

ORACLE

Oracle Cloud DBA

Lear how to stay up to date on this DbaaS era – Day 2

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 Administrator 2019
- 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 Autonomous Database

2

Oracle Database Cloud Services (DBCS) VM vs BM

3

Oracle OCI Data Safe

4

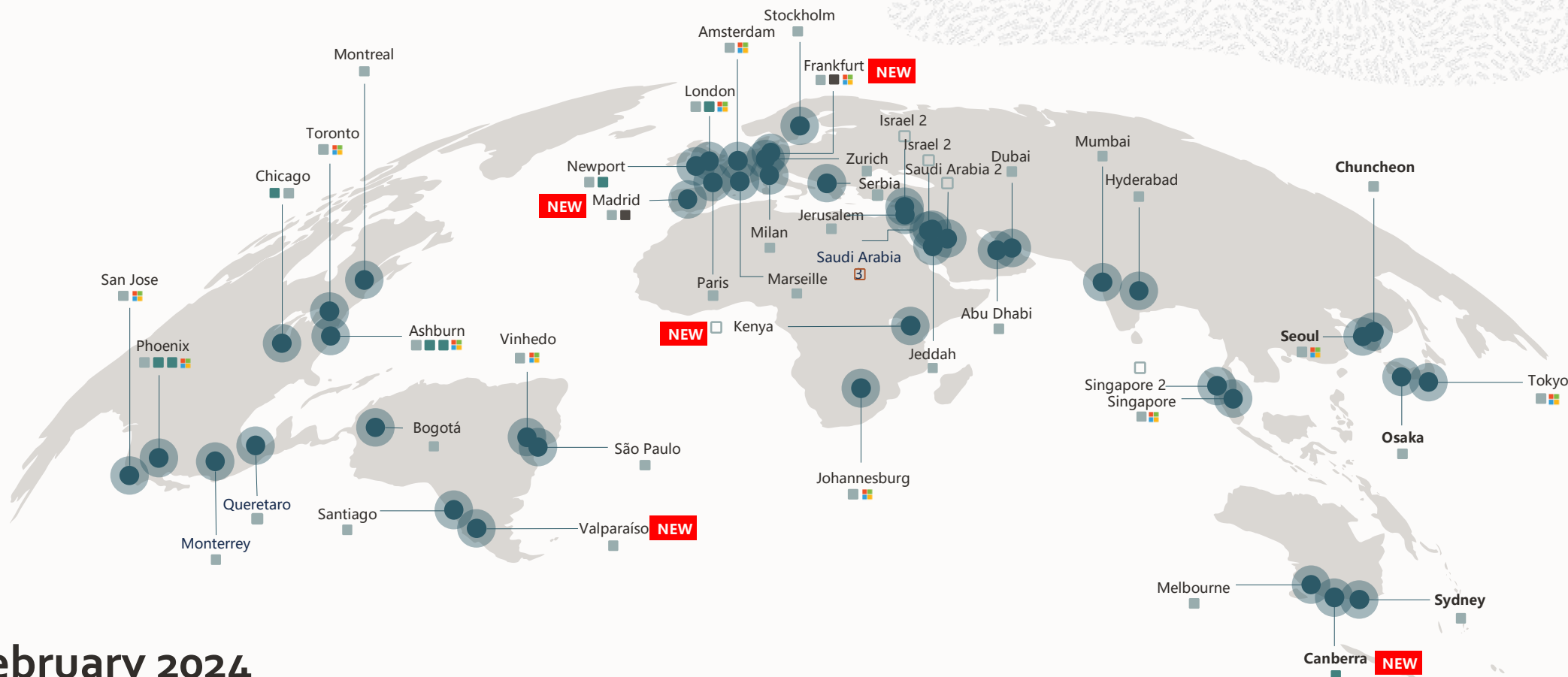
Resources





OCI Cloud Region Maps

Oracle Cloud Infrastructure Global Footprint



February 2024
48 regions; 5 more planned
12 Azure Interconnect Regions













Oracle Database deploy options

Choice of control and hybrid strategies

Use a single database for all deployments



| | | | | | | | |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |  |  |  |
| Autonomous Database Serverless | Autonomous Database Dedicated | Exadata Cloud@Customer | Oracle Database Service on OCI Compute (BM/VM) | Database Cloud Service (on BM/VM) | Exadata Cloud Service | Oracle Exadata On-Premises | Commodity HW, On-site |
| Fully automated data management with no human intervention | Fully automated, isolated data management with control | Database control, sovereignty, privacy req. of mission critical workloads managed by Oracle | Customer deployed and managed DB Workloads on OCI compute | DB Workloads running on BM/VM in public cloud | High performance DB workloads on Exadata in public cloud | For sensitive data with higher availability, perf needs | Customer- managed workloads running on commodity h/w |

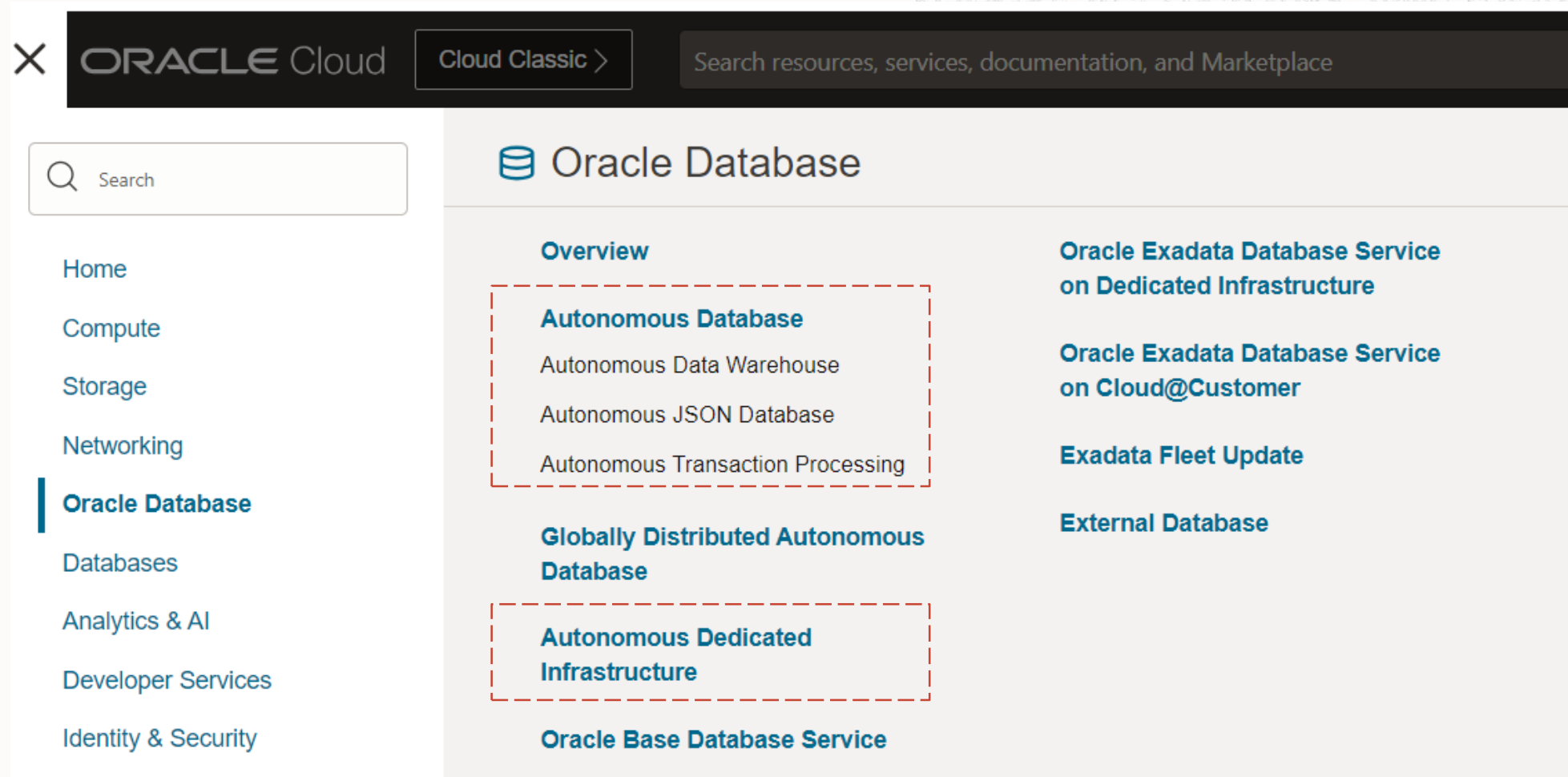




Oracle Autonomous Database



Oracle Autonomous Database on OCI Console



The screenshot displays the Oracle Cloud console interface. At the top, the header includes the Oracle Cloud logo, a 'Cloud Classic' link, and a search bar. The left sidebar contains a navigation menu with links to Home, Compute, Storage, Networking, Oracle Database (which is highlighted), Databases, Analytics & AI, Developer Services, and Identity & Security. The main content area is titled 'Oracle Database' and features several service options. Two options are highlighted with red dashed boxes: 'Autonomous Database' (which includes links to Autonomous Data Warehouse, Autonomous JSON Database, and Autonomous Transaction Processing) and 'Autonomous Dedicated Infrastructure'. Other visible options include 'Oracle Exadata Database Service on Dedicated Infrastructure', 'Oracle Exadata Database Service on Cloud@Customer', 'Exadata Fleet Update', 'External Database', and 'Oracle Base Database Service'.

Oracle Cloud Cloud Classic > Search resources, services, documentation, and Marketplace

Search

Home

Compute

Storage

Networking

Oracle Database

Databases

Analytics & AI

Developer Services

Identity & Security

Oracle Database

Overview

Autonomous Database

Autonomous Data Warehouse

Autonomous JSON Database

Autonomous Transaction Processing

Globally Distributed Autonomous Database

Autonomous Dedicated Infrastructure

Oracle Base Database Service

Oracle Exadata Database Service on Dedicated Infrastructure

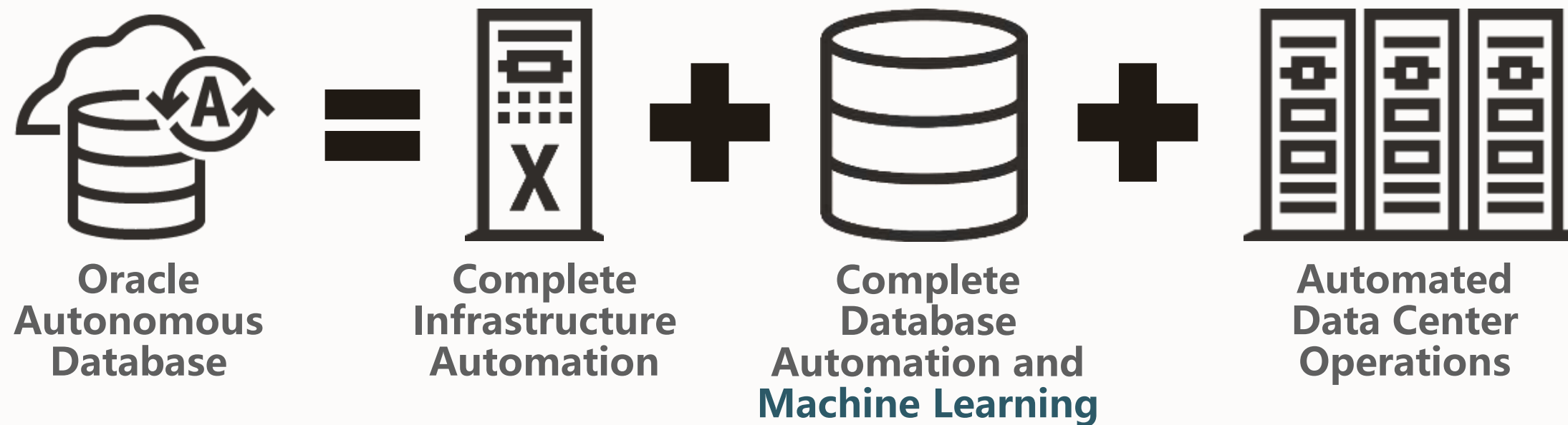
Oracle Exadata Database Service on Cloud@Customer

Exadata Fleet Update

External Database

What is Oracle Autonomous Database?

Using the cloud to eliminate all the complexity of mission critical databases



Oracle Autonomous Database supports a wide range of transactional and analytics workloads



Oracle Autonomous Data Warehouse

Analytical and machine learning workloads

62% lower
total cost of operations



Oracle Autonomous Transaction Processing

Business applications and mixed workloads

50X better storage latency
than Amazon Aurora



Oracle Autonomous JSON Database

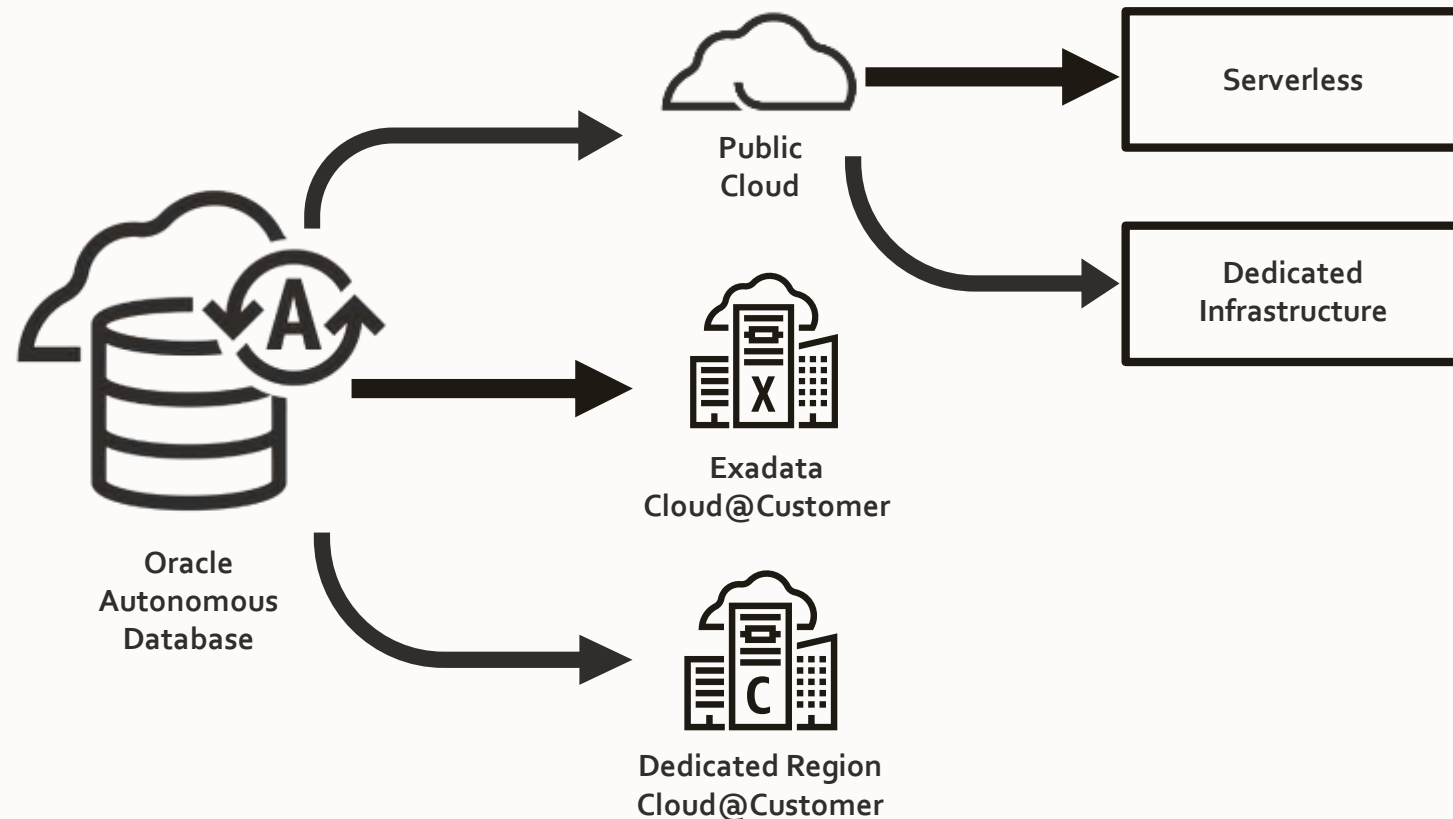
Document database

30% cheaper
than MongoDB Atlas

Support multiple data models without sacrificing security and governance controls

Multiple deployment choices

The most complete support for hybrid cloud strategies



Oracle Public Regions

Hyperscale cloud regions in more than 40 worldwide locations



Dedicated Regions

All OCI services, running in customer data centers



Exadata Cloud@Customer

Cloud Autonomous Databases, running in your data center



Worldwide or exactly where you need it, with scale and control







Autonomous
operations

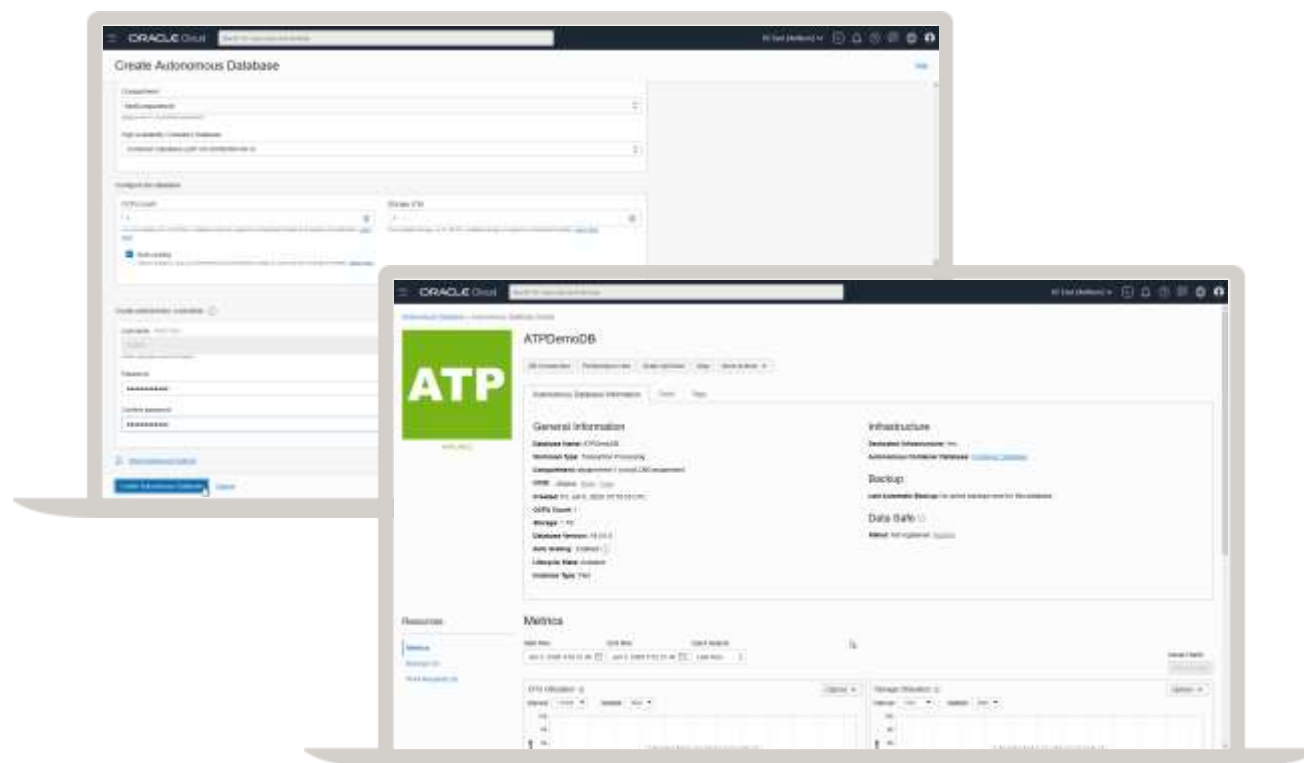
Simplified application
development

Complete data protection
and security

High performance and
availability above 99.95%

Features

-  Automatic provisioning
-  Automatic configuration
-  Automatic encryption
-  Automatic online patching and updating
-  Automatic elastic scaling
-  Automatic tuning



Autonomous
operations

Simplified application
development

Complete data protection
and security

High performance and
availability above 99.95%



No-code/Low-code development

Eliminate 98% of hand coding with built-in low-code application development platform, APEX.



In-database machine learning (ML) algorithms

Easily build ML models and analytical dashboards without moving data out of the database.



Self-service data tools

Quickly load any data, run queries, build sophisticated analytical models, visualize information.



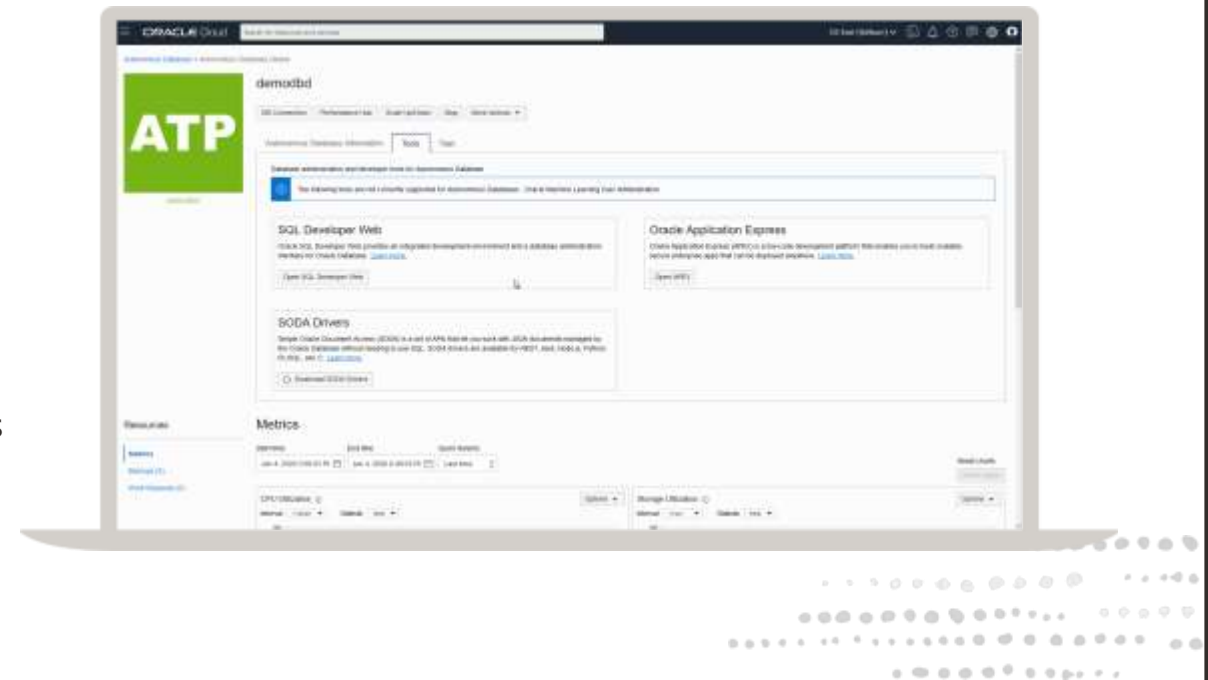
Native relational and nonrelational data models

Simpler application development using multiple data types including document, graph, spatial, JSON, XML, and more.



REST API support

Enable all your data for simpler and faster access.



Autonomous
operations

Simplified application
development

**Complete data
protection and security**

High performance and
availability above 99.95%



Always-on encryption

This ensures the data is always secure at rest and in motion.



Auto-patching

Applications continue to run as patching occurs.



Data privacy

Enables database administrators to perform all administrative tasks without ever seeing customer data.



Security for sensitive data

Oracle Data Safe, makes it easy to discover sensitive data, evaluate security risks, mask sensitive data, and implement and monitor security controls.



Advanced auditing

You can log & monitor all events with minimal impact on performance - analysis, forensics, and compliance.



Autonomous
operations

Simplified application
development

Complete data protection
and security

High performance and
availability above
99.95%



High performance

Delivers 80% lower latency and more than 5X throughput than other cloud providers by utilizing database-optimized hardware, automated tuning, and indexing.



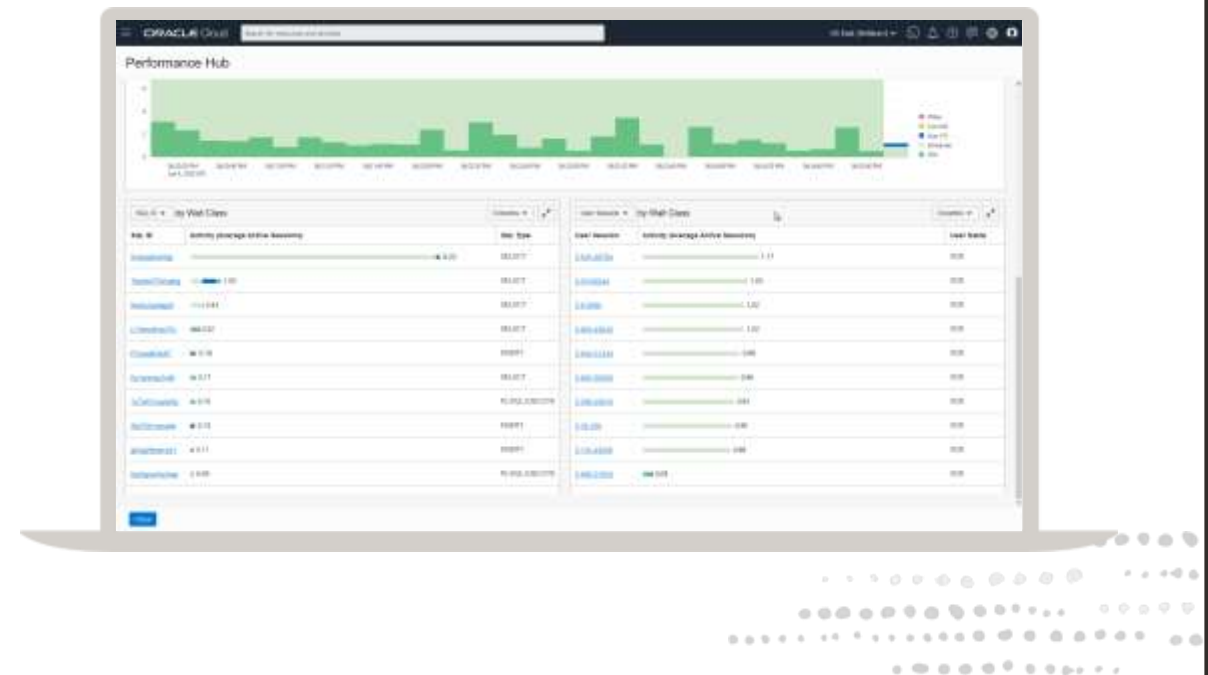
Always online

Provides more than 99.95% availability using a combination of Oracle's Gen 2 Cloud Infrastructure, Oracle RAC, Autonomous Data Guard, and daily automatic backups.



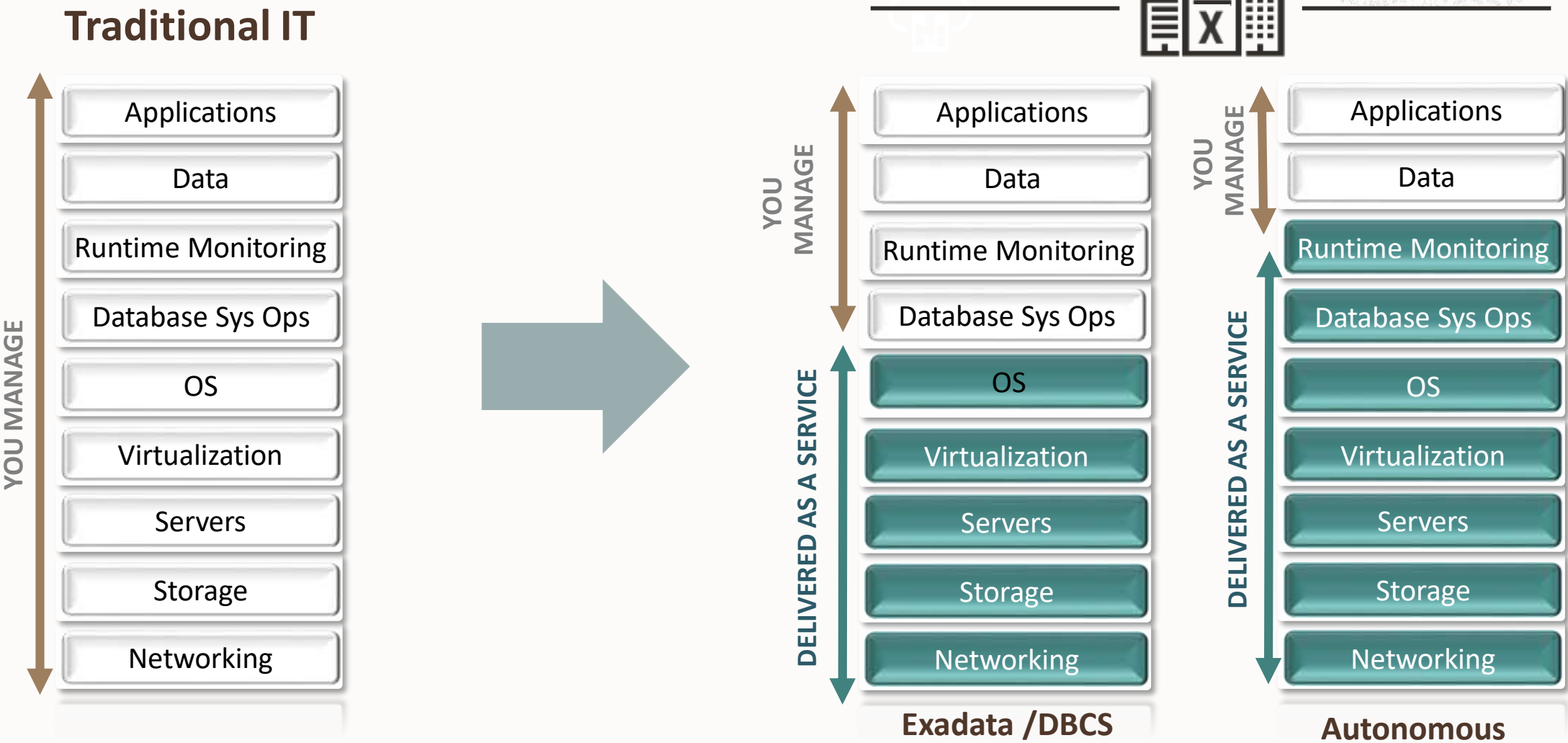
Protection from human error

Oracle Flashback, provided with Autonomous Transaction Processing, instantly rewinds accidental changes to application schemas, protecting users from human errors. It supports recovery at all levels including row, transaction, and table—and across the entire database.



Transfer more responsibility to the service while lowering costs

Same cost per OCPU, greater value with Autonomous



Oracle Autonomous secure connection | Credential Wallet

ORACLE Cloud

us-ashburn-1

Autonomous Database

ATP

AVAILABLE

Database Connection

You will need the client credentials and connection information to connect to your database. The client credentials include the wallet, which is required for all types of connections.

Download Client Credentials (Wallet)

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

Download

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.

| TNS Name | Connection String |
|---------------------|--------------------------------------------------|
| ATPDB2_tp | ...ME=ATPDB2_tp.atp.oraclecloud.com))) Show Copy |
| ATPDB2_medium | ...TPDB2_medium.atp.oraclecloud.com))) Show Copy |
| ATPDB2_tpurgent | ...DB2_tpurgent.atp.oraclecloud.com))) Show Copy |
| ATPDB2_low | ...E=ATPDB2_low.atp.oraclecloud.com))) Show Copy |
| ATPDB2_high | ...=ATPDB2_high.atp.oraclecloud.com))) Show Copy |
| ATPDB2_tp_tls | ...ME=ATPDB2_tp.atp.oraclecloud.com))) Show Copy |
| ATPDB2_medium_tls | ...TPDB2_medium.atp.oraclecloud.com))) Show Copy |
| ATPDB2_tpurgent_tls | ...DB2_tpurgent.atp.oraclecloud.com))) Show Copy |
| ATPDB2_low_tls | ...E=ATPDB2_low.atp.oraclecloud.com))) Show Copy |



Oracle Autonomous Console Management

Create Autonomous Database

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. ✓

JSON

Built for JSON-centric application development. Developer-friendly document APIs and native JSON storage.

APEX

Built for Oracle APEX application development. Creation and deployment of low-code applications, with database included.

Choose a deployment type

Shared Infrastructure

Run Autonomous Database on shared Exadata infrastructure.

Dedicated Infrastructure

Run Autonomous Database on dedicated Exadata infrastructure. ✓

Choose Autonomous Container Database

☐ Autonomous Data Guard-enabled Autonomous Container Databases

Autonomous Container Database in **FleetCompartment** [\(Change Compartment\)](#)

FLEET_ACD [\(FLEET_ACD\)](#)

Configure the database

OCPU count

0.1

You can enable up to 35 OCPUs. Available cores are subject to compartment quotas and existing core allocation. [Learn more](#)

☒ Auto scaling

Allows system to use up to three times the provisioned number of cores as the workload increases. [Learn more](#)

Storage (GB)

32

The available storage, up to 131072 GB. Available storage is subject to compartment quotas. [Learn more](#)

General Information

Database Name: ATPDevTest1

Workload Type: Transaction Processing

Compartment: [...](#)/PM_Compartment

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

Created: Tue, May 25, 2021, 17:34:32 UTC

OCPU Count: 0.1

Auto Scaling: Enabled ⓘ

Storage: 32 GB

Database Version: 19.11.0.0.0

Lifecycle State: Available

Instance Type: Paid

Scale Up/Down

[Help](#)

OCPU count

0.6

You can enable up to 74 OCPUs. Available cores are subject to compartment quotas and existing core allocation. [Learn more](#)

☒ Auto Scaling

Allows system to use up to three times the number of cores specified by the OCPU count as the workload increases. [Learn more](#)

Storage (GB)

512

The available storage, up to 131072 GB. Available storage is subject to compartment quotas. [Learn more](#)

[Update](#)

[Cancel](#)

Automated data warehouse management

Run a high-performance, highly available, and secure data warehouse while reducing cost

Auto-provisioning

Deploys mission-critical databases (RAC on Exadata infrastructure) which are fault-tolerant and highly available.

Auto-configuration

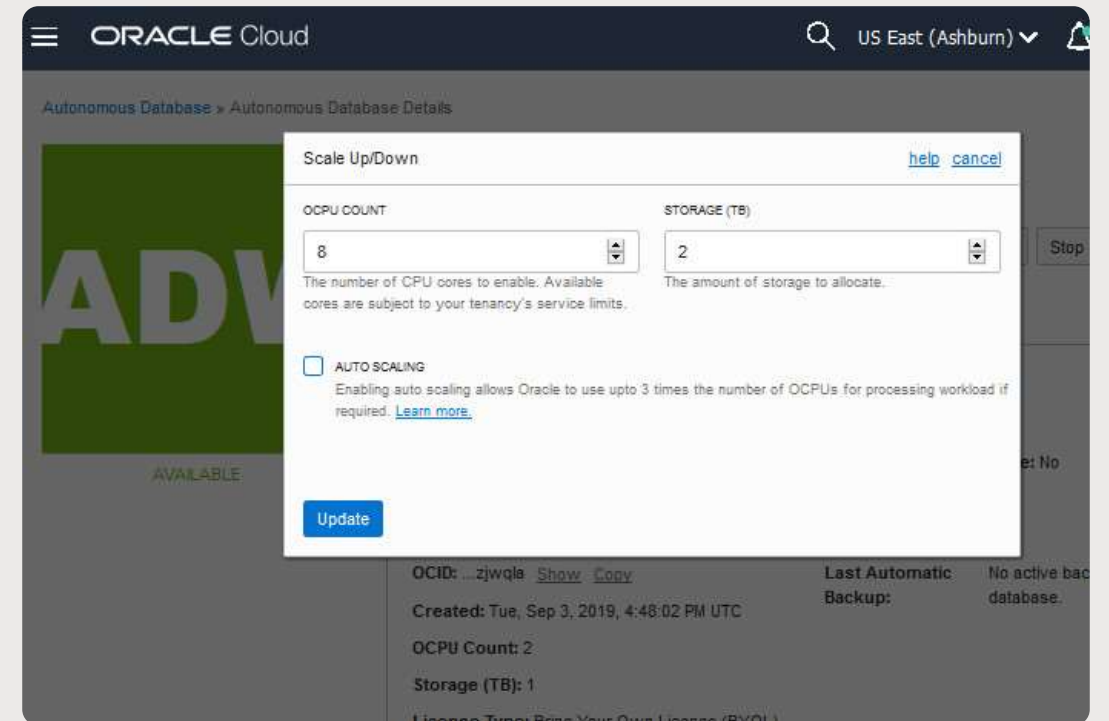
Automatically configures the database to optimize for data warehouse workloads.

Auto-scaling

Automatically scales compute resources when needed. Precision scaling occurs while applications is running—without downtime. Enables true pay per use.

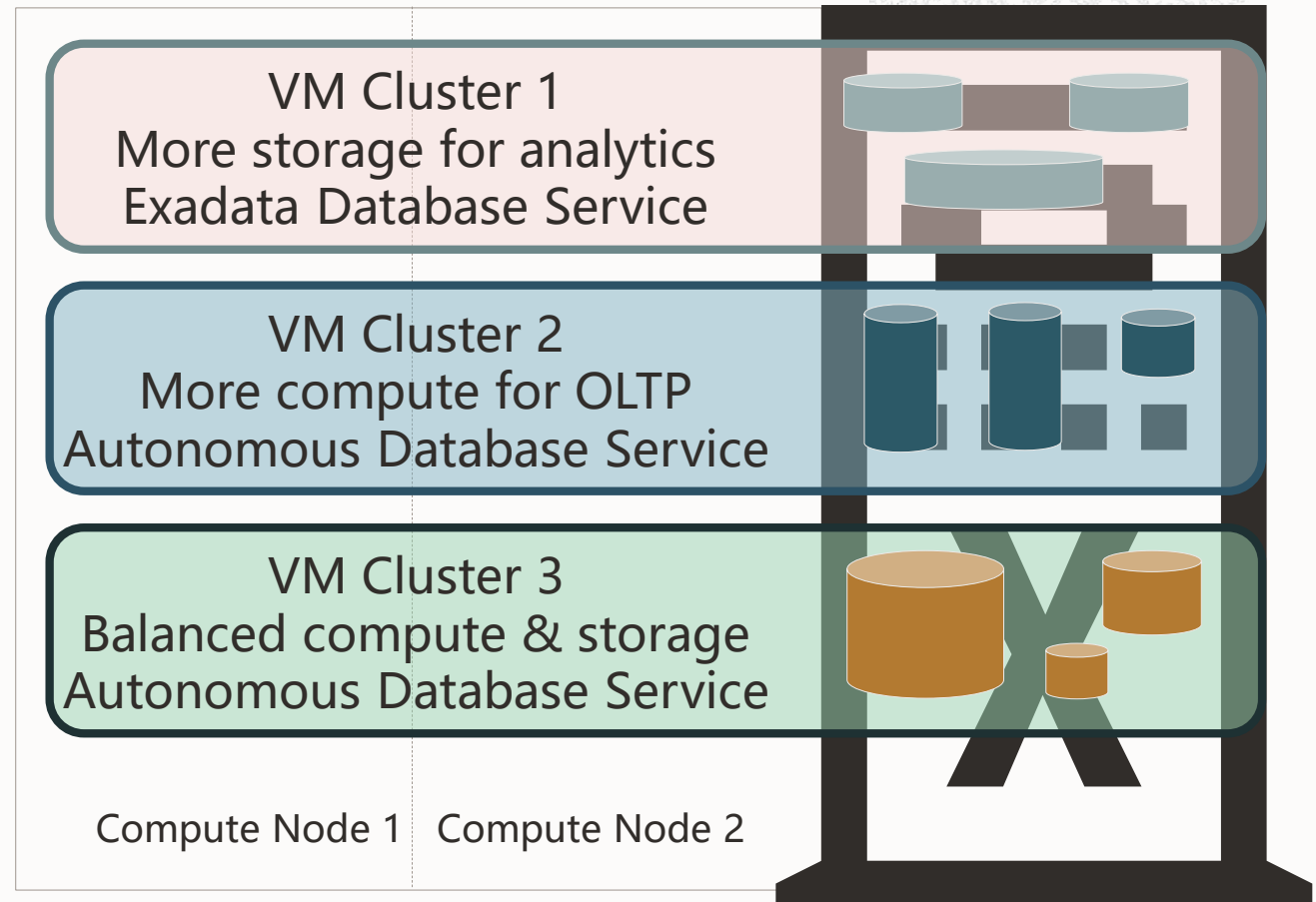
Automated security

Automatic encryption for the entire database, backups and all network connections.



Increasing Resource Utilization Efficiency and Consolidation Savings

1. Multiple VM clusters can be created on Exadata Cloud@Customer Infrastructure
2. Each VM cluster can be configured to match workload needs (e.g. more storage for analytics or more compute for OLTP)
3. Each VM cluster can be used for either Autonomous or Exadata Database Service
4. Each VM cluster can support multiple databases for consolidation
5. More VM clusters can be added as needed using unallocated resources
6. Consumption in each cluster can be scaled independently



Available on Exadata Cloud@Customer Infrastructure X7 through X10M



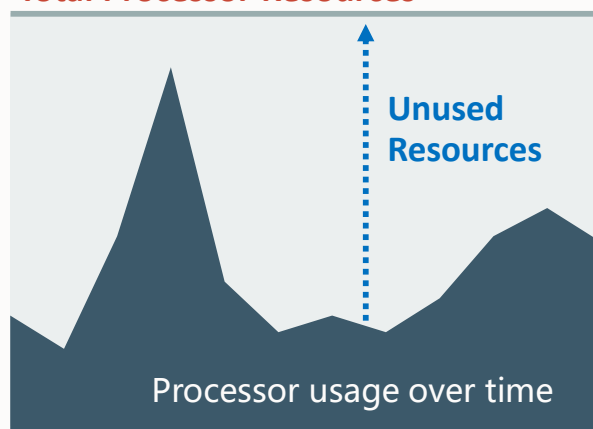


Autonomous Database Billing

Online, Elastic Scaling with Exadata and Autonomous Database Services

Pay only for what you use, in OCI or your data center

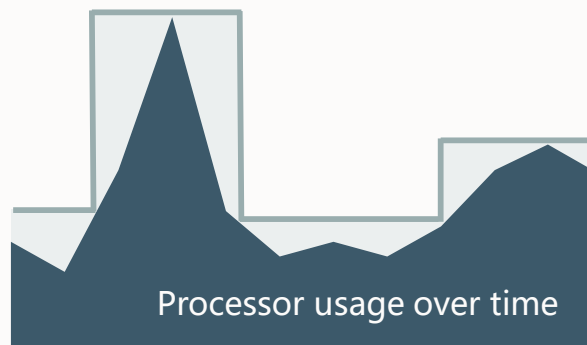
Total Processor Resources



On-Premises & Other Clouds – Static

Purchase server processors and software licenses for **highest projected peak load**

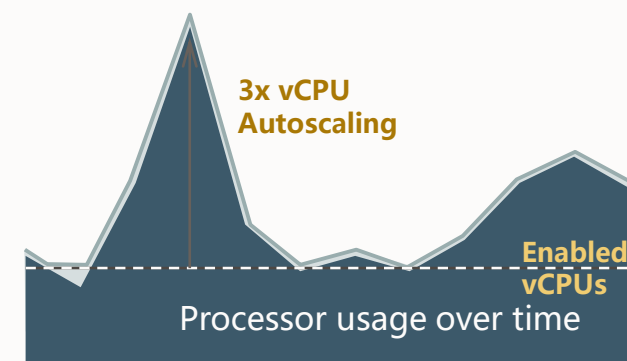
Manually Scaled CPU cores



Exadata Database Service – Elastic

Adjust enabled CPUs to match **actual workload** via APIs and web UI - CPUs are charged per second

Autonomously Scaled CPU cores



Autonomous Database – Self-scaling

Automatically scales CPU core consumption based on **dynamic workload demands**, in real-time



Retirement Of The OCPU Billing Metric In ADB Database Serverless (Doc ID 2998742.1)

ACTIONS

What action do I need to take now?

We encourage customers to provision all new Autonomous Data Warehouse and Autonomous Transaction Processing databases or clones with the ECPU billing metric. We also encourage customers to update all existing databases to the ECPU billing metric, which is a simple and seamless button click or API call, as described in the documentation here. While you may choose not to update your existing databases' billing metric at this time, Oracle may convert your databases from the OCPU billing metric to the ECPU billing metric in the future.

Note: Autonomous Data Warehouse databases provisioned as part of Oracle Data Intelligence Platform (formerly Fusion Analytics Warehouse) service instance will be updated to the ECPU billing metric by Oracle. No user action is required on those databases.

How will updating my databases to the ECPU billing metric affect my service?

Updating your Autonomous Database Serverless to the ECPU billing metric will have **no impact to your service** and incur **no downtime**.

Which SKUs are affected by this retirement notice?

Oracle Autonomous Database will be retiring the OCPU-based SKUs and replacing them with the ECPU-based SKUs listed below:

| Retired OCPU Billing Metric - SKU Name | Part Number | Metric |
|-----------------------------------------|-------------|---------------|
| Oracle Autonomous Data Warehouse | B89040 | OCPU Per Hour |
| Oracle Autonomous Data Warehouse - BYOL | B89039 | OCPU Per Hour |



Retirement Of The OCPU Billing Metric In ADB Database On Dedicated Infra (Doc ID 2998755.1)

ACTIONS

What action do I need to take now?

We encourage users to provision new Autonomous VM Clusters (AVM) with the ECPU billing metric. Oracle will offer an online conversion capability to update existing OCPU AVMs and their respective Autonomous Container Databases and Autonomous Databases to the ECPU billing metric via the OCI console and API in Q3 CY2024. In the meantime, users can also use database cloning to migrate existing OCPU ADBs to ECPU if they have AVMs configured with the ECPU billing metric. While you may choose not to update your existing databases' billing metric at this time, Oracle may convert your databases from the OCPU billing metric to the ECPU billing metric in the future.

Which SKUs are affected by this retirement notice?

Oracle Autonomous Database on Dedicated Infrastructure will be retiring the OCPU-based SKUs and replacing them with the ECPU-based SKUs listed below:

| Retired OCPU Billing Metric - SKU Name | Part Number | Metric |
|-------------------------------------------------------------|-------------|---------------|
| Oracle Autonomous Data Warehouse - Dedicated | B92182 | OCPU Per Hour |
| Oracle Autonomous Data Warehouse – Dedicated - BYOL | B92184 | OCPU Per Hour |
| Oracle Autonomous Transaction Processing - Dedicated | B92181 | OCPU Per Hour |
| Oracle Autonomous Transaction Processing – Dedicated - BYOL | B92183 | OCPU Per Hour |





Oracle Database Services (DBCS)

Oracle DBCS Bare Metal Console Management

X

ORACLE Cloud

Cloud Classic >

Search resources, services, documentation, and Marketplace

U

Q Search

Home

Compute

Storage

Networking

Oracle Database

Databases

Analytics & AI

Developer Services

Identity & Security

Observability & Management

Oracle Database

Overview

Autonomous Database

Autonomous Data Warehouse

Autonomous JSON Database

Autonomous Transaction Processing

Globally Distributed Autonomous Database

Autonomous Dedicated Infrastructure

Oracle Base Database Service

Oracle Exadata Database Service

Exadata Fleet Update

External Database

Data Safe - Database Security

Overview

Security Assessment

User Assessment

Data Discovery

Data Masking

Activity Auditing

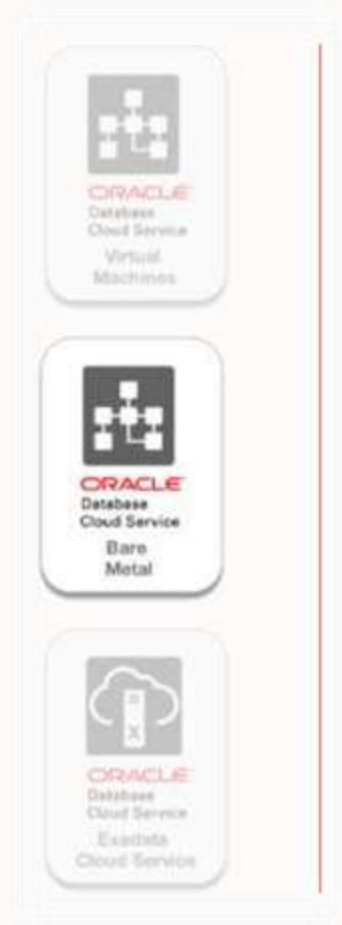
SQL Firewall

Database Backups



Database Cloud Service | Bare Metal

Understanding Oracle OCI DBCS Bare Metal Roles and Limitations



Bare Metal DB Systems rely on Bare Metal servers running Oracle Linux

- One-node database system
- Two Bare Metal shapes
 - BM Dense1BM.01.36 up to 36 Cores, 512 GB Memory and 9 3.2 TB locally attached (28.8 TB total)
 - BM Dense1BM.02.52 up to 52 Cores, 768 GB Memory and 8 6.4 TB locally attached (51.2 TB total)
- Start With 2 cores and Scale Up/Down OCPU's based on your requirement
- Data Guard with and across Ads (Requires DB Enterprise Edition)
- No Oracle RAC Allowed, just Single Instance
- It is not possible to create a non-CDB via the console - use dbcli

Oracle DBCS Bare Metal Console Management

Create DB system

1 DB system information

2 Database information

Select an availability domain

AD-1
wBCz:US-ASHBURN-AD-1 ✓

AD-2
wBCz:US-ASHBURN-AD-2

AD-3
wBCz:US-ASHBURN-AD-3

Select a shape type

Virtual Machine

Bare Metal ✓

Select a shape

BM.DenseIO1.36
2 Available Core Count

Change shape

Browse All Shapes

A shape determines the options for resources such as node count, core count, and storage. For information about shapes, see [Shapes for Bare Metal DB Systems](#).

| | Name | Maximum Core Count | Minimum Core Count |
|-------------------------------------|----------------|--------------------|--------------------|
| <input checked="" type="checkbox"/> | BM.DenseIO1.36 | 36 | 2 |
| <input type="checkbox"/> | BM.DenseIO2.52 | 52 | 2 |

1 Selected

Showing 2 items < 1 of 1 >

Configure storage

Data storage percentage

80%

Configure the DB system

Total node count

1

The node count for the selected shape cannot be changed.

Oracle Database software edition

Enterprise Edition High Performance

Select an Oracle Database Software Edition

Standard Edition

Enterprise Edition

Enterprise Edition High Performance

Enterprise Edition Extreme Performance

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Database Cloud Service | Virtual Machine

Understanding Oracle OCI DBCS roles and limitations



Entry-level, provision with GI or LVM (fast-provision)

Restrictions:

- 2 DB Systems types on VM
 - One Node – One VB Database System
 - Two Nodes – Two VM Clusters with Oracle RAC Features
- Can have only a Single Database Home and one Database
- Amount of memory allocation depends on VM Shapes
- On A RAC shape, each node is assigned on a different fault domain

Oracle DBCS Virtual Machine Console Management

Create DB system

1 DB system information

2 Database information

Select a shape type

Virtual Machine ✓

Bare Metal

Configure shape

A shape determines the options for resources such as node count, core count, and storage. For information about shapes, see [Shapes for Virtual Machine DB Systems](#).

AMD VM.Standard.E4.Flex

4 core OCPU, 64 GB memory, 4 Gbps Network Bandwidth, 64K IOPS

Change shape

Change shape

Configure OCPU

| Name | OCPU | Memory | Network bandwidth | Theoretical max IOPS |
|-------------------------------------------------------|------|--------|-------------------|----------------------|
| <input checked="" type="checkbox"/> VM.Standard3.Flex | 8 | 128 GB | 8 Gbps | 128K |

You can customize the number of OCPUs. Other resources scale proportionately. [Learn more about flexible shapes](#).

Number of OCPUs per node

8

1 32

1 Selected

Showing 1 Item

Change shape

Shape series

A shape determines the options for resources such as node count, core count and storage. [Learn more](#).

AMD AMD

Flexible OCPU count. AMD processors.

Intel Intel

Flexible and fixed OCPU count. Intel processors. ✓

Ampere Ampere

Flexible OCPU count. Arm-based processors.

Intel X9

Flexible OCPU count ✓

Intel X7

Fixed OCPU count

Configure the DB system

Total node count

2

Oracle Database software edition

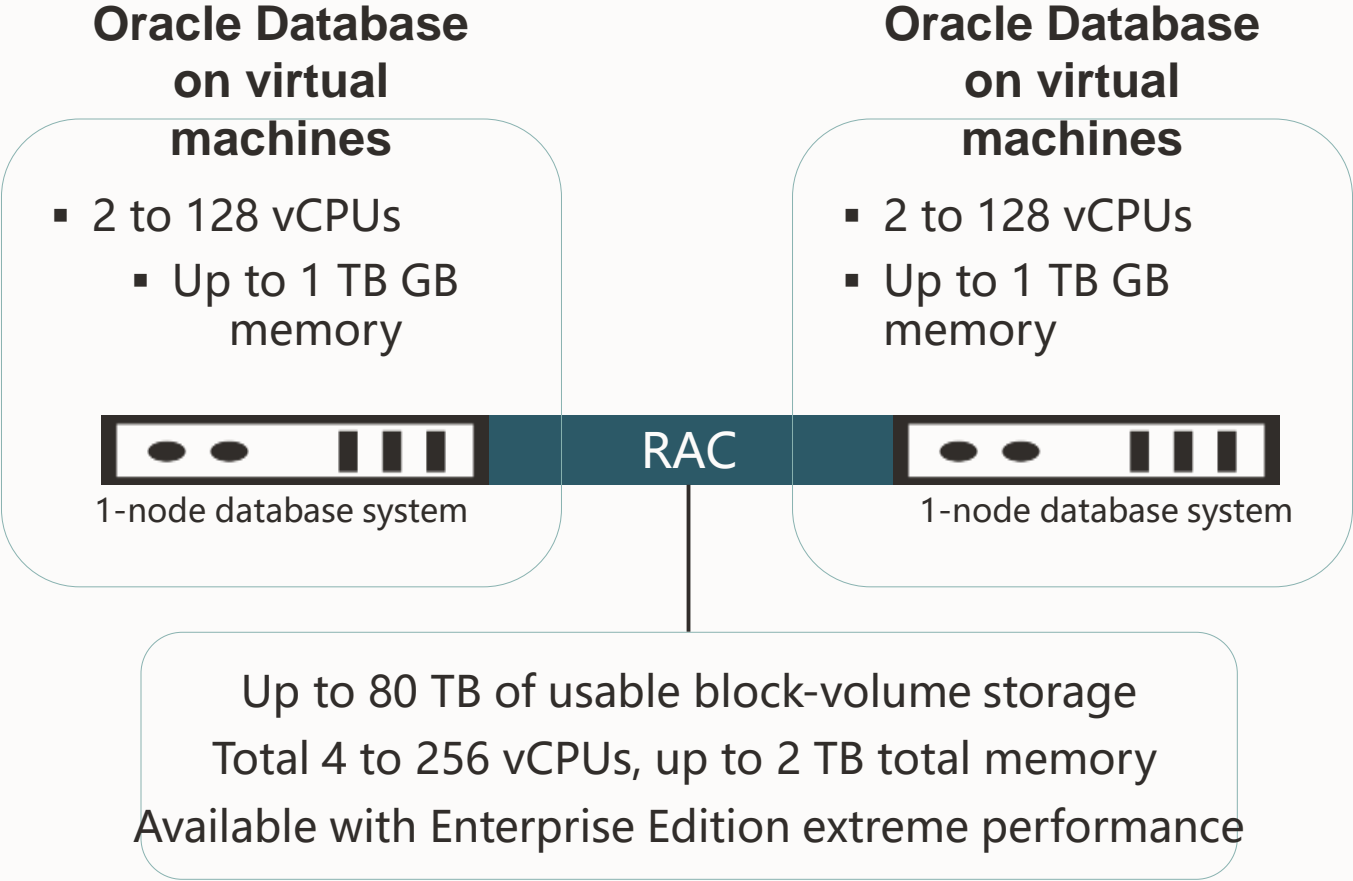
Enterprise Edition Extreme Performance

Total storage (GB) *Read-only* ⓘ

912

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Continuous availability and scalability on 2-node Oracle Real Application Clusters





DBCS Database Management Tools

OCI Command Line Interface (*dbcli*)

OCI Command Line Interface Database Options and doc references

Backup Commands

- *dbcli* create-backup
- *dbcli* getstatus-backup
- *dbcli* schedule-backup



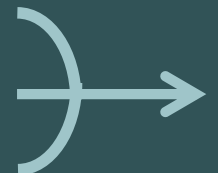
DB Storage Commands

- *dbcli* list-dbstorages
- *dbcli* describe-dbstorage
- *dbcli* create-dbstorage
- *dbcli* delete-dbstorage



Database Home Commands

- *dbcli* create-dbhome
- *dbcli* describe-dbhome
- *dbcli* list-dbhome
- *dbcli* update-dbhome



Cloud Automation for Common Lifecycle Tasks

Oracle Cloud Web base UI, REST APIs, SDK, CLI, Terraform

- Scale OCPUs
- Create Database Homes and Databases
- Schedule Infrastructure Maintenance
- Update Operating System, Grid Infrastructure, and Databases
- Backup and recovery
- Enable Data Guard

Create Database

Database name:

Database version:

PDB name:

Database Home:

Create administrator credentials

[Create Database](#) [Cancel](#)

Scale VM Cluster

Configure the VM cluster

Specify OCPU count per virtual machine:

Requested OCPU count for the Exadata VM cluster:

Current Exadata storage:

[Scale](#) [Cancel](#)

Create Backup

Name:

If you previously used RMAN or dbcli to configure backups and then you switch to using the Console or the API for backups, a new backup configuration is created and associated with your database. This means that you can no longer rely on your previously configured unmanaged backups to work.

[Create Backup](#) [Cancel](#)

Enable Data Guard

Data Guard association details

Protection mode:

Transport type:

Async

Select Peer VM Cluster

Peer region:

US East (Ashburn)



CLI Command Line Interface

The database CLI (dbcli) is a command line interface available on bare metal and virtual machine DB systems. After you connect to the DB system, you can use the database CLI to perform tasks such as creating Oracle database homes and databases.

Note: The database CLI is not for use on Exadata DB systems.

The database CLI commands must be run as the root user.

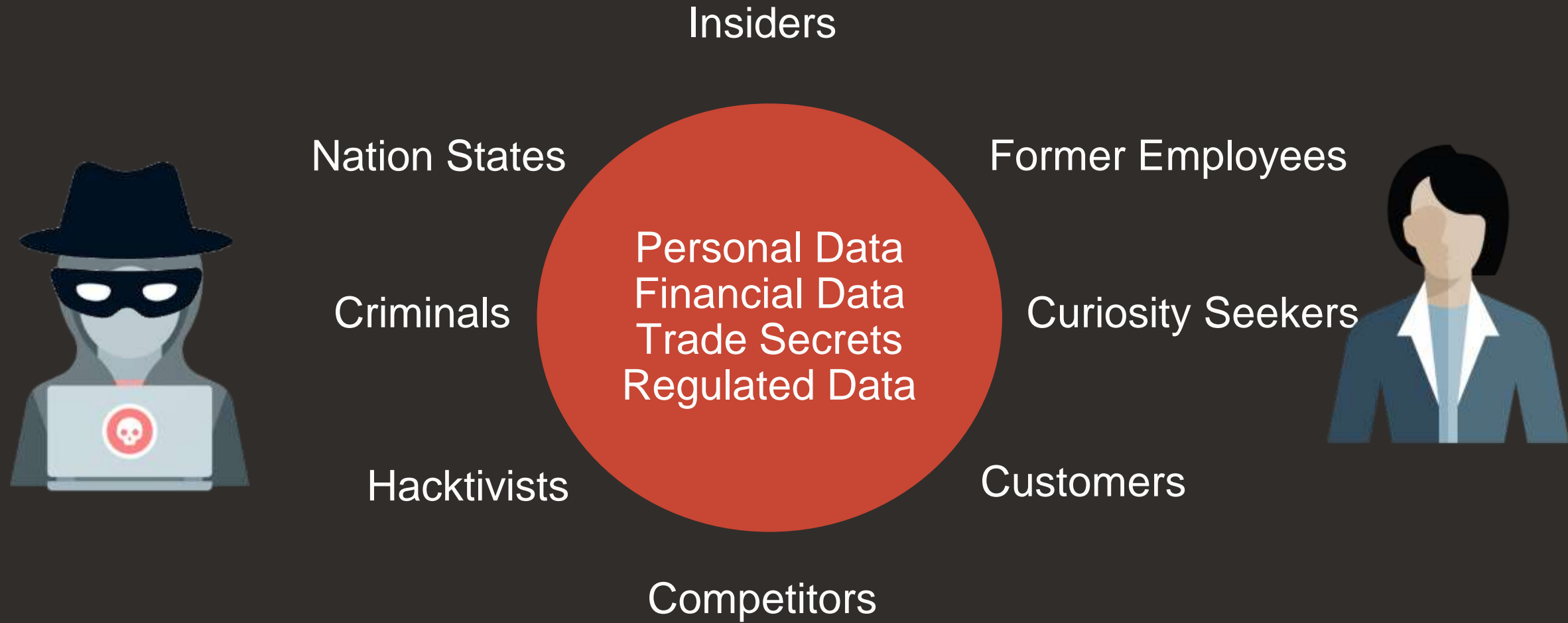
- dbcli is in the /opt/oracle/dcs/bin/ directory. This directory is included in the path for the root user's environment.
- Oracle Database maintains logs of the dbcli command output in the dcscli.log and dcs-agent.log files in the /opt/oracle/dcs/log/ directory.
- The database CLI commands and most parameters are case sensitive and should be typed correctly. A few parameters are not case sensitive, you should look at parameter descriptions.



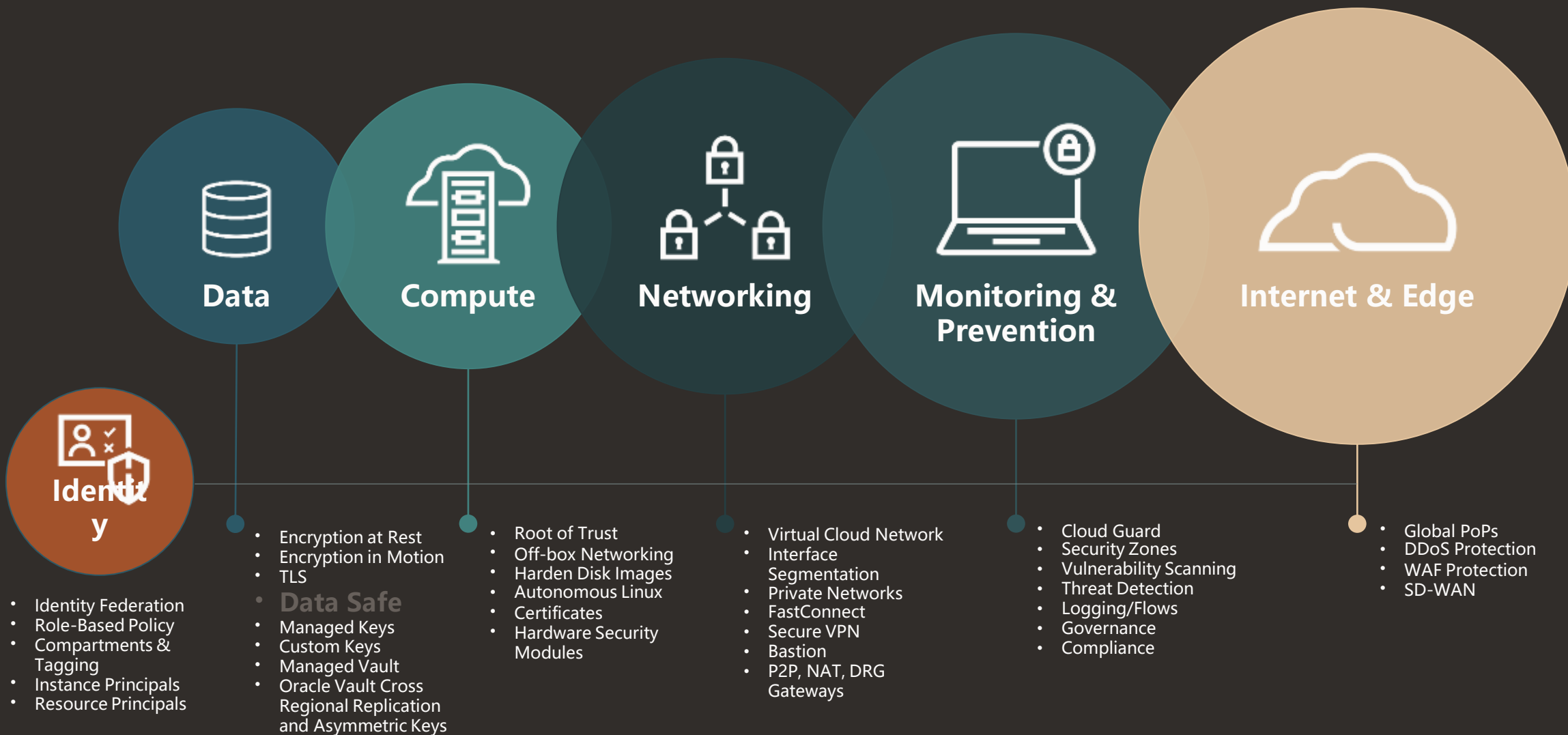


OCI Data Security

People are after **your** data



Integrated and Automated Security from Data to Identity



Oracle Advanced Security

Encryption and redaction of sensitive data prevent out-of-band access

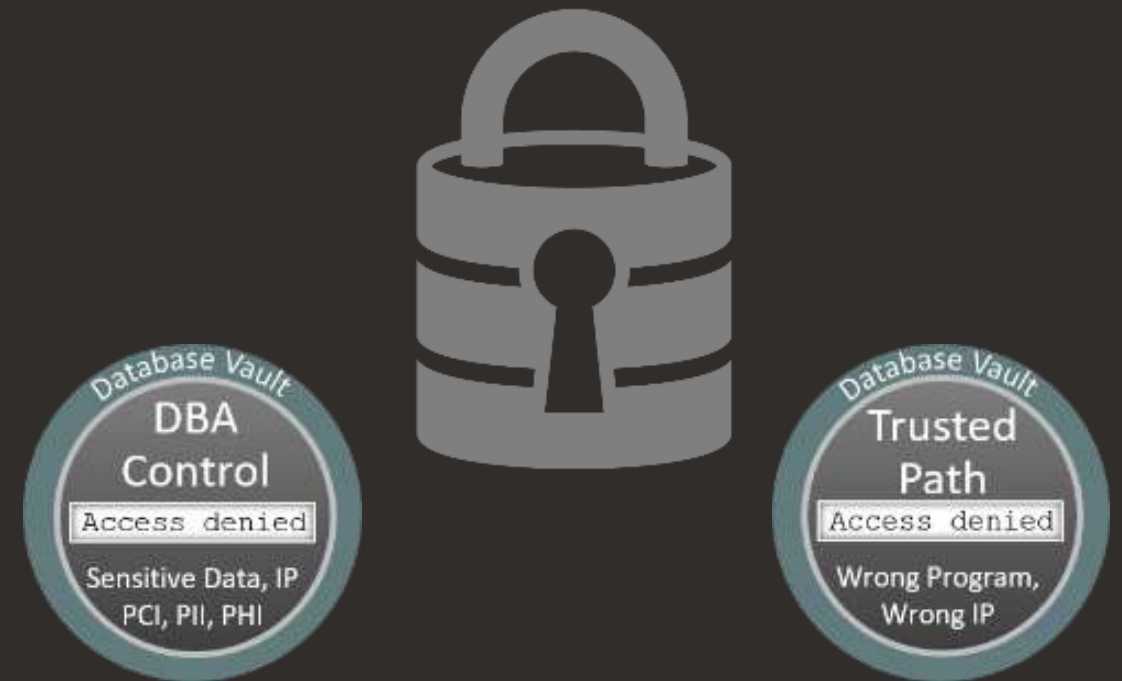
- **Transparent Data Encryption**
 - Stop would-be attackers from bypassing the database and reading sensitive information directly from storage by enforcing data-at-rest encryption in the database layer.
- **Data redaction**
 - Reduce the risk of unauthorized data exposure in applications by redacting sensitive data before it leaves the database. Partial or full redaction prevents large-scale extraction of sensitive data
- **Transparent to applications**
 - Encryption is implemented at the database kernel level, eliminating the need for any changes to applications.



Oracle Database Vault

Restrict access to application data by privileged users with the principle of least privilege

- **Separation of duties**
 - Allow only security roles to manage users, profiles, and security controls while limiting admins to managing only the database.
- **Realms**
 - Block unauthorized access to sensitive data by creating restricted application environments within Oracle Database.
- **Command rules**
 - Block accidental or malicious changes to production databases attempted outside specific maintenance windows.
- **Trusted paths**
 - Use factors like client IP address, program, user name, and time of day to control access to data and data operations.





OCI Data Safe

Oracle Data Safe available on your OCI Tenancy

Oracle Database

Overview

Autonomous Database

Autonomous Data Warehouse

Autonomous JSON Database

Autonomous Transaction Processing

Autonomous Dedicated Infrastructure

Oracle Base Database (VM, BM)

Exadata on Oracle Public Cloud

External Database

Data Safe - Database Security

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Security Assessment

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Data Discovery

Data Masking

Activity Auditing

Database Backups

Introducing Oracle Data Safe

Unified database security control center

- Risk dashboard: configuration, data, users
- Monitor user activity
- Mask data for test
- Extensible - more features to come...

Benefits

- No special expertise needed: click-and-secure
- Saves time and mitigates security risks
- Defense-in-depth security for all customers

Now available for securing ALL Oracle Databases, on-premises and in the cloud



Data Safe components



Data safe comprises five components in a single integrated cloud service for securing Oracle Database targets

Security
Assessment

User
Assessment

Activity
Auditing

Data
Discovery

Data
Masking



Security assessment

Instant feedback on configurations that may introduce unnecessary risk

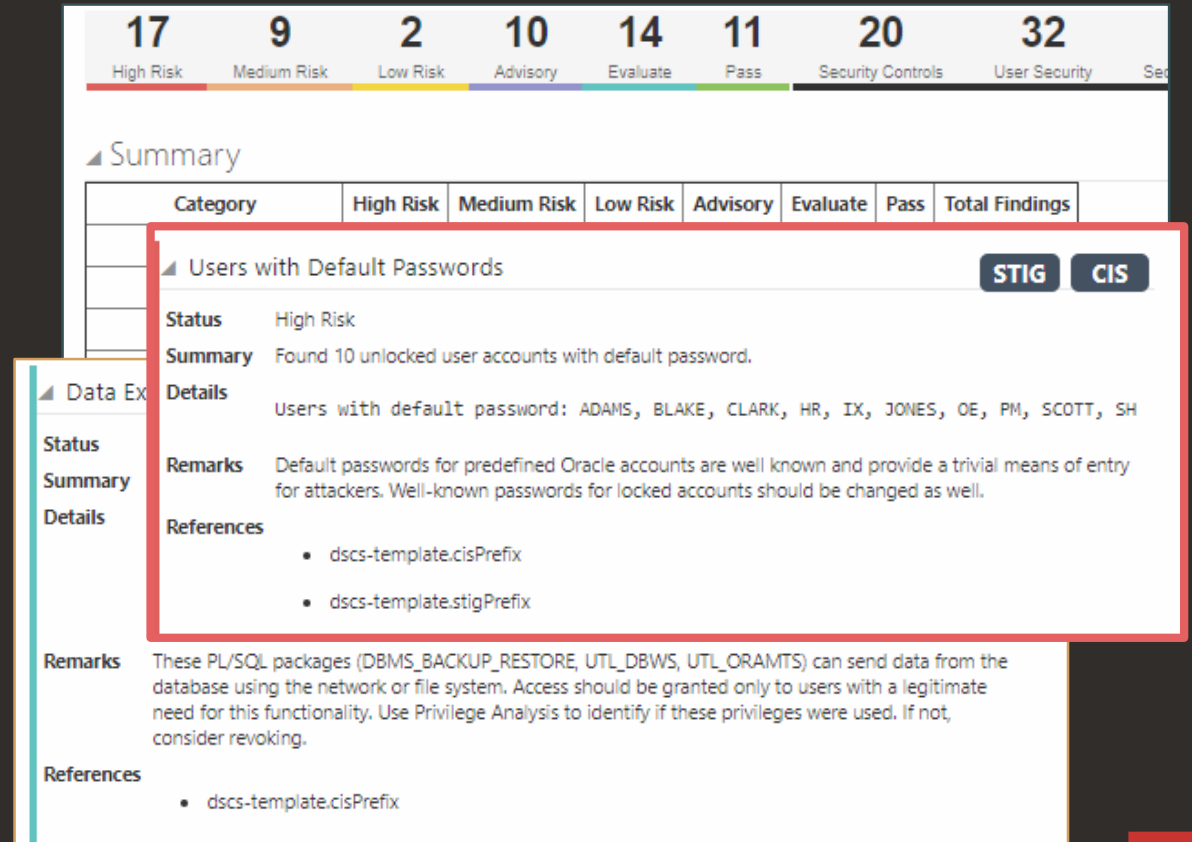
Comprehensive assessment

- Security parameters
- Security controls in use

Identify drift from best practices

Actionable reports

- Prioritized recommendations
- Compliance mappings (EU-GDPR, CIS)

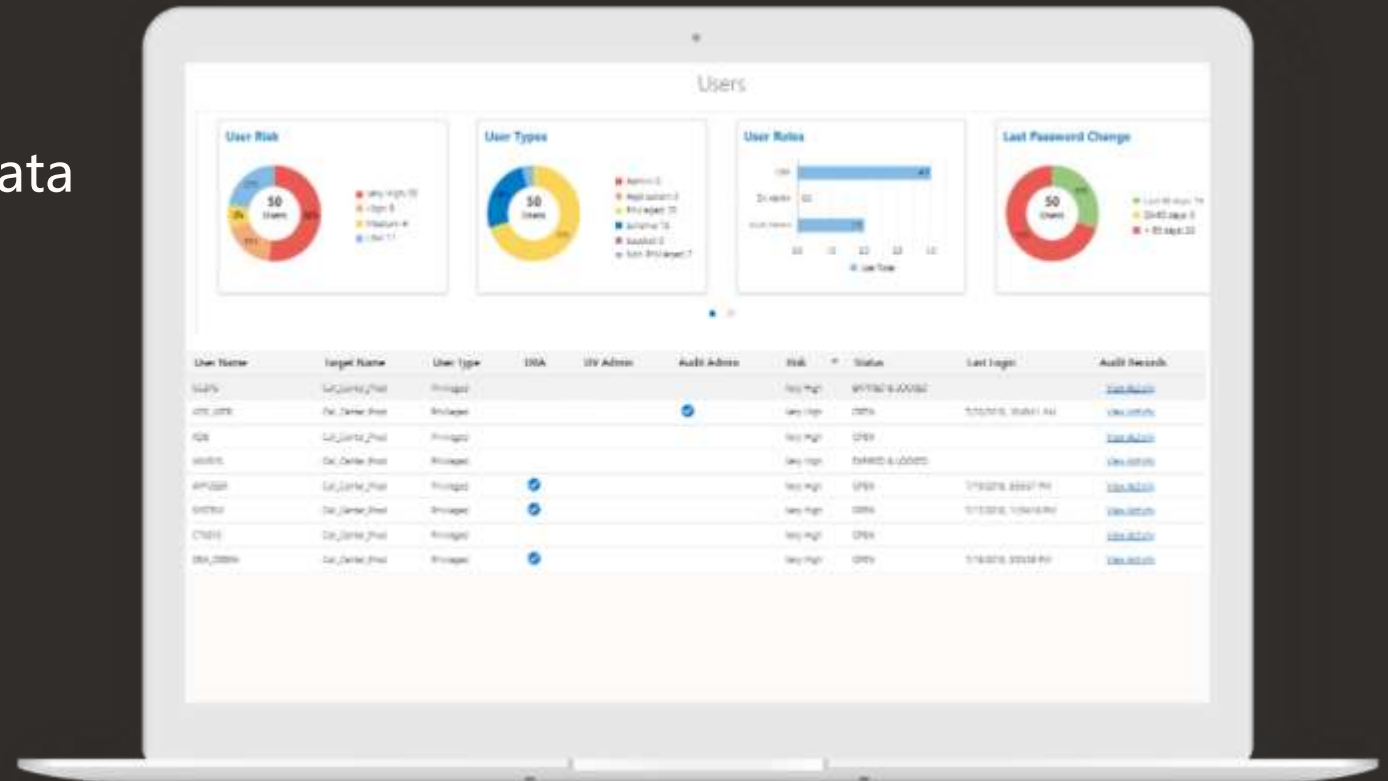


User assessment

Reduce user risk by managing privileges and identifying risky behavior



- Identify over-privileged risky users
- Static profile: type of user, password policies
- Dynamic profile: last login, audit data

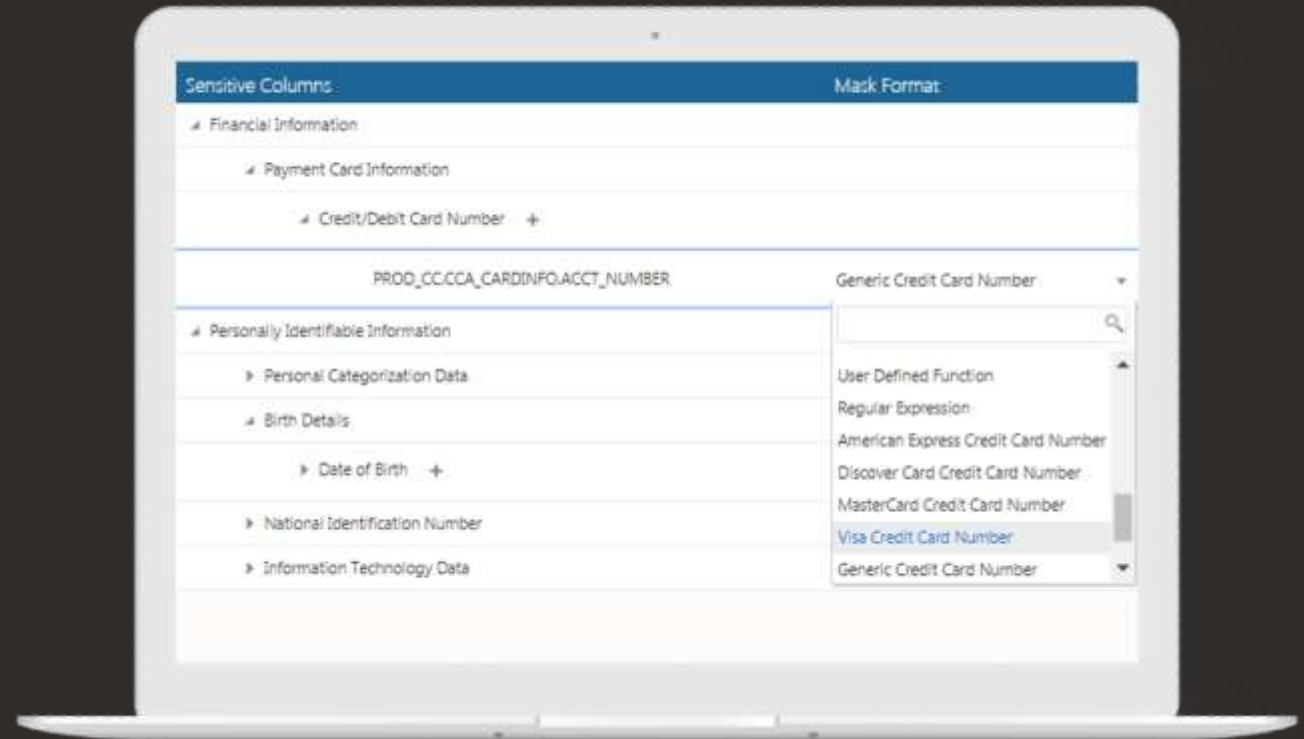


Data masking

Minimize risk by replacing sensitive data with realistic yet obscured data for use in development, test, and partner environments



- Mask data identified as sensitive
- 55+ pre-defined masking formats
- Masking transformations
- Masking reports

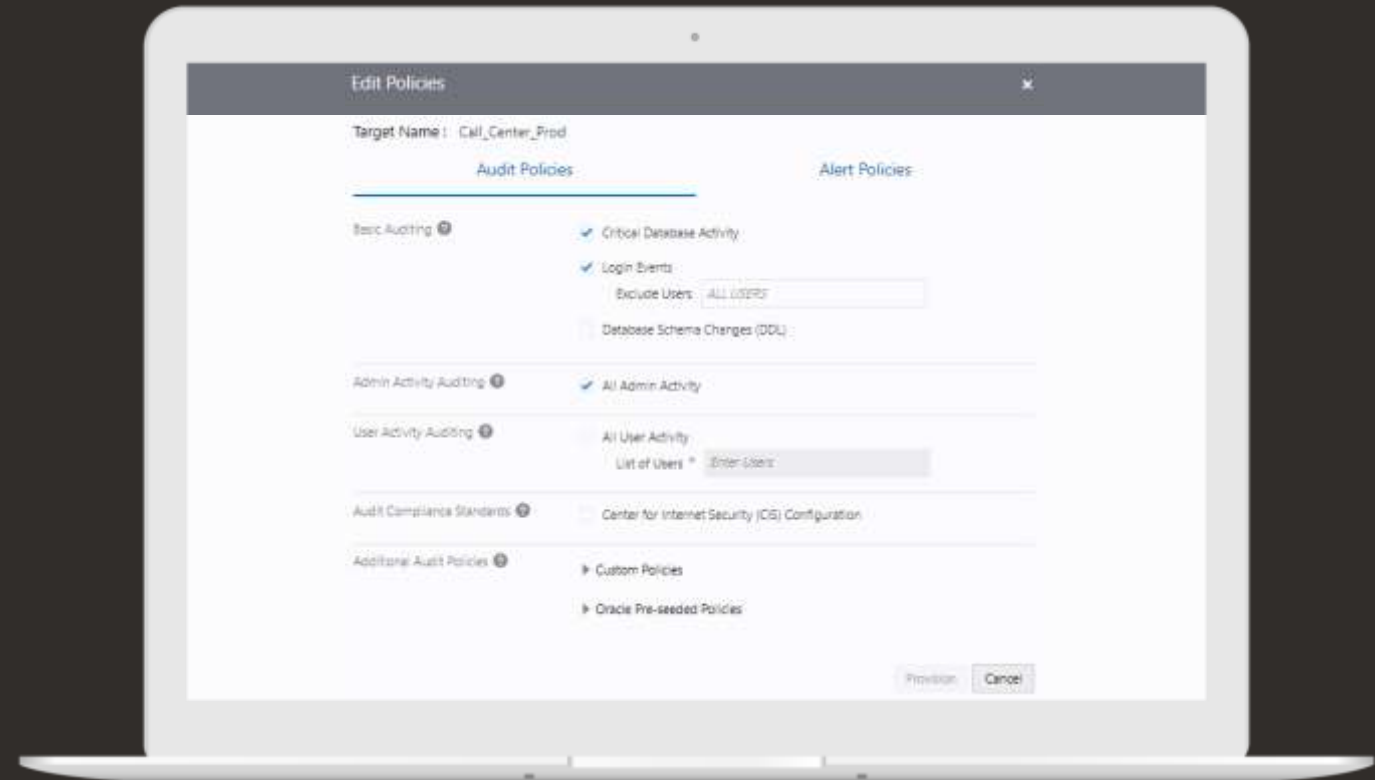


Activity auditing

Track user actions and streamline auditing with policy-based reporting



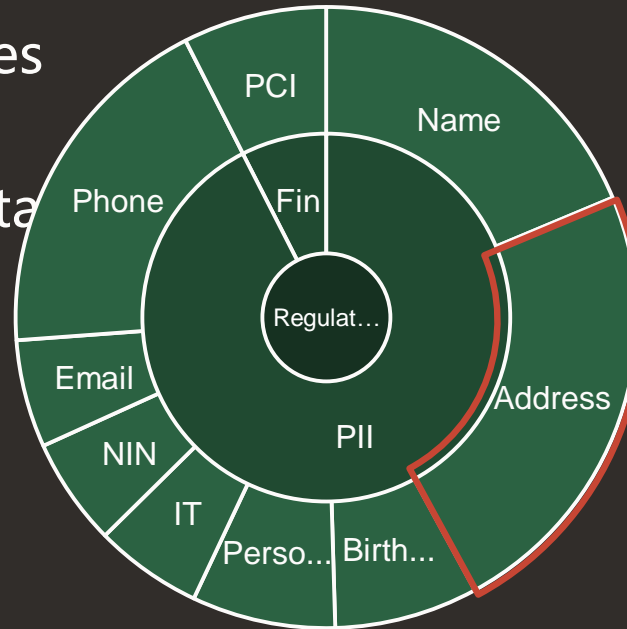
- Collect audit data from databases and track sensitive operations
- Provision audit, compliance, and alert policies
- Generate audit reports
 - Interactive and customizable reports
 - Summary and detailed reports



Data discovery

Prioritize security efforts by revealing the location, type, and amount of sensitive data

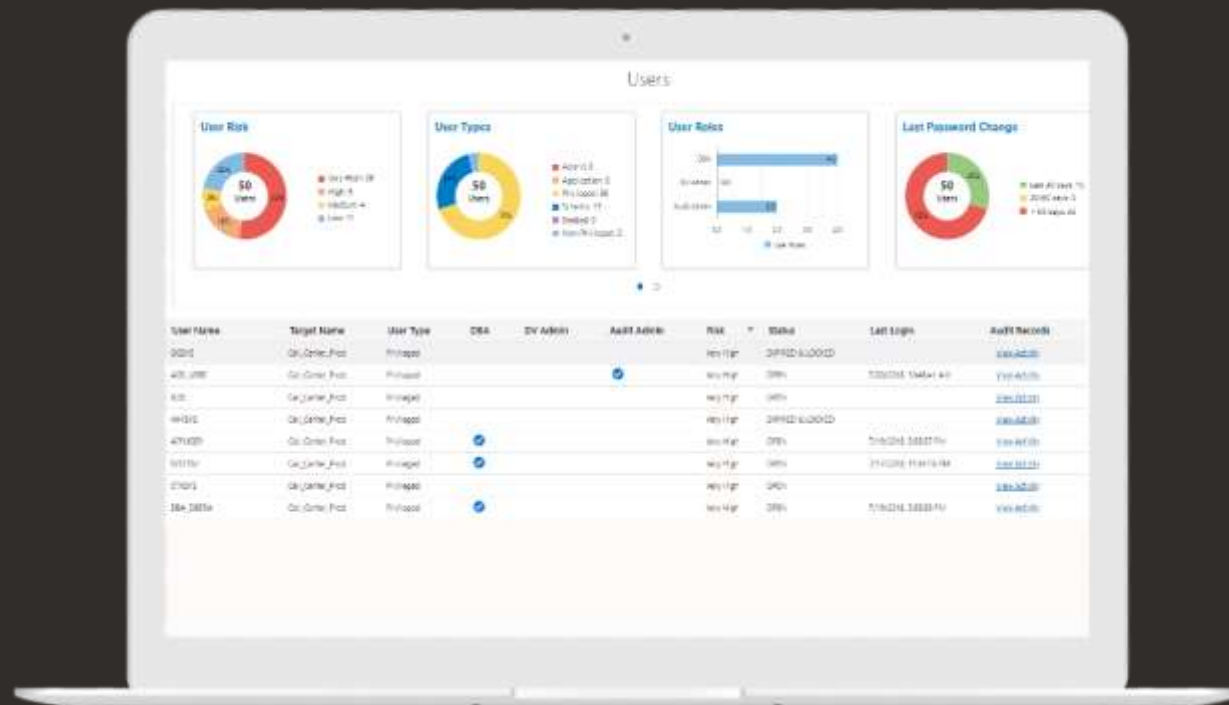
- Discovers and classifies 150+ sensitive data types
 - Name, address, SSN, salary, medical health, payment card information and many more
- Supports user-defined sensitive data types
- Supports incremental discovery
- Reports amount and type of sensitive data



| | |
|----------------------------------|--------------------------------|
| 16.6K Sensitive Values | 12 Sensitive Types |
| 4 Sensitive Tables | 17 Sensitive Columns |

Summary: Oracle Data Safe

- Unified security control center for cloud and on-premises databases
 - Immediate visibility into risks from data, users, and configurations
 - Click-and-secure: no special expertise required
 - Complete set of proven database security capabilities
- Cuts customer operational cost for securing their databases



Raising the bar on security
for *all* Oracle Database customers

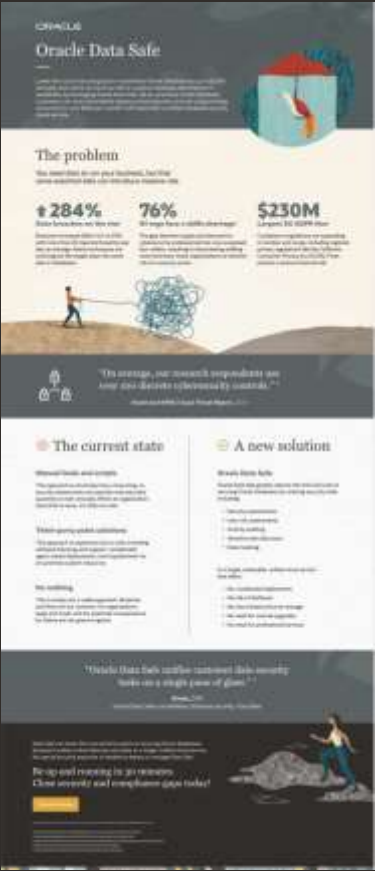


Learn More

[Read the ebook](#)

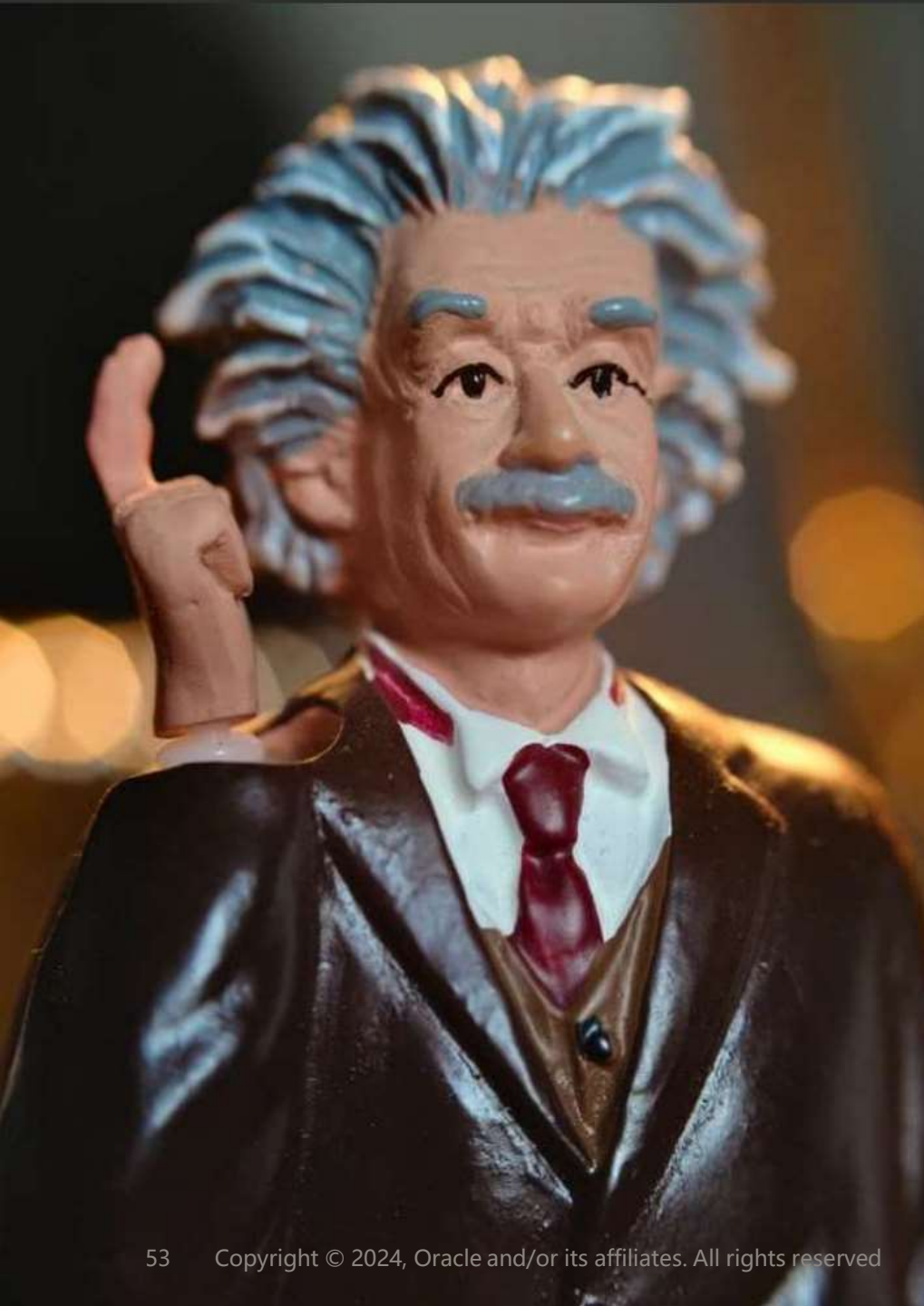


[Check out the infographic](#)



[Read the IDC report](#)





Demo 1 – MySQL

- Autonomous Database Provisioning

Demo 2 – OCI Data Safe

- Data Safe Fast provisioning on ADB
- Data Safe report





Resources

- **Autonomous Database Get Started**

<https://www.oracle.com/autonomous-database/get-started>

- **Autonomous Data Warehouse**

<https://www.oracle.com/autonomous-database/autonomous-data-warehouse/>

- **Autonomous Transaction Processing**

<https://www.oracle.com/autonomous-database/autonomous-transaction-processing/>

- **Autonomous JSON Database**

<https://www.oracle.com/autonomous-database/autonomous-json-database>

- **Autonomous Database Free services**

<https://www.oracle.com/autonomous-database/free-trial/>

- **Architecture Center Autonomous Database**

<https://docs.oracle.com/en/cloud/paas/autonomous-database/index.html>

- **Machine Learning on Oracle Databases**

<https://www.oracle.com/br/artificial-intelligence/database-machine-learning/>



- **Oracle Autonomous Database**

<https://www.oracle.com/autonomous-database/>

- **Autonomous Database on Exadata Cloud@Customer**

<https://www.oracle.com/autonomous-database/>

- **Oracle Database 23c**

<https://www.oracle.com/autonomous-database/>

- **Oracle Virtual-machine Database Documentation**

<https://docs.oracle.com/en-us/iaas/base-database/doc/oracle-base-database-service.html#Bare>

- **Oracle Cloud Free Tier**

<https://www.oracle.com/cloud/free/>

- **Oracle Database Service FAQ**

<https://www.oracle.com/database/base-database-service/faq>

- **Oracle Database DBCS dbcli command reference**

<https://docs.cloud.oracle.com/iaas/Content/Database/References/dbaccli.htm>



- **Oracle Database Security**

<https://download.oracle.com/database/oracle-database-security-primer.pdf>



Thank you

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