

OCI Database with PostgreSQL

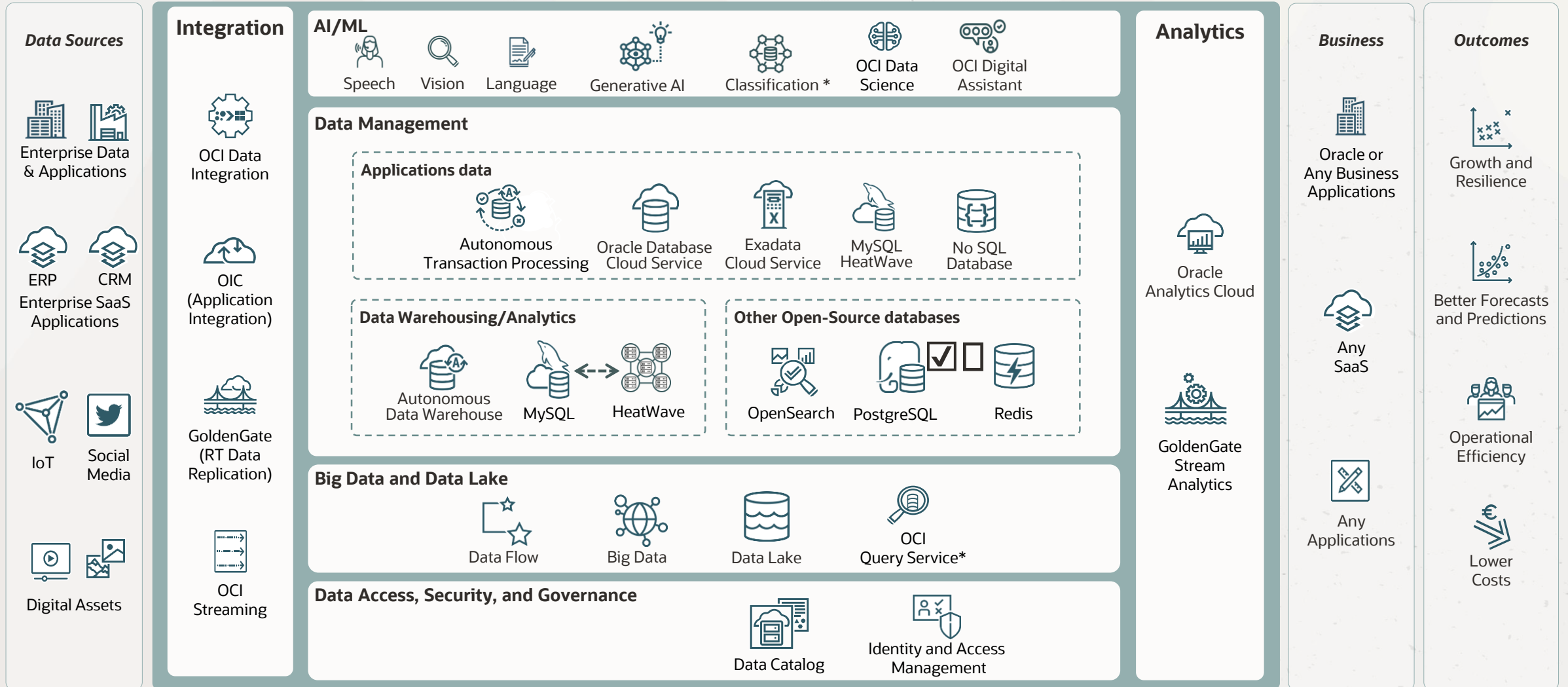
Latest addition to OCI portfolio

Why is Oracle investing in PostgreSQL



Oracle Data Platform: A complete suite of services

Oracle Data Platform



OCI is committed to offer the widest choice to our customers

PostgreSQL is the latest addition to existing open source compatible and/or managed services on OCI

Native integrations with the dev tools you're used to



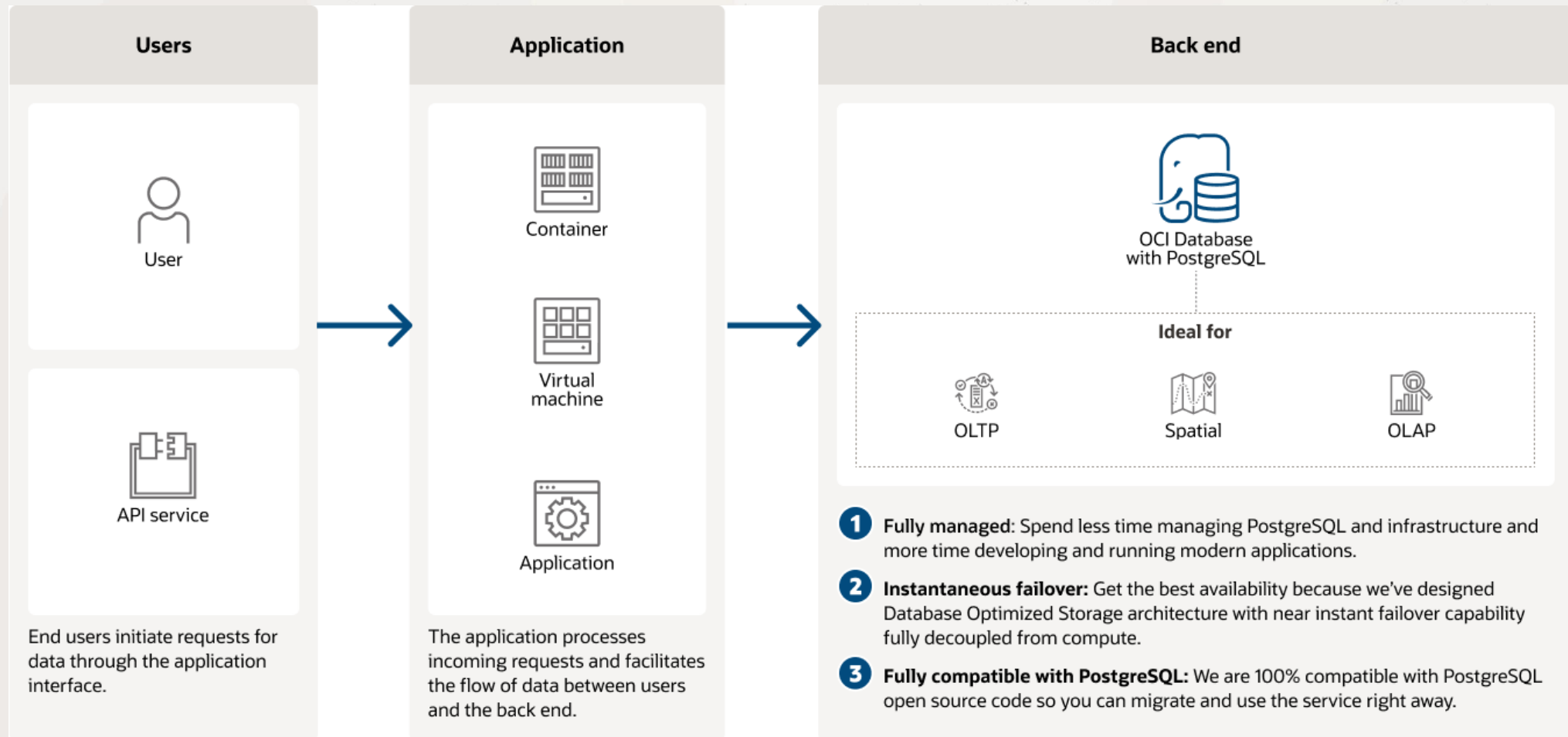
PostgreSQL - one of the most advanced open source databases

DB Engines ranking:

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

A fully managed service



OCI Database with PostgreSQL

A fully managed service

60%

Less costly than Amazon Aurora with PostgreSQL¹

3X

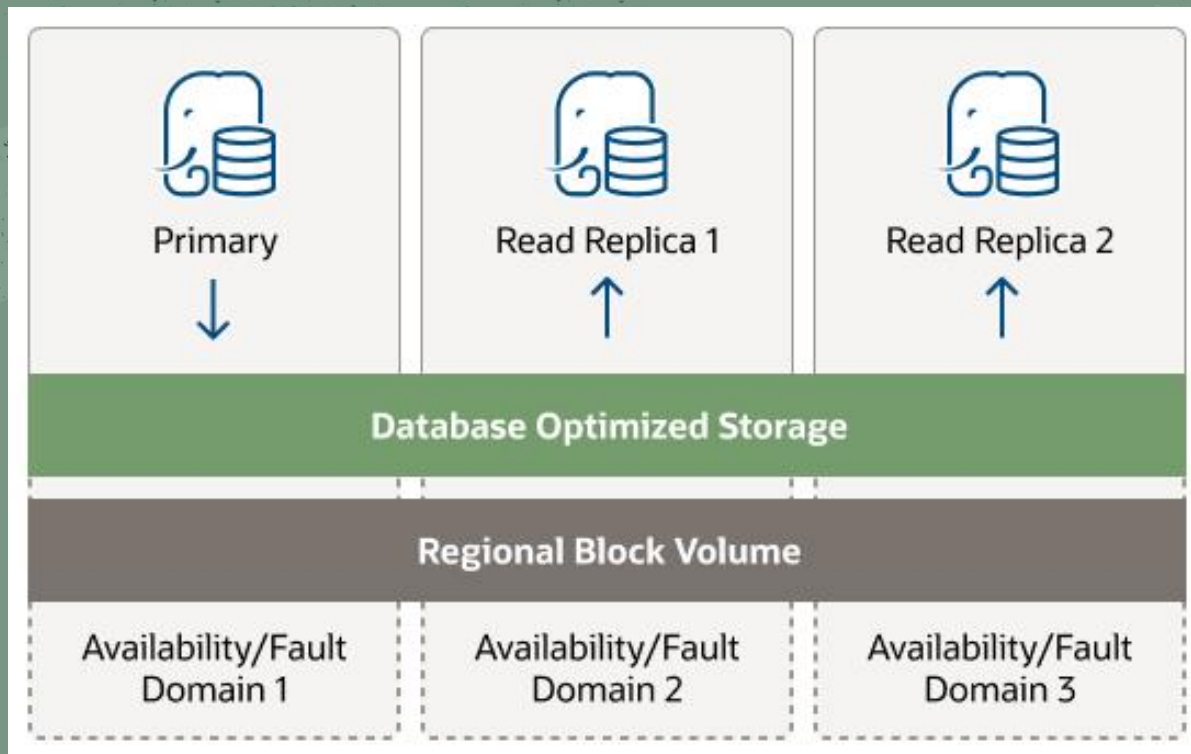
Faster than a self-managed cluster²

99.99%

Availability SLA

OCI Database Optimized Storage

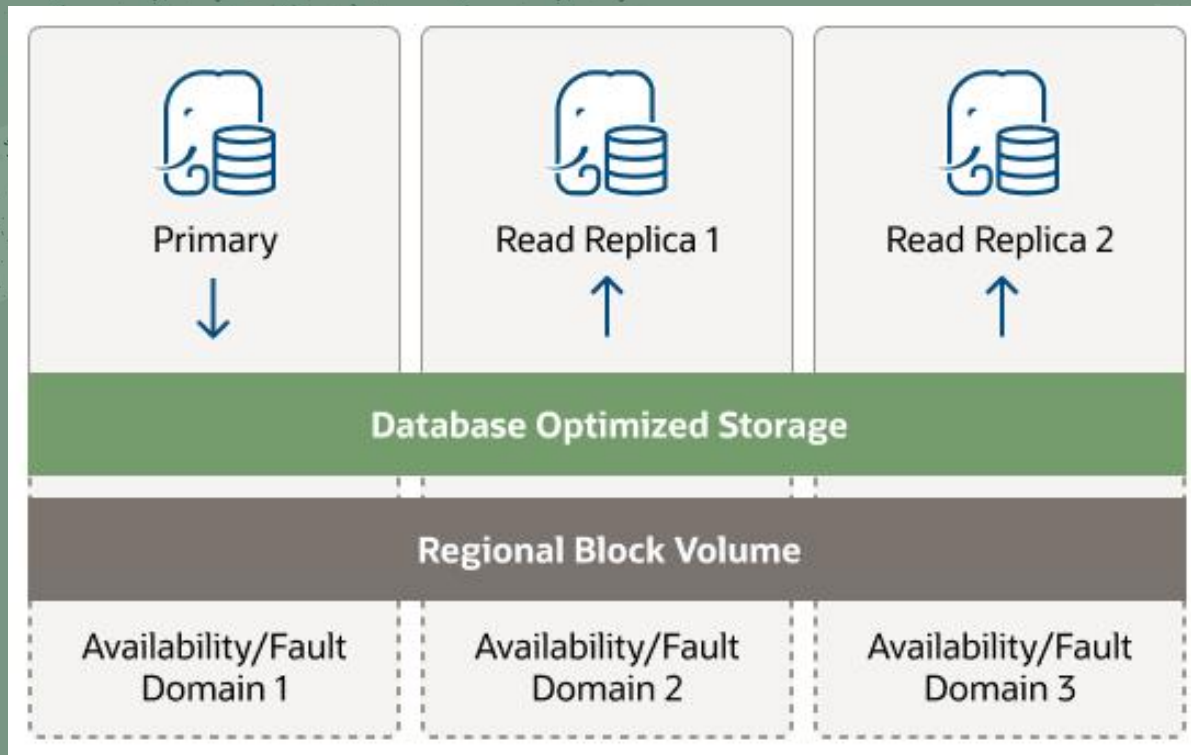
An Oracle Innovation



- Dynamic scaling with usage. Pay only for what you use (scaling is zero downtime)
- Guaranteed HA performance – SLA 99.99 thanks to the shared storage model
- Distributed across multiple Availability Domains for 0 RPO and fast recovery

OCI Database Optimized Storage

Delivering real value for your organization



3X

Faster than a self-managed cluster²

99.99%

Availability SLA

Features available now

Features	Availability
Operations	
Fully managed	✓
Storage Dynamic scaling	✓
Backups - manual and automatic	✓
Managed maintenance and patching	✓
Monitoring and metrics	✓
Notifications and alarms	✓
Terraform support	✓
Automatic minor upgrades	✓
HA / DR	
Multi availability-domain data replication	✓
RTO	< 2 min (multi node) < 20 min (single node)
RPO	0
Automatic/Manual failover	✓
Security	
End-to-end encryption	✓
Automatic security patching	✓
Development	
Version Support - Postgres 14	✓
Stored procedure languages	✓
Extensions – btree_gin; btree_gist; citext; cube; dict_int; fuzzystmatch; hstore; intarray; isn; lo; ltree; pg_trgm; pgcrypto; plpgsql; pg_stat_statements; seg; tablefunc; tcn; tsm_system_rows; tsm_system_time; unaccent	✓
Limits: 32 TB storage, 1024 cores, 16 TiB RAM	✓

Features in the roadmap

Category	Features
Versions	v13, v15, v12, v16
Operation	Autonomous configuration Custom IP endpoints
HA / DR	Point-in-time recovery Cross-region replication
Extensions	PotgresGIS TimescaleDB Other extensions: uuid-osp, dblink, file_fdw_program, pg_buffercache, pg_partman, pg_trgm, pgcrypto, pglogical, Plpgsql, pg_catalog, plpython2u, postgres_fdw, pgvector
Security	BYOK
Migration	Manual/Migration service
Dev	Connection Pooling

Simple and Predictable Pricing

PostgreSQL Service Fees

Service fees	Price	Metric
OCI Database with PostgreSQL on X86	\$0.0980	OCPU per hour (AMD or Intel)*
OCI Database with PostgreSQL – OCI Database Optimized Storage	\$0.0720	Gigabyte storage consumed per month. (pay for what you use)



Underlying Infrastructure Fees

Infrastructure	Price	Metric
OCPUs	Based on Shape	OCPU per hour. Check pricelist.
Memory	Based on Shape	MEM per hour. Check pricelist.
Block volume performance	Based on VPU	Consumed GB per month. Check pricelist in the Block storage section.

* OCI Database with PostgreSQL on ARM- \$0.0490 - Will be available later

** Shared storage across the nodes, charged for once even if there are multiple nodes in the cluster

Cost Estimator Page on:
oracle.com/cloud/postgresql/pricing/



OCI Database with PostgreSQL



Fully
managed



Unique
price/perf ratio



Versatile and
Extensible
database



Easy-to-Use
service

Meets you where you are

Walk through the improved design

Confidence in the technology

ORACLE CLOUD
Infrastructure

FIRST PRINCIPLES

Optimizing PostgreSQL for the cloud



First Principles Architectural Breakdown

- **Gain Peace of Mind:**
Walk through Oracle Database with PostgreSQL's design piece-by-piece with the First Principles Series
- **Straight from the Architects:**
In-depth specs from the designers about the Optimized Database Storage that offloads replication functions for zero RPO and minimal cluster management

[Read the Blog](#)



Thank You!

Appendix



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 ▾

opmdemo (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

1 Select creation type

2 Configure database

3 Review and create

Configure database

Database configuration

Database name in george-test-compartment (Change compartment)

postgresq20231105080048

Description: Optional

User-provided data about the DB system

PostgreSQL version

14.x

Database system

Node count ⓘ

5

One primary node is required. Additional nodes will be reserved as standby/replica nodes.

Performance tier

300K IOPS

Data placement

Regional

Data stored durably in multiple availability domains

Availability Domain-specific

Data stored durably within the selected availability domain

Availability Domain

AD-1

dUcB:PHX-AD-1

AD-2

dUcB:PHX-AD-2

AD-3

dUcB:PHX-AD-3

Previous

Next

Cancel

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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** [\(Change compartment\)](#)

G-Test-VCN

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

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

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Cancel

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


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User Experience - Detailed view with Read replica

ORACLE Cloud

Search resources, services, documentation, and Marketplace

US West (Phoenix)     

PostgreSQL > Databases > Database details



ACTIVE

postgresql20230901100050

Edit name

Create backup

Move resource

Restore

More actions

DB system information

Management policy

Tags

General information

Compartment: [George-test-compartment](#)

OCID: [...godmm5d7oa](#) [Show](#) [Copy](#)

PostgreSQL version: 14.5

Performance tier:

DB system type: Multi node

Status: ● ACTIVE

Availability Domain: dUcB:PHX-AD-1

Shape: VM.Standard.E4.Flex

OCPU count: 4

RAM(GB): 64

Configuration: [PostgreSQL VM Standard E4 Flex 4.64GB-14.5-0 10](#) [Edit](#)

Created: Fri, Sep 1, 2023, 17:06:53 UTC

Last updated: Fri, Sep 1, 2023, 17:14:52 UTC

Network configuration

Virtual Cloud Network: [G-Test-VCN](#)

Subnet: [private-subnet-G-Test-VCN](#)

Connection details

Endpoint: 10.0.1.171

FQDN: [7mp4fjcin7ac8x52xvvgodmm5d7oa-primary.postgresql.us-phoenix-1.oc1.oraclecloud.com](#)

CA certificate: [Copy](#) [Download](#)

Resources

Database nodes

Add node

Name	State	Type	Availability Domain	Updated	Created
dbinstance-e5e8614922a0	● ACTIVE	Primary	dUcB:PHX-AD-1	Fri, Sep 1, 2023, 17:14:52 UTC	Fri, Sep 1, 2023, 17:06:53 UTC
dbinstance-0a355b8b7d89	● ACTIVE	Replica	dUcB: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 >

Database nodes

Backups

Metrics

Work requests

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High-level reference architecture - Multi AD region

