TechKnowledge
Enablement
& DEVs

OCI Foundations 2023

Storage & Database Services

Alexandre Fagundes
alexandre.af.fagundes@oracle.com
Cloud Architect, Oracle Latin America

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ORACLE
Cloud Infrastructure

Storage

OCI Storage Concepts

- Persistent
- non-persistent
- Durability
- Persistence
- Performance
- Conectivity

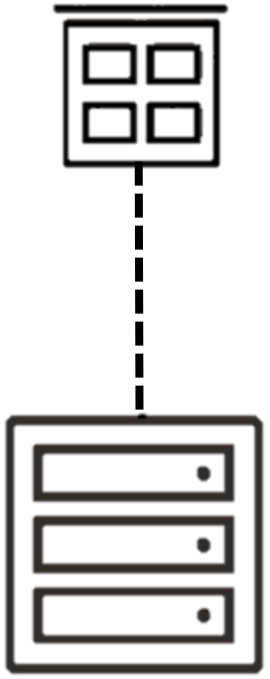
OCI Storage Service

Local NVMe

Availability Domain

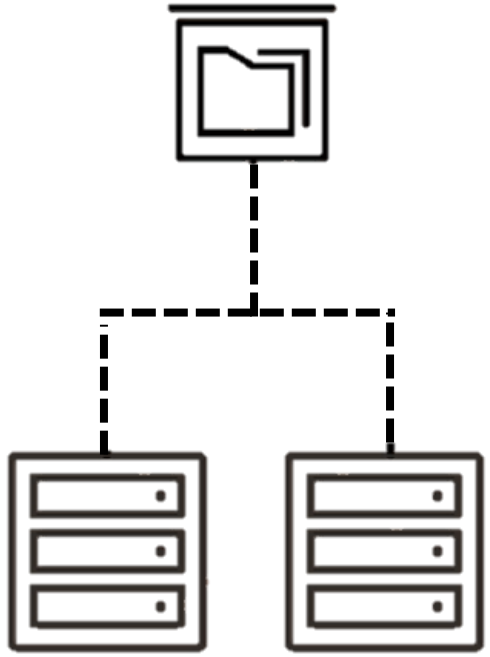
Block Volume

Availability Domain



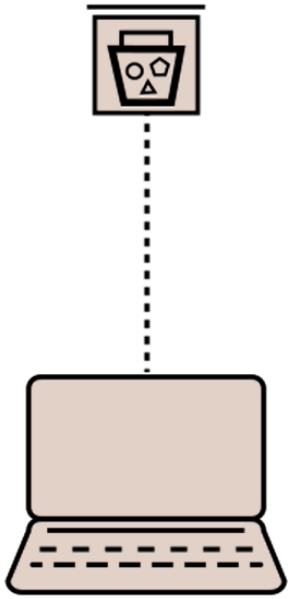
File Storage

Availability Domain

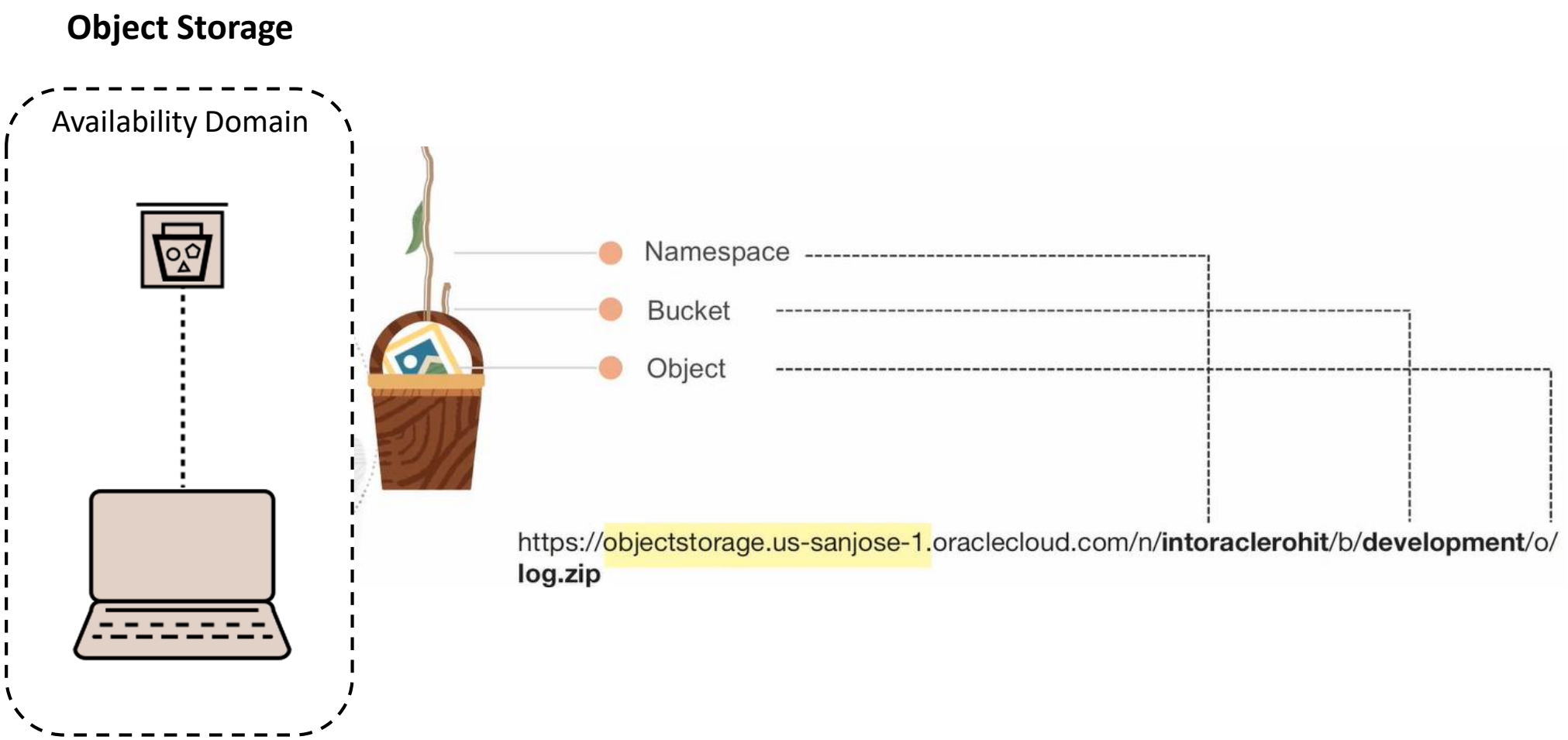


Object Storage

Availability Domain

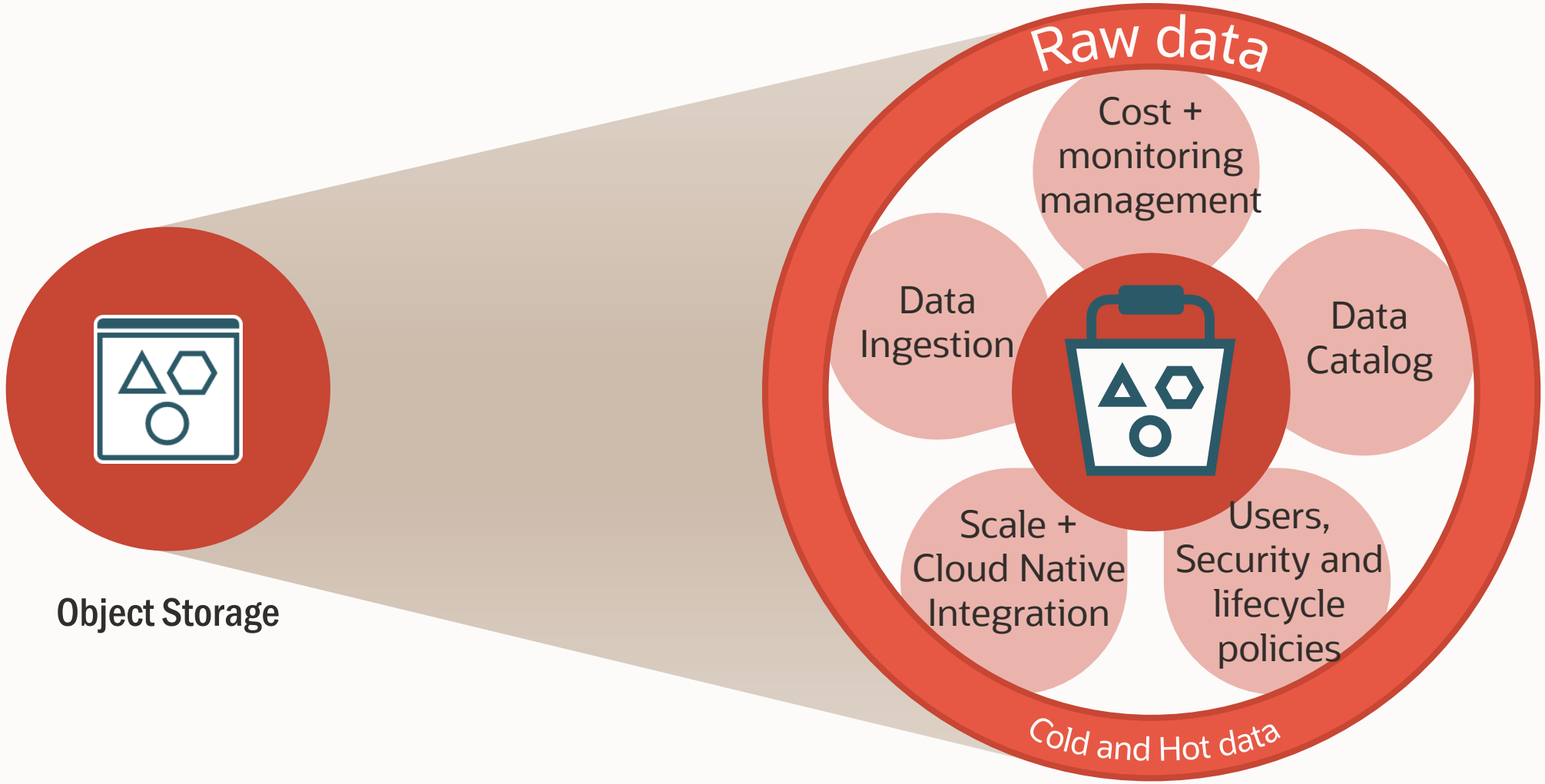


Object Storage



Object Storage

A Cloud Native scalable way to storage data



Integrated with cloud services data platform

Object Storage

S3 Compatible Storage

Standard Bucket

Standard Storage Tier (Hot)

- Fast, immediate, and frequent access
- Object Storage Service always serves the most recent copy of the data when retrieved
- Standard buckets can't be downgraded to archive storage

Infrequent Access (Cool)

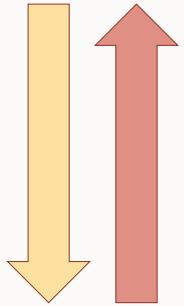
- Infrenquent but must be available immediately
- Retention requirement for Infrequent Storage is 31 days
- Backups of on-premises data
- Storage for data replicated or copied from another region

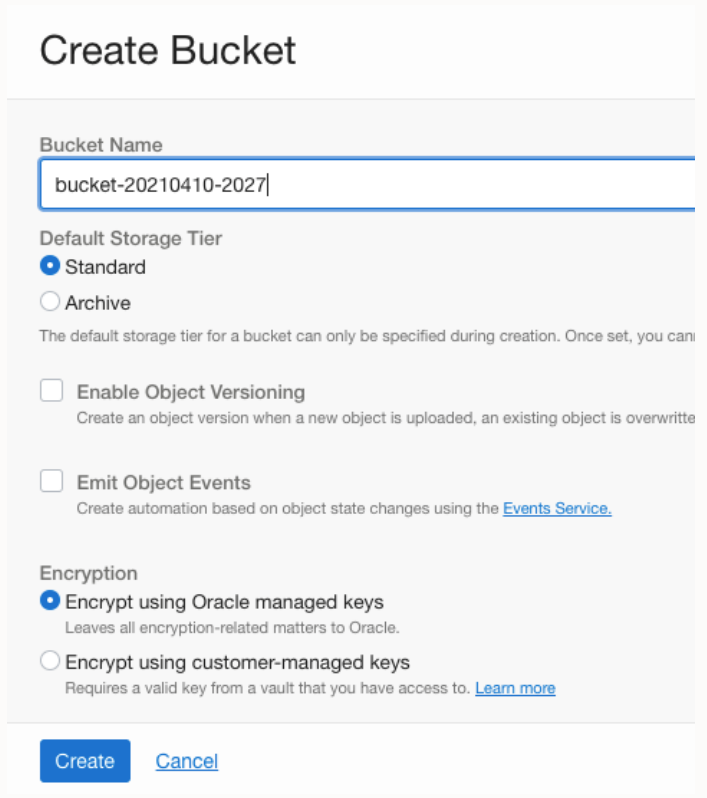
Archive Bucket

Archive Storage Tier (Cold)

- Seldom or rarely accessed data but must be retained and preserved for long periods of time
- Minimum retention requirement for Archive Storage is 90 days
- Objects need to be restored before download
- Time To First Byte (TTFB) : 1 Hour

Auto-Tiering





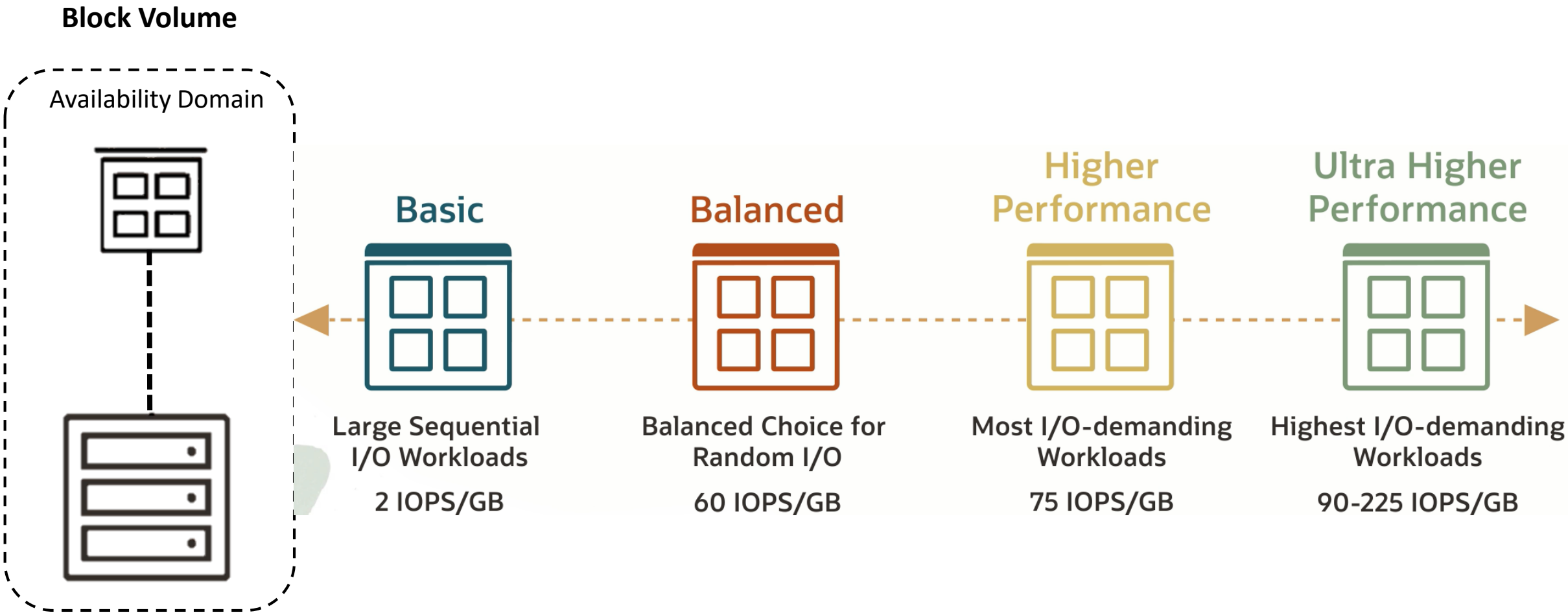
- **Object Lifecycle Management**
  - You can automatically manage the archiving and deletion of objects

Object Storage- Features

Auto-Tiering

Lifecycle Management

Block Volume



Block Volume Features

Autotune

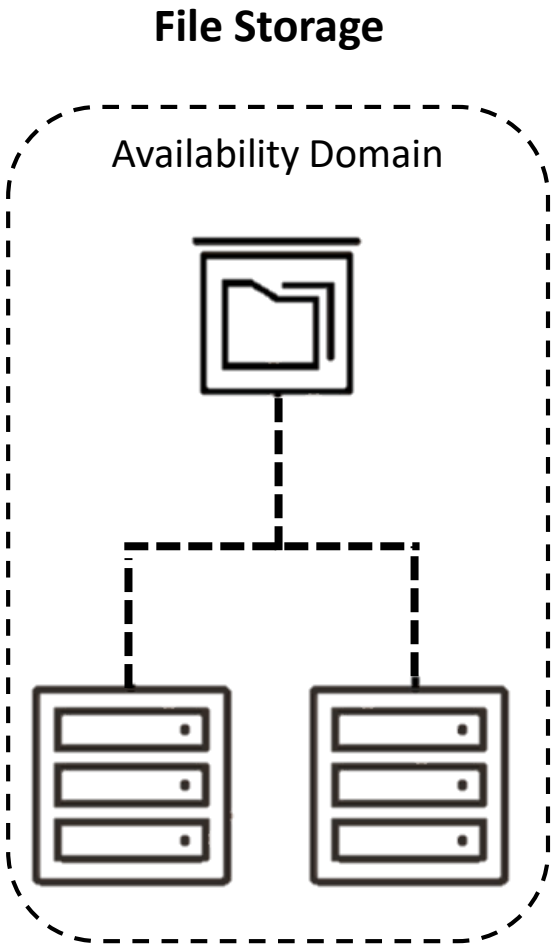
Read/Write Shareable

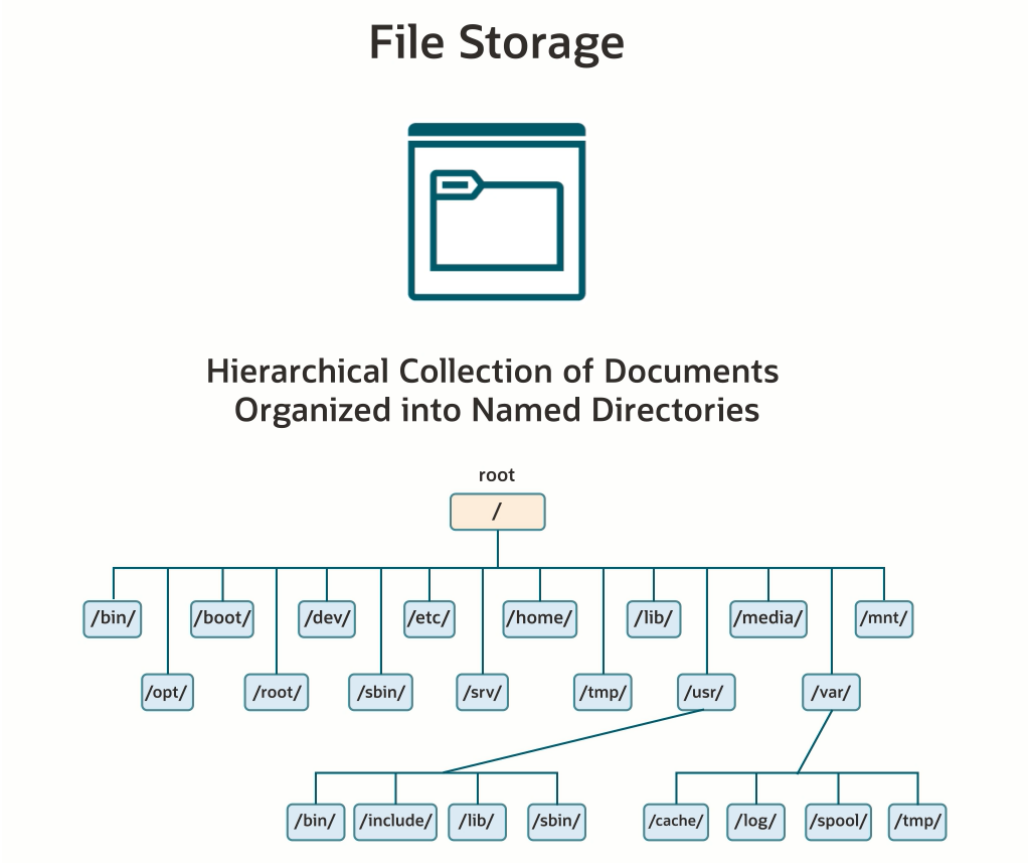
Online and Offline Resizing

Replication of Block Volume

Block Volume Group

File Storage





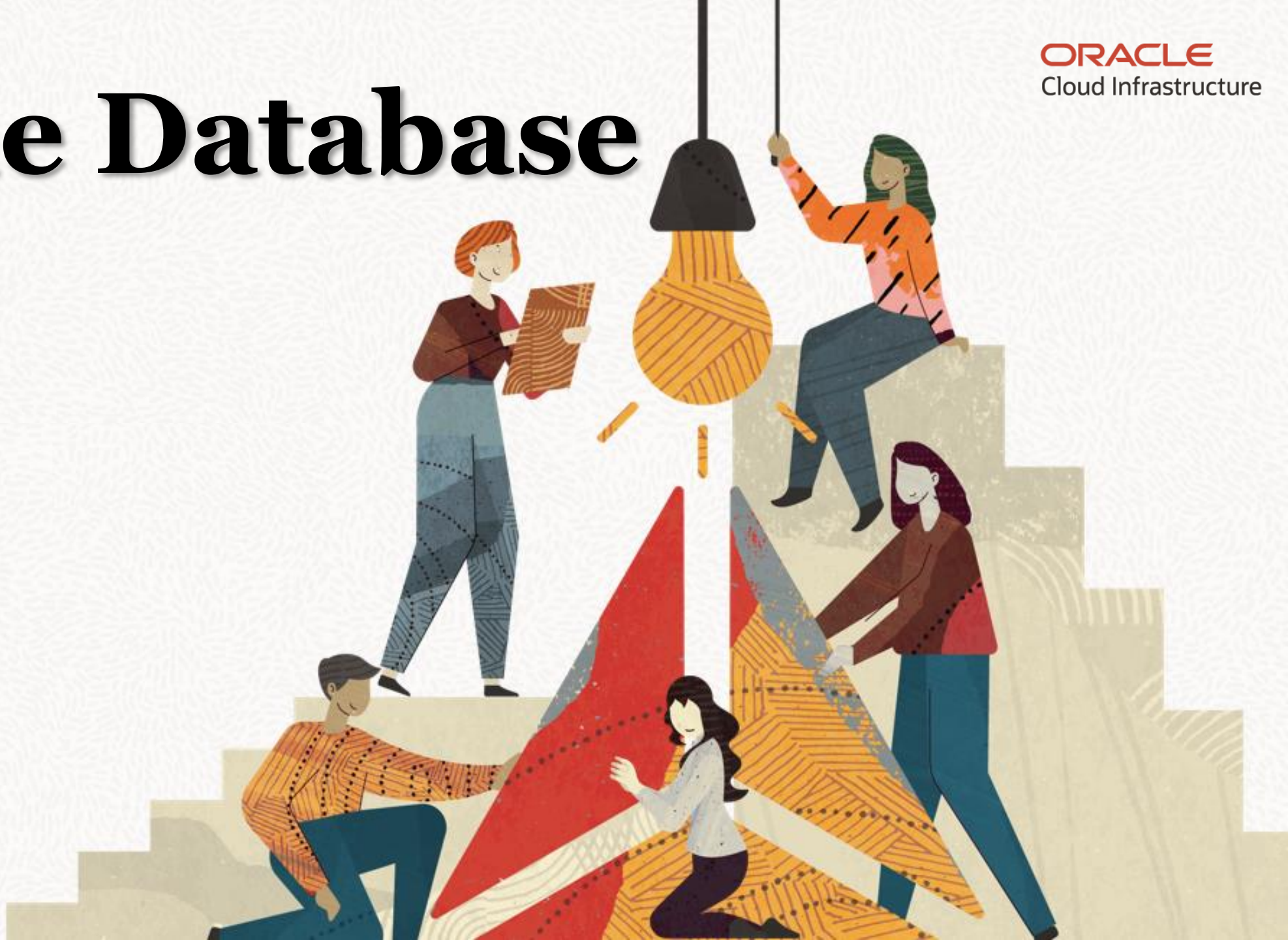
OCI Storage Services

Overview

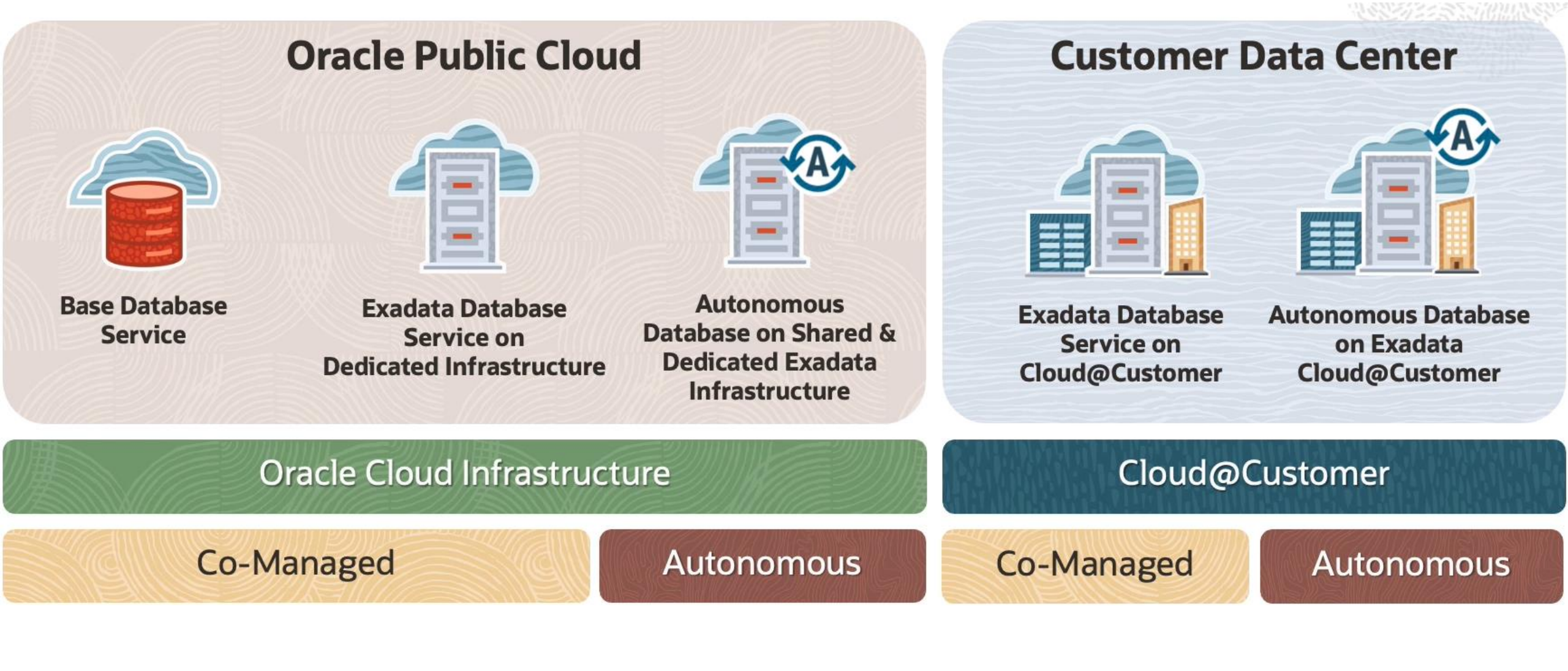
Service Storage cost	Local NVMe included on compute shape	Block Volume $$$	File Storage $$$$	Object Storage (Standard) $$	Object Storage (Archive) $
Type	**NVMe SSD** based temporary storage	**NVMe SSD** based block storage	NFSv3 compatible file system	Highly durable Object storage	Long-term archival and backup
Durability	Non-persistent; survives reboots	Durable (multiple copies in an AD)	Durable (multiple copies in an AD)	**Highly durable (multiple copies across ADs)**	
Capacity	Terabytes+	Petabytes+	**Exabytes+**	Petabytes+	
Unit Size	6.4-25.6 TB for VM 51.2 TB for BM	50 GB to 32 TB/vol 32 vols/instance	Up to 8 Exabyte	10 TB/object	
Performance	**Shape-defined** **200k - 3MM IOPS**	User-defined 100 – 300k IOPS	2,5k IOPS / TB	Internet-scale	
Use cases	Big Data, OLTP, high performance workloads	Apps that require SAN like features (Oracle DB, VMW, Exchange)	Apps that require shared file system (EBS, HPC)	Unstructured data incl. logs, images, videos	Long term archival and backups (Oracle DB backups)

Oracle Database

ORACLE
Cloud Infrastructure



Database Options



Oracle Spent Last 23 Years Automating Database Technology

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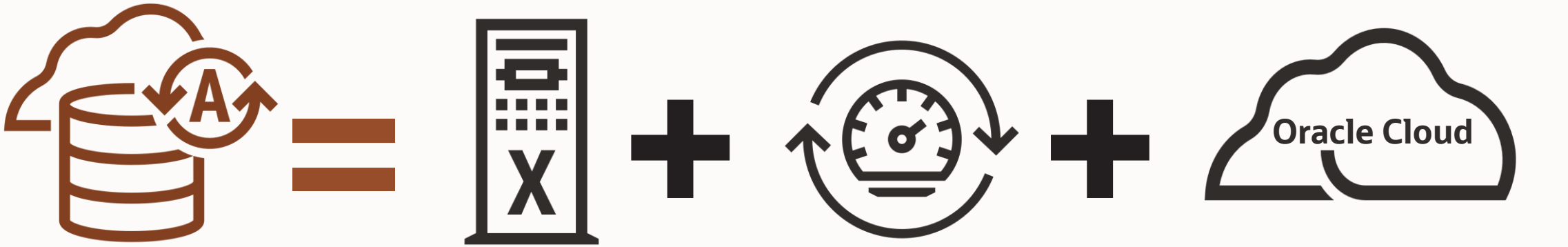
DATABASE

Oracle Autonomous Database

Simplifies advanced data management obfuscating database and infrastructure complexity



Oracle Autonomous Database = **Complete Infrastructure Automation** + **Complete Database Automation** + **Automated Data Center Operations and Machine Learning**

Autonomous Database Options

Autonomous - Shared

Autonomous - Dedicated

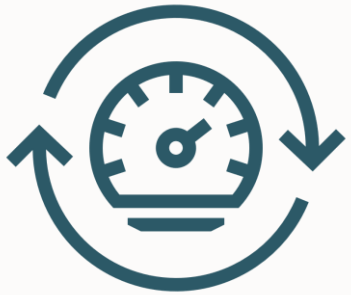
Self-Driving

Self-Repairing

Self-Securing

Oracle Autonomous Database – serverless or dedicated deployments

Autonomous JSON, Transaction Processing or Autonomous Data Warehouse



Self-driving

- Scale-out database with fault-tolerance and DR
- Runs on enterprise-proven Exadata platform
- Full compatibility with existing enterprise databases

Self-securing

- Automatically applies security updates online
- Secure configuration with full database encryption
- Sensitive data hidden from Oracle or customer admins

Self-repairing

- Recovers automatically from any failure
- 99.995% uptime including maintenance
- Elastically scales compute or storage as needed

The complete database lifecycle is automated

Provisioning

Create scalable databases quickly

Create in Exadata Cloud Infrastructure, RAC scale-out database, Active Data Guard standby

Security

Protects against external and internal threats

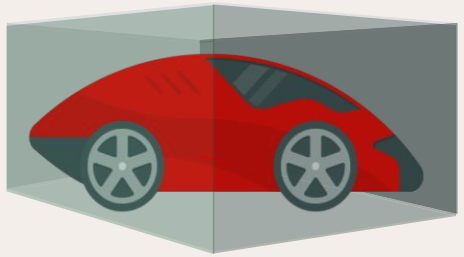
Monitor threats, apply online security updates, encrypt all data, secure connections

Management

Automates all infrastructure and database management

Perform all OS and SYSDBA operations, adjust settings, fix all software online, diagnose errors

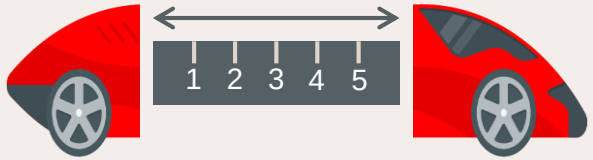
The complete database lifecycle is automated



Protection

Recover from any failure without downtime

Automates backup, restore, application transparent failover in scale-out cluster or to active remote standby



Scalability

Online scale for higher performance and lower cost

The instant online elasticity of serverless computing and storage enables true pay-per-use

Optimization

Machine learning optimizes the database for each workload

Continuously optimizes memory, data formats, indexes, parallelism and plans for each workload

Oracle Autonomous Database provides workload optimized service options

Autonomous Data Warehouse (ATP)	Autonomous Transaction Processing (ATP)	Autonomous JSON Database
Analytics Workloads	**OLTP and Mixed Workloads**	**Application Development**
• Data warehouse, data mart • Data lake, machine learning	• Transactions, batch, reporting, IoT • Application development, machine learning	• Mobile applications • User profile management • Customer 360 • Catalog and content management

Choose the one that best meets your workload needs

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

Oracle Base Database Service

Simple path to move Oracle Database instances to Oracle Cloud Infrastructure

Feature and Pricing tiers

- Oracle Standard Database Service
- Oracle Enterprise Database Service
- Oracle Enterprise Database Service high performance
- Oracle Enterprise Database Service extreme performance

Versions: All supported Oracle Database versions

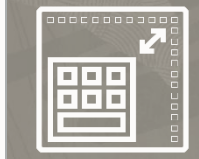
Licensing: License Included options or Bring Your Own License

Management: Oracle managed infrastructure with customer managed databases

Everything enterprise databases need to run in cloud

Flexibility

- Converged database
- Any database workload



Scalability

- VMs with 2 to 128 vCPUs
- 2-node active-active clusters

Reliability

- Continuous availability
- Disaster recovery

Simplicity

- Lifecycle management
- Low-code development

Security

- Security-first infrastructure
- Oracle Data Safe included

Cost Effectiveness

- Elastic compute consumption
- 4 tiers of licensing options

ORACLE
Cloud Infrastructure

Open Source Databases

OCI Database with MySQL

Fast Prosivioning

Standlone Options

Elasticitade

High Availability Option

Compute

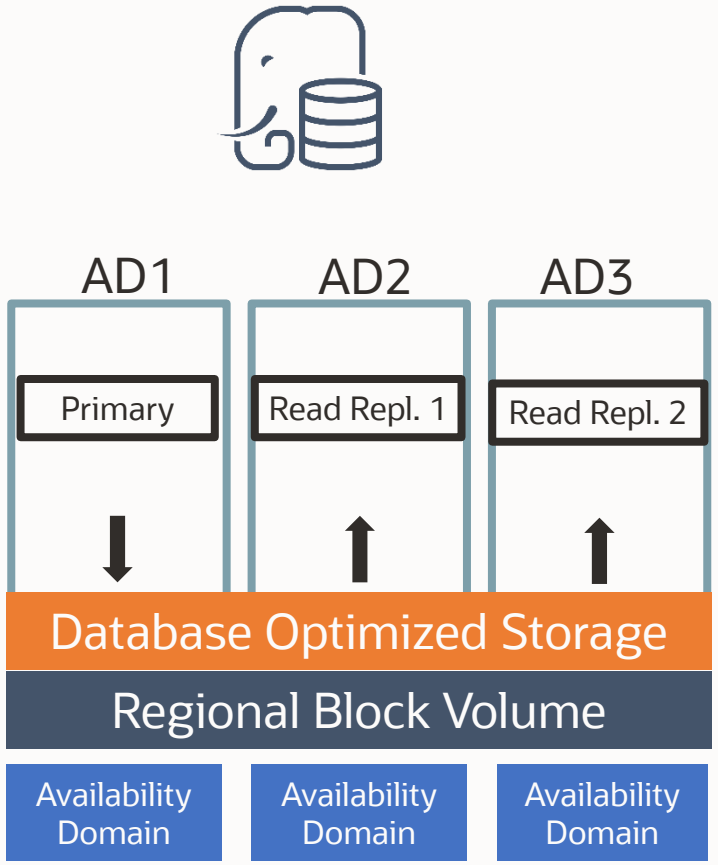
3-nodes

Storage

RAC

HeatWave

OCI Database with PostgreSQL



Fully Managed:

- Automated deployment and patching

Highly Available:

- SLA is 99.99%
- Data distributed across multiple redundant Availability Domains or across multiple Fault Domains (single AD)
- Shared storage architecture with **Zero RPO** and **Low RTO**
- Dynamic storage scaling (zero downtime)

High Performance

- 3x higher perf than the open-source version

Scalable:

- Scales linearly with additional read replicas - utilizing shared storage

Secure:

- End-to-end encryption
- Automatic security patching

Best-in-class TCO:

- 60% less expensive than Amazon Aurora PostgreSQL.
- Pay-as-you-grow shared(across nodes) storage

Open Source Databases - NoSQL

NoSQL

Data Model Flexibility

High Performance – Milisecond latencies

Oracle NoSQL Database Cloud Service – Value Proposition

Fully Managed

Database operation, maintenance, tuning are managed by Oracle

Elastic

Dynamically change throughput and storage capacities based on workloads

High Performance

Predictable low latency for all types of workloads

Data Model Flexibility

Document, columnar, key/value models supported with a single application interface

Security

Enterprise grade security with roles, privileges, encryption

Low Operating Cost

Pay only for the throughput and storage capacities provisioned

Developer Friendly

Easy-to-use APIs and integrated with different developer tools

Always Available

Built-in high availability to ensure business continuity

Hybrid Cloud

Interoperate with Oracle NoSQL on-premise solution using a single application interface

NoSQL Database –Use Cases

Mobile applications 	**Internet of things** 	**360 degree customer view** 	**User profile management** 	**Catalog data** 
Content management 	**Online advertising** 	**Real time Big data** 	**Social network** 	**Gaming** 

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Any doubts?
Pls let me know!

Alexandre Fagundes
alexandre.af.fagundes@oracle.com
Cloud Architect
Oracle Latin America


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