

ORACLE

Oracle Cloud DBA

Lear how to stay up to date on this DbaaS era – Day 3

Marcel Lamarca

Exadata Cloud Specialist

Oracle, Alliances and Channels LAD

February, 2024



SQL> select * from person where name = 'Marcel Lamarca'



MARCEL LAMARCA

Exadata Cloud Specialist

Upgrade, Utilities, Patching, Performance & Migrations

 marcel-lamarca

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About My Career

- 22 Years dedicated to study and support Oracle Databases.
- 12 Years working with Exadata (On-prem, C@C and Cloud Services) .
- 5 Year working for Oracle do Brasil
- 2 Year on Alliances LAD knowledge Team

Certifications

Oracle Cloud Specialist (OCS)

- Exadata Database Machine X9M Certified Specialist
- OCI Foundation 2020 / 2023
- Oracle Autonomous Database professional Administrator 2019 / 2023
- Oracle Cloud Database Migration and Integration 2021
- OCI Cloud Certified Architect Associate 2022
- OCI Cloud Certified Architect Professional 2022
- OCI Multi-Cloud Architect Professional 2023
- Oracle Database Services Certified Professional 2023

Oracle Certified Professional (OCP)

- Oracle Database certified professional 10g, 11g, 12c and 19c.
- Mysql 8.0 Database Administrator Certified Professional

Oracle Certified Specialist (OCE)

- Grid/RAC Database Administrator 11g
- Oracle Golden Gate 12c Certified Implementation Specialist



Agenda

1

Oracle OCI Database Data Guard

2

Oracle Database Pathing and Upgrade

3

OCI MySQL Database service

4

OCI PostgreSQL Database service

5

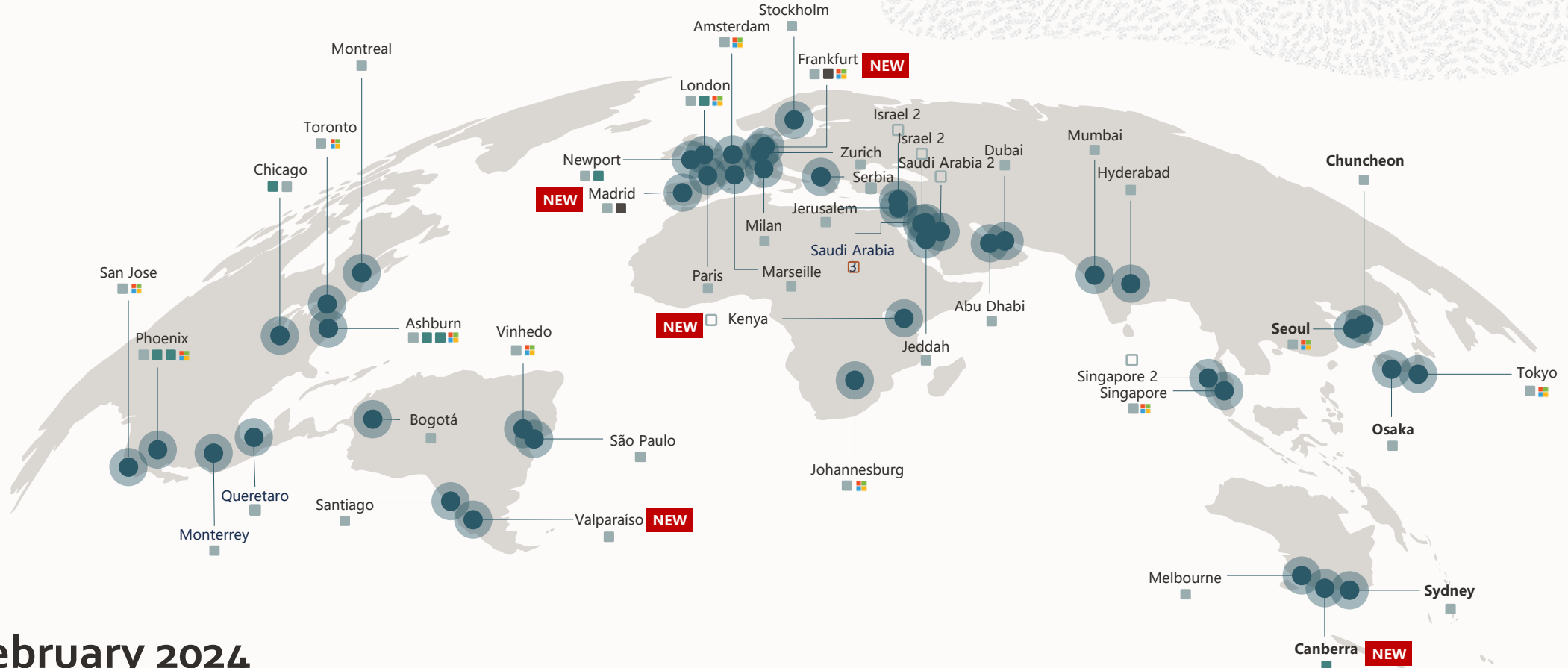
OCI License Manager concepts





OCI Cloud Region Maps

Oracle Cloud Infrastructure Global Footprint



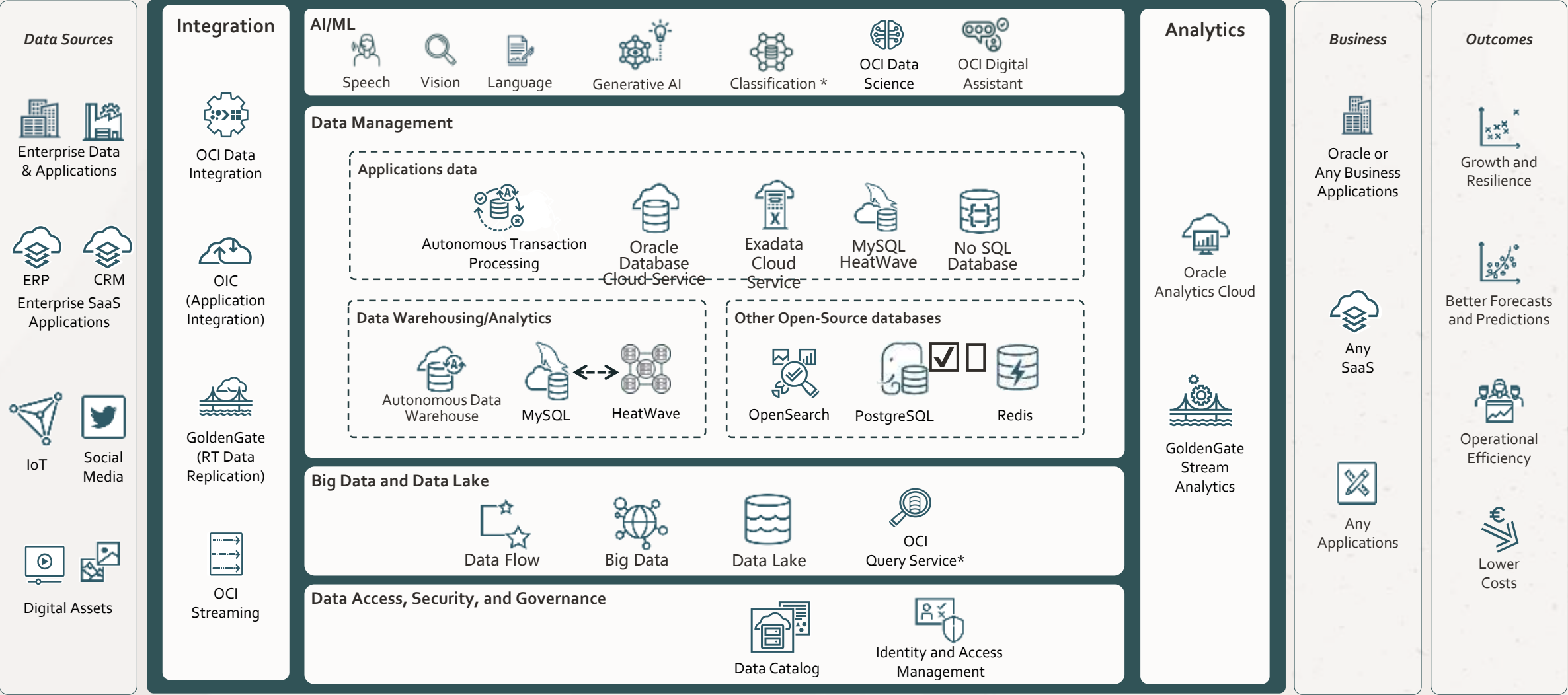
February 2024

48 regions; 5 more planned

12 Azure Interconnect Regions



Oracle Data Platform: A complete suite of services





MAA OCI Data Guard

OCI Active Data Guard VS Data Guard

- Data Guard and Active Data Guard provide disaster recovery (DR) for databases with recovery time objectives (RTO) that cannot be met by restoring from backup.
- **Active Data Guard extends Data Guard capabilities** by providing advanced features for data protection and availability as well as **offloading read-only workload and fast incremental backups** from a production database. Active Data Guard is included in the Extreme Performance Edition and Exadata Service.
- To configure a Data Guard **system across regions or between on-premises** and Oracle Cloud Infrastructure DB systems, you must access the database host directly and use the **DGMGRL utility**.
- Oracle recommends that the DB system of **the standby database be in a different availability domain**.
- The standby databases in Oracle Cloud Infrastructure Database are physical standbys

Oracle OCI Physical Data Guard Console Management

Database Information

Tags

General information

Lifecycle state: Available

OCID: ...32vonq [Show](#) [Copy](#)

Created: Sat, Oct 22, 2022, 19:54:02 UTC

Database Role: Standby

Database unique name: DB12_iad1r5

Oracle SID Prefix: None

Database Architecture: Container Database

Character Set: AL32UTF8

Backup

Automatic backup: Disabled ⓘ

Data Guard

Status: Enabled

Encryption

Encryption Key: Oracle-managed key



Data Guard Associations

Enable Data Guard

Peer database	Peer DB system	Peer role	Protection Mode	Transport type	Apply lag	Data Guard Type	Launched
DB12	DB12STDBY	Standby	Maximum Availability	Sync	0 seconds	Mounted (Data Guard)	Sat, Oct 22, 2022, 19:50:14 UTC

Showing 1 item < 1 of 1 >

Edit Data Guard Association

Data Guard association details

Help

Data Guard Type

Active-Data Guard

Active Data Guard is a licensed option to the Oracle Database Enterprise Edition and enables advanced capabilities that extend the basic Data Guard functionality. These capabilities include Real-Time Query and DML Offload, Automatic Block Repair, Standby Block Change Tracking, Fast Sync, Global Data Services, and Application Continuity. [Learn more](#)

Data Guard

Oracle Data Guard ensures high availability, data protection, and disaster recovery for enterprise data. Data Guard provides a comprehensive set of services that create, maintain, manage, and monitor one or more standby databases to enable production Oracle databases to survive disasters and data corruptions. Data Guard maintains these standby databases as transactionally consistent copies of the production database. [Learn more](#)

Protection mode

Maximum Availability

Data Guard Associations

Enable Data Guard

Peer database	Peer DB system	Peer role	Protection Mode	Transport type	Apply lag	Data Guard Type	Launched	
DB12	single_marcel01	Standby	Maximum Availability	Sync	0 seconds	Mounted (Data Guard)		<div>Switchover</div> <div>Edit Data Guard Association</div> <div>Copy Peer Database OCID</div> <div>Copy Peer DB System OCID</div>



Oracle OCI Data Guard Network Requirements

Avoid security know issues during physical OCI Data Guard provisioning

- **Properly configure the security list ingress and egress rules** for the subnets of both DB systems in the Data Guard association to allow TCP traffic to flow between the applicable ports. **Ensure that the rules you create are stateful (the default).**
- **The egress rules in the example show how to enable** TCP traffic only for port 1521, which is a minimum requirement for Data Guard to work. If TCP traffic is already enabled on all of your outgoing ports (0.0.0.0/0), then you need not explicitly add these specific egress rules. Service Gateway can provide NW connectivity.

Rules(Prod)	Stateless	Source	IP Protocol	Source Port	Dest Port
Ingress	No	10.0.01.0/24	TCP	All	1521
Egress	No	10.0.1.0/24	TCP	All	1521
Rules(Sby)	Stateless	Source	IP Protocol	Source Port	Dest Port
Ingress	No	10.0.0.0/24	TCP	All	1521
Egress	No	10.0.0.0/24	TCP	All	1521



Avoid Data Guard Provisioning Error | Change Ingress and Egress roles



VM Data Guard Switchover through OCI Console

ORACLE Cloud

Cloud Classic >

Search resources, services, documentation, and Marketplace

US East (Ashburn)

Overview > Oracle Base Database > DB Systems > DB System Details > Database Home Details > Database Details > Work requests > Work request details

WR

IN PROGRESS

Switchover Data Guard

Work request information

Switchover Data Guard

In progress

0% complete

Operation: Switchover Data Guard

Accepted: Tue, Apr 25, 2023, 22:28:56 UTC

OCID: ...s3rhia Show Copy

Started: Tue, Apr 25, 2023, 22:29:33 UTC

Compartment: acteamiad (root)/marlamar

Finished: —

Switchover Database

Are you sure you want to perform a database switchover? A switchover reverses the primary and standby database roles.

Enter the database admin password

OK Cancel

WR

SUCCEEDED

Switchover Data Guard

Work request information

Switchover Data Guard

Succeeded

100% complete

Operation: Switchover Data Guard

Accepted: Tue, Apr 25, 2023, 22:28:56 UTC

OCID: ...s3rhia Show Copy

Started: Tue, Apr 25, 2023, 22:29:33 UTC

Compartment: acteamiad (root)/marlamar

Finished: Tue, Apr 25, 2023, 22:32:43 UTC



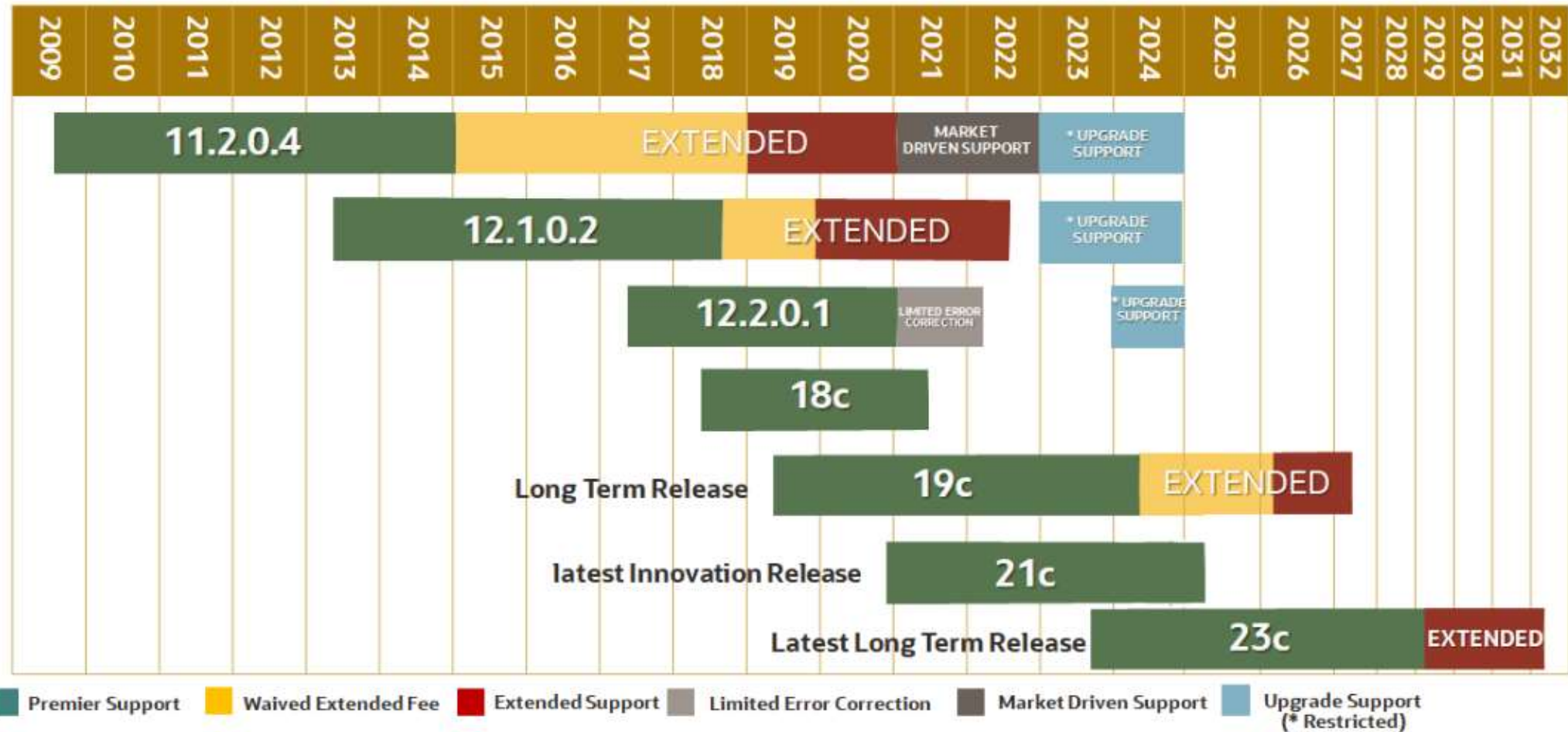


Oracle Database version timeline



Oracle Database Releases and timeline

My Oracle Support Official Note (Doc ID 742060.1)





Upgrade your Oracle database to 19c

19c Database Upgrade - Self Guided Assistance with Best Practices (Doc ID 1919.2)

★ 19c Database Upgrade - Self Guided Assistance with Best Practices (Doc ID 1919.2)

Visibility: EXTERNAL

To Bottom

(9)

Document Purpose

Upgrade Readiness

Verify Certification and Review Best Practices

Prepare Target Environment

Prepare Source Environment

Upgrade Initial Dev/Test Environments

Evaluate Performance on DEV/Test Environment

Upgrade PROD Environment

Recommended Training and Resources

Search This Document

Print

Document Purpose

Upgrade Readiness

Verify Certification and Review Best Practices

Prepare Target Environment

Prepare Source Environment

Upgrade Initial Dev/Test Environments

Evaluate Performance on DEV/Test Environment

19^c

ORACLE®

Database

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The Oracle logo, consisting of a red square with a white stylized 'O' inside.

OCI DBCS Grid Patching

Pre check through OCI Console before change any bundle patch version

Updates

DB System: [demo12rac](#)

Update description	Type	State	Component	Version	Last successful precheck	Release date
Jan 2023 19c Db System patch	Patch	● Available	GI patch	19.18.0.0.0	—	Tue, Oct 17, 2023, 01:00:00 UTC
Oct 2022 19c Db System patch	Patch	● Available	GI patch	19.17.0.0.0	Wed, Feb 8, 2023, 16:16:34 UTC	<div>Run precheck</div> <div>Apply</div>



OCI VM System DBCS | Oracle Home Patching Precheck

Pre check through OCI Console

Database: [dem12rac](#)

Oracle Database Software Images

Custom Database Software Images

Patch description	Type	State	Version	Release date	
Jan 2023 12.1.0.2 Database patch	Patch	● Available	12.1.0.2.230117	Wed, Jan 25, 2023 UTC	<div>Precheck</div> <div>⋮</div>
Oct 2022 12.1.0.2 Database patch	Patch	● Available	12.1.0.2.221018	Thu, Dec 15, 2022 UTC	<div>Apply</div> <div>Copy OCID</div> <div>⋮</div>



OCI VM System DBCS | RAC Grid Patching in rolling mode

For a DBCS RAC environment a Grid patch will run in rolling format

```
[grid@demol2crac2 ~]$ crsctl stat res -t
```

Name	Target	State	Server	State details
Local Resources				
ora.DATA.COMMONSTORE.advm	ONLINE	ONLINE	demol2crac2	STABLE
ora.LISTENER.lsnr	ONLINE	ONLINE	demol2crac2	STABLE
ora.chad	ONLINE	ONLINE	demol2crac2	STABLE
ora.data.commonstore.acfs	ONLINE	ONLINE	demol2crac2	mounted on /opt/oracle/dcs/commonstore,STABLE
ora.net1.network	ONLINE	ONLINE	demol2crac2	STABLE
ora.ons	ONLINE	ONLINE	demol2crac2	STABLE
ora.proxy_advm	ONLINE	ONLINE	demol2crac2	STABLE
Cluster Resources				

OCI DBCS Oracle Home | One-off Patch Messages

Check if you have one-off patch installed before any database patch activity

Confirm

The action might result in database downtime. Are you sure you want to apply the patch to the database?

If you have manually installed one-off patches on this database, Oracle recommends that you patch using a custom database software image that includes your one-off patches.

[Learn more](#) about OCI custom database software images.

This operation may roll back one-off patches that have been applied manually.

Do you want to continue?

OK

[Cancel](#)

Patching Concepts | Out-Of-Place Patching

Oracle Home,
19.18.0



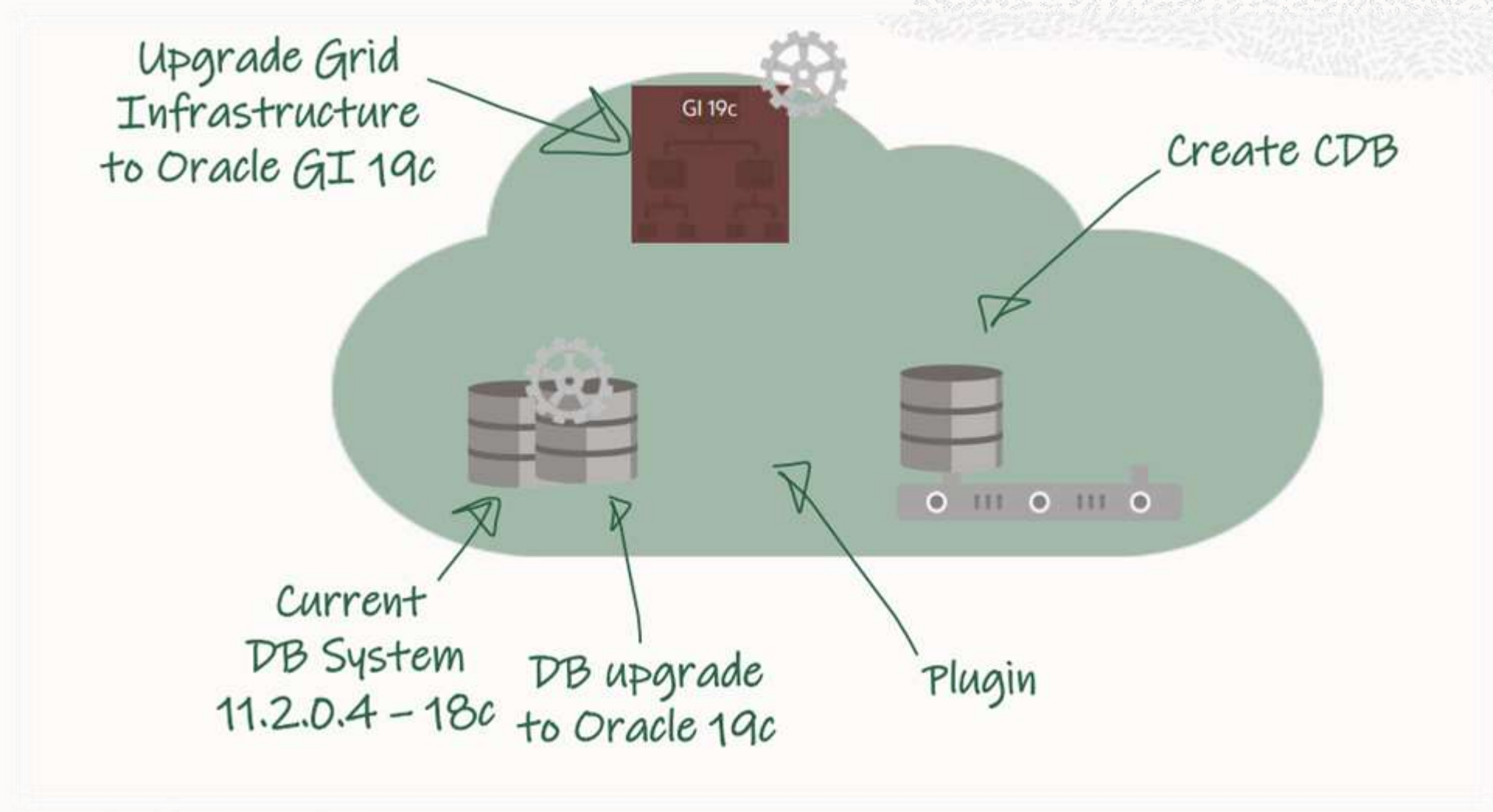
```
SQL> SHUTDOWN IMMEDIATE
```



```
# DATAPATCH
```

New Oracle Home, 19.20.0

Oracle Database | Upgrade Your Database to 19c



OCI VM System DBCS Upgrade Precheck

Oracle Database 19c Upgrade pre check using OCI console



Database: [dem12rac](#)

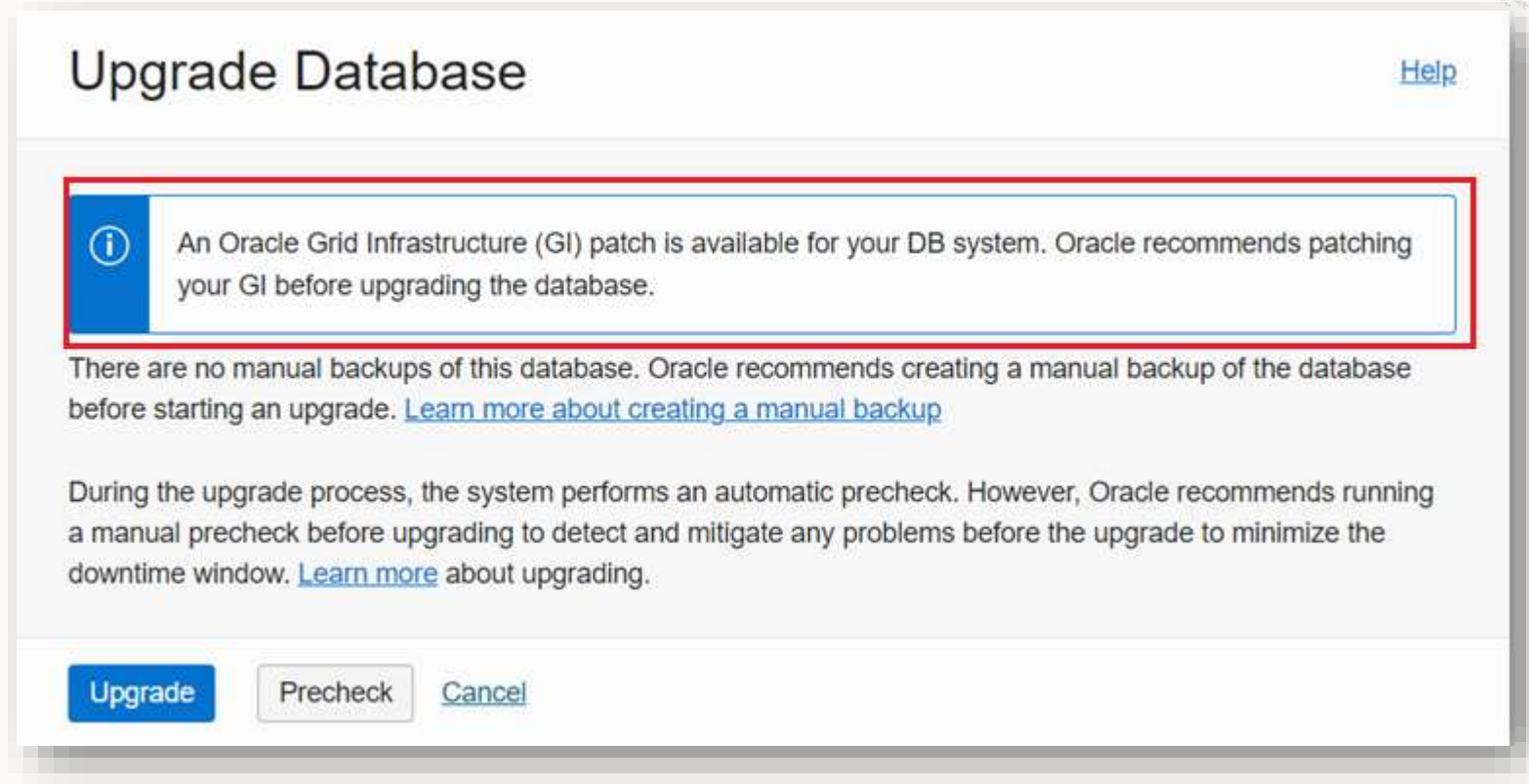
Oracle Database Software Images

Custom Database Software Images

Patch description	Type	State	Version	Release date	
Oracle Database 19.15.0.0	Upgrade	● Available	19.15.0.0	-	<div>Precheck⋮</div>
Oracle Database 19.16.0.0	Upgrade	● Available	19.16.0.0	-	<div>Upgrade⋮</div>
Oracle Database 19.17.0.0	Upgrade	● Available	19.17.0.0	-	<div>⋮</div>
Showing 3 Items < 1 of 1 >					

OCI VM System DBCS | Upgrade Database

It's recommended to update Gris Home first Oracle Database Upgrade



OCI VM System DBCS - Upgrade Pre check

Oracle Database 19c Upgrade pre check using OCI console



Work requests

Operation	State	% complete	Accepted	Started	Finished	
Upgrade Database	In progress	0%	Sun, Feb 12, 2023, 12:52:22 UTC	Sun, Feb 12, 2023, 12:52:31 UTC	—	⋮
Patch DB Home	Succeeded	100%	Wed, Feb 8, 2023, 20:52:17 UTC	Wed, Feb 8, 2023, 20:52:46 UTC	Wed, Feb 8, 2023, 21:51:01 UTC	⋮
Patch DB Home	Succeeded	100%	Wed, Feb 8, 2023, 14:17:47 UTC	Wed, Feb 8, 2023, 14:17:59 UTC	Wed, Feb 8, 2023, 14:29:11 UTC	⋮
Create DB System	Succeeded	100%	Wed, Feb 8, 2023, 00:27:28 UTC	Wed, Feb 8, 2023, 00:27:52 UTC	Wed, Feb 8, 2023, 04:47:36 UTC	⋮
Showing 4 Items < 1 of 1 >						

OCI VM System DBCS - Grid Patching check

Current Database and Grid home using dbcli tool

```
SQL> select COMP_NAME, VERSION, STATUS from dba_registry;
```

COMP_NAME	VERSION	STATUS
Oracle Database Catalog Views	19.0.0.0.0	VALID
Oracle Database Packages and Types	19.0.0.0.0	VALID
JServr JAVA Virtual Machine	19.0.0.0.0	VALID
Oracle XDK	19.0.0.0.0	VALID
Oracle Database Java Packages	19.0.0.0.0	VALID
OLAP Analytic Workspace	19.0.0.0.0	VALID
Oracle Real Application Clusters	19.0.0.0.0	VALID
Oracle XML Database	19.0.0.0.0	VALID
Oracle Workspace Manager	19.0.0.0.0	VALID
Oracle Text	19.0.0.0.0	VALID
Oracle Multimedia	19.0.0.0.0	VALID
Spatial	19.0.0.0.0	VALID
Oracle OLAP API	19.0.0.0.0	VALID
Oracle Label Security	19.0.0.0.0	VALID
Oracle Database Vault	19.0.0.0.0	VALID

```
15 rows selected.
```

```
SQL> █
```

OCI DBCS Compatible Database Parameter

Only change database compatible database when you are sure rollback is not necessary

```
Connected to:  
Oracle Database 19c EE Extreme Perf Release 19.0.0.0.0 - Production
```










```
SQL> show parameter compatible
```

NAME	TYPE	VALUE
compatible	string	12.1.0.2
noncdb_compatible	boolean	FALSE



MySQL Database Service

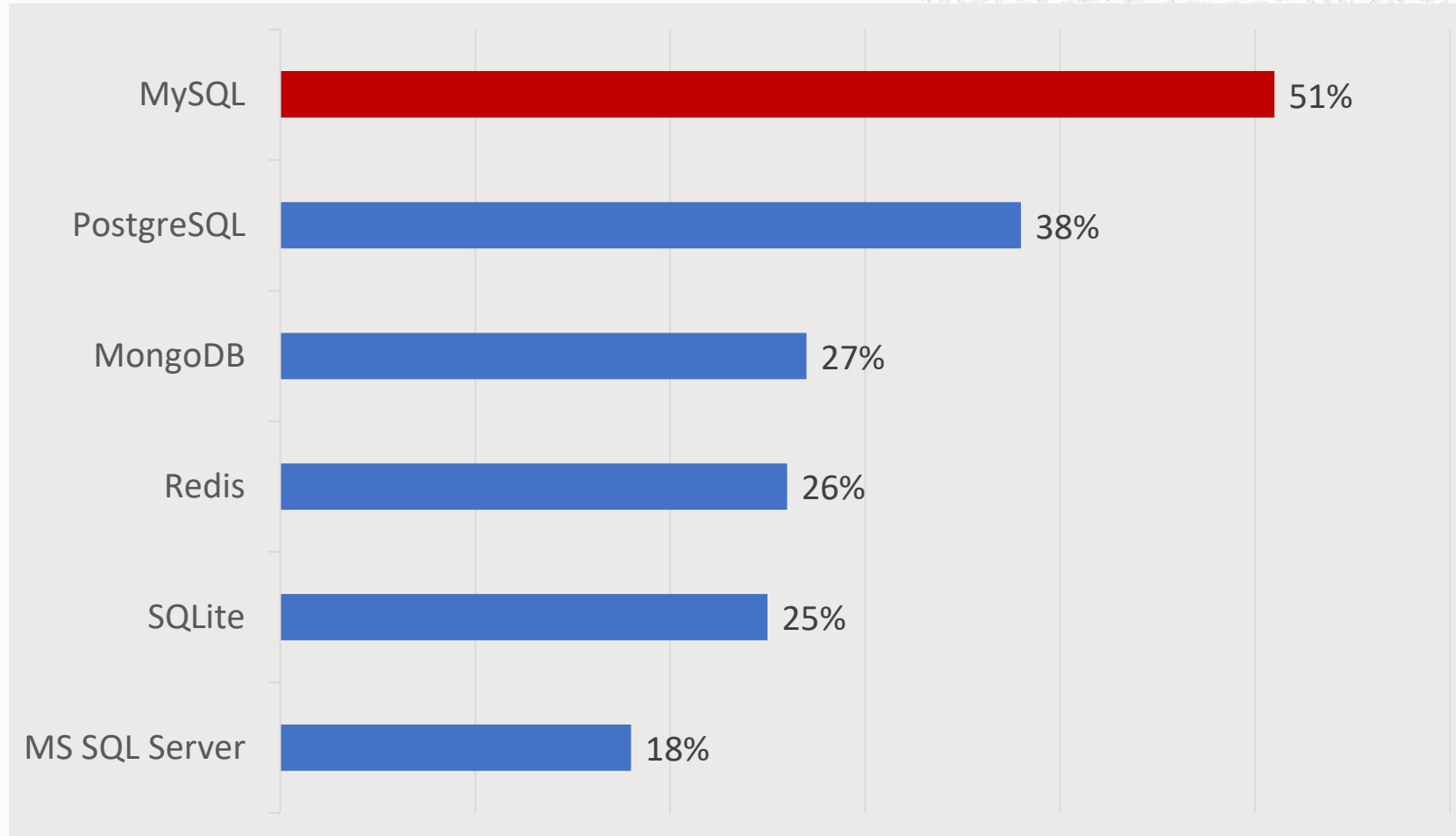
MySQL is the #1 Open Source Database

Rank			DBMS	Database Model	Dec 2023
Dec 2023	Nov 2023	Dec 2022			
1.	1.	1.	Oracle 	Relational, Multi-model 	1257.41
2.	2.	2.	MySQL 	Relational, Multi-model 	1126.64
3.	3.	3.	Microsoft SQL Server 	Relational, Multi-model 	903.83
4.	4.	4.	PostgreSQL 	Relational, Multi-model 	650.90
5.	5.	5.	MongoDB 	Document, Multi-model 	419.15

DB-ENGINES



MySQL is the most popular database for developers



Innovative organizations across many industries run MySQL – Do you?

Social

facebook



LinkedIn



Pinterest

E-Commerce

Booking.com

NETFLIX

UBER



淘宝网
Taobao.com

阿里巴巴
Alibaba.com

Tech



GitHub

HubSpot

zendesk



Finance



J.P.Morgan

citi



VISA



Manufacturing

TESLA



TOYOTA



MySQL Community VS Enterprise



ORACLE

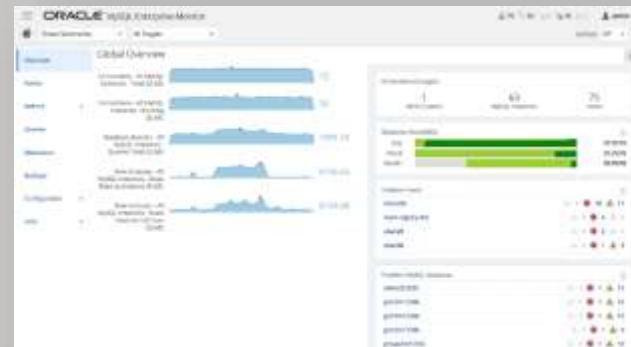


Database Core

DB Engine (InnoDB), Replication,
High Availability, Partitioning



Premier Support



Enterprise Monitor

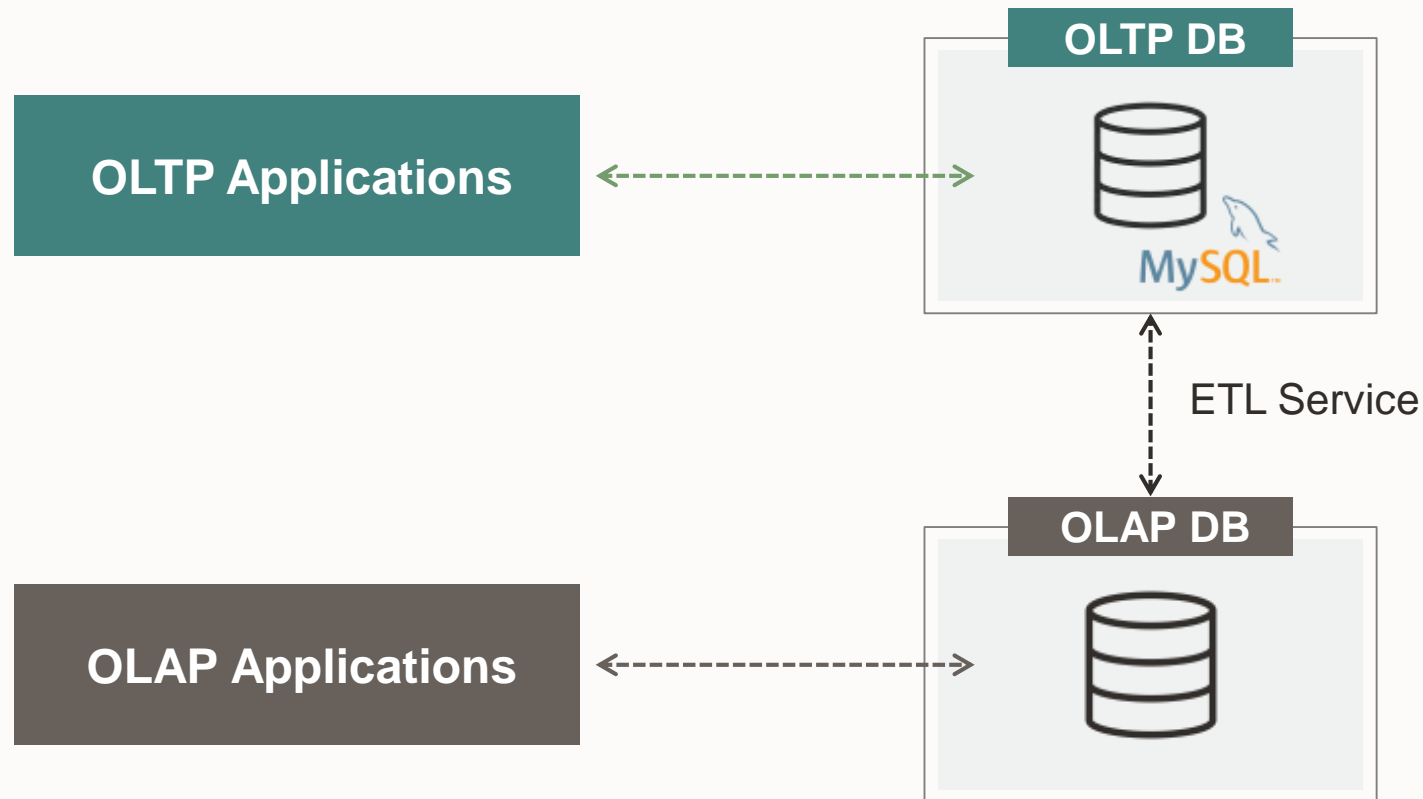


Encryption
Masking



Thread Pool

MySQL is optimized for OLTP, not designed for analytic processing



Separate analytics database

Complex ETL

No real-time analytics

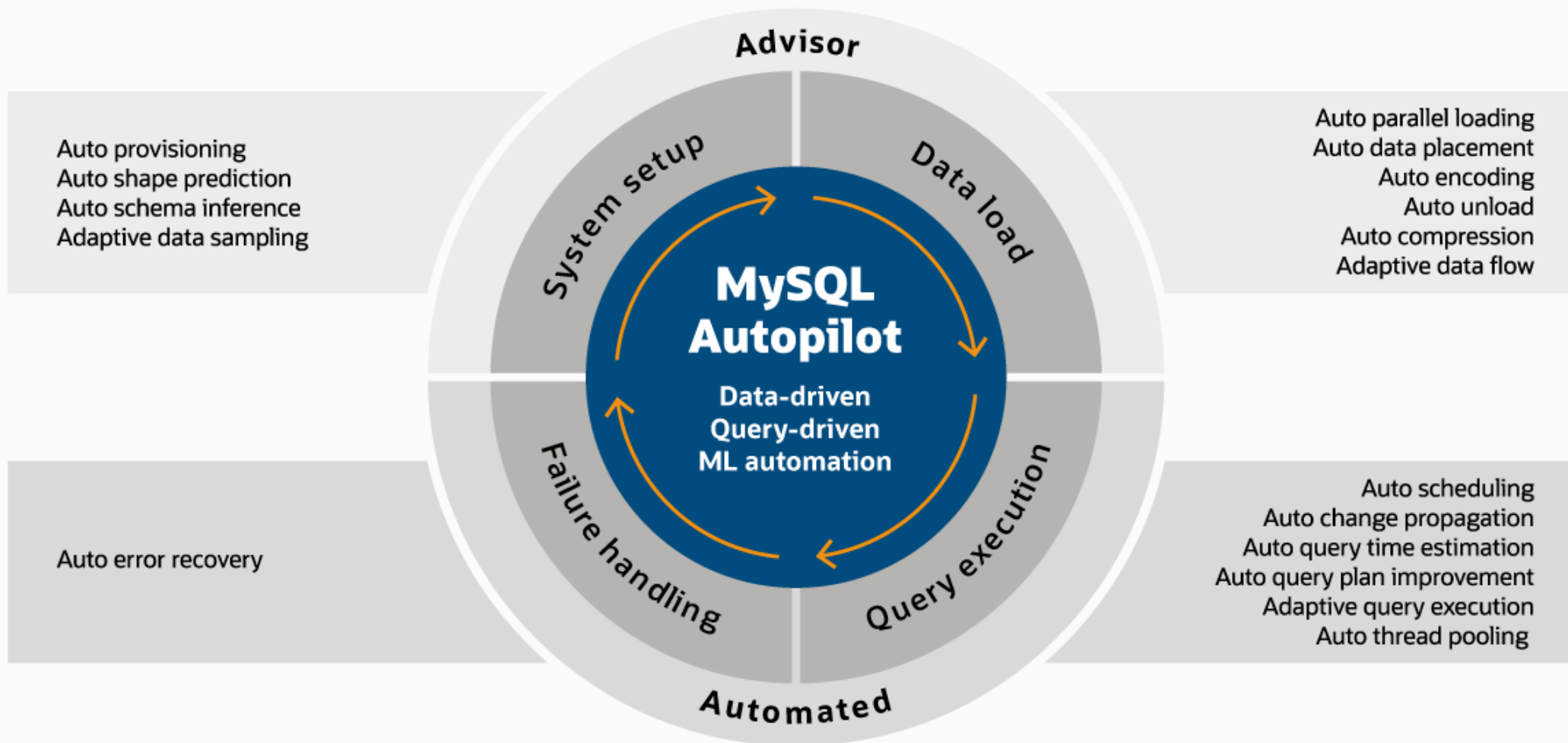
Security & compliance risks

Increased costs

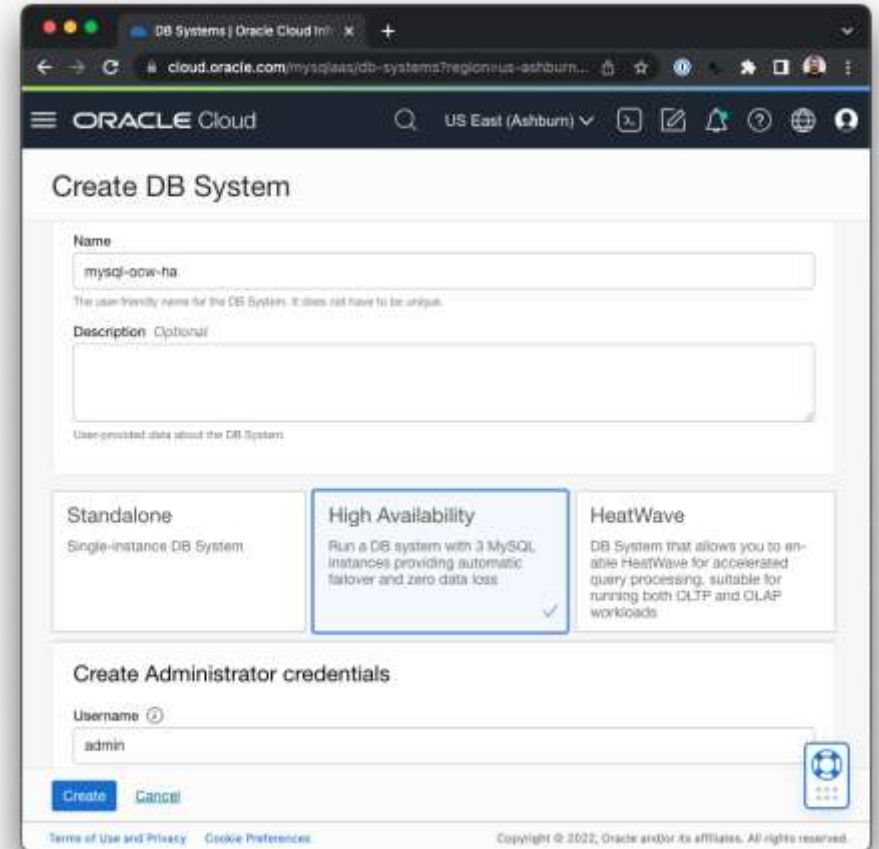
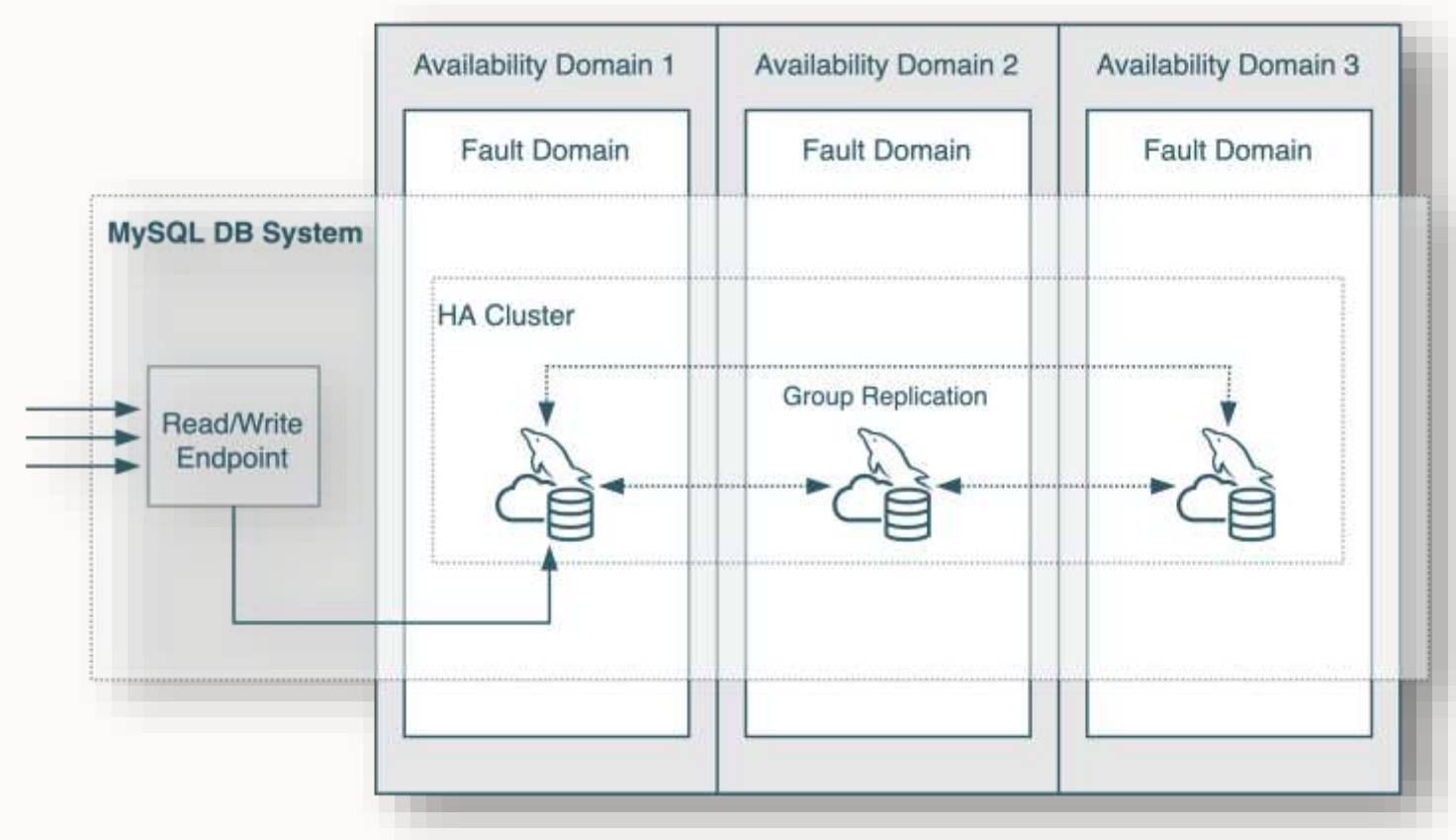


Machine learning-powered automation for MySQL HeatWave

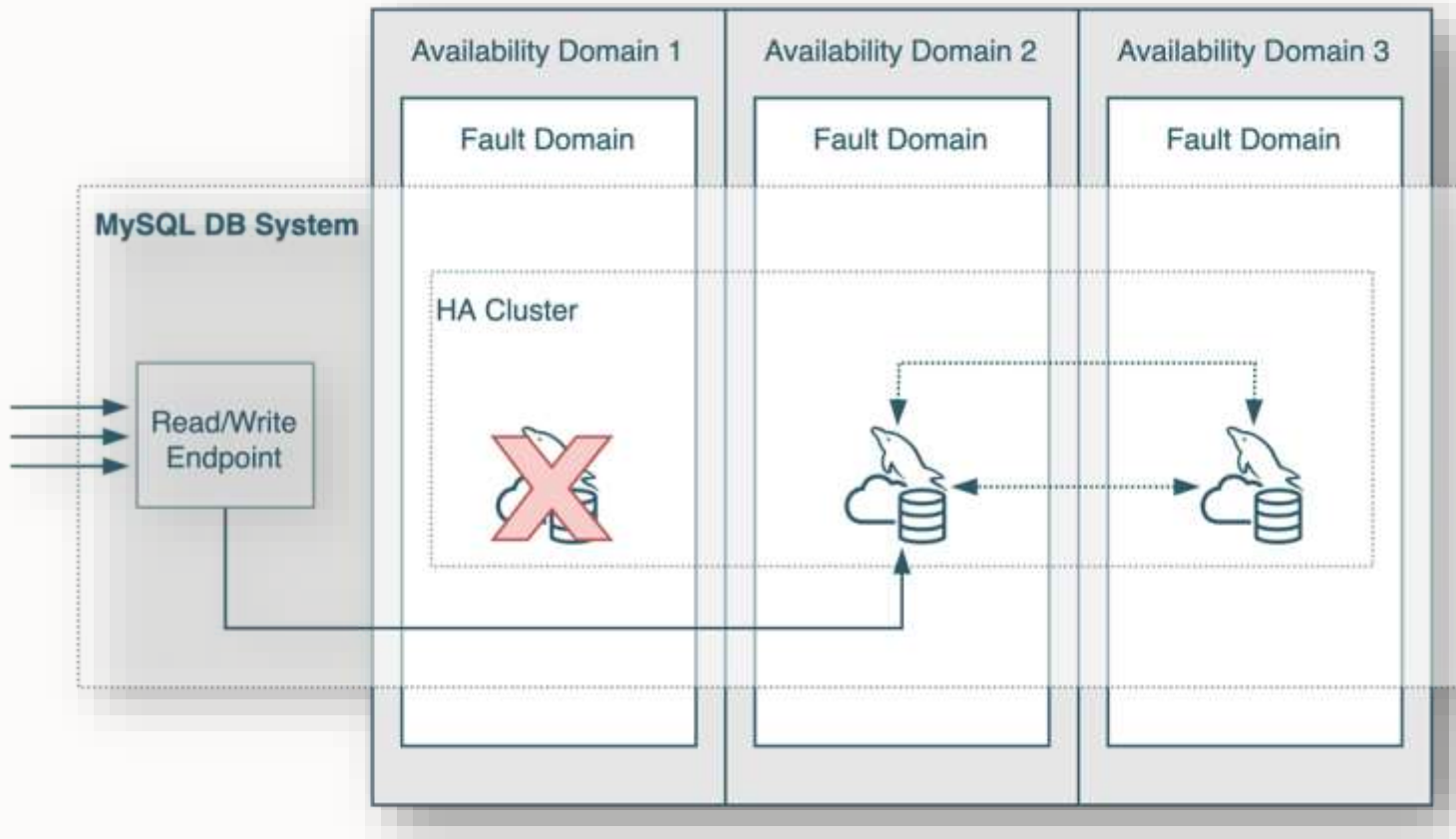
High query performance at scale, higher OLTP throughput, and the best price performance



High Availability



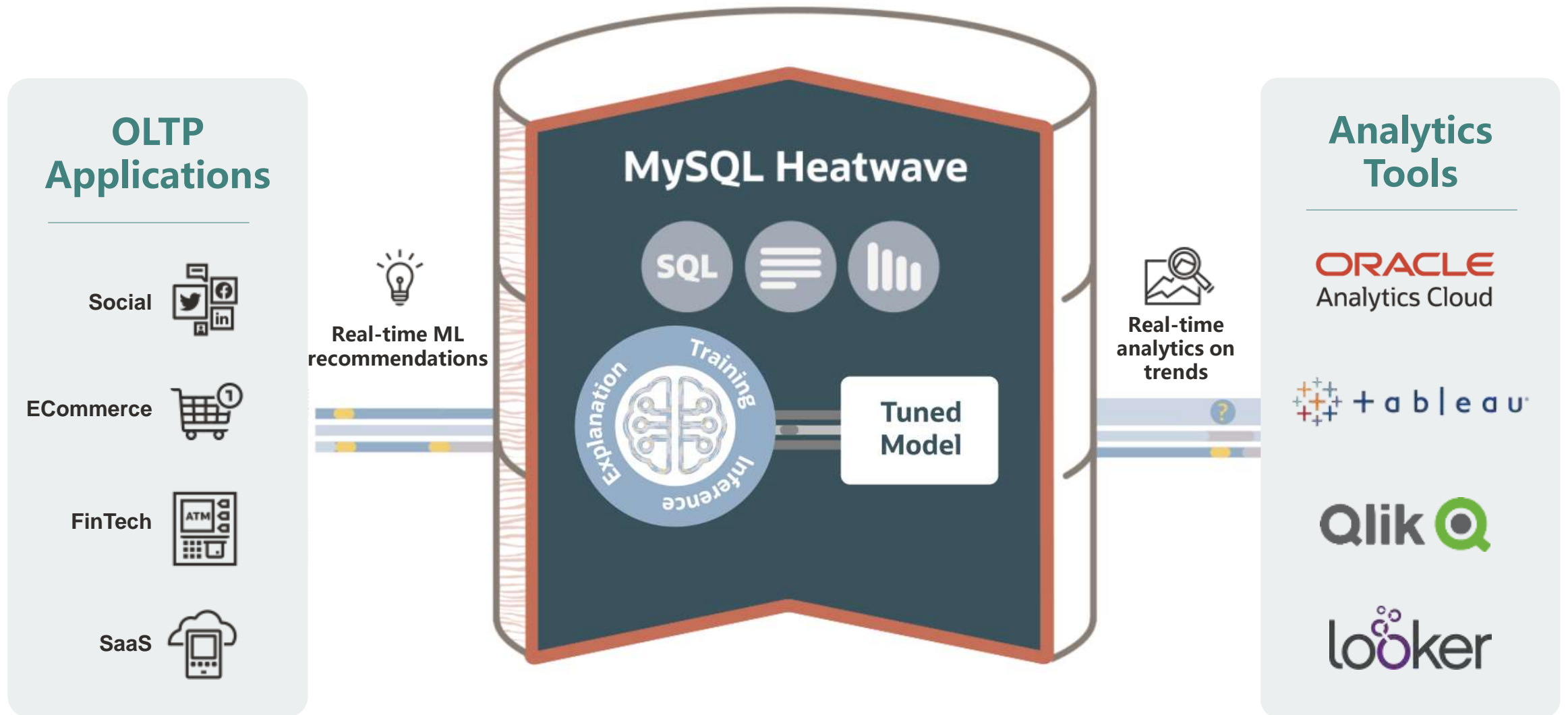
High Availability



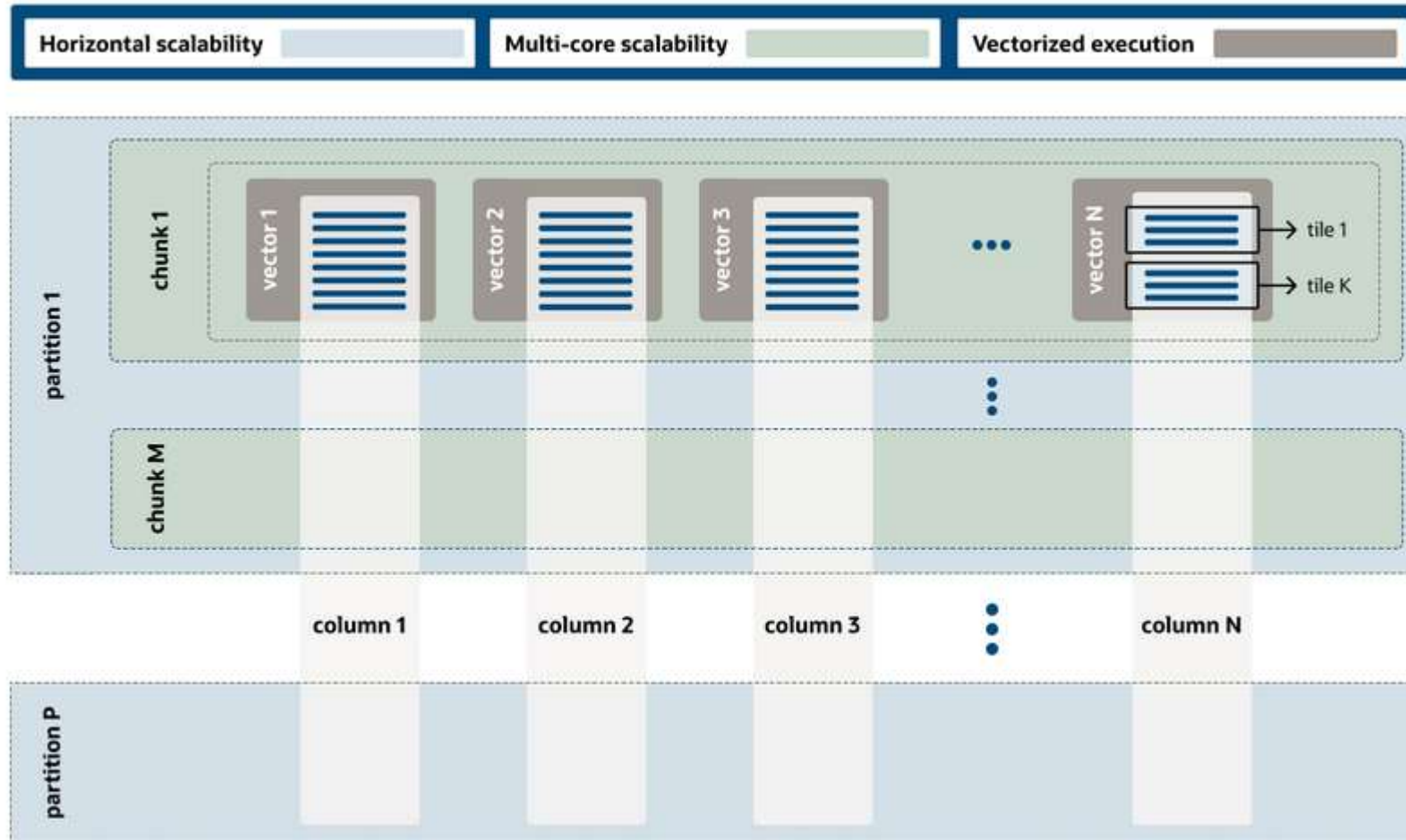
- SLA 99.99%
- Automatic failover
- Manual switchover
- Rolling upgrades during maintenance
 - Less than 1 minute impact
 - MySQL version upgrades and OS security patches
- RPO: 0
- RTO: Less than a minute



Machine learning em ação junto com MySQL HeatWave

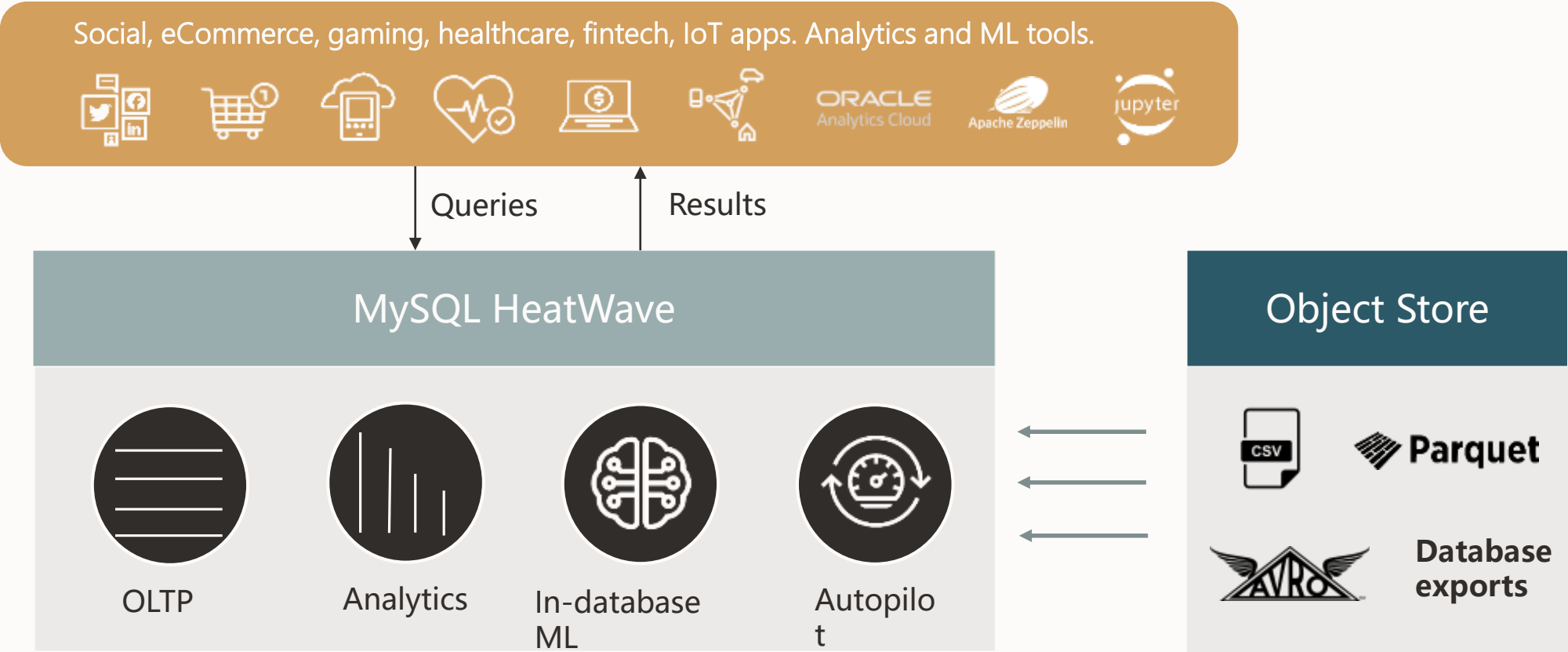


In-Memory hybrid Heatwave columnar Format



MySQL HeatWave overview

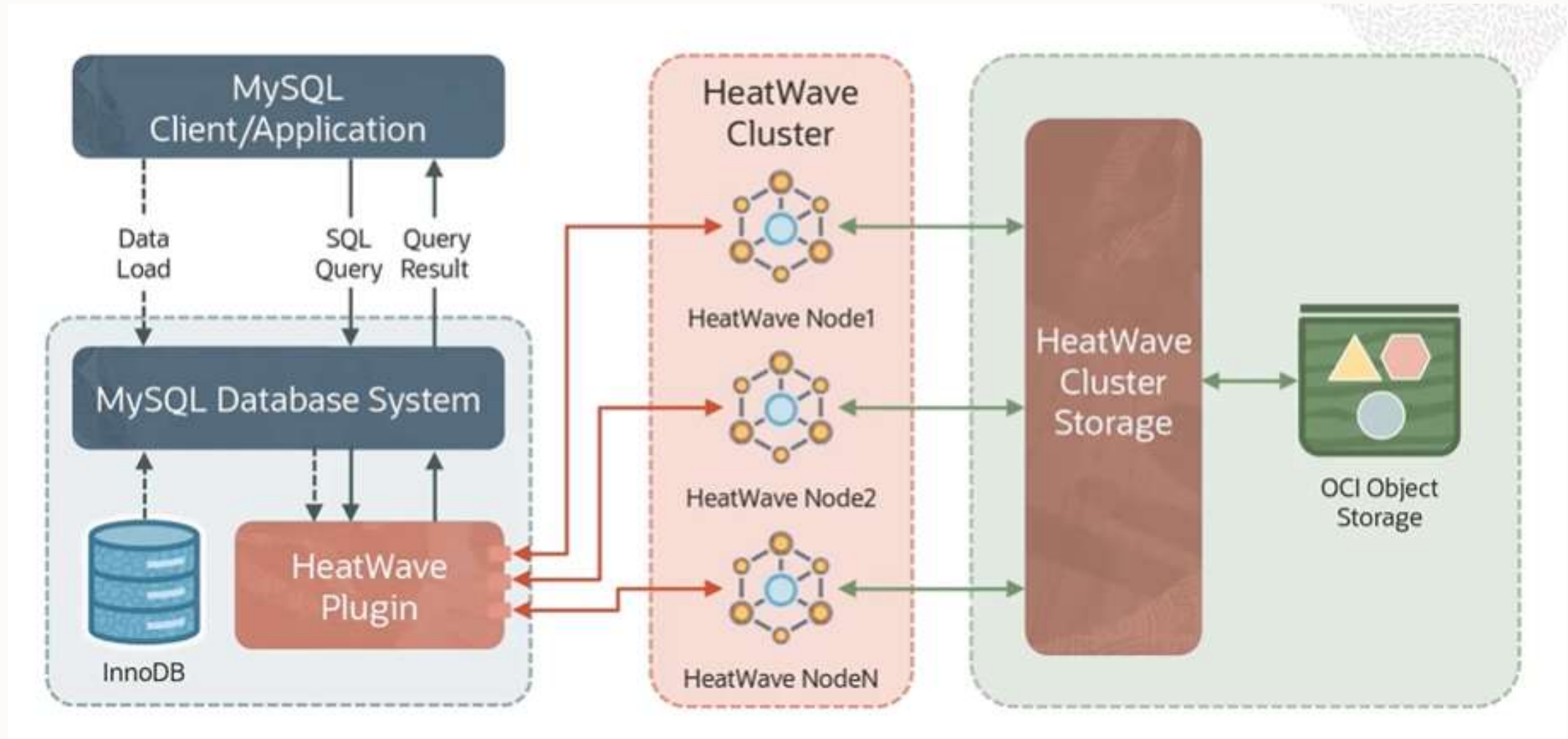
Transactions, real-time analytics across data warehouse and data lake, and machine learning in one database service



For both non-MySQL and MySQL workloads



MySQL Heatwave Architecture



MySQL HeatWave Console



Monitoring

Interactive Query UI & Data Management

HeatWave ML

MySQL Autopilot

MySQL HeatWave ORACLE

Cluster Summary

HeatWave Cluster Memory Utilization

Data Dictionary

MySQL 27%

MySQL HeatWave ORACLE

Workspace

Query 1

Query Results

MySQL HeatWave ORACLE

Evaluate Model: DEMO_CORPUS

Estimate Cluster Size with MySQL Autopilot

Tables from selected schema:

Summary

2004.847 (GiB)

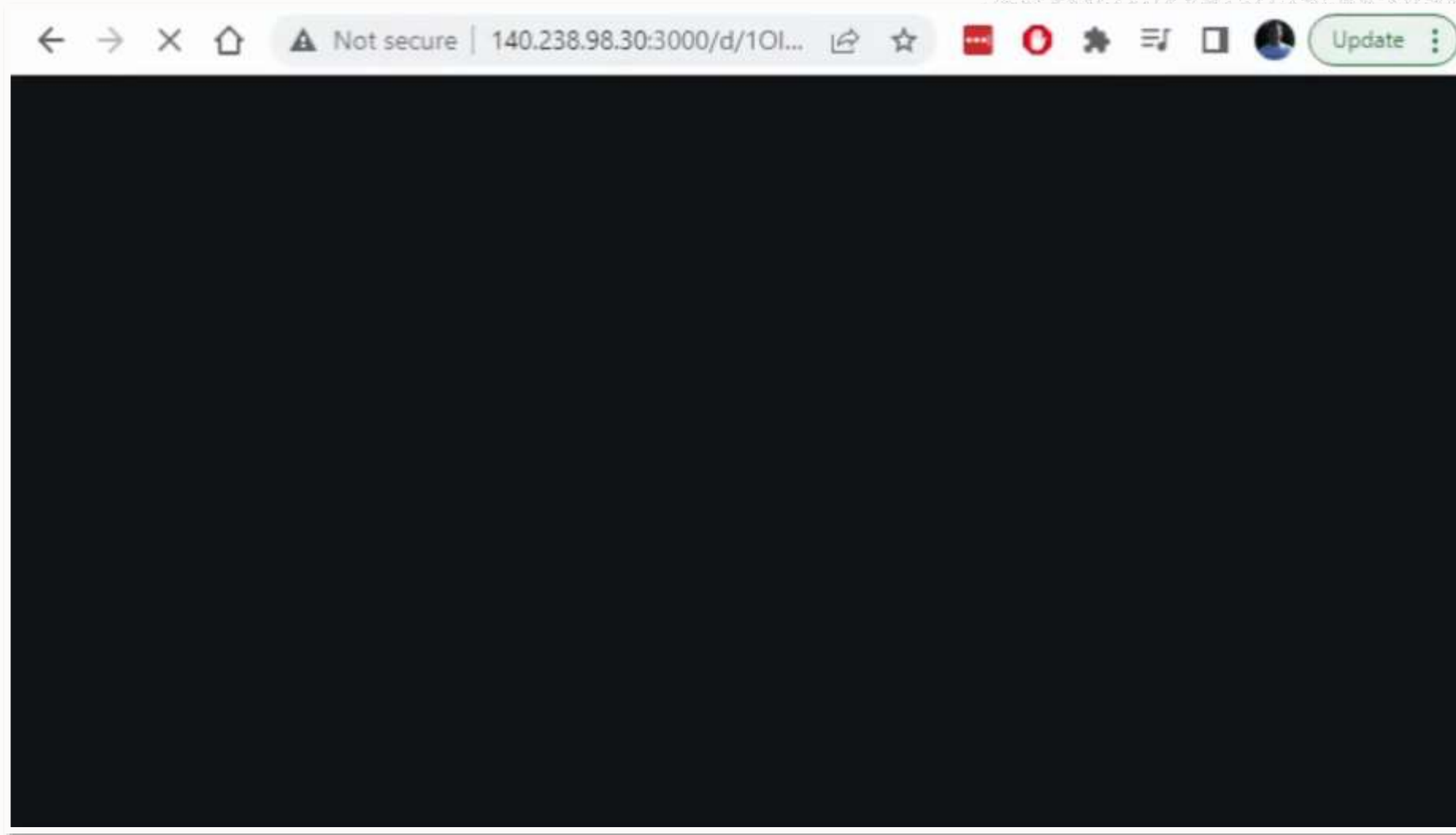
256 (GiB)

8

2048 (GiB)



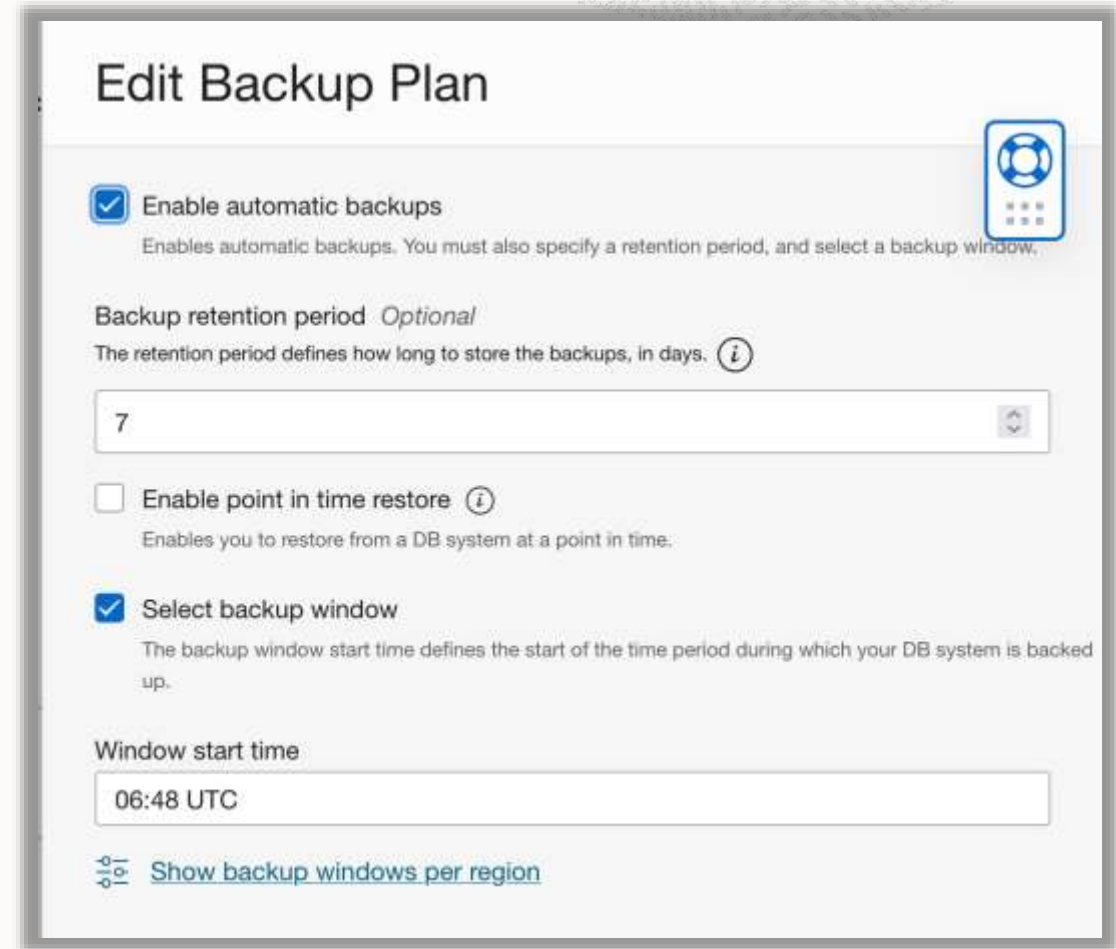
MySQL Heatwave working on report



Backups

Manual or Automatic

- Retention Period from 7 up to 35 days
- When to Backup
- Full or Incremental
- Point-in-Time Recovery (only non-HA DB Systems)



Edit Backup Plan

☒ **Enable automatic backups**
Enables automatic backups. You must also specify a retention period, and select a backup window.

Backup retention period *Optional*
The retention period defines how long to store the backups, in days. ⓘ


7

☐ **Enable point in time restore** ⓘ
Enables you to restore from a DB system at a point in time.

☒ **Select backup window**
The backup window start time defines the start of the time period during which your DB system is backed up.

Window start time

06:48 UTC

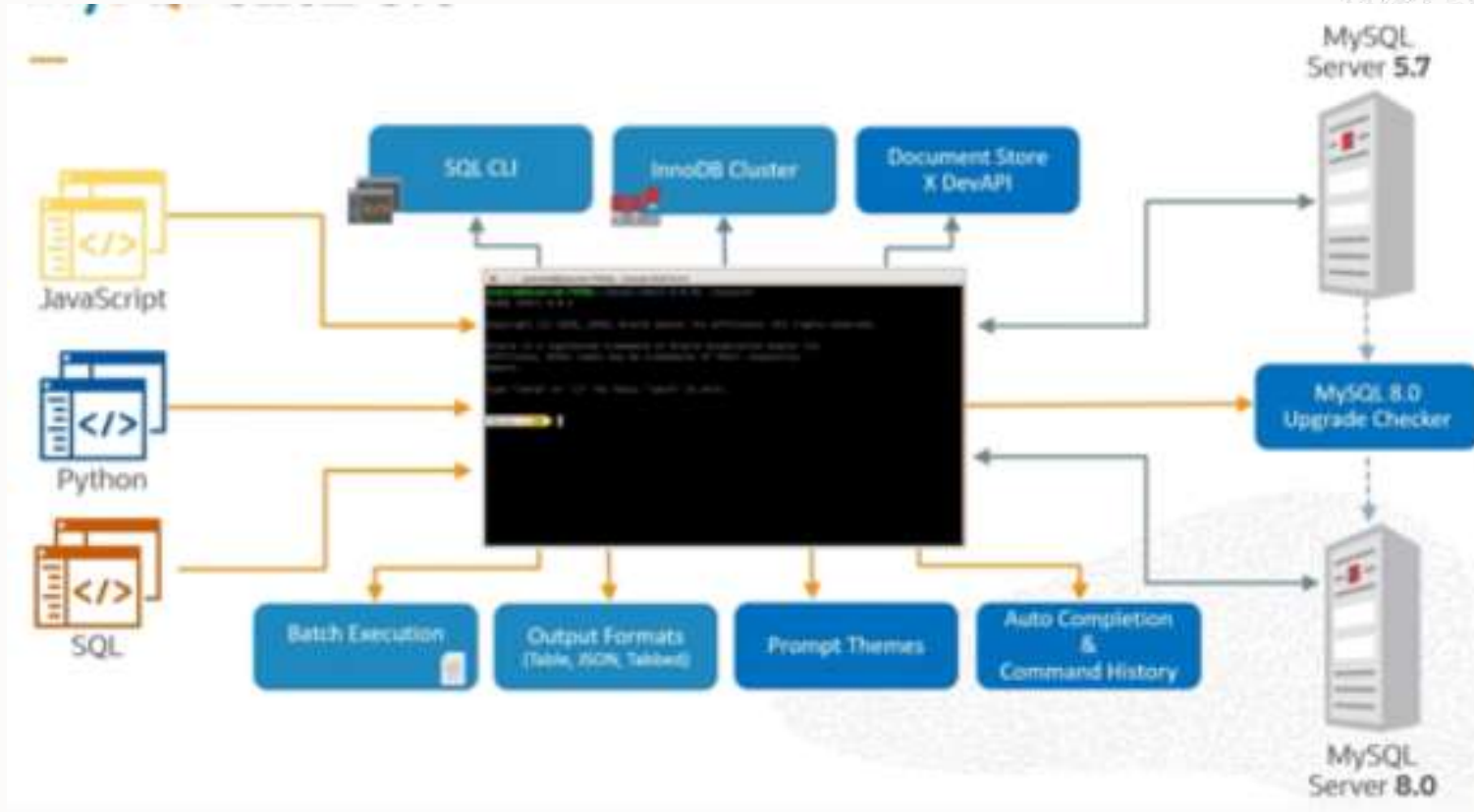
 [Show backup windows per region](#)





MySQL database management tool

Understanding MySQL shell tool



Endpoint

Connect to the DB System using a MySQL client/connector via the endpoint below [How do I connect?](#)

Private IP Address: 10.0.1.253 | [Copy](#) ⓘ

Internal FQDN: -

Availability Domain: yQUJ:US-ASHBURN-AD-1

Fault Domain: FAULT-DOMAIN-2

MySQL Port: 3306

MySQL X Protocol Port: 33060

```
# sudo yum -y install mysql-shell
```





MySQL Database provisioning

Oracle MySQL Cloud Console de Gerenciamento

Create DB system

Production

Sets up a high availability DB system with recommended defaults for a production environment.

Development or testing

Sets up a standalone DB system with recommended defaults for a development or testing environment.

Provide DB system information

Create in compartment

marlamar

acteamlad (root)/marlamar

...

MySQL.VM.Standard.E4.4.64GB

CPU core count: 4
Memory size: 64 GB
Max network bandwidth: 4Gbps

A shape determines the number of OCPUs, memory, and other resources allocated to a MySQL instance of a DB system. A high availability DB system contains three MySQL instances and hence has thrice the number of OCPUs and memory. See supported shapes.

Data storage size (GB)

1024

Storage allocated to each MySQL instance for data and log files. Storage size impacts IOPS and throughput. Data storage size must be an integer between 50 and 131,072.

Total IOPS: 76800
Total throughput: 600 MB

Standalone

Single-instance DB system

High availability

Run a DB system with 3 MySQL instances providing automatic failover and zero data loss.

HeatWave

DB system that allows you to enable HeatWave for accelerated query processing, suitable for running both OLTP and OLAP workloads.

Create administrator credentials

Username

Define the administrator username

Browse all shapes

A shape determines the number of OCPUs, memory, and other resources allocated to a MySQL instance of a DB system. A high availability DB system contains three MySQL instances and hence has thrice the number of OCPUs and memory. [See supported shapes.](#)

All types

Virtual machine

Bare metal

Available shapes

	Name	Supports HeatWave	CPU core count	Memory size	Max network bandwidth
<input type="checkbox"/>	MySQL.VM.Standard.E3.1.8GB	No	1	8 GB	1Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.1.16GB	No	1	16 GB	1Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.2.32GB	No	2	32 GB	2Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.4.64GB	No	4	64 GB	4Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.8.128GB	No	8	128 GB	8Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.16.256GB	No	16	256 GB	16Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.24.384GB	No	24	384 GB	24Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.32.512GB	No	32	512 GB	32Gbps

Select a shape

Cancel



MySQL VCN requires port 3006 on ingress rules

Add Ingress Rules

Ingress Rule 1

Allows TCP traffic 3006

☐ Stateless ⓘ

Source Type

CIDR



Source CIDR

Example: 10.0.0.0/16

IP Protocol ⓘ

TCP



Source Port Range *Optional* ⓘ

All

Examples: 80, 20-22

Destination Port Range *Optional* ⓘ

3006

Examples: 80, 20-22

Description *Optional*



Exadata Cloud at Customer | Control Plane Workflow

Add Ingress Rules

Ingress Rule 1

Allows TCP traffic 33060

☐ Stateless ⓘ

Source Type

CIDR ⌵

Source CIDR

0.0.0.0/0

Specified IP addresses: 0.0.0.0-255.255.255.255 (4.294.967.296 IP addresses)

IP Protocol ⓘ

TCP ⌵

Source Port Range *Optional* ⓘ

All

Examples: 80, 20-22

Destination Port Range *Optional* ⓘ

33060

Examples: 80, 20-22



Mysql vcn Ingress Roles port 3006 and 33060

<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	3006	TCP traffic f or ports: 300 6	⋮
<input type="checkbox"/>	No	0.0.0.0/0	TCP	All	33060	TCP traffic f or ports: 330 60	⋮



You must select a heatwave compatible shape during Mysql provisioning

Create DB system

Configure hardware

Shape details

Shape: MySQL.VM.Standard.E4.4.64GB

CPU core count: 4

Memory size: 64 GB

Max network bandwidth: 4Gbps

A shape determines the amount of CPU, memory and other resources allocated memory. The performance of a DB system depends on the shape you select. A

Data storage size (GB)

Create

Save as stack

Cancel

Browse all shapes

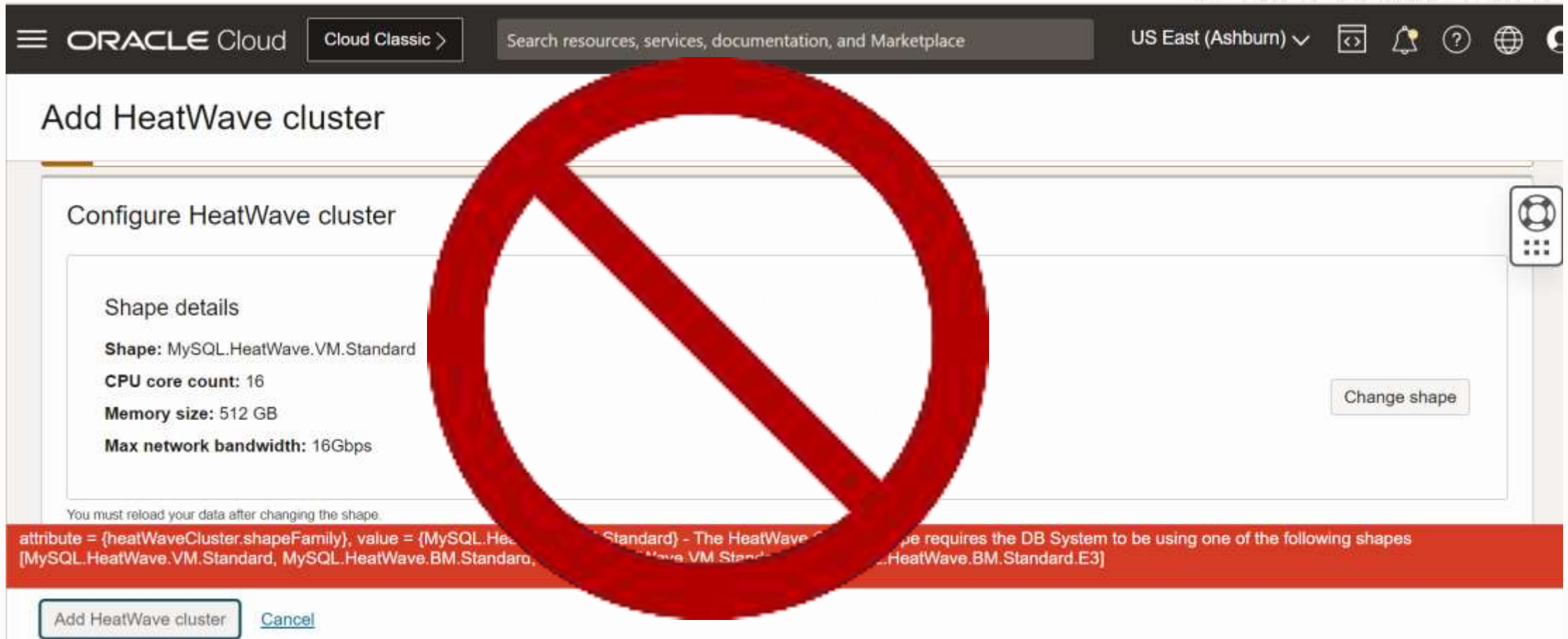
<input type="checkbox"/>	MySQL.VM.Standard.E3.24.384GB	No	24	384 GB	24 Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.32.512GB	No	32	512 GB	32 Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.48.768GB	No	48	768 GB	40 Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E3.64.1024GB	No	64	1 TB	40 Gbps
<input checked="" type="checkbox"/>	MySQL.HeatWave.VM.Standard.E3	Yes	16	512 GB	16 Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E4.1.8GB	No	1	8 GB	1 Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E4.1.16GB	No	1	16 GB	1 Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E4.2.32GB	No	2	32 GB	2 Gbps
<input type="checkbox"/>	MySQL.VM.Standard.E4.4.64GB	No	4	64 GB	4 Gbps

Select a shape

Cancel



Incompatible shape error for Heatwave enable



The screenshot shows the Oracle Cloud console interface for adding a HeatWave cluster. The page title is "Add HeatWave cluster". Below it, the "Configure HeatWave cluster" section displays the following shape details:

- Shape: MySQL.HeatWave.VM.Standard
- CPU core count: 16
- Memory size: 512 GB
- Max network bandwidth: 16Gbps

A "Change shape" button is visible on the right. A red banner at the bottom contains the following error message:

attribute = {heatWaveCluster.shapeFamily}, value = {MySQL.HeatWave.VM.Standard} - The HeatWave cluster shape requires the DB System to be using one of the following shapes [MySQL.HeatWave.VM.Standard, MySQL.HeatWave.BM.Standard, MySQL.HeatWave.VM.Standard.E3, MySQL.HeatWave.BM.Standard.E3]

At the bottom left, there are "Add HeatWave cluster" and "Cancel" buttons.



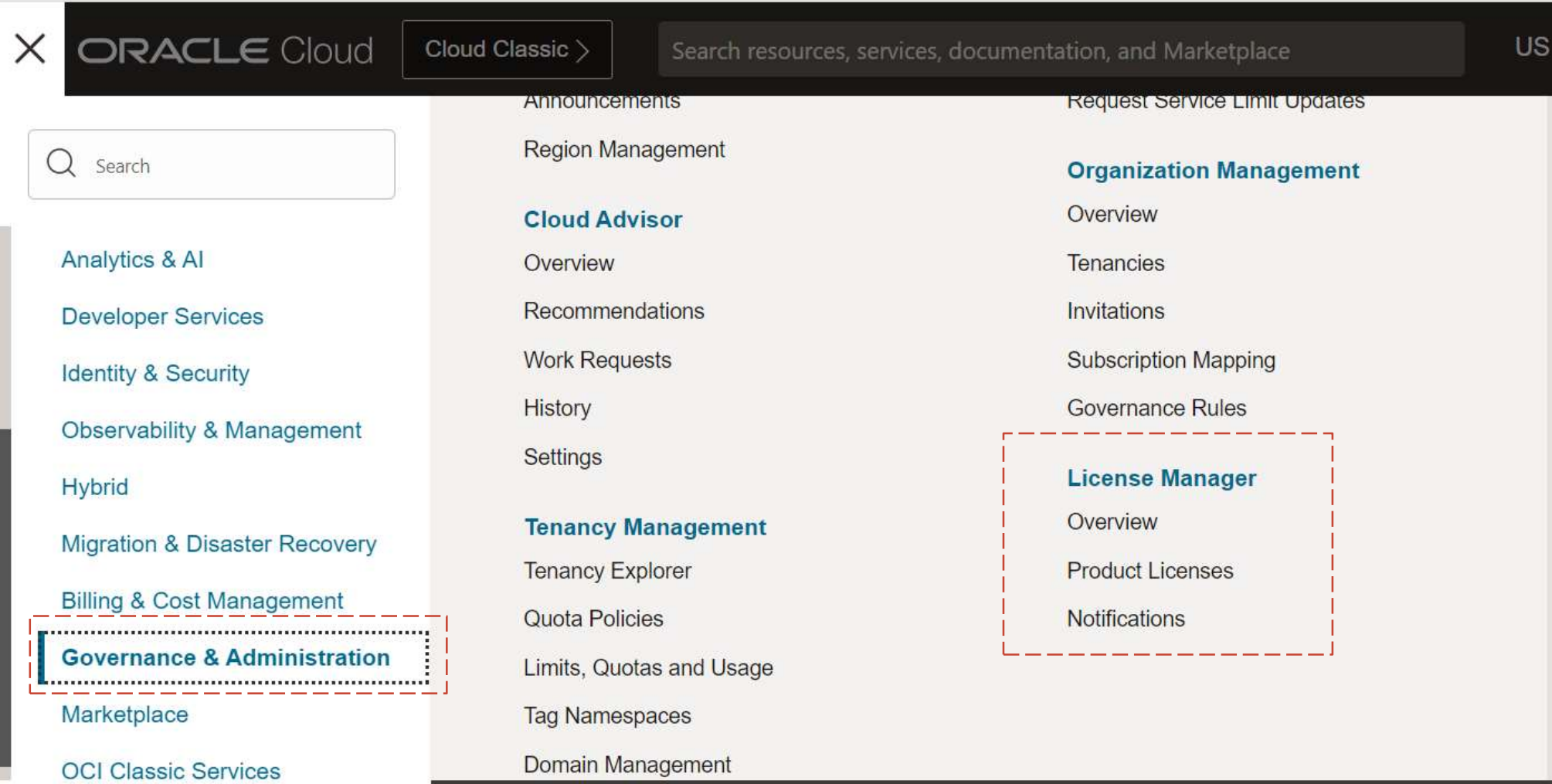
OCI Licensing Manager

What is OCI Licensing Manager ?

License Manager is a free, opt-in service that makes it easier for you to **Bring Your Own License (BYOL)** on OCI with the following capabilities :

- Automating the license portability rules for Oracle Database products to OCI Database service. **IT eliminates overhead** for individuals responsible for software procurement and licensing.
- Enabling **easy tracking of license utilization** of licenses for Oracle Database products or third-party products by Compute resources. Customers have a single pane of glass to track the utilization of Oracle and third-party licenses on OCI.
- Easy reporting of BYOL resources that have licensing needs. License Manager also offers **proactive monitoring and email notifications** on scenarios, such as oversubscription of licenses and tracking of license expiration dates.


















OCI Licensing Manager on OCI Console





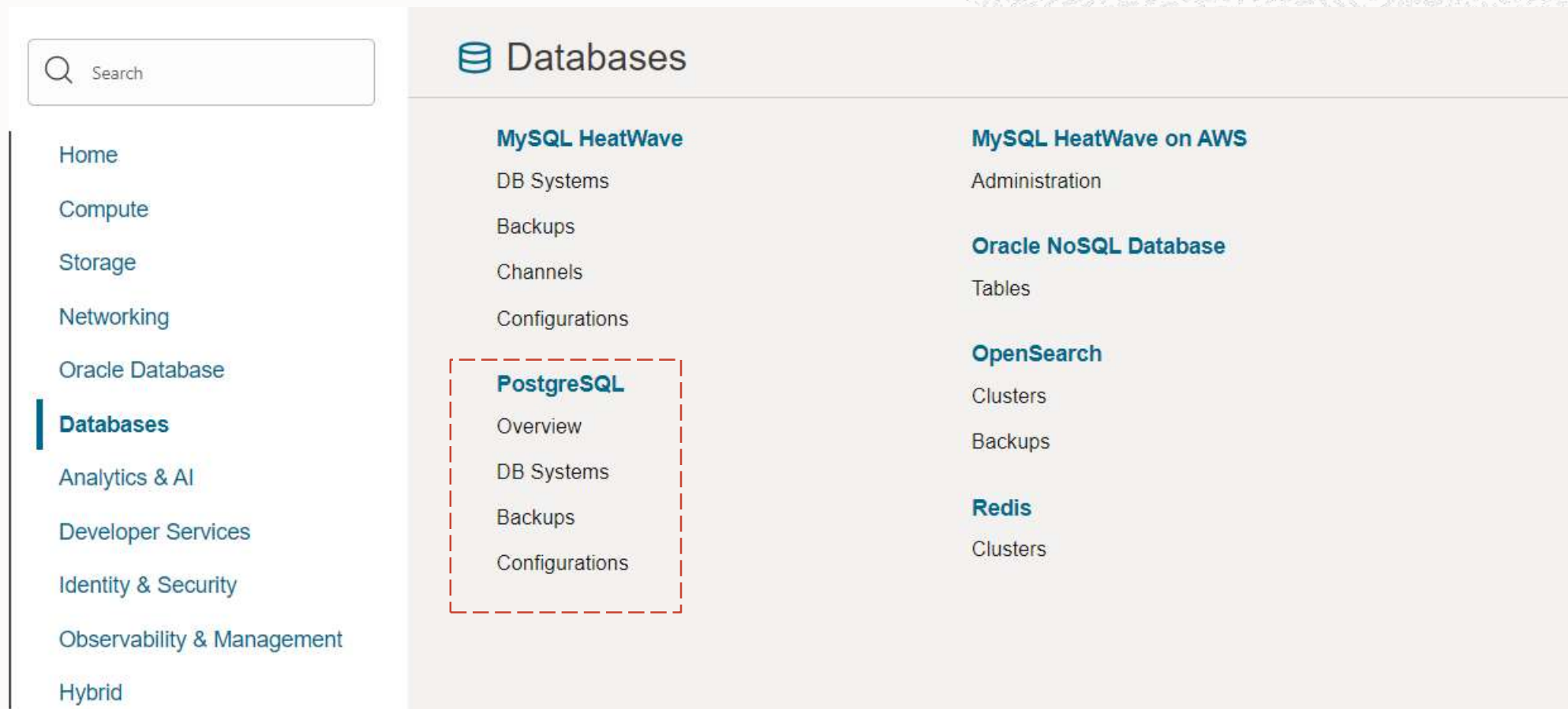
OCI PostgreSQL Database

PostgreSQL - one of the most advanced open source databases

Rank			DBMS	Database Model	Score		
Nov 2023	Oct 2023	Nov 2022			Nov 2023	Oct 2023	Nov 2022
1.	1.	1.	Oracle 	Relational, Multi-model 	1277.03	+15.61	+35.34
2.	2.	2.	MySQL 	Relational, Multi-model 	1115.24	-18.07	-90.30
3.	3.	3.	Microsoft SQL Server 	Relational, Multi-model 	911.42	+14.54	-1.09
4.	4.	4.	PostgreSQL 	Relational, Multi-model 	636.86	-1.96	+13.70
5.	5.	5.	MongoDB 	Document, Multi-model 	428.55	-2.87	-49.35
6.	6.	6.	Redis 	Key-value, Multi-model 	160.02	-2.95	-22.03
7.	7.	7.	Elasticsearch	Search engine, Multi-model 	139.62	+2.48	-10.70
8.	8.	8.	IBM Db2	Relational, Multi-model 	136.00	+1.13	-13.56
9.	9.	 10.	SQLite 	Relational	124.58	-0.56	-10.05
10.	10.	 9.	Microsoft Access	Relational	124.49	+0.18	-10.53

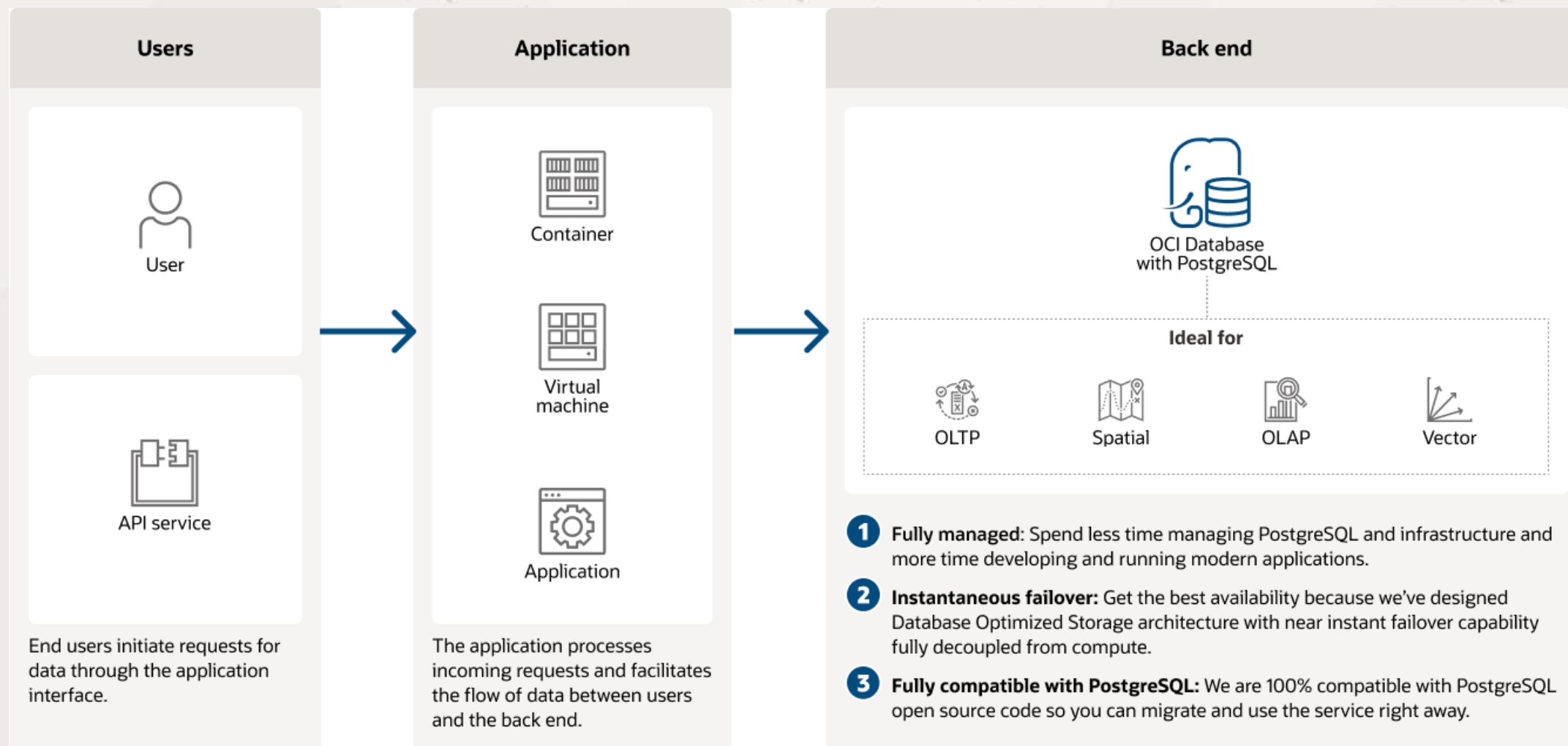


OCI database Postgres on oci console



OCI Database with PostgreSQL






A fully managed service



User Experience - PostgreSQL clusters list view

ORACLE Cloud

Search resources, services, documentation, and Marketplace

US West (Phoenix)     

PostgreSQL

Overview

Databases

Backups

Configurations

Additional resources ⓘ

Work requests

List scope

Compartment

George-test-compartment

aprdemo (root)/Demo-compartment/jimb_Lab/George-test-compartment


Databases in George-test-compartment *Compartment*

Create PostgreSQL database

Search by name

Name	State	Database system	OCPUs	RAM (GB)	Software version	Created	
postgresql20230901100050	● ACTIVE	Multi node	4	64	14.5	Fri, Sep 1, 2023, 17:06:53 UTC	⋮
postgresql20230818173824-test	● ACTIVE	Multi node	4	64	14.5	Sat, Aug 19, 2023, 00:42:38 UTC	⋮

Showing 2 items < 1 of 1 >



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User Experience - Create multi-node PostgreSQL cluster

ORACLE Cloud

Search resources, services, documentation, and Marketplace

US West (Phoenix)

Create PostgreSQL database

Create database

Configure database

Review and create

Configure database

Database configuration

Database name in `geography.compartment` `CLASH.L33T457R081`
postgres00231105000048

Description (Optional)

Use provided data and the OS system

PostgreSQL version
14.5

Database system

Node count ①
5
One primary node is required. Additional nodes are required as standby/replica nodes.

Performance tier
100K IOPS

Data placement
☐ Regional
Data stored locally in multiple availability domains
☒ Availability Domain specific
Data redundancy spanning multiple availability domains

Availability Domain

AD-1
dJUB-PHX-AD-1

AD-2
dJUB-PHX-AD-2

AD-3
dJUB-PHX-AD-3

Previous

Create

Cancel

Steps 1 of 3: Create Database

Create Database

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User Experience - Create multi-node PostgreSQL cluster cont.

ORACLE Cloud

Search resources, services, documentation, and Marketplace

US West (Phoenix)

Create PostgreSQL database

1 Select creation type

2 Configure database

3 Review and create

Hardware configuration

Memory scales with number of OCPU selected. Storage scales depending on usage. [Learn more](#)

OCPU count

32

Available Shapes

Name	OCPUs	RAM (GB)
<input checked="" type="checkbox"/> PostgreSQL VM Standard E4 Flex 32 512GB	32	512 GB

1 selected

Showing 1 item

Network configuration

The VCN and subnet where the DB system endpoint will be attached. The DB system endpoint uses a private IP address and is not directly accessible from the internet. [How do I connect to a DB system?](#) If you do not have a VCN, [create a VCN](#).

The current region has a single availability domain, creating a highly available DB system will spread all PostgreSQL instances across all fault domains in the region, irrespective of whether an AD-specific or regional subnet are selected.

Virtual Cloud Network in **george-test-compartment** [Choose compartment](#)

G-Test-VCN

Subnet in **george-test-compartment** [Choose compartment](#)

private-subnet-G-Test-VCN (Regional)

Private IP address: Optional

Database administrator credentials

Username

Admin

Once set, this username cannot be changed.

Password options

☒ Input password

☐ Use OCI Vault

Previous

Next

Cancel

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User Experience - Detailed view with Read replica

PGD

ACTIVE

postgresql20230901100050

Edit name

Create backup

Move resource

Refresh

More actions

DB system information

Management policy

Tags

General information

Network configuration

Connection details

Database nodes

Resources

Database nodes

Backups

Metrics

Work requests

Database nodes

Add node

Name	Status	Type	Availability Domain	Updated	Created
dbinstance-e5e014322e40	ACTIVE	Primary	ad:US-PHX-AD-1	Fri, Sep 1, 2023, 17:14:52 UTC	Fri, Sep 1, 2023, 17:06:53 UTC
dbinstance-Ca25568b7609	ACTIVE	Read Replica	ad:US-PHX-AD-1	Fri, Sep 1, 2023, 17:14:52 UTC	Fri, Sep 1, 2023, 17:06:53 UTC

Showing 2 items < 1 of 1 >





Oracle Exam 1Z0-1093-23

Exam 1Z0-1093-23: Oracle Base Database Services 2023 Professional



- Number of Questions **55**
- Format **Multiple Choice**
- Duration **90 minutes**
- Passing Score **68%**

Oracle Base Database Services 2023 Exam Topics



Oracle Cloud Platform for Database in the Cloud

- Describe Oracle Cloud Platform for Database in the Cloud
- Describe Oracle Cloud Infrastructure Strategy (OCI)

DB Systems BM/VM

- Discuss Database Cloud Services (Overview)
- Provision Database Cloud Service on a Virtual Machine DB System
- Manage Database Cloud Service on a Virtual Machine DB System
- Manage the Database Lifecycle for Database Cloud Services on a Virtual Machine DB System
- Utilize Database Cloud Service Management Interfaces

Exadata Database Service

- Explain the Exadata Database Service
- Provision Exadata
- Manage Exadata Infrastructure and VM Clusters
- Manage the Exadata Database Lifecycle
- Utilize Exadata Cloud Management tools

MySQL Database Service and HeatWave Technical Overview

- Describe the MySQL Database Service
- Manage MySQL Database
- Provision and connect to MySQL Database
- Monitor MySQL Database
- Set up Backup for MySQL Database Service
- Describe performance considerations for the MySQL Database Service
- Create, manage, and use HeatWave



NoSQL Database Cloud Service

- Explain connecting to the NoSQL Database Cloud service
- Explain table security management
- Explain table rate limiting
- Describe NoSQL data models
- Explain provisioned throughput for NoSQL Database Cloud Service
- Describe NoSQL language SDKs

Oracle Cloud Infrastructure Database Management Service

- Describe the Oracle Cloud Infrastructure Database Management Service
- Install and configure Management Agent
- Register External Databases & enable and use Database Management
- View Fleet Summary and Management features
- Use Database Groups and Jobs





Resources

- **MySQL HeatWave Implementation Associate (University Training)**

<https://mylearn.oracle.com/ou/learning-path/become-a-mysql-heatwave-implementation-associate/128102>

- **MySQL Web Site**

<https://mysql.com>

- **MySQL Web Site for developers**

<https://dev.mysql.com>

- **Oracle MySQL web Page**

<https://www.oracle.com/mysql>

- **MySQL Github Repository**

<https://github.com/mysql>

- **Getting Started with MySQL HeatWave on OCI**

<https://developer.oracle.com/learn/technical-articles/getting-started-with-mysql-heatwave-on-oci>



- **Introducing OCI Database with PostgreSQL**

<https://blogs.oracle.com/cloud-infrastructure/post/oci-database-postgres>

- **OCI Database with Postgres**

<https://www.oracle.com/br/cloud/postgresql>

- **OCI Database Postgres documentation**

<https://docs.oracle.com/en-us/iaas/Content/postgresql/home.htm>

- **Database With Postgres Pricing**

<https://www.oracle.com/cloud/postgresql/pricing/>

- **First Principles: Optimizing PostgreSQL for the cloud**

<https://blogs.oracle.com/cloud-infrastructure/post/first-principles-optimizing-postgresql-for-the-cloud>



- **Upgrade your database now (Mike dietriche site)**
<https://mikedietchde.com/>
- **Oracle Architecture Center Site**
<https://docs.oracle.com/solutions>
- **Oracle Live Labs**
<https://apexapps.oracle.com/pls/apex/r/dbpm/livelabs/home>
- **Oracle Luna Labs**
<https://luna.oracle.com>
- **Ask Tom Official Site**
<https://asktom.oracle.com>
- **OCI Licensing Manager Documentation**
<https://docs.oracle.com/en-us/iaas/Content/LicenseManager/Concepts/licensemanageroverview.htm>
- **OCI PaaS and IaaS Universal Credits Services Description**
<https://www.oracle.com/a/ocom/docs/paas-iaas-universal-credits-3940775.pdf>

- **Announcing License Manager for Oracle Cloud Infrastructure**

<https://blogs.oracle.com/cloud-infrastructure/post/announcing-license-manager-for-oracle-cloud-infrastructure>

- **Oracle Audit Vault and DB Firewall 20 Get Started**

<https://blogs.oracle.com/cloud-infrastructure/post/announcing-license-manager-for-oracle-cloud-infrastructure>

- **Oracle Live labs - DB Security - Audit Vault and DB Firewall**

<https://blogs.oracle.com/cloud-infrastructure/post/announcing-license-manager-for-oracle-cloud-infrastructure>



Thank you

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