



# Oracle Cloud DBA

Lear how to stay up to date on this Dbaas era

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# Nuestros Valores

Integridad

Ética

Compliance

Innovación

Trabajo en  
Equipo

Respeto  
Mutuo

Satisfacción  
del Cliente

Justicia

Calidad

Comunicación

Como empresa líder en tecnología, aceptamos la **diversidad** en todas sus formas. Realmente creemos que la **innovación** comienza con la **inclusión**. Y esto solo se puede lograr con la cooperación de nuestros **partners**. Afirmamos nuestro **compromiso** de mantener un **ambiente respetuoso** y **libre de discriminación** y esperamos esto de nuestros **socios de negocios**.

Oracle espera que sus **partners** realicen negocios de manera **justa** y **ética**, cumplan con las leyes anticorrupción en todo el mundo, cooperen con las solicitudes de información de Oracle y eviten participar en cualquier actividad que implique incluso la apariencia de ser incorrecta.

Es vital que nuestros partners se adhieran al **Código de Ética y Conducta Comercial de Oracle**, que da los lineamientos sobre los valores que son esenciales para nuestro éxito como empresa. Estos valores son la base de todo lo que hacemos y lo que debemos vivir todos los días.



Utilice el código QR para acceder al Código de Ética y Conducta Comercial de Oracle.



# Agenda Day 1

Oracle Exadata Cloud

OCI Database NoSQL Service

OCI Database Backup and Restore

Demo – Exadata Smart Scan

Demo – OCI Console Tour

Demo – NoSQL Table Provisioning

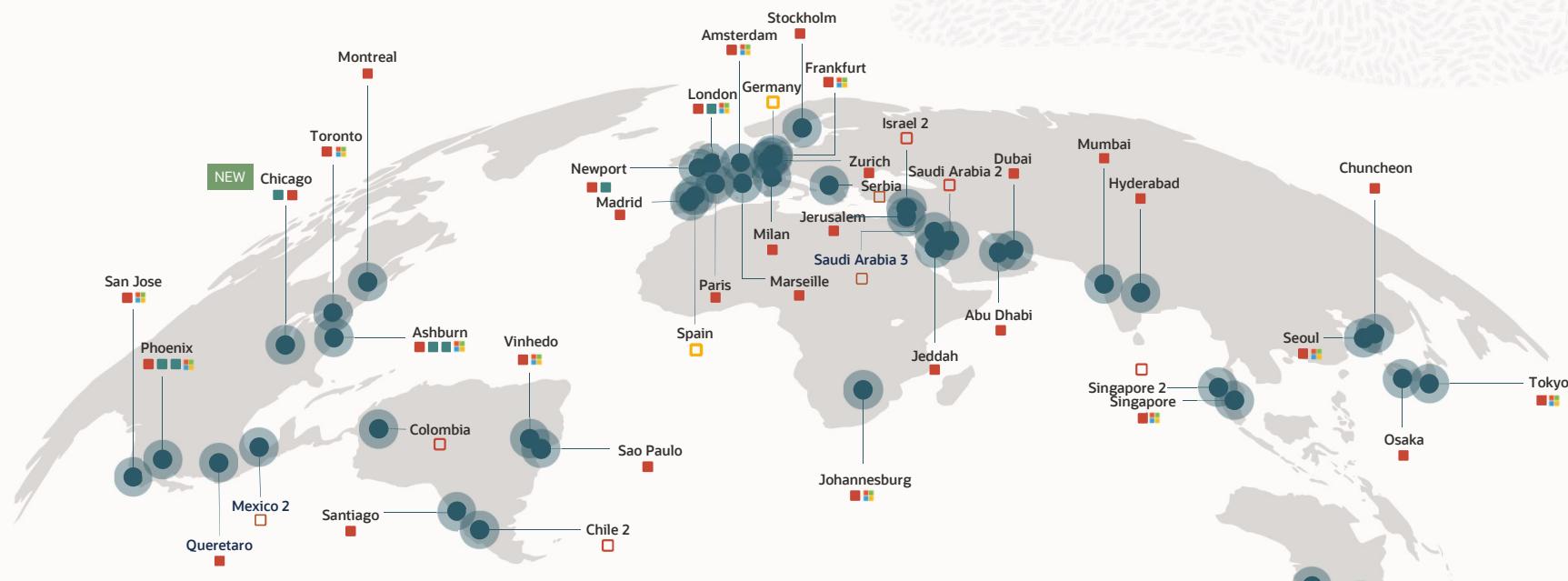
# OCI Cloud Region Map

Current Oracle Datacenter around the World

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# Oracle Cloud Infrastructure Global Locations



**April 2023**

**41 regions; 10 more planned  
12 Azure Interconnect Regions**

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- Commercial
- Commercial Planned
- Sovereign Planned
- Government
- Microsoft Interconnect Azure



# OCI Database Services



# OCI Database Services

Resilient recovery with no data loss is a foundational requirement



## Mission critical Cloud database service

- Exadata, RAC, Bare Metal, VM



## Complete Lifecycle Automation

- Provisioning, Patching, Backup & Restore

## High Availability and Scalability

- RAC & Data Guard
- Dynamic CPU and Storage Scaling



## Security

- Infrastructure (IAM, Security Lists, Audit logs)
- Database (TDE, Encrypted RMAN backup / Block volume encryption)

## OCI Platform integration

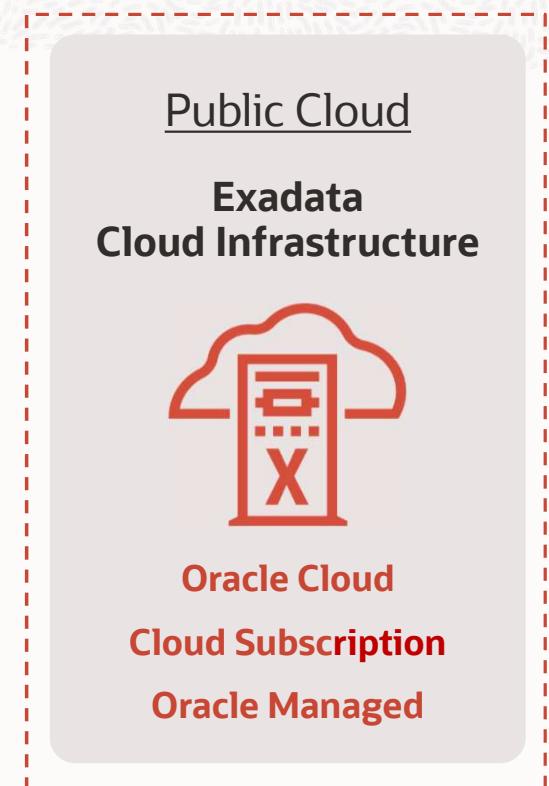
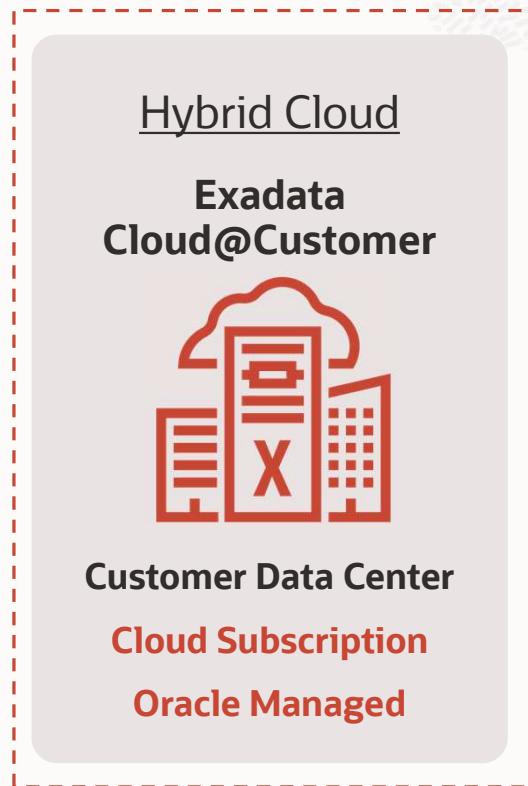
- Tagging, Limits and Usage integration



# Oracle Exadata Cloud



# Compatible Exadata On-Premises, Hybrid Cloud and Public Cloud



# Exadata Cloud | OCI Console

## 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**

**Exadata Cloud@Customer**

[External Database](#)

**Data Safe - Database Security**

Overview

Security Assessment

User Assessment

Data Discovery

Data Masking

Activity Auditing

[Database Backups](#)

[GoldenGate](#)

[Operator Access Control](#)



# Database Cloud Service | Exadata

Understanding Oracle Exadata Cloud Service and Cloud at Customer

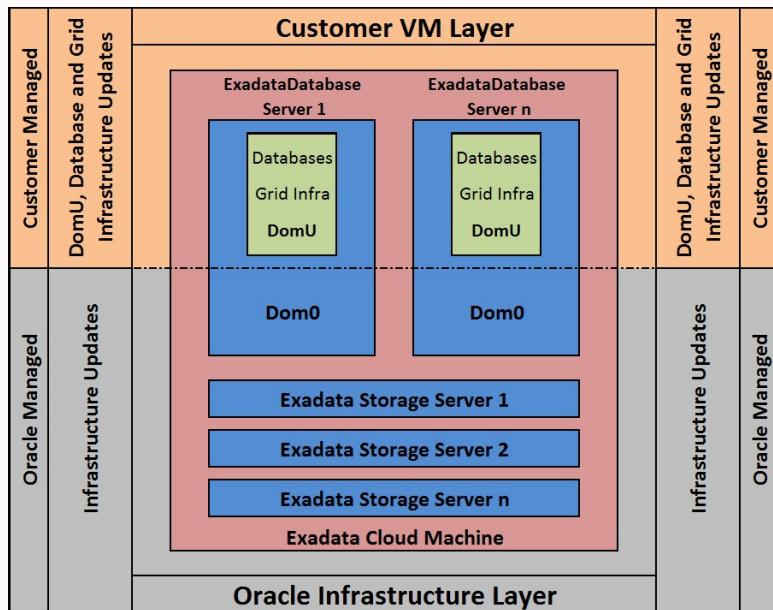


## World's Best database machine, provisioning with GI

- As many databases as you want
- No Single Instance allowed. Just RAC!
- Start With 2 cores and Scale Up/Down OCPU's based on your requirement
- Data Guard with and across Ads
- Only Oracle Database Enterprise Editions allowed
- Exadata Cloud X9M Shapes (Base, Quarter, Half and Full Rack)
- Works with Autonomous Database on Dedicated Infrastructure



# Exadata Cloud | Dom0 vs DomU Roles and Responsibilities



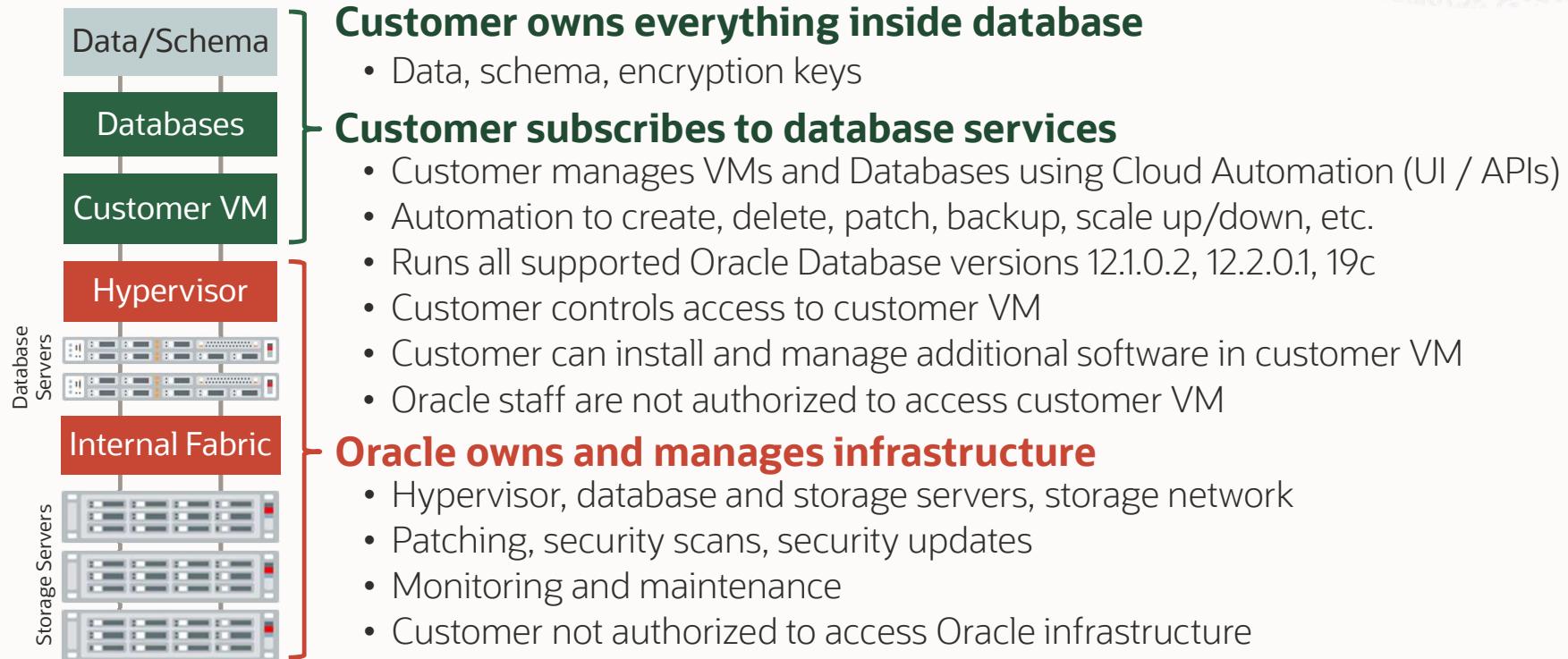
## About *Dom0* Oracle Responsibilities

- Oracle Cloud Ops manage Exadata infrastructure (hardware, system software) & hypervisor (*dom0*);
- Oracle Support is responsible for update any version;
- For ExaCC gen1, Oracle Support open an SR and request customer formal approval;
- For Exacc Gen2, the customer is responsible for scheduling *Dom0* maintenance and must provide at least 4 dates per year;

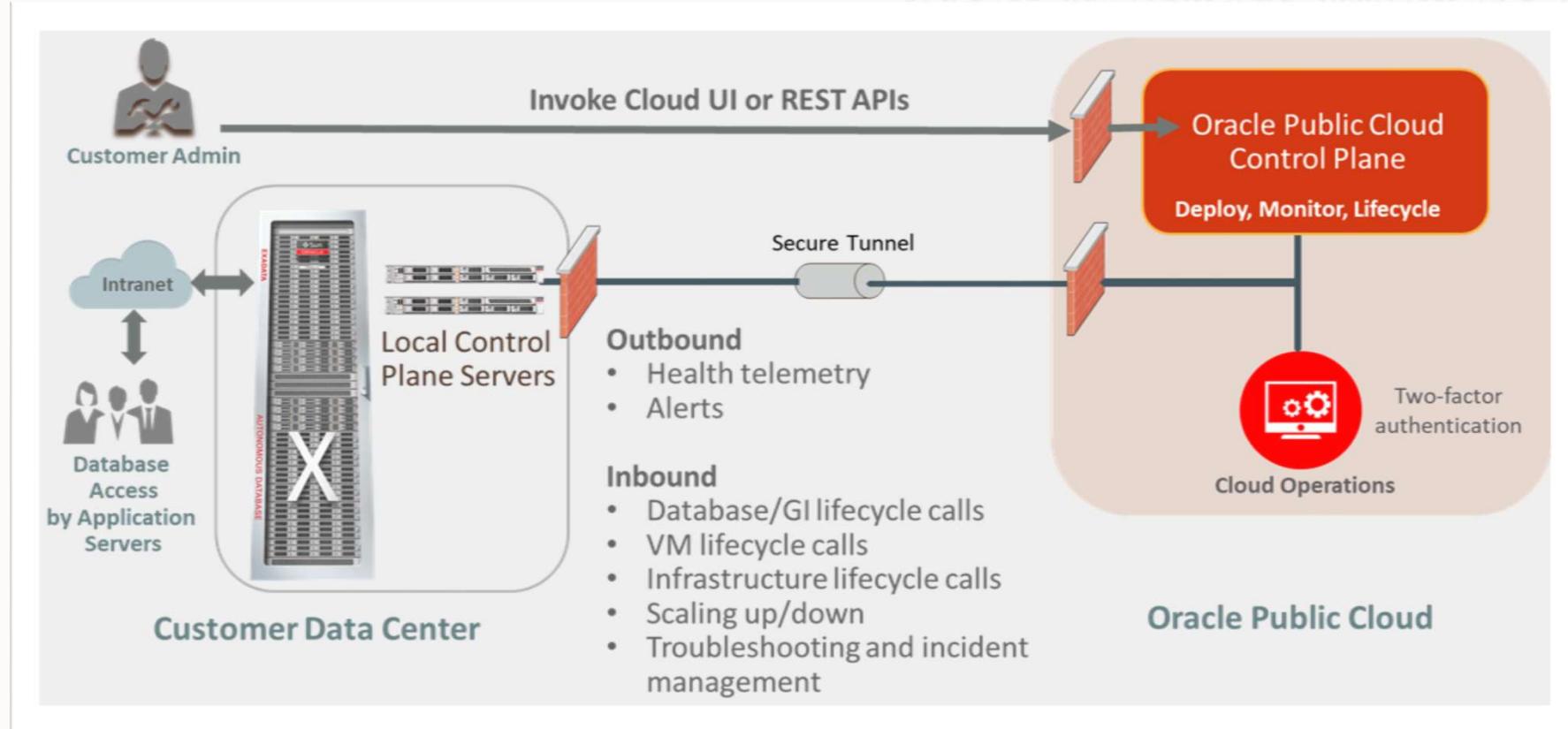
## About *DomU* Customer Responsibilities

- Adjust license (BYOL or License included)
- Scale UP/Down resources
- For Exadata C@C Gen 1 *DomU* uses Xen for virtualization
- For Exadata Cloud at Customer Gen2 *DomU* uses KVM
- Customer have root access to *domU*;
- The customer is responsible for any update or configuration change on *DomU*;

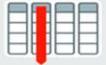
# Simple Cloud Management Model in Public Cloud



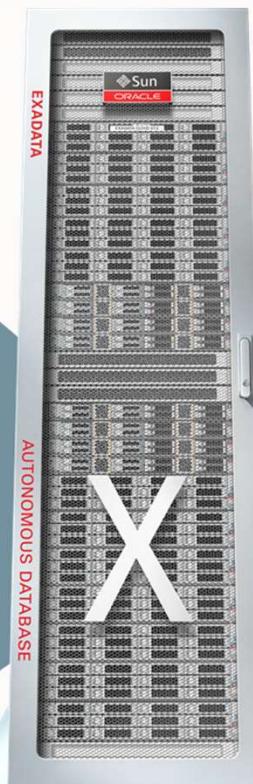
# Exadata Cloud | Control Plane Workflow



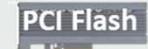
# Exadata Cloud | Most Powerful Database + Platform

	Multitenant
	In-Memory DB
	Real Application Clusters
	Active Data Guard
	Partitioning
	Advanced Compression
	Advanced Security, Label Security, DB Vault
	Real Application Testing
	Advanced Analytics, Spatial and Graph
	Management Packs for Oracle Database

All Oracle Database Innovations



All Exadata DB Machine Innovations

	Offload SQL to Storage
	InfiniBand Fabric
	Smart Flash Cache, Log
	Storage Indexes
	Columnar Flash Cache
	Hybrid Columnar Compression
	I/O Resource Management
	Network Resource Management
	In-Memory Fault Tolerance
	Exafusion Direct-to-Wire Protocol

# Fastest Cloud In Memory, Smart Scan and HCC

## Unique: Smart Scan (SQL Offload)

- Data-intensive processing\* runs in Exadata Storage, bypassing network bottlenecks and freeing up DB CPUs

## Unique: Tiered Flash Cache

- Active data is automatically cached on PCI NVMe Flash, inactive data on low cost, high-capacity disks

## Unique: Storage Indexes

- Eliminates I/O not relevant to a particular query

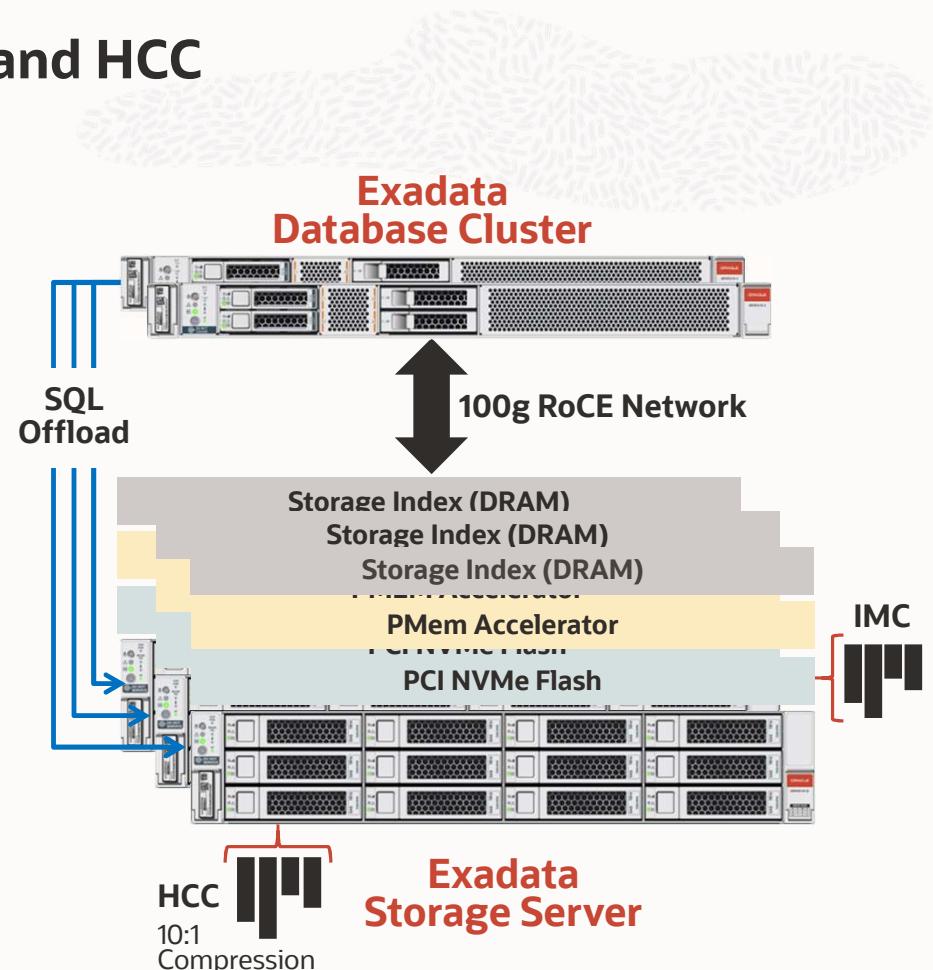
## Unique: Hybrid Columnar Compression (HCC)

- Compressed, columnar format in storage, saving space, reducing I/O, speeding analytic queries

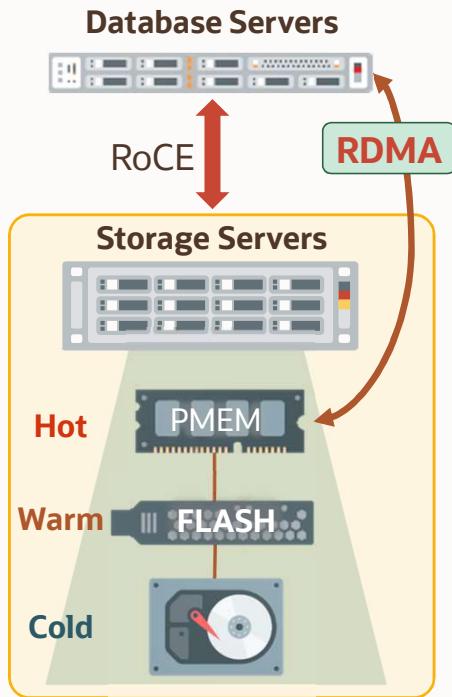
## Unique: In-Memory Columnar (IMC)

- Extends In-Memory database performance to higher capacity Flash memory in storage

\*Includes long-running SQL queries, backups, decryption, aggregation, data mining



# Exadata Architecture – Scale out design with persistent memory



## Scale-out system architecture and software

- Oracle RAC across multiple database servers for scaling and high availability
- Smart Scan offload of SQL to parallel intelligent storage servers
- Speeds up queries and scans with local access to data

## Database uses RDMA instead of I/O to read PMEM in Smart Storage

- Bypasses network and I/O software, interrupts, context switches
- Hottest data transparently managed in PMEM
- Automatic redundancy across multiple storage servers
- Speeds up both database reads and commits

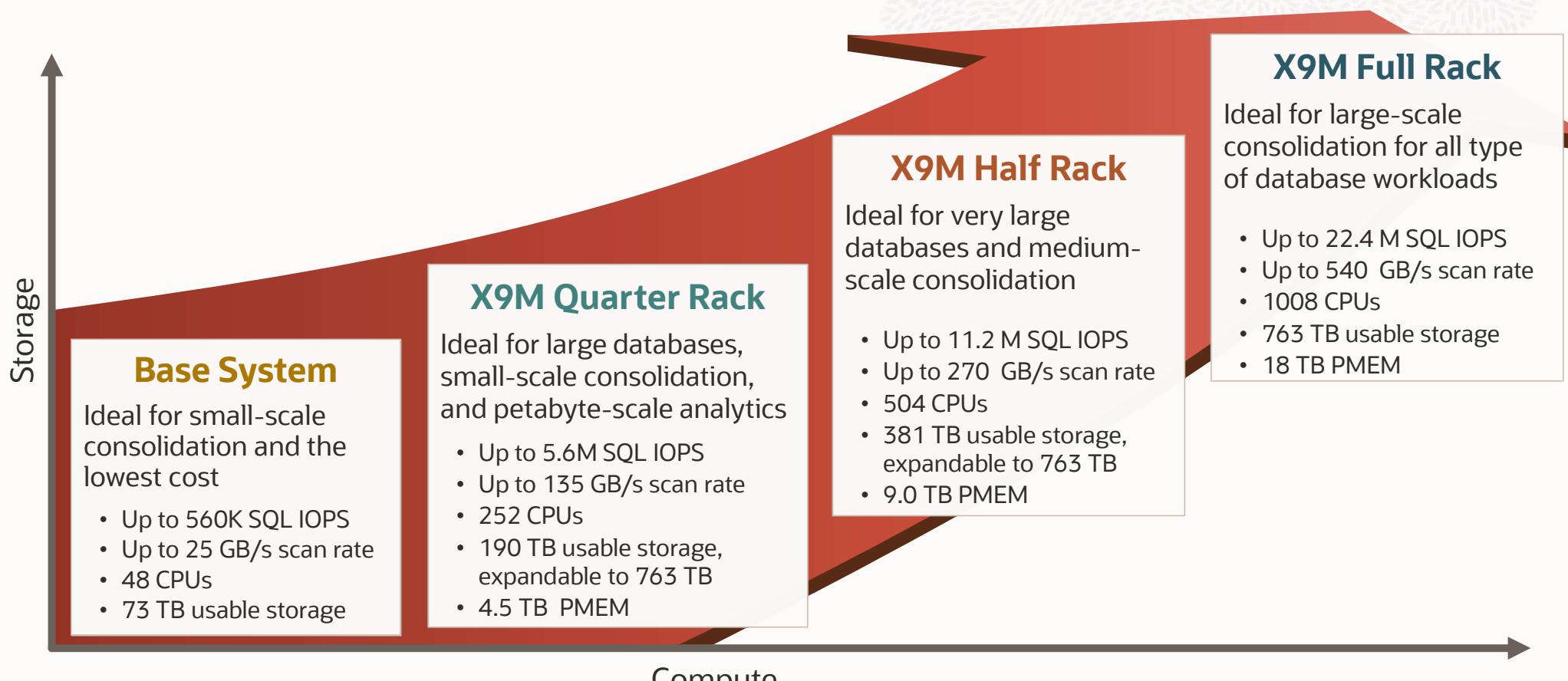
## Results - 19µs IO latency from Database to PMEM in Storage

- 10X faster than flash for OLTP

World's Only Shared Persistent Memory Optimized for Database

# Exadata Cloud X9M Flexible Shapes

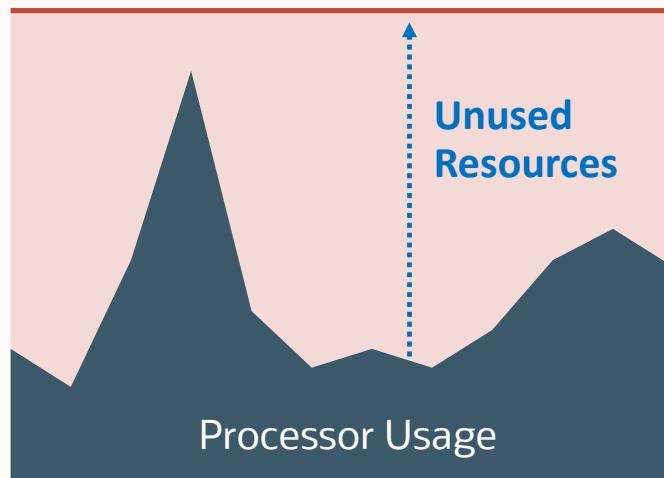
Available in high-performance, cost-effective shapes to match enterprise needs



# Online, Elastic Scaling with Exadata Cloud@Customer

Pay Only for What You Use

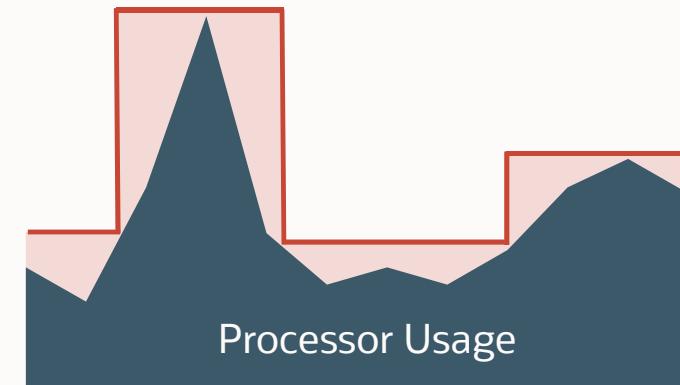
Total Processor Resources



## On-Premises – Static

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

Manually Scaled vCPUs



## Exadata Cloud – Elastic

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



# 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: XBMDB1

Database version: 19c

PDB name: Optional

Database Home:  
 Select an existing Database Home    Create a new Database Home  
This DB system has no Database Homes for your selected database version. A new Database Home will be created.

Database Home display name: XBMDBHome1

Create administrator credentials

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

Scale VM Cluster

Configure the VM cluster

Specify OCPU count per virtual machine: 10

Requested OCPU count for the Exadata VM cluster: 40

Current allocation: 10. Minimum allocation: 0. Available OCPUs (including the current allocation): 30.

Current Exadata storage: 150.528 TB

[Update](#) [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: Maximum Performance

Transport type: Read-Only  
Sync

Select Peer VM Cluster

Peer region: Read-Only  
US East (Ashburn)



# Exadata Cloud Command Line Interface

What's a Exadata Cloud Dbaas tool?



```
[oracle@exacc6-vm01c02 ~]$ dbaascli database status --dbname demobkp
DBAAS CLI version 22.2.1.1.0
Executing command database status
Database Status:
Instance demobkp1 is running on node exacc6-vm01c02. Instance status: Open.
Instance demobkp2 is not running on node exacc6-vm02c02

Database name: demobkp
Oracle Database 19c EE Extreme Perf Release 19.0.0.0.0 - Production
```

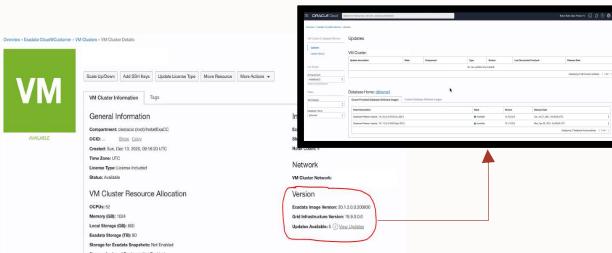
# Exadata Cloud Pathing

Pathing dom0, domU, Tooling, Grid and Oracle home, how and how to do

## DOMU - CUSTOMER RESPONSIBILITY

Maintaining a secure Exadata Service instance in the best working order requires you to perform the following tasks regularly:

- Patching Grid Infrastructure.
- Patching Database software.
- Patching Exadata Software Image (SO).
- Patching Tooling (dbaaScli).
- Patching other components installed on DomU.



## DOM0 - ORACLE RESPONSIBILITY

Oracle manages quarterly infrastructure maintenance updates of all other infrastructure components:

- Patching Database Servers (Dom0).
- Patching Storage servers.
- Patching Network switches.
- Patching Control Planes.

Quarterly maintenance updates may require a restart of the customer-managed guest virtual servers.

### Quarter 1

- JANUARY
- FEBRUARY
- MARCH

### Quarter 2

- APRIL
- MAY
- JUNE

### Quarter 3

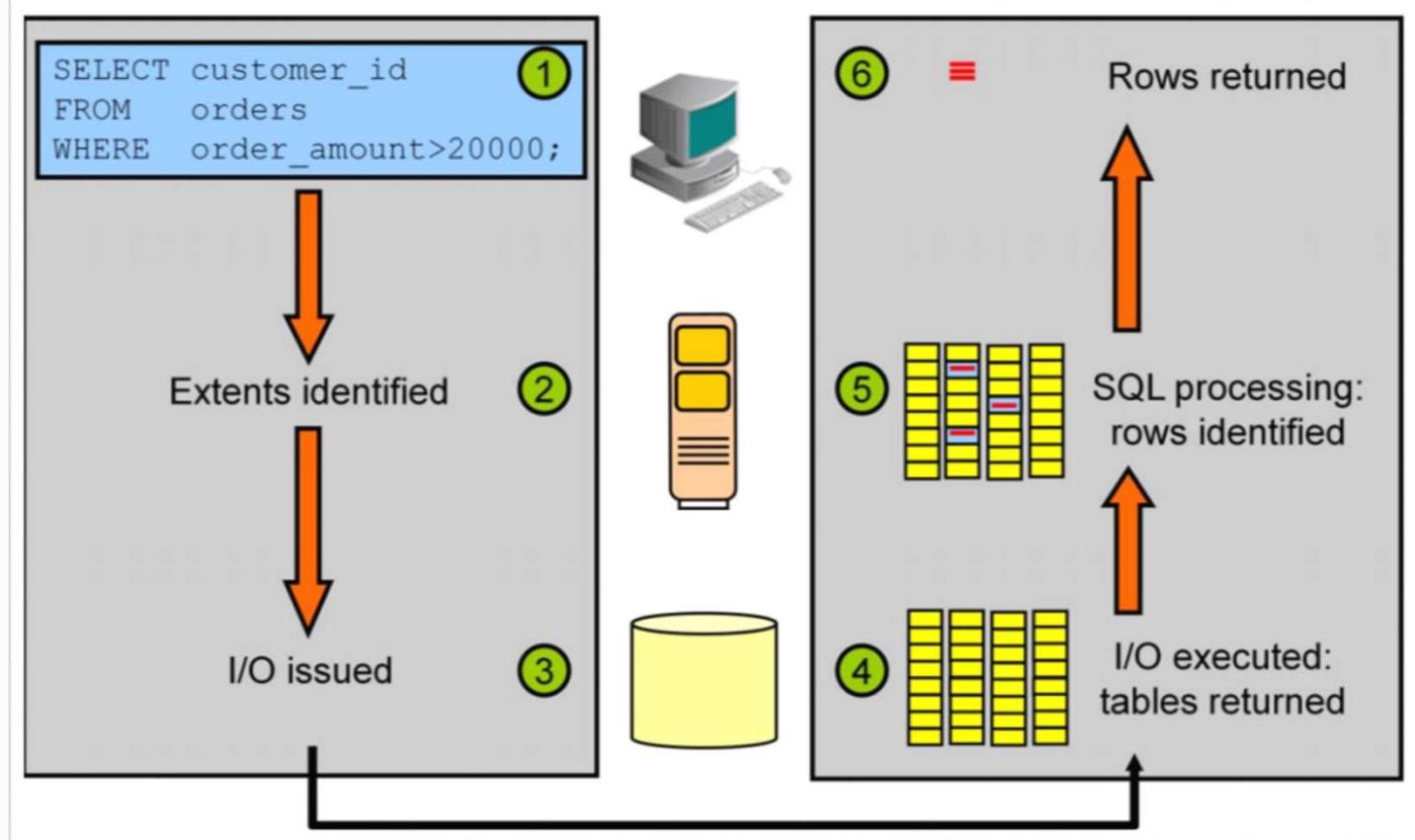
- JULY
- AUGUST
- SEPTEMBER

### Quarter 4

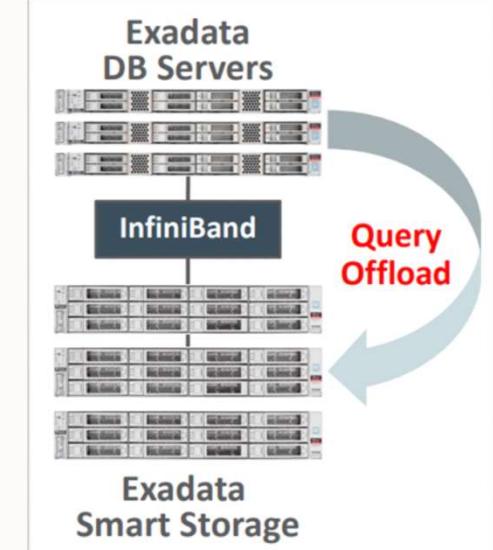
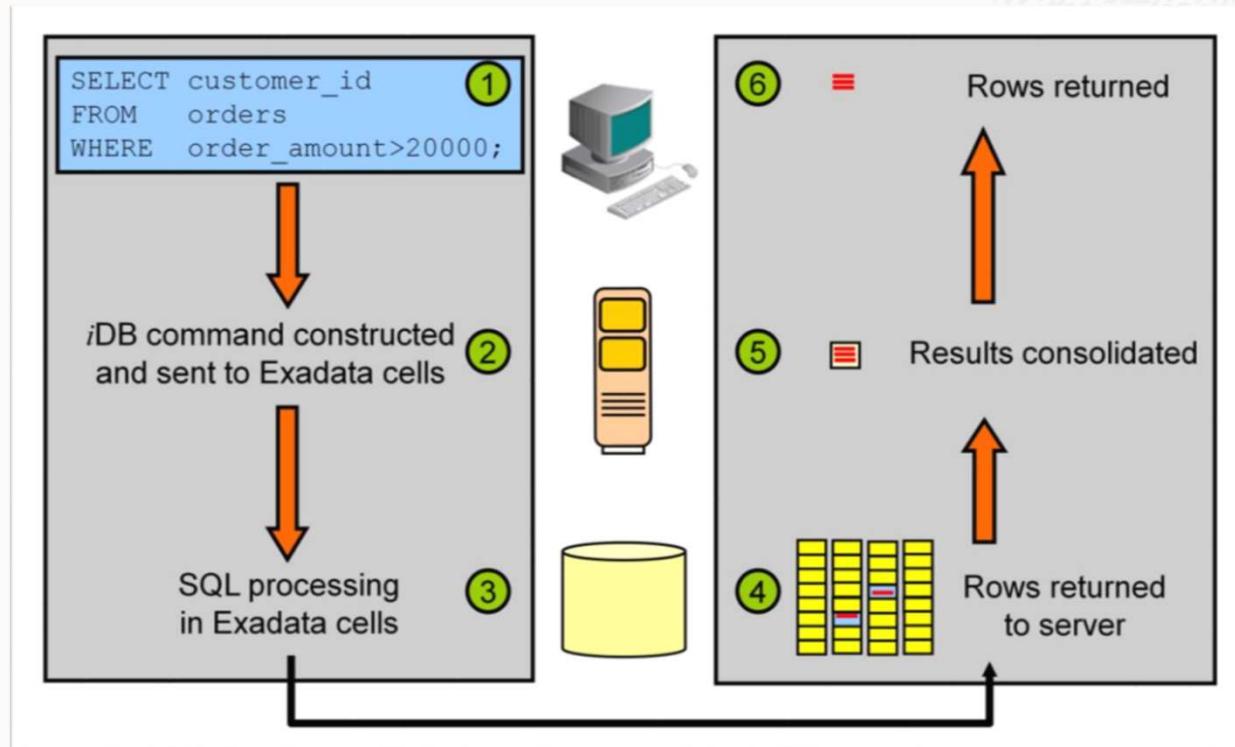
- OCTOBER
- NOVEMBER
- DECEMBER

# Exadata Cloud Smart Scan

## Oracle Database | No Exadata System



## Exadata Cloud a Smart Scan | Off Load Querying



# Query Execution plan | Traditional Database Vs Exadata System

```
SQL> select * from table(dbms_xplan.display);
PLAN_TABLE_OUTPUT
-----
Plan hash value: 970577077

| Id  | Operation          | Name      | Rows  | Bytes | Cost (%CPU)| Time     |
|---|---|---|---|---|---|---|
| 0  | SELECT STATEMENT   |           | 902   | 23452 |    10 (0) | 00:00:01 |
| 1  | TABLE ACCESS BY INDEX ROWID BATCHED | CUSTOMERS | 902   | 23452 |    10 (0) | 00:00:01 |
|* 2  | INDEX RANGE SCAN    | CUSTOMERS_ID_PK | 902   |       |       6 (0) | 00:00:01 |

Predicate Information (identified by operation id):
---
```



```
PLAN_TABLE_OUTPUT
-----
Plan hash value: 2008213504

| Id  | Operation          | Name      | Rows  | Bytes | Cost (%CPU)| Time     |
|---|---|---|---|---|---|---|
| 0  | SELECT STATEMENT   |           | 902   | 23452 | 306K (1) | 00:00:12 |
|* 1  | TABLE ACCESS STORAGE FULL | CUSTOMERS | 902   | 23452 | 306K (1) | 00:00:12 |

Predicate Information (identified by operation id):
-----
1 - storage("ID" <=1000 AND "ID">>=100)
      filter("ID" <=1000 AND "ID">>=100)
```

# Exadata Smart Scan Why it's not working?

- Scan performed on a partitioned table
- A Scan is performed on an index-organized table
- Fast full scan is performed on a compressed table
- Full scan is performed on a reverse key index
- The table has row-level dependency tracking enabled.
- The optimizer wants the scan to return rows in a non-OD order
- A character LONG column is being selected or compared
- A select option flashback query is being evaluated
- A query that joins multiple tables is referenced

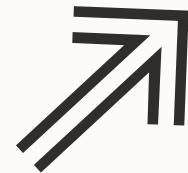
# Backup Your Cloud Database

Continuous protection of Oracle Database in OCI



## Ransomware is a major concern

Contar com um plano sólido de segurança é fundamental



**62%**

More ransomware attacks in the US in 2021 to more than **3,500** on an annual basis  
*(source: US Treasury)*



**37%**

Das corporações Globais foram atacadas pelo ransomware em 2022  
*(source: IDC)*



**\$1.85M**

Average total cost of remediating a ransomware attack  
*(source: Sophos)*



**180%**

More annualized losses from ransomware attacks in the US during 2021 to **\$1.18B** on an annual basis  
*(source: US Treasury)*

**One minute of data loss due to ransomware attack could impact 100s to 1000s of business transactions in enterprise databases**

# Data protection goals in the cloud



## Minimize ransomware risk

- Reduce data loss exposure and downtime after an attack
- Protect against backup deletion or alteration during an attack
- Secure backups against unauthorized access and information disclosure



## Optimize operations

- Get rid of time-consuming and resource-intensive weekly full backups on production database services
- Eliminate backup validation resource consumption on production database services
- Simplify multistep recovery processes and make recovery times predictable
- Minimize backup-driven costs



## Reduce administration

- Consistently apply backup policies across an organization
- Understand backup health and recoverability
- Plan for database backup space utilization

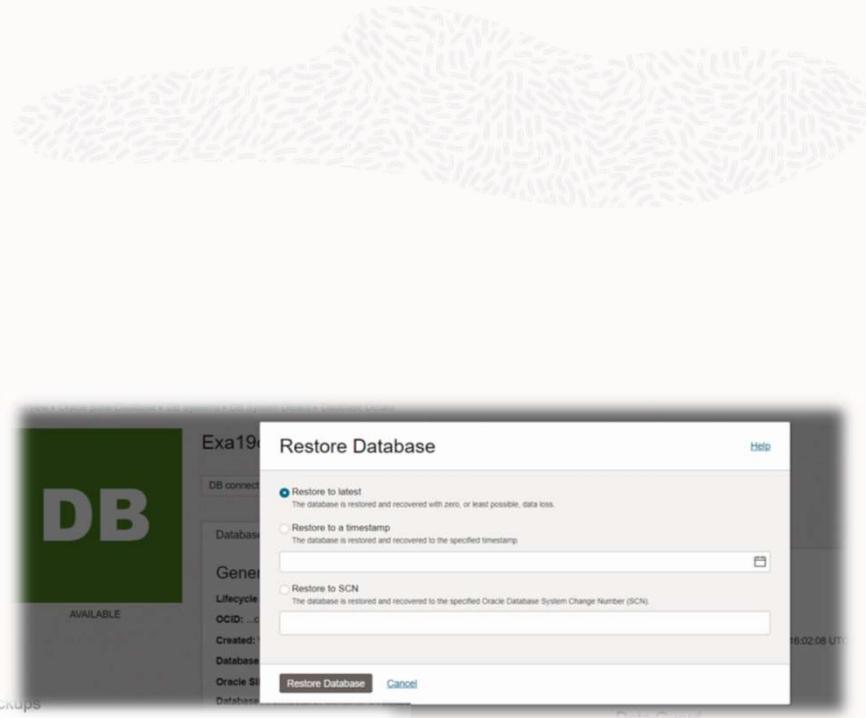
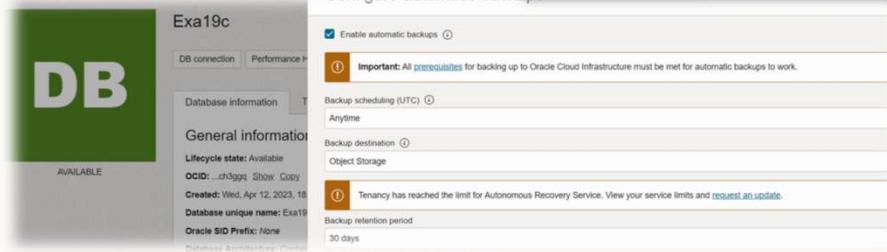
# Traditional OCI | Backup and Restore

## Manage backup and restore feature for VM/BM DB System

- Backup stored in Object or Local storage
- DB System in private subnets can leverage Service Gateway
- Start With 2 cores and Scale Up/Down OCPU's based on your requirement

### Backup Options

- It is not possible to create a non-CDB via the console - use dbcli

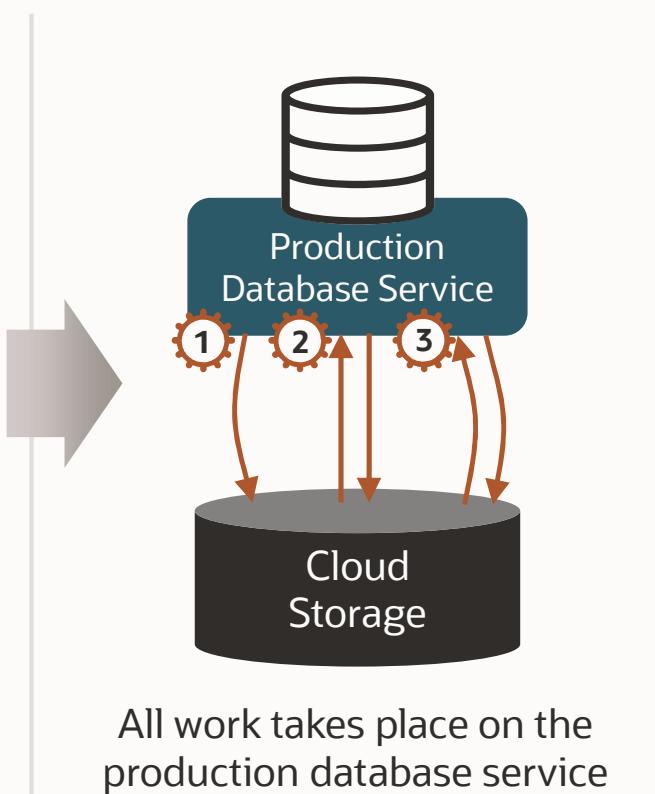


## Recovery Service offloads backup validation

All backups are checked for recoverability, reducing database service overhead

### Traditional cloud backup

1. Backup (full or incremental) is created on the production database service and stored in object storage
2. Production service reads the backup from object store, validates it, and fixes issues **doubling the impact on production database services**
3. Periodic revalidation **increases production database consumption**
4. Resulting in:
  - a. Lower production performance if resource constrained, or
  - b. Higher consumption costs if resources are unconstrained, or
  - c. Decision to not validate backups or revalidate them, increasing risk



# Oracle Database Zero Data Loss Autonomous Recovery Service

A fully managed, automated service for continuously protecting Oracle databases in OCI

## Ransomware resiliency

- Automatic and mandatory encryption to help prevent data theft
- Safeguards backups with enforced 14-day retention
- Optimizes backups in the background for fast recovery with zero data loss

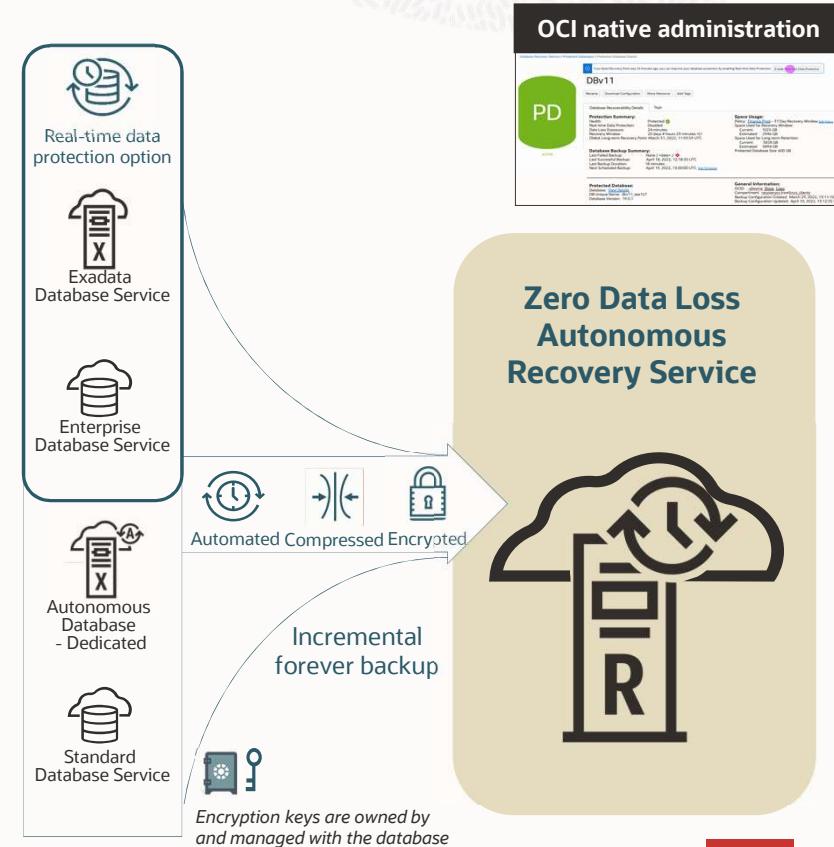
## Operational efficiency

- No more weekly full backups – eliminates production database overhead
- Shorter backup windows with incremental forever strategy
- Zero-impact database recovery validation for every backup

## Cloud simplicity

- Quickly configure database protection at scale with zero data loss
- Control costs with database-specific backup consumption metrics
- Gain deep data protection insights with granular recovery health dashboard

## Using proven Recovery Appliance technology

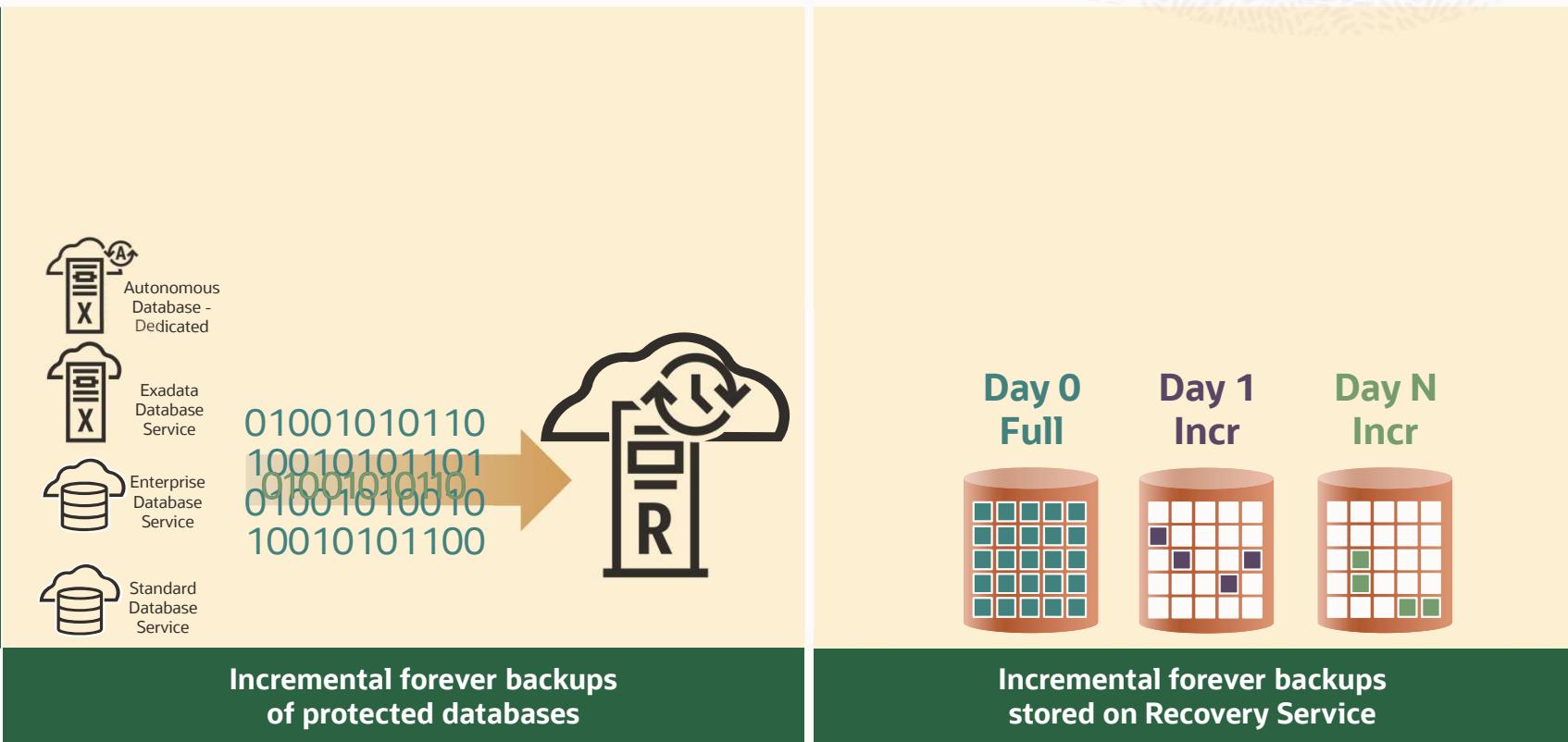


## Recovery Service eliminates weekly full backups

Incremental-forever backups reduce backup overhead on production database services

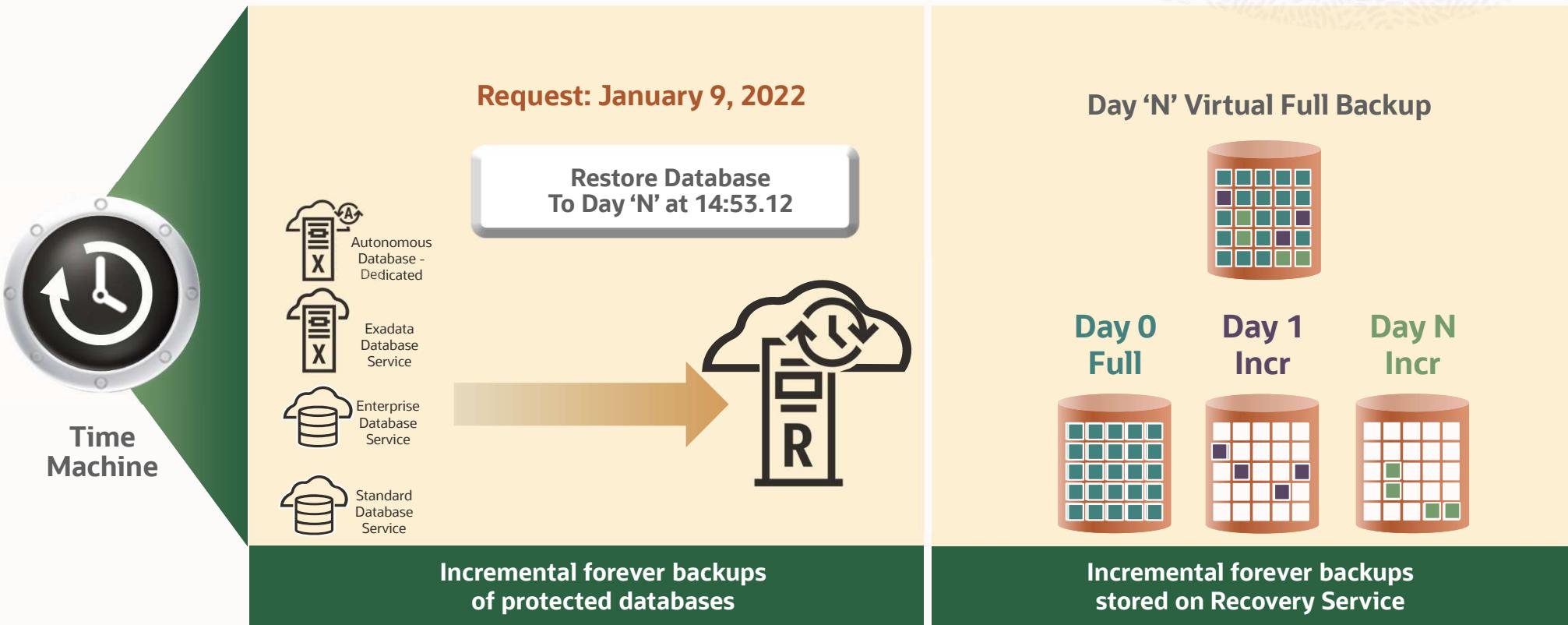


Time  
Machine



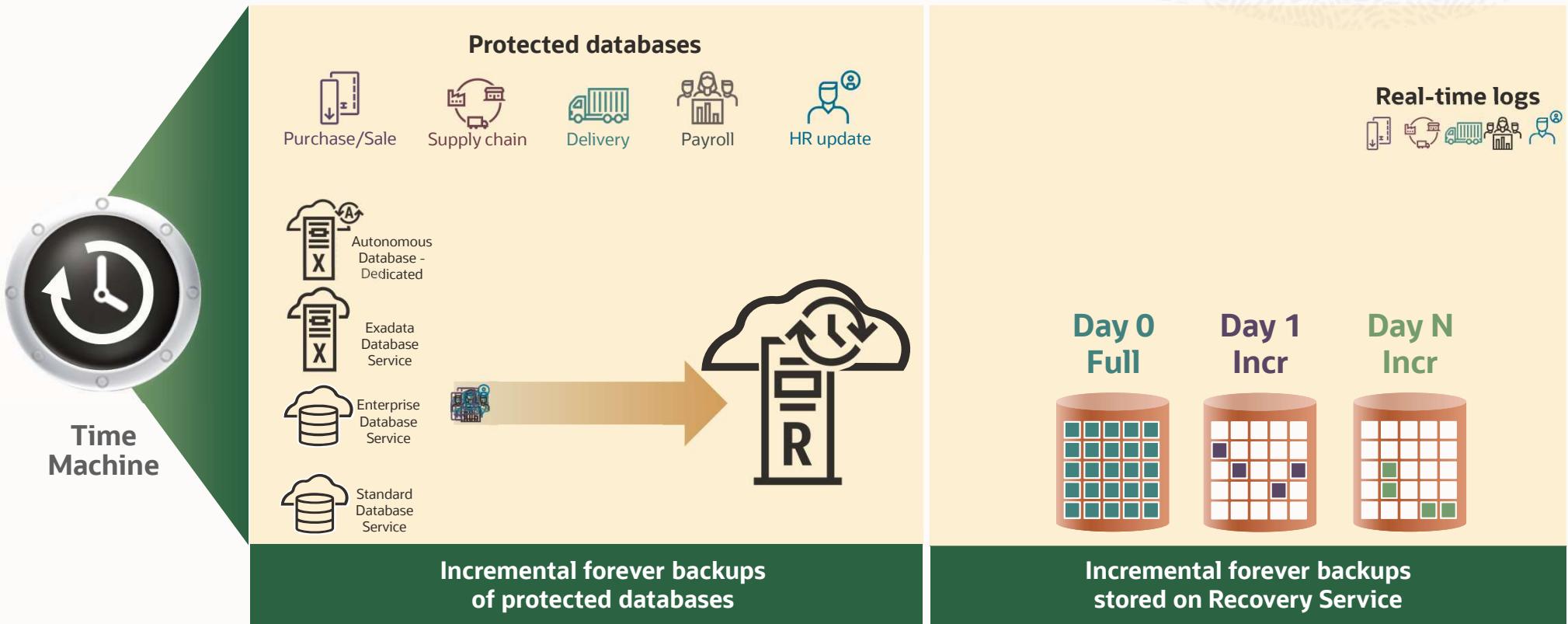
# Recovery Service simplifies database restores

Creation of virtual full backups eliminates multiple incremental restore & apply cycles



# Recovery Service continuously protects Oracle databases

Real-time protection of database changes increases resiliency with point-in-time recovery

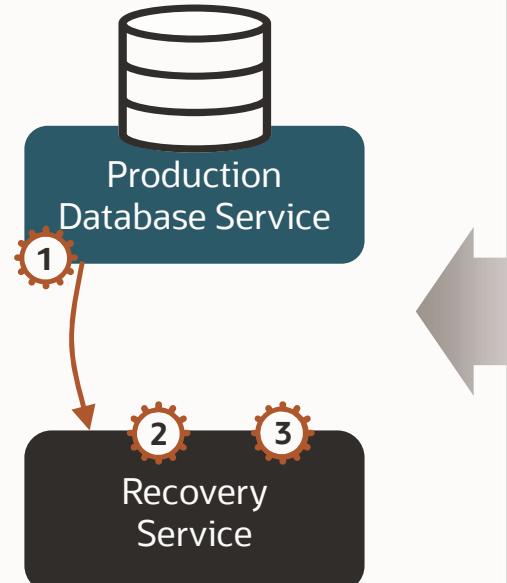


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Most work takes place on the Recovery Service

## Recovery Service backup

1. Incremental forever backup is created on the production database service and stored in the Recovery Service
2. The Recovery Service uses **internal Oracle Database knowledge** to check examine and fix backups when ingested, with **no impact on production databases**
3. The Recovery Service periodically revalidates backups with **no production database consumption**
4. Resulting in:
  - a. **Minimal backup impact on production databases**
  - b. **No additional production database service costs**
  - c. **Higher recoverability & lower risk**



# Recovery Service is easy to set up and use

Protect Oracle databases with less than 5 clicks in the OCI console

A fully managed OCI service with a simple UI

1. Enable automatic backups
2. Schedule daily incremental backups to meet your business schedule
3. Select Autonomous Recovery Service
4. Select protection window of 14 to 95 days
5. Enable real-time protection

## Configure automatic backups

[Help](#)

Enable automatic backups [\(i\)](#)



Important: For automatic backups to function, all [prerequisites](#) must be met.

Backup scheduling (UTC) [\(i\)](#)

2:00AM - 4:00AM

Backup destination [\(i\)](#)

Autonomous Recovery Service

Protection policy in **ZDLRA** [\(i\)](#) ([Change Compartment](#))

Bronze (14-days recovery window)

Enable real-time data protection [\(i\)](#)

Deletion options after database termination [\(i\)](#)

Retain backups according to the protection policy retention period

Retain backups for 72 hours, then delete

[Save changes](#) [Cancel](#)



# Recovery Service protects against unauthorized access

Built-in security and resiliency help safeguard mission-critical data

## Encryption is mandatory

- Non-encrypted databases are rejected
- Keys are never stored in the Recovery Service

## Access and management controls

- No direct user access to storage – backup only
- Access granted per protected database
- 14-day minimum retention enables recovery from human error or malicious internal actors

## Resilient operations

- Fault-tolerant across all infrastructure components
- Highly available across Availability Domains and Fault Domain
- Load balanced within a region

The screenshot shows the Oracle Cloud interface for managing protected databases. At the top, there's a navigation bar with the Oracle Cloud logo, 'Cloud Classic >', a search bar, and account information ('US East (Ashburn)'). Below the navigation is a breadcrumb trail: 'Database Backups > Protected Databases > Protected database details'. The main content area features a large green circular icon with 'PD' and 'ACTIVE' text. To the right of the icon, the database name 'FINANCE' is displayed. The page is divided into several sections: 'Protected database information' (selected tab), 'Tags', 'Protection summary' (Health: Protected, Real-time data protection: Disabled, Data loss exposure: 0 seconds, Protection policy: Bronze, 14-day recovery window), 'Space usage' (Current: 16,231.27 GB, Projected for policy: 16,216.83 GB, Protected database size: 5,790,931 GB), 'Database backup summary' (Last failed backup: —, Last completed backup: Mon, Oct 10, 2022, 02:56:02 UTC, Last backup duration: 4 m 53 s), 'Protected database' (Database details: FINANCE), and 'General information' (OCID: ...4w7dxa, Show, Copy). A small globe icon is located in the bottom right corner of the page.



# Recovery Service provides insights into backup health and operations

Built-in dashboards and tools simplify reporting and planning

Continuous monitoring of potential business risks

- Data loss exposure
- Recovery window

Critical data for operational planning

- Capacity usage
- Protection policy

## Protected databases in ZDLRA Compartment

Protected databases offer an RMAN integrated 'incremental-forever' backup strategy to transfer Oracle Database backups to Oracle Cloud. Built to reduce network consumption and storage utilization, protected databases enable real-time data protection, backup validation and policy driven backup administration for all databases. [Learn more.](#)

Name	State	Health	Source database	Real-time data protection	Data loss exposure	Current recovery window	Recovery window space used	Protection policy	Database size	⋮
FINANCE	● Active	Protected <i>i</i>	FINANCE	Enabled	0	7 d 7 h 54 m	8,121.12 GB	Bronze	5,778 GB	⋮
SALES	● Active	Protected <i>i</i>	SALES	Disabled	29 m 47 s	7 d 8 h 12 m	9,022.26 GB	Silver	3,944 GB	⋮
HRMS	● Active	Protected <i>i</i>	HRMS	Disabled	29 m 49 s	7 d 8 h 15 m	5,427.58 GB	Bronze	3,909 GB	⋮

Real-time protection and data loss exposure

Recovery window and capacity used

Protection policy



# Recovery Service integrates with OCI observability and management

## Comprehensive visibility across the full cloud stack

Integration with OCI Metrics Explorer provides common access to critical information

The screenshot shows the Oracle Cloud Metrics Explorer interface. On the left, a sidebar menu includes 'Monitoring', 'Service Metrics' (which is selected), 'Metrics Explorer', 'Alarm Status', 'Alarm Definitions', and 'Health Checks'. The main area is titled 'Service Metrics' and displays two line charts. The first chart, 'Space used for recovery window', shows usage over time from Sep 18 to Oct 09. The second chart, 'Protected Database Size', shows database size over the same period. Both charts have 'Max' statistic selected. The top navigation bar includes the Oracle Cloud logo, 'Cloud Classic >', a search bar, and account information for 'US East (Ashburn)'.

Alarms and notifications are created within OCI for consistent monitoring and management

The screenshot shows the 'Create Alarm' interface in Oracle Cloud. On the left, a sidebar menu includes 'Monitoring', 'Service Metrics' (selected), 'Metrics Explorer', 'Alarm Status', 'Alarm Definitions' (which is selected), and 'Health Checks'. The main area is titled 'Create Alarm' and has two sections: 'Define alarm' and 'Tags (optional)'. In the 'Define alarm' section, the 'Alarm name' is 'Production Data Loss Exposure Alarm' and the 'Alarm severity' is 'Critical'. The 'Alarm body' field contains a placeholder message about high CPU usage. In the 'Tags (optional)' section, there is a table for adding tags, with one row shown: 'Tag namespace' (None), 'Tag key' (Enter a tag key first), and 'Value' (Enter a tag value first). Below these sections is a 'Metric description' section with fields for 'Compartment' (ZDLRA), 'Metric namespace' (oci\_recovery\_service), 'Resource group' (No resource group), 'Metric name' (DataLossExposure), 'Interval' (1h), and 'Statistic' (Mean).



# OCI Database Backup | Take Care before delete your Database

## Terminate Database

[Help](#)

Are you sure you want to terminate the peer database? Once it's terminated, the associated primary database will no longer be in high availability mode. Terminating the database permanently deletes it from its DB System and removes all automatic backups. You cannot recover a terminated database.

Are you sure you want to terminate database **DB12**? **Terminating the database permanently deletes it from its DB System and removes all automatic backups.** You cannot recover a terminated database.

Do you want to back up the database before terminating it?

Yes, back up the database

To confirm termination, enter the name of the database:

[Terminate Database](#)

[Cancel](#)



# Cloud Backup | Oracle Database Backup Cloud Service page

Help Center Database Backup Service Search

[Get Started](#)

Tasks

Resources

Videos

Books

SOA API

Home / Cloud / Cloud Platform / Database Backup Service

## Oracle Database Backup Cloud Service

### Get Started

Use Oracle Database Backup Cloud Service to store Oracle Database backups in the cloud.

Learn About Database Backup Cloud Service

Watch an overview video

Related Video

Learn about the service

Learn about the backup module

See the FAQ

Get a Subscription

Manage and monitor services

Set up cloud users, administrators, and SFTP users

See important details about subscriptions

Get Started with Database Backup Cloud Service

Understand the backup workflow

Download and install the backup module

Perform configuration and backup tasks

<https://docs.oracle.com/en/cloud/paas/db-backup-cloud>



# Oracle NoSQL Cloud Service

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# Oracle NoSQL Database Services on OCI Console

Easy provisioning and Management

Databases

**MySQL**

- DB Systems
- Backups
- Channels
- Configurations

**Oracle NoSQL Database**

- Tables

**OpenSearch**

- Clusters
- Backups

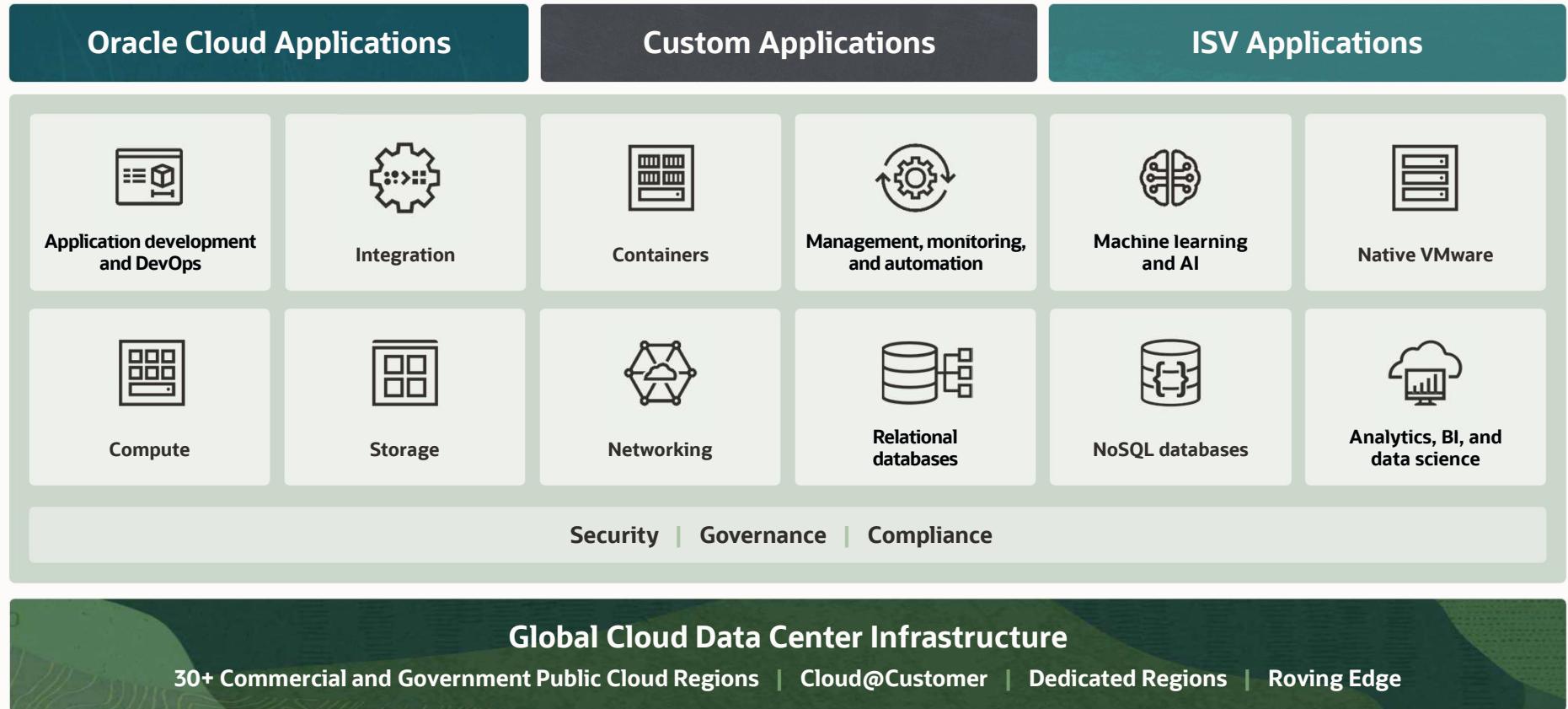
**MySQL HeatWave on AWS**

- Administration

<https://docs.oracle.com/en/cloud/paas/nosql-cloud>

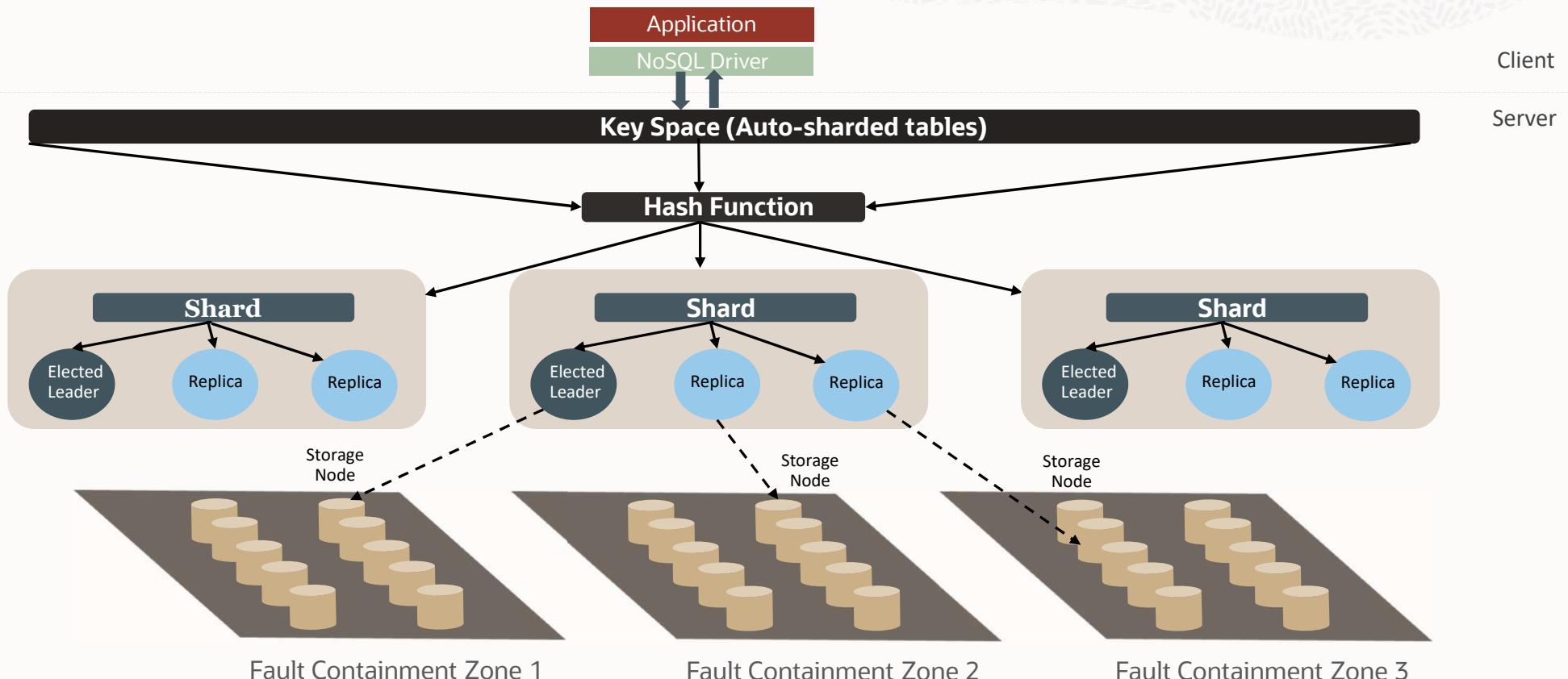


# OCI: A complete cloud infrastructure platform



# Oracle NoSQL Database Architecture Overview

A distributed, shared nothing key/value data store architected for HA



# Oracle NoSQL Database Cloud Service

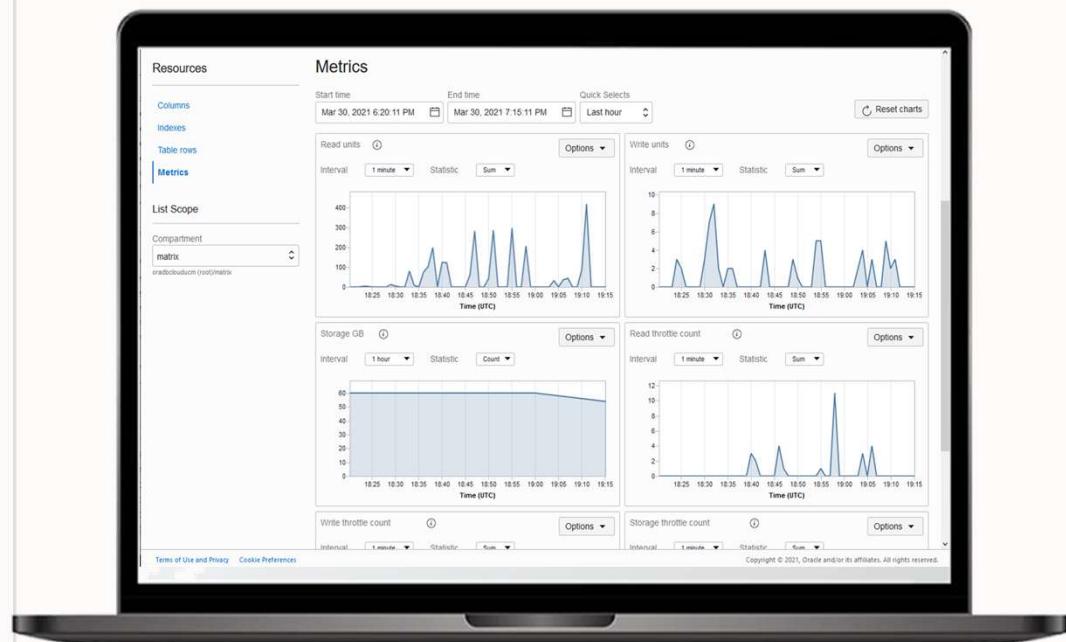
Built for extreme, dynamic workloads of today's modern applications

## Fast, Flexible NoSQL Database Service at any scale

- Fully managed, serverless NoSQL database **table service**
- Single digit millisecond and **predictable** latency at any scale
- Linear throughput scaling for **extreme** workloads
- Multi-model support (document, fixed schema, key/value)
- Built-in **high availability** for business continuity
- Fully **ACID compliant** and **adjustable** read consistency
- Serverless computing through Oracle Functions
- Available in 30 OCI commercial regions worldwide (Mar 2022)

## Differentiated Use Cases

- Request level granularity for extreme workloads, and handles **spikes** and **drops optimally**
- Fast, constant, high-volume workloads requiring **predictable low latency** for **highly responsive** applications
- Designed for business applications requiring **scale**, **performance**, and **high availability** with flexible consistency



# Oracle NoSQL Database Cloud Service - Metrics

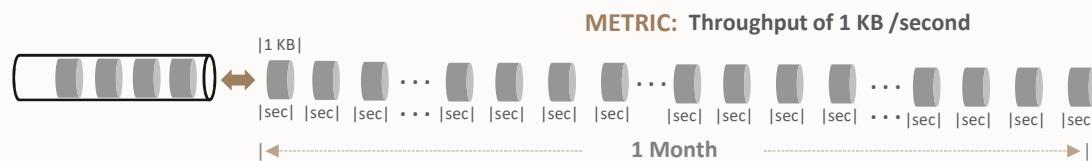
## Throughput provisioning

### 1 Write Unit

- The throughput of up to 1 kilobyte (KB) of data per second for a write operation over a one-month period
- Approximately 2.67 million writes per month

### 1 Read Unit

- The throughput of up to 1 kilobyte (KB) of data per second for an eventually consistent read operation
- Approximately 2.67 million eventually consistent reads per month
- 2 Read units are needed for an absolute consistent read



Period of a month  
 $=3600 \text{ KB/Hr} * 744 \text{ Hr}$   
 $=2.67 \text{ million (writes/reads) KBs}$



# Oracle NoSQL Database Cloud Service – Capacity

Provisioned capacity vs. on-demand capacity

## Provisioned Capacity

- Must determine read/write units in advance
- Adjustments done via API or console
- Increasing unlimited
- Decreases limited to 4 per day
- Pay for what you provision
- Deep understanding of workload needed

## On-Demand Capacity

- Automatic scaling
- No rate limiting in your application
- No workload characterization
- Simple to use
- Pay for what consumed



# Oracle NoSQL Database Cloud Service – Provisioned Capacity

## Provisioned throughput

- Provision reads/sec, writes/sec, GB storage at table creation time
  - Dynamically increase
  - Dynamically decrease

2000 read units | 100 write units | 500 GB Storage

**JAVA code sample:**

```
TableRequest tableRequest = new TableRequest()
    .setStatement("create table if not exists foo (id integer,
value JSON)")
    .setTableLimits(new TableLimits(2000, 100, 500))
    .setTimeout(1000);
TableResult res = NoSQLHandle.tableRequest(tableRequest);
```

Modify the table lowering the read units to 1000

```
tableRequest.setTableLimits(new TableLimits(1000, 100, 500))
```

Note: Every TableRequest is a DDL call to the NoSQL store and may be performed 4 times within a minute



# Oracle NoSQL Database Cloud Service – On-Demand Capacity

## Auto-scaling throughput

```
Python Code Sample

request=TableRequest().set_statement(statement).set_table_limits(
    TableLimits(0,0,500,TableLimits.CAPACITY_MODE.ON_DEMAND))

handle.do_table_request(request, 50000, 3000)
```



# Pay-Per Use

## Provisioned

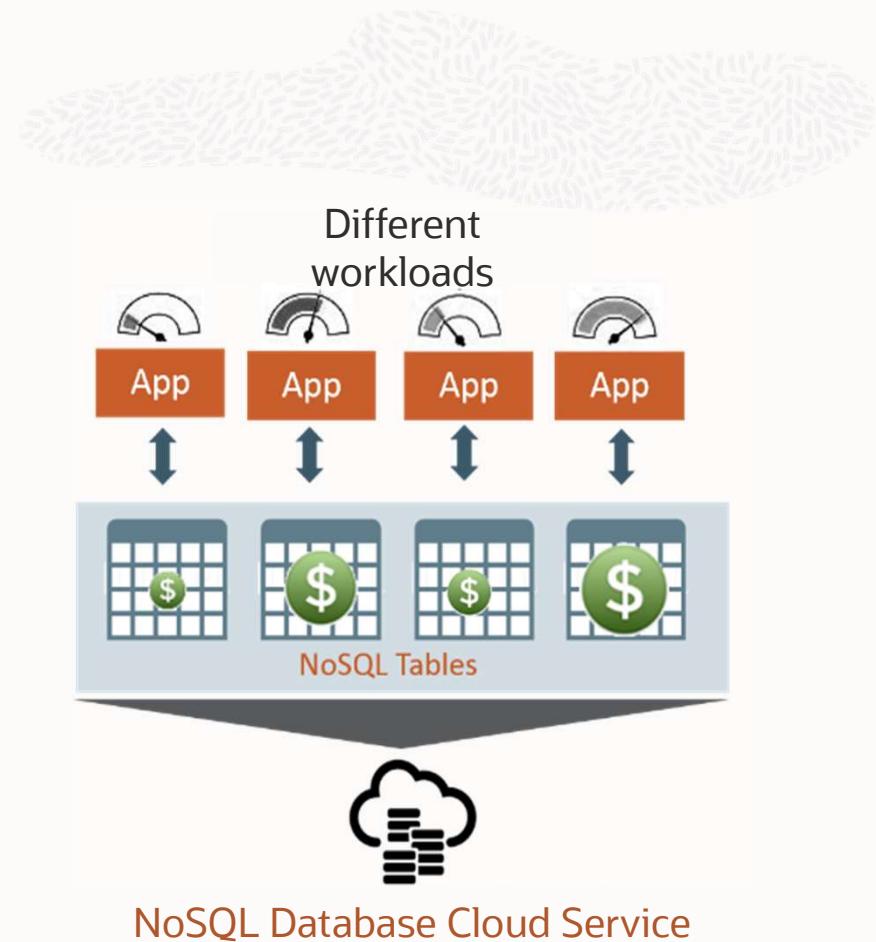
Pay per table capacity provisioned

- Different table with different capacity to serve different workloads
- Pay per throughput and storage capacity provisioned - Table level read units, write units, storage in GB

## On-demand

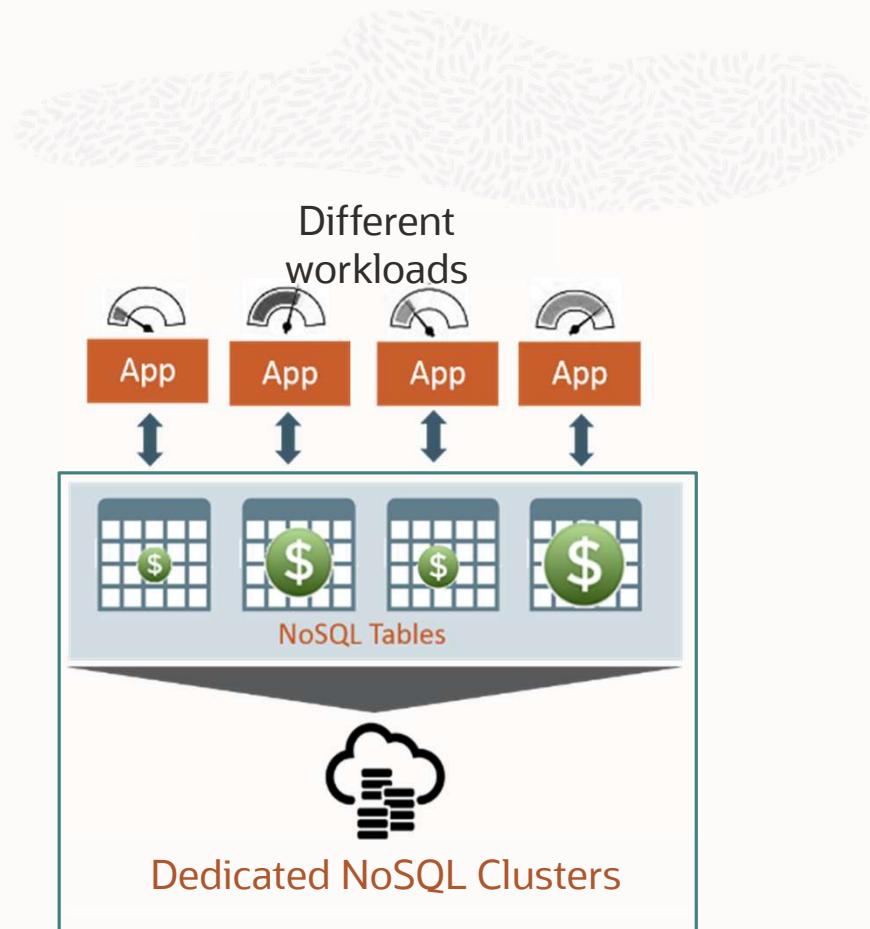
Pay based on the read/write units consumed

- Pay per throughput used - Table level read units, write units
- Pay no throughput costs when idle
- Pay for storage capacity provisioned – storage in GB
- Ideal for unpredictable, seldom used, or new workloads



# Private Hosted Dedicated Environment

- **Dedicated**
  - Supports extremely high throughput needs of demanding applications with maximum throughput of:
    - 420,000 read units (420 MB of reads per second)
    - 280,000 write units (280 MB of writes per second)
  - Fully managed NoSQL cluster environment that is dedicated to your tenancy
  - Isolated data at rest
    - Dedicated direct attached storage of 17.5 TB of storage capacity per month
    - Low latency, reduced blast radius of failure with HA
    - No other tenants can access
- **Private**
  - Access your hosted environment via a private endpoint
  - Whitelisted tenancy access
  - No other tenant can get routed to your cluster



# Studding and costs useful tools

Very good tools to test and

# Oracle Cloud Cost Estimator

The screenshot shows the Oracle Cloud Cost Estimator interface. At the top, there's a navigation bar with "My Estimate" (with a pencil icon), a link to "Configure and estimate costs for OCI services (Learn more)", "Start for Free", "USD - US Dollar" (with a dropdown arrow), and "Estimated Monthly Cost \$0.00" (with a refresh icon). Below the navigation bar, there are links for "Services", "Compute shapes", "Reference architectures", "My favorites", and "Advanced Search". A search bar with "Select category All Categories" and a "Search" button is also present. The main content area is titled "Most Popular Services" and includes tabs for "Serviços", "Formas de computação", "Arquiteturas de referência", "Meus favoritos", and "Pesquisa Avançada". Below these tabs, there's another search bar with "Selecionar categoria All Categories" and a "Search" button. The "Most Popular Services" section displays four cards: "Compute VM" (described as a multitenant and fully scalable virtual environment for running applications with unparalleled performance, control, and resilience), "Base Database Service - Virtual Machine" (described as allowing users to create and manage full featured Oracle Database systems in the cloud, provisioned on virtual machines with block storage to provide high performance and cost-efficient pricing), "Armazenamento de Objetos" (described as Object Storage, which allows clients to store any type of data in its native format, ideal for modern applications requiring scale and flexibility, used for consolidating multiple data sources for analysis, backup, or archiving), and "Armazenamento de Volumes em Blocos" (described as Oracle Cloud Block Volume, providing block storage with high performance and durability, designed to work with a variety of virtual machines and bare metal instances, offering persistent storage that can be scaled). Each card has a "Carregar" button at the bottom.

<https://www.oracle.com/cloud/costestimator.html>



# Oracle Live Labs

Easy to deploy our oracle solution and features

The screenshot shows the Oracle LiveLabs homepage. At the top, there's a navigation bar with a magnifying glass icon, a search bar containing "Search Workshops and Sprints...", and a "Event Code" button with a right-pointing arrow. Below the header, a large banner on the right side features the "ORACLE Developer Resource Center" logo, a call-to-action button "Explore Developer Resources", and abstract graphic elements like a diagonal line and brackets. On the left, the main content area has a title "Welcome to LiveLabs" and a paragraph about the service. It also includes a section for "Experience Oracle's best technology, live!" with five icons representing different roles: Developer, DBA, Data Scientist, DevOps, and Low Code Developer. At the bottom, there's a "Featured Workshops" section with a "View All Workshops" button.

LiveLabs

Search Workshops and Sprints...

Event Code →

## Welcome to LiveLabs

Oracle LiveLabs gives you access to Oracle's tools and technologies to run a wide variety of labs and workshops.

Experience Oracle's best technology, live!

Developer

DBA

Data Scientist

DevOps

Low Code Developer

### Featured Workshops

View All Workshops

<https://apexapps.oracle.com/pls/apex/r/dbpm/livelabs/home>



# Oracle OCI Free Courses and Certifications

Easy to deploy our oracle solution and features

The screenshot shows the Oracle University website interface. At the top, there is a navigation bar with links for Oracle University, Training, Certification, Solutions, Buy, and My Subscriptions. There are also icons for search, language (Español), and notifications.

The main content area is titled "Administrator". It displays several course and certification options:

- OCI**  
**Oracle Cloud Infrastructure Foundations**
  - Conocer los conceptos básicos de OCI
  - Obtener una certificación
  - Laboratorios en el nivel gratuito de OCI[Comenzar la capacitación ▾](#)
- OCI**  
**Oracle Cloud Data Management Foundations**
  - Learn the basics of Data Management Cloud
  - Get Certified
  - Labs to create and Deploy ADB[Comenzar la capacitación ▾](#)
- OCI**  
**Oracle Cloud Infrastructure Architect Associate**
  - Aprender a administrar los principales servicios OCI
  - Obtener una certificación
  - Laboratorios en el nivel gratuito de OCI

**Obten la certificación en OCI**

- Certified OCI Foundations Associate**
- Certified OCI Cloud Operations Professional**
- Certified OCI Security Professional**
- Certified Autonomous Database Professional**
- Certified Database Services Professional**
- Certified Database Migration and Integration Professional**

[https://education.oracle.com/es/learn/oracle-cloud-infrastructure/pPillar\\_640](https://education.oracle.com/es/learn/oracle-cloud-infrastructure/pPillar_640)





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**Thank You ☺**

**Questions / Feedback / Training Suggestions**

[andre.sousa@oracle.com](mailto:andre.sousa@oracle.com)

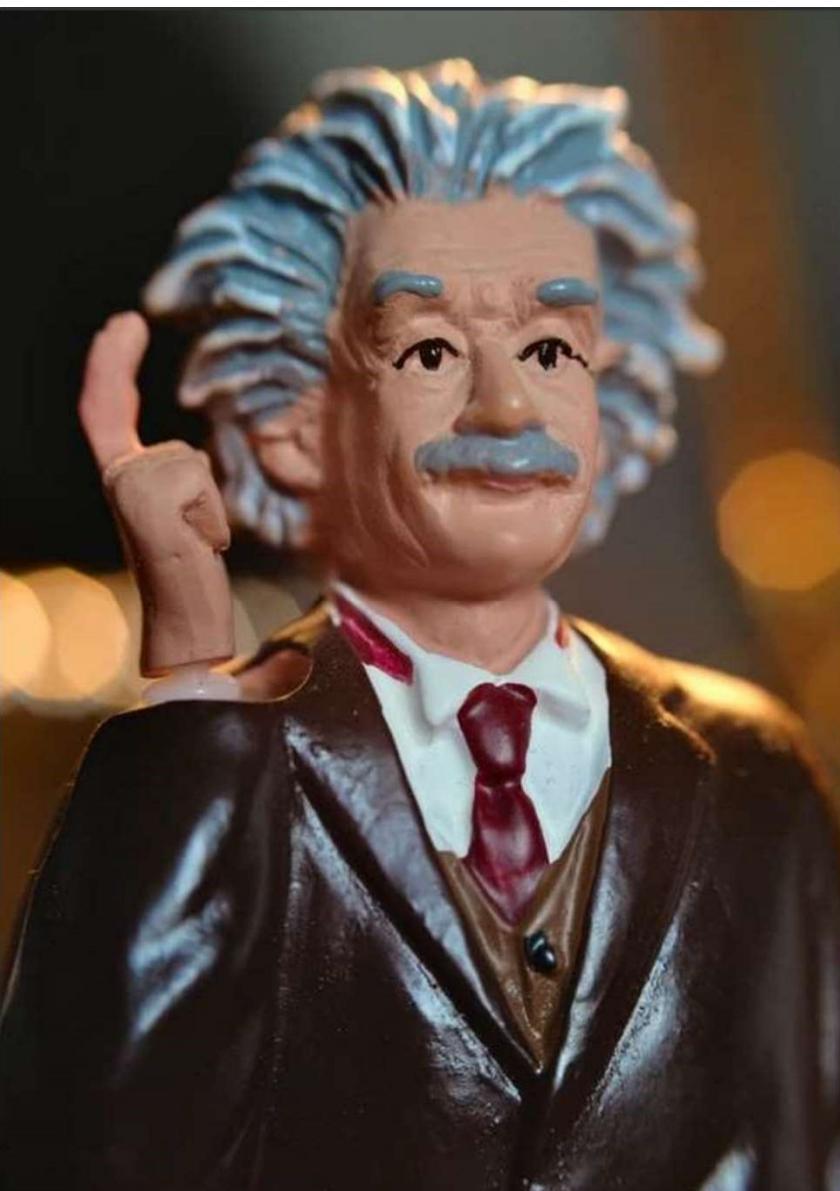
[marcel.lamarca@oracle.com](mailto:marcel.lamarca@oracle.com)

**Ask for help ☺**

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# ORACLE

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## Demo 1 – OCI NoSQL Services

- NoSQL Table provisioning
- NoSQL Table Insert using OCI Console
- Exadata Cloud Shape and Versions



## Demo 2 – Exadata Smart Scan

- Changing Table execution plan using Index
- Change index to invisible and enable Smart Scan

## Demo 3 - OCI Console Tour

- Dom0 Patching scheduling
- Database Provisioning
- Exadata Pathing prechk on Console
- Exadata Cloud Shape and Version

