per OCPU, greater value with Autonomous

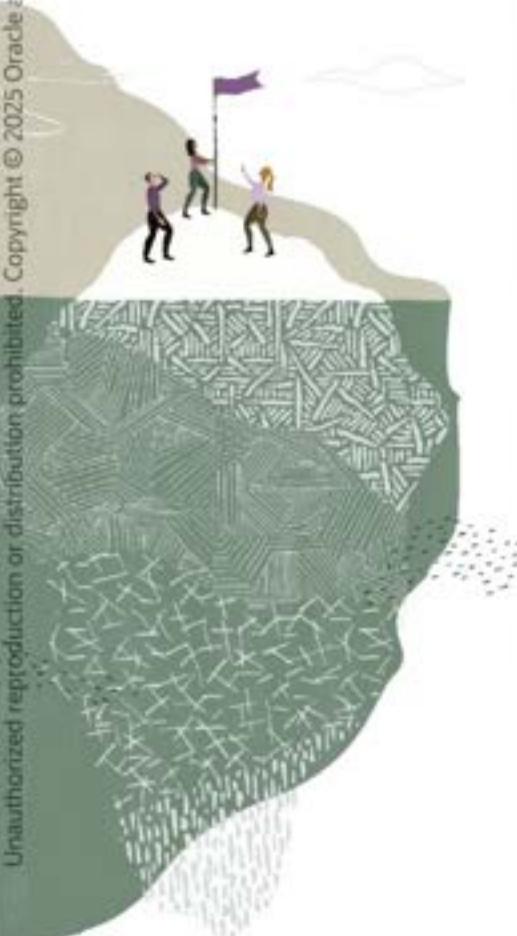


Shared Responsibility

- Data Center where Oracle Database@AWS
- Exadata Physical Machines Hardware
- Physical network and accommodations
- Exadata Infrastructure
- Virtual Machines in Exadata VM Cluster
- Grid Infrastructure
- Database Home and Container Database (CDB)
- Application, Pluggable Database, and Data



Summary



Oracle and AWS Services for Database@AWS

More responsibilities to services

Share responsibility model

Oracle Database@AWS

Oracle Database Services for Oracle Database@AWS

Objectives



Exadata Database Service

Autonomous Database

Automated Scaling

Oracle Database Services in Oracle Database@AWS



→ Autonomous Database

→ Fully managed with complete automation

- Eliminates administration

→ Pay only for resources used

- Autoscaling for variable workloads

Complete Cloud Native Data Platform

- Data Warehouse, Transaction Processing, JSON
- Built-in data tools



→ Oracle Autonomous Database Service on Dedicated Exadata Infrastructure

→ Exadata Database Service

→ Flexible with full administrative control

- Root access to customize database environments
- Customer controlled database
- Infrastructure managed by Oracle

→ Pay only for resources provisioned

- Customer initiated scaling for variable workloads

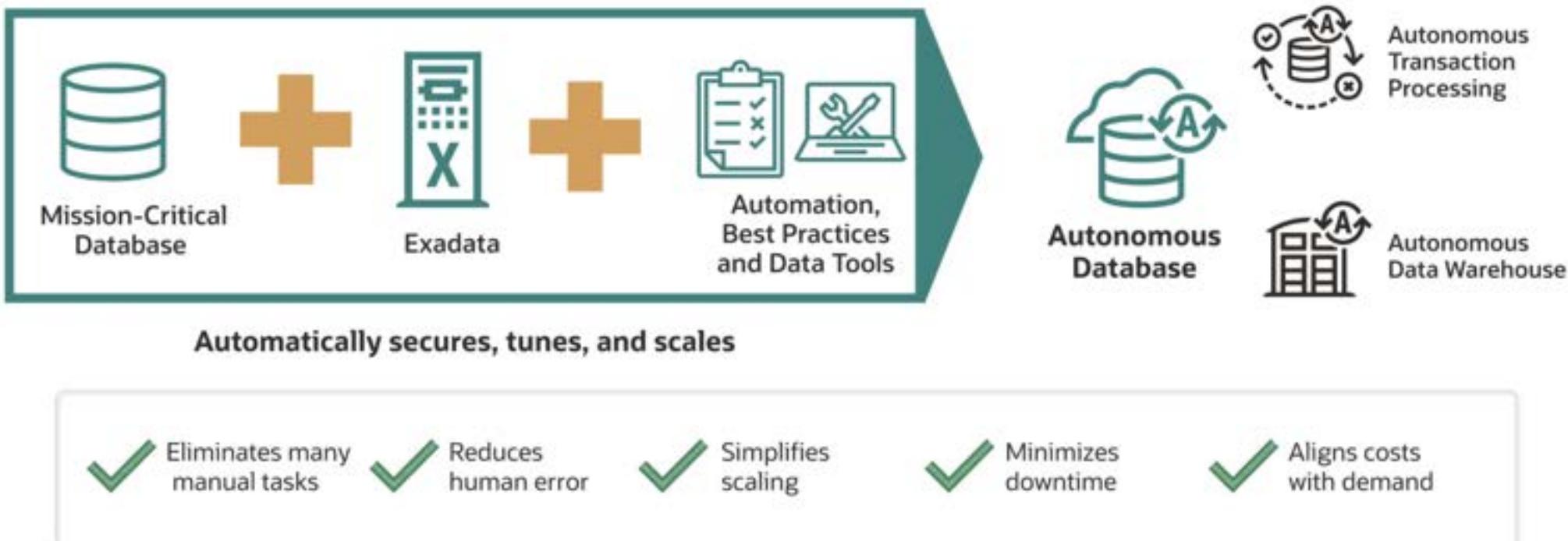
Easy lift and shift from on-premises

- Migrate any supported Oracle Database Enterprise Edition version

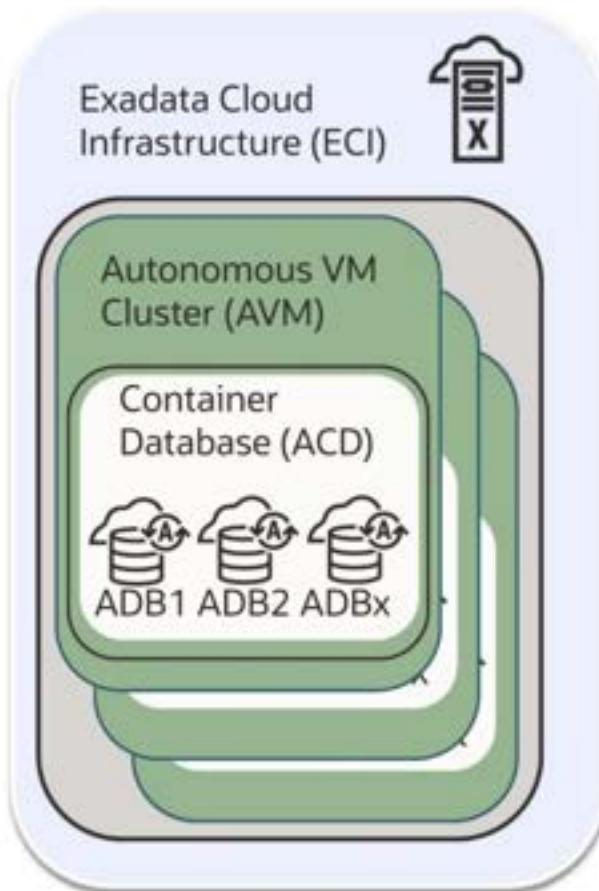


→ Oracle Exadata Database Service on Dedicated Exadata Infrastructure

Autonomous Database on Oracle Database@AWS



Autonomous Database on Dedicated Exadata Infrastructure

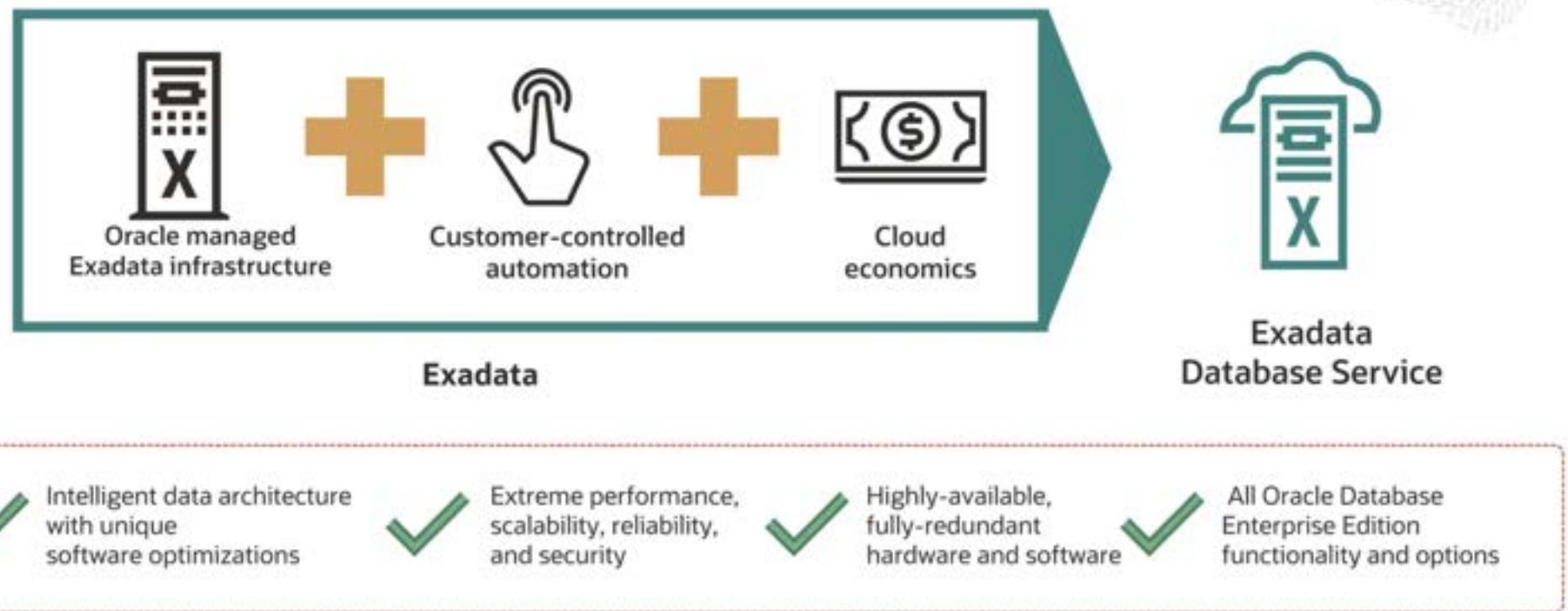


Exadata Cloud Infrastructure - the physical system, which can be expanded with storage and compute hosts

Autonomous Virtual Machine (AVM) - provides private network isolation, custom memory, core, and storage allocations

Autonomous Container - Containers for one or more Autonomous Databases to coexist on the same infrastructure while still being logically separated.

Exadata Database on Oracle Database@AWS



Run mission-critical AI, OLTP, Analytic workloads at any scale on Exadata in the cloud

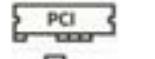
Complete Oracle Database & Exadata capabilities in the cloud

-  AI Vector Search
-  In-Database Machine Learning
-  Multitenant
-  DB In-Memory
-  Real Application Clusters
-  Active Data Guard
-  Partitioning
-  Advanced Compression
-  Advanced Security, Label Security, DB Vault
-  Advanced Analytics, Spatial and Graph

All Oracle
Database
Innovations

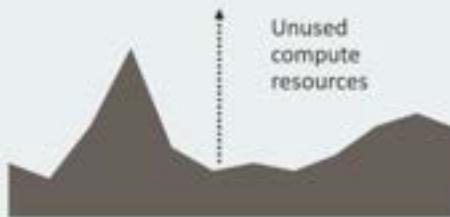


All Exadata
DB Machine
Innovations

-  Offload AI Search and SQL to Storage
-  RoCE Fabric
-  XRMEM Data Accelerator
-  Smart Flash Cache
-  Storage Indexes
-  Columnar Flash Cache
-  Hybrid Columnar Compression
-  I/O Resource Management
-  Network Resource Management
-  In-Memory Fault Tolerance
-  Exafusion Direct-to-Wire Protocol

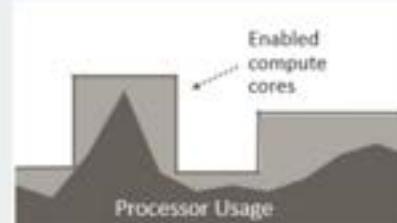
Automated Scaling

Traditional Database Service



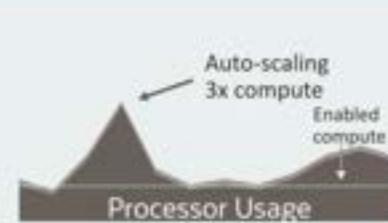
Sized for future peak workloads with all resources enabled
Fixed compute costs based on available cores not usage
Pay for all available processor resources regardless of usage

Exadata Database Service



Scale enabled processors up for peak demands and down for normal needs
Administrators scale enabled database cores up or down based on workload demand
Only pay for enabled cores

Autonomous Database Service



Real-time scaling of consumption and costs based on demand
Built-in automatic scaling increases compute to meet workload demand spikes, and automatically scales down when not required
Only pay for cores used

Performance scales as more servers are added

Summary



Exadata Database Service

Autonomous Database

Automated Scaling

Oracle Database@AWS

— **Networking**

Objectives



Relation of ODB Network to an AWS VPC and OCI VCN

AWS Availability Zone (AZ)

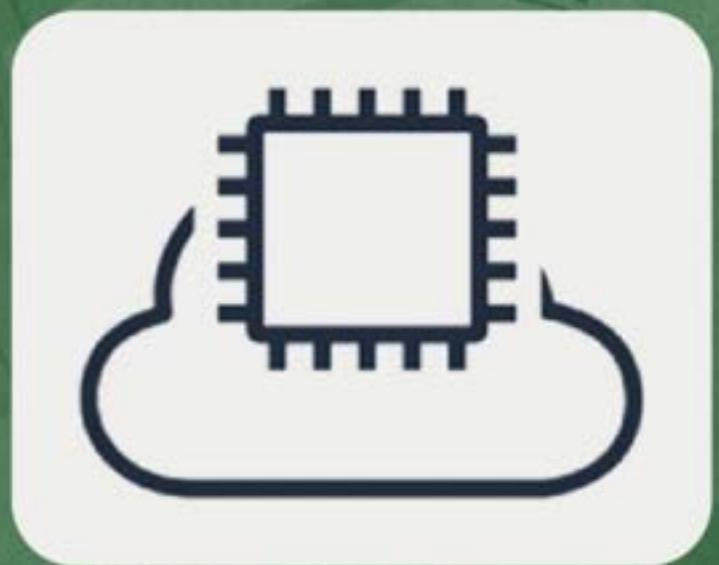
Oracle Database Network (ODB) OCI Resources

Peering to a VPC

AWS Hub and Spoke Design

Deleting an ODB Network

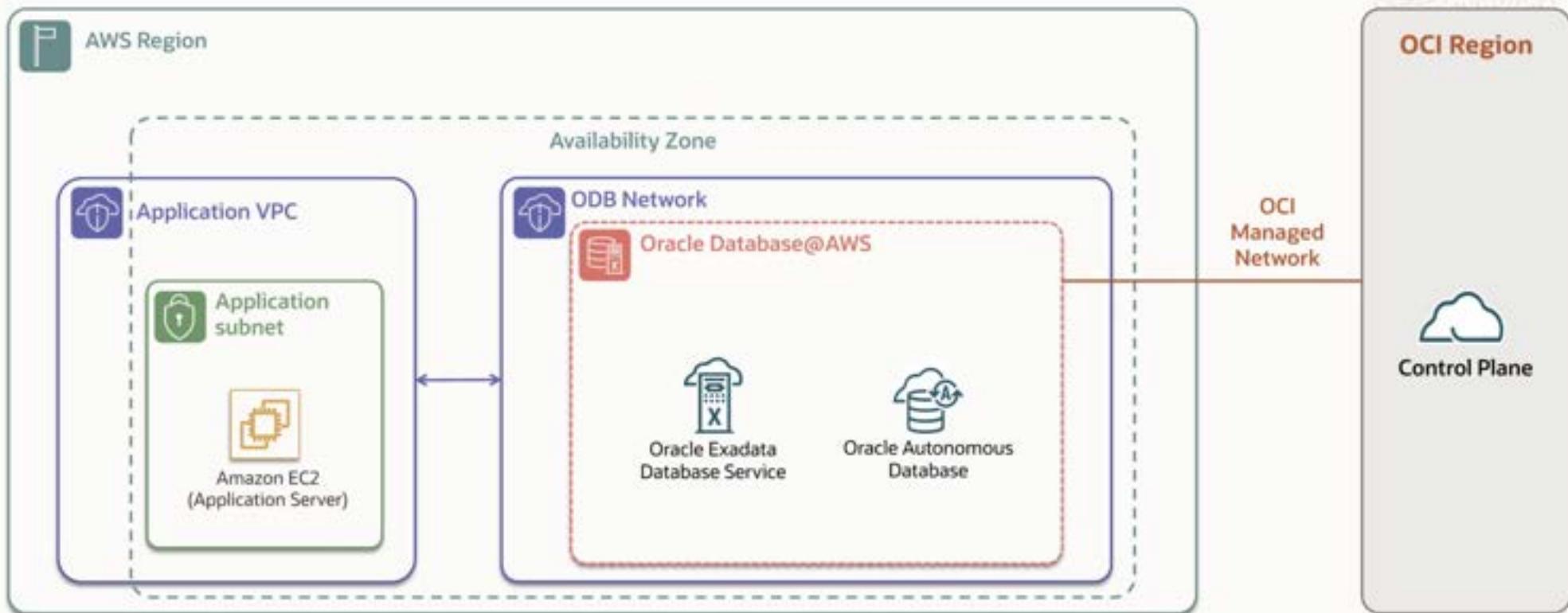
Oracle Database Network (ODB)



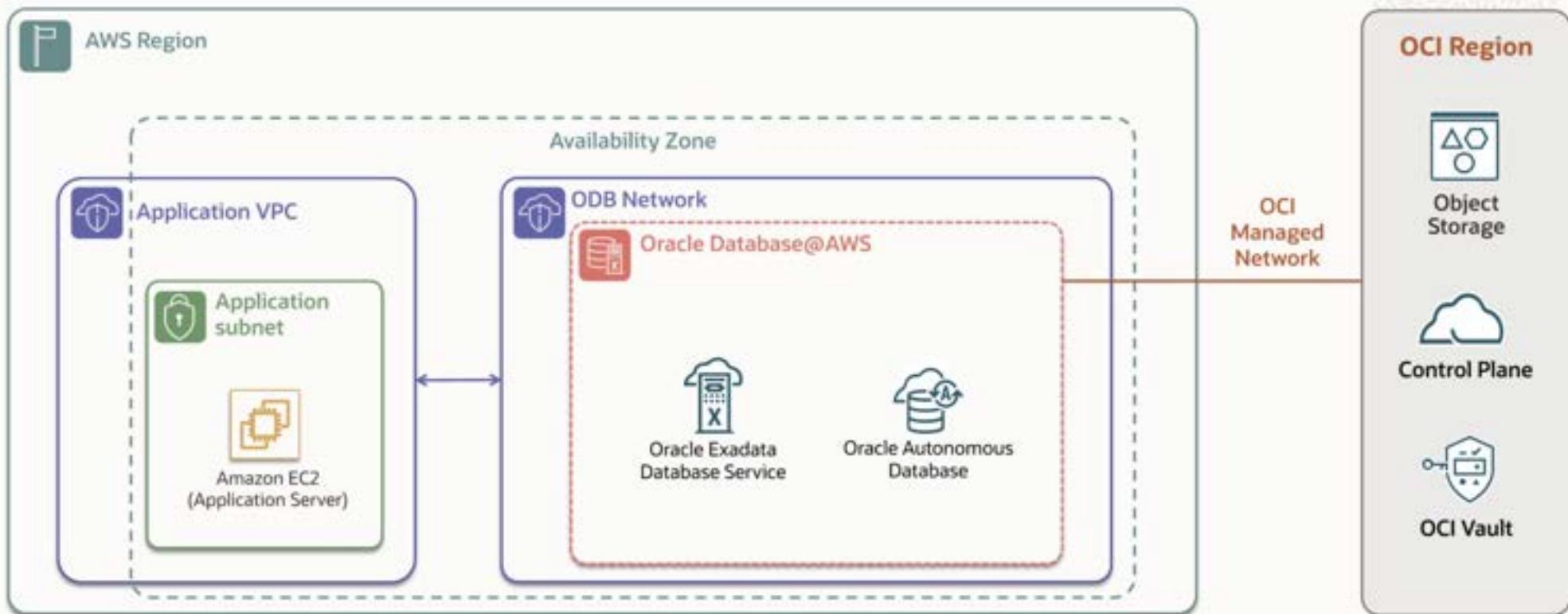
An **ODB network** is a private network that hosts Exadata VM clusters in an AWS specified Availability Zone (AZ).

You can set up peering between an ODB network and a VPC, which enables applications to connect to your Exadata databases.

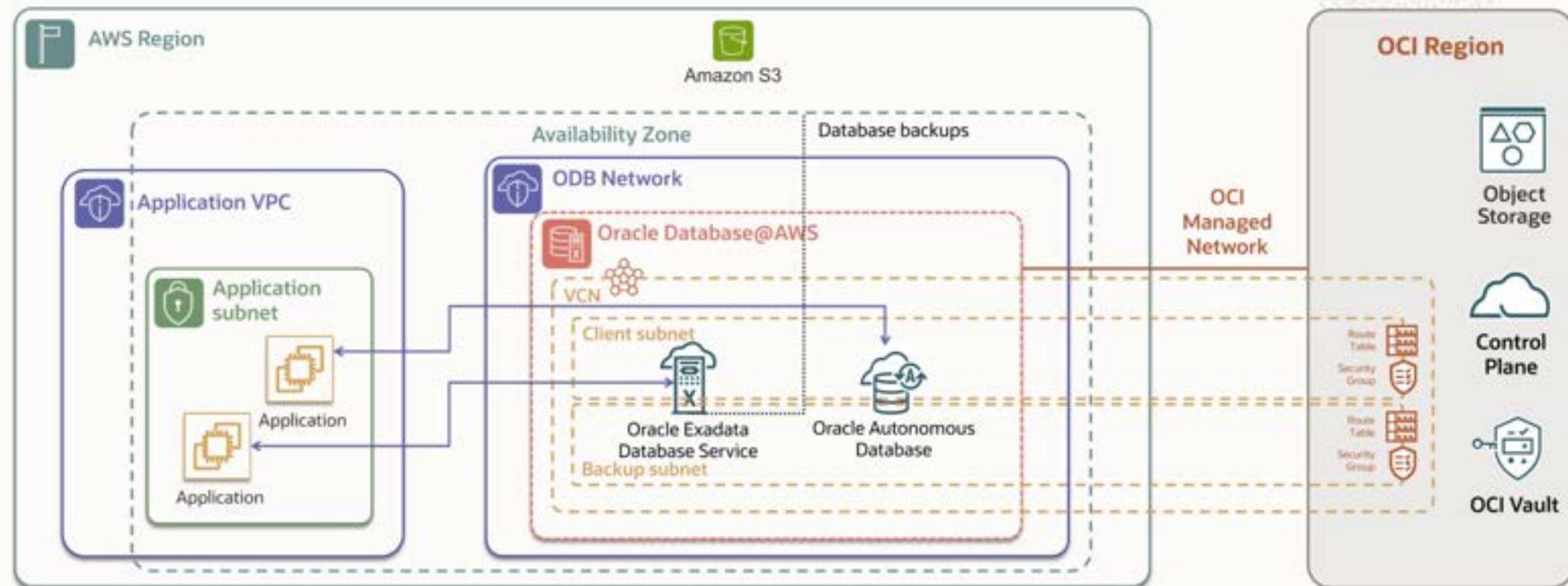
High-Level Architecture



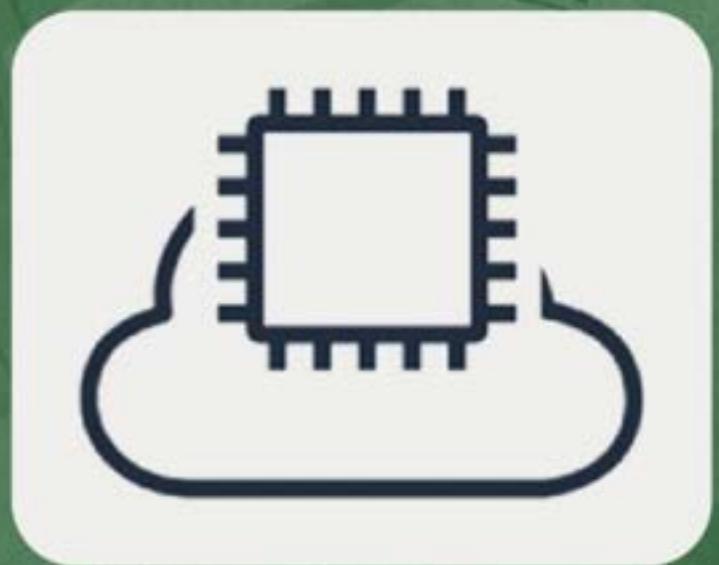
High-Level Architecture – Single Availability Zone



Detailed Architecture – Single Availability Zone



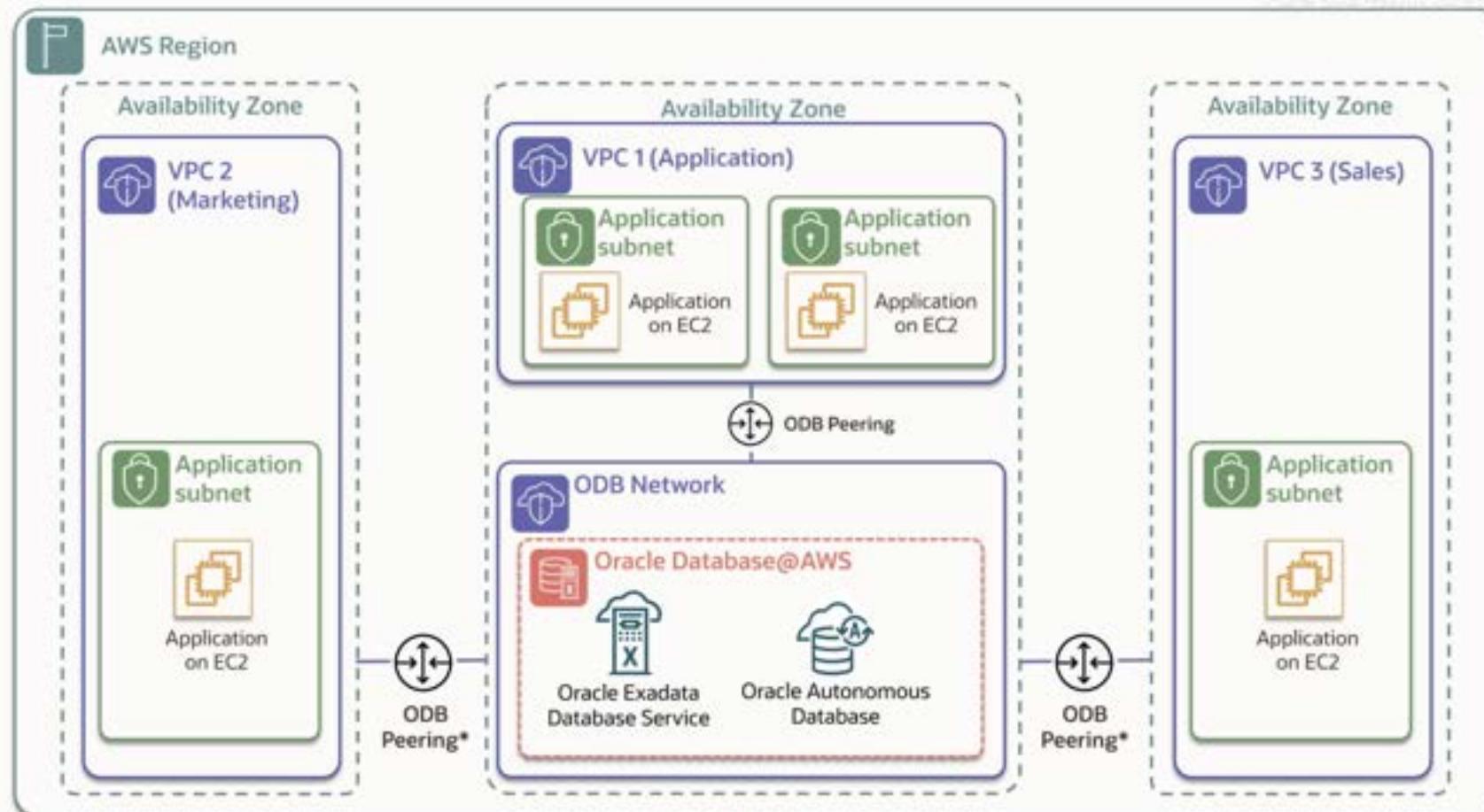
Oracle Database Network (ODB) OCI Resources



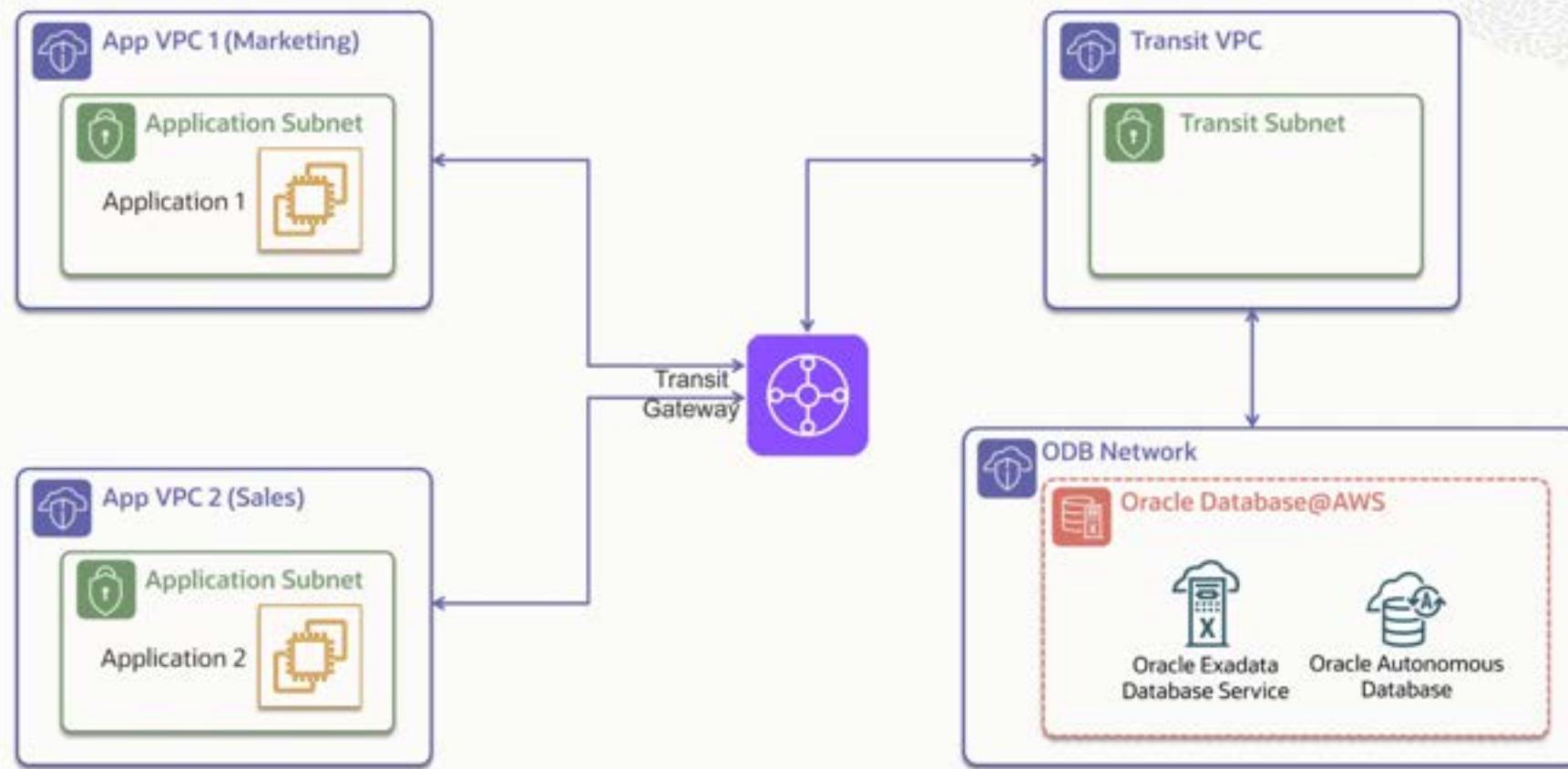
- Two CIDR blocks
- Two subnets
- Cross-Tenancy DRG Attachment
- Service Gateway
- Route Rules to DRG and OSN
- Seven NSGs (Exadata, ADB, & DNS)
- Private Resolver Forwarder Endpoint
- Private Resolver Listener Endpoint



AWS ODB Peering – GA Capability



AWS Hub and Spoke Design

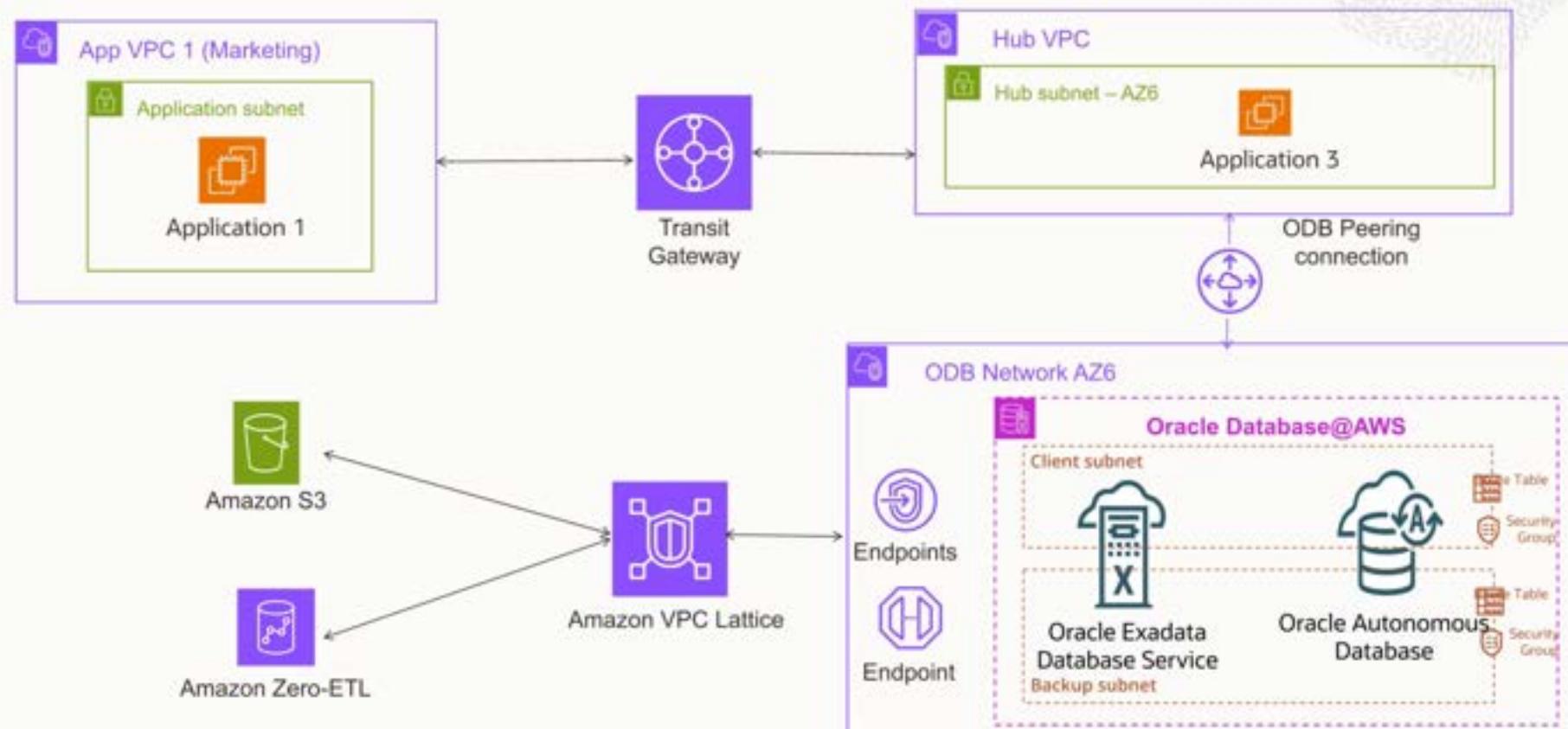


Lattice

A default Amazon VPC Lattice service network is launched automatically when the ODB Network is created



VPC Lattice Integration



Key functionalities of VPC Lattice with ODB Network

. Simplified Connectivity:

Provisions a default service network, a default service-network endpoint, and a resource gateway to manage traffic for the ODB network.

. Managed Integrations:

Enables managed service integrations with other AWS services. For example, it facilitates secure and private access to Amazon S3 for backups and Amazon Redshift for Zero-ETL data replication.

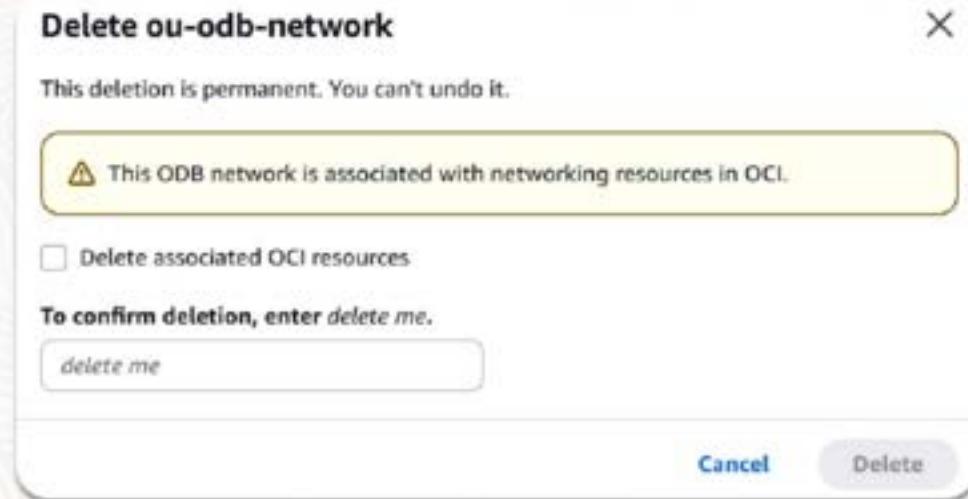
. Secure Access and Sharing:

Allows users to add their own applications as resources or services, associate the service network with VPCs or endpoints, and enable access logs for traffic visibility. Users can also share ODB network resources with clients in other VPCs, accounts, or on-premises environments

Service integrations	Tags	Ipv4 CIDRs
<p>Network configuration</p> <p>Service network ARN arn:aws:vpc-lattice:us-east-1: work/sn- 0[REDACTED]91</p> <p>Resource gateway ARN arn:aws:vpc-lattice:us-east-1: ateway/rgw- 0[REDACTED]b4</p>	<p>VPC endpoint id vpce-[REDACTED]43c</p> <p>VPC endpoint type SERVICENETWORK</p>	12[REDACTED].0/20

Deleting the ODB

Make sure to select the check box that deletes the OCI-related resource. Deleting these resources manually results in a lengthy, time-consuming task.



Summary



Relation to an AWS VPC and OCI VCN

AWS Availability Zone (AZ)

Oracle Database Network (ODB) OCI Resources

Peering to a VPC

AWS Hub and Spoke Design

Deleting an ODB Network

Oracle Database@AWS

Create Oracle Exadata Infrastructure for Oracle Database@AWS

Objectives



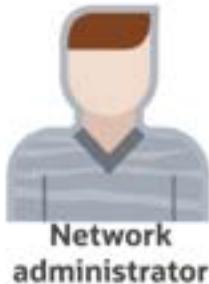
Create an Exadata Infrastructure



Resources for Oracle Database@AWS



Creating Resources for Oracle Database@AWS by Role and by Task



ODB Network
in AWS

Network
administrator



Exadata
Infrastructure

Infrastructure
administrator



Infrastructure
administrator



Database
administrator

Exadata and
Autonomous
VM Clusters
in AWS Cloud



Database
administrator

Exadata and
Autonomous
Databases
in OCI Cloud

AWS Dashboard

The screenshot shows the Oracle Database@AWS landing page within the AWS Management Console. The top navigation bar includes the AWS logo, a search bar, and account information for 'United States (Oregon)' and 'Multicloud-Engineering/huan.jing@oracle.com'. The main content area features a large banner for 'Oracle Database@AWS' with the subtext 'Easily and quickly migrate Oracle Database to AWS with minimal changes'. Below the banner, a note states: 'You can establish low-latency connections between Oracle Database@AWS and applications deployed in AWS services, including Amazon RDS.' A 'Get started' button with a help icon leads to the service's documentation. The page is divided into several sections: 'Benefits and features' (with subsections for migrating databases, unifying data across Oracle and AWS, and simplifying management), 'Pricing' (describing purchase through the AWS Marketplace), and 'Documents' (links to AWS and OCI documentation and support contact information).

Oracle Database@AWS
Easily and quickly migrate Oracle Database to AWS with minimal changes

You can establish low-latency connections between Oracle Database@AWS and applications deployed in AWS services, including Amazon RDS.

Benefits and features

Migrate Oracle Databases to AWS
You can easily and quickly migrate your Oracle Exadata workload to Oracle Exadata Database Service on Dedicated Infrastructure or Oracle Autonomous Database on Dedicated Exadata Infrastructure within AWS with minimal changes.

Unify data across Oracle and AWS Oracle
Database@AWS allows you to generate deeper insights and develop new innovation by using zero-ETL integrations to unify data across Oracle and AWS for analytics, machine learning, and generative AI.

Simplify management and operations
With Oracle Database@AWS, you are able to utilize a unified experience for collaborative support, purchasing, management, and operations.

Get started

Get started with Oracle Database@AWS.

[Dashboard](#)

Pricing

Purchase Oracle Database@AWS through the AWS Marketplace. Pricing is the same as for Oracle Exadata Database Service running on OCI.

Documents

[AWS documentation](#)
[OCI documentation](#)
[Contact OCI support](#)
[Contact AWS Support](#)

Create Exadata Infrastructure for Oracle Database@AWS

The screenshot shows the Oracle Database@AWS Dashboard. On the left, there's a sidebar with a user icon labeled "Infrastructure administrator" and a navigation menu including "Dashboard", "ODB networks", "Exadata infrastructures", "Exadata VM clusters", "Autonomous VM clusters", and "ODB peering connections". The main area has a title "Dashboard" and a "Get started" section. This section contains three steps:

- Step 1**: "Create the ODB network" (with a "Create ODB network" button)
- Step 2**: "Create the Exadata infrastructure" (with a "Create Exadata infrastructure" button, which is highlighted with a red box)
- Step 3**: "Create a VM cluster" (with "Create Exadata VM cluster" and "Create Autonomous VM cluster" buttons)

At the top right of the dashboard, there are "Create" and "Cancel" buttons.

Create Exadata Infrastructure for Oracle Database@AWS

The screenshot shows the 'Configure general settings' step of the 'Create Exadata Infrastructure' wizard. On the left, a sidebar lists navigation options: Dashboard, ODB networks, Exadata infrastructures (selected), Exadata VM clusters, Autonomous VM clusters, ODB peering connections, Oracle support, and Oracle documentation. The main panel title is 'Configure general settings'. It includes a description: 'The Exadata cloud infrastructure is the top-level resource of an Exadata system. This resource determines the number of storage and compute servers available to the VM clusters running on the system.' Below this is a 'Settings' section with two fields: 'Exadata infrastructure name' containing 'exadatainfra' and 'Availability Zone' containing 'us-west-2c'. Red arrows point from the text descriptions to their respective input fields. At the bottom right are 'Cancel' and 'Next' buttons.

Create Exadata Infrastructure for Oracle Database@AWS

The screenshot shows the 'Configure Exadata infrastructure' step of the Oracle Database@AWS setup wizard. The left sidebar lists navigation items like Dashboard, ODB networks, Exadata infrastructures (which is selected), Exadata VM clusters, Autonomous VM clusters, ODB peering connections, Oracle support, and Oracle documentation.

The main panel displays the configuration interface:

- Exadata system model:** Set to 'Exadata X11M'.
- Database server type:** Set to 'X11M' (768 EC2v3, 1.5 TB RAM per server).
- Storage server type:** Set to 'X11M-HC' (80 TB per server).
- Database servers:** A slider allows choosing between 2 and 32, currently set to 2.
- Storage servers:** A slider allows choosing between 3 and 64, currently set to 3.

At the bottom are 'Cancel', 'Previous', and 'Next' buttons.



Create Exadata Infrastructure for Oracle Database@AWS

The screenshot shows the Oracle Database@AWS console with the path: Oracle Database@AWS > Exadata infrastructures > Create Exadata infrastructure. The main content area displays Step 3: Configure maintenance and tags - optional. A red arrow points to the title "Configure maintenance and tags - optional". Another red arrow points to the "Maintenance settings" section, which includes "Window type" (selected: Oracle-managed schedule), "Patching mode" (selected: Non-rolling), and a checkbox for "Enable timeout before performing maintenance on DB servers". A third red arrow points to the "OCI maintenance notification contacts" section, which contains an input field with the value "johnt_doe@example.com". At the bottom, there are "Cancel", "Previous", and "Next" buttons.

Oracle Database@AWS > Exadata infrastructures > Create Exadata infrastructure

Step 1: Configure general settings

Step 2: Configure Exadata infrastructure

Step 3 - optional: **Configure maintenance and tags**

Step 4: Review and create

Configure maintenance and tags - optional

Maintenance settings

These settings control when and how maintenance occurs on your Exadata infrastructure.

Window type

Oracle-managed schedule
The system assigns a date and start time for Exadata infrastructure maintenance.

Customer-managed
Choose a date and start time for Exadata infrastructure maintenance.

Patching mode

Non-rolling
The system shuts down and updates the servers in parallel. This method minimizes maintenance time but incurs a full system downtime.

Rolling
The system updates the servers one at a time with no downtime.

Enable timeout before performing maintenance on DB servers.

OCI maintenance notification contacts info

You can enter up to 10 email addresses for notifications about maintenance updates. AWS forwards the addresses to Oracle, who emails the notification.

johnt_doe@example.com

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add new tag

You can add up to 50 tags.

Cancel Previous Next

Create Exadata Infrastructure for Oracle Database@AWS

The screenshot shows the Oracle Database@AWS console interface for creating an Exadata infrastructure. The left sidebar navigation includes: Oracle Database@AWS, Dashboard, ODB networks, Exadata infrastructures (selected), Exadata VM clusters, Autonomous VM clusters, ODB peering connections (New), Oracle support, and Oracle documentation.

The main content area displays the 'Review and create' step of the wizard, which consists of four steps:

- Step 1: General settings**: Shows the Exadata infrastructure name as 'exadatainfra' and the Availability Zone as 'us-west-2c'. A red arrow points to the 'Review and create' button at the bottom of this section.
- Step 2: Exadata Infrastructure**: Displays the Exadata system model as 'Exadata X11M', Database server type as 'X11M', Storage server type as 'X11M-HC', and the number of Database servers (2) and Storage servers (3).
- Step 3: Maintenance and tags**: Shows Maintenance settings with 'Window type' as 'Oracle-managed schedule' and 'Patching mode' as 'Non-rolling'. It also indicates 'OCI maintenance notification contacts' with the note 'No email addresses have been added.' A red arrow points to the 'Create Exadata infrastructure' button at the bottom of this section.
- Tags**: States 'No tags have been added.'

At the bottom right of the review screen are three buttons: 'Cancel', 'Previous', and a large orange 'Create Exadata infrastructure' button.

Exadata Infrastructure for Oracle Database@AWS

The screenshot shows the Oracle Database@AWS console interface. On the left, there's a sidebar with links like Dashboard, ODB networks, Exadata infrastructures (which is highlighted in blue), Exadata VM clusters, Autonomous VM clusters, ODB peering connections, Oracle support, and Oracle documentation. The main area has a title 'ouexadatainfra' and a 'Summary' tab selected. The summary table provides key details about the Exadata infrastructure:

	Value	Description
Status	Available	Exadata system model
Availability Zone	us-west-2c	ECUs
Exadata Infrastructure ARN	arn:aws:odbs:us-west-2:0540:37143469:cloud-exadata-infrastructure/exa_rby3x1ppqk	Database servers
Created	Jul 23, 2025, 13:40:37 GMT-04:00	Storage servers

Below the summary table is a navigation bar with tabs: Database servers (which is highlighted with a red box and arrow), Exadata VM clusters, Autonomous VM clusters, OCI maintenance, and Tags.

The 'Database servers' section shows two entries:

DB server name	Status	Available ECUs	Available memory (GB)	Available local storage (GB)	Hosted VMs
dbServer-1	Available	712	1240	1659	1
dbServer-2	Available	712	1240	1659	1

Exadata Infrastructure for Oracle Database@AWS

Oracle Database@AWS > Exadata infrastructures > exa_rby3x1ppqk

ouexadatainfra

OCI resources

Exadata infrastructure name: ouexadatainfra

Resource anchor name: default-oci-resource-anchor

Database servers Exadata VM clusters Autonomous VM clusters OCI maintenance Tags

Database servers (2)

DB server name	Status	Available ECpus	Available memory (GB)	Available local storage (GB)	Hosted VMs
dbServer-1	Available	712	1240	1659	1
dbServer-2	Available	712	1240	1659	1

Exadata Infrastructure for Oracle Database@AWS

Oracle Database

Exadata Infrastructure Information Maintenance Exadata VM clusters DB servers Maintenance scheduling plan Maintenance history Work requests Tags

Multicloud information

General information		Exadata Resources	
Compartment	ocid1.compartment.oc1.. root/MulticloudLink_AWS_202503030306054 037143469_default-oci-resource-anchor	DB servers	X11M
ODD	...ncppj6/w4bienqpk1fib2zcj2mpc5g1vibgyaxia	Storage servers	2
Created	Wed, Jul 23, 2025, 17:41:06 UTC	ECUs	1424 available, 1520 total
Availability domain	eu-west-1A	An ECU is an abstracted measure of compute resources. ECUs are based on the number of cores elastically allocated from a pool of compute and storage servers.	
Cluster placement group	ocid1.clusterplacementgroup.oc1.. us-west-1annwsjxiflyeaadwiedcuwakwodpcrcuxgj235ettv obj/pf54gysuad2dg	Memory (GB)	2480 available, 2780 total
System model	X11M	Local Storage (TB)	3317 available, 4486 total
API Access Control	Disabled	Exadata Storage (TB)	231.4 available, 243.3 total

Associated services

Maintenance

Maintenance Method Preference: Non-rolling

Summary



Create an Exadata Infrastructure

Oracle Database@AWS

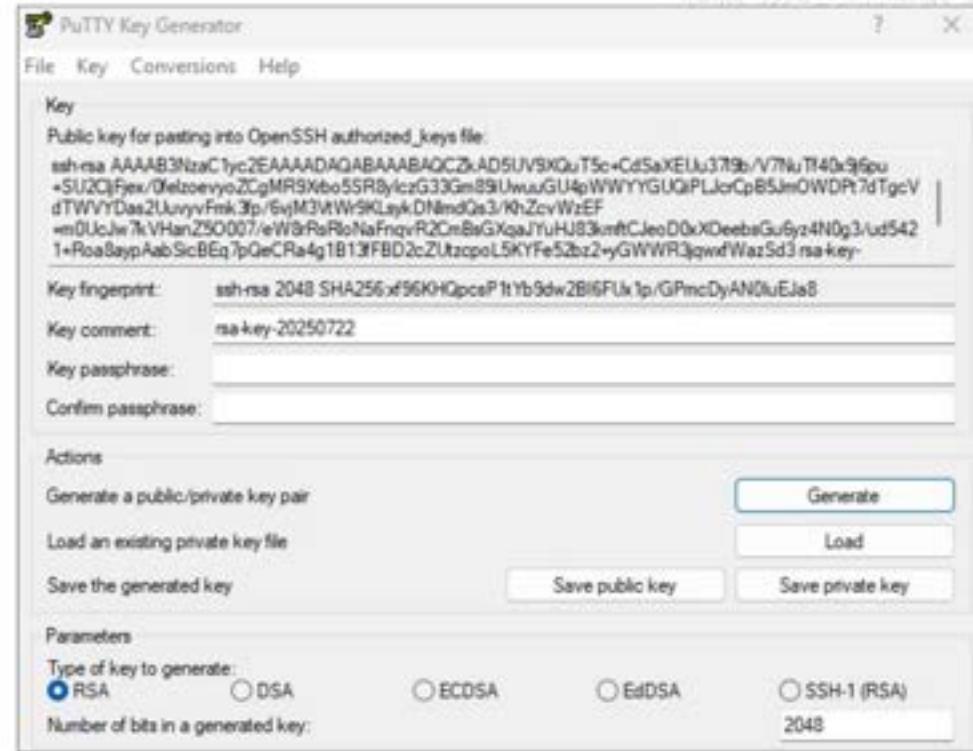
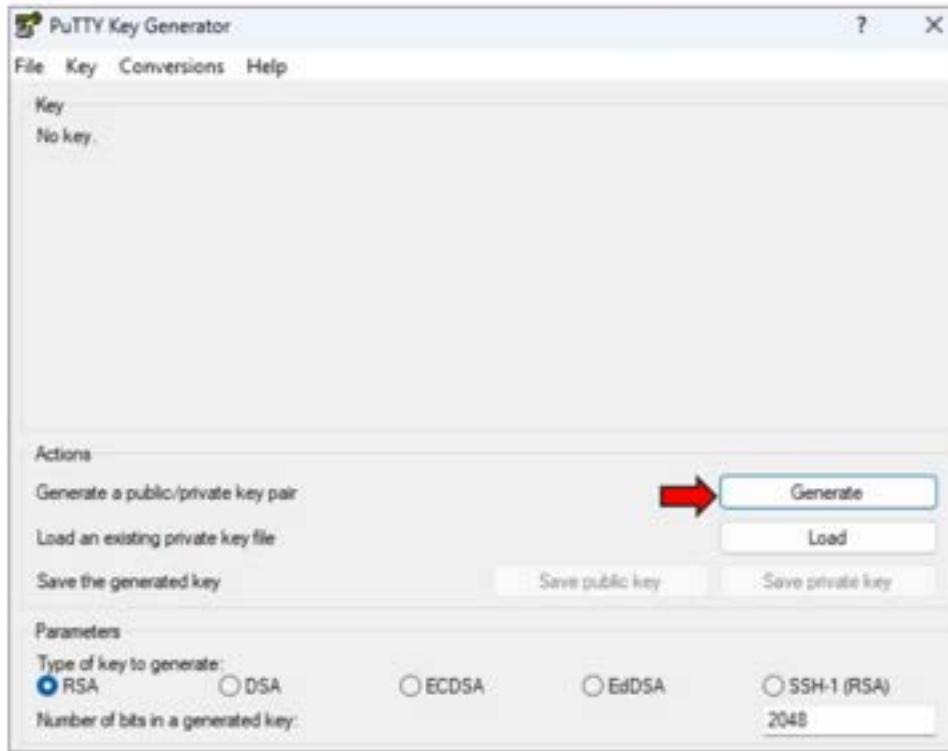
Create Oracle VM Clusters for Oracle Database@AWS

Objectives

A stylized illustration of a person in an orange shirt and brown pants climbing a green mountain. A white grid pattern runs down the side of the mountain. Above the mountain, there are several white clouds. One cloud contains a colorful, abstract shape composed of various colors like purple, red, and yellow. A stream of white binary digits (0s and 1s) flows from the base of the mountain up towards the colorful cloud.

Create an Exadata VM Cluster and an Autonomous VM Cluster

SSH Keys for Oracle VM Clusters



Create VM Clusters for Oracle Database@AWS

The screenshot shows the Oracle Database@AWS Dashboard. On the left, there's a sidebar with links for Oracle support and documentation. The main area has a heading 'Dashboard' and a 'Get started' section. It includes two steps:

- Step 1:** Create the ODB network. It describes what an ODB network is and how it connects to Exadata VM clusters. It includes a 'Create ODB network' button.
- Step 2:** Create the Exadata infrastructure. It describes what an Exadata infrastructure is and how it connects to Exadata VM clusters. It includes a 'Create Exadata infrastructure' button.

On the right, there's a 'Create' button. At the bottom, there are icons for Infrastructure and Database administrators.

Infrastructure administrator Database administrator

Create Exadata VM Cluster for Oracle Database@AWS

The screenshot shows the 'Configure general settings' step of the 'Create Exadata VM cluster' wizard. The left sidebar lists navigation options like Dashboard, ODB networks, Exadata infrastructures, and Exadata VM clusters (which is selected). The main panel has a sidebar with steps: Step 1 (Configure general settings, which is active), Step 2 (Configure infrastructure settings), Step 3 (Configure connectivity), Step 4 (optional: Configure diagnostics and tags), and Step 5 (Review and create). The main content area is titled 'Configure general settings' and contains a description: 'A VM cluster is a set of tightly coupled virtual machines. You can install Oracle Exadata databases on a VM cluster.' It includes a 'Settings' section with fields for 'VM cluster name' (containing 'ou-exadata-vmcluster'), 'Grid Infrastructure cluster name - optional' (containing 'ouexadagrid'), 'Time zone' (set to 'US/Pacific'), and 'License options' (set to 'License Included'). Red arrows point from the text 'Configure general settings' in the sidebar to the 'VM cluster name' and 'Time zone' fields in the main content area.

Create Exadata VM Cluster for Oracle Database@AWS

The screenshot shows the 'Configure infrastructure settings' step of the 'Create Exadata VM cluster' wizard. The left sidebar lists navigation options: Dashboard, ODB networks, Exadata Infrastructure, Exadata VM clusters (selected), Autonomous VM clusters, ODB peering connections (New), Oracle support, and Oracle documentation.

The main panel has a breadcrumb trail: Oracle Database@AWS > Exadata VM clusters > Create Exadata VM cluster. A vertical step navigation on the left indicates Step 1: Configure general settings, Step 2: Configure infrastructure settings (highlighted with a red arrow), Step 3: Configure connectivity, Step 4 - optional: Configure diagnostics and tags, and Step 5: Review and create.

Infrastructure

- Exadata infrastructure name:** ouexadatainfra
- Grid infrastructure version:** 23.0.0.0
- Exadata image version:** 25.1.6.0.0.250623

Database servers (2/2)

You must select a minimum of one database server.

Q Find resources	DB server name	Status	Available ECUs	Available memory (GB)	Available local storage (GB)	Hosted VMs	Hosted Autonomous VMs
<input checked="" type="checkbox"/>	dbServer-1	Available	760	1390	2243	0	0
<input checked="" type="checkbox"/>	dbServer-2	Available	760	1390	2243	0	0

Create Exadata VM Cluster for Oracle Database@AWS

Configuration

Per VM

ECPU core count
0 ECpus

Memory
30 GB

Local storage
60 GB

Per cluster

Exadata storage
2 TB

Storage allocation

You can't change the storage allocation after you create the VM cluster.

Enable storage allocation for local backups

Enable storage allocation for Exadata sparse snapshots

Usable storage allocation: Data: 80%, Reco: 20%, Sparse: 0%

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

Create Exadata VM Cluster for Oracle Database@AWS

The screenshot shows the 'Configure connectivity' step of the 'Create Exadata VM cluster' wizard. On the left, a sidebar lists navigation options like Dashboard, OOB networks, Exadata infrastructures, and Exadata VM clusters (which is selected). The main area shows five steps: Step 1 (Configure general settings), Step 2 (Configure infrastructure settings), Step 3 (Configure connectivity - highlighted with a blue circle), Step 4 (optional: Configure diagnostics and tags), and Step 5 (Review and create). The 'Configure connectivity' section contains fields for 'OOB network' (set to 'ou-odbs-network'), 'Host name prefix' (set to 'odbdbs'), 'Host domain name' (set to 'client.oudbaws.oraclecloud.com'), 'Host and domain name URL' (set to 'ouodbdbs.client.oudbaws.oraclecloud.com'), and 'SCAN listener port (TCP/IP) - optional' (set to '1521'). Red arrows point from the sidebar to each of these five fields.

Create Exadata VM Cluster for Oracle Database@AWS



SSH key pairs Info

Specify the public key for each SSH key pairs that you want to use to access your VM cluster. [Learn more](#)

SSH key pairs Info

ssh-rsa DDDDB3NzaC1yc2DB88BORGABAAQADG0KIVQ/uy55wTuf+3N5sBpj0Zm//JS9LxDjDgk6YzAqjUQo



Enter the SSH key pair name then press enter.

ssh-rsa

AAAAB3NzaC1yc2EAAAQABAAQACZkAD5UV9XQuT5c+CdSaXEUu37l9b/V7NuTf40x9j6pu+SU2CljFjex/OfelzoevyoZCgMR9Xrbo55R8ylczG33Gm89iUwuuGU4pWWYYGUQiPLJcrCp85J
mOWDPt7dTgtVdTWVYDas2UuvyvFmk3fp/6vjM3VtWr9KlsykDNlmdQs3/KhZcvWzEF+m0Ucjw7kVHanZ5O007/eW8rRsRloNaFnqvR2CmBsGXqaJYuHJ83kmftCJeoD0xOoebsGu6yz4N0g3/
ud5421+Roa8aypAabSicBEq7pQeCRa4g1B13ffBD2c2UtzcpoLSKYFe52bz2+yGWWR3jqwxflWazSd3 rsa-key-20250722



Cancel

Skip to Review and create

Previous

Next

Create Exadata VM Cluster for Oracle Database@AWS

The screenshot shows the Oracle Database@AWS console interface for creating an Exadata VM cluster. The left sidebar navigation includes: Dashboard, ODB networks, Exadata infrastructures, **Exadata VM clusters** (selected), Autonomous VM clusters, and ODB peering connections. The main content area shows the 'Configure diagnostics and tags - optional' step. A red arrow points to the 'OCI diagnostic collection' section. This section contains three checkboxes: 'Diagnostic events' (checked), 'Health monitor' (checked), and 'Incident logs and trace collections' (checked). Below this is a 'Tags' section with an 'Add new tag' button and a note about adding up to 10 tags. Navigation buttons at the bottom right include 'Cancel', 'Previous', and 'Next'.

Create Exadata VM Cluster for Oracle Database@AWS

The screenshot shows the Oracle Database@AWS console interface for creating an Exadata VM cluster. The top navigation bar includes links for Oracle Database@AWS, Exadata VM clusters, and Create Exadata VM cluster. On the left, a sidebar lists various services: Dashboard, OOB networks, Exadata infrastructures, Exadata VM clusters (which is selected and highlighted in blue), Autonomous VM clusters, OOB peering connections (with a 'New' link), Oracle support, and Oracle documentation.

The main content area displays a progress bar with five steps: Step 1 (Configure general settings), Step 2 (Configure infrastructure settings), Step 3 (Configure connectivity), Step 4 (optional) (Configure diagnostics and tags), and Step 5 (Review and create). A red arrow points from the Step 5 label to the 'Review and create' section. The 'Review and create' section is titled 'Step 1: Get started' and contains a 'Settings' table with the following data:

VM cluster name	mu-exadata-vmcluster
Cluster name	muexdvgrd
Time zone	US/Pacific
License options	License Included

Below this, the 'Step 4: Diagnostics and tags' section is shown. It includes sections for 'Tags' (No tags have been added), 'OCI diagnostic collection' (Health monitor: Disabled; Diagnostic events: Disabled), and 'Incident logs and trace collections' (Disabled). A large red arrow points down to the 'Create VM Cluster' button at the bottom right of the page.

At the bottom of the page, there are 'Cancel', 'Previous', and 'Create VM Cluster' buttons. The 'Create VM Cluster' button is highlighted with a yellow background and a red arrow pointing to it.

Exadata VM cluster

The screenshot shows the OCI console interface for managing an Exadata VM cluster. At the top, there's a navigation bar with a logo and the text "OCI Home". Below it, a search bar contains the text "Exadata VM cluster". The main content area displays the details for the Exadata VM cluster named "ou-exadata-vmcluster".
Summary Tab: Shows the cluster name "ou-exadata-vmcluster" and the Exadata infrastructure name "ouexadatainfra".
OCI Resources Tab: Shows the Resource anchor name "default-oci-resource-anchor".
Virtual machines (2): A table listing two virtual machines:

Virtual machine name	Status	DB Server	Available ECUs	Available memory (GB)	Available local storage (GB)	DNS name
ouodbaaws-7mmxq2	Available	dbServer-2	8	30	60	ouodbaaws-7mmxq2.client.ouodbaaws.oraclevcn.com
ouodbaaws-7mmxq1	Available	dbServer-1	8	30	60	ouodbaaws-7mmxq1.client.ouodbaaws.oraclevcn.com

Exadata VM cluster

Oracle Database@AWS > Exadata VM clusters > ouodbaaws-7mmxq1 > dbServer-1

Summary

DB Node ID	dbn_5hcvig23n6	Floating IP Address	10.10.0.243	Available OCpus	8
OCID	ocid1.dbnode.oc1.us-boardman-1.annwsjrvzipsya5hdmdz7eqzu3uqc7mfr2qzkiydhengneayrmwvbrkq	Private IP Address	10.10.0.28	Available Memory (GB)	30
Status	Available	DNS Name	ouodbaaws-7mmxq1.client.ouodbaaws.oraclecloud.com	Available Local Storage (GB)	60
DB Server	dbServer-1				

Buttons: Reset, Start, Stop

Oracle Database@AWS > Exadata infrastructures > exa_hmvlfgd2c > dbServer-1

Summary

DB Server ID	dbn_hmvlfgd2c	Status	Available	Available OCpus	752
OCID	ocid1.dsserver.oc1.us-boardman-1.annwsj4j76kaa7qjijyz3maak04m5nfotrp7evccymslubea5jua6tva	VM count	1	Available Memory (GB)	1360
		Autonomous VM count	0	Available Local Storage (GB)	1999

Create Autonomous VM Cluster for Oracle Database@AWS



Autonomous VM Cluster for Oracle Database@AWS Details

The screenshot shows the Oracle Database@AWS console interface. On the left, a sidebar menu includes options like Dashboard, ODB networks, Exadata infrastructures, Exadata VM clusters, Autonomous VM clusters (which is highlighted with a red arrow), and ODB peerings connections. The main content area is titled "ou-autonomous-vmcluster". It has two tabs: "Summary" (selected) and "OCI resources". Under "Summary", there are sections for Status (Available), Cluster name (ou-autonomous-vmcluster), and Description (This cluster is for Oracle Autonomous databases for Database@AWS). To the right, detailed information is provided: Autonomous VM cluster ID (avmc_7jfdfrtyp), Autonomous VM cluster ARN (arn:aws:cdbs:us-west-2:054037143469:cloud-autonomous-vm-cluster/avmc_7jfdfrtyp), and Exadata infrastructure name (ouexadatainfra). At the top right, there are "Manage in OCI" and "Delete" buttons.

This screenshot shows the "OCI resources" tab for the same Autonomous VM Cluster. It displays four columns of resource details:

VM cluster name	OCID	Exadata infrastructure name	Resource anchor name
ou-autonomous-vmcluster	ocid1.cloudautonomousvmcluster.oc1.us-boardman-1.anresljrvtzprsyak5og45egfxhrqjdy375fttqueneup5mo235cz7zko	ouexadatainfra	default-oci-resource-anchor

At the top right of this section are "Manage in OCI" and "Delete" buttons. A red arrow points to the "OCI resources" tab itself.

Autonomous VM Cluster



Oracle Database

Autonomous Database on Dedicated Infrastructure

Autonomous Database

Autonomous Container Database

Autonomous Exadata VM Clusters

Exadata Infrastructure

Resources

Remote backups

Autonomous Database software

Images

Key Stores

Autonomous Exadata VM clusters

ou-autonomous-vmcluster Available

Actions Manage certificates

General information Maintenance Autonomous Container Databases Autonomous virtual machines Maintenance history Work requests Security Tags

General information

Compartment: odbsdem12 (root)/MulticloudLink_AWS_20250303002806/054037143469_default-oci-resource-anchor

Subscription: oci://organizationssubscription.oci/adamaxxxxxvzpsyavirn7npqxaflvp4q7re2avepgvra26ouc6gfkrlhsa

Availability domain: evieUS-BOARDMAN-1-AD-1

OCID: ...5og45ighohng@sdy3f9htquneup3mo225c72ko

Created: Thu, Jul 24, 2025, 22:15:15 UTC

Time zone: US/Pacific

License type: License Included

Infrastructure

Exadata Infrastructure: ouexadatainfra

Shape: ExadataX11M

Node count: 2

Network

Network: VCN-ou-adb-network

Subnet: client-subnet

Network security groups: adb_1521_2484_adjustable_mg, adb_static_mg

Database scan name: host-nmjd-scan.client.oudbaws.oraclevcn.com

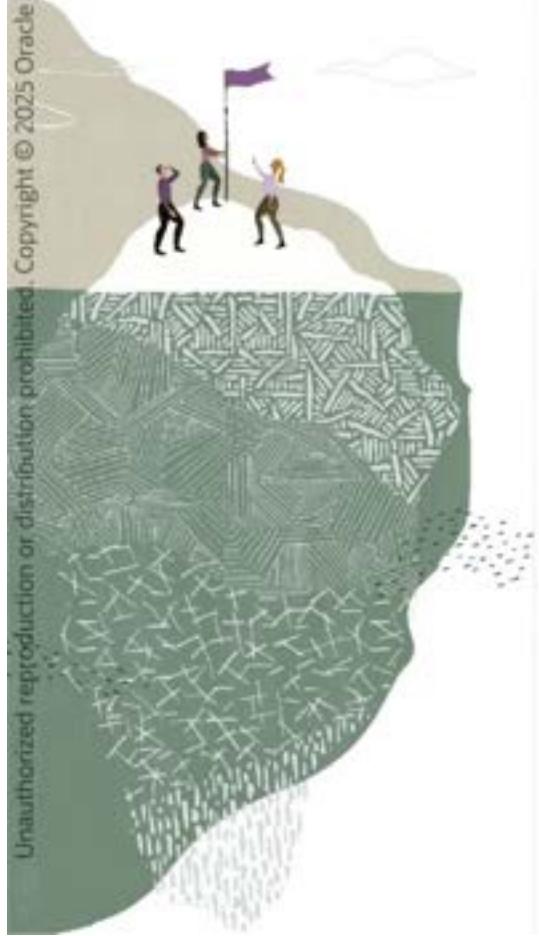
SCAN Listener Ports: 1521 (non-TLS), 2484 (TLS)

Resource allocation

Copy Copy Edit Copy

Red arrows highlight the navigation path from the left sidebar to the main page, and point to specific fields like Compartment, Subscription, and Network.

Summary



Create an Exadata VM Cluster and an Autonomous VM Cluster

Oracle Database@AWS

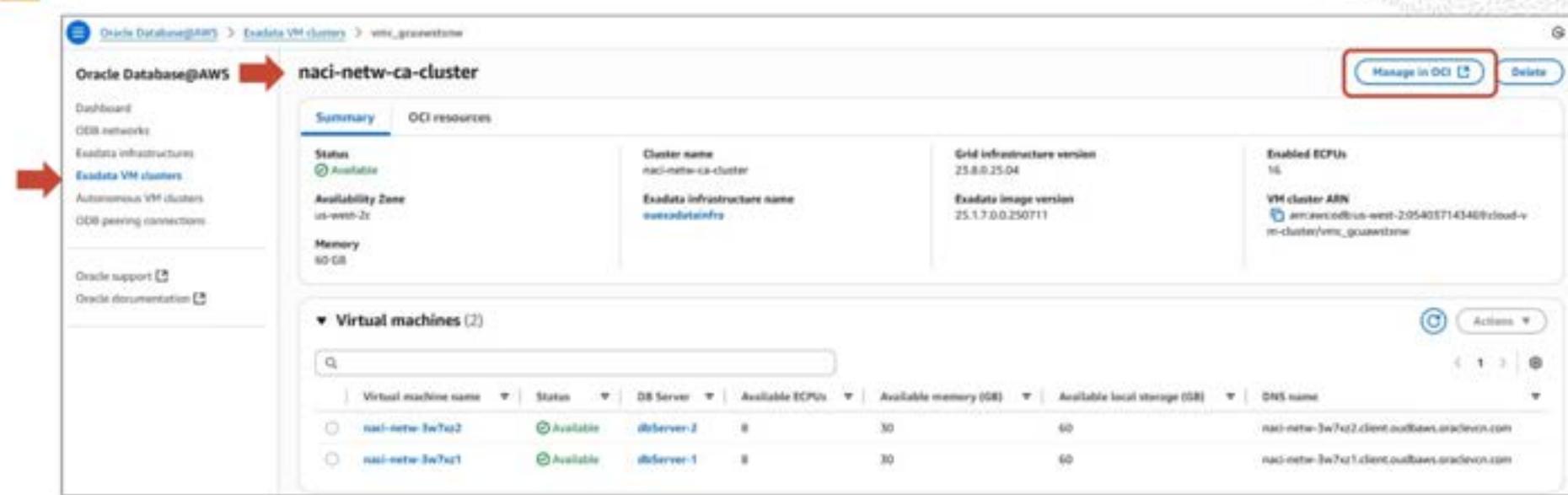
Provision Oracle Exadata Databases for Oracle Database@AWS

Objectives



Oracle Exadata Database

Create Exadata Database



The screenshot shows the Oracle Database@AWS console with the following navigation path: Oracle Database@AWS > Exadata VM clusters > naci_netw_gouawtne. The main view is for the cluster 'naci-netw-ca-cluster'. On the left, there's a sidebar with links like Dashboard, DB networks, Exadata infrastructures, Exadata VM clusters (which is selected and highlighted in blue), Autonomous VM clusters, and DB peering connections. Below that are Oracle support and Oracle documentation. The main content area has tabs for Summary (selected) and OCI resources. The Summary tab displays cluster details: Status (Available), Cluster name (naci-netw-ca-cluster), Grid Infrastructure version (23.8.0.25.04), Exadata Infrastructure name (exadatalnfr), Exadata image version (25.1.7.0.0.290711), Enabled ECUs (16), and VM cluster ARN (arn:aws:exadb:us-west-2:295403714346:cloud-vm-cluster/naci_netw_gouawtne). Below this is a table titled 'Virtual machines (2)' showing two entries: naci-netw-3w7x2 (status Available, DB Server dbServer-2, ECUs 8, memory 30, storage 60, DNS naci-netw-3w7x2.client.outtaaws.oracledevv1.com) and naci-netw-3w7x1 (status Available, DB Server dbServer-1, ECUs 8, memory 30, storage 60, DNS naci-netw-3w7x1.client.outtaaws.oracledevv1.com). There are also 'Actions' and a refresh button.

Create Exadata Database

The screenshot shows the Oracle Database VM Clusters page. The cluster name is **naci-netw-ca-cluster**. The navigation bar includes links for Oracle Database, Oracle Exadata Database Service on Dedicated Infrastructure, Exadata VM Clusters, and Exadata Infrastructure. The main tabs are VM Cluster Information, Databases, Database homes, Virtual IP address, and **Virtual Machines**, which is the active tab. Other tabs include Updates (OS), Updates (GI), Update History, Work requests, Security, and Monitoring.

Multicloud information:

- Compartment: `ocbdemo12` (`/root/MulticloudLink_AWS_20250303030306/5540371-43468-default-oci-resource-anchor`)
- Availability domain: `avcsUS-BEARDMAN-1-AD-1`
- OCID: `...-nyc5hj2lau2vzz2w3k3kp4phjut2rtwzfhdgq3ues` [Copy](#)
- Created: Mon, Aug 4, 2025, 10:00:31 UTC
- Cluster name: `cl-togglives`
- Time zone: UTC
- License type: License Included
- HDRM status: Disabled
- Diagnostics collection: Enabled [Edit](#)
- API Access Control: Disabled [Create](#)

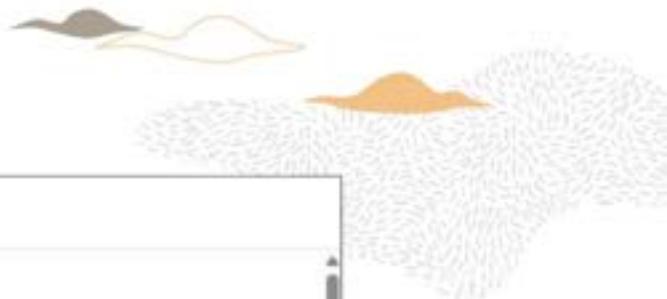
Network:

- Virtual cloud network: `VCN-00-ocid-network`
- Client subnet: `client-subnet`
- Backup subnet: `backup-subnet`
- Hostname domain name: `client.cloudbees.oraclevcn.com` [Copy](#)
- SCAN DNS name: `naci-netw-3whz-scan.client.cloudbees.oraclevcn.com` [Copy](#)
- SCAN IP address (IPv4):
 - 10.10.0.1\$
 - 10.10.0.11
 - 10.10.0.250
- Client network security groups:
 - `exa_1521_adjustable_mng`
 - `exa_v1604_mng`
- Backup network security groups:
 - `exa_backup_adjustable_mng`
 - `exa_backup_static_mng`
- SCAN listener port: 1521
- Private view: `VCN-00-ocid-network`

Create Exadata Database

The screenshot shows the OCI console interface for managing Oracle Exadata databases. On the left, a sidebar menu includes 'Oracle Database' (selected), 'Exadata VM Clusters' (selected), and 'Exadata Infrastructure'. The main content area displays a cluster named 'naci-netw-ca-cluster' with a status of 'Available'. A navigation bar at the top of the content area includes '← Exadata VM Clusters', 'Actions', and 'Scale VM cluster'. Below the navigation bar is a horizontal menu with tabs: 'VM Cluster information', 'Databases' (which is underlined, indicating it is selected), 'Database homes', 'Virtual IP address', 'Virtual Machines', 'Updates (OS)', 'Updates (GI)', 'Update History', 'Work requests', 'Security', and 'Monitoring'. A search bar with the placeholder 'Search and Filter' and a 'Search' button are located below the tabs. At the bottom left of the content area, there is a red-bordered button labeled 'Create database'.

Create Exadata Database



Create database

Create database. [Learn more](#)

Database name: OUExAWS Required

Unique Database: OUExODB AWS

Database version: 23a

PDB name: OUExODB AWS PDB

Database Home

Database Home source:
This DB system has no Database Homes for your selected database version. A new Database Home will be created.

Select an existing Database Home
 Create a new Database Home

Database Home display name: dbhome-ouexadb-aws Required

Unified Auditing:

Database image Click Change Database Image to select your software version Change database image





Create Exadata Database

Create database

Create administrator credentials

Username: sys

>Password: Required

Confirm password: Required

Use the administrator password for the TDE wallet:

If you are going to use customer-managed keys stored in a vault, the TDE wallet is not applicable.

Database backups

Enable automatic backups:

Automatic backup is the preferred method for backing up Oracle Cloud databases. [Learn more](#)

Backup destination: Amazon S3

Warning: Autonomous Recovery Service has no available capacity in this region. Select Object Storage as your backup destination. You can transition from Object Storage to Autonomous Recovery Service when there is sufficient capacity.

Backup retention period: 30 days



Create Exadata Database

Deletion options after database termination
Terminating a database will remove the database and retain backups per the choice below. [Learn more](#)

Retain backups per backup retention period
 Retain backups for 72 hours, then delete

Scheduled day for full backup
Choose a day of the week for the initial and future LO backups to start.

Sunday
 Monday
 Tuesday
 Wednesday
 Thursday
 Friday
 Saturday

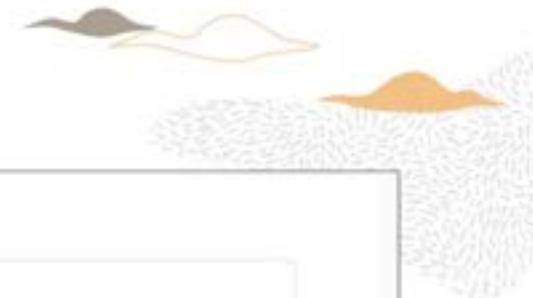
Scheduled time for full backup (UTC)
Anytime

Schedule the time window when the full backups start when the automatic backup capability is selected.

Scheduled time for incremental backup (UTC)
Anytime

Take the first backup immediately

The first database backup is a full incremental level 0 backup, which backs up all blocks in the database and is the foundation for the weekly incremental backup strategy.



Create Exadata Database

Advanced options

Management

Oracle SID prefix:
QUEXA006AWE

Enter up to 12 characters. The Oracle Database instance number is automatically added to the SID prefix to create the INSTANCE_NAME database parameter. The SID is unique across the cloud VM cluster. If not specified, the system automatically generates this value. [Learn more](#)

Character set:
AL32UTF8

National character set:
AL16UTF16

Required

Encryption

Key management

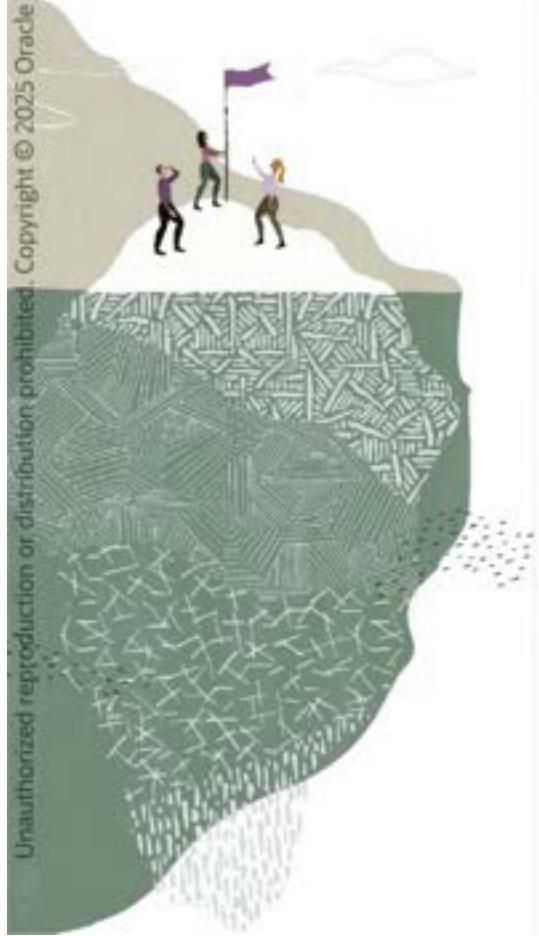
Use Oracle-managed keys (Recommended)

Use customer-managed keys (Advanced)

Tags

Cancel Create

Summary



Oracle Exadata Database

Provision Oracle Autonomous Container Database for Oracle Database@AWS

Objectives



Create Autonomous Container Database

Create Autonomous Container Database

The screenshot shows the Oracle Database@AWS console interface. A red arrow points to the AWS logo in the top left. Another red arrow points to the cluster name 'ou-autonomous-vmcluster'. A third red arrow points to the 'Autonomous VM clusters' link in the sidebar. A fourth red box highlights the 'Manage in OCI' button in the top right corner of the main content area.

Oracle Database@AWS > Autonomous VM clusters > avmc_7jtd6r1ypx

ou-autonomous-vmcluster

Summary OCI resources

Status: Available

Cluster name: ou-autonomous-vmcluster

Description: This cluster is for Oracle Autonomous databases for Database@AWS

Autonomous VM cluster Id: avmc_7jtd6r1ypx

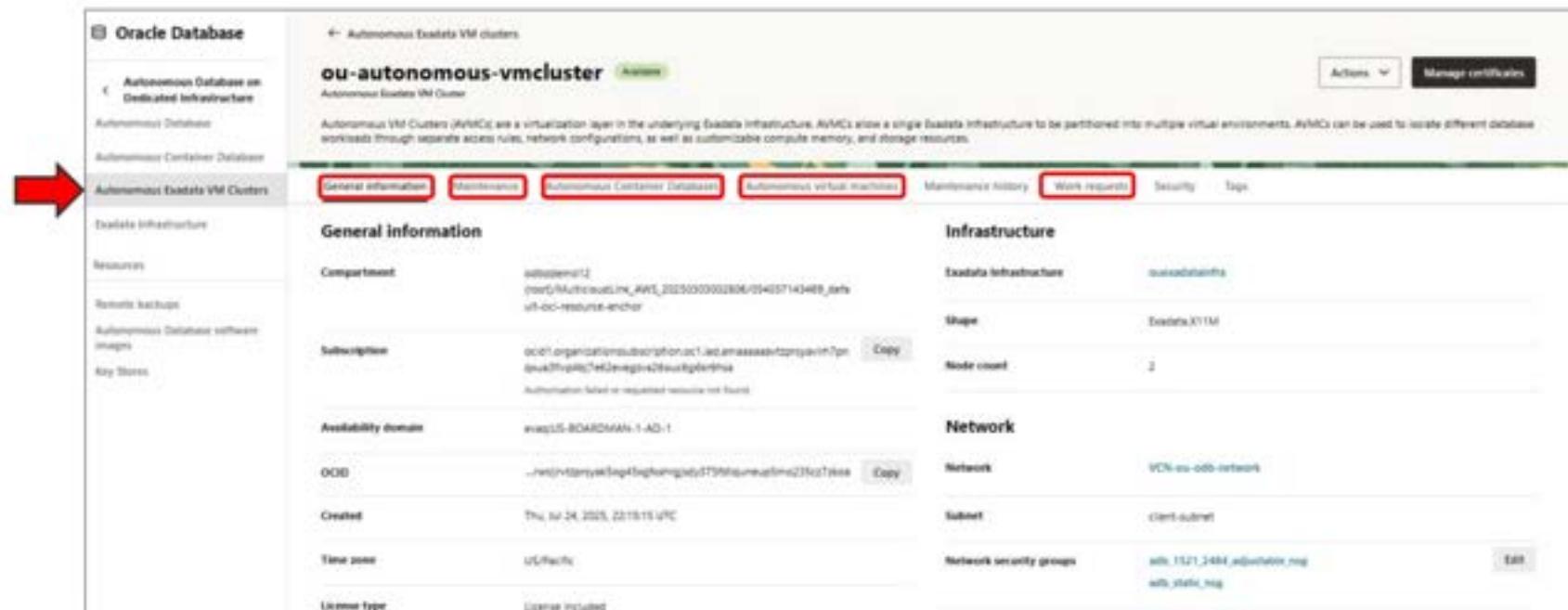
Autonomous VM cluster ARN: arn:aws:codb:us-west-2:054037143469:cloud-autonomous-vm-cluster/avmc_7jtd6r1ypx

Exadata infrastructure name: ouexadatainfra

Autonomous virtual machines (2)

Autonomous virtual machine name	Status	ECPUs	Memory (GB)	Local storage (GB)	Client IP address	DB servers
host-nmjd1	Available	40	120	340	10.10.0.23	dbServer-1
host-nmjd2	Available	40	120	340	10.10.0.74	dbServer-2

Create Autonomous Container Database



The screenshot shows the Oracle Database console interface. On the left, there's a sidebar with several categories: Oracle Database, Autonomous Database on Dedicated Infrastructure, Autonomous Database, Autonomous Container Database, Autonomous Exadata VM Clusters (which is highlighted with a red arrow), Exadata Infrastructure, Resources, Remote backups, Autonomous Database software Images, and Key Stores.

The main content area is titled "ou-autonomous-vmcluster" and includes a brief description of Autonomous VM Clusters. Below this are several tabs: General information, Maintenance, Autonomous Container Database (which is highlighted with a red box), Autonomous Virtual Machines, Maintenance History, Work requests, Security, and Tags. The "General information" tab is active.

In the "General information" section, there are two main tables:

- General Information** table:

Compartment	autonomous-vmcluster (root/MulticloudInc_AWS_20250303032806/094057143489_0rbs/vf-loc-resource-anchor)	Exadata Infrastructure	ou-exadatainfra
Subscription	oci01.organiclmsubscription.oc1.usamassachusetts01royal7pmjwuk3fvp8lc742devreg42tawchqplnphz Automation failed or required resource not found	Shape	Exadata X11M
Availability domain	avaz1S-BORDMAN-1-AD-1	Node count	2
ODD	...vns/rv2mryse5iog4beghmgqdy379htsueueulm23hz27mee	Network	VCN-ou-odd-network
Created	Thu Jul 24, 2025, 22:19:15 UTC	Subnet	client-outnet
Time zone	US/Pacific	Network security groups	adts-1521-2484_adtvalable_nsg adts-static_nsg
License type	License included		Edit
- Infrastructure** table:

Exadata Infrastructure	ou-exadatainfra
Shape	Exadata X11M
Node count	2

Create Autonomous Container Database

The screenshot shows the OCI console interface for managing Autonomous Exadata VM Clusters. At the top, the cluster name 'ou-autonomous-vmcluster' is displayed with a status of 'Available'. Below the title, a brief description of Autonomous VM Clusters (AVMCs) is provided. The main navigation bar includes tabs for General information, Maintenance, Autonomous Container Databases (which is highlighted with a red box), Autonomous virtual machines, Maintenance history, Work requests, Security, and Tags. A search bar and applied filters are also visible. At the bottom left, a prominent red box surrounds the 'Create Autonomous Container Database' button.

Create Autonomous Container Database

Create Autonomous Container Database

You create an Autonomous Container Database from the Autonomous Container Databases page. [Learn more](#)

Display name
ou_adbcontainer_odbaws Required

Compartment
054037143469_default-oci-resource-anchor Required

Autonomous Container Database name
QUADBCNT Required

Create Autonomous Container Database

Basic information for the Autonomous Container Database

Select version from base images
Create a new database with selected Oracle Database version

Custom database software image
These images are created by your organization and contain customized configurations of software updates and patches

Select base image
23.8.0.25.04

Required

Automatic maintenance configuration

You either choose a schedule for quarterly automatic maintenance of the Autonomous Container Database (ACD), or the update will be automatically scheduled for your ACD. Oracle notifies you, in advance of the date and time, of upcoming scheduled maintenance. You can change the schedule at any point before the beginning of the scheduled maintenance. Scheduled maintenance for subsequent quarters does not affect the schedule for the current quarter.

Maintenance method
Rolling

Autonomous Container Database maintenance version
Next release update (RU)

Maintenance schedule
No scheduling preference specified.
[Modify maintenance schedule](#)



Create Autonomous Container Database

Backups configuration

Automatic backups can be enabled at database creation or anytime thereafter. Once enabled, automatic backups cannot be disabled.

Enable automatic backups



Backup destination
Amazon S3

Required

Backup retention period (in days)

7

Required

⚠ Warning

If automatic backups are not enabled at database creation, they can be enabled later. After automatic backups have been enabled, they cannot be disabled. [Learn more about backup retention](#).

Enable cross-region backup copy



Contacts for operational notifications and announcements

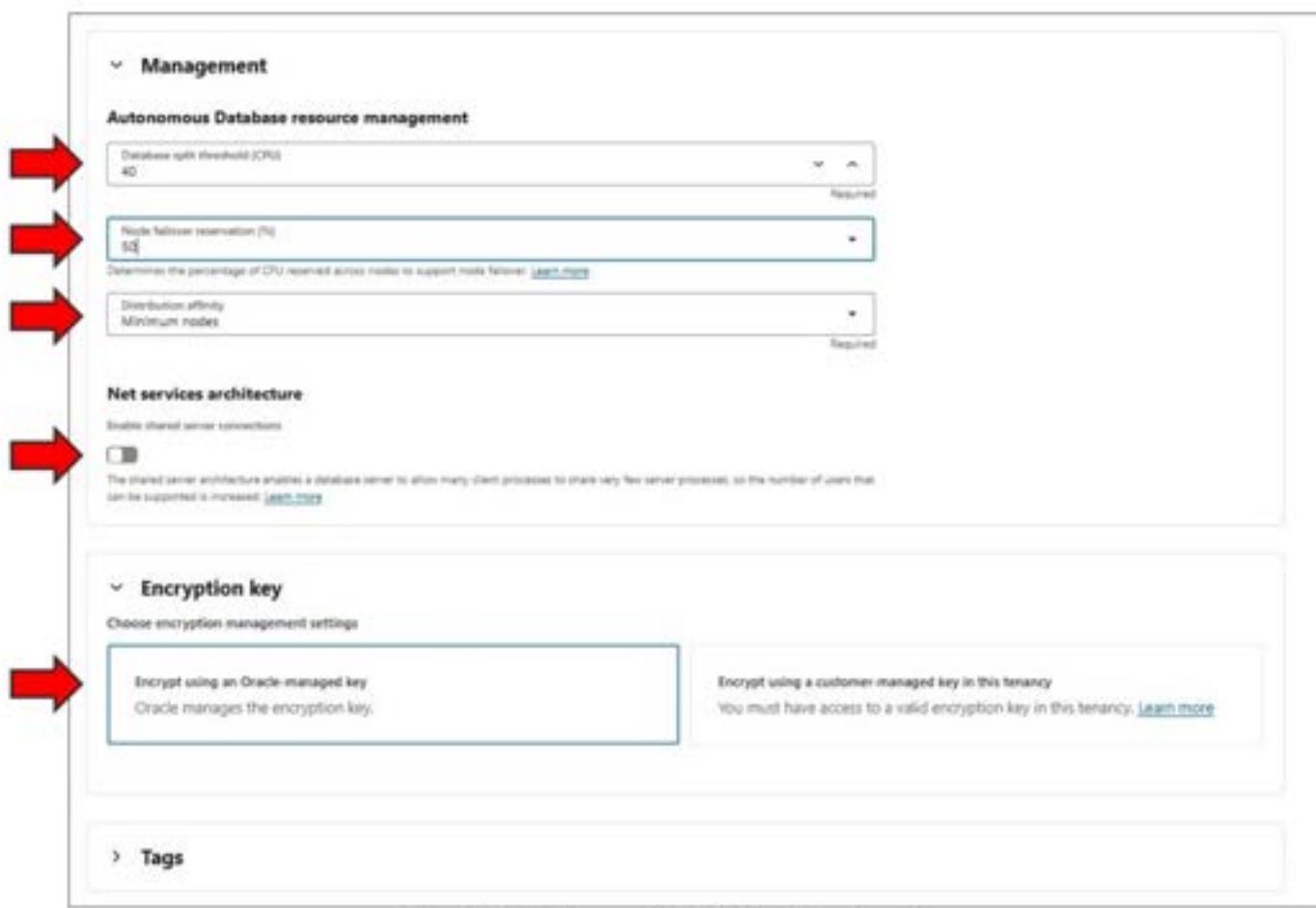
You can provide up to 10 unique maintenance contact email addresses.

Contact email



Add customer contact

Create Autonomous Container Database



Autonomous Container Database

4 - Autonomous Container Databases

ou_adbcontainer_odbaws Active

Autonomous Container Database (ACD) contains one or more Autonomous Databases on a Dedicated Infrastrucutre. ACDs are provisioned inside an Autonomous Exadata VM Cluster (AVMC) and serve as containers that set the Software image and availability SLA for one or more Autonomous Databases.

Actions Restart

Autonomous Container Database Information		Maintenance	Autonomous Databases	Autonomous Data Guard associations	Backups	Key history	Maintenance history																																																				
General information <table border="1"> <tr> <td>Compartment</td> <td>ociqbodemo12</td> <td>Automatic backups</td> <td>Enabled</td> </tr> <tr> <td>OCID</td> <td>...EcupvnhfVgq4Nx7nysuapad023nus</td> <td>Last backup</td> <td>Wed, Aug 6, 2025, 08:48:45 UTC</td> </tr> <tr> <td>Created</td> <td>Fri, Jul 25, 2025, 18:11:40 UTC</td> <td>Backup destination</td> <td>Amazon S3</td> </tr> <tr> <td>Database version</td> <td>23.8.0.25.04</td> <td>Backup retention period</td> <td>7 Days</td> </tr> <tr> <td>Net services architecture</td> <td>Dedicated</td> <td colspan="2"> Autonomous Data Guard <table border="1"> <tr> <td>Status</td> <td>Not enabled</td> <td>Enable</td> </tr> </table> </td> </tr> <tr> <td>Autonomous Container Database name</td> <td>OUADBCNT</td> <td colspan="2"> Infrastructure <table border="1"> <tr> <td>Autonomous Exadata VM Cluster</td> <td>ou-autonomous-vmcluster</td> </tr> <tr> <td>Exadata Infrastructure</td> <td>ouautostoreinfra</td> </tr> </table> </td> </tr> <tr> <td>Time zone file version</td> <td>44</td> <td colspan="2"> Maintenance <table border="1"> <tr> <td>Maintenance details</td> <td>Once every quarter</td> </tr> </table> </td> </tr> <tr> <td>Compute model</td> <td>8CPU</td> <td colspan="2"> Autonomous Data Guard <table border="1"> <tr> <td>Status</td> <td>Not enabled</td> <td>Enable</td> </tr> </table> </td> </tr> <tr> <td>Provisioned CPUs</td> <td>2</td> <td colspan="2"> Infrastructure <table border="1"> <tr> <td>Autonomous Exadata VM Cluster</td> <td>ou-autonomous-vmcluster</td> </tr> <tr> <td>Exadata Infrastructure</td> <td>ouautostoreinfra</td> </tr> </table> </td> </tr> <tr> <td colspan="2"> <small>Total CPUs allocated to all Autonomous Databases in this Autonomous Container Database</small> </td> <td colspan="2"> Maintenance <table border="1"> <tr> <td>Maintenance details</td> <td>Once every quarter</td> </tr> </table> </td> </tr> </table>		Compartment	ociqbodemo12	Automatic backups	Enabled	OCID	...EcupvnhfVgq4Nx7nysuapad023nus	Last backup	Wed, Aug 6, 2025, 08:48:45 UTC	Created	Fri, Jul 25, 2025, 18:11:40 UTC	Backup destination	Amazon S3	Database version	23.8.0.25.04	Backup retention period	7 Days	Net services architecture	Dedicated	Autonomous Data Guard <table border="1"> <tr> <td>Status</td> <td>Not enabled</td> <td>Enable</td> </tr> </table>		Status	Not enabled	Enable	Autonomous Container Database name	OUADBCNT	Infrastructure <table border="1"> <tr> <td>Autonomous Exadata VM Cluster</td> <td>ou-autonomous-vmcluster</td> </tr> <tr> <td>Exadata Infrastructure</td> <td>ouautostoreinfra</td> </tr> </table>		Autonomous Exadata VM Cluster	ou-autonomous-vmcluster	Exadata Infrastructure	ouautostoreinfra	Time zone file version	44	Maintenance <table border="1"> <tr> <td>Maintenance details</td> <td>Once every quarter</td> </tr> </table>		Maintenance details	Once every quarter	Compute model	8CPU	Autonomous Data Guard <table border="1"> <tr> <td>Status</td> <td>Not enabled</td> <td>Enable</td> </tr> </table>		Status	Not enabled	Enable	Provisioned CPUs	2	Infrastructure <table border="1"> <tr> <td>Autonomous Exadata VM Cluster</td> <td>ou-autonomous-vmcluster</td> </tr> <tr> <td>Exadata Infrastructure</td> <td>ouautostoreinfra</td> </tr> </table>		Autonomous Exadata VM Cluster	ou-autonomous-vmcluster	Exadata Infrastructure	ouautostoreinfra	<small>Total CPUs allocated to all Autonomous Databases in this Autonomous Container Database</small>		Maintenance <table border="1"> <tr> <td>Maintenance details</td> <td>Once every quarter</td> </tr> </table>		Maintenance details	Once every quarter
Compartment	ociqbodemo12	Automatic backups	Enabled																																																								
OCID	...EcupvnhfVgq4Nx7nysuapad023nus	Last backup	Wed, Aug 6, 2025, 08:48:45 UTC																																																								
Created	Fri, Jul 25, 2025, 18:11:40 UTC	Backup destination	Amazon S3																																																								
Database version	23.8.0.25.04	Backup retention period	7 Days																																																								
Net services architecture	Dedicated	Autonomous Data Guard <table border="1"> <tr> <td>Status</td> <td>Not enabled</td> <td>Enable</td> </tr> </table>		Status	Not enabled	Enable																																																					
Status	Not enabled	Enable																																																									
Autonomous Container Database name	OUADBCNT	Infrastructure <table border="1"> <tr> <td>Autonomous Exadata VM Cluster</td> <td>ou-autonomous-vmcluster</td> </tr> <tr> <td>Exadata Infrastructure</td> <td>ouautostoreinfra</td> </tr> </table>		Autonomous Exadata VM Cluster	ou-autonomous-vmcluster	Exadata Infrastructure	ouautostoreinfra																																																				
Autonomous Exadata VM Cluster	ou-autonomous-vmcluster																																																										
Exadata Infrastructure	ouautostoreinfra																																																										
Time zone file version	44	Maintenance <table border="1"> <tr> <td>Maintenance details</td> <td>Once every quarter</td> </tr> </table>		Maintenance details	Once every quarter																																																						
Maintenance details	Once every quarter																																																										
Compute model	8CPU	Autonomous Data Guard <table border="1"> <tr> <td>Status</td> <td>Not enabled</td> <td>Enable</td> </tr> </table>		Status	Not enabled	Enable																																																					
Status	Not enabled	Enable																																																									
Provisioned CPUs	2	Infrastructure <table border="1"> <tr> <td>Autonomous Exadata VM Cluster</td> <td>ou-autonomous-vmcluster</td> </tr> <tr> <td>Exadata Infrastructure</td> <td>ouautostoreinfra</td> </tr> </table>		Autonomous Exadata VM Cluster	ou-autonomous-vmcluster	Exadata Infrastructure	ouautostoreinfra																																																				
Autonomous Exadata VM Cluster	ou-autonomous-vmcluster																																																										
Exadata Infrastructure	ouautostoreinfra																																																										
<small>Total CPUs allocated to all Autonomous Databases in this Autonomous Container Database</small>		Maintenance <table border="1"> <tr> <td>Maintenance details</td> <td>Once every quarter</td> </tr> </table>		Maintenance details	Once every quarter																																																						
Maintenance details	Once every quarter																																																										

Summary



Create Autonomous Container Database

Oracle Database@AWS

Provision Oracle Autonomous Databases for Oracle Database@AWS

Objectives



Autonomous Database



Create Autonomous Database

The screenshot shows the Oracle Database@AWS console interface. A red arrow points to the AWS logo in the top left. Another red arrow points to the cluster name 'ou-autonomous-vmcluster' in the top center. A third red arrow points to the 'Manage in OCI' button in the top right. The left sidebar lists navigation options: Dashboard, ODB networks, Exadata infrastructures, Exadata VM clusters, Autonomous VM clusters (which is selected), and ODB peering connections. The main content area displays the 'Summary' tab for the selected cluster. It shows the status as 'Available', the cluster name as 'ou-autonomous-vmcluster', and a detailed description: 'This cluster is for Oracle Autonomous databases for Database@AWS'. It also shows the Autonomous VM cluster ID as 'avmc_7jtd6r1ypx', the Autonomous VM cluster ARN as 'arn:aws:odbcus-west-2:054037143469:cloud-autonomous-vm-cluster/avmc_7jtd6r1ypx', and the Exadata infrastructure name as 'euxadatainfra'. Below this, a section titled 'Autonomous virtual machines (2)' lists two entries: 'host-nrnjd1' and 'host-nrnjd2', both of which are 'Available'. Each entry includes columns for Autonomous virtual machine name, Status, ECUs, Memory (GB), Local storage (GB), Client IP address, and DB servers.

Autonomous virtual machine name	Status	ECUs	Memory (GB)	Local storage (GB)	Client IP address	DB servers
host-nrnjd1	Available	40	120	340	10.10.0.23	dbServer-1
host-nrnjd2	Available	40	120	340	10.10.0.74	dbServer-2

Create Autonomous Database

The screenshot shows two pages from the Oracle Cloud Infrastructure (OCI) console related to creating an Autonomous Database.

Top Page: The title is "cu-autonomous-vmcluster". The left sidebar under "Oracle Database" has "Autonomous Database" selected. The main content area shows the "cu-autonomous-vmcluster" VM Cluster details, including its description: "Autonomous VM Clusters (AVMCs) are a virtualization layer in the underlying Exadata infrastructure. AVMCs allow a single Exadata infrastructure to be partitioned into multiple virtual environments. AVMCs can be used to isolate different database workloads through separate access rules, network configurations, as well as customize compute memory, and storage resources." Below the description are tabs: General information, Maintenance, Autonomous Container Database (which is highlighted with a red box), Autonomous Virtual Machines, Maintenance History, Work Requests, Security, and Tags. The "General information" tab is selected. A red arrow points to the "Autonomous Container Database" tab.

Bottom Page: The title is "Autonomous Databases". The left sidebar under "Oracle Database" has "Autonomous Database" selected. The main content area shows the "Autonomous Databases" page with a heading "Autonomous Database delivers fast performance and requires no database administration. It performs all routine database maintenance tasks without human intervention while the system is running." Below this is a search bar, a compartment filter, and a prominent "Create Autonomous Database" button (also highlighted with a red box). The table below lists columns: Display name, State, Compute, Storage, Workload type, Disaster recovery, and Created. A red arrow points to the "Autonomous Database" sidebar item.

Create Autonomous Database

Create Autonomous Database on Dedicated Exadata Infrastructure

Run Autonomous Database on Dedicated Exadata Infrastructure. [Learn more](#)

Display name: QUATPOOBAMS Required

Database name: QUATPOOBAMS Required

Compartment: 054037143469_default-oci-resource-anchor Required

Workload type:

Data Warehouse
Built for decision support and data warehouse workloads. Fast queries over large volumes of data.

Transaction Processing
Built for transactional workloads. High concurrency for short-running queries and transactions.

Autonomous Container Database

Autonomous Data Guard-enabled Autonomous Container Database: An Autonomous Data Guard-enabled container database does not support ADE for Developers Instances.

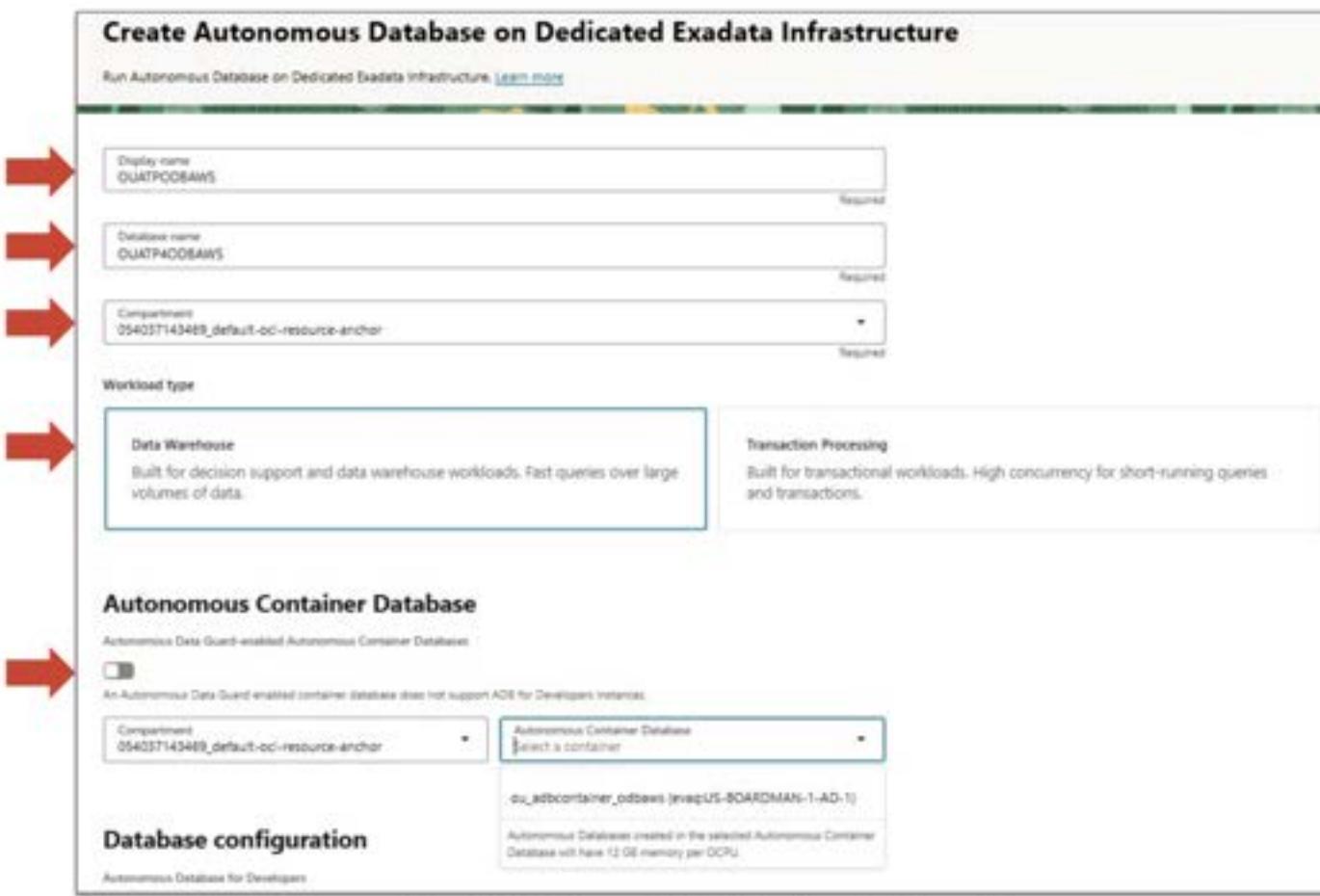
Compartment: 054037143469_default-oci-resource-anchor Autonomous Container Database: Select a container

Database configuration

Autonomous Database for Developers

eu_adbcontainer_dbavis (javaspLUS-BOARDMAN-1-AD-1)

Autonomous Database created in the selected Autonomous Container Database will have 12 GB memory per OCPU.



Create Autonomous Database



The diagram illustrates the process of creating an Autonomous Database. It shows two main screens connected by red arrows indicating the flow of information.

Database configuration (Left Screen):

- Autonomous Database for Developers:
 - Autonomous Database can only be present in a non Data Guard enabled SCN Container Database. [Learn more](#)
 - 1CPU cores: 2 (Required)
- Compute auto scaling:
 - Allow system to expand up to three times the specified CPU count as demand increases. [Learn more](#) about auto scaling
 - Storage (GB): 1024 (Required)
- Advanced options
 - Elastic pool:
 - Enable elastic pool
- Administrator credentials creation:
 - Set the password for your Autonomous Database ADMIN user here.
 - Username: ADMIN (highlighted with a red arrow)
 - Password: (Required)
 - Confirm password: (Required)

Contacts for operational notifications and announcements (Right Screen):

- Network access configuration: Database-level access control disabled. [Modify access control](#)
- Provide contact email where we can send you announcements, operational updates, and notifications about any unplanned maintenance.
 - Contact email: (Required)
 - Add customer contact: [Add customer contact](#)
- Advanced options
 - Encryption key:
 - Warning:** You chose Oracle to manage the encryption key for the Autonomous Container Database, which also applies to Autonomous Database.
 - Encryption key: Oracle-managed key
 - Management
 - Character set: AL32UTF8 (Required)
 - National character set: AL16UTF16 (Required)
 - Database In-Memory
 - Enable Database In-Memory:

Autonomous Database

The screenshot shows the Oracle Database configuration interface for an Autonomous Database named 'OUATPODBAWS'. The database is running on Dedicated Exadata Infrastructure. The page includes sections for General information, Infrastructure, Network, Backup, Encryption, and Autonomous Data Guard.

General information:

- Database name: OUATPODBAWS
- Workload type: Data Warehouse
- Compartment: ouatdemo-p12
- OCID: ...man-Lanres/nrlzqmyzenHn0eljgnvzsp02694E3nsctDzq3leTqgr3e
- Created: Fri, Jul 25, 2025, 19:04:28 UTC
- Database version: 23.8.0.25.04
- Net services architecture: Dedicated
- Instance type: P001
- Character set: AL32UTF8
- National character set: AL16UTF8

Infrastructure:

- Dedicated Infrastructure: Yes
- Autonomous Container Database: ouc_dedicated_container_ouatbase

Network:

- Access control list: Disabled

Backup:

- Last automatic backup: No active backups exist for this database.
- Last long-term backup: No long-term backups exist for this database.

Encryption:

- Encryption key: Oracle-managed key

Autonomous Data Guard:

- Status: Disabled

Summary



Autonomous Database

Oracle Database@AWS

Connectivity to Oracle Databases in Oracle Database@AWS

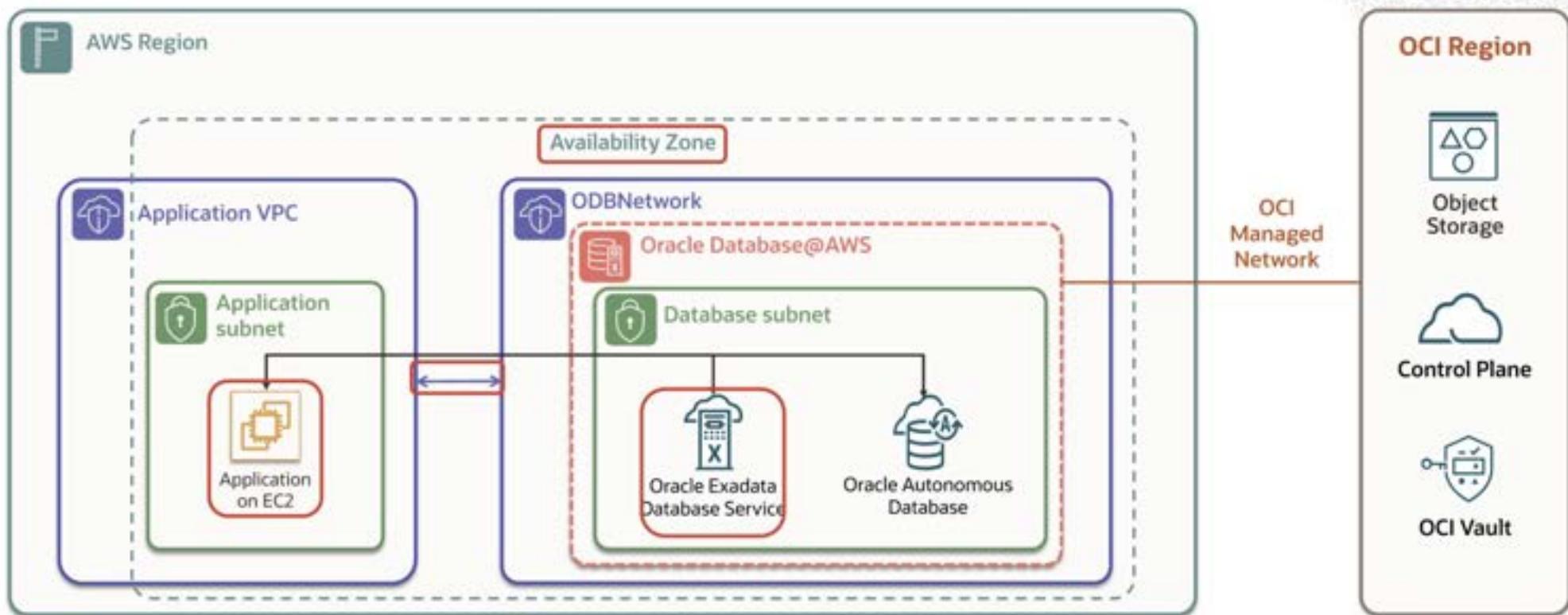
Objectives



Tasks for connecting to an Oracle database

Obtain Client Credentials for Connection

Connecting to Oracle Databases in Oracle Database@AWS



Connecting to Oracle Databases in Oracle Database@AWS

Create ODB Network

- A private network within AWS environment that hosts Oracle Cloud Infrastructure (OCI) resources like an Autonomous database.
- This network is provisioned through the Oracle Database@AWS service

Create Peer of the ODB Network

- Applications and instances running on an AWS Virtual Private Cloud (VPC) can connect to Autonomous database.
- This network is secure and provides a direct communication between applications and the database.

Obtain Client Credentials

- Client credentials wallet from Autonomous Database instance in Oracle Cloud Console.
- The wallet contains necessary certificates and connection information for secure mTLS connections.

Configure Client Connections

- Provide connection details, including referencing the downloaded wallet.
- Connection string and wallet details may be incorporated into application's configuration or code

Network for Connecting to Oracle Database@AWS

The screenshot shows the OCI resources page for an Oracle Database@AWS network named "odbsnet_Aggregated". A red arrow points to the left navigation bar where "ODB networks" is selected. The main content area displays the "Summary" tab with various network settings:

Setting	Value
Status	Available
Availability Zone	us-west-2c
ODB network ARN	arn:aws:odbs:us-west-2:054037143469:odbs-network/odbsnet_Aggregated
ODB network ID	odbsnet_Aggregated
Created	Jul 22, 2025, 11:28:34 GMT-04:00
Client subnet CIDR range	10.10.0.0/24
Backup subnet CIDR range	10.20.0.0/24
Peered CIDRs	172.31.0.0/16
DNS configuration	Domain name: client.odbsaws.oracledevcn.com, DNS listener IP: 10.10.0.94
Service integrations	Service network ARN: arn:aws:vpc:us-west-2:054037143469:service-network/odbsnet_Aggregated, Resource gateway ARN: arn:aws:vpc:us-west-2:054037143469:resourcegateway/rgw-052828926dbbTa0F9, VPC endpoint id: vpc-e5aee27a9e123fa8a, VPC endpoint type: SERVICENETWORK, Ipv4 CIDRs: 129.224.0.0/20

Network for Connecting to Oracle Database@AWS

Oracle Database@AWS > ODB peering connections > ou-odb-peer

ou-odb-peer

Delete

OdB network
ou-odb-network

Peer network ARN

Status: Available

Created: Jul 25, 2025, 06:20:32 GMT-04:00

ODB peering connection ARN: arn:aws:odbus-west-2:054037143469:odb-peering-connection/odbcx_1y4tlzrcx2

ODB peering connection ID: odbcx_1y4tlzrcx2

Obtain Client Credentials for Connection

Oracle Database@AWS > Autonomous VM clusters > avmc_7jtd6r1ypx

ou-autonomous-vmcluster

Summary OCI resources

Status
Available

Cluster name
ou-autonomous-vmcluster

Description
This cluster is for Oracle Autonomous databases for Database@AWS

Autonomous VM cluster Id
avmc_7jtd6r1ypx

Autonomous VM cluster ARN
arn:aws:odb:us-west-2:054037143469:cloud-autonomous-vm-cluster/avmc_7jtd6r1ypx

Exadata infrastructure name
[ouexadatainfra](#)

Manage in OCI Delete

Obtain Client Credentials for Connection

← Autonomous Exadata VM clusters

ou-autonomous-vmcluster Available

Autonomous Exadata VM Cluster

Actions Manage certificates

Autonomous VM Clusters (AVMCs) are a virtualization layer in the underlying Exadata Infrastructure. AVMCs allow a single Exadata Infrastructure to be partitioned into multiple virtual environments. AVMCs can be used to isolate different database workloads through separate access rules, network configurations, as well as customizable compute memory, and storage resources.

General information	Maintenance	Autonomous Container Databases	Autonomous virtual machines	Maintenance history	Work requests	Security	Tags
General information							
Compartment	odbzdemo12 (root)/MulticloudLink_AWS_20250303002806/05 4037143469_default-oci-resource-anchor			Exadata Infrastructure	ouexadatainfra		
Subscription	ocid1.organizationssubscription.oc1.ad.amaaaaaaavtzprsyavirh7pnqxua3fvp4bj7e62evegzva26o uc6g6kr6hsa	Copy		Shape	ExadataX11M		
				Node count	2		
Availability domain	evaq:US-BOARDMAN-1-AD-1			Network			
OCID	...g45xgfoihrgjsdy375fstiquueup5mo235cz7zko8	Copy		Network	VCN-ou-odb-network		

Obtain Client Credentials for Connection

← Autonomous Exadata VM clusters

ou-autonomous-vmcluster Available

Actions Manage certificates

Autonomous Exadata VM Cluster

Autonomous VM Clusters (AVMCs) are a virtualization layer in the underlying Exadata Infrastructure. AVMCs allow a single Exadata Infrastructure to be partitioned into multiple virtual environments. AVMCs can be used to isolate different database workloads through separate access rules, network configurations, as well as customizable compute, memory, and storage resources.

General information Maintenance Autonomous Container Databases Autonomous virtual machines Maintenance history Work requests Security Tags

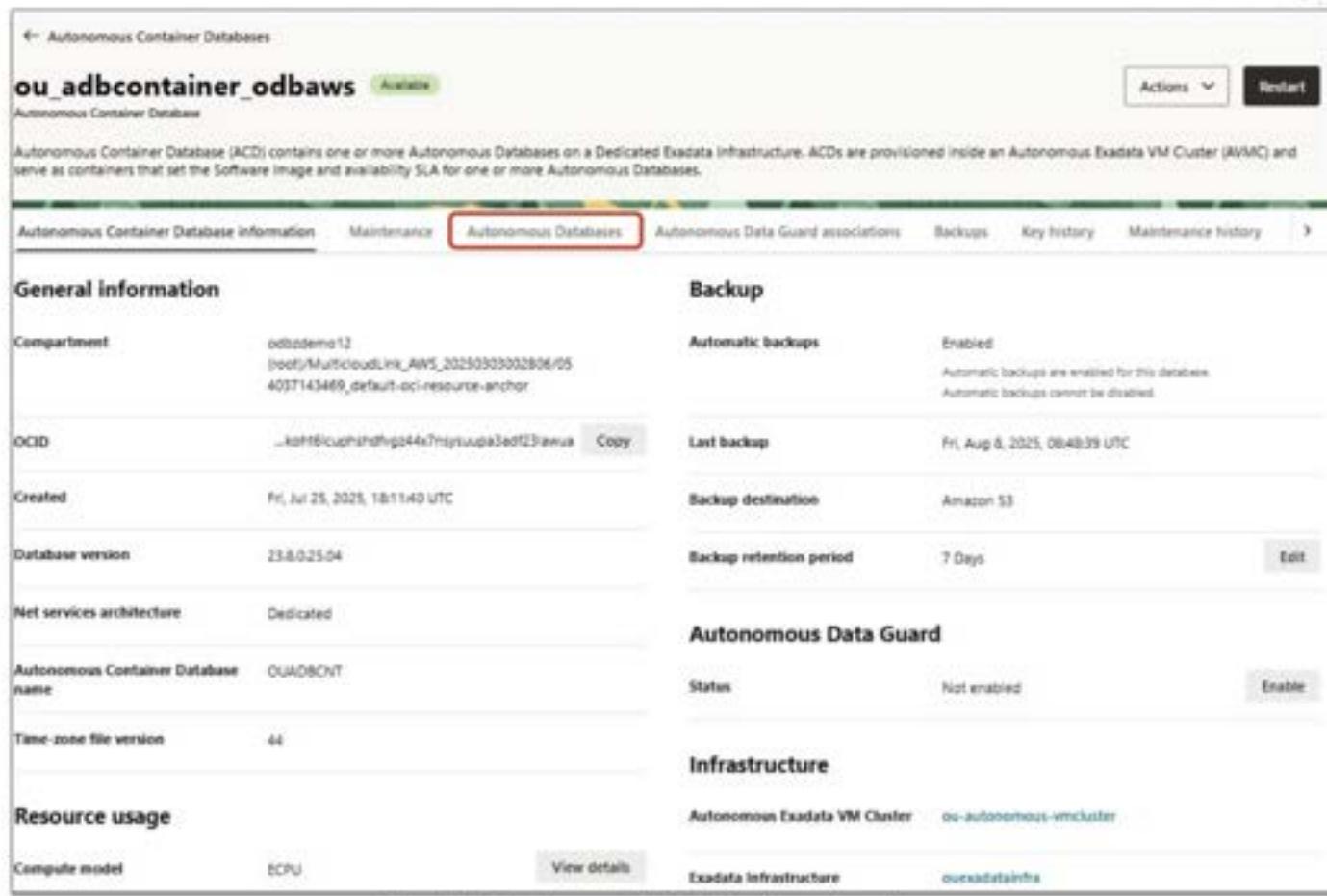
Search and Filter Search

Applied filters Compartment 054037143469_default_oci-resour...

Create Autonomous Container Database

Display name	State	Reclaimable CPUs	Largest provisionable ADB (CPU)	Provisioned CPUs	Autonomous Data Guard	Created	...
ou_adbcontainer_odbaws	Available	0	76	2	--	Fri, Jul 25, 2025, 18:11:40 UTC	...

Obtain Client Credentials for Connection



The screenshot shows the Oracle Cloud Infrastructure (OCI) console interface for managing Autonomous Container Databases (ACDs). The specific ACD shown is named "ou_adbcontainer_odbaws" and is currently "Available". The page includes tabs for "Autonomous Container Database information", "Maintenance", "Autonomous Databases" (which is selected and highlighted in red), "Autonomous Data Guard associations", "Backups", "Key history", and "Maintenance history".

General Information

Compartment	odbdemo12 (root)/MulticloudLink_AWS_20250303002896/05 4037143469/default-oci-resource-anchor	Automatic backups	Enabled
OCID	...k9Ht6icuhzdhvpg44x7mymupa3edf23awus	Last backup	Fri, Aug 8, 2025, 08:48:39 UTC
Created	Fri, Jul 25, 2025, 18:11:40 UTC	Backup destination	Amazon S3
Database version	23.8.0.25.04	Backup retention period	7 Days
Net services architecture	Dedicated	Autonomous Data Guard	
Autonomous Container Database Name	OUADBCNT	Status	Not enabled
Time-zone file version	44	Infrastructure	
Resource usage		Autonomous Exadata VM Cluster	ou-autonomous-vmcluster
Compute model	ECPU	View details	Exadata Infrastructure

Backup

Automatic backups are enabled for this database. Automatic backups cannot be disabled.

Autonomous Data Guard

Status: Not enabled. Enable button available.

Infrastructure

Autonomous Exadata VM Cluster: ou-autonomous-vmcluster. Exadata Infrastructure: ouexadatainfra.

Obtain Client Credentials for Connection

The screenshot shows the Oracle Cloud Infrastructure (OCI) Autonomous Container Database (ACD) details page. At the top, the database name is **ou_adbcontainer_odbaws**, with a status of **Available**. Below the name, it says "Autonomous Container Database". A note explains that Autonomous Container Database (ACD) contains one or more Autonomous Databases on a Dedicated Exadata Infrastructure. ACDs are provisioned inside an Autonomous Exadata VM Cluster (AVMC) and serve as containers that set the Software image and availability SLA for one or more Autonomous Databases.

The navigation bar includes tabs for **Autonomous Container Database information**, **Maintenance**, **Autonomous Databases** (which is selected), **Autonomous Data Guard associations**, **Backups**, **Key history**, **Maintenance history**, and **W >**.

Below the tabs is a search bar with a placeholder "Search and Filter" and a "Search" button. Applied filters are shown as "Compartment 054037143469.default-oci-resour...".

A prominent button labeled **Create Autonomous Database** is visible.

The main content area displays a table of autonomous databases:

Display name	State	Compute	Storage	Workload type	Created	...
OUATPODBAWS	Available	2	1 TB	Data Warehouse	Fri, Jul 25, 2025, 19:24:28 UTC	...

Obtain Client Credentials for Connection

The screenshot shows the Oracle Cloud Infrastructure (OCI) console interface for managing an Autonomous Database. The database name is highlighted with a red box. The status is "Available". The "Database connection" button is also highlighted with a red box. The page includes tabs for "Autonomous Database information", "Tool configuration", "Backups", "Key history", "Autonomous Data Guard", "Work requests", "Monitoring", and "Tags".

General information		Infrastructure	
Database name	OUATPODBAWS	Dedicated infrastructure	Yes
Workload type	Data Warehouse	Autonomous Container Database	ou_adbcontainer_odbaws
Compartment	odbdemo12 [root]/MulticloudLink_AWS_20250303002806/05 4037143469_default-oci-resource-anchor	Network	
OCID	...hoebjhgsuvapxqk264463opo37s2g3ei7kgr3a	Access control list	Disabled
Created	Fri, Jul 25, 2025, 19:24:28 UTC	Backup	
Database version	23.8.0.25.04	Last automatic backup	Fri, Aug 8, 2025, 06:48:39 UTC



Obtain Client Credentials for Connection

Database connection

Oracle client credentials (wallet files) are downloaded from Autonomous Database by a service administrator. [Learn more](#)
You will need the client credentials and connection information to connect to your database. The client credentials include the wallet.

Download client credentials (Wallet)

To download your client credentials, click **Download Wallet** and supply a password for the wallet.

[Download wallet](#)

Connection strings

Use the following connection strings or TNS names for your connections. See the [documentation](#) for details.

Oracle recommends using TLS connections to connect to your Autonomous Database.

The TNS names indicate the service levels available.

These connection strings correspond with the TNS names for each service level.

TNS name	Connection string
autp4odbeas_medium	(DESCRIPTION=(CONNECT_TIMEOUT=120)(R

Download wallet

Autonomous Database is preconfigured to support Oracle Net Services (a TNS listener is installed and configured to use secure TCP). [Learn more](#)

Database connections to your Autonomous Database use a secure connection. The wallet file will be required to configure your database clients and tools to access Autonomous Database.

Please create a password for this wallet. Some database clients will require that you provide both the wallet and password to connect to your database (other clients will auto-login using the wallet without a password).

*
Required

*
Required

[Cancel](#)

[Download](#)

Summary



Tasks for connecting to an Oracle database

Obtain Client Credentials for Connection

Connecting to Oracle Databases in Oracle Database@AWS

Objectives

A stylized illustration of a person in an orange shirt and brown pants climbing a green mountain. A white grid path leads up the mountain. To the right of the mountain is a large, colorful cloud composed of various patterns and colors like purple, orange, and yellow. A stream of white binary digits (0s and 1s) flows down from the top of the mountain towards the base, where it meets the path.

Connect to an Oracle database

Connecting to Oracle Database@AWS with an EC2 instance

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with 'EC2' selected. Under 'Instances', 'Instances' is also selected. The main area displays 'Instances (1) Info'. A red arrow points to the 'EC2' link in the sidebar. Another red arrow points to the 'Instances' link in the sidebar. A third red arrow points to the Instance ID 'i-Oac588e097d0ec67f' in the table below. The table has columns for Name, Instance ID, Instance state, Instance type, and Status check. The instance listed is 'App4ODB' with Instance ID 'i-Oac588e097d0ec67f', status 'Running', type 't2.nano', and 2/2 checks passed.

Name	Instance ID	Instance state	Instance type	Status check
App4ODB	i-Oac588e097d0ec67f	Running	t2.nano	2/2 checks passed

Summary of EC2 instance

The screenshot shows the AWS EC2 Instances page with the instance summary for i-0ac588e097d0ec67f (App4ODB). The instance is running and has a public IPv4 address of 44.252.3.121 and a private IPv4 address of 172.31.7.32. The instance type is t2.nano, and it is associated with a VPC ID (vpc-0161a462f1675ee65) and a subnet ID (subnet-0be88b9dc8cb55511). The instance ARN is arn:aws:ec2:us-west-2:054057143469:instance/i-0ac588e097d0ec67f.

Instance summary for i-0ac588e097d0ec67f (App4ODB)	
Connect	Instance state
Updated less than a minute ago	Actions
Instance ID i-0ac588e097d0ec67f	Public IPv4 address 44.252.3.121 open address
IPv6 address -	Instance state Running
Hostname type IP name: ip-172-31-7-32.us-west-2.compute.internal	Private IP DNS name (IPv4 only) ip-172-31-7-32.us-west-2.compute.internal
Answer private resource DNS name -	Instance type t2.nano
Auto-assigned IP address 44.252.3.121 [Public IP]	VPC ID vpc-0161a462f1675ee65
IAM Role -	Subnet ID subnet-0be88b9dc8cb55511
IMDv2 Required	Instance ARN arn:aws:ec2:us-west-2:054057143469:instance/i-0ac588e097d0ec67f
	Elastic IP addresses -
	AWS Compute Optimizer finding Opt-in to AWS Compute Optimizer for recommendations.
	Learn more
	Auto Scaling Group name -
	Managed false

Configure Client Connection for Database@AWS

```
login as: ec2-user
Authenticating with public key "" from agent
, #
~\ #####_ Amazon Linux 2023
~~ \#####\
~~ \###|
~~ \|/ __ https://aws.amazon.com/linux/amazon-linux-2023
~~ \~'-->
~~~ /
~~_. / \
~/ / \
/m/'  
Last login: Sat Aug 2 19:08:25 2025 from 47.146.214.148
[ec2-user@ip-172-31-7-32 ~]$
```

Configure Client Connection

```
[ec2-user@ip-172-31-7-32 ~]$ id  
uid=1000(ec2-user) gid=1000(ec2-user) groups=1000(ec2-  
user),4(adm),10(wheel),190(systemd-journal)  
context=unconfined_u:unconfined_r:unconfined_t:s0-s0:c0.c1023  
[ec2-user@ip-172-31-7-32 ~]$ pwd  
/home/ec2-user  
[ec2-user@ip-172-31-7-32 ~]$ ls  
→ oracle oracle-instantclient-basic-21.9.0.0.0-1.el8.x86_64.rpm oracle-  
instantclient-sqlplus-21.9.0.0.0-1.el8.x86_64.rpm  
[ec2-user@ip-172-31-7-32 ~]$ cd oracle  
[ec2-user@ip-172-31-7-32 oracle]$ ls  
→ wallet
```

Obtain Client Credentials

```
[ec2-user@ip-172-31-7-32 wallet]$ ls  
README.txt cwallet.sso hostinfo.json ojdbc.properties  
tnsnames.ora Wallet_OUATP4ODBAWS.zip ewallet.p12  
keystore.jks sqlnet.ora truststore.jks
```

Oracle Tnsnames.ora

```
[ec2-user@ip-172-31-7-32 wallet $ more tnsnames.ora]
```

```
ouatp4odbaws_medium=(DESCRIPTION =(CONNECT_TIMEOUT = 120)(RETRY_COUNT =  
20)(RETRY_DELAY = 3)(TRANSPORT_CONNECT_TIMEOUT = 3)  
(ADDRESS_LIST =(LOAD_BALANCE = ON)(ADDRESS = (PROTOCOL=TCP)  
(HOST=host-nrnjd-scan.client.oudbaws.oraclevcn.com)(PORT=1521)) )(CONNECT_DATA =  
(SERVICE_NAME = OUATP4ODBAWS_medium.adw.oraclecloud.com)))
```

```
ouatp4odbaws_medium_tls=(DESCRIPTION =(CONNECT_TIMEOUT = 120)(RETRY_COUNT =  
20)(RETRY_DELAY = 3)(TRANSPORT_CONNECT_TIMEOUT = 3)(ADDRESS_LIST  
=(LOAD_BALANCE = ON)(ADDRESS = (PROTOCOL=TCPS)(HOST=host-nrnjd-  
scan.client.oudbaws.oraclevcn.com)(PORT=2484)) )(CONNECT_DATA = (SERVICE_NAME =  
OUATP4ODBAWS_medium.adw.oraclecloud.com))(security=(ssl_server_cert_dn="CN=host-  
nrnjd-scan.client.oudbaws.oraclevcn.com")))
```



Resolving service names during database connections.

```
[ec2-user@ip-172-31-7-32 wallet]$ echo $TNS_ADMIN  
[ec2-user@ip-172-31-7-32 wallet]$ pwd  
/home/ec2-user/oracle/wallet  
→ [ec2-user@ip-172-31-7-32 wallet]$ export TNS_ADMIN=/home/ec2-user/oracle/wallet  
[ec2-user@ip-172-31-7-32 wallet]$ echo $TNS_ADMIN  
/home/ec2-user/oracle/wallet
```

Connecting to Oracle Database in Database@AWS

```
[ec2-user@ip-172-31-7-32 wallet]$ sqlplus  
admin/OU_Cloud#1234@ouatp4odbaws_medium
```

```
SQL*Plus: Release 21.0.0.0.0 - Production on Mon Aug 4 11:52:02 2025  
Version 21.9.0.0.0
```

```
Copyright (c) 1982, 2022, Oracle. All rights reserved.
```

```
Last Successful login time: Fri Jul 25 2025 19:26:54 +00:00
```

```
Connected to:  
Oracle Database 23ai EE Extreme Perf Release 23.0.0.0.0 - for Oracle  
Cloud and Engineered Systems  
Version 23.8.0.25.04
```

```
SQL>
```

Accessing data from Oracle Database

```
SQL> SELECT SYS_CONTEXT('USERENV','DB_NAME') FROM dual;
```

```
SYS_CONTEXT('USERENV','DB_NAME')
```

```
-----  
OUATP4ODBAWS
```

```
SQL> show user  
USER is "ADMIN"
```



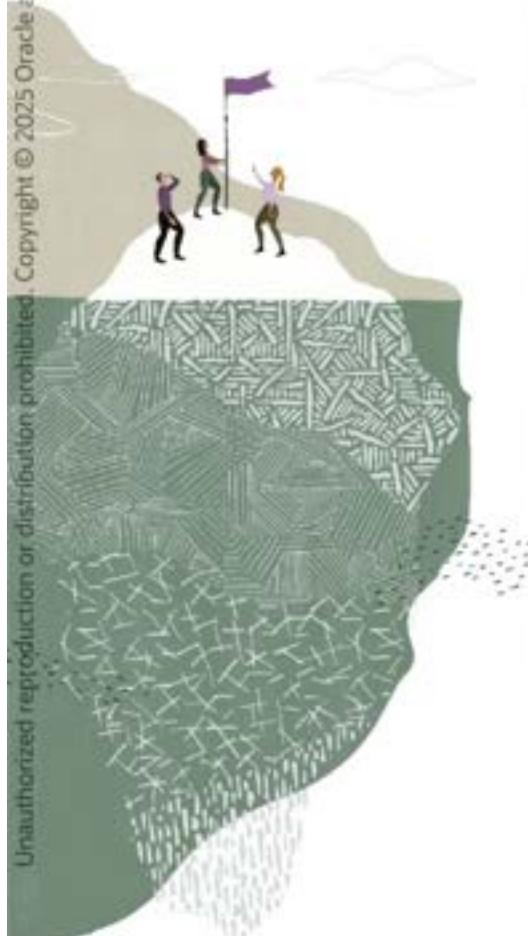
Connecting to Oracle Database in Database@AWS

```
SQL> column INSTANCE_NAME format a15  
SQL> column VERSION_FULL format a15  
SQL> column STATUS format a10  
SQL> column EDITION format a10
```

```
SQL> select instance_name,version_full, status, edition  
2  from V$INSTANCE;
```

INSTANCE_NAME	VERSION_FULL	STATUS	EDITION
ouadbcnt1	23.8.0.25.04	OPEN	XP

Summary



Connect to an Oracle database

Oracle Database@AWS

DNS Configuration – ODB Network

Objectives



DNS Configuration – ODB Network

DNS Resolution – Oracle Database

OCI DNS Listening Endpoint IP

Forwarding Address

Demo

DNS Configuration – Big Picture



- When you peer your Oracle Database Network to your Application VPC (Virtual Private Cloud) you're creating a private connection for your applications to talk to database servers securely.
- But it is easier to use human-friendly names than IP addresses, and this is why the ODB Network includes a default OCI DNS option. It's optional in the sense that there is the feature of opting for a custom DNS.
- The Custom Domain can be used by only the Exadata Database Service on Dedicated Infrastructure. The Autonomous Database on Dedicated Exadata Infrastructure will use the default domain name (oraclevcn.com)

DNS Configuration – ODB Network

ODB Network supports domain name configuration:

- Default domain name: **oraclevcn.com**
 - Define domain prefix
 - Limited to 15 characters
 - Apply to ADB-D and ExaDB-D
- Custom domain name: **customdomain.com**
 - Limited to 253 characters
 - OCI private view is created in the OCI VCN DNS resolver
 - Apply to ExaDB-D only

If Prefix: **oudbaws**

Then DN for Client subnet:
client.oudbaws.oraclevcn.com

DNS configuration

Set the domain name to use for all resources provisioned for this ODB network, including SCAN and VM host names. The default is oraclevcn.com and you must include your own domain name prefix or choose your own custom domain name.

- Default
 Custom domain name

Domain name prefix - optional

Enter a custom domain name prefix to use for all resources provisioned with this ODB network, including SCAN names and VM host names.

`my-domain-name-prefix`

The domain name prefix must be 1-15 letters or numbers, and must start with a letter.

Domain name

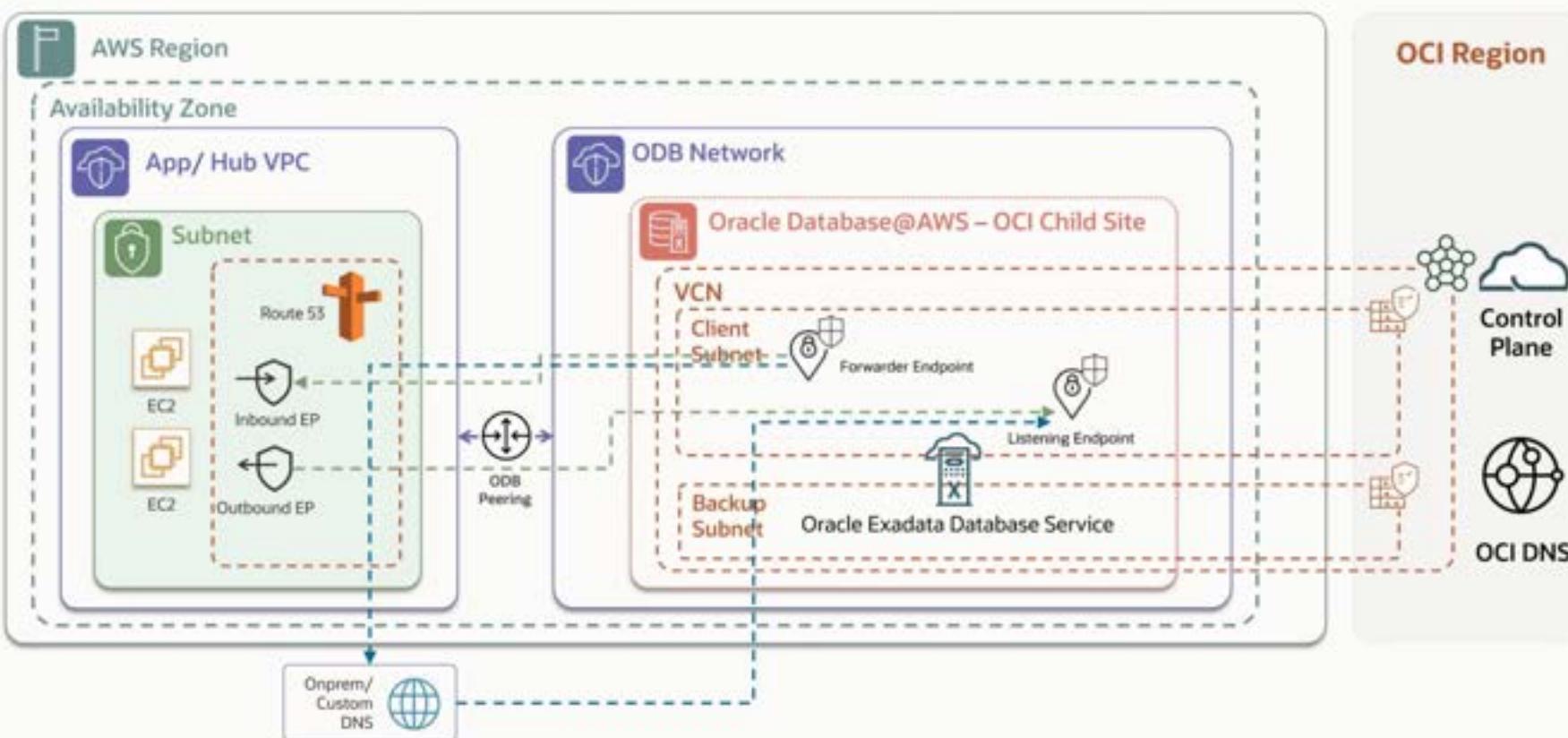
`oraclevcn.com`

DNS Resolution – Oracle Database

The AWS ODB Network creates two DNS endpoints in the OCI VCN:

- Listener
- Forwarder

You must configure inbound and outbound endpoints on the AWS side to forward DNS queries to OCI.



ODB Network – Configuring Endpoints

1

Set Up a Route 53 Outbound

- It needs:
- A security group that allows TCP/UDP traffic
 - At least 2 IP addresses (ideally in different AZ)
 - Subnets that can route traffic to the Oracle DNS listener

2

Define a Route 53 Resolver Rule

This rule tells Route 53: "Whenever I query a host name in the .oraclevcn.com domain, forward that query over the outbound endpoint to the Oracle resolver.."

3

Choose "Forward rule" as the rule type

Enter the Oracle domain name:
oudbaws.oraclevcn.com.

4

Associate the rule with your VPC.

5

Link it to the outbound endpoint you just created.

6

Provide the specific DNS listener IP addresses (port 53).

ODB Network

From AWS console:

- Domain name
- OCI DNS listening endpoint IP

demo-odb-network-07

Summary	OCI resources
<p>Status Available</p> <p>Availability Zone us-east-1b</p> <p>ODB network ARN arn:aws:odb:us-east-1:182399700237:odb-network/odbnets_9spquv21at</p> <p>ODB network ID odbnets_9spquv21at</p> <p>Created Jul 11, 2025, 00:49:51 GMT+02:00</p>	<p>Client subnet CIDR range 10.7.10.0/24</p> <p>Backup subnet CIDR range 10.7.11.0/24</p> <p>Peered CIDRs 10.77.0.0/16</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"><p>DNS configuration</p><p>Domain name demo07.com</p><p>DNS listener IP 10.7.10.60</p></div>

OCI Custom Domain Name and Private Resolvers' Endpoint



← Private resolvers

VCN-demo-odb-network-07 Active

Private resolver

Details Rules Associated private views Endpoints Monitoring Work requests Tags

Endpoints

Search and Filter

Create endpoint

Name	State	Subnet	Forwarding address	Listening address	Created
forwarder	Active	client-subnet	10.7.10.66	—	Thu, 10 Jul 2025 23:31:03 UTC
listener	Active	client-subnet	—	10.7.10.60	Thu, 10 Jul 2025 23:31:03 UTC

Page 1 of 1 (1 - 2 of 2 total items) Items per page

OCI Custom Domain Name and Private Resolvers' Endpoint



← Private zones

demo07.com Active

Private zone

Actions

Details Records Work requests Tags

Records

Listed records are grouped by RRSet. An RRSet is a collection of DNS records of the same domain and type.

Q Search and Filter

Manage records

Domain	Type	TTL	RDATA
* demo07.com	NS Protected	86400	vcn-dns.oraclevcn.com.
* demo07.com	SOA Protected	86400	vcn-dns.oraclevcn.com. hostmaster.oracle.com. 8 5600 5600 3600 10
mydemo-2jd3p-scan.demo07.com	A	3600	10.7.10.56 10.7.10.78 10.7.10.250
mydemo-2jd3p1-backup.demo07.com	A	3600	10.7.11.185
mydemo-2jd3p1-vip.demo07.com	A	3600	10.7.10.58
mydemo-2jd3p1.demo07.com	A	3600	10.7.10.251
mydemo-2jd3p2-backup.demo07.com	A	3600	10.7.11.58

Summary



DNS Configuration – ODB Network

DNS resolution – Oracle Database

OCI DNS Listening Endpoint IP

Forwarding Address

Demo

Oracle Database@AWS

Networking Topologies

Objectives



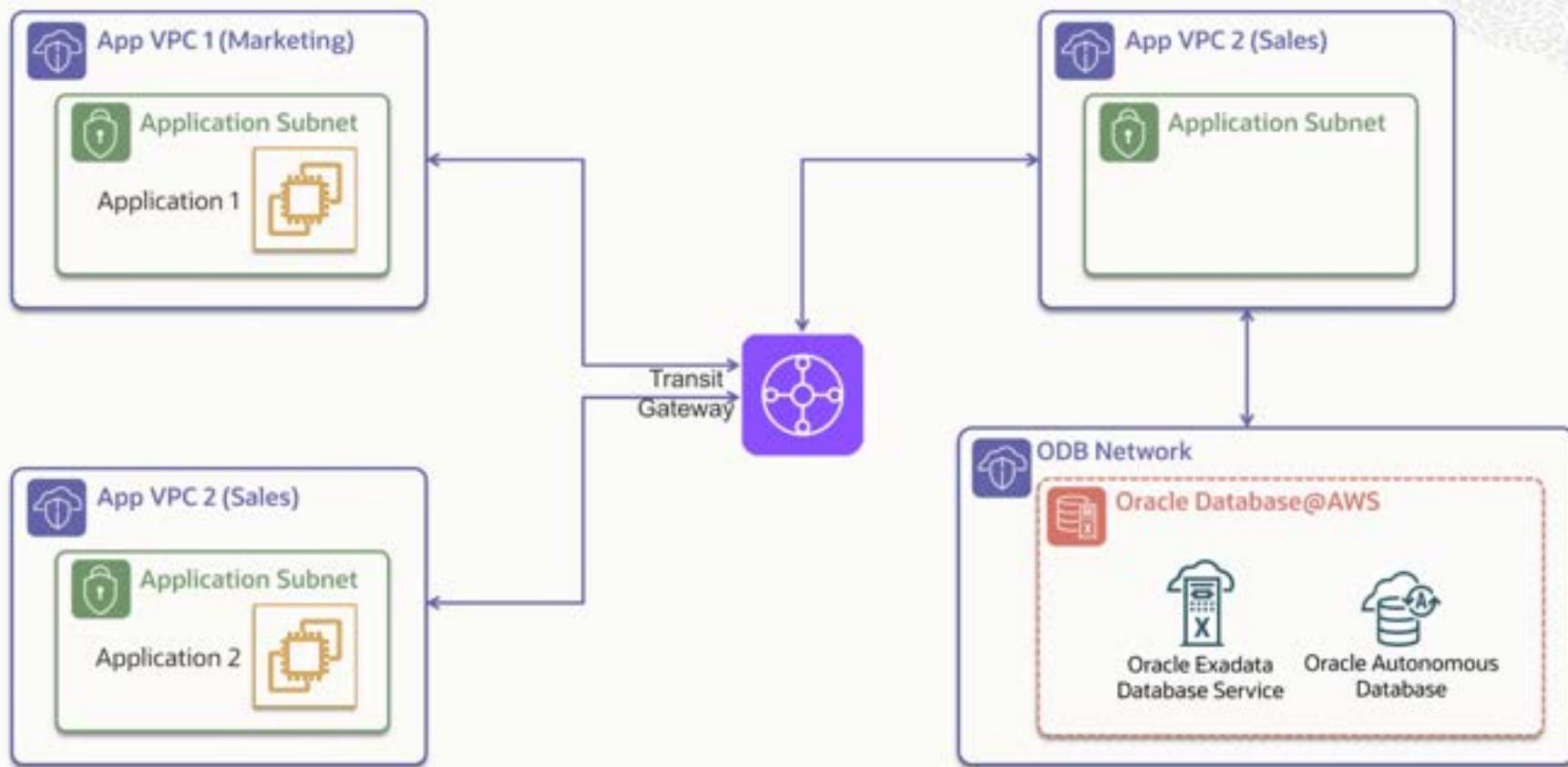
AWS Hub and Spoke Design for Oracle Database@AWS

Hub and Spoke Design – Single Region/Single Account

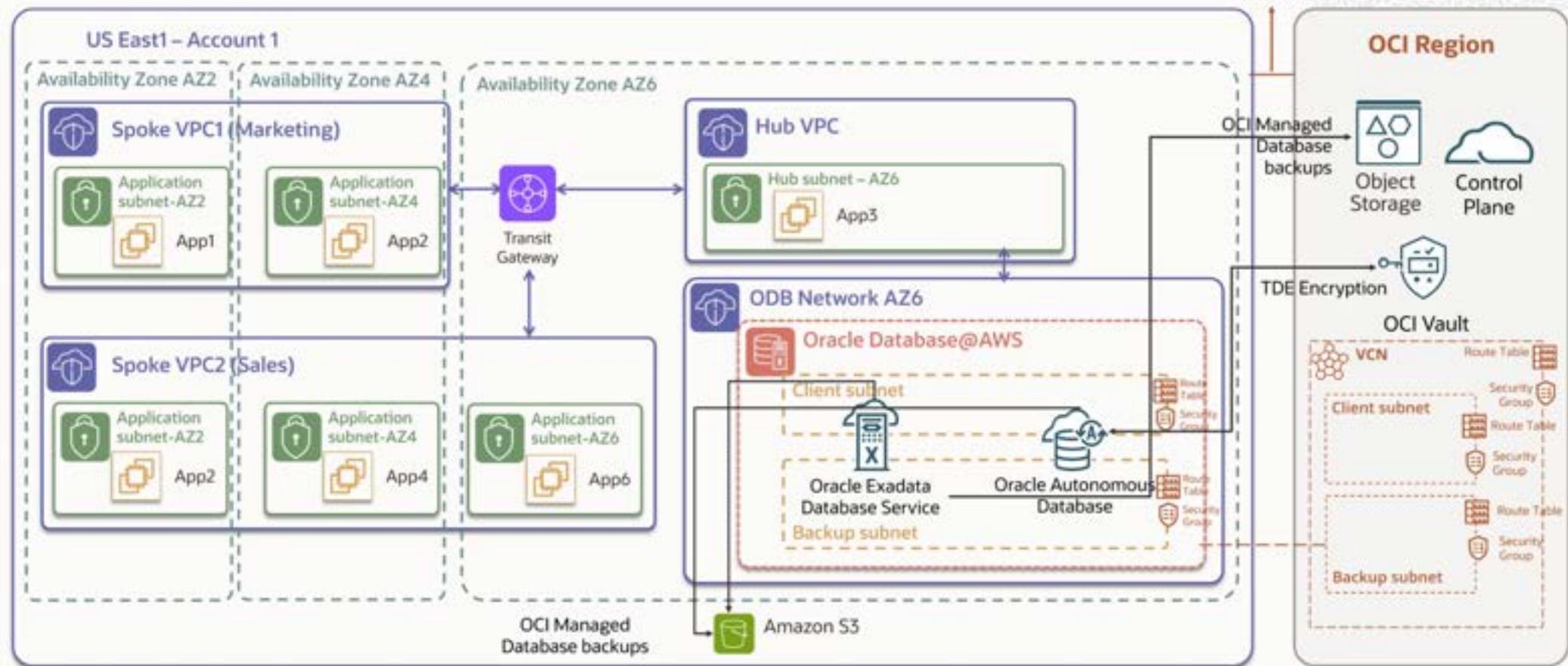
Hub and Spoke Design – Cross Account/Cross Region

Hub and Spoke Design – On-Premises Applications Topology

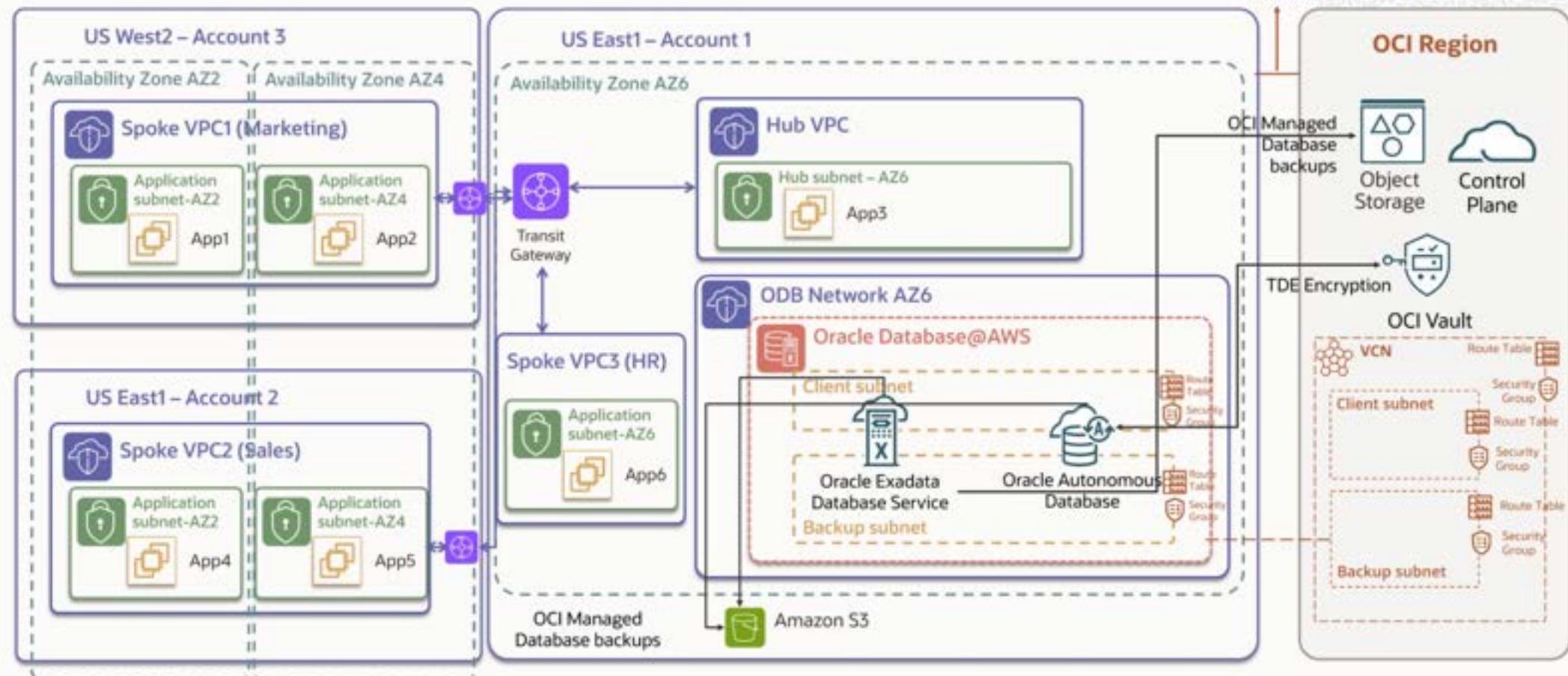
AWS Hub and Spoke Design



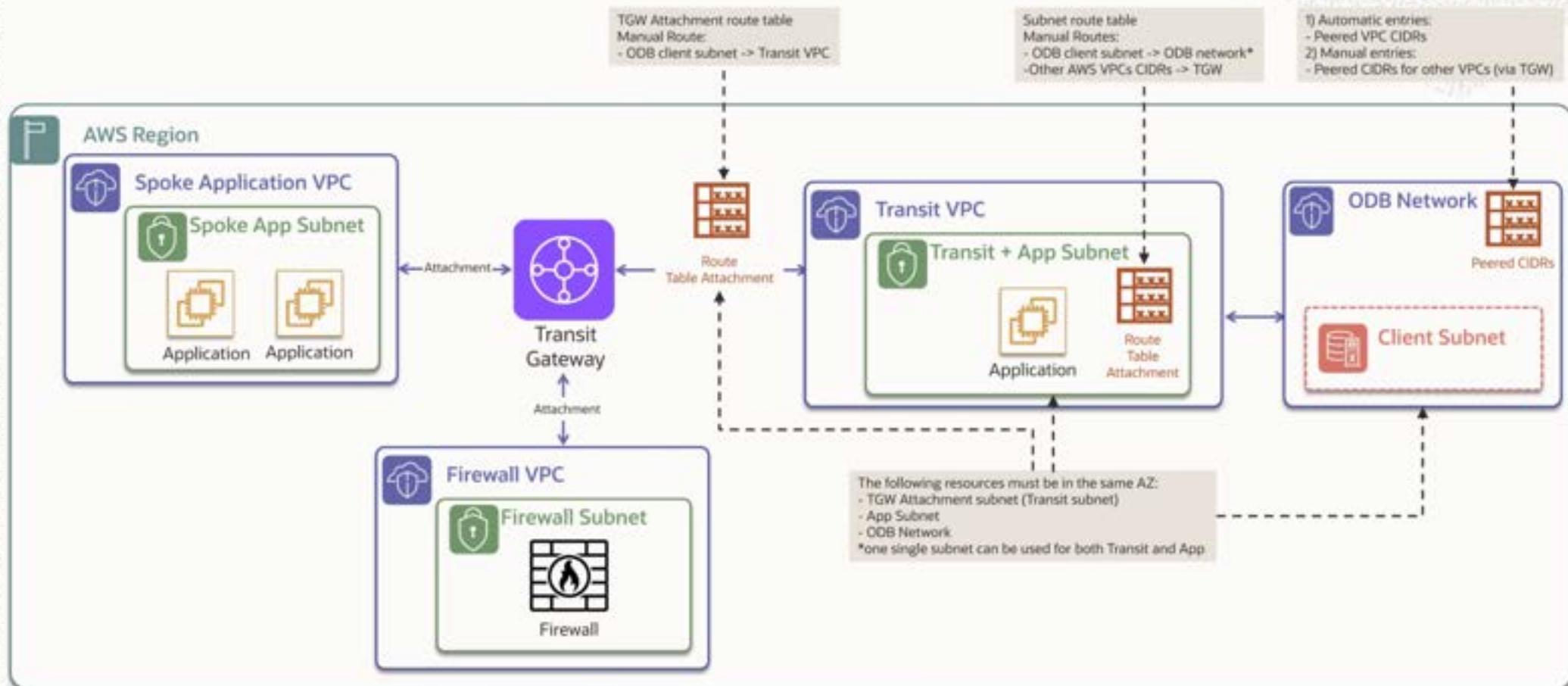
Oracle DB@AWS Hub and Spoke Design – Single Region/Single Account



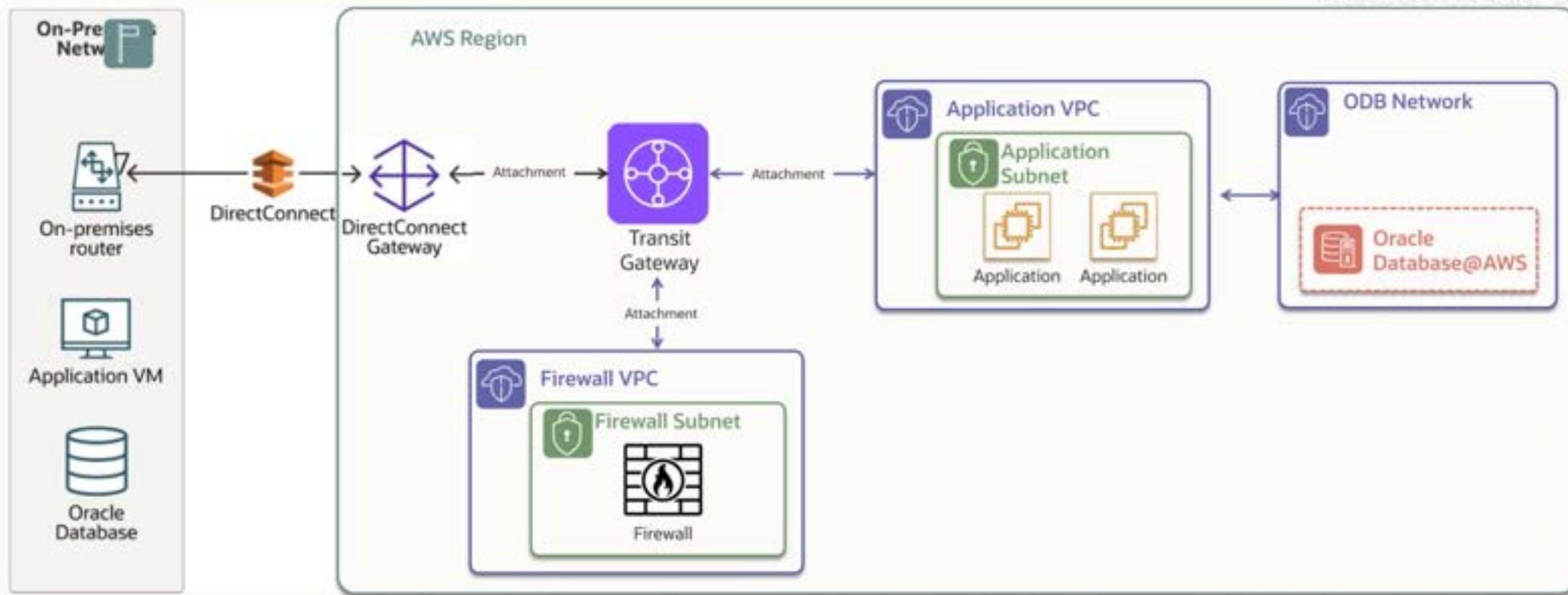
Oracle DB@AWS Hub and Spoke Design – Cross Account/Cross Region



AWS Hub-and-Spoke Third Party Firewall



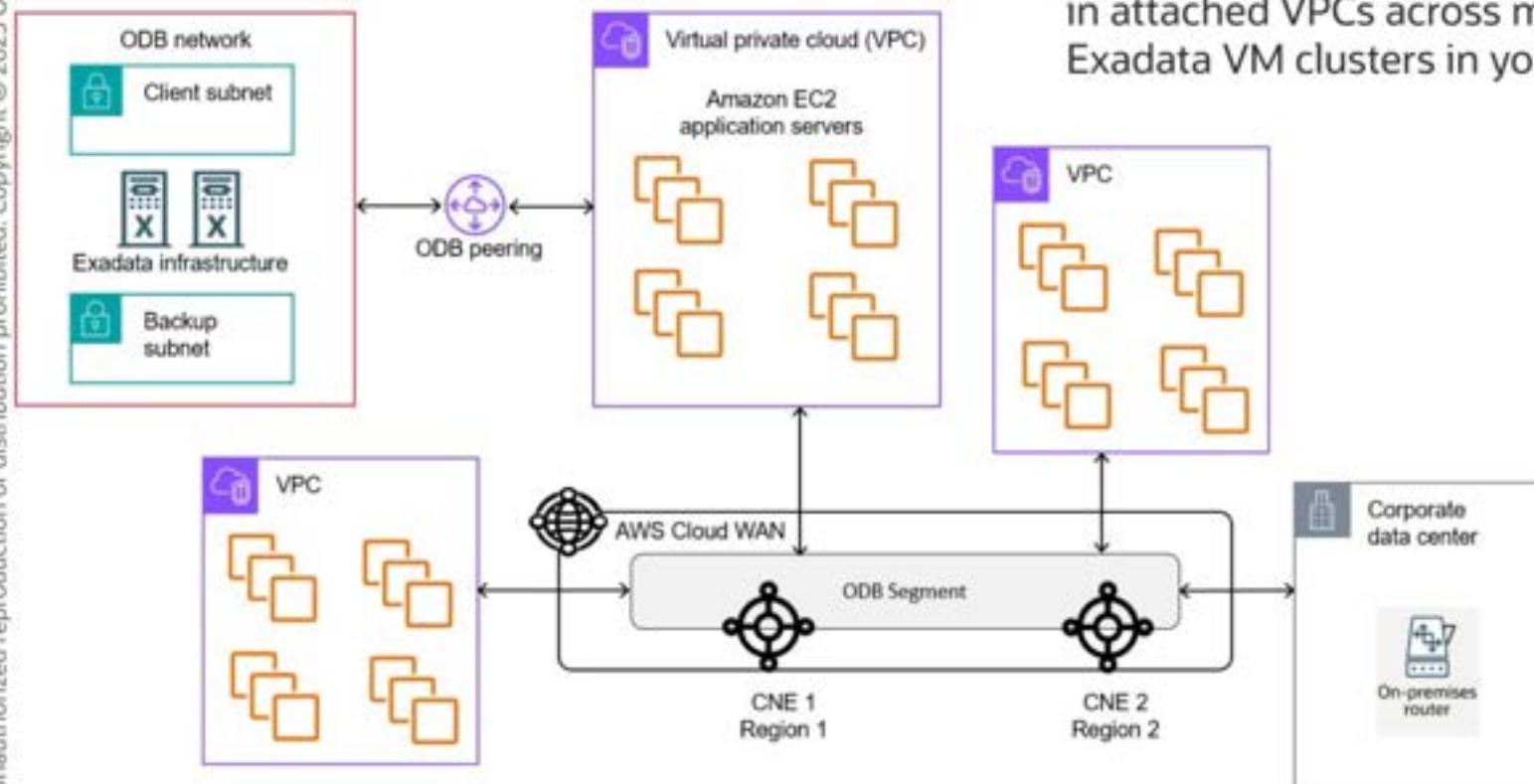
AWS Hub-and-Spoke On-Premises Applications Topology



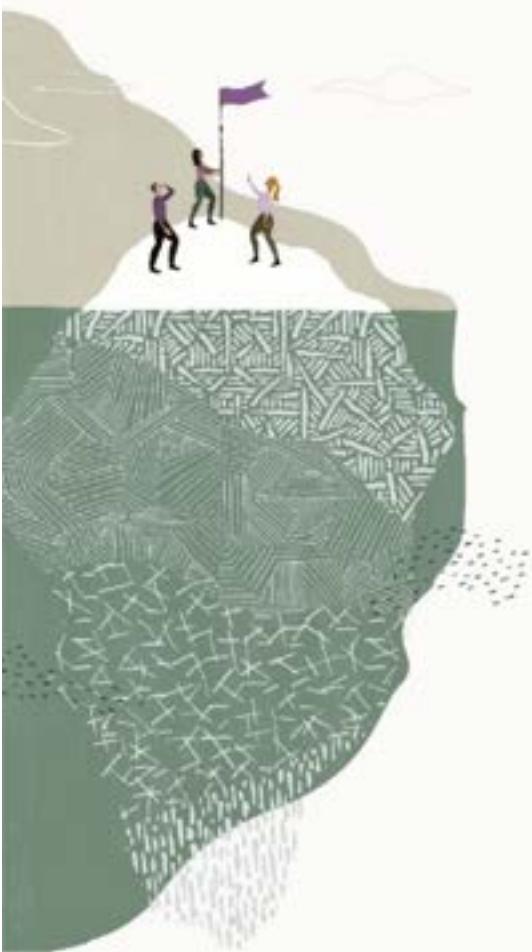


AWS Cloud WAN for Oracle Database@AWS

If you connect a AWS Cloud WAN core network to a peered VPC, it enables global traffic routing. Applications in attached VPCs across multiple Regions can access Exadata VM clusters in your ODB network.



Summary



AWS Hub and Spoke Design for Oracle Database@AWS

Hub and Spoke Design – Single Region/Single Account

Hub and Spoke Design – Cross Account/Cross Region

Hub and Spoke Design – On-Premises Applications Topology

Oracle Database@AWS

Disaster Recovery Networking Scenarios

Objectives



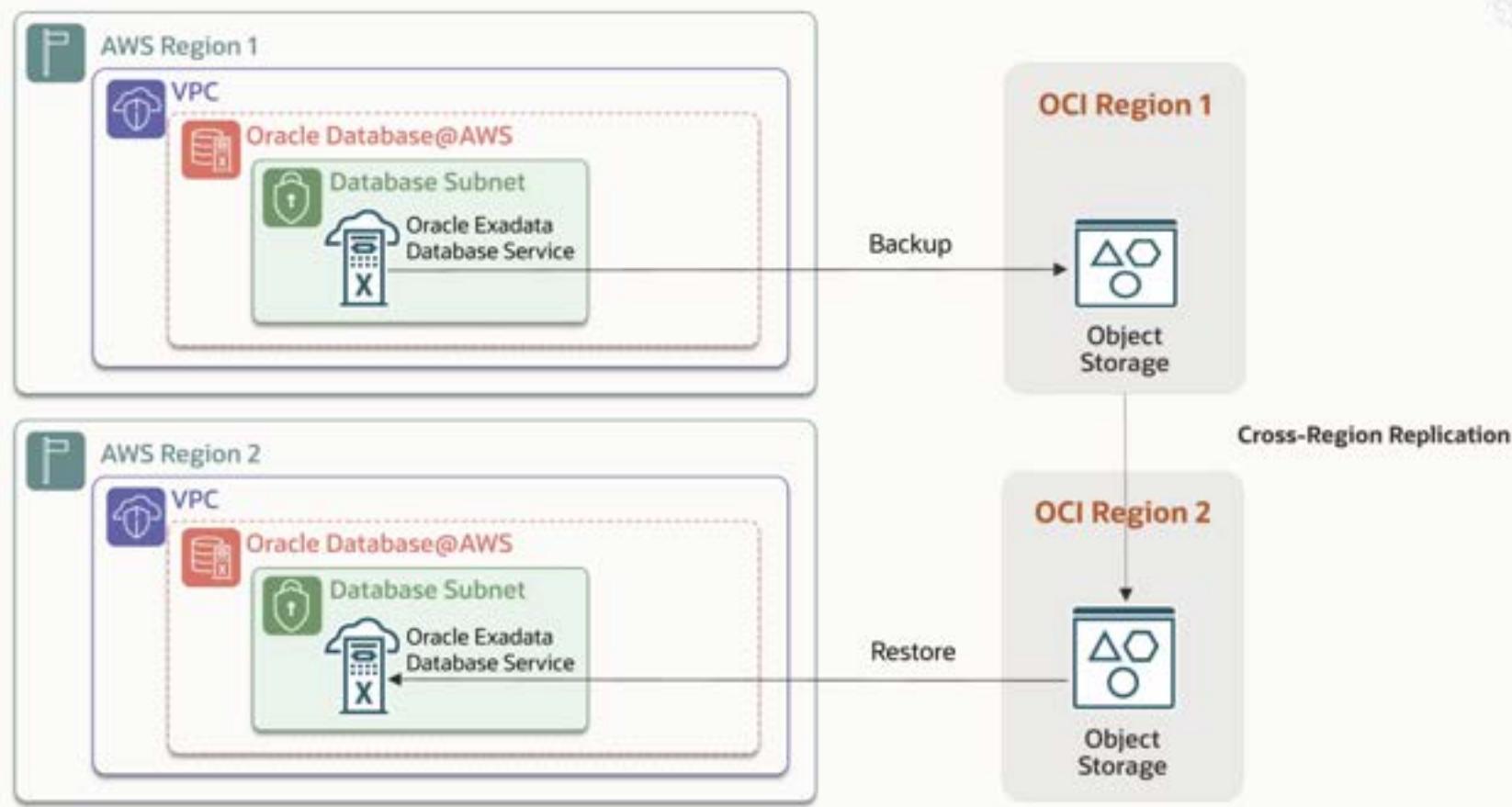
Cross-Region Object Storage Replication

Exadata Database Service@AWS | Local and Remote Standby

Exadata Database Service@AWS | Active Data Guard Far Sync

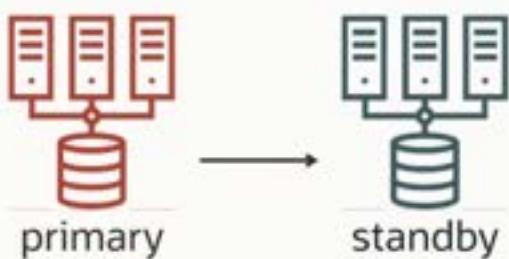
Exadata Database Service@AWS | Two Remote Standbys

Cross-Region Object Storage Replication Option for User Implementation



Oracle RAC & Oracle Active Data Guard

A powerful combination to protect from unplanned outages improving planned maintenance



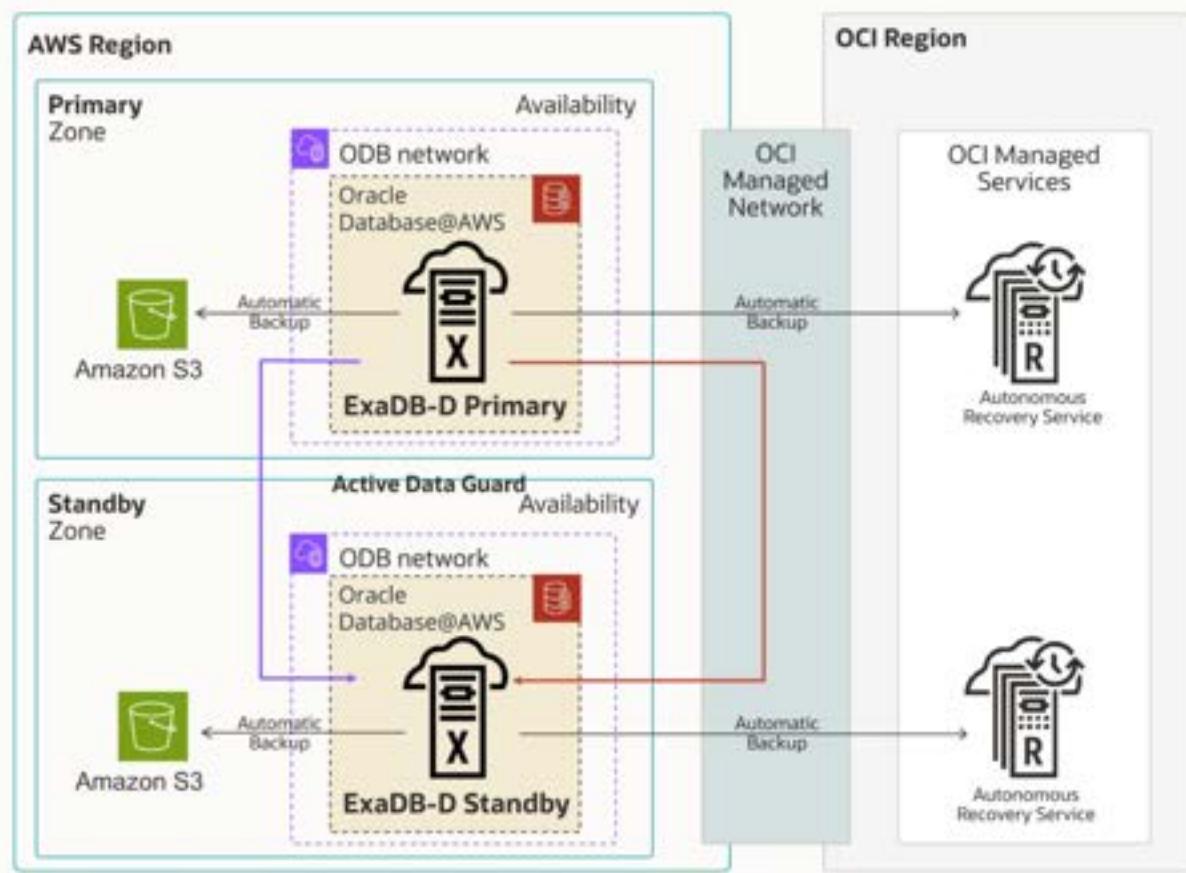
- ✓ Zero data loss
- ✓ Protection against database instance and hardware failures
- ✓ Protection against site failures and disasters
- ✓ Minimal downtime with Fast-Start Failover

Planned maintenance optimization:

- ✓ Rolling updates (patching) without downtime
- ✓ Upgrades with minimal downtime

Exadata Database Service@AWS | MAA Gold Level - cross-AZs

Mission-Critical Deployments with Disaster Recovery



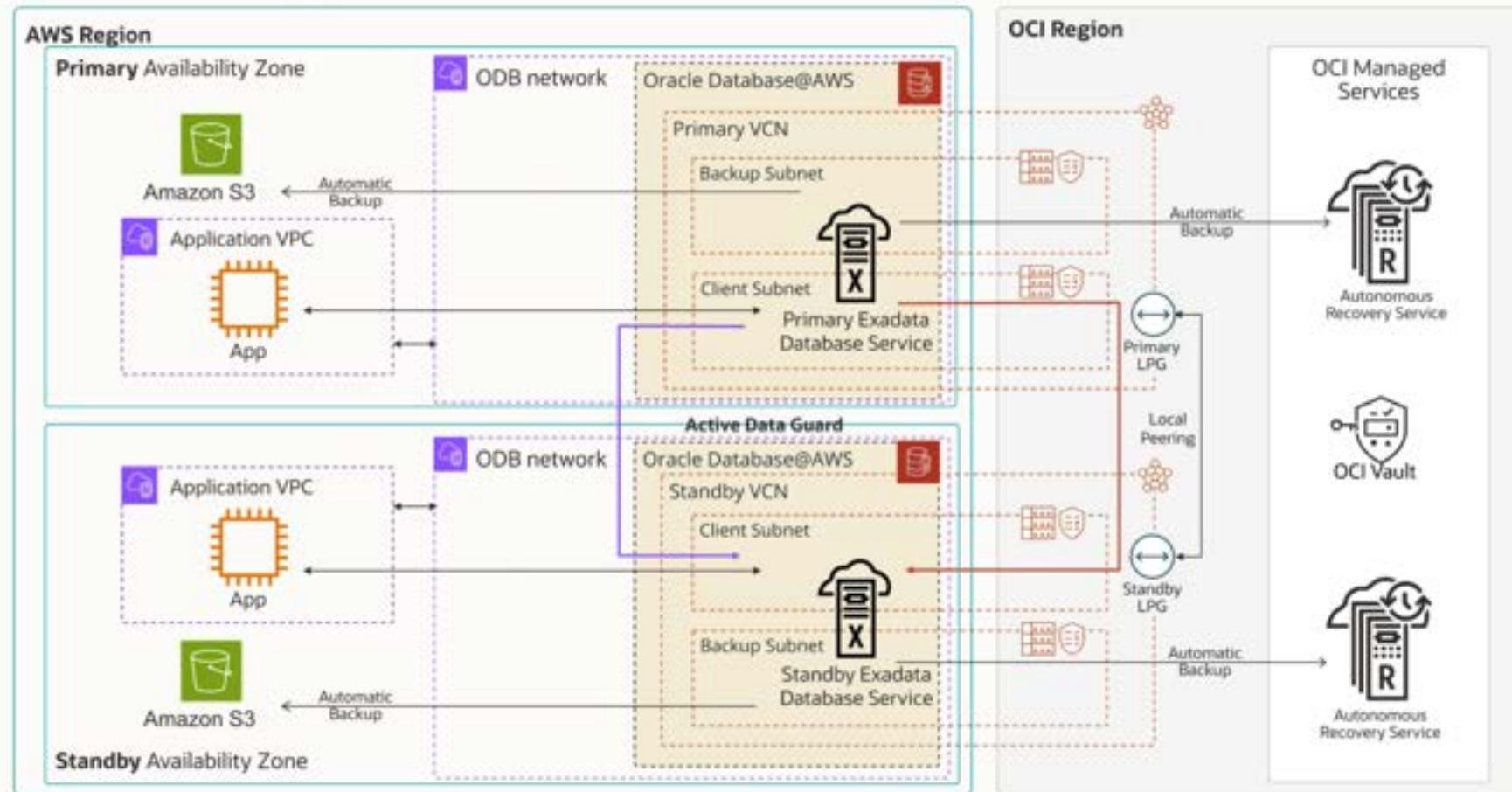
MAA Silver Level +

- ✓ Fully Automated Oracle Active Data Guard setup
- ✓ **Site failure protection**
- ✓ Comprehensive data corruption prevention
- ✓ Defense from ransomware attacks
- ✓ Online upgrades and migrations
- ✓ Offload backup and workload to standby with read-mostly scale-out
- ✓ Network traffic through OCI network or AWS network



Exadata Database Service@AWS | MAA Gold Level - cross-AZs

Network Topology for Oracle Active Data Guard



Oracle Active Data Guard for ExaDB-D on Oracle Database@AWS

Cross-AZs Deployment Options

Network Traffic through OCI (recommended)

- Automated one-click setup
 - MAA best practices by default
 - VCN peering required
- Oracle controls the network and ensures reliability
- Performance data coming soon
- No chargeback for network traffic across VCNs in the same region
- Multiple standby databases via Cloud Tooling
- Optional: Fast-Start Failover (FSFO) manual setup

Network Traffic through AWS

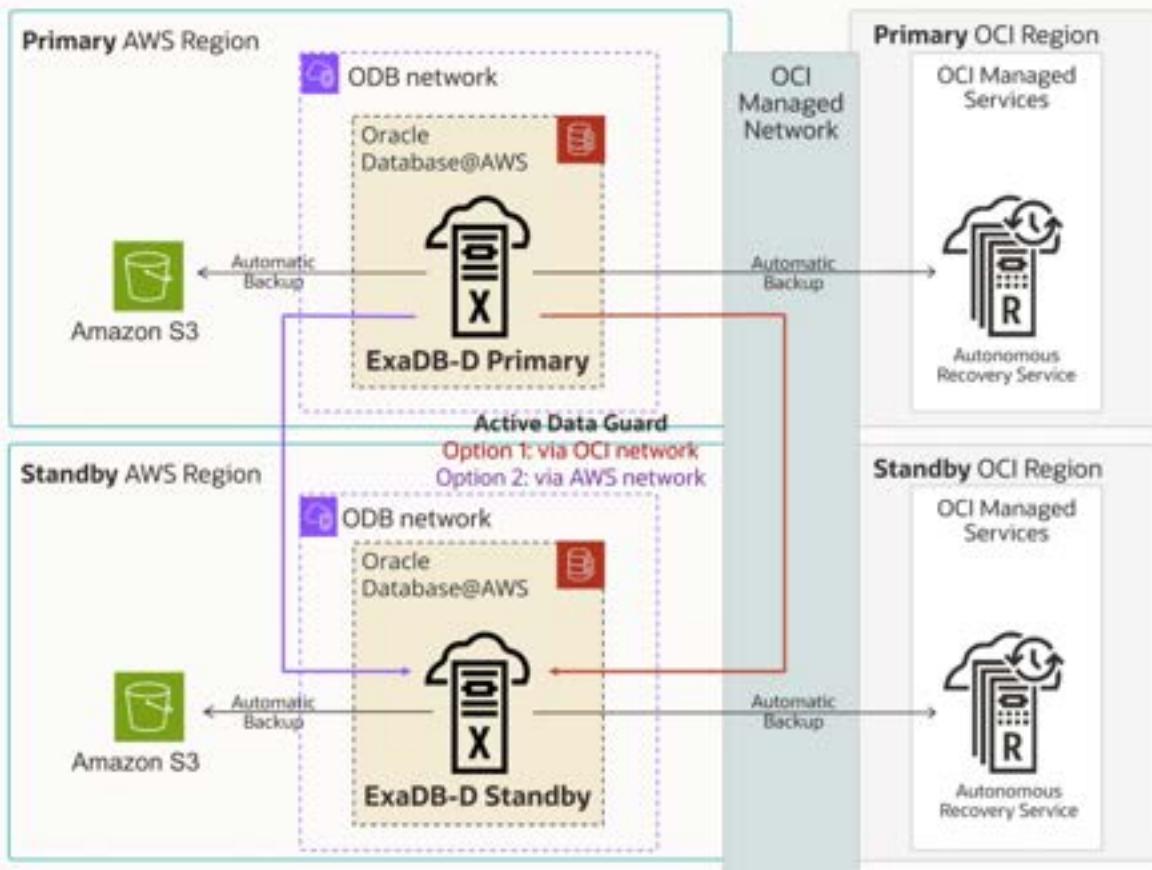
- Automated one-click setup
 - MAA best practices by default
 - VPC peering required
- Amazon controls the network and ensures reliability
- Performance data coming soon
- Chargeback for cross-VPC traffic in the same region
- Multiple standby databases via Cloud Tooling
- Optional: Fast-Start Failover (FSFO) manual setup

What is included in Gold MAA on Oracle Database@AWS?

- **Active-Active cluster with Oracle RAC:** Exadata Database Service on Oracle Database@AWS uses Oracle RAC for HA within a cluster. Active-active database nodes ensure seamless failover and enable rolling maintenance, minimizing planned downtime.
- **Active Data Guard Standby across AZs or regions:** In a Gold configuration, your primary database can continuously ship redo to a standby database in another AZ or region, providing near real-time replication and zero data loss.
- **Comprehensive Backup and Recovery Integration:** Uses either Object Storage or the Zero Data Loss Autonomous Recovery Service
- **Redundant Networking and Storage:** Ensures that if any one link or component fails, the database remains accessible. This holistic approach extends to Oracle's unique Exadata storage features as well. Intelligent storage servers that can survive drive failures and continue serving data without impact.
- **Minimal Downtime Patching and Upgrades:** A key aspect of MAA Gold is handling planned maintenance without disruption.

Exadata Database Service@AWS | MAA Gold Level - cross-regions

Mission-Critical Deployments with Disaster Recovery



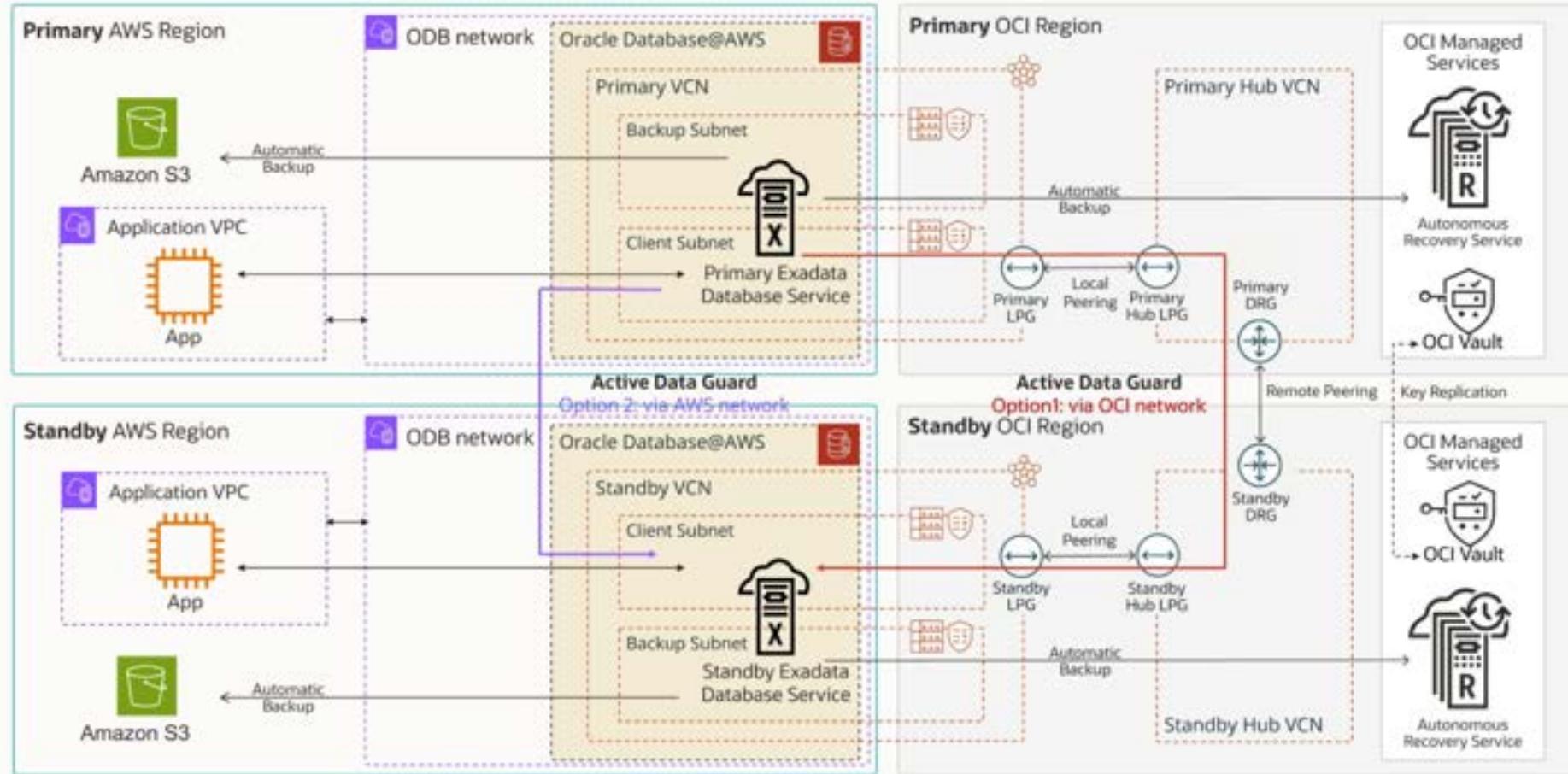
MAA Silver Level +

- ✓ Fully Automated Oracle Active Data Guard setup
 - ✓ Regional disaster recovery protection
 - ✓ Comprehensive data corruption prevention
 - ✓ Defense from ransomware attacks
 - ✓ Online upgrades and migrations
 - ✓ Offload backup and workload to standby with read-mostly scale-out
 - ✓ Network traffic through OCI network or AWS Network



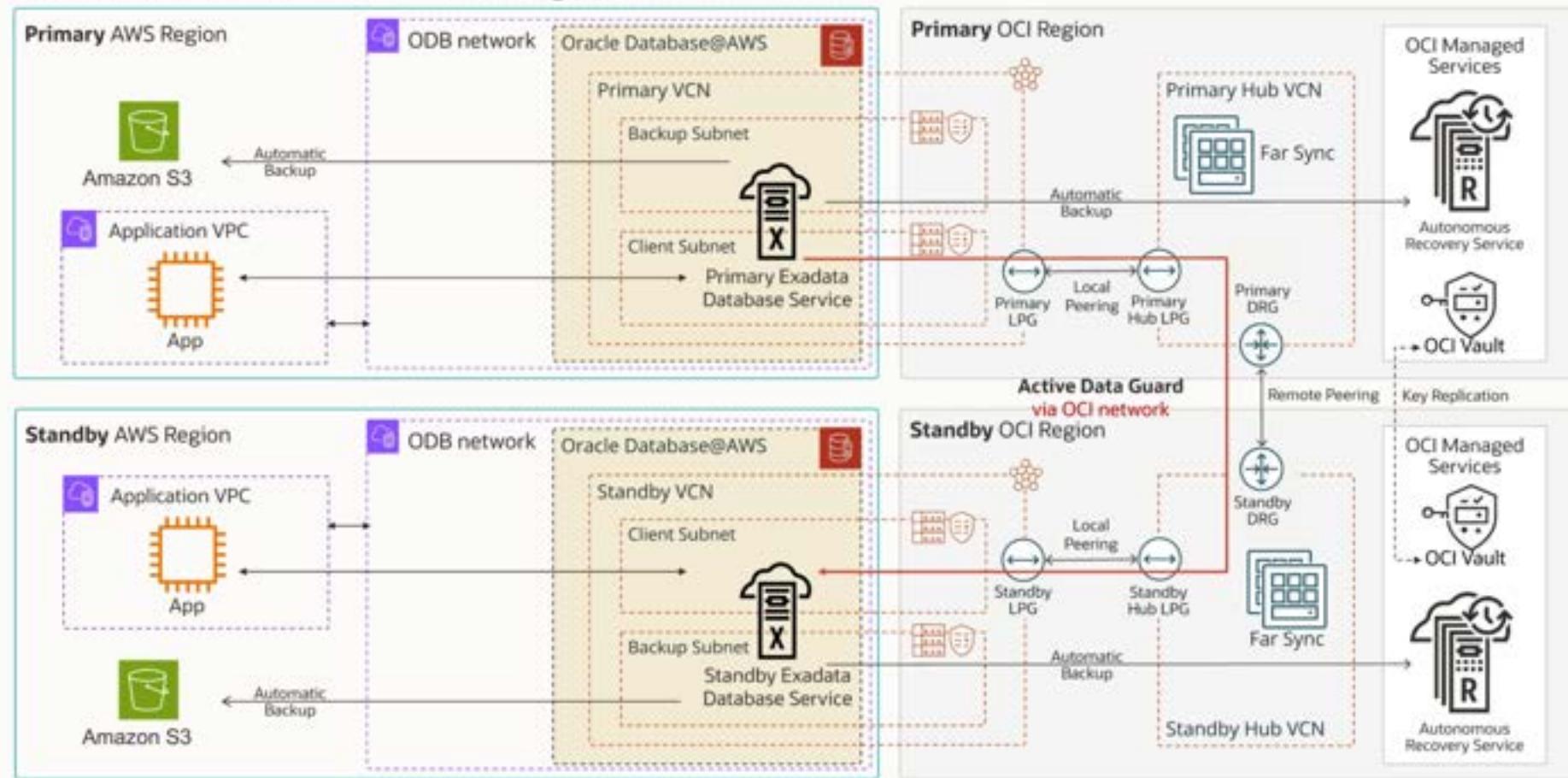
Exadata Database Service@AWS | MAA Gold Level - cross-regions

Network Topology for Oracle Active Data Guard

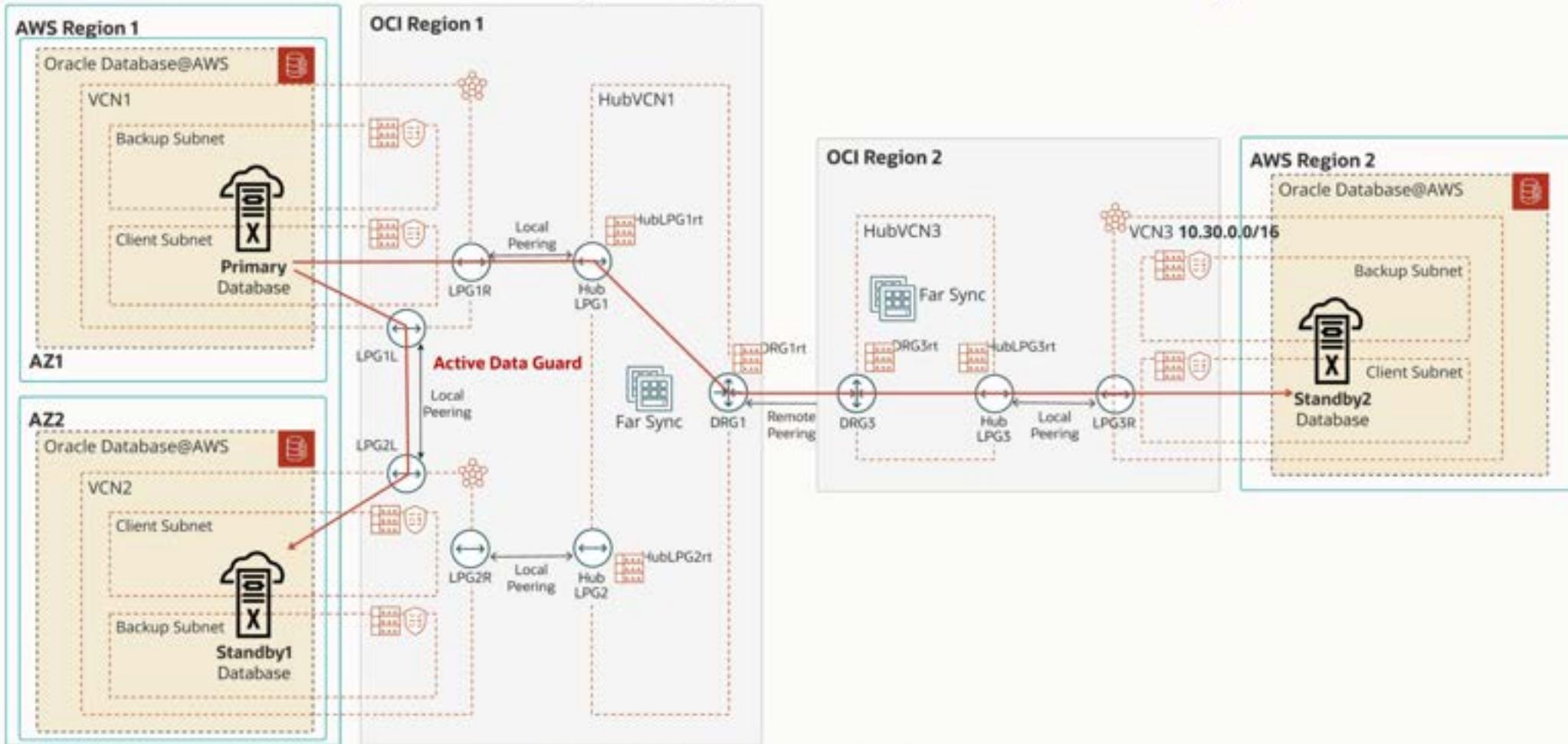


Exadata Database Service@AWS | Active Data Guard Far Sync

Ensure zero data loss across regions

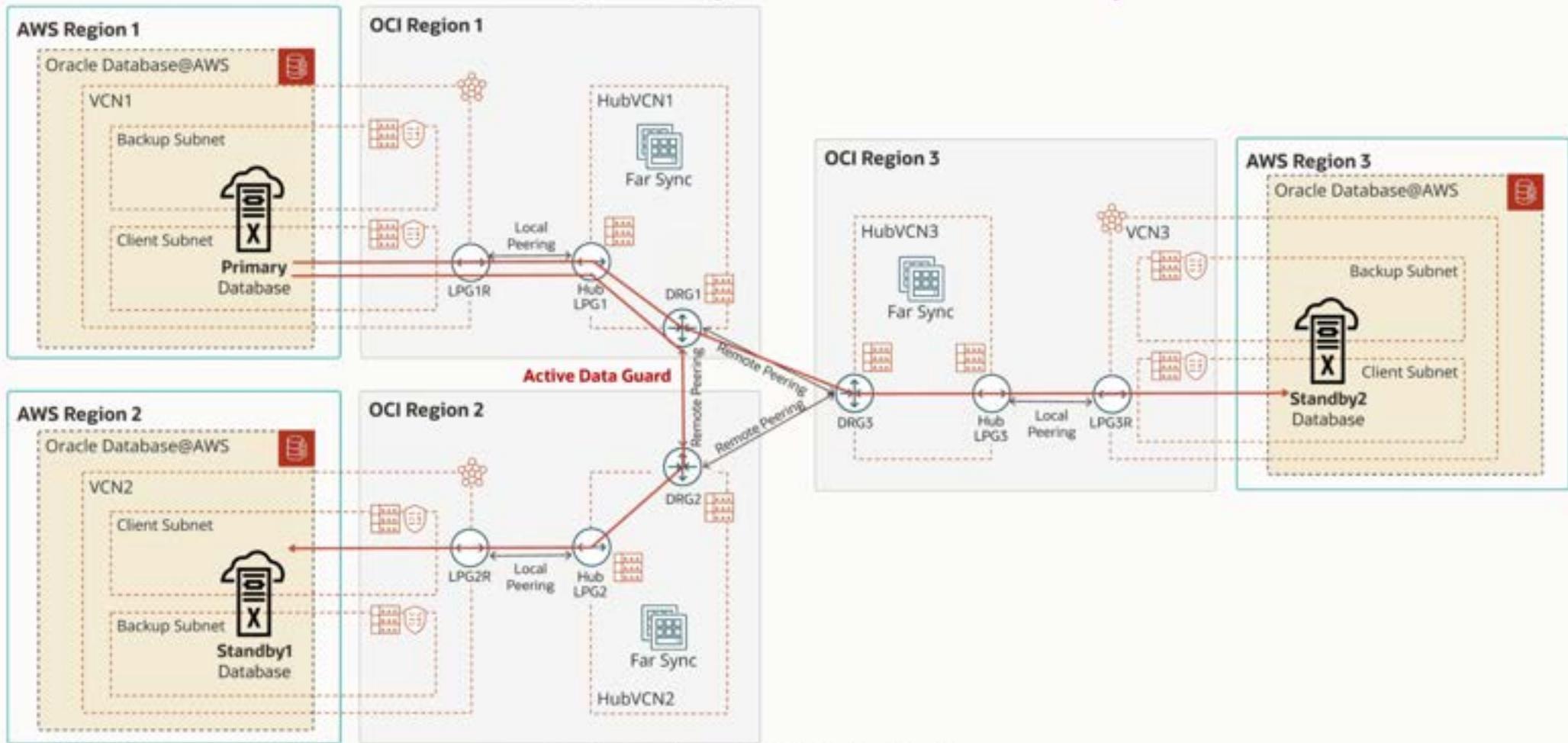


Exadata Database Service@AWS | Local and Remote Standby



coming
soon

Exadata Database Service@AWS | Two Remote Standbys



Oracle Active Data Guard for ExaDB-D on Oracle Database@AWS

Cross-regions Deployment Options

Network Traffic through OCI (recommended)

- Automated setup via Cloud Tooling
 - VCN peering required
- Oracle controls the network and ensures reliability
- First 10TB/month cross-region traffic for free
- Can support the potential high redo throughput required for enterprise databases
- Multiple standby databases via Cloud Tooling
- Optional: Fast-Start Failover (FSFO) and/or Far Sync manual setup

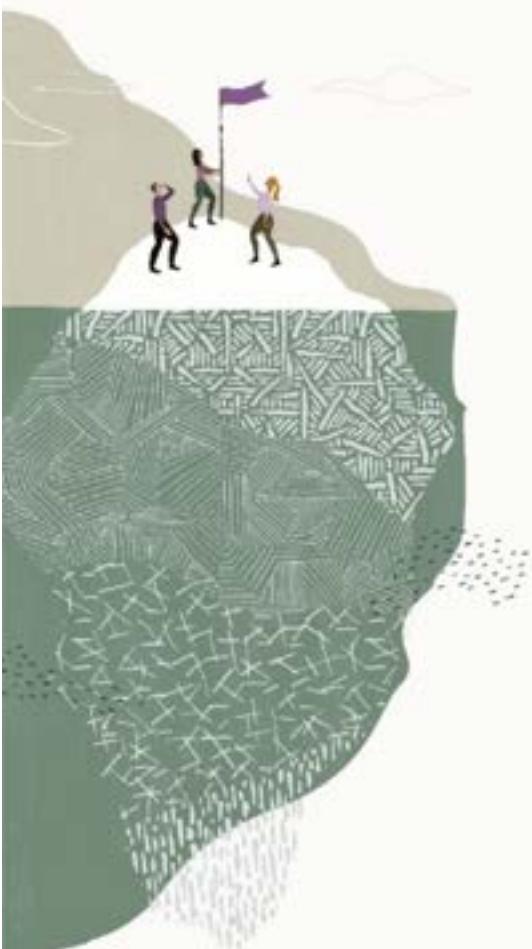
Network Traffic through AWS

- Automated setup via Cloud Tooling
 - VPC peering required
- Amazon controls the network and ensures reliability
- Chargeback for cross-region traffic
- Multiple standby databases via Cloud Tooling
- Optional: Fast-Start Failover (FSFO) and/or Far Sync manual setup

Configure Oracle Active Data Guard in OCI Console

<p>Resources</p> <hr/> <p>Metrics</p> <p>Backups (0)</p> <p>Data Guard Associations (0)</p> <hr/> <p>Pluggable Databases (1)</p>	<p>Enable Data Guard</p> <hr/> <p>Select peer VM Cluster</p> <p>Peer region: Germany Central (Frankfurt) Primary database is in region Germany Central (Frankfurt)</p> <p>Select availability domain: vPlay EU-FRANKFURT-1-AD-1 Primary database is in availability domain vPlay EU-FRANKFURT-1-AD-1</p> <p>Select Exadata infrastructure in FieldDemo: (Change compartment)</p> <p>Select an infrastructure First select Exadata Infrastructure</p> <p>Select a VM cluster in FieldDemo: (Choose commitment) First select a peer resource</p> <p>Data Guard association details</p> <p>Data Guard Type: Active Data Guard</p> <p>Active Data Guard is a licensed option to the Oracle Database capabilities that extend the basic Data Guard functionality. These features: Automatic Block Repair, Standby Block Change Tracking, Application Continuity. Learn more</p>	<p>Protection mode Select protection mode</p> <p>Transport type First select protection mode</p> <p>Choose Database Home</p> <p><input checked="" type="radio"/> Select an existing Database Home <input type="radio"/> Create a new Database Home</p> <p>Database Home display name: First select a peer resource</p> <p>Only Database Homes compatible with the source database's Oracle Database version and patch level are listed.</p> <p>Configure standby database</p> <p>Database unique name: Optional</p> <p>Specify a value for the DB_UNIQUE_NAME database parameter. This value must be unique across the primary and standby cloud VM clusters. Enter up to 30 characters.</p> <p>Database password: *****</p> <p>The standby database admin password must be the same as the primary database admin password.</p> <p>Show advanced options</p>
--	--	---

Summary



Cross-Region Object Storage Replication

Exadata Database Service@AWS | Local and Remote Standby

Exadata Database Service@AWS | Active Data Guard Far Sync

Exadata Database Service@AWS | Two Remote Standbys

Identity and Access Management

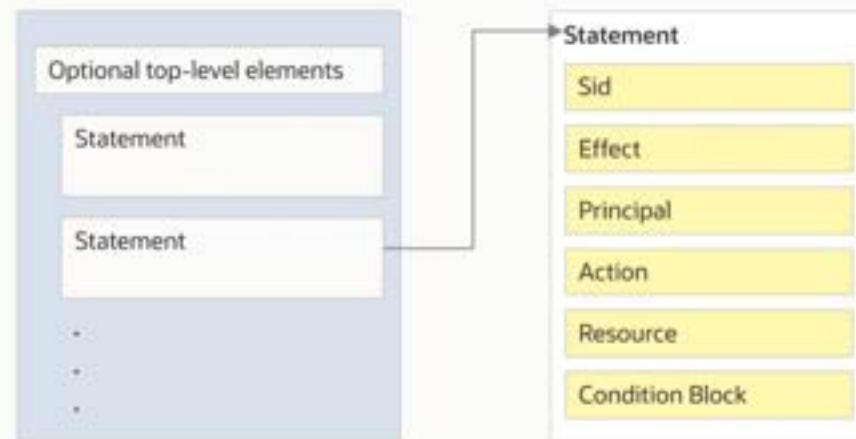
— **Security in Oracle Database@AWS**

Oracle Cloud Infrastructure

JSON Policy Document Structure

Policy editor

```
1 {  
2   "Version": "2012-10-17",  
3   "Statement": [  
4     {  
5       "Sid": "Statement1",  
6       "Effect": "Allow",  
7       "Action": [],  
8       "Resource": []  
9     }  
10    ]  
11 }
```



AWS Identity-based policy elements

Sid – Label to identify the statement

Effect – Allow or Deny the action

Action – Which AWS operations are permitted/denied

Resource – The AWS resources (ARNs) affected

Condition – Extra rules (IP, MFA, tags, time, etc.)

Sample Identity-based Policy

```
{  
    "Version": "2012-10-17",  
    "Statement": [  
        {  
            "Sid": "AllowOdbAndEc2Actions",  
            "Effect": "Allow",  
            "Action": [  
                "odb:GetOciOnboardingStatus",  
                "odb>CreateOdbNetwork",  
                "odb>DeleteOdbNetwork",  
                "odb:GetOdbNetwork",  
                "odb>ListOdbNetworks",  
                "odb:UpdateOdbNetwork",  
                "odb>CreateOdbPeeringConnection",  
                "odb>DeleteOdbPeeringConnection",  
                "odb:GetOdbPeeringConnection",  
                "odb>ListOdbPeeringConnections",  
                "odb:PutResourcePolicy",  
                "odb:GetResourcePolicy",  
                "odb>DeleteResourcePolicy",  
                "ec2:DescribeVpcs",  
                "ec2:DescribeAvailabilityZones",  
                "ec2:DescribeVpcEndpointAssociations",  
                "ec2>CreateVpcEndpoint",  
                "ec2>DeleteVpcEndpoints",  
                "ec2:DescribeVpcEndpoints"  
            ],  
            "Resource": "*"  
        },  
        {  
            "Sid": "AllowServiceLinkedRole",  
            "Effect": "Allow",  
            "Action": [  
                "iam:CreateServiceLinkedRole"  
            ],  
            "Resource": "",  
            "Condition": [  
                "StringEquals": {  
                    "iam:AWSServiceName": [  
                        "odb.amazonaws.com",  
                        "vpc-lattice.amazonaws.com"  
                    ]  
                }  
            ]  
        },  
        {  
            "Sid": "AllowTaggingActions",  
            "Effect": "Allow",  
            "Action": [  
                "odb:TagResource",  
                "odb:UntagResource",  
                "odb:ListTagsForResource"  
            ],  
            "Resource": "arn:aws:odb:::odb-network/*"  
        },  
        {  
            "Sid": "AllowOdbPeeringActions",  
            "Effect": "Allow",  
            "Action": [  
                "vpc-lattice:CreateServiceNetwork",  
                "vpc-lattice:DeleteServiceNetwork",  
                "vpc-lattice:GetServiceNetwork",  
                "vpc-lattice:CreateServiceNetworkResourceAssociation",  
                "vpc-lattice:DeleteServiceNetworkResourceAssociation",  
                "vpc-lattice:GetServiceNetworkResourceAssociation",  
                "vpc-lattice:CreateResourceGateway",  
                "vpc-lattice:DeleteResourceGateway",  
                "vpc-lattice:GetResourceGateway",  
                "vpc-lattice:CreateServiceNetworkVpcEndpointAssociation"  
            ],  
            "Resource": "*"  
        }  
    ]  
}
```

Auto-Created OCI Policies during Onboarding

When you onboard Oracle Database@AWS, OCI automatically creates policies that enable:

- The multicloud service to perform required operations.
- Authorized user groups to manage database resources.

Policies are created in two compartments:

- Root Compartment
- Base Compartment (auto-created during onboarding)
 - Name format:
MulticloudLink_AWS_<YYYYMMDDHHMMSS>
(Timestamp indicates creation time)



Auto-Created OCI Policies during Onboarding

Compartment	Policy Unique Name	Purpose
base	MulticloudLink_AWS_Management	Lets the multicloud service manage all multicloud resources in the base compartment.
root	MulticloudLink_AWS_<UNIQUE_ID>_User_Group_Policies	Lets authorized user groups perform operations on DB resources.
root	MulticloudLink_AWS_<UNIQUE_ID>_Observability	Lets the multicloud service perform observability operations.
root	MulticloudLink_AWS_<UNIQUE_ID>_Tenant_Level	Lets the multicloud service perform tenancy-level operations.

Note: These policies are for reference only and must not be changed or deleted.

IAM Feature Support in Oracle Database@AWS

IAM Feature	Support
Identity-based policies	<input checked="" type="checkbox"/> Yes
Resource-based policies	<input checked="" type="checkbox"/> No
Policy Actions	<input checked="" type="checkbox"/> Yes
Policy Resources	<input checked="" type="checkbox"/> Yes

IAM Feature Support in Oracle Database@AWS

IAM Feature	Support
Policy condition keys	<input checked="" type="checkbox"/> Yes
Access control lists (ACLs)	<input checked="" type="checkbox"/> No
Attribute-based access control (tags in policies)	<input checked="" type="checkbox"/> Partial
Temporary credentials	<input checked="" type="checkbox"/> Yes

IAM Feature Support in Oracle Database@AWS

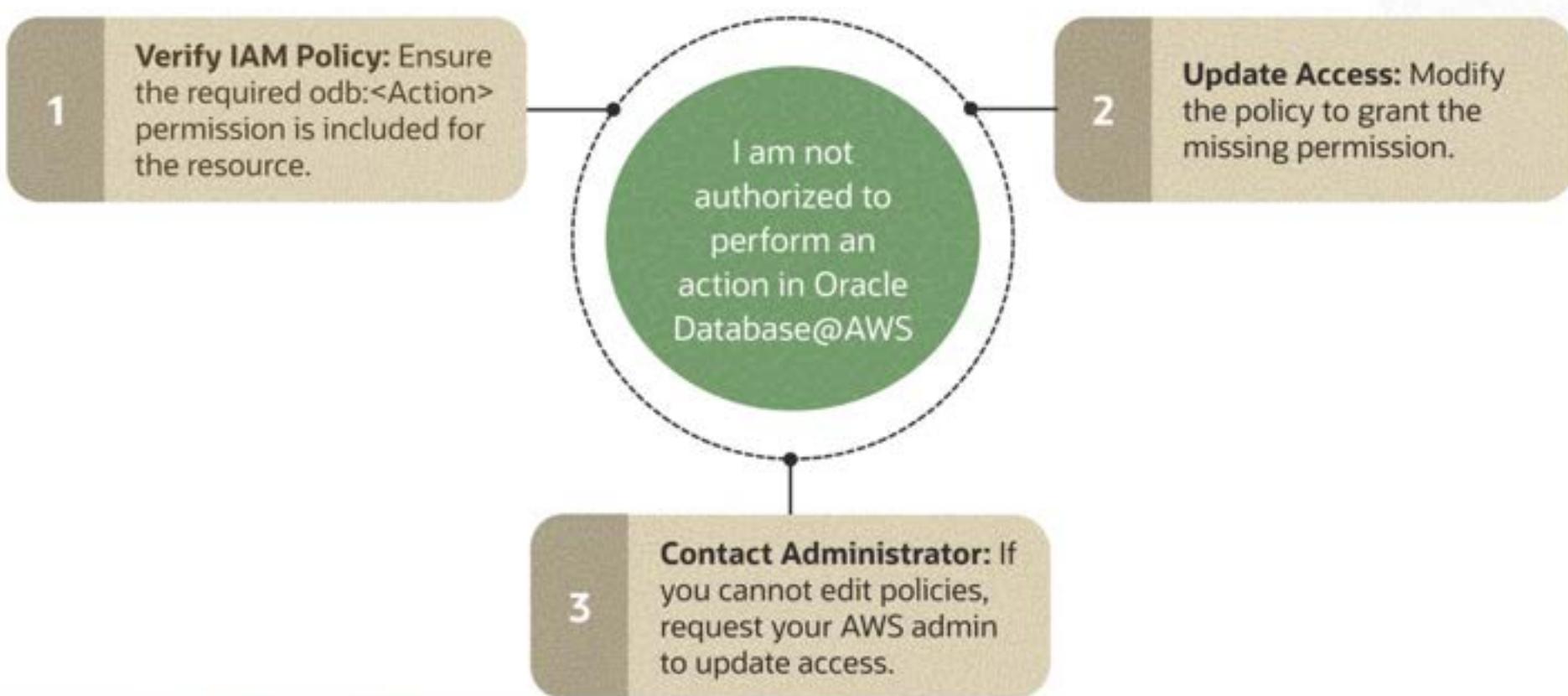
IAM Feature	Support
Principal permissions	<input checked="" type="checkbox"/> Yes
Service roles	<input type="checkbox"/> No

Troubleshooting Identity & Access

— **Security in Oracle Database@AWS**

Oracle Cloud Infrastructure

Troubleshooting OD@AWS Identity & Access



Troubleshooting OD@AWS Identity & Access



Troubleshooting OD@AWS Identity & Access



Oracle Cloud Infrastructure

Data Protection

— Security in Oracle Database@AWS

Data Security



Enable multi-factor authentication on every account to prevent unauthorized access

Data Security



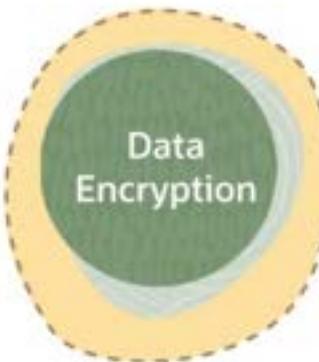
Use SSL/TLS (min. TLS 1.2; TLS 1.3 recommended) for all AWS communications

Data Security



Enable AWS CloudTrail to record API calls and user actions for auditing

Data Security



Apply AWS encryption solutions with default service-level security controls

Data Security



Use Amazon Macie to detect, classify, and protect sensitive S3 data

Security and Compliance

Security in Oracle Database@AWS

Oracle Cloud Infrastructure



Oracle Database@AWS Security

Security Feature	Granularity	Options
Encryption	Encryption at rest	TDE - enforced
	Encryption in transit	SSL/NNE based
Key management	Database level	OCI Vault
Auditing	Database level	Unified Auditing/ Fine Grained Auditing
	Resource level	AWS CloudTrail OCI Audit Service
Network Isolation	Database level	Database ACL, Database Firewall
	VPC level	NACL, Security Groups
Access restrictions	Database level	Database Vault, Virtual Private Database (VPD), Row Level Security (RLS)
	Resource level	AWS IAM Policies, groups/roles

Oracle Database Feature

AWS feature

OCI feature

Securing Your Databases

Control User and Network Access

Use passwords, private subnets, and network security groups to control user and network access.

Data Encryption

All databases created in OCI are encrypted using transparent data encryption (TDE).

Ensure that any migrated databases are also encrypted. Rotate the TDE master key every 90 days or less.

Restrict Permissions for Deleting Database Resources

Grant the delete permissions (DATABASE_DELETE and DB_SYSTEM_DELETE) to a minimum set of users and groups.

Patching

Apply Oracle Database security patches (Oracle Critical Patch Updates)

Mitigate known security issues and keep the patch levels up-to-date.

Securing Your Databases

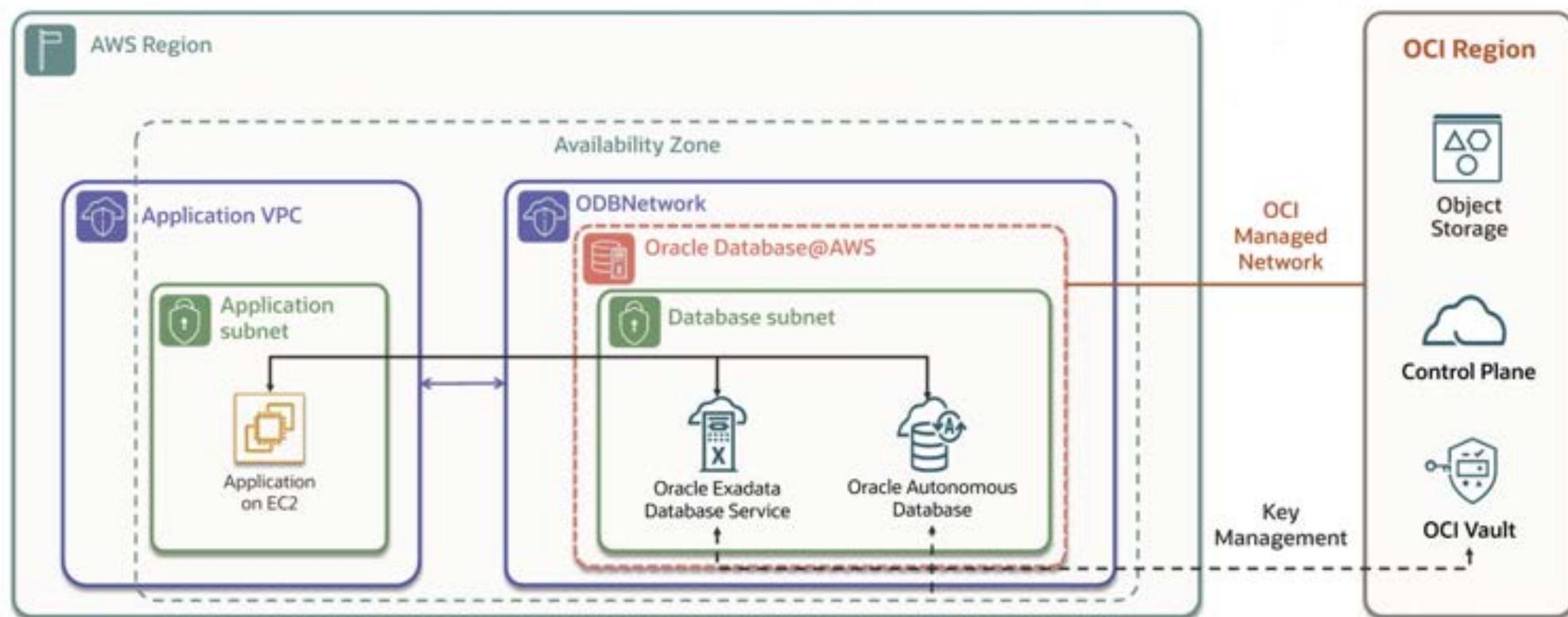
Use DB Security Tools

Established Data Masking and Auditing tools to secure your data for Oracle Database@AWS.

Enable Data Safe

Use Data Safe to assess database and data security configuration, detect associated risk for user accounts, identify existing sensitive data, implement controls to protect data, and audit user activity.

Encryption : OCI Vault



Oracle Database@AWS Compliance Certifications

Audit Program	Location	Scope for Oracle Database@AWS
SOC 1 (System and Organization Controls 1)	Global	Supported
SOC 2 (System and Organization Controls 2)	Global	Supported
SOC 3 (System and Organization Controls 3)	Global	Supported
HIPAA (Health Insurance Portability and Accountability Act)	Global	Supported

Note: Compliance certifications for Oracle Database@AWS, current as of July 8, 2025



Oracle Database@AWS Compliance Certifications

Audit Program	Location	Scope for Oracle Database@AWS
C5 (Cloud Computing Compliance Controls Catalogue – Germany)	Global	Supported
CSA STAR Attestation	Global	Supported
CSA STAR Certification	Global	Supported
HDS (Hébergement de Données de Santé – France)	Global	Supported

Note: Compliance certifications for Oracle Database@AWS, current as of July 8, 2025



Oracle Database@AWS Compliance Certifications

Audit Program	Location	Scope for Oracle Database@AWS
ISO/IEC 9001, 20000-1, 27001, 27017, 27018, 27701	Global	Supported
ISO/IEC 22301 (Business Continuity Management)	Global	Supported
PCI DSS (Payment Card Industry Data Security Standard)	Global	Supported
HITRUST (Health Information Trust Alliance)	Global	Supported

Note: Compliance certifications for Oracle Database@AWS, current as of July 8, 2025

Oracle Cloud Infrastructure

Zero-Downtime Migration: Overview



ZDM Features

- Free end-to-end Oracle Database migration automation tool
- Migrate individual or entire fleet of databases
- Zero to minimal source database downtime (< 15 mins)
- Compliant with Oracle Maximum Availability Architecture (MAA)
- Migrate online and offline; employs physical or logical method
- Perform in-flight upgrades, convert non-CDB to PDB together with migration
- Customize migration workflow, prechecks, audits, control the execution



ZDM Supported Environment

Migrate Oracle Database on release 11.2.0.4 and above

Supports Standard or Enterprise Oracle database migration

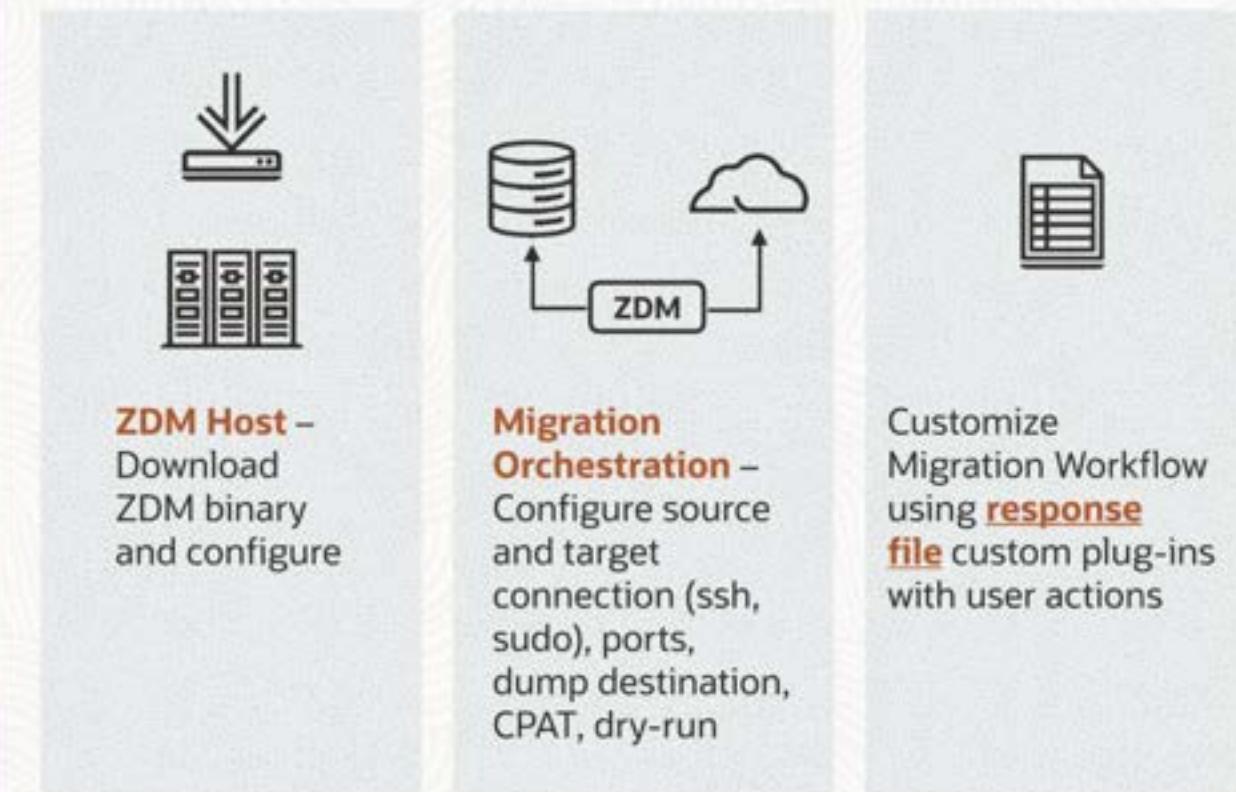
Migrate from single-instance, RAC One Node, RAC DB sources

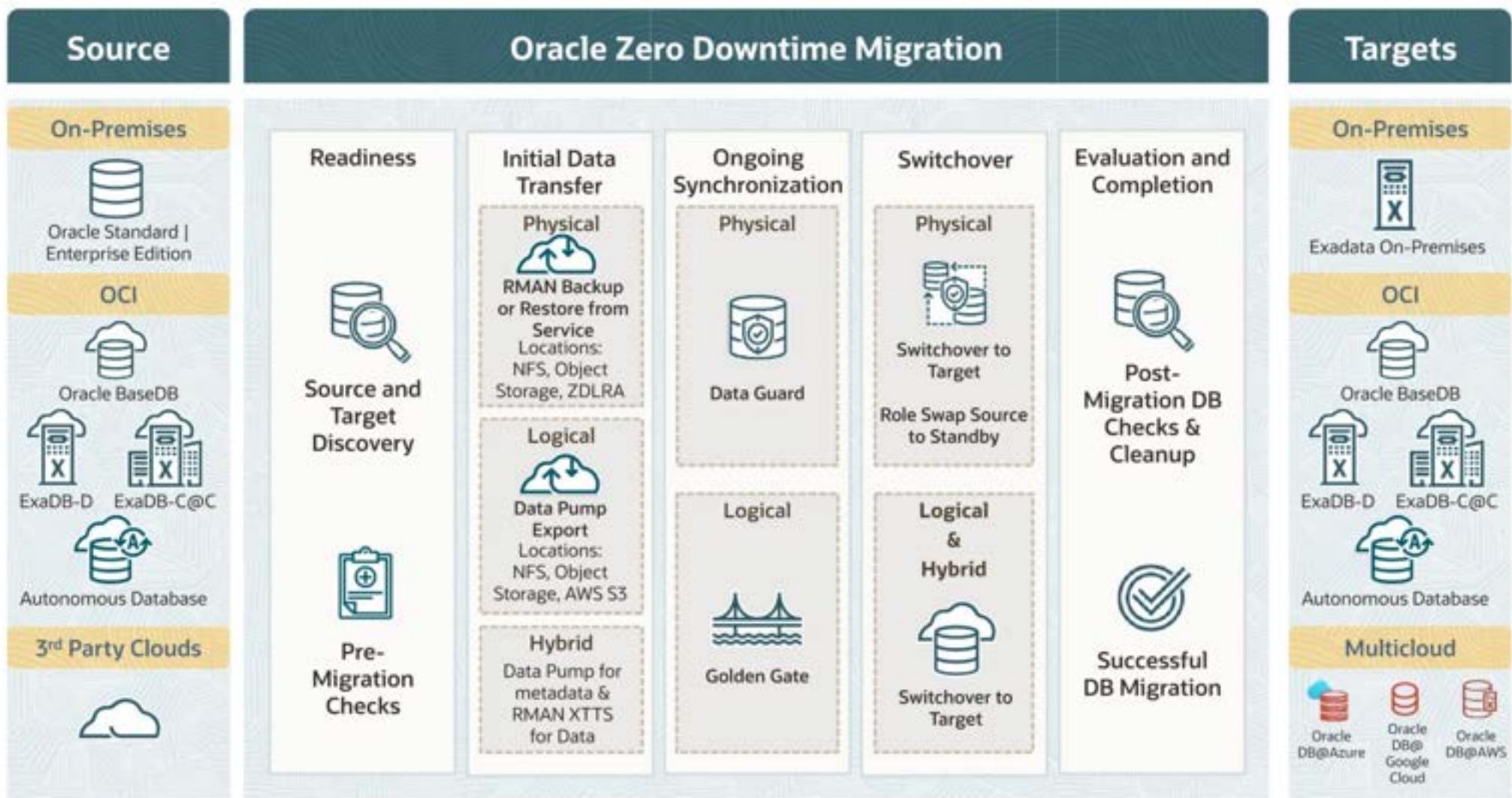
Supports migration from Linux, Oracle Solaris or AIX source platform; physical migration supports only source DB on Linux

Migrate from on-premises, non-Oracle Cloud or within Oracle Cloud

Migrate to any OCI database services using a suitable method

ZDM – How It Works

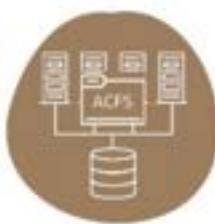




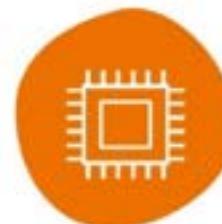
Migration Method	Availability Modes And Migration Approach	Migration Technology	Data Transfer Mechanisms Supported
Physical Block Copy	Offline Backup-Restore ¹	Oracle RMAN	<ul style="list-style-type: none"> • Oracle Cloud Object Store • Oracle ZDLRA • Shared Storage - NFS • Direct Restore from service
	Online Backup-Restore ¹ Physical Standby-Switchover	Oracle RMAN Oracle Data Guard	
Logical SQL Unload-Reload	Offline Export-Import	Oracle Data Pump	<ul style="list-style-type: none"> • Oracle Cloud Object Store <ul style="list-style-type: none"> - oci-cli • Shared Storage - NFS • Secure Copy • Database Link • Amazon S3²
	Online Export-Import Extract-Replicat	Oracle Data Pump Oracle GoldenGate	

Oracle Cloud Infrastructure ZDM Intermediate Storage Options in AWS

ZDM Intermediate Storage Options in AWS



Oracle Advanced
Cluster File System



Customer Managed
NFS Server



Amazon S3
Storage Gateway



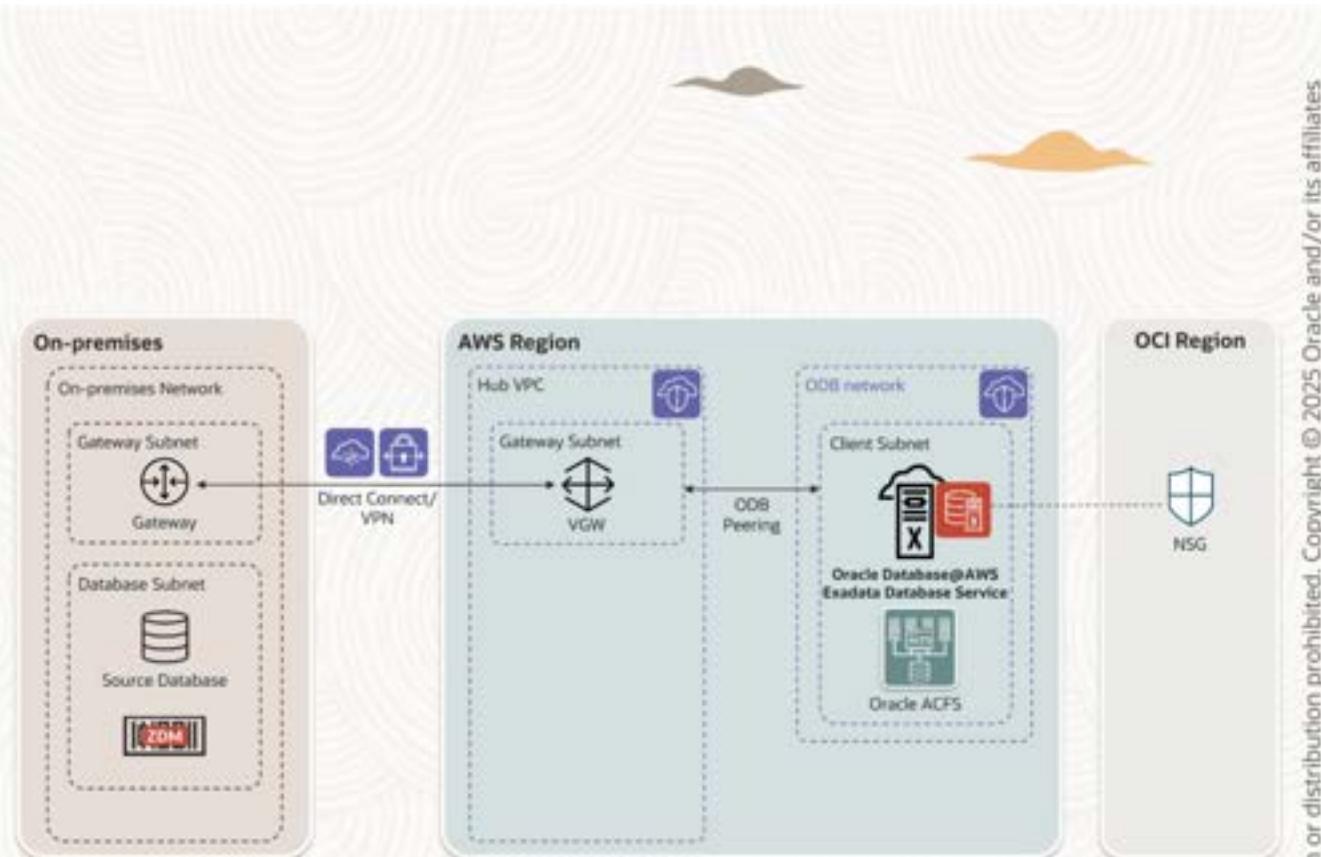
Amazon Elastic
File System (EFS)



Amazon FSx
for OpenZFS

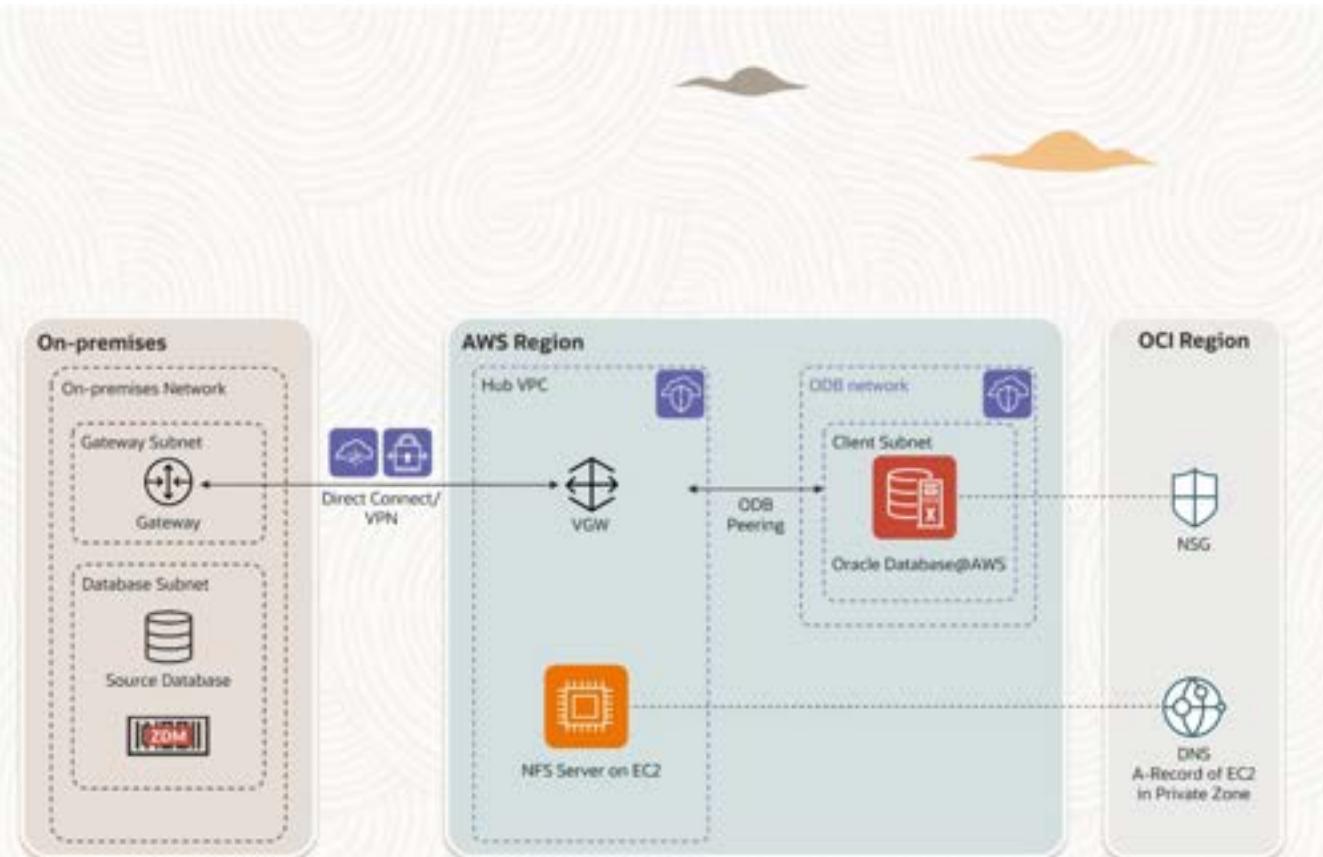
Oracle Advanced Cluster File System (ACFS)

- Multi-platform, scalable file system, and storage management technology that extends Oracle ASM
- ACFS NAS|MAX extension supports NFS and SMB protocols over ACFS
- ACFS NAS|MAX built on Oracle Grid Infrastructure Highly Available technology
- Export highly available NFS storage that can survive any one cluster node failure
- Access to the NFS share is via Virtual Private Gateway which must be in the subnet that is peered to the ODB Network
- Used by Oracle ZDM for migrating to Exadata Database Service in OD@AWS



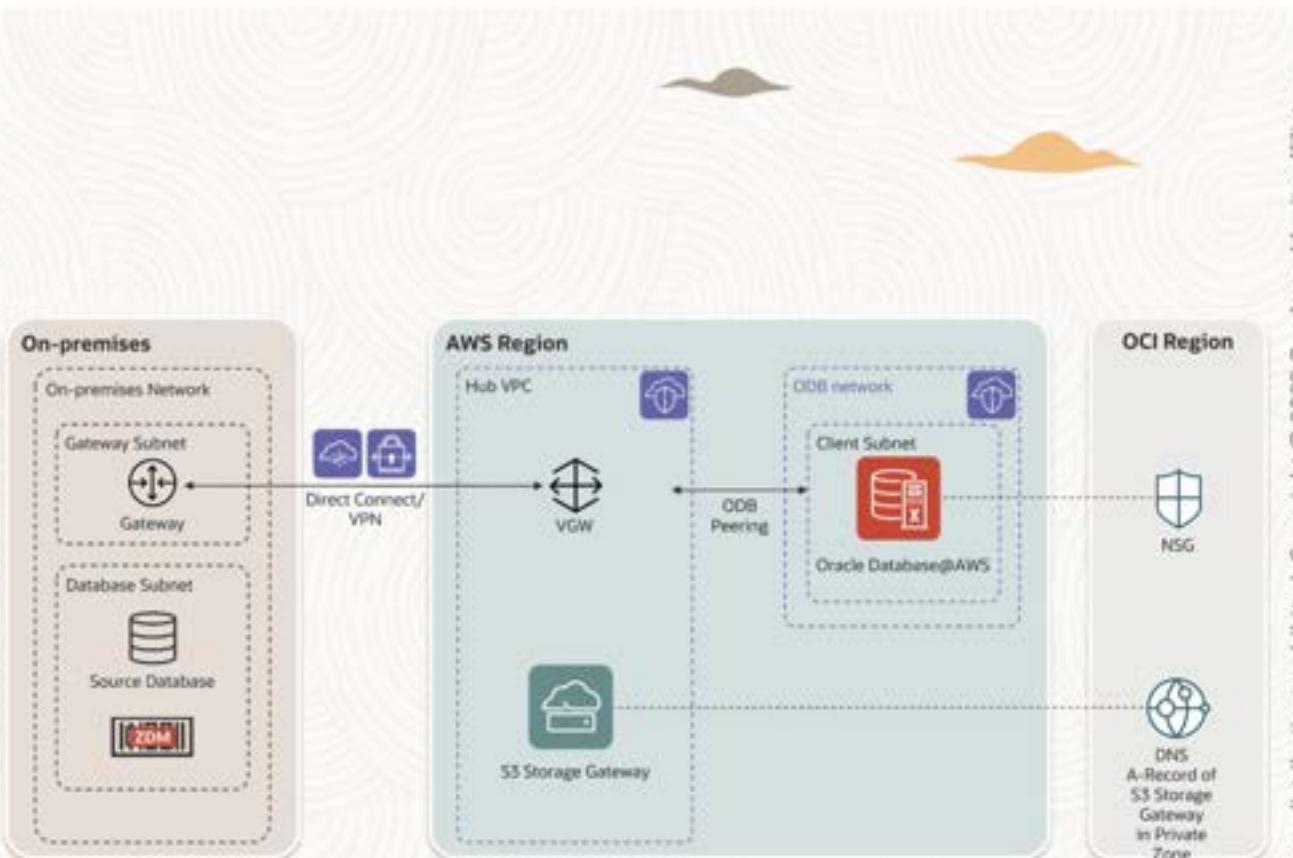
NFS Server on AWS EC2 VM

- Customer-managed NFS share
- Install and configure NFS server on AWS EC2 VM
- Define directories to be exported for NFS Share
- Configure security groups associated with the EC2 instance to allow inbound traffic on ports
- Mount NFS share on clients
- NFS Server EC2 instance and Virtual Private Gateway must be in the same subnet that is peered with ODB network
- Create an A-record in OCI DNS VCN Resolver to resolve the NFS server name on AWS EC2



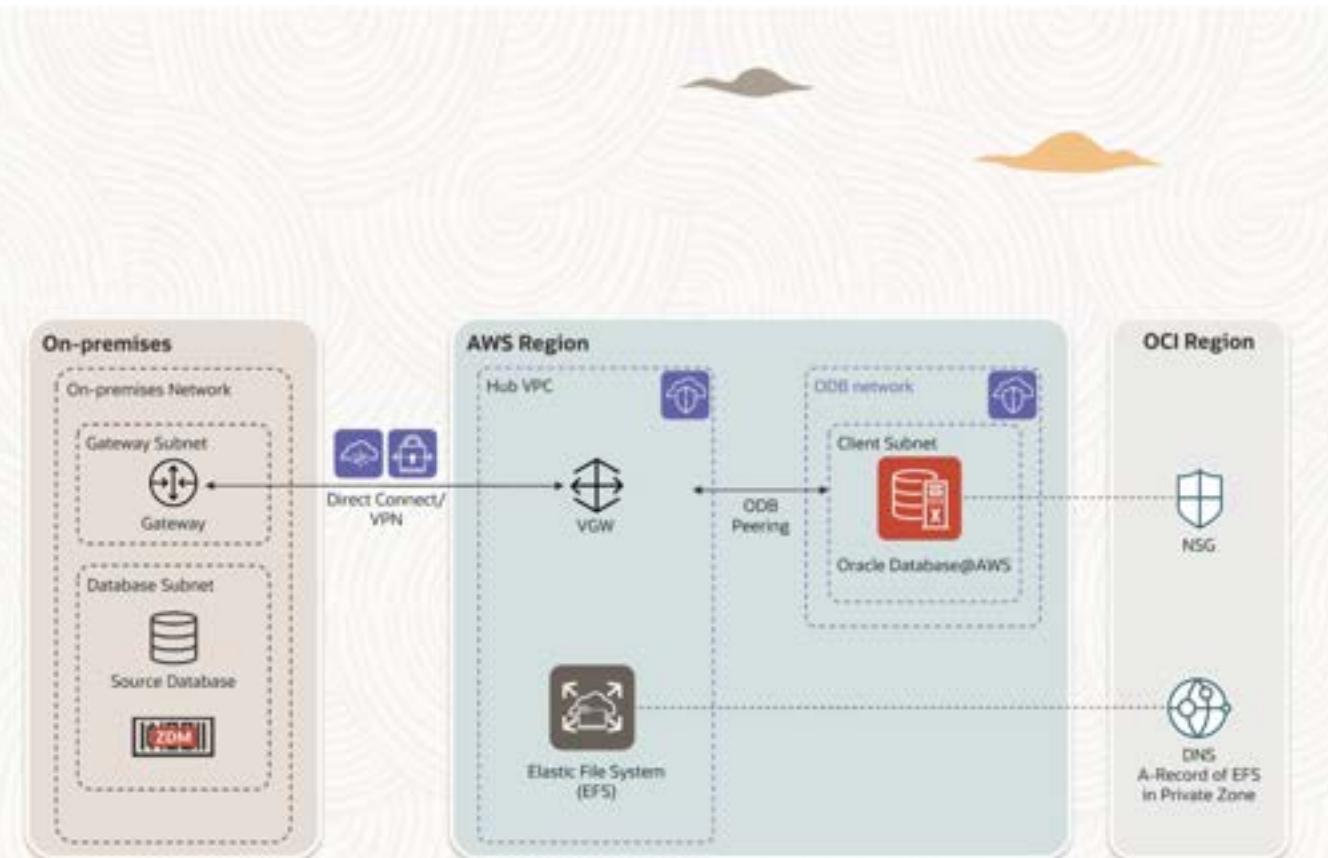
Amazon S3 Storage Gateway

- Managed Hybrid Cloud Storage solution
- Provides scalability, data protection, durability, availability, security and performance in AWS
- File-based interface to Amazon Simple Storage Service (S3)
- Easily deployed into your environment using a pre-configured virtual appliance
- Store and access files stored in Amazon S3 using standard file protocols like NFS
- Supports versions NFS v3.0 and 4.1
- S3 Storage Gateway and Virtual Private Gateway must be in the same subnet that is peered with ODB network
- create an A-record in OCI DNS VCN Resolver to resolve the Amazon S3 Storage Gateway



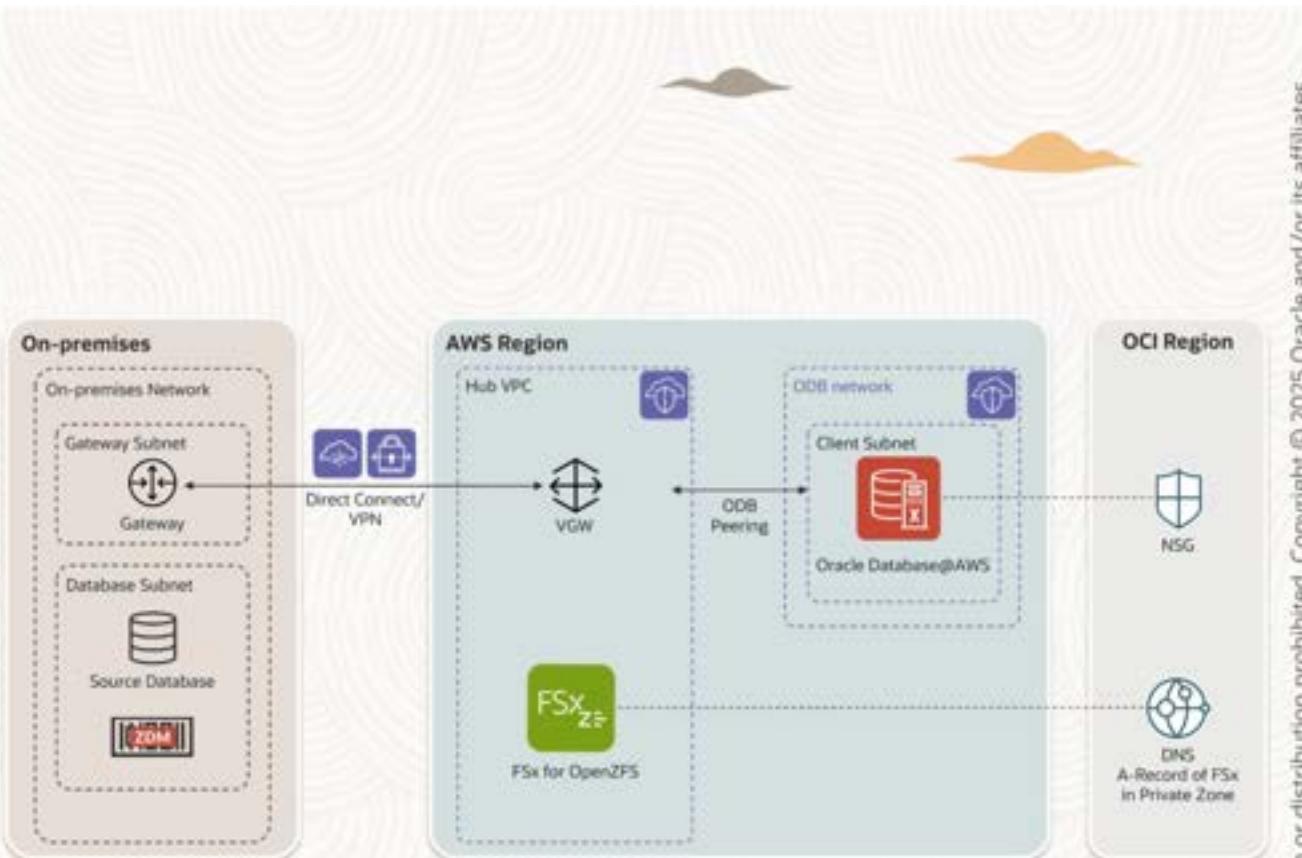
Amazon Elastic File System

- Fully Managed, serverless, scalable, Cloud Native, and Elastic file storage solution
- Supports NFS protocol version 4.0, 4.1
- Amazon EFS endpoint and Virtual Private Gateway must be in the same subnet that is peered with ODB network
- Create an A-record in OCI DNS VCN Resolver to resolve the Amazon EFS endpoint for accessing NFS share



Amazon FSx for OpenZFS

- Fully Managed, scalable shared storage solution built on open source OpenZFS file system
- Supports NFS protocol version 3.0, 4.0, 4.1, and 4.2
- Create an A-record in OCI DNS VCN Resolver to resolve the Amazon FSx for OpenZFS endpoint
- Amazon FSx for OpenZFS endpoint and Virtual Private Gateway must be in the same subnet that is peered with ODB network



Oracle Cloud Infrastructure

ZDM Physical Online Migration to ExaDB-D on Oracle Database@AWS

ZDM Physical Online Migration to ExaDB-D on Oracle Database@AWS

Using Direct Data Transfer and Data Guard

Download and configure ZDM Service Host.

Provision Target Placeholder Database (Do not enable automatic backups).

Check Source and Target database prerequisites.

Enable TDE and create auto-login wallet on Source **(if not enabled)**.

Prepare ssh connectivity in Source, Target and ZDM host.

Check SQL*Net connectivity between source and target.

Prepare migration response file on ZDM host.

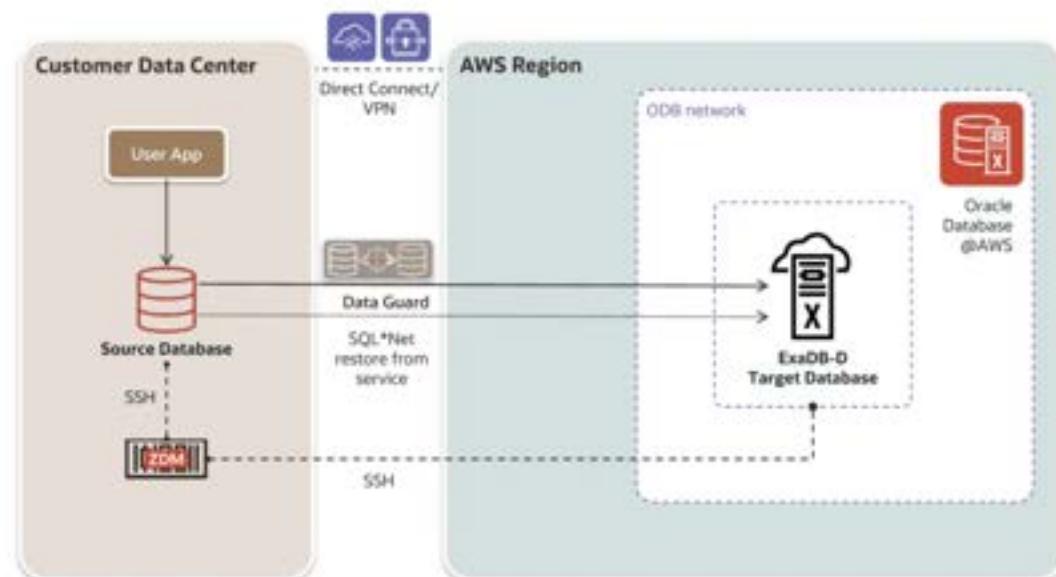
Evaluate and initiate migration using zdmcli; monitor job log file.



ZDM Physical Online Migration to ExaDB-D on Oracle Database@AWS

Using Direct Data Transfer and Data Guard

- ZDM host is on-premises with secure connection to OD@AWS.
- “Restore From Service operation”—restores and creates target standby.
- Standby is synchronized using Oracle Data Guard.
- Migration concludes with a role switchover.



ZDM Physical Online Migration to ExaDB-D on Oracle Database@AWS

Using Direct Data Transfer and Data Guard

Sample Parameters

Response File : `physical_online.rsp`

```
#add the following parameters and save the changes
MIGRATION_METHOD=ONLINE_PHYSICAL
DATA_TRANSFER_MEDIUM=DIRECT
ZDM_RMAN_DIRECT_METHOD=RESTORE_FROM_SERVICE
ZDM_SRC_DB_RESTORE_SERVICE_NAME=<oradb>
TGT_DB_UNIQUE_NAME=<oradb_exa>
PLATFORM_TYPE=EXACS
```



Oracle Cloud Infrastructure

ZDM Physical Offline Migration to ExaDB-D on Oracle Database@AWS

ZDM Physical Offline Migration to ExaDB-D on Oracle Database@AWS

Using Amazon FSx for OpenZFS and RMAN

- Download and configure ZDM Service Host.
- Provision Target Placeholder Database (Do not enable automatic backups).
- Check Source and Target database prerequisites.
- Configure Intermediate Storage Location on Source and Target host.
- Enable TDE and create auto-login wallet on Source (**if not enabled**).
- Prepare ssh connectivity in Source, Target, and ZDM host.
- Prepare migration response file on ZDM host.
- Evaluate and initiate migration using zdmcli; monitor job log file.

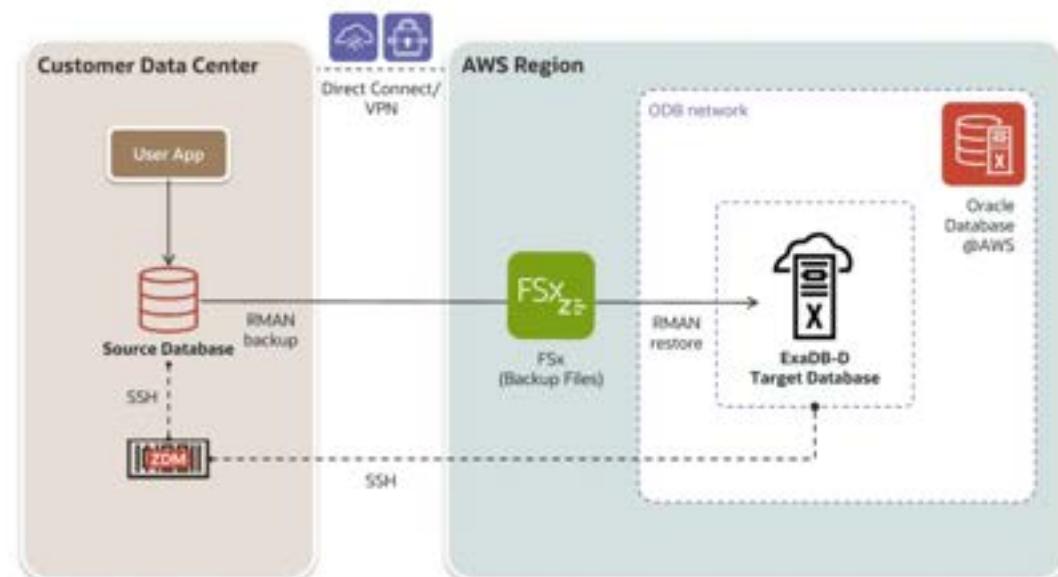


Amazon FSx for OpenZFS
(Backup Files)

ZDM Physical Offline Migration to ExaDB-D on Oracle Database@AWS

Using Amazon FSx for OpenZFS and RMAN

- ZDM host is on-premises with secure connection to OD@AWS.
- Can use Amazon FSx for OpenZFS, AWS S3 Storage Gateway, Customer-managed NFS Server, Oracle Advanced Cluster File System (Oracle ACFS) for NFS share.
- When using AWS Elastic File Service (EFS) as NFS Share, create file \$ORACLE_HOME/dbs/oranfstab in target host with EFS IP.
- ZDM creates database RMAN backup in NFS mount point and restore to target.



ZDM Physical Offline Migration to ExaDB-D on Oracle Database@AWS

Using Amazon FSx for OpenZFS and RMAN

Sample Parameters

Response File : `physical_offline.rsp`

```
#add the following parameters and save the changes
MIGRATION_METHOD=OFFLINE_PHYSICAL
DATA_TRANSFER_MEDIUM=NFS
BACKUP_PATH=</mnt/zdm_share/>
TGT_DB_UNIQUE_NAME=<oradb_exa>
PLATFORM_TYPE=EXACS
```



Amazon FSx for OpenZFS
(Backup Files)

Oracle Cloud Infrastructure

ZDM Logical Online Migration to ExaDB-D on Oracle Database@AWS

ZDM Logical Online Migration to ExaDB-D on Oracle Database@AWS

Using Amazon Elastic File System and Oracle GoldenGate

Download and Configure ZDM Service Host.

Provision Target Placeholder Database.

Check Source and Target database prerequisites.

Configure Intermediate Storage Location on Source and Target host.

Setup Oracle GoldenGate on Podman VM (on-premises or AWS EC2).

Prepare ssh connectivity in Source, Target and ZDM host.

Prepare migration response file on ZDM host.

Evaluate and initiate migration using zdmcli; monitor job log file.

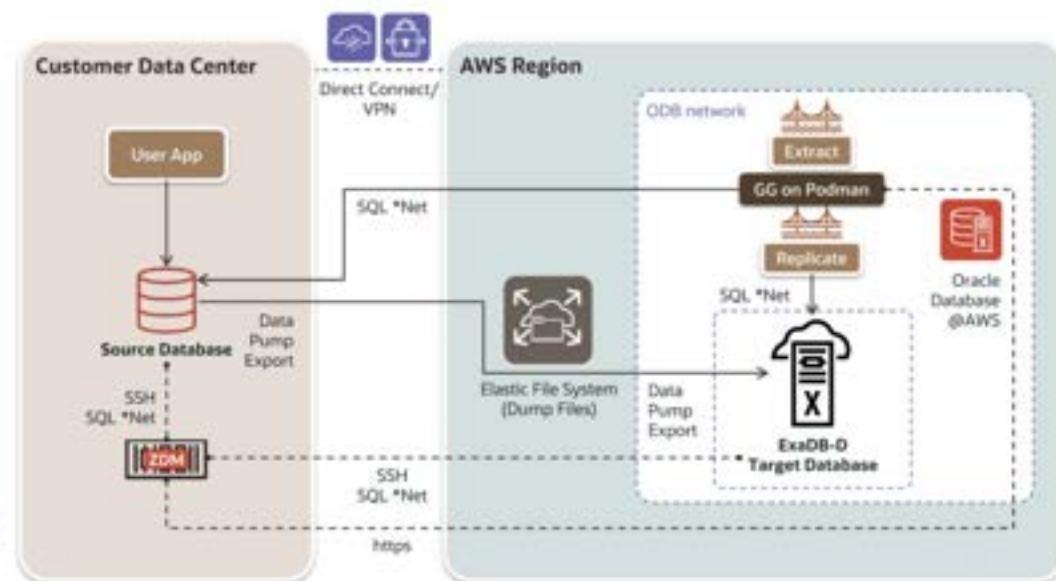


ZDM Logical Online Migration to ExaDB-D on Oracle Database@AWS



Using Amazon Elastic File System and Oracle GoldenGate

- ZDM host is on-premises with secure connection to OD@AWS.
- Can also use Amazon FSx for OpenZFS, AWS S3 Storage Gateway, Customer-managed NFS Server, Oracle Advanced Cluster File System (Oracle ACFS) for NFS share
- ZDM performs initial load with Data Pump using the NFS Share mount point.
- ZDM synchronizes data at real time in target using Oracle GoldenGate.
- Pause migration after ZDM_MONITOR_GG_LAG stage and resume when application is ready for migration.



ZDM Logical Online Migration to ExaDB-D on Oracle Database@AWS

Using Amazon Elastic File System and Oracle GoldenGate

Sample Parameters

Response File : logical_online.rsp

```
MIGRATION_METHOD=ONLINE_LOGICAL
DATA_TRANSFER_MEDIUM=NFS
DATAPUMPSETTINGS_JOBMODE=SCHEMA
INCLUDEOBJECTS-1=<owner:HR>
DATAPUMPSETTINGS_METADATAREMAPS-
1=<type:REMAP_TABLESPACE,oldValue:USERS,newValue:DATA>
DATAPUMPSETTINGS_DATAPUMPPARAMETERS_EXPORTPARALLELISMDEGREE=<2>
DATAPUMPSETTINGS_DATAPUMPPARAMETERS_IMPORTPARALLELISMDEGREE=<2>
DATAPUMPSETTINGS_EXPORTDIRECTORYOBJECT_NAME=<DATA_PUMP_DIR_NFS>
DATAPUMPSETTINGS_IMPORTDIRECTORYOBJECT_NAME=<DATA_PUMP_DIR_NFS>
DATAPUMPSETTINGS_EXPORTDIRECTORYOBJECT_PATH=</mnt/zdm_share>
DATAPUMPSETTINGS_IMPORTDIRECTORYOBJECT_PATH=</mnt/zdm_share>
GOLDENGATEHUB_ADMINUSERNAME=oggadmin
GOLDENGATEHUB_SOURCEDEPLOYMENTNAME=Local
GOLDENGATEHUB_TARGETDEPLOYMENTNAME=Local
GOLDENGATEHUB_URL=<https://aa.bb.gg.po>
GOLDENGATEHUB_ALLOWSELFSIGNDCERTIFICATE=TRUE
```



Oracle Cloud Infrastructure

Monitoring and Logging Oracle Database@AWS

Monitoring Resource Metrics Using Amazon CloudWatch

- Collects and processes raw data into readable near real-time metrics
- Retained for 15 months
- Set alarms to notify on breach of metric threshold.
- Monitor Exadata VM Cluster, container and pluggable database.
- Metrics names are listed in AWS/ODB Namespace.
- Resources must be in the Available state.



Metrics Monitored for ExaDB-D Resources



AWS Cloud Watch

Exadata VM Cluster

- CPU Utilization %
- Memory Utilization %
- ASM Disk Group Utilization
- File System Utilization
- Load Average
- Node Status
- OCPU Allocated
- SWAP Space Utilization %

Container Database

- Block Changes
- CPU Utilization
- Current Logons
- Execute Count
- Parse Count
- Storage Allocated
- Storage Used
- Storage Utilization %
- Transaction Count
- User Calls

Pluggable Database

- DB Time Seconds
- Wait Time Seconds
- CPU and Memory
- Interconnect Traffic (RAC)
- Process and Session
- IOPS and IO Throughput
- Storage
- Flash Recovery Area
- User Calls
- Logical Block Reads
- Monitoring Status

Monitoring Resource Events Using Amazon EventBridge



Amazon EventBridge

- Streams real-time data from application and AWS services.
- Forward event data to targets like AWS Lambda and Amazon Simple Notification Service.
- OD@AWS events indicate resource lifecycle changes.
- Event Bus receives events and delivers to one or more targets.
- Events can be generated in AWS from Oracle Database@AWS APIs or received from OCI service console.
- Monitor Exadata Database and Autonomous Database events; Exadata Infrastructure must be in available state.

Oracle Database@AWS

Events and Filtering

- Define EventBridge rules to filter events and targets to receive and use events.
- Create and apply a filter pattern for event type using EventBridge put-rule API.
- Set EventBusName to default event bus in your AWS account for events from AWS.
- Set EventBusName to the event bus created when subscribing to Oracle Database@AWS.

Events from AWS

- Lifecycle changes of ODB network during creation and deletion.
- Delivered to default event bus in customer AWS account.

Events from OCI

- Event Types – Exadata Infrastructure, VM Cluster, CDB and PDB events.
- OD@AWS creates aws.partner/odb/ event bus in customer AWS account to receive events from OCI.

Logging OD@AWS API Calls Using AWS CloudTrail



AWS CloudTrail

- AWS CloudTrail logs all actions of user, role, or an AWS service
- Oracle Database@AWS integrated with AWS Cloud Trail service
- Captures all Oracle Database@AWS API calls as events
- Helps to trace the request made to Oracle Database@AWS
- View, search, download immutable records of past 90 days in CloudTrail Event History
- Create a CloudTrail Lake event data store for records older than 90 days
- Run SQL-based queries on the events in CloudTrail Lake
- All Oracle Database@AWS control plane operations are logged as management events

Oracle Cloud Infrastructure

ZDM Logical Offline Migration to ExaDB-D on Oracle Database@AWS

ZDM Logical Offline Migration to ExaDB-D on Oracle Database@AWS

Using Amazon Elastic File System and Data Pump

Download and configure ZDM Service Host.

Provision Target Placeholder Database.

Check Source and Target database prerequisites.

Configure Intermediate Storage Location on Source and Target host.

Prepare ssh connectivity in Source, Target and ZDM host.

Prepare migration response file on ZDM host.

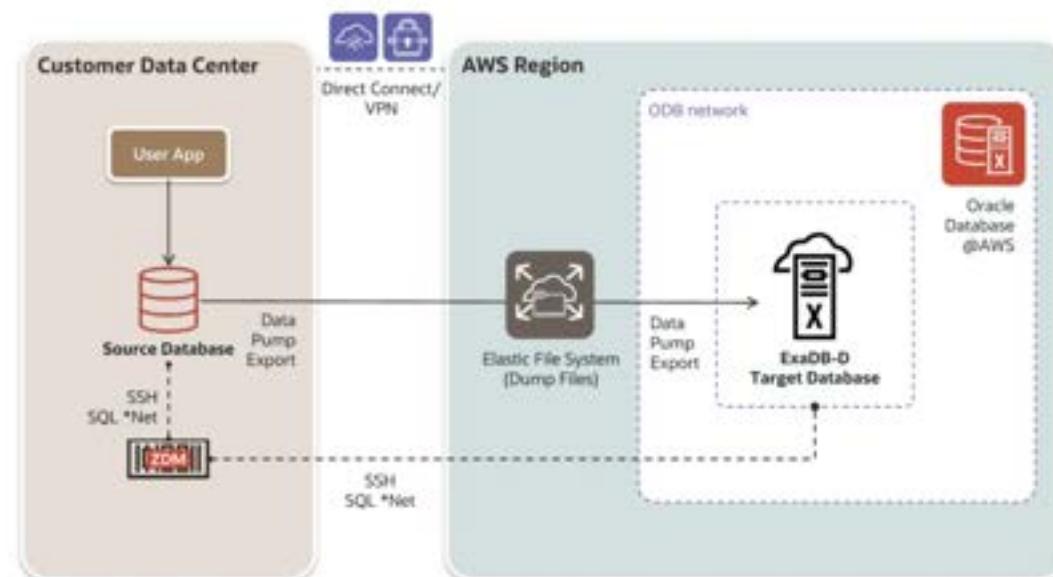
Evaluate and initiate migration using zdmcli; monitor job log file.



ZDM Logical Offline Migration to ExaDB-D on Oracle Database@AWS

Using Amazon Elastic File System and Data Pump

- ZDM host is on-premises with secure connection to OD@AWS.
- Can also use Amazon FSx for OpenZFS, AWS S3 Storage Gateway, Customer-managed NFS Server, Oracle Advanced Cluster File System (Oracle ACFS) for NFS share
- ZDM creates database logical backup using Data Pump in NFS mount point.
- ZDM imports into target database



ZDM Logical Offline Migration to ExaDB-D on Oracle Database@AWS

Using Amazon Elastic File System and Data Pump

Sample Parameters

Response File : logical_offline.rsp

```
MIGRATION_METHOD=OFFLINE_LOGICAL
DATA_TRANSFER_MEDIUM=NFS
DATAPUMPSETTINGS_JOBMODE=SCHEMA
INCLUDEOBJECTS-1=<owner:HR>
DATAPUMPSETTINGS_METADATAREMAPS-
1=<type:REMAP_TABLESPACE,oldValue:USERS,newValue:DATA>
DATAPUMPSETTINGS_DATAPUMPPARAMETERS_EXPORTPARALLELISMDEGREE=<2>
DATAPUMPSETTINGS_DATAPUMPPARAMETERS_IMPORTPARALLELISMDEGREE=<2>
DATAPUMPSETTINGS_EXPORTDIRECTORYOBJECT_NAME=<DATA_PUMP_DIR_NFS>
DATAPUMPSETTINGS_IMPORTDIRECTORYOBJECT_NAME=<DATA_PUMP_DIR_NFS>
DATAPUMPSETTINGS_EXPORTDIRECTORYOBJECT_PATH=</mnt/zdm_share>
DATAPUMPSETTINGS_IMPORTDIRECTORYOBJECT_PATH=</mnt/zdm_share>
```



Oracle Cloud Infrastructure

ZDM Logical Offline Migration to ADB-D on Oracle Database@AWS

ZDM Logical Offline Migration to ADB-D on Oracle Database@AWS

Using Amazon FSx for OpenZFS and Data Pump

Download and Configure ZDM Service Host.

Complete Source database prerequisites
(grant DATAPUMP_EXP_FULL_DATABASE privilege , set streams_pool_size - minimum 256MB to 350MB).

Provision Target Placeholder Database
(Set database property ROUTE_OUTBOUND_CONNECTIONS = ('PRIVATE_ENDPOINT')).

Configure NFS Storage Location on Source host and Target DB.

Prepare ssh connectivity between ZDM host and Source host.

Configure API Signing Public Key and Configuration File.

Prepare migration response file on ZDM host.

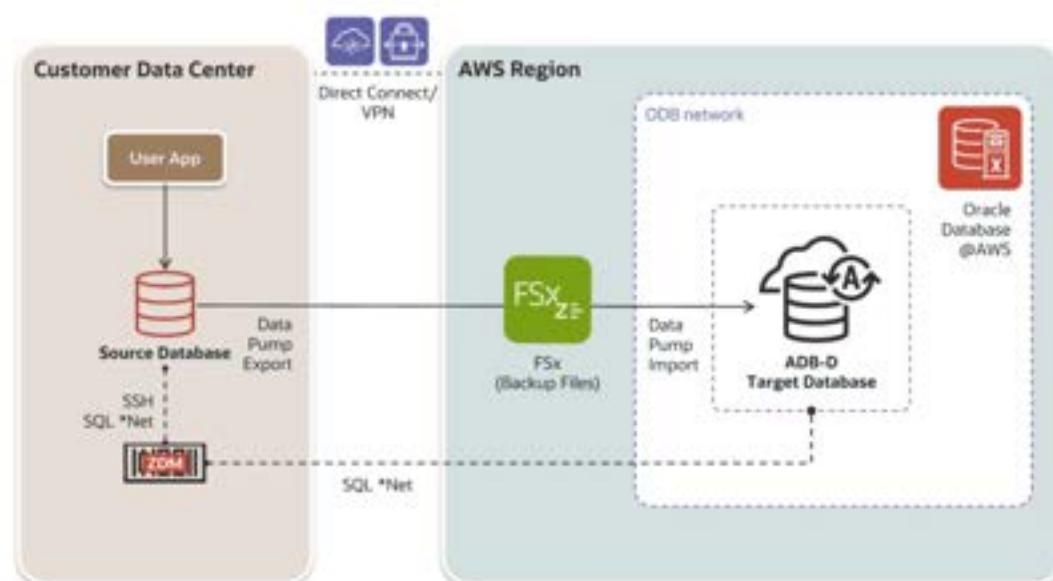
Evaluate and initiate migration using zdmcli; monitor job log file.



ZDM Logical Offline Migration to ADB-D on Oracle Database@AWS

Using Amazon FSx for OpenZFS and Data Pump

- ZDM host is on-premises with secure connection to OD@AWS.
- Use Amazon FSx For OpenZFS for NFS Share (add **no_root_squash** to the NFS options of the FSx volume).
- Can also use AWS S3 Storage Gateway, Customer-managed NFS Server for NFS file share
- Add NFS server name to OCI DNS VCN resolver and update OCI NSG.
- Add NFS FQDN to ADB Access Control List (DBMS_NETWORK_ACL_ADMIN.APPEND_HOST_ACE).
- Create database directory in ADB and attach to NFS server (DBMS_CLOUD_ADMIN.ATTACH_FILE_SYSTEM).
- ZDM performs migration with data pump using the NFS Share mount point.



ZDM Logical Offline Migration to ADB-D on Oracle Database@AWS

Using Amazon FSx for OpenZFS and Data Pump

Sample Parameters

Response File : logical_offline_adb_nfs.rsp

```
MIGRATION_METHOD=OFFLINE_LOGICAL
DATA_TRANSFER_MEDIUM=NFS
DATAPUMPSETTINGS_JOBMODE=SCHEMA
DATAPUMPSETTINGS_METADATA_REMAPS=
1=<type:REMAP_TABLESPACE,oldValue:USERS,newValue:DATA>
INCLUDEOBJECTS-1=<owner:HR>
DATAPUMPSETTINGS_EXPORTDIRECTORYOBJECT_NAME=<DATA_PUMP_DIR_NFS>
DATAPUMPSETTINGS_IMPORTDIRECTORYOBJECT_NAME=<FSS_DIR>
# Source PDB connection parameter values - source host, port,
...
# Add OCI parameter values - OCID of user, tenant, fingerprint, private key,
region ID,
...
# Add ADB parameter values - ADB host, parameter, service name, wallet
location
...
```



Amazon FSx for OpenZFS
(Backup Files)

Oracle Database@AWS

Backup Destinations for Oracle Database@AWS

Objectives

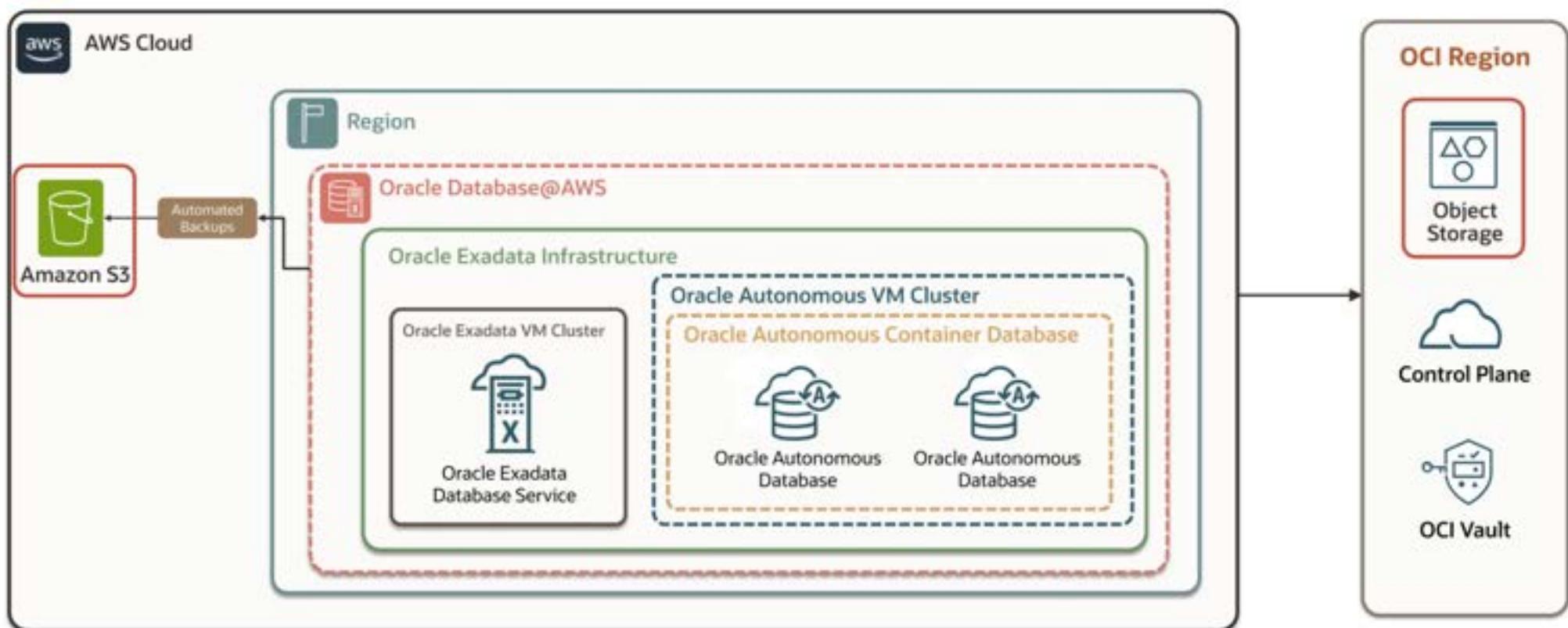


Amazon S3

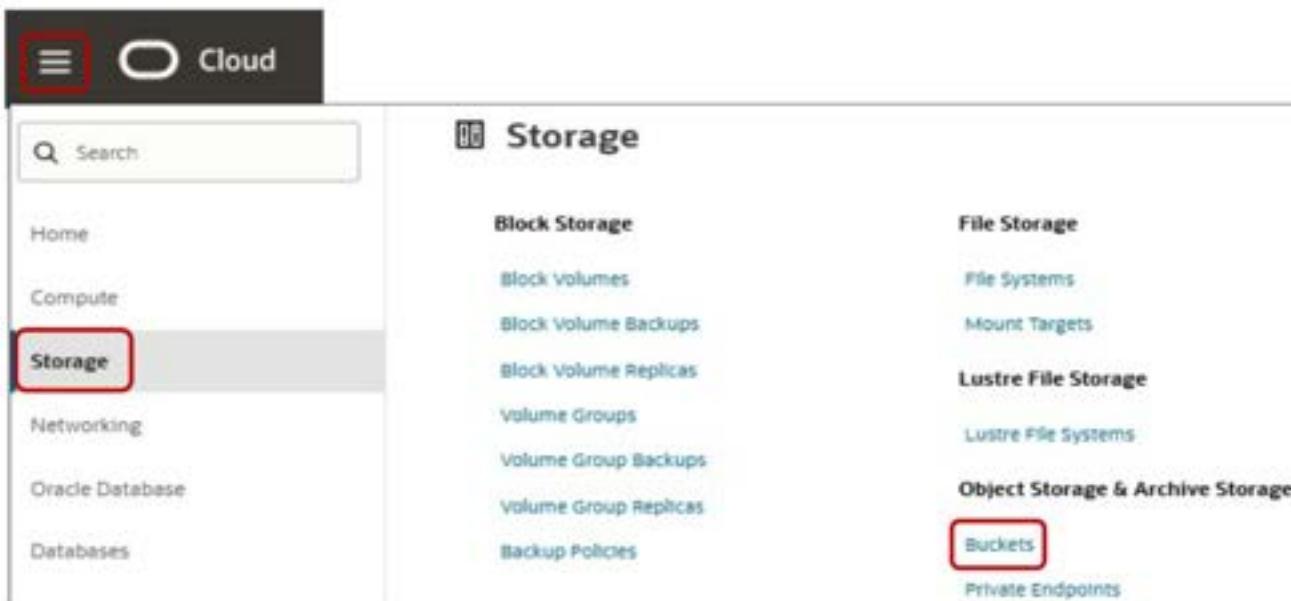
Oracle Object Storage

Autonomous Recovery Service

Destinations for Automated Backup



Create Oracle Object Storage



Create Oracle Object Storage

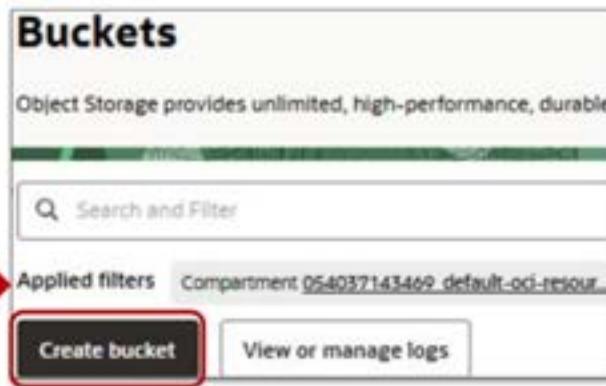
Buckets

Object Storage provides unlimited, high-performance, durable storage for your data.

Search and Filter:

Applied filters: Compartment 054037143469_default-oci-resource

Create bucket View or manage logs



Create bucket

Bucket name:

Default storage tier: Standard Archive

Enable auto-tiering:
Automatically move infrequently accessed objects from the standard tier to less expensive storage. [Learn more](#)

Enable object versioning:
Create an object version when a new object is uploaded, an existing object is overwritten, or when an object is deleted. [Learn more](#)

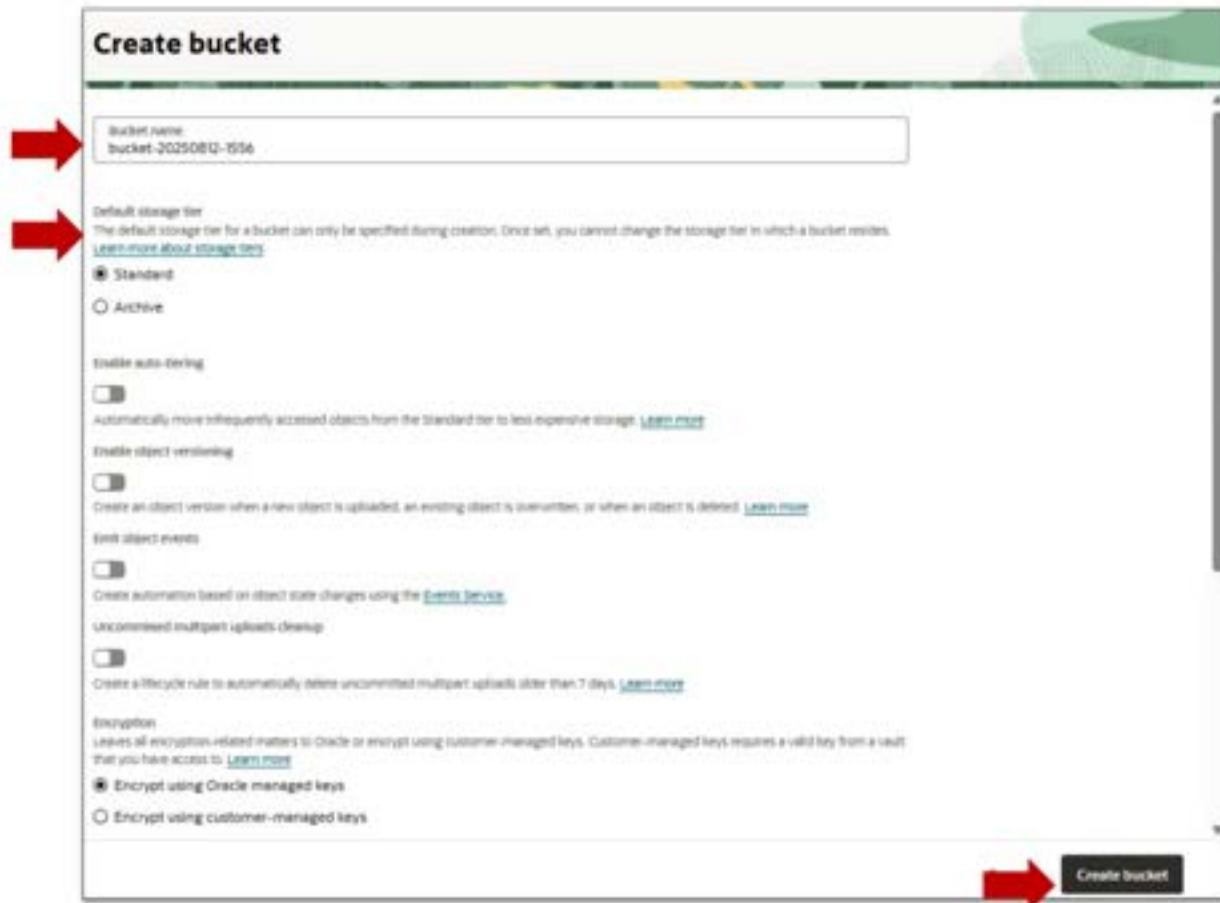
Enable object events:
Create automation based on object state changes using the [Events service](#).

Uncommitted multipart uploads cleanup:
Create a lifecycle rule to automatically delete uncommitted multipart uploads older than 7 days. [Learn more](#)

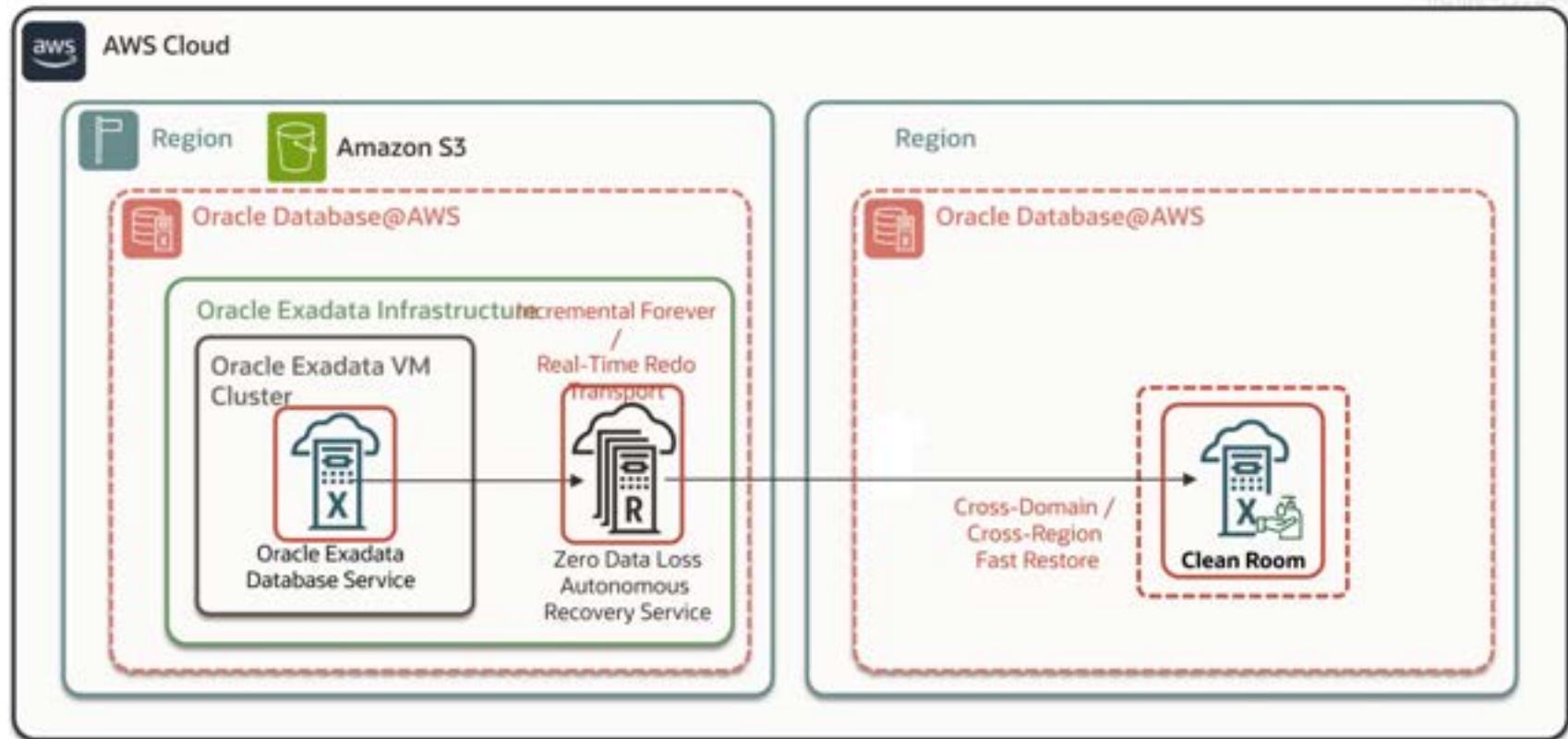
Encryption: Leaves all encryption-related matters to Oracle or encrypt using customer-managed keys. Customer-managed keys requires a valid key from a vault that you have access to. [Learn more](#)

Encrypt using Oracle managed keys
 Encrypt using customer-managed keys

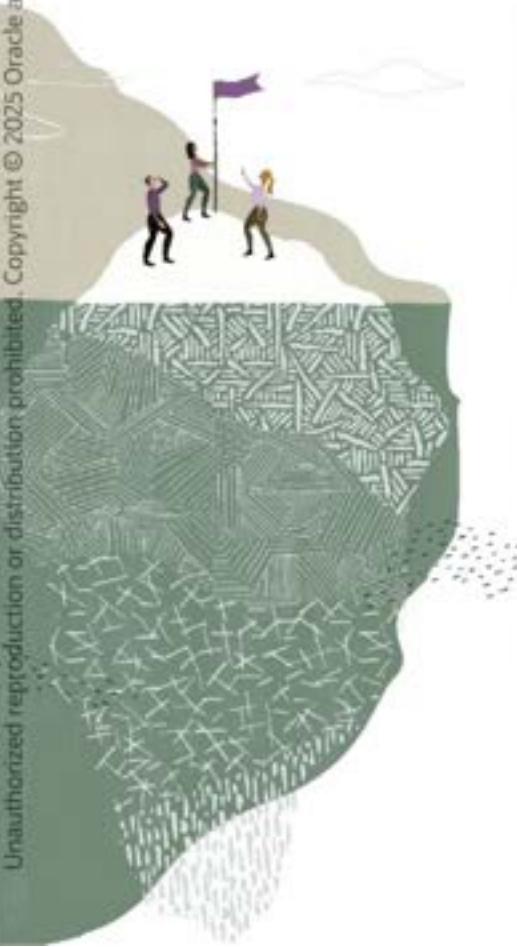
Create bucket Create bucket



Zero Data Loss Autonomous Recovery Service (ZRCV)



Summary



Amazon S3

Oracle Object Storage

Autonomous Recovery Service

Oracle Database@AWS

Backup Oracle Databases for Oracle Database@AWS

Objectives



Backup Exadata Database

Backup Autonomous Database

Automatic Backup for Exadata database

The screenshot shows the Oracle Database Cloud Service interface for a database named DB0801. At the top, there's a navigation bar with a back arrow labeled "← Exadata VM Cluster Details", the database name "DB0801" with a status indicator "Available", and two buttons: "Actions" and "Launch SQL Worksheet". A yellow warning banner is present, stating: "A better backup and recovery service is available for your database and you can easily transition without any database backups" and "change the backup destination to Autonomous Recovery Service". Below the banner, there are tabs for "Database information", "Backups", "Data Guard Associations", "Connections", and "Pluggable Databases". Under "General information", details are listed: OCID (ociid1.database.oc1.iad.anuwcjsvtzprsyaspkoy3gtiyejavruq7ssgmievdy7bgnmb), Created (Sat, Aug 2, 2025, 02:05:52 UTC), Database unique name (DB0801_3ss_iad), and Oracle SID Prefix (DB0801). On the right side, a vertical "Actions" menu is open, listing options: DB connection, Performance Hub, Restore, Configure automatic backups (which is highlighted with a red box), Create database from last backup, Move to Another Home, Manage encryption key, Manage passwords, Upgrade, Add Tags, and Terminate. There's also a "Copy" button next to the "Configure automatic backups" item.

Configure Automatic Backup

The screenshot shows the 'Configure automatic backups' page with several red arrows indicating the flow of configuration steps:

- Step 1:** A red arrow points to the 'Enable automatic backups' toggle switch.
- Step 2:** A red arrow points to the 'Backup destination' dropdown menu set to 'Object Storage'.
- Step 3:** A red arrow points to the 'Backup retention period' dropdown menu set to '7 days'.
- Step 4:** A red arrow points to the 'Deletion options after database termination' section, which includes a warning about prerequisites and two radio button options:
 - Retain backups per backup retention period
 - Retain backups for 72 hours, then delete
- Step 5:** A red arrow points to the right panel, which contains:
 - 'Scheduled day for full backup': A dropdown menu showing 'Sunday' selected.
 - 'Scheduled time for full backup (UTC)': A dropdown menu showing 'Anytime'.
 - 'Scheduled time for incremental backup (UTC)': A dropdown menu showing 'Anytime'.
 - 'Take the first backup immediately': A toggle switch that is off.
- Step 6:** A red arrow points to the 'Save' button at the bottom right of the right panel.

Backup Exadata Database

The screenshot shows the Oracle Database Exadata VM Cluster Details page for a database named DB0801. The database status is 'Available'. A warning message at the top indicates that a better backup and recovery service is available, suggesting a transition to Autonomous Recovery Service. Below the warning, there are tabs for Database information, Backups, Data Guard Associations, Connections, Pluggable Databases, Upgrade history, Monitoring, Work requests, and Tags. The Database information tab is selected. On the right side, there are two sections: 'General information' and 'Backup'. The 'General information' section lists various database parameters like OCID, Created date, Database unique name, Oracle SID Prefix, Character Set, National Character Set, and API Access Control. The 'Backup' section shows settings for backup type (Automatic backup), last failed backup (None), last completed backup (Mon, Aug 18, 2025, 08:45:40 UTC), next scheduled full backup (Sun, Anytime), incremental backup schedule (Daily, Anytime Except Sun), backup destination (Object Storage), and backup retention period (7 days). The 'Automatic backup' and 'Backup destination' fields are highlighted with red boxes.

General Information	Backup
OCID ocid1.database.oc1.iad.anuvcjixtppnyewpkoy3gtlyejvnu07sgmeyd7bgnmbivogaxdtseq	Automatic backup Enabled When you enable the Automatic Backup feature, the service creates daily incremental backups of the database to the selected Backup Destination. Learn more
Created Sat, Aug 2, 2025, 02:09:52 UTC	Last failed backup None
Database unique name DB0801_3sx_iad	Last completed backup Mon, Aug 18, 2025, 08:45:40 UTC
Oracle SID Prefix DB0801	Next scheduled full backup Sun, Anytime You may specify a 2-hour window during which your backup will begin. Learn more
Character Set AL32UTF8	Incremental backup schedule Daily, Anytime Except Sun
National Character Set AL16UTF16	Backup destination Object Storage
API Access Control Disabled	Backup retention period 7 days



Automatic Backup for Exadata Database

← Exadata VM Cluster Details

DB0801 Available

Database

Actions ▾ Launch SQL Worksheet

⚠ Warning
A better backup and recovery service is available for your database and you can easily transition without any database interruption. Click "Configure automatic backups" and change the backup destination to Autonomous Recovery Service. [Learn more](#)

Database information Backups Data Guard Associations Connections Pluggable Databases Upgrade history Monitoring Work requests Tags

Q Search and Filter

Create Backup

Name	State	Type	Backup destination	Encryption Key	Database version	Expiration date	Star
Automatic Backup	Active	Incremental Backup, Initiated by Auto Backup	Object Storage	Oracle-managed key	19.28.0.0.0	—	Mon, ...
Automatic Backup	Active	Incremental Backup, Initiated by Auto Backup	Object Storage	Oracle-managed key	19.28.0.0.0	—	Sun, ...
Automatic Backup	Active	Incremental Backup, Initiated by Auto Backup	Object Storage	Oracle-managed key	19.28.0.0.0	—	Sat, ...
Automatic Backup	Active	Incremental Backup, Initiated by Auto Backup	Object Storage	Oracle-managed key	19.28.0.0.0	—	Fri, ...

Backup for Autonomous database for Oracle Database@AWS

The screenshot shows the OCI console interface for managing Autonomous Container Databases. The main page displays the database name 'ou_adbcontainer_odbaws' and its status as 'Available'. Below the name, there's a brief description of what Autonomous Container Databases are. A navigation bar at the top includes links for 'Autonomous Container Databases' and 'Actions' (with a dropdown menu), 'Restart', and other options like 'Rotate encryption key' and 'Edit maintenance preferences'. The 'Actions' dropdown menu is open, showing several options: 'Edit backup settings' (which is highlighted with a red box), 'Create clone', 'Create image from database', 'Move resource', 'Manage tags', and 'Terminate'. The 'Edit backup settings' option is clearly the target of the user's action.

← Autonomous Container Databases

ou_adbcontainer_odbaws Available

Autonomous Container Database

Autonomous Container Database (ACD) contains one or more Autonomous Databases on a Dedicated Exadata Infrastructure and serve as containers that set the Software Image and availability SLA for the Autonomous Exadata VM Cluster (AVMC).

Autonomous Container Database information Maintenance Autonomous Databases Autonomous I

General information

Compartment	odbzdemo12 (root)/MulticloudLink_AWS_20250303002806/054037143469_j
OCID	...mouscontainerdatabase.oc1.us-boardman-1.anrwsjnvzprsyahgcahkoht6ic
Created	Fri, Jul 25, 2025, 18:11:40 UTC
Database version	23.8.0.25.04

Actions ▾

Restart

Rotate encryption key

Edit maintenance preferences

Manage customer contacts

Schedule maintenance

Edit backup settings

Create clone

Create image from database

Move resource

Manage tags

Terminate

Configure Backup Settings for the Databases in Autonomous Container Database

Edit backup settings

To support high availability, Autonomous Database on Dedicated Exadata Infrastructure automatically backs up your database for you. [Learn more](#)

Backups configuration

Automatic backups can be enabled at database creation or anytime thereafter. Once enabled, automatic backups cannot be disabled.

Enable automatic backups

Backup destination ▼ Required

Backup retention period (in days) ▼ ▲ Required

⚠ Warning
If automatic backups are not enabled at database creation, they can be enabled later. After automatic backups have been enabled, they cannot be disabled. [Learn more about backup retention](#).

Enable cross-region backup copy



Automatic Backup for Autonomous Database

← Autonomous Container Databases

ou_adbcontainer_odbaws Available

Autonomous Container Database

Autonomous Container Database (ACD) contains one or more Autonomous Databases on a Dedicated Exadata Infrastructure. ACDs are provisioned inside an Autonomous Exadata VM Cluster (AVMC) and serve as containers that set the Software Image and availability SLA for one or more Autonomous Databases.

Autonomous Container Database information Maintenance Autonomous Databases Autonomous Data Guard associations **Backups** Key history Maintenance history >

Search and Filter Search

Display name	State	Type	Retention period	Backup start	Backup end	...
Automatic Backup	Active	Incremental, initiated by auto backup	7 Days	Tue, Aug 12, 2025, 08:46:43 UTC	Tue, Aug 12, 2025, 08:48:23 UTC	...
Automatic Backup	Active	Incremental, initiated by auto backup	7 Days	Mon, Aug 11, 2025, 08:46:34 UTC	Mon, Aug 11, 2025, 08:48:34 UTC	...
Automatic Backup	Active	Full, initiated by auto backup	7 Days	Sun, Aug 10, 2025, 08:46:38 UTC	Sun, Aug 10, 2025, 08:54:33 UTC	...

Manual Backup Autonomous Database

The screenshot shows the Oracle Database interface for managing Autonomous Container Databases. The top navigation bar includes links for Oracle Database, Autonomous Database on Dedicated Infrastructure, Autonomous Database, Autonomous Container Database (which is selected and highlighted with a red box), Autonomous Exadata VM Clusters, and Exadata Infrastructure. The left sidebar lists Autonomous Container Databases, with one named "ou_adbcontainer_odbaws" shown as Available. The main content area displays information about this database, including its status as Available and a detailed description of what Autonomous Container Databases (ACDs) are. Below this, there are tabs for Autonomous Container Database Information, Maintenance, Autonomous Databases (which is selected and highlighted with a red box), Autonomous Data Guard associations, Backups, Key history, Maintenance history, Work requests, and Tags. The Autonomous Databases tab is currently active, showing a "General information" section with tabs for General information and Backup. The "Backup" tab is selected. On the right side, there is an "Actions" dropdown menu with options like Rotate encryption key, Edit maintenance preferences, Manage customer contacts, Schedule maintenance, Edit backup settings (which is selected and highlighted with a red box), Create clone, Create image from database, Move resource, Manage tags, and Terminate.

Display name	State	Compute	Storage	Workload type	Created
OUATPOOBAWS	Available	2	1 TB	Data Warehouse	Fri, Jul 21, 2023, 19:24:28 UTC

Backup Autonomous Database – Manual and Long Term

The screenshot shows the 'Autonomous Database Information' section of the Oracle Database interface. At the top, there are tabs for 'Autonomous Database information', 'Tool configuration', 'Backups' (which is underlined), 'Key history', 'Autonomous Data Guard', and 'Work requests'. Below the tabs, a message states: 'Autonomous Databases are automatically backed up continuously and you may restore or clone to any available timestamp up to your selected backup retention period.' It also mentions the 'Database version: The database version of the backup.' A search bar with placeholder text 'Search and Filter' and a 'Search' button are present. Two buttons are shown: 'Create manual backup' (in a dark button) and 'Create long-term backup' (in a light button). A red arrow points to the 'Create manual backup' button. Another red arrow points to the table below, which lists four automatic backups. The table columns are: Display name, State, Type, Retention period, Database version, and Retention end. The data is as follows:

Display name	State	Type	Retention period	Database version	Retention end
Automatic Backup	Active	Incremental, initiated by auto backup	7 Days	23.8.0.25.04	Tue, Aug 19 ...
Automatic Backup	Active	Incremental, initiated by auto backup	7 Days	23.8.0.25.04	Tue, Aug 19 ...
Automatic Backup	Active	Incremental, initiated by auto backup	7 Days	23.8.0.25.04	Mon, Aug 11 ...
Automatic Backup	Active	Full, initiated by auto backup	7 Days	23.8.0.25.04	Sun, Aug 17 ...



Autonomous Database – Manual Backup

Autonomous Databases are automatically backed up continuously and you may restore or clone to any available timestamp up to your selected backup retention period.

Database version: The database version of the backup.

Search and Filter Search

[Create manual backup](#) [Create long-term backup](#)

Create manual backup

You must provide a display name for the backup. [Learn more](#)

Display name
ManualBkupDBAWS

Required

ManualBkupDBAWS	Creating	Cumulative Incremental, initiated by user	7 Days	23.8.0.25.04
ManualBkupDBAWS	Active	Cumulative Incremental, initiated by user	7 Days	23.8.0.25.04

Autonomous Database – Long Term Backup

Autonomous Databases are automatically backed up continuously and you may restore or clone to any available timestamp up to your selected backup retention period.

Database version: The database version of the backup.

Q Search and Filter Search

Create manual backup Create long-term backup

Create long-term backup

Long-term backups are automatically taken and managed by Oracle. They can be retained for a minimum of 3 months and a maximum of 10 years. [Learn more](#)

Name: LongTerm-BDDBAWS

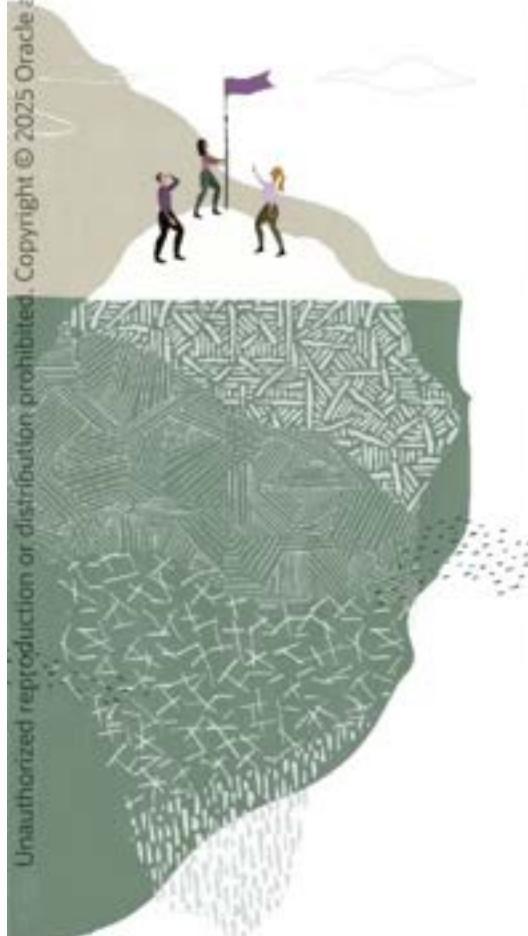
Retention period: You have selected a retention period of 563 days. Your backup will be retained until March 1, 2027.

Years (365 days): 1 Months (30 days): 6 Days: 15

Cancel Create

The screenshot shows the 'Create long-term backup' dialog box. It includes a note about automatic backups and their retention period. The 'Name' field contains 'LongTerm-BDDBAWS'. The 'Retention period' section shows a total of 563 days, broken down into 1 year, 6 months, and 15 days. A red arrow points to the 'Create long-term backup' button at the top, and another red arrow points to the 'Days' input field in the retention period section.

Summary



Backup Exadata Database

Backup Autonomous Database

Oracle Database@AWS

Restore Oracle Databases for Oracle Database@AWS

Objectives



Restore Exadata Database

Restore Autonomous Database

Restore Exadata Database

The screenshot shows the Oracle Database Exadata VM Cluster Details page for database DB0801. The left sidebar has sections for Oracle Database, Exadata Database Service on Dedicated Infrastructure, Exadata VM Clusters (selected), and Exadata Infrastructure. The main content area shows the database name DB0801 (Available) and a warning about backup and recovery services. Below is a table with General information and Backup settings. On the right, there's a sidebar with actions like DB connection, Performance Hub, and Restore (which is highlighted with a red box). A modal window titled 'Restore Database' is open, showing options for restore type: 'Restore to latest' (selected), 'Restore to a timestamp', and 'Restore to SCN'. The 'Restore' button in the modal is also highlighted with a red box.

General information		Backup	
OCDB	ocid1.database.oc1.iad1anuecjsvtpzsytk0y3gfhjeavnuq7sgmeyd7bgnmblvoggxftszq	Copy	Automatic backup
Created	Sat, Aug 2, 2025, 02:05:52 UTC		Enabled
Database unique name	DB0801_1xx_1ad	Last failed backup	None
Oracle SID Prefix	DB0	Drop	Mon, Aug 18, 2025, 08:48:10 UTC

Restore Autonomous Database

← Autonomous Database on Dedicated Infrastructure

OUATPODBAWS Available

Autonomous Database

An Autonomous Database on Dedicated Exadata Infrastructure is a highly automated, fully managed database environment running in Oracle Cloud Infrastructure (OCI) with committed hardware and software.

Manage resource allocation
Stop
Restart
Restore
Manage customer contacts
Create clone
Administrator password
Rotate encryption key
Update display name
Move resource
Manage tags
Terminate

Autonomous Database Information	Tool configuration	Backups	Key history	Autonomous Data Guard	Work requests	Monitoring	Tags
General information							
Database name	OUATPODBAWS						
Workload type	Data Warehouse						
Compartment	odbdemo12 (root)/MulticloudLink_AWS_20250303002006/0540371434 69_default-oci-resource-anchor						
OCID	-prsyszxnrhoebjhgsvuvapwqk2fM463opo37s2g3e7kgr3a						
Created	Fri, Jul 25, 2025, 19:24:28 UTC						
Database version	23.8.0.25.04						
Infrastructure							
Dedicated infrastructure	Yes						
Autonomous Container Database	ou_adbcontainer_odbaws						
Network							
Access control list	Disabled						
Backup							
Last automatic backup	Mon, Aug 13, 2025, 06:48:27 UTC						



Restore Autonomous Database

Restore

Restore the Autonomous Database to a point in time or restore from a specified backup. [Learn more](#)

Specify a timestamp within the last 60 days to use for the point-in-time restore.

Enter timestamp

Enter SCN (System Change Number)

Select backup

Enter date

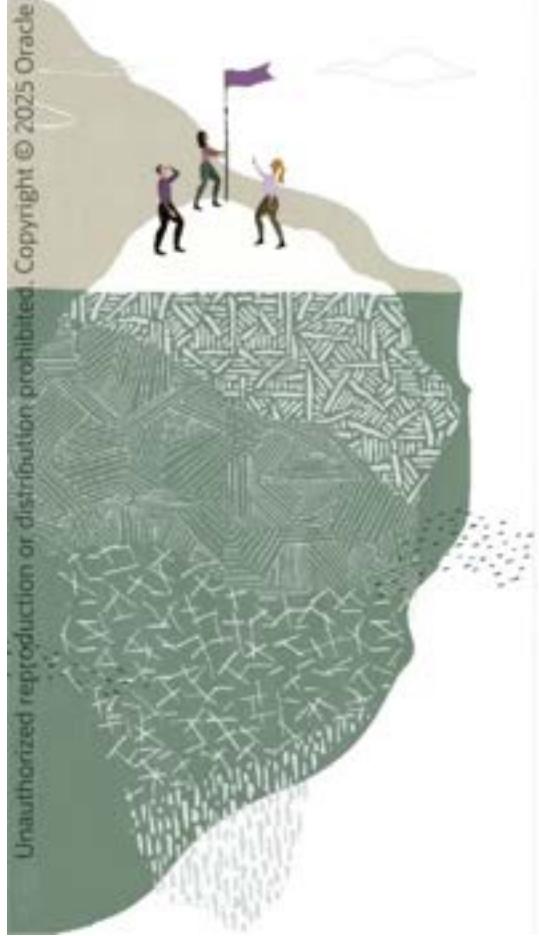


Required

Enter time

Required

Summary



Restore Exadata Database

Restore Autonomous Database

Autonomous Recovery Service for Oracle Database@AWS

Objectives



Autonomous Recovery Service

Space-efficient encrypted backups

Immutable Service with ZRCV

Backup validation throughout lifecycle

Zero Data Loss

Highly secure, scalable ransomware protection for Oracle Cloud Databases in OCI, Azure, Google Cloud, and AWS

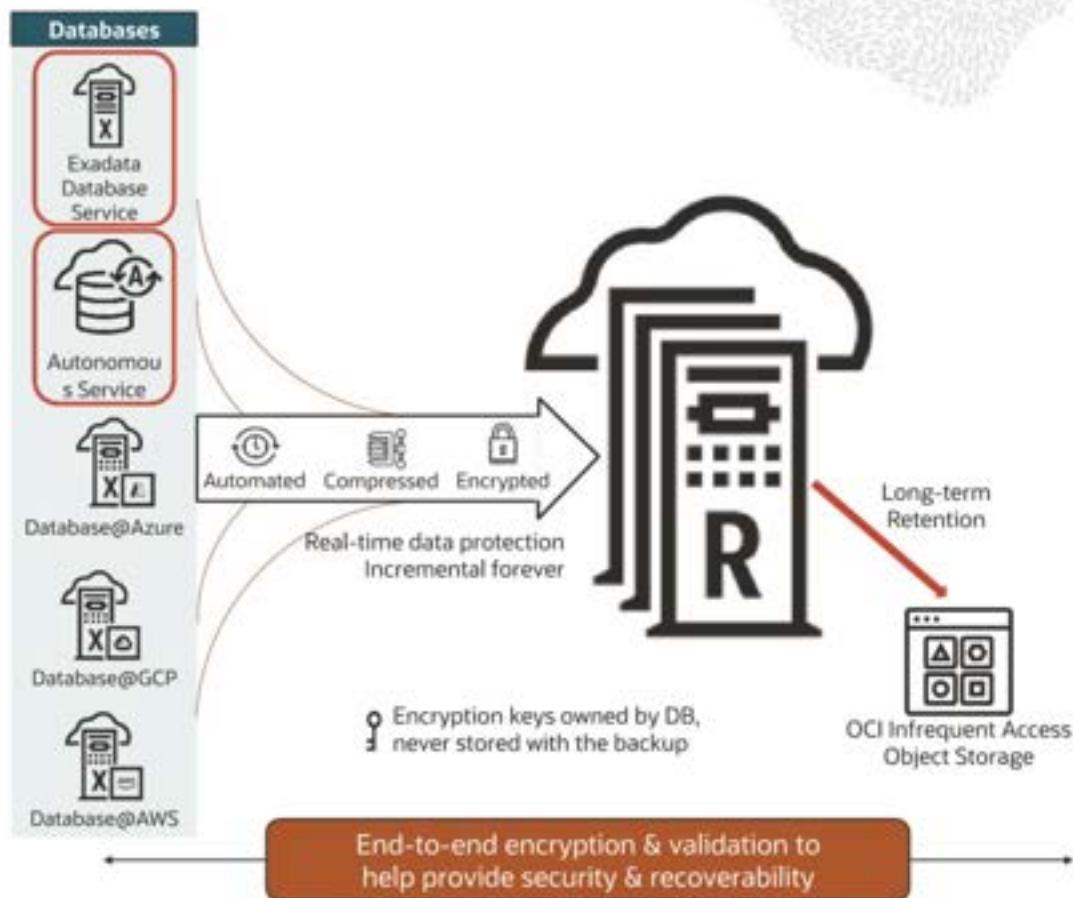
Zero data loss protection with fast recovery

Backup immutability & retention lock

Logical airgap between the customer tenancy and Oracle Cloud Operations

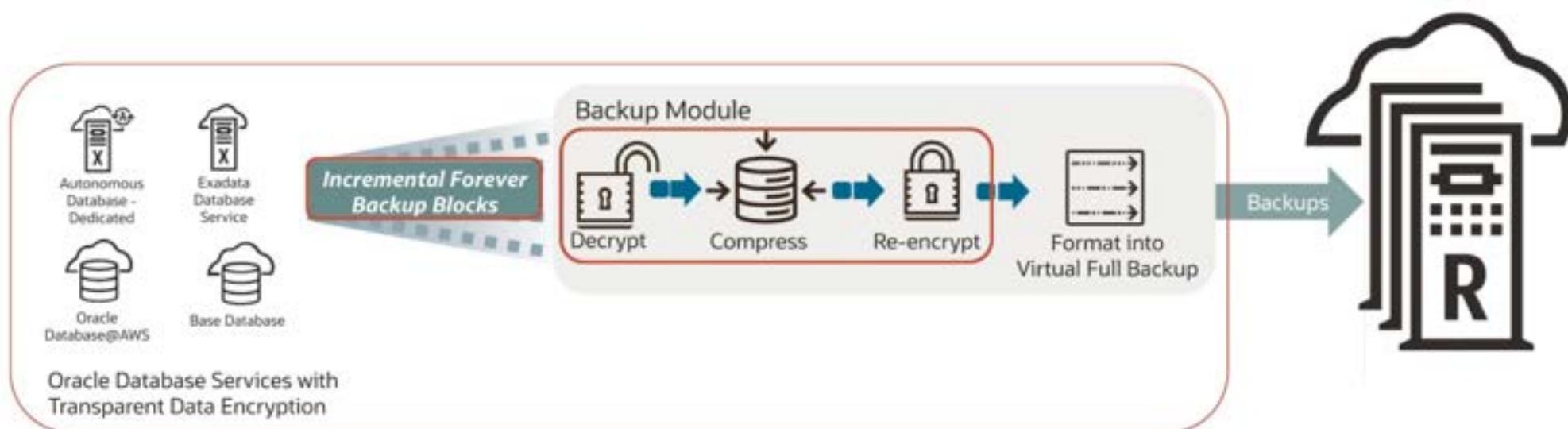
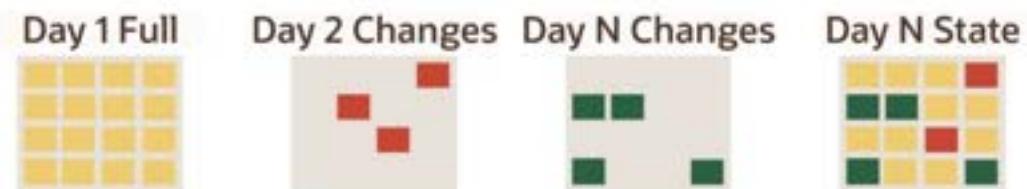
Continuous anomaly detection & validation

Long-term backup retention up to 10 years



Space-Efficient Encrypted Backups

Oracle-Integrated Compression +
Incremental Forever for Encrypted
Databases



ZRCV as an *Immutable Service*

Cloud takes immutability to a new level.



Private Endpoint Networks

Mandatory End-to-End Encryption

Retention Lock Option

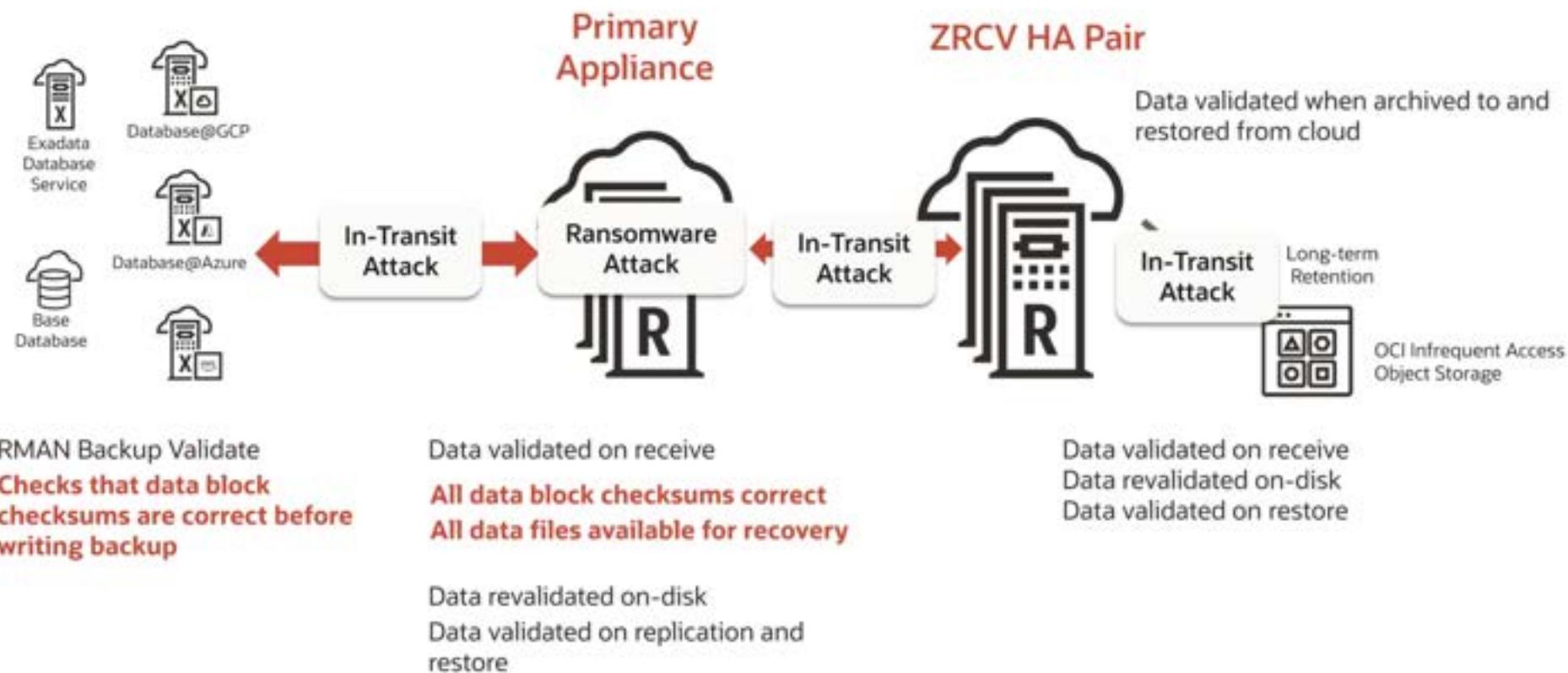
Continuous Backup Validation

Built-in Logical Air Gap

Automated Backup Lifecycle Management

Database-Integrated, Continuous Anomaly Detection

Deep Ransomware Detection Built on Oracle Architecture



Summary



Autonomous Recovery Service

Space-efficient encrypted backups

Immutable Service with ZRCV

Backup validation throughout lifecycle

Oracle Database@AWS

Implement Autonomous Recovery Service for Oracle Database@AWS

Objectives



Prerequisites for Recovery Service

Configure Automatic backups

Policy-based backup

Monitor Autonomous Recovery Service

Restore with Autonomous Recovery Service



Administrator users

Prerequisites for Recovery Service

Permissions Required for Multicloud Oracle Databases to Use Recovery Service

Configure and Register Network Resources for Recovery Service

Protection Policies for Database Backup Retention

Configure Automatic Backups

The screenshot shows the Oracle Database Exadata VM Cluster Details page for database DB0801. The 'Backups' tab is selected. A warning message is displayed: "A better backup and recovery service is available for your database and you can easily transition without any database interruption. Click 'Connect destination to Autonomous Recovery Service.' [Learn more](#)". Below the tabs is a search bar labeled "Search and Filter" and a "Create Backup" button. On the right, an "Actions" dropdown menu is open, listing options: "DB connection", "Performance Hub", "Restore", "Configure automatic backups" (which is highlighted with a red box), "Create database from last backup", "Move to Another Home", "Manage encryption key", and "Manage passwords".

Configure Automatic Backups

Configure automatic backups

Manage Database Backup and Recovery on Oracle Exadata Database Service on Dedicated Infrastructure. [Learn more](#)

Enable automatic backups:

Automatic backup is the preferred method for backing up Oracle Cloud databases. [Learn more](#)

Backup destination: **Autonomous Recovery Service (Recommended)**

Autonomous Recovery Service has the lowest operational cost and highest performance.

Warning
A full backup must be completed in the new backup destination, to ensure that a full recovery is possible to a point in time during the transition window.

Compartment: 054037143469_default-oci-resource-anchor Protection policy:

Location: OCI

Retention lock: Disabled

Real-time data protection:
Real-time data protection is a premium service. It minimizes the possibility of data loss.

The screenshot shows the 'Configure automatic backups' interface. A series of red arrows points to specific fields: one arrow points to the 'Enable automatic backups' checkbox; two arrows point to the 'Backup destination' dropdown menu which is set to 'Autonomous Recovery Service (Recommended)'; five arrows point to the 'Compartment' dropdown menu, the 'Protection policy' dropdown menu (which has a 'Required' label), the 'Location' field (set to 'OCI'), the 'Retention lock' field (set to 'Disabled'), and the 'Real-time data protection' checkbox.

Configure Automatic Backups

Deletion options after database termination
Terminating a database will remove the database and retain backups per the choice below. [Learn more](#)

Retain backups according to the protection policy retention period.

Retain backups for 72 hours, then delete

Scheduled time for daily backup (UTC)
Anytime REQUIRED

Take the first backup immediately

Warning
Switching the backup destination will trigger an immediate full backup by default. You cannot reschedule this full backup.

Save



Policy-Based Backup

Oracle Database

- Database Backups
- Protected Databases
- Recovery Service Subnets
- Protection Policies**

Protection policies

A protection policy defines your backup retention goals, and simplifies backup management. [Learn more](#)

Q Search and Filter

Applied filters Compartment 054037143469_default-oci-resourc...

Create protection policy

Name	State	Policy type	Backup retention period
Platinum	Active	Oracle defined	95 days
Gold	Active	Oracle defined	65 days
Silver	Active	Oracle defined	35 days
Bronze	Active	Oracle defined	14 days

Policy-Based Backup Location

Create protection policy

Create a protection policy to define the backup retention rules for protected databases. [Learn more](#)

Name Required

Create in compartment:
054037143469_default-oci-resource-anchor Required

Backup retention period (in days)
30 Must be minimum 14 days and maximum 95 days

Enable retention lock
When a rule is locked, only an increase in the retention duration is allowed.

Store backups in the same cloud provider as the database
When this option is selected, the backups are always stored in the same cloud environment as the database. If the option is not selected, then backups are stored in OCI by default.

Monitoring Autonomous Recovery Service

Oracle Database

Protected Databases

Protected database details

Action

Monitoring

Metrics

Applied filters: One day (21.05.2026, 21:34:07 UTC), All

Space used for recovery window

The amount of storage space that is currently used to meet the recovery window goal for the protected database.

Applied filters: Interval Avg, Trend Max

Time (UTC)	Space (B)
21:32	100
21:33	120
21:34	150
21:35	180
21:36	200
21:37	220
21:38	250
21:39	280
21:40	300

Protected database size

The total storage space consumed by the protected database.

Applied filters: Interval Avg, Trend Max

Time (UTC)	Size (B)
21:32	500
21:33	520
21:34	540
21:35	560
21:36	580
21:37	600
21:38	620
21:39	640
21:40	660

Protected database health

Indicates the current protection status of the database. The possible values are 0 (Protected), 1 (Warning - potential data loss), and 2 (Alert - latest backup failed).

Applied filters: Interval Avg, Trend Max

Time (UTC)	Health
21:32	0
21:33	0
21:34	0
21:35	0
21:36	0
21:37	0
21:38	0
21:39	0
21:40	1

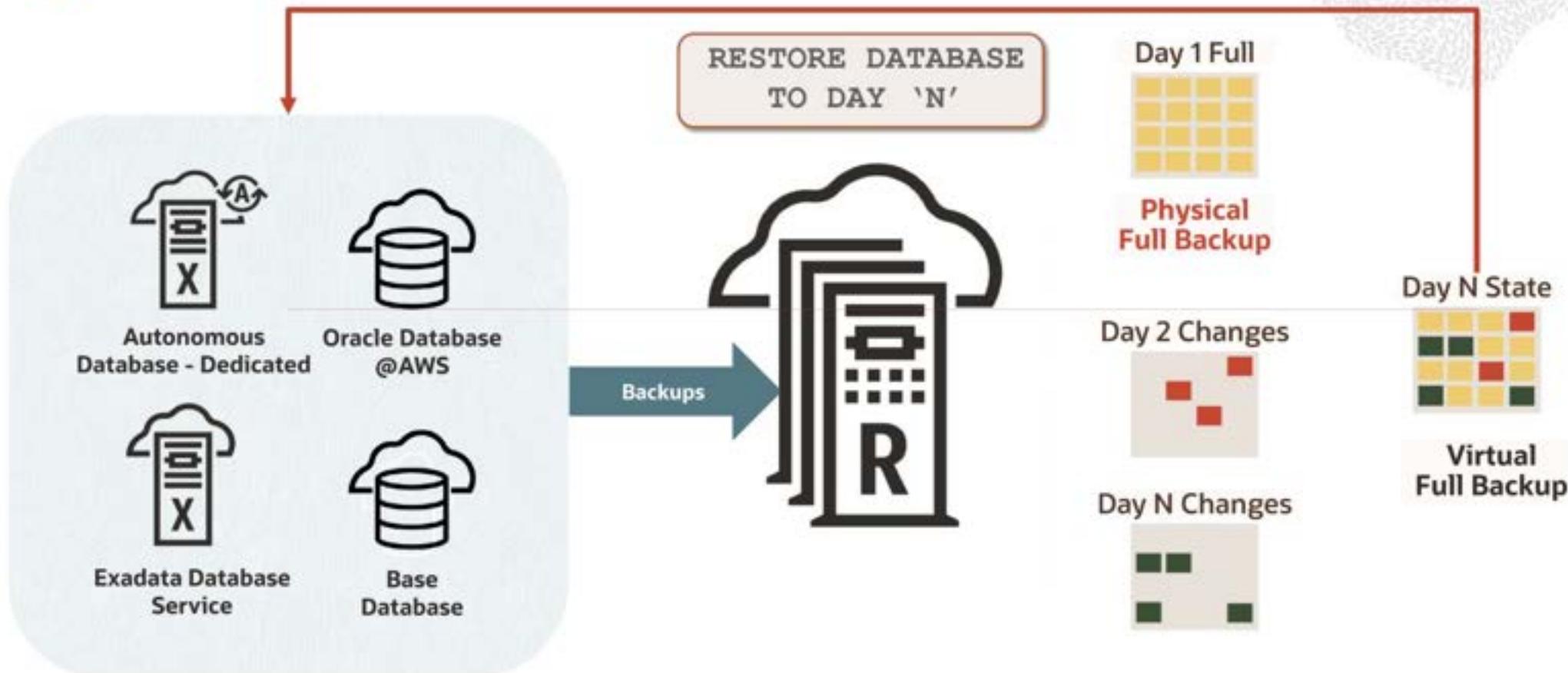
Data loss exposure

Indicates the time since the last valid backup, or the amount of time for potential data loss.

Applied filters: Interval Avg, Trend Max

Time (UTC)	Exposure (s)
21:32	0
21:33	0
21:34	0
21:35	0
21:36	0
21:37	0
21:38	0
21:39	0
21:40	0

Fast, Database-Integrated Restore to Any Point-in-Time



Restore with Autonomous Recovery Service

The screenshot shows the Oracle Database interface for an Exadata VM Cluster. The left sidebar has a tree view with 'Oracle Database' expanded, showing 'Exadata VM Clusters' selected. The main area displays 'Exadata VM Cluster Details' for 'DB0801'. A green progress bar is at the top. Below it, a 'Warning' message says: 'A better backup and recovery service is available for your database and you can easily transition without any database interruption. Click "Continue" to destination to Autonomous Recovery Service.' A 'Launch SQL Worksheet' button is at the top right. On the right, a vertical 'Actions' menu is open, showing options like 'DB connection', 'Performance Hub', 'Restore' (which is highlighted with a red box), 'Configure automatic backups', 'Create database from last backup', 'Move to Another Home', 'Manage encryption key', and 'Manage passwords'.

Oracle Database

← Exadata VM Cluster Details

DB0801 Available

Database

Actions ▾ Launch SQL Worksheet

DB connection

Performance Hub

Restore

Configure automatic backups

Create database from last backup

Move to Another Home

Manage encryption key

Manage passwords

Exadata VM Clusters

Exadata Infrastructure

Warning

A better backup and recovery service is available for your database and you can easily transition without any database interruption. Click "Continue" to destination to Autonomous Recovery Service. [Learn more](#)

Database information Backups Data Guard Associations Connections Pluggable Databases Upgrade history

Search and Filter

Create Backup

Restore with Autonomous Recovery Service

Restore Database

Recover a database Using the console. [Learn more](#)

Restore type

Restore to latest ⓘ

Restore to a timestamp ⓘ

Restore to SCN ⓘ

Restore Database

Recover a database Using the console. [Learn more](#)

Restore type

Restore to latest ⓘ

Restore to a timestamp ⓘ

Restore to SCN ⓘ

Restore date Required

Restore timestamp Required

Restore Database

Recover a database Using the console. [Learn more](#)

Restore type

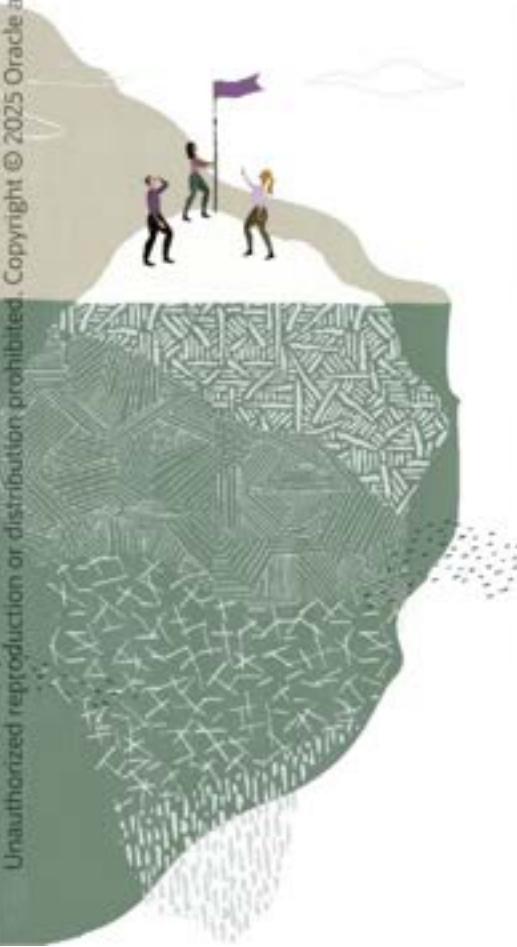
Restore to latest ⓘ

Restore to a timestamp ⓘ

Restore to SCN ⓘ

SCN Required

Summary



Prerequisites for Recovery Service

Configure automatic backups

Policy-based backup

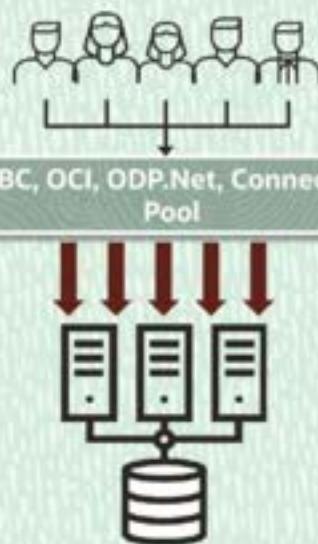
Monitor Autonomous Recovery Service

Restore with Autonomous Recovery Service

Oracle Cloud Infrastructure

High Availability in Oracle Database@AWS

Oracle Database Foundational High Availability Architecture



Oracle Real Application Cluster (RAC)

- Active-Active scalable architecture
- Least maintenance downtime with rolling upgrades and patching
- Automatic service failover during instance or hardware failure



Oracle Exadata

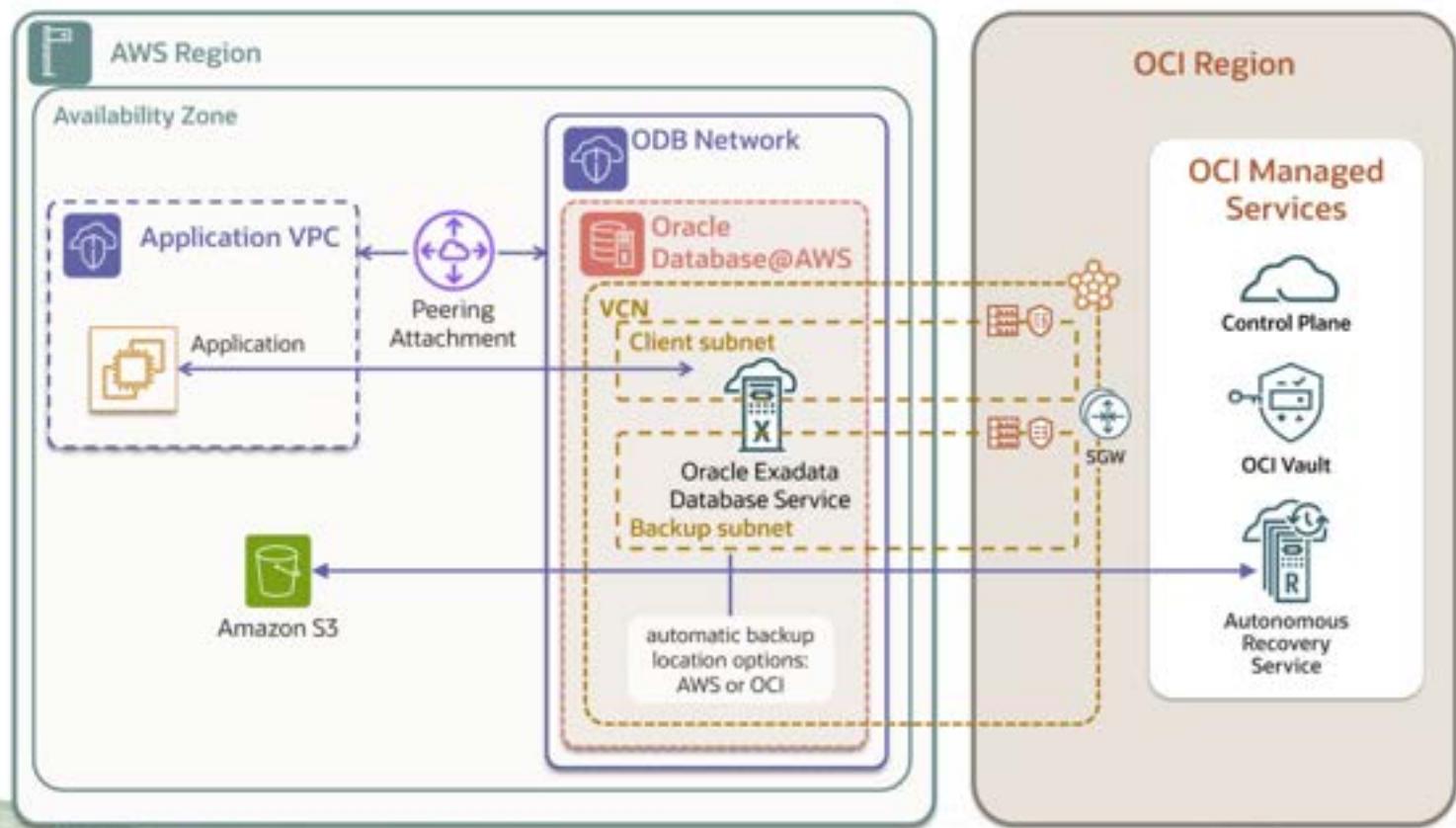
Oracle Exadata Infrastructure

- Redundant hardware
- Scale-out architecture

High Availability in Exadata Database Service in Oracle Database@AWS

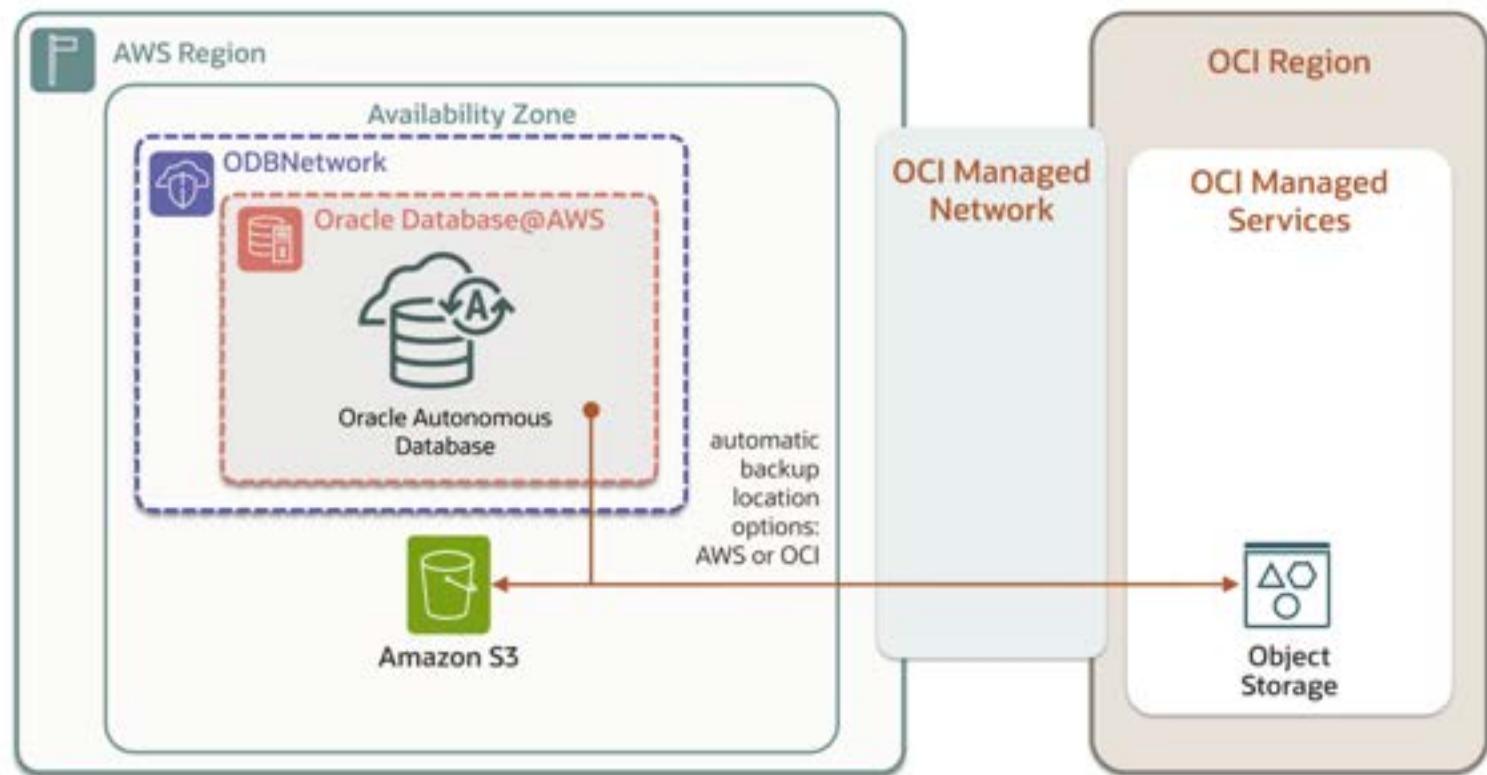
Oracle RAC on Exadata Infrastructure

- Agility to scale compute and storage without downtime.
- Zero or negligible maintenance downtime
- Node failure protection



High Availability in Autonomous Database Dedicated in Oracle Database@AWS

- Oracle Exadata and Oracle RAC high availability and extreme performance
- Full elasticity with online and auto-scaling of compute and storage resources
- Automatic updates with zero downtime

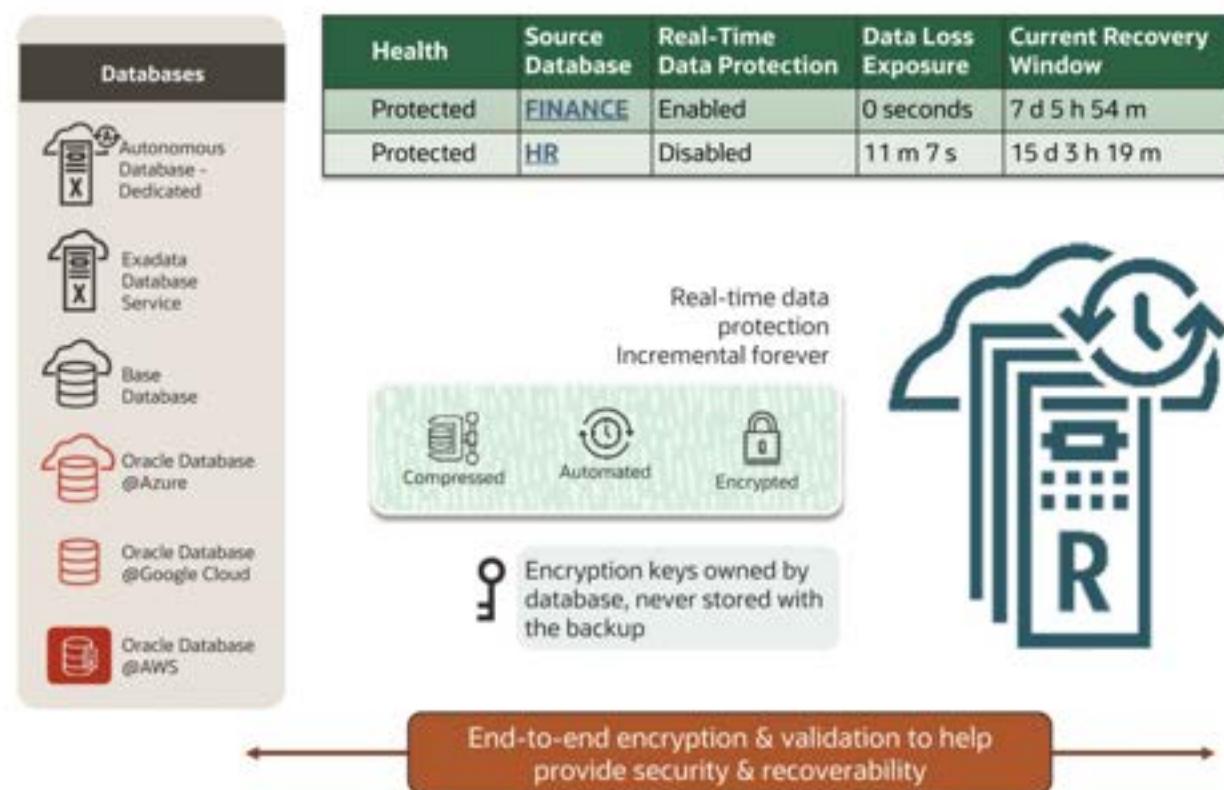


Oracle Cloud Infrastructure

Disaster Recovery in Oracle Database@AWS

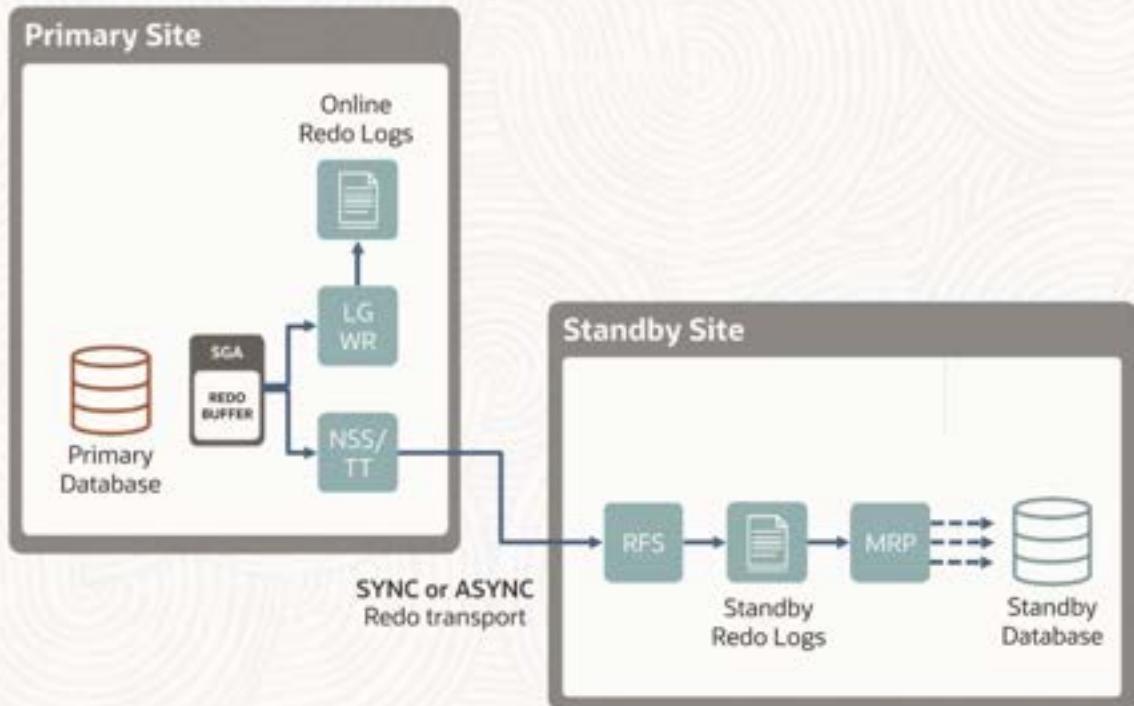
OCI Autonomous Recovery Service (RCV)

- Centralized, fully-managed Oracle Database backup and fast recovery solution in OCI
- Incremental forever-backup strategy
- Zero data loss by enabling real-time data protection (ZRCV)
- Backup retention for 14 to 95 days
- Enforced data encryption
- Continuous anomaly detection and validation
- Backup immutability and retention lock



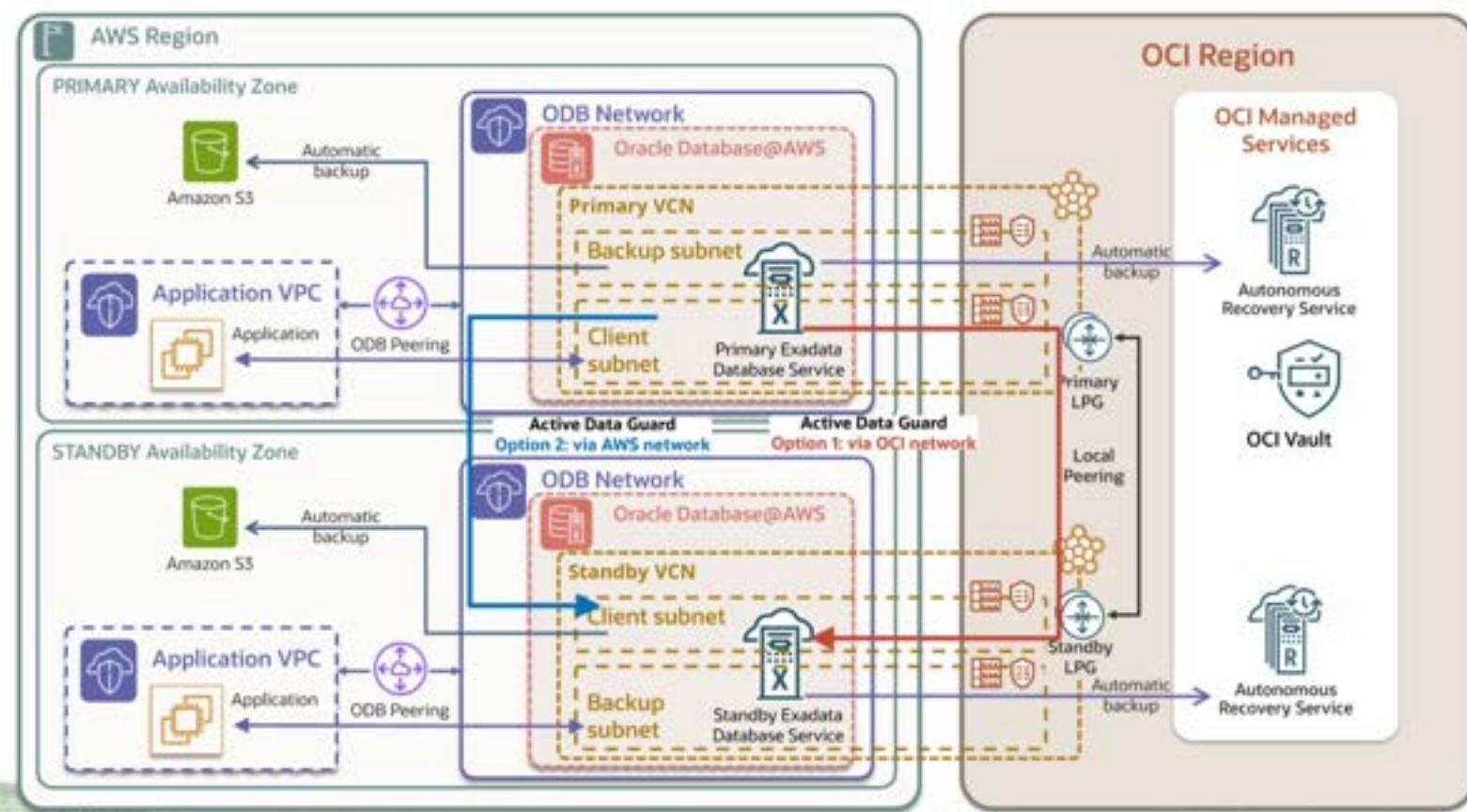
Oracle Active Data Guard

- Creates and manages one or more standby copies of production database
- Standby database are kept in sync with primary
- Continuous validation of data for data corruption during change apply
- Automatic block repair
- Offload of read-only workloads to standby
- Zero data loss protection
- Ransomware protection
- Automatic failover
- Reduced downtime with database rolling maintenance and upgrades



Cross-AZ Disaster Recovery for Oracle ExaDB-D in Oracle Database@AWS

- Site failure protection with cross-AZ deployment
- Comprehensive data corruption prevention
- Defense against ransomware attacks
- Online upgrades and Patching
- Offload of backup and workload to standby with read-mostly scale-out
- Network traffic through OCI network (recommended) or AWS network



Cross-AZ Network Traffic Options for Disaster Recovery in Oracle Database@AWS



Network Traffic through OCI (recommended)

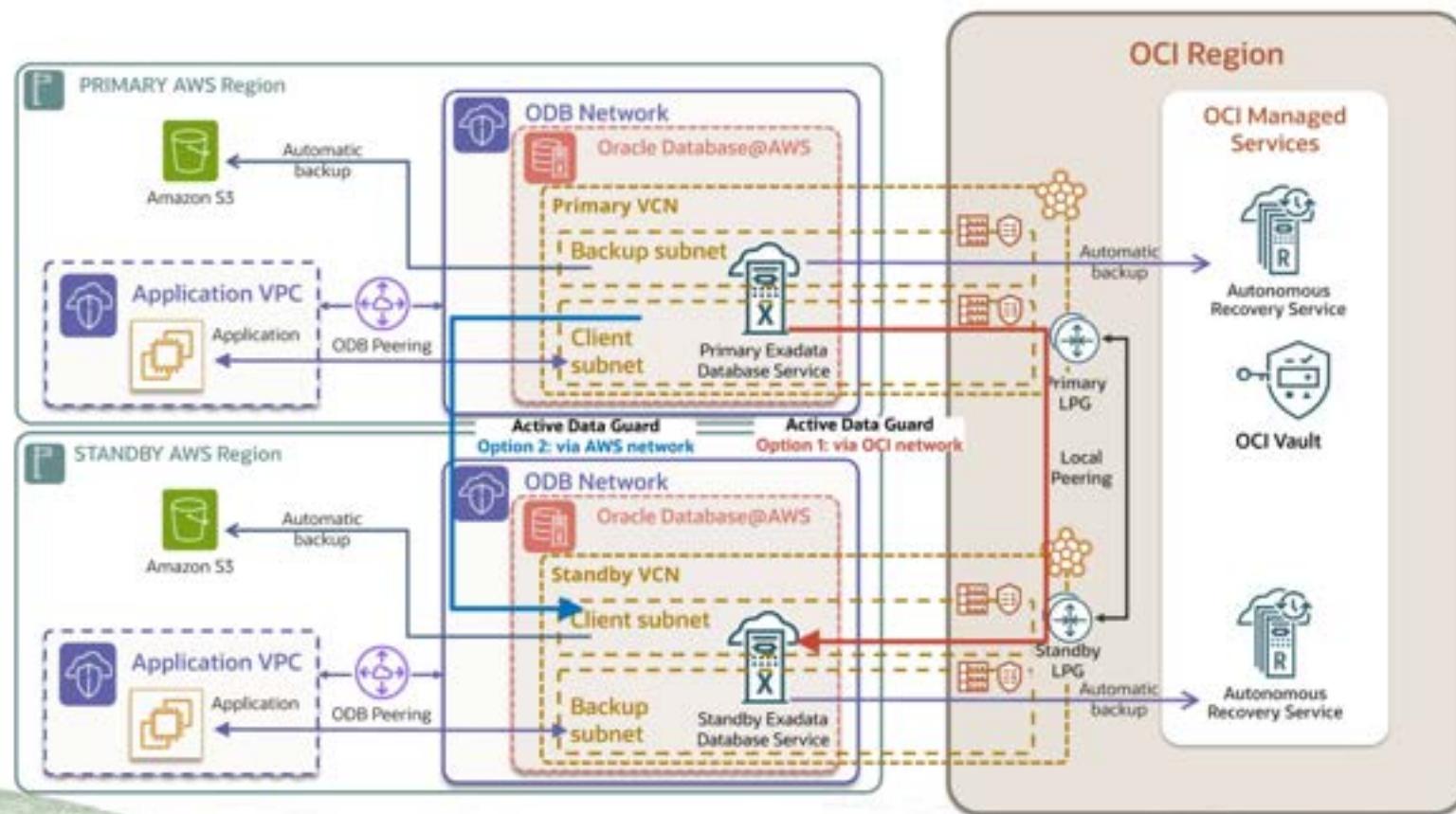
- Automated one-click setup
 - MAA best practices by default
 - VCN peering required
- Oracle controls the network and ensures reliability
- No chargeback for network traffic across VCNs in the same region
- Multiple standby databases via Cloud Tooling
- Optional: Fast-Start Failover (FSFO) manual setup

Network Traffic through AWS

- Automated one-click setup
 - MAA best practices by default
 - VPC peering required
- Amazon controls the network and ensures reliability
- Chargeback for cross-VPC traffic in the same region
- Multiple standby databases via Cloud Tooling
- Optional: Fast-Start Failover (FSFO) manual setup

Cross-Region Disaster Recovery for Oracle ExaDB-D in Oracle Database@AWS

- Regional disaster recovery protection with cross-region deployment
- Comprehensive data corruption prevention
- Defense against ransomware attacks
- Online upgrades and migrations
- Offload of backup and workload to standby with read-mostly scale-out
- Network traffic through OCI network(recommended) or AWS network



Cross-Region Network Traffic Options for Disaster Recovery in Oracle Database@AWS

Network Traffic through OCI (recommended)

- Automated setup via Cloud Tooling
 - VCN peering required
- Oracle controls the network and ensures reliability
- First 10TB/month cross-region traffic for free
- Can support the potential high redo throughput required for enterprise databases
- Multiple standby databases via Cloud Tooling
- Optional: Fast-Start Failover (FSFO) and/or Far Sync manual setup

Network Traffic through AWS

- Automated setup via Cloud Tooling
 - VPC peering required
- Amazon controls the network and ensures reliability
- Chargeback for cross-region traffic
- Multiple standby databases via Cloud Tooling
- Optional: Fast-Start Failover (FSFO) and/or Far Sync manual setup

Availability SLOs

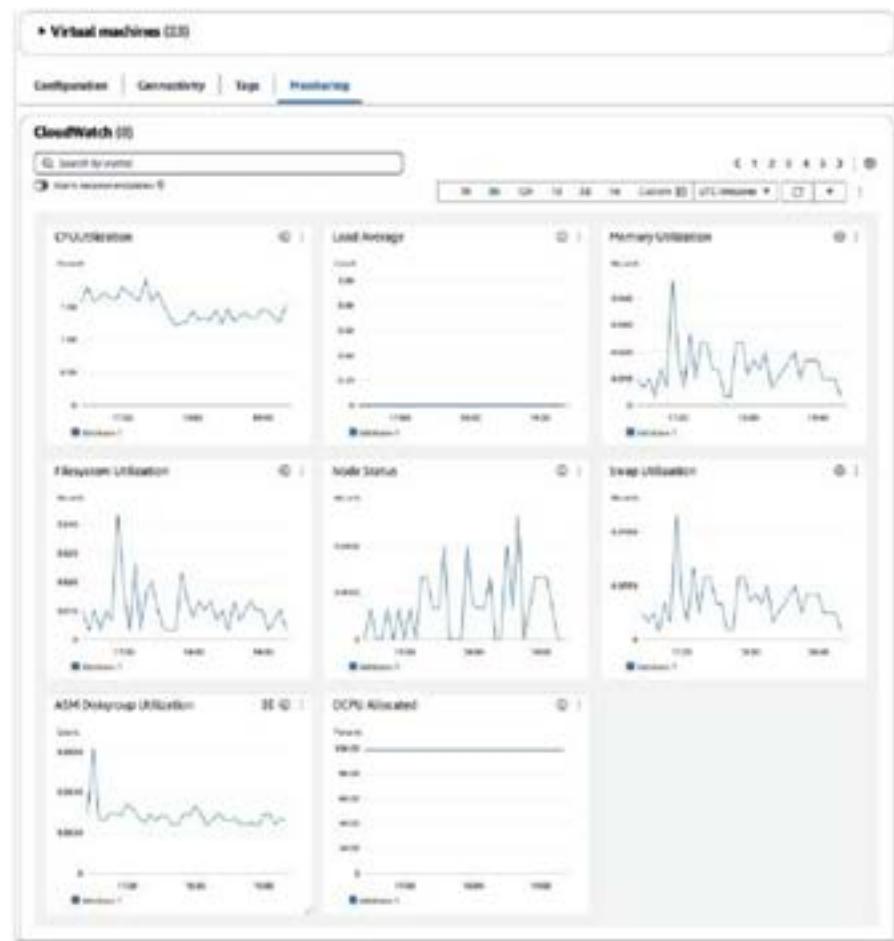
Unplanned outages	RTO/RPO SLOs
Database node or instance, Exadata HW component (disk, flash, network) failures	RTO=Zero- or Single-Digit Seconds RPO=Zero
Disasters (complete database, cluster, zone, or regional failure) <ul style="list-style-type: none"> Standby must be fault-isolated from preceding failures. 	RTO=Seconds to Minutes RPO=Zero with Cross Zone with Max Availability or Near Zero
Planned maintenance	RTO and RPO is always 0
Software and HW updates, Oracle Exadata Elastic Operations	Zero Application or Database Downtime
Major database upgrade	Seconds to minutes

Oracle Cloud Infrastructure

Monitoring and Logging Oracle Database@AWS

Monitoring Resource Metrics Using Amazon CloudWatch

- Collects and processes raw data into readable near real-time metrics
- Retained for 15 months
- Set alarms to notify on breach of metric threshold.
- Monitor Exadata VM Cluster, container and pluggable database.
- Metrics names are listed in AWS/ODB Namespace.
- Resources must be in the Available state.



Metrics Monitored for ExaDB-D Resources



AWS Cloud Watch

Exadata VM Cluster

- CPU Utilization %
- Memory Utilization %
- ASM Disk Group Utilization
- File System Utilization
- Load Average
- Node Status
- OCPU Allocated
- SWAP Space Utilization %

Container Database

- Block Changes
- CPU Utilization
- Current Logons
- Execute Count
- Parse Count
- Storage Allocated
- Storage Used
- Storage Utilization %
- Transaction Count
- User Calls

Pluggable Database

- DB Time Seconds
- Wait Time Seconds
- CPU and Memory
- Interconnect Traffic (RAC)
- Process and Session
- IOPS and IO Throughput
- Storage
- Flash Recovery Area
- User Calls
- Logical Block Reads
- Monitoring Status

Monitoring Resource Events Using Amazon EventBridge



Amazon EventBridge

- Streams real-time data from application and AWS services.
- Forward event data to targets like AWS Lambda and Amazon Simple Notification Service.
- OD@AWS events indicate resource lifecycle changes.
- Event Bus receives events and delivers to one or more targets.
- Events can be generated in AWS from Oracle Database@AWS APIs or received from OCI service console.
- Monitor Exadata Database and Autonomous Database events; Exadata Infrastructure must be in available state.

Oracle Database@AWS

Events and Filtering

- Define EventBridge rules to filter events and targets to receive and use events.
- Create and apply a filter pattern for event type using EventBridge put-rule API.
- Set EventBusName to default event bus in your AWS account for events from AWS.
- Set EventBusName to the event bus created when subscribing to Oracle Database@AWS.

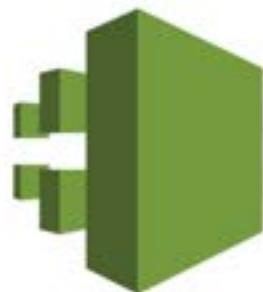
Events from AWS

- Lifecycle changes of ODB network during creation and deletion.
- Delivered to default event bus in customer AWS account.

Events from OCI

- Event Types – Exadata Infrastructure, VM Cluster, CDB and PDB events.
- OD@AWS creates aws.partner/odb/ event bus in customer AWS account to receive events from OCI.

Logging OD@AWS API Calls Using AWS CloudTrail



AWS CloudTrail

- AWS CloudTrail logs all actions of user, role, or an AWS service
- Oracle Database@AWS integrated with AWS Cloud Trail service
- Captures all Oracle Database@AWS API calls as events
- Helps to trace the request made to Oracle Database@AWS
- View, search, download immutable records of past 90 days in CloudTrail Event History
- Create a CloudTrail Lake event data store for records older than 90 days
- Run SQL-based queries on the events in CloudTrail Lake
- All Oracle Database@AWS control plane operations are logged as management events

Best Practices for Operational Efficiency

Architectural Best Practices

Oracle Cloud Infrastructure

Operational Efficiency: Best Practice #1

Automate Deployment with IaC
(Terraform/CloudFormation)



Operational Efficiency: Best Practice #2

Enable Auto-Start/Stop for ADB



Operational Efficiency: Best Practice #3

Use Exadata Fleet Patching & Maintenance



Operational Efficiency: Best Practice #4

Monitor with CloudWatch + EventBridge



Operational Efficiency: Best Practice #5

Leverage Data Safe Reports for Audit/Compliance



Operational Efficiency: Best Practice #6

Use Performance Hub (ADB) +
AWR/ASH (Exadata)



Operational Efficiency: Best Practice #7

Automate Tagging + Change Management



Operational Efficiency: Best Practice #8

Track Storage/Data Growth Trends with CloudWatch and ADB Console



Operational Efficiency: Best Practice #9

Integrate CloudTrail + EventBridge
into Incident Workflows



Best Practices for Reliability & Resilience

Architectural Best Practices

Oracle Cloud Infrastructure

Reliability & Resilience: Best Practice #1

Define/Document RTO/RPO
per workload



Reliability & Resilience: Best Practice #2

Implement Cross-region/Cross-AZ
Disaster Recovery



Reliability & Resilience: Best Practice #3

Run Regular DR
Failover/switchover Drills



Reliability & Resilience: Best Practice #4

Use Autonomous Recovery Service
(ARS) for Exadata Backups



Reliability & Resilience: Best Practice #5

Use Oracle managed Automatic Backup



Reliability & Resilience: Best Practice #6

Test Backup Restorability in Non-prod



Reliability & Resilience: Best Practice #7

Map Application Dependencies in HA/DR Planning



Best Practices for Performance & Cost Optimization

Architectural Best Practices

Oracle Cloud Infrastructure

Performance & Cost Optimization: Best Practice #1

Enable ADB Auto-scaling
(CPU + Storage)



Performance & Cost Optimization: Best Practice #2

Right-size Compute using
CloudWatch Metrics



Performance & Cost Optimization: Best Practice #3

Enable Automatic Indexing (ADB)



Performance & Cost Optimization: Best Practice #4

Tune Connection Pooling &
Reduce Round-trips



Performance & Cost Optimization: Best Practice #5

Tag Resources for Cost Tracking
& Governance



Performance & Cost Optimization: Best Practice #6

Review BYOL versus License
included Models



Performance & Cost Optimization: Best Practice #7

Adjust Backup Retention
by Workload Criticality



Performance & Cost Optimization: Best Practice #8

Consolidate with
Multitenant/PDBs on Exadata



Performance & Cost Optimization: Best Practice #9

Correlate DB performance
with Business KPIs



Best Practices for Security

— **Architectural Best Practices**

Oracle Cloud Infrastructure

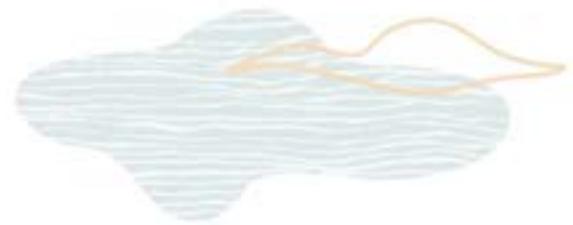
Security: Best Practice #1

Use AWS IAM with Least-privilege
Roles/Policies



Security: Best Practice #2

Monitor activity with Oracle Data Safe and CloudTrail



Security: Best Practice #3

Enforce Separation of Duties with
Database Vault (ADB) or AVDF (Exadata)



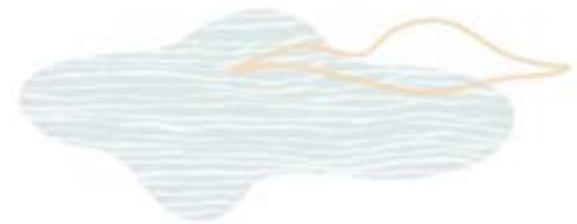
Security: Best Practice #4

Require MFA for All Privileged Accounts



Security: Best Practice #5

Enforce Private Subnets +
Security Groups/NACLs



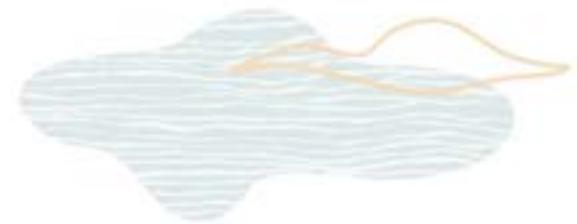
Security: Best Practice #6

Rotate Encryption Keys in OCI
Vault/Oracle Key Vault



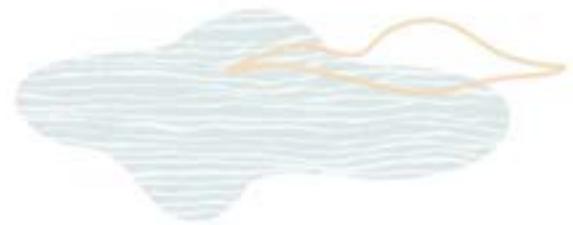
Security: Best Practice #7

Require TLS 1.2/1.3 for All DB Connections



Security: Best Practice #8

Detect/disable Dormant or Over-privileged Accounts



Security: Best Practice #9

Store Audit Logs in Immutable,
Centralized Storage

