



LAD Partner Enablement

OCI Foundations Certification Exam



Alexandre Fagundes
Cloud Architect, Oracle Latin America

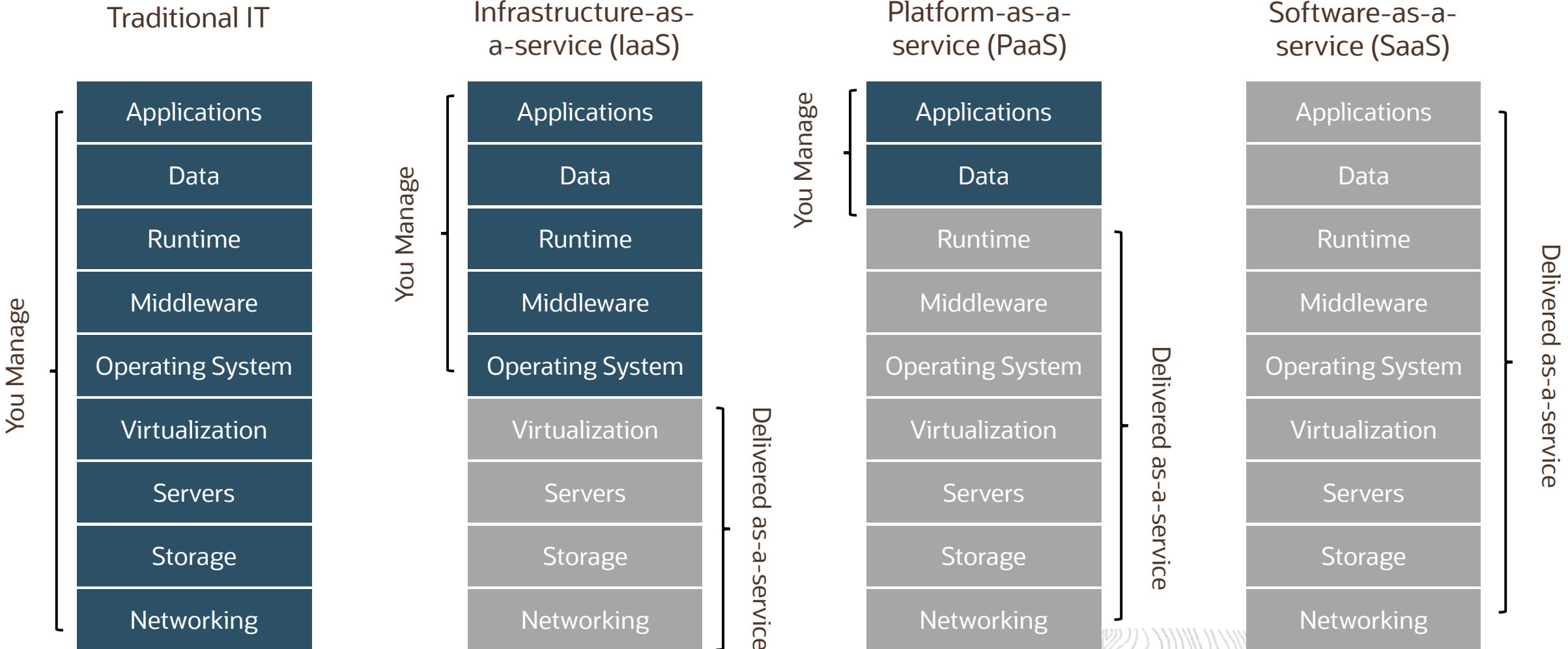


TechKnowledge
Enablement
& DEVs

Cloud Basics

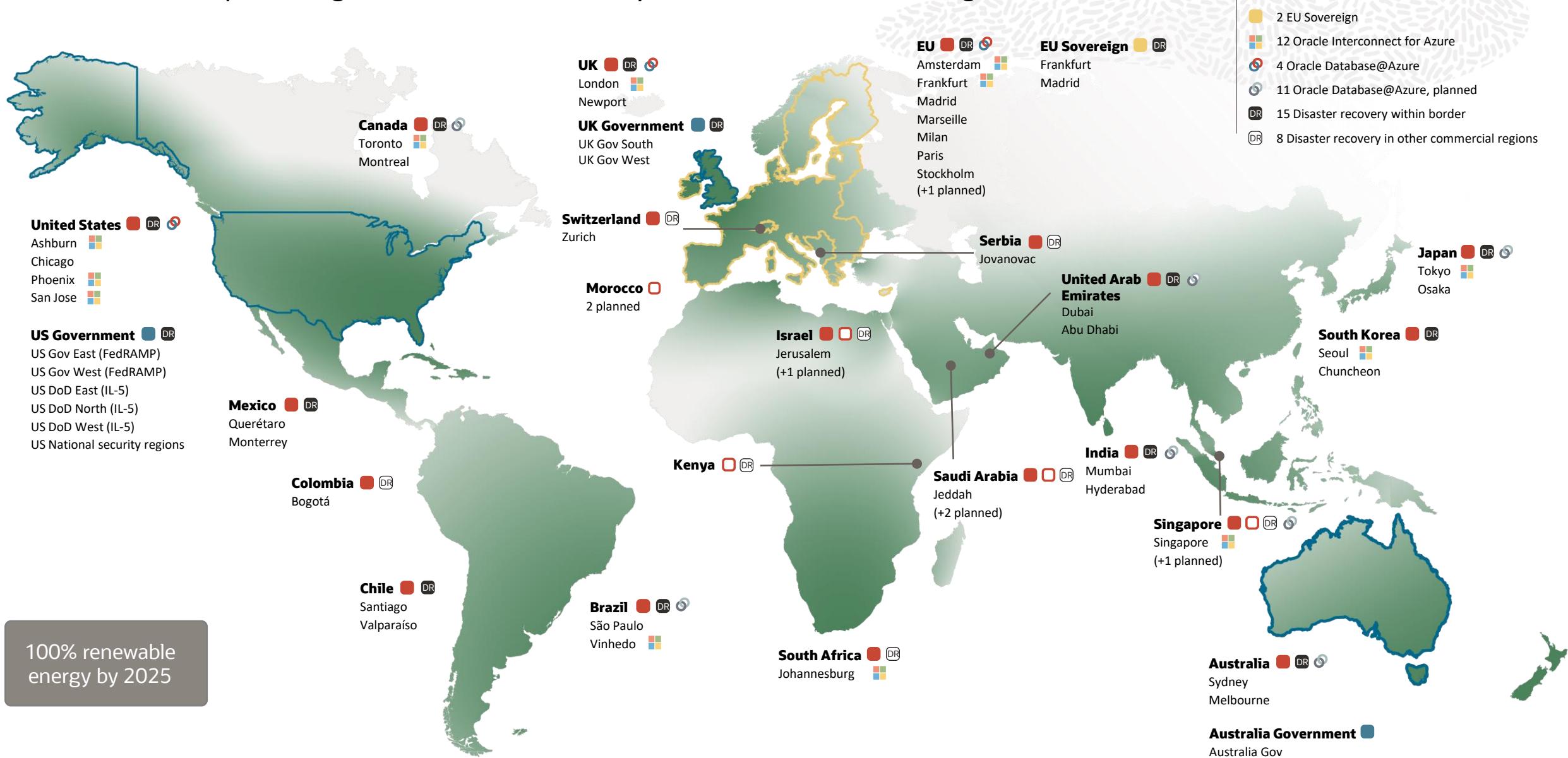


Service Models

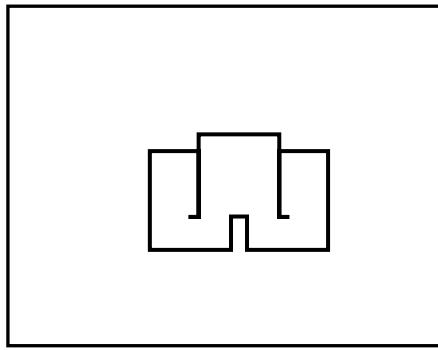


Oracle Cloud Infrastructure global footprint – 72 regions

June 2024 – 48 public regions, 24 Dedicated, Alloy, Multicloud and secret regions

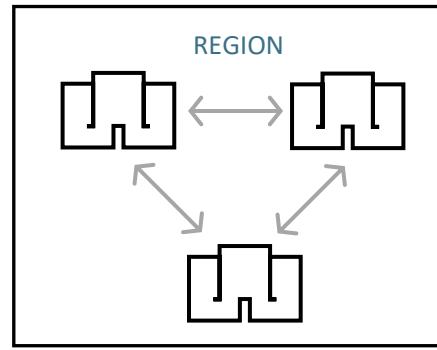


OCI Architecture



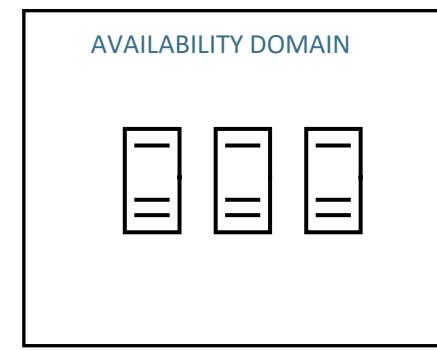
Regions

Localized geographic area, comprised of one or more Availability Domains (AD)



Availability Domains (AD)

One or more fault-tolerant, isolated data centers located within a region, but connected to each other by a low latency, high bandwidth network

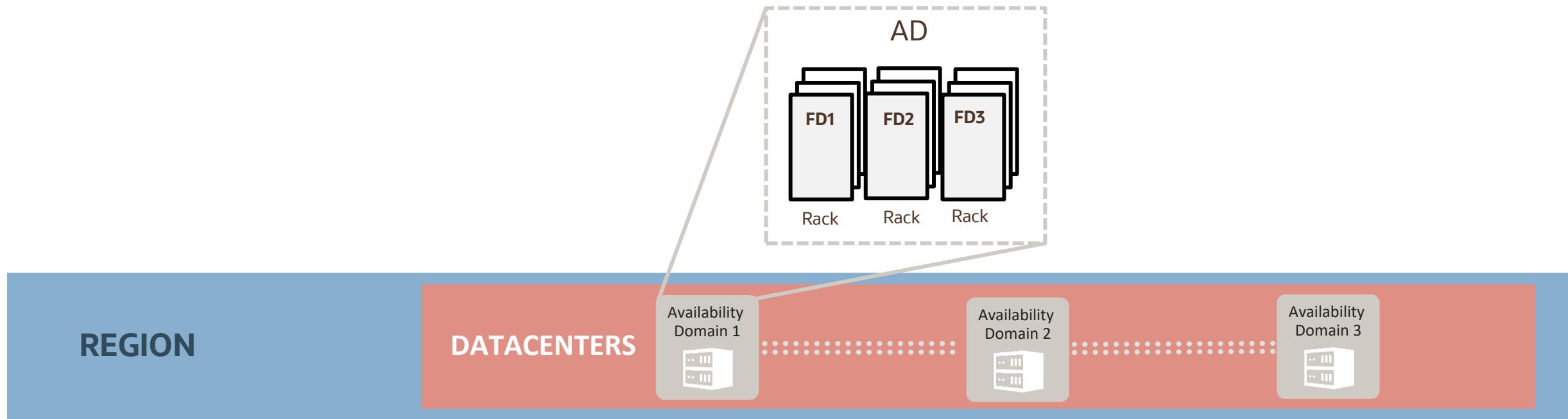


Fault Domains (FD)

Grouping of hardware and infrastructure within an Availability Domain to provide anti-affinity (logical data center)

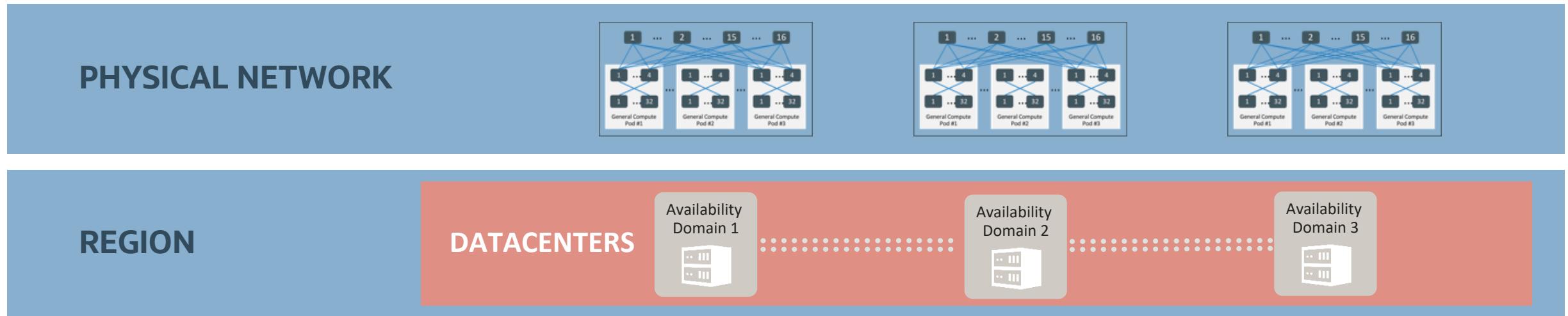
OCI Region – HA Building Blocks

- Multiple fault de-correlated, completely independent datacenters: Availability Domain (AD)
- Grouping of hardware and infrastructure within an AD: Fault Domain
- Predictable low latency & high speed, encrypted interconnect between ADs



Inside an AD – High Scale, High Performance Network

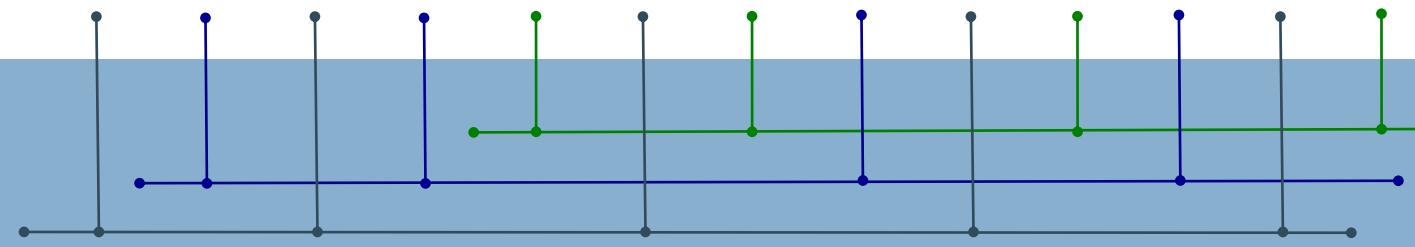
- Non-oversubscribed network; no noisy-neighbors
- Very high scale – ~1 million network ports in an AD
- Predictable low latency & high speed interconnect between hosts in an AD



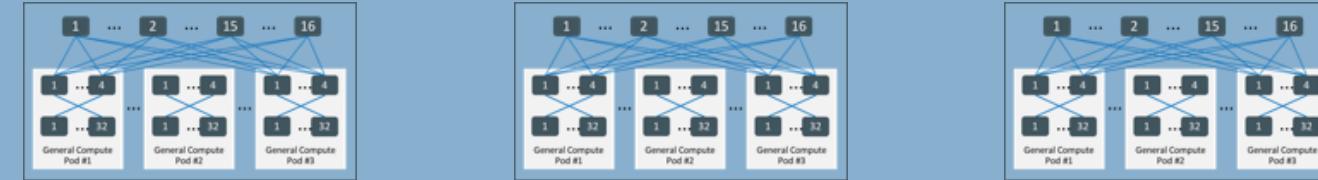
Off-box Network Virtualization

Off Box Network Virtualization – moves storage and network IO out of the hypervisor and enables lower overhead and bare metal instances

VIRTUAL NETWORK



PHYSICAL NETWORK

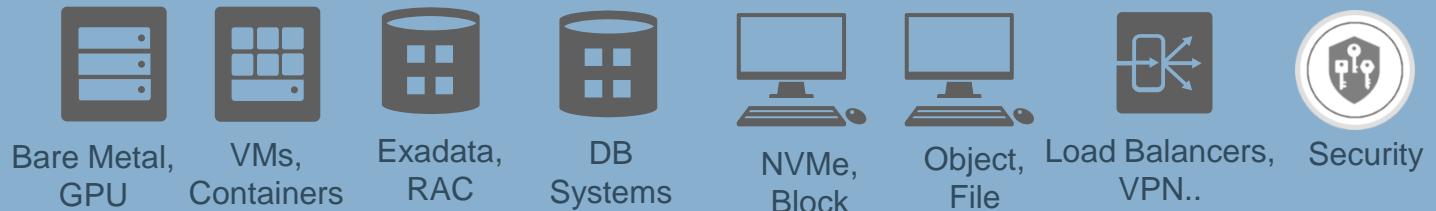


REGION



Oracle Cloud Infrastructure Services

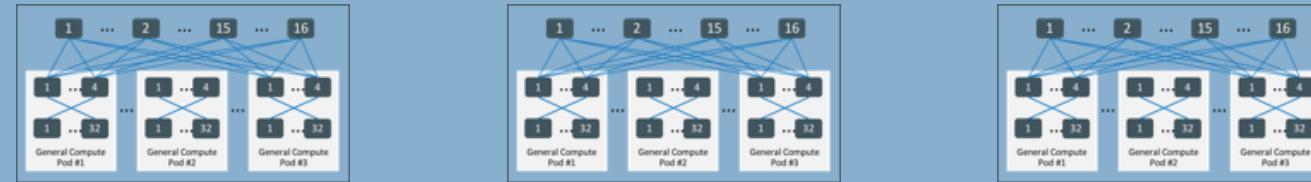
**COMPUTE, STORAGE,
DATABASE, LBs, Security...**



VIRTUAL NETWORK



PHYSICAL NETWORK



REGION

DATACENTERS

Availability
Domain 1

Availability
Domain 2

Availability
Domain 3



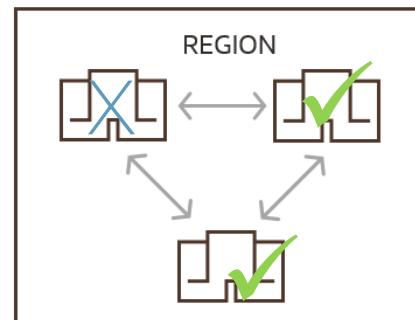
OCI Architecture

High Availability Design



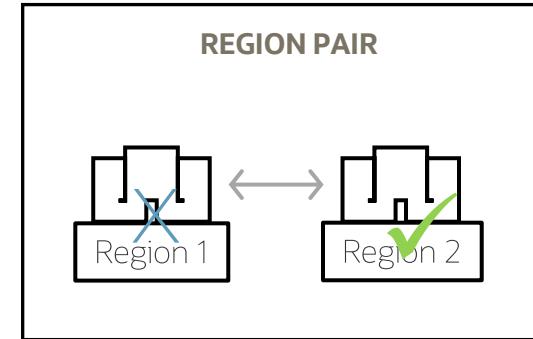
Fault Domains

Protection against failures within an Availability Domain



Availability Domains

Protection from entire Availability Domain failures (multi-AD region)



Region Pair

Protection from disaster with data residency & compliance

SLAs on Availability, Management and Performance



IAM

Identity & Access Mgmt

‘I am ...’



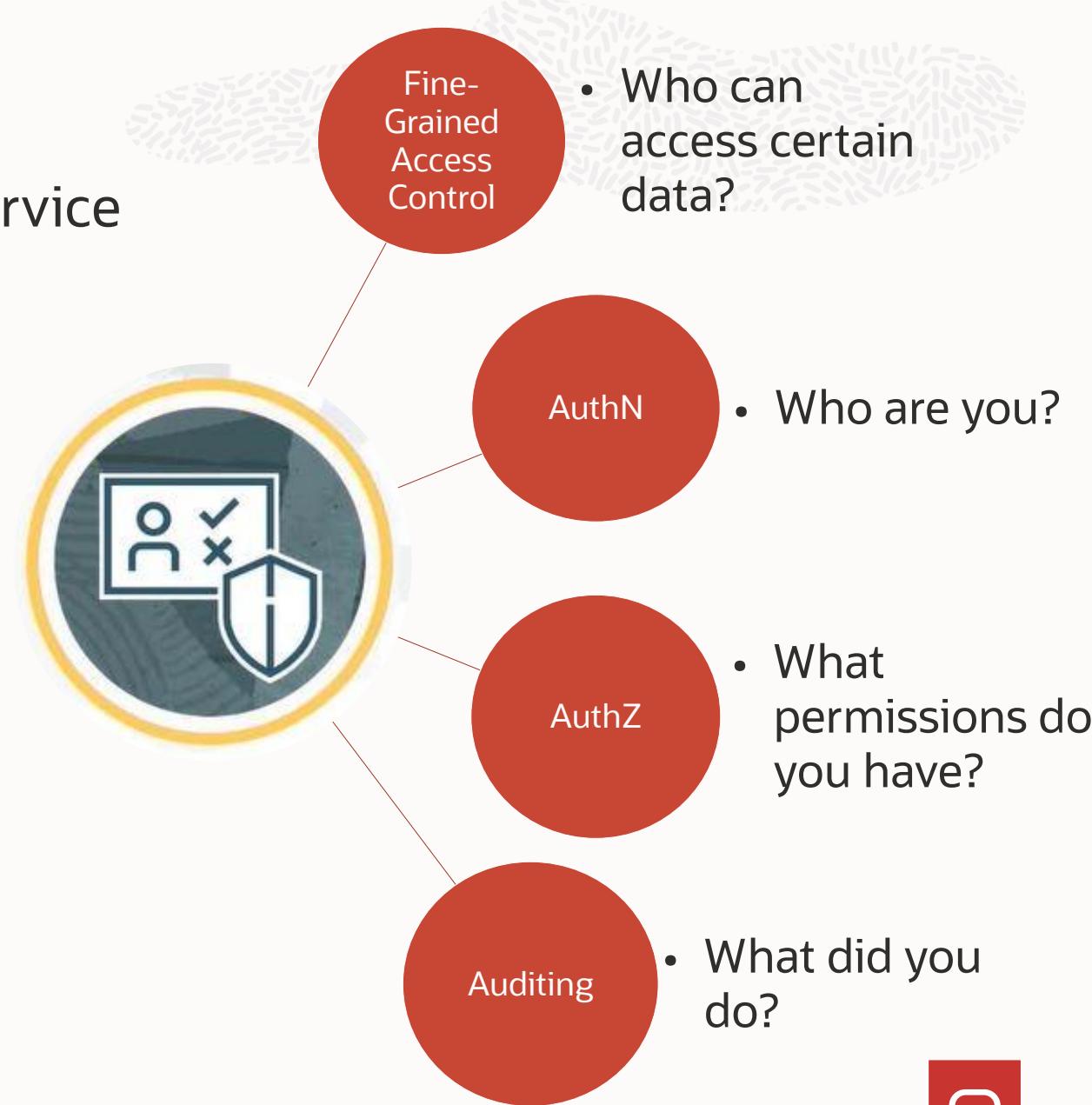
What is OCI IAM?

Identity and Access Management (IAM) service

Controls what type of access

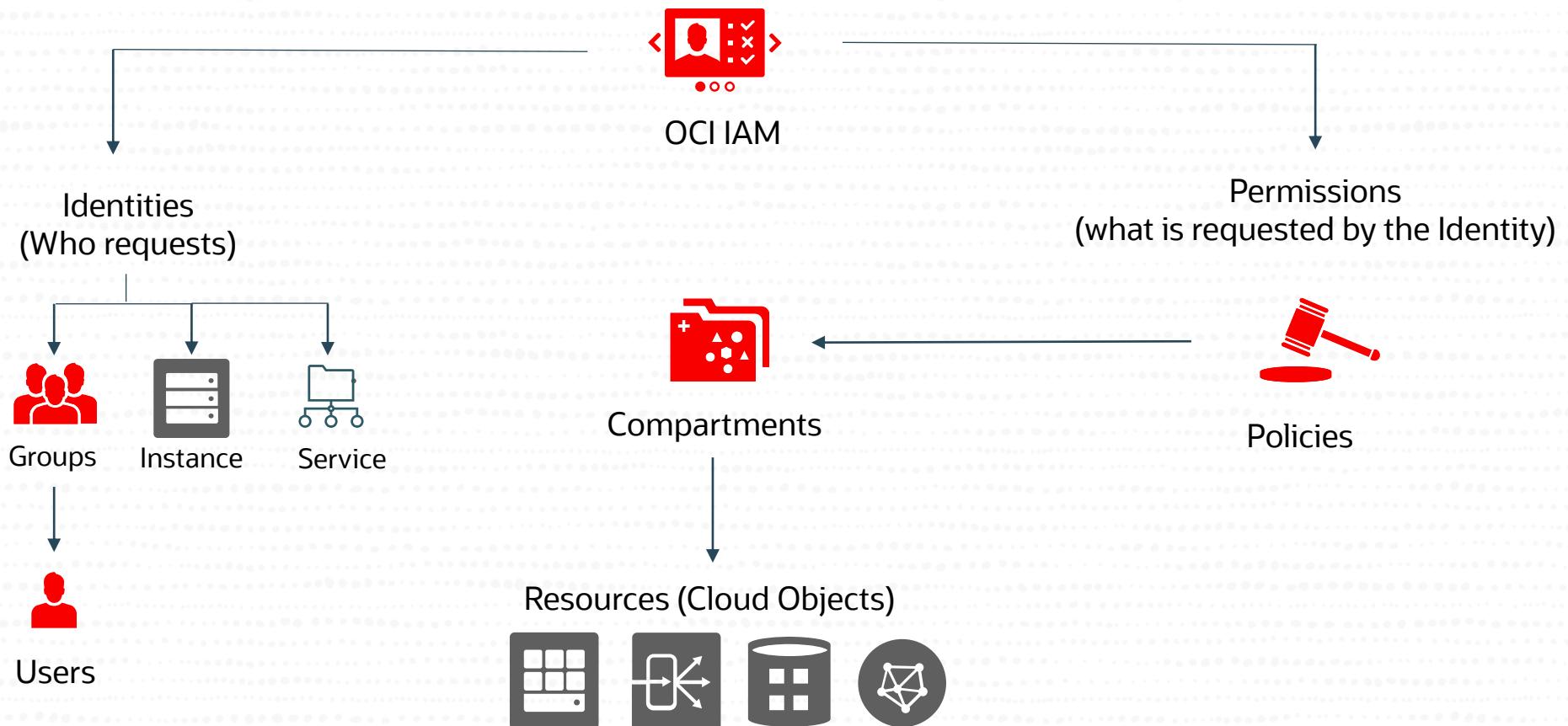
a Group of Users, Principals or Services

have over which specific resources



Overview

IAM uses traditional identity concepts such as Principals, Users, Groups, Dynamic Groups, AuthN, AuthZ and Compartments



Authentication

- Authentication deals with user identity: who is this person? Is this who he says he is?
- OCI IAM service authenticates a Principal by:
 - User name, Password
 - API Signing Key
 - Required when using the OCI API in conjunction with the SDK/CLI
 - Auth Tokens
 - Oracle-generated token strings to authenticate with 3rd party APIs that do not support OCI signature-based authentication (e.g. ADW)

User Name
thiago.a.lemos@oracle.com

Password
.....

Sign In

Add API Key Help

Note: An API key is an RSA key pair in PEM format used for signing API requests. You can generate the key pair here and download the private key. If you already have a key pair, you can choose to upload or paste your public key file instead. [Learn more](#)

Generate API Key Pair Choose Public Key File Paste Public Key

Public Key

i Download the private key. It will not be shown again. After you download it, [change the file permissions](#) so only you can view it.

[Download Private Key](#) [Download Public Key](#)

Resources	Auth Tokens
Groups	
API Keys	
Auth Tokens	Generate Token
Customer Secret Keys	Description
Database Passwords	Token KeyChain
OAuth 2.0 Client Credentials	TOKEN for Streaming
SMTP Credentials	

begin
DBMS_CLOUD.create_credential (
credential_name => 'OBJ_STORE_CRED',
username => '<userXX>',
password => '<your Auth Token>'
) ;
end;
/

Authorization

- Authorization specifies various actions an authenticated Principal can perform
- OCI Authorization = Policies
- Policies are written in human-readable format:
 - Allow *<identity_domain_name>/<subject>* to *<verb> <resource-type>* in *<location>* where *<conditions>*

Ex:

- Allow group *<group_name>* to *<verb> <resource-type>* in tenancy
- Allow group *<group_name>* to *<verb> <resource-type>* in compartment *<compartment_name>* [where *<conditions>*]
- Policy Attachment: Policies can be attached to a compartment or the tenancy. Where you attach it controls who can then modify it or delete it



Policy Syntax

allow <subject> to <actions> <resource-type> in <placement> where <conditions>

SUBJECT	Type of Access
Group	Both ID & Name
Dynamic Group	Both ID & Name
Service	Only Name

Subjects are a clause for the various ways that an authenticated actor can be addressed:

By membership in a group (e.g., “group Admins”, “group id ocid1.group.c1.....”)

As a service, for OCI Services (e.g., “service objectstorage-br-saopaulo-1”)

As a wildcard, with “Any User” (any request from the tenancy)

More than one name or group can be named in Subjects element. These can be chained by kind (e.g., “group Admins, Readers”)

Policy Syntax

Allow <subject> to <actions> <resource-type> in <placement> where <conditions>

Action	Type of access
inspect	Ability to list resources
read	Includes inspect + ability to get user-specified metadata/actual resource
use	Includes read + ability to work with existing resources (the actions vary by resource type)*
manage	Includes all permissions for the resource

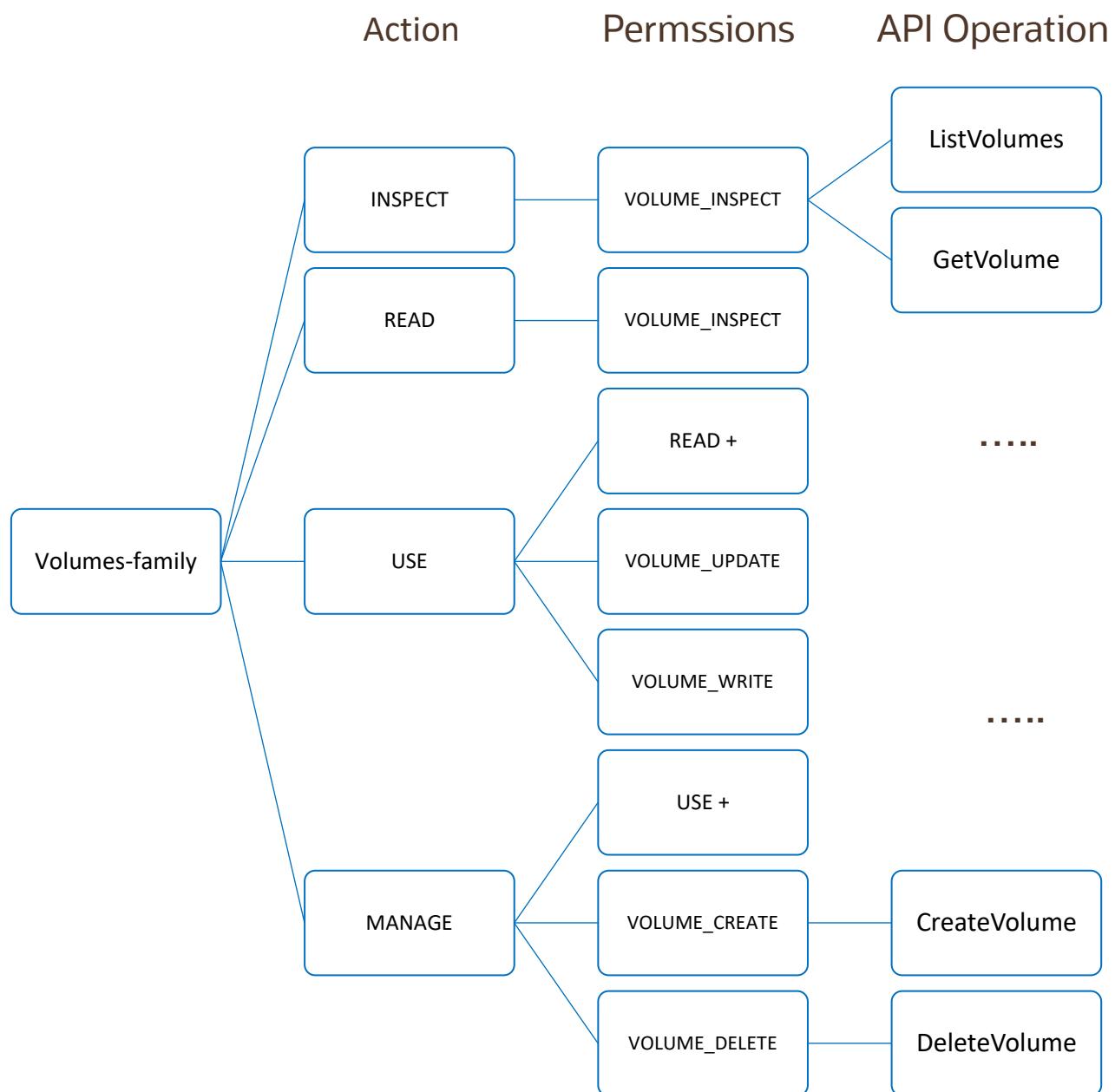
* In general, this verb does not include the ability to create or delete that type of resource

Aggregate resource-type	Individual resource type
all-resources	
database-family	db-systems, db-nodes, db-homes, databases
instance-family	instances, instance-images, volume-attachments, console-histories
object-family	buckets, objects
virtual-network-family	vcn, subnet, route-tables, security-lists, dhcp-options, and many more resources (link)
volume-family	volumes, volume-attachments, volume-backups
Cluster-family	clusters, cluster-node-pool, cluster-work-requests
File-family	file-systems, mount-targets, export-sets
dns	dns-zones, dns-records, dns-traffic,..

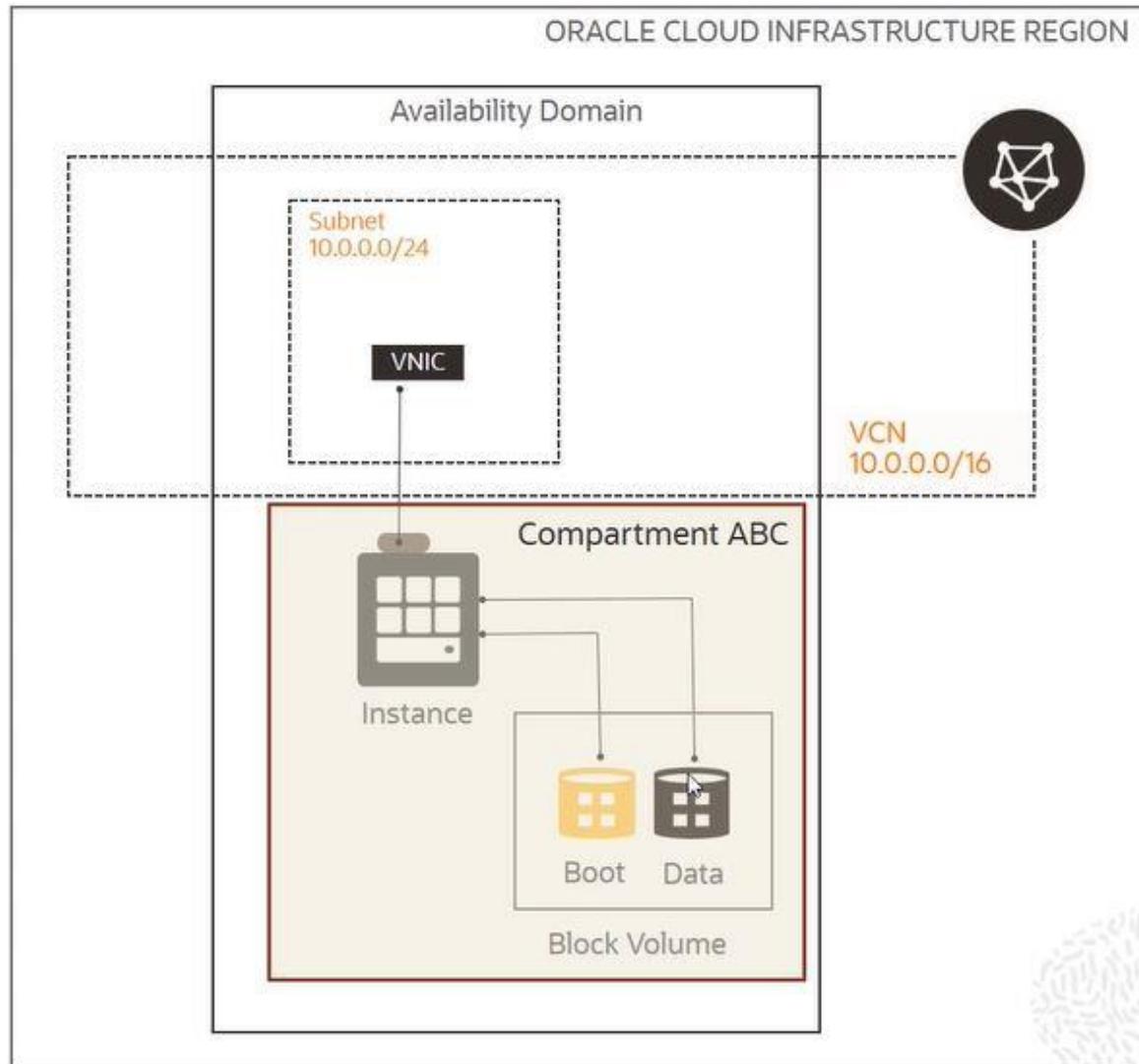
The IAM Service has no family resource-type, only individual ones

Actions & Permissions

- When you write a policy giving a group access to a particular action(verb) and resource-type, you're actually giving that group access to one or more predefined permissions
- Permissions are the atomic units of authorization that control a user's ability to perform operations on resources
- As you go from inspect > read > use > manage, the level of access generally increases, and the permissions granted are cumulative
- Each API operation requires the caller to have access to one or more permissions. E.g., to use ListVolumes or GetVolume, you must have access to a single permission: VOLUME_INSPECT



Common Policies



1. Network Admins manage a cloud network
 - Allow group NetworkAdmins to **manage virtual-network-family** in **tenancy**
2. Users launch compute instances
 - Allow group InstanceLaunchers to **manage instance-family** in compartment ABC
 - Allow group InstanceLaunchers to **read app-catalog-listing** in tenancy
 - Allow group InstanceLaunchers to **use volume-family** in compartment ABC
 - Allow group InstanceLaunchers to **use virtual-network-family** in tenancy

Compartments

- A compartment is a collection of related resources (VCN, instances,...) that can be accessed only by groups that have been given permission (by an administrator in your organization)
- Compartments help you organize and control access to your resources

Each resource belongs to a single compartment

Resources can interact with other resources in different compartments

Resources and compartments can be added and deleted anytime

Resources can be moved from one compartment to another

Resources from multiple regions can be in the same compartment

Compartments can be nested (six levels deep)

You can give group of users access to compartments by writing Policies

Analyze cost and assign budget for resources in compartments

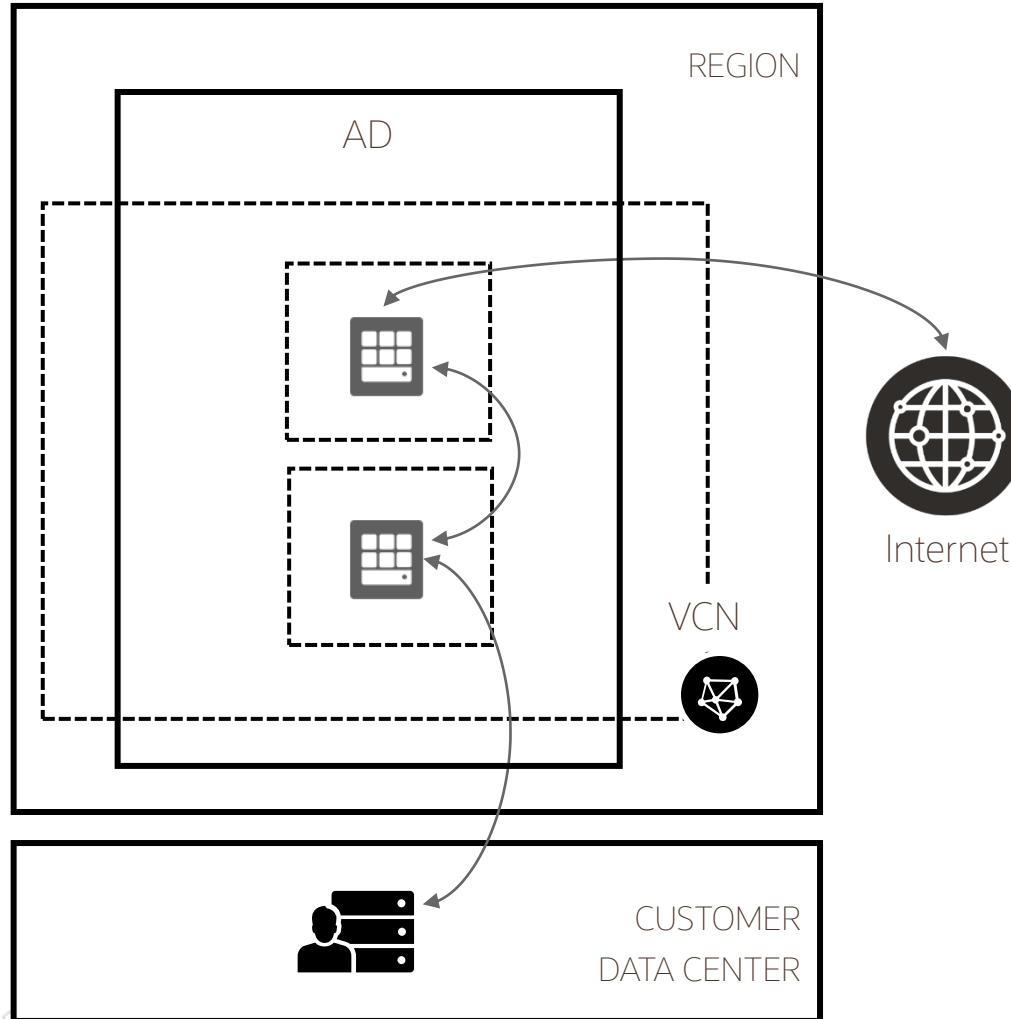
Sub compartment inherits access permissions from compartments higher up its hierarchy



Networking

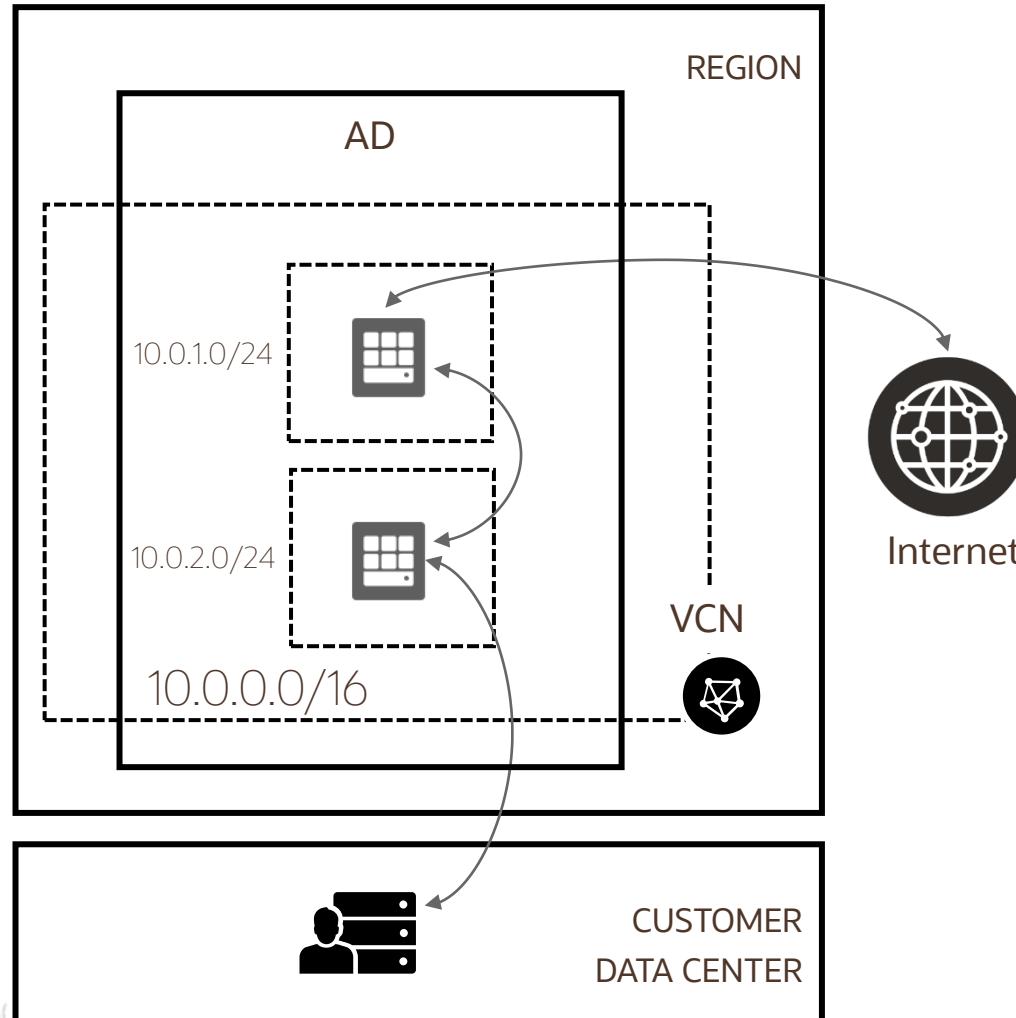


VCN Overview



- Software defined private network that you set up in OCI
- Enables OCI resources such as compute instances to securely communicate with Internet, other instances or on-premises data centers
- Lives in an OCI region
- Highly Available, Scalable and Secure

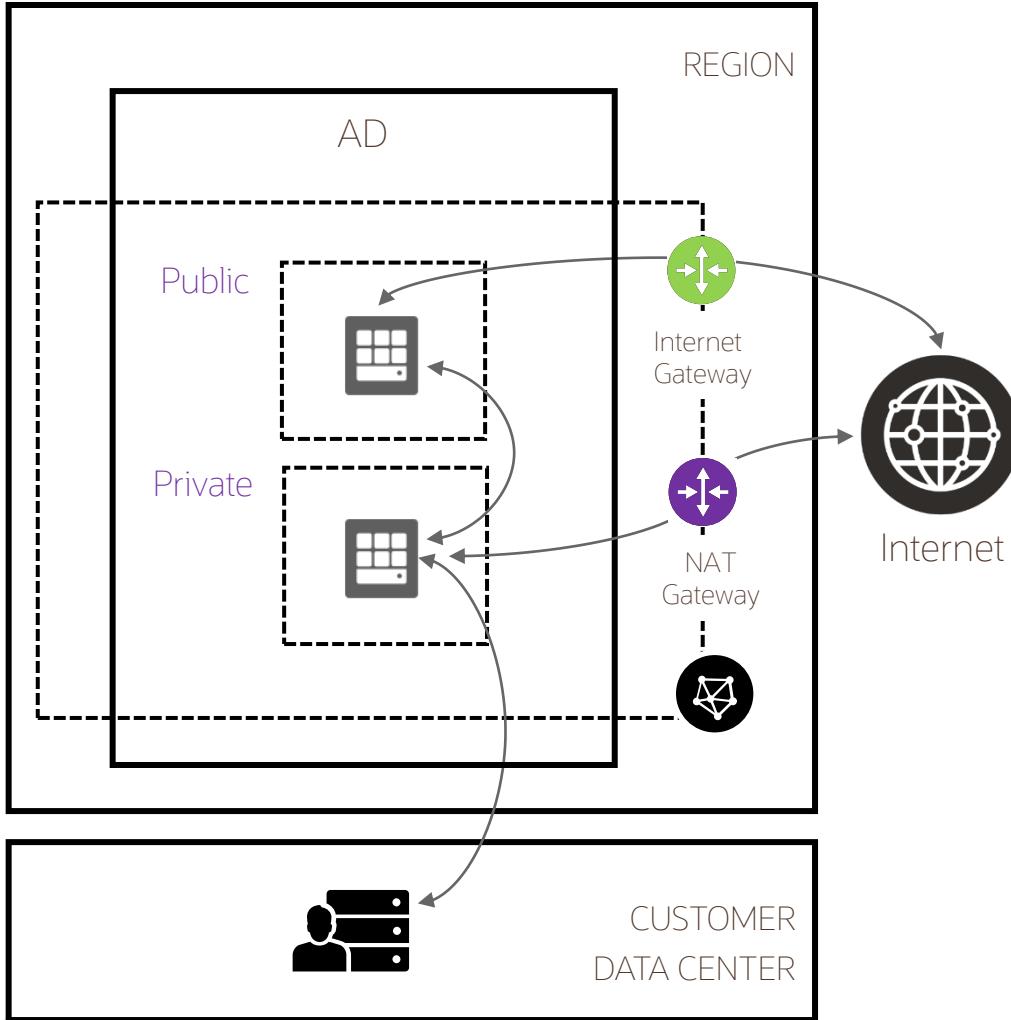
VCN Address Space



- Address space is a range of IP address that you assign to a VCN E.g., 10.0.0.0/16
 - Range: 10.0.0.0 – 10.0.255.255
- Every resource that is connected to this VCN will get its own unique private IP address
 - Server 1: 10.0.1.2
 - Server 2: 10.0.2.2
- Subnets let you divide the VCN into one or more sub networks
 - E.g., 10.0.0.0/16 – 10.0.1.0/24, 10.0.2.0/24..
 - Compute instances are placed in subnets
 - Subnets can be isolated and secured



Communication with the Internet



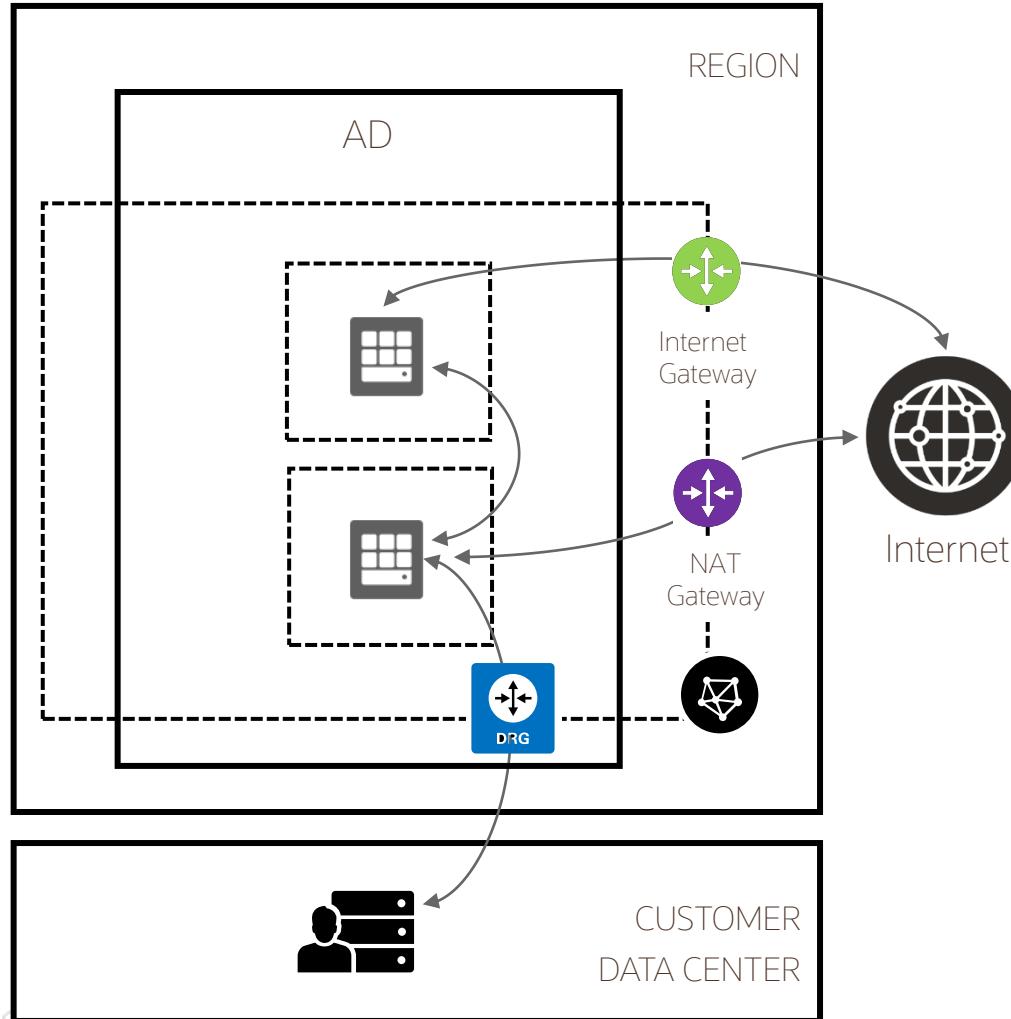
Internet gateway provides a path for network traffic between your VCN and the internet

NAT Gateway enables outbound connections to the internet, but blocks inbound connections initiated from the internet

Use case: updates, patches



Communication to On-Premises



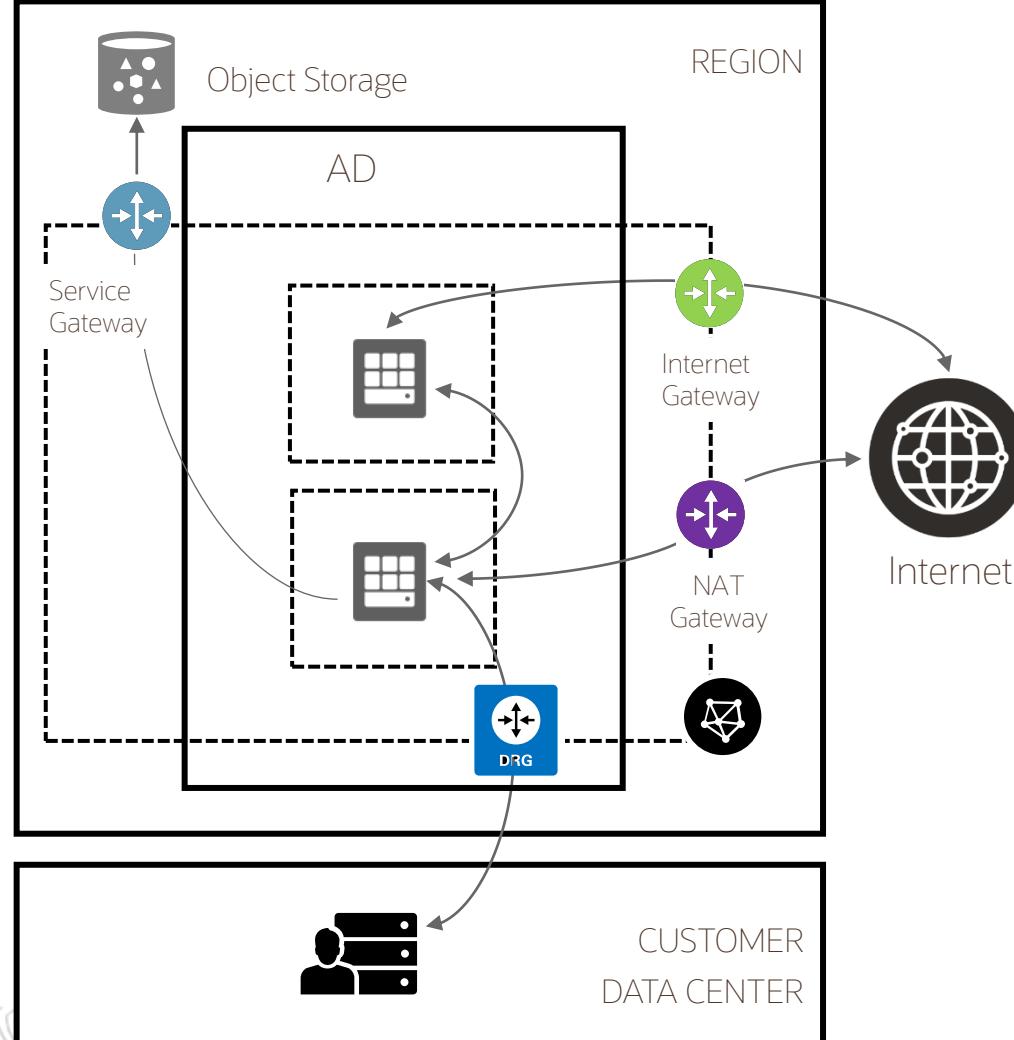
DRG is a virtual router that provides a path for private traffic between your VCN and destinations other than the internet

You can use it to establish a connection with your on-premises network via

- IPsec VPN
- FastConnect
(Dedicated connectivity)



Communication to Public OCI Services



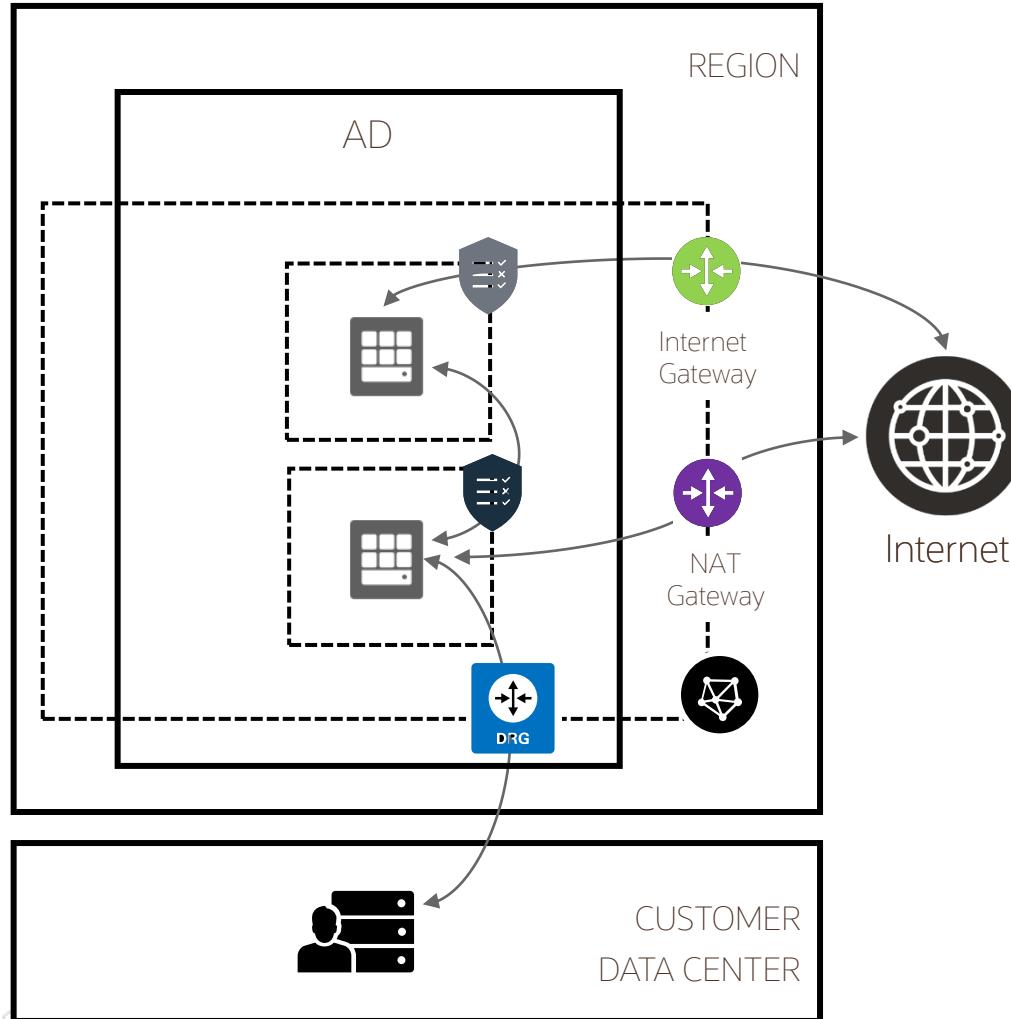
Service gateway lets resources in VCN access public OCI services such as Object Storage, but without using an internet or NAT gateway

Any traffic from VCN that is destined for one of the supported OCI public services uses the instance's private IP address for routing, travels over OCI network fabric, and never traverses the internet.

Use case:
Back up DB Systems in VCN to Object Storage



VCN Security



A common set of firewall rules associated with a subnet and applied to all instances launched inside the subnet

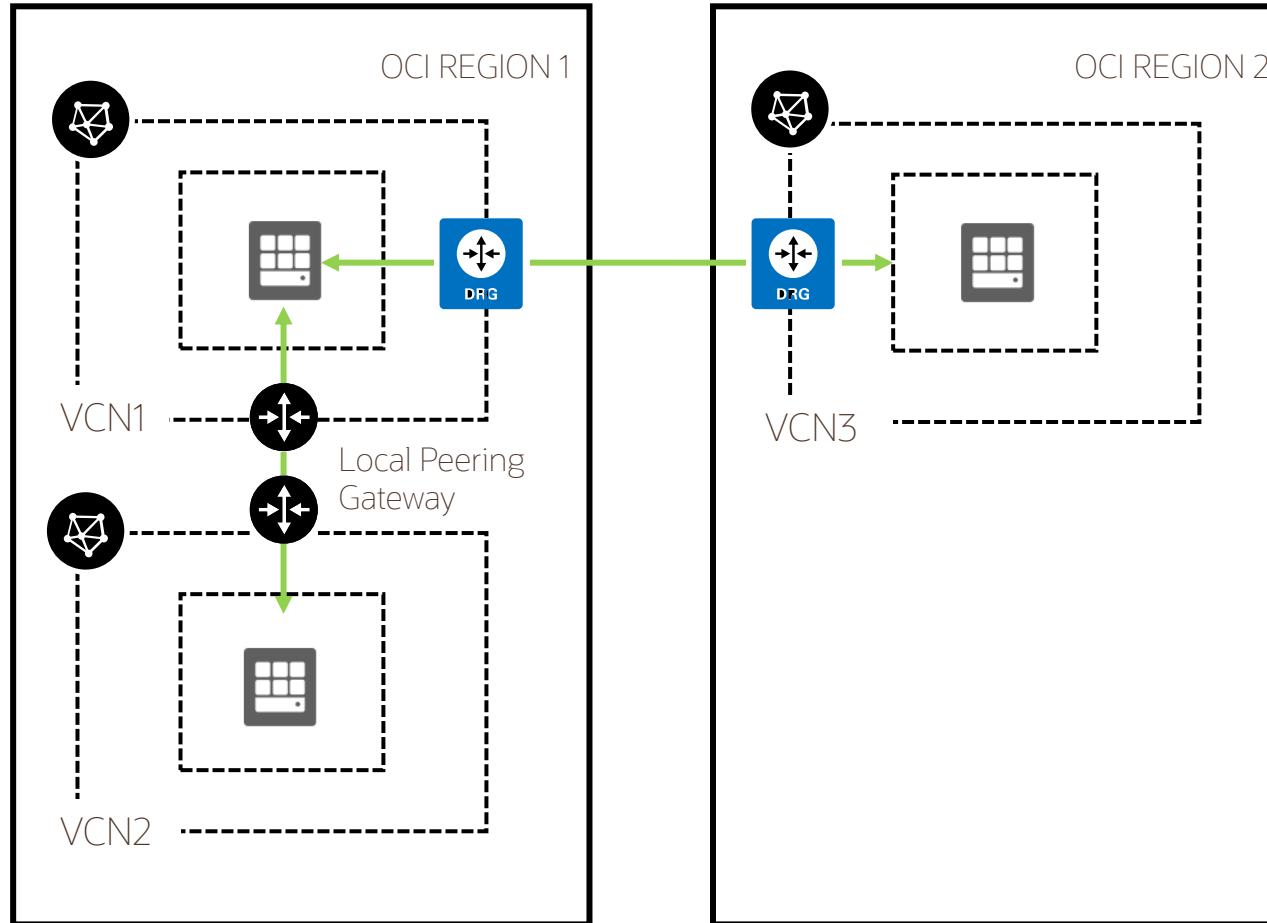
- Security list consists of rules that specify the types of traffic allowed in and out of the subnet
- Security list apply to a given instance whether it's talking with another instance in the VCN or a host outside the VCN
- Stateful or stateless

	Direction	CIDR	Protocol	Source Port	Dest Port
	Stateful	Ingress	0.0.0.0/0	TCP	All 80
	Stateful	Egress	10.0.2.0/24	TCP	All 1521

- Network Security Group consists of set of rules that apply only to a set of VNICs of your choice



Communications to Others VCN: Peering



VCN peering is the process of connecting multiple VCNs

Local VCN Peering is the process of connecting two VCNs in the same region so that their resources can communicate using private IP addresses

Remote VCN Peering is the process of connecting two VCNs in different regions so that their resources can communicate using private IP addresses

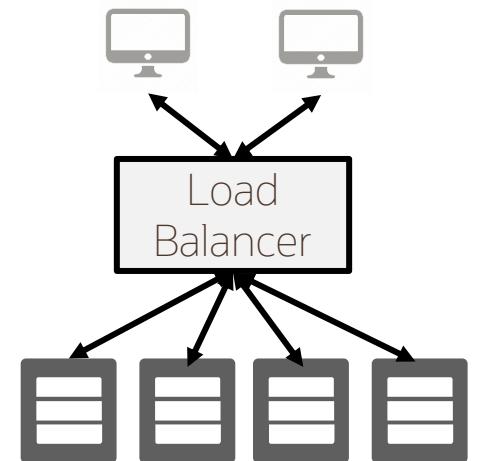


Load Balancer

- A load balancer sits between the clients and the backends performs tasks such as:
- **Service Discovery:** What backends are available? How should LB talk to them?
- **Health Check:** What backends are currently healthy to accept requests?
- **Algorithm:** What algorithm should be used to balance individual requests across the healthy backends?

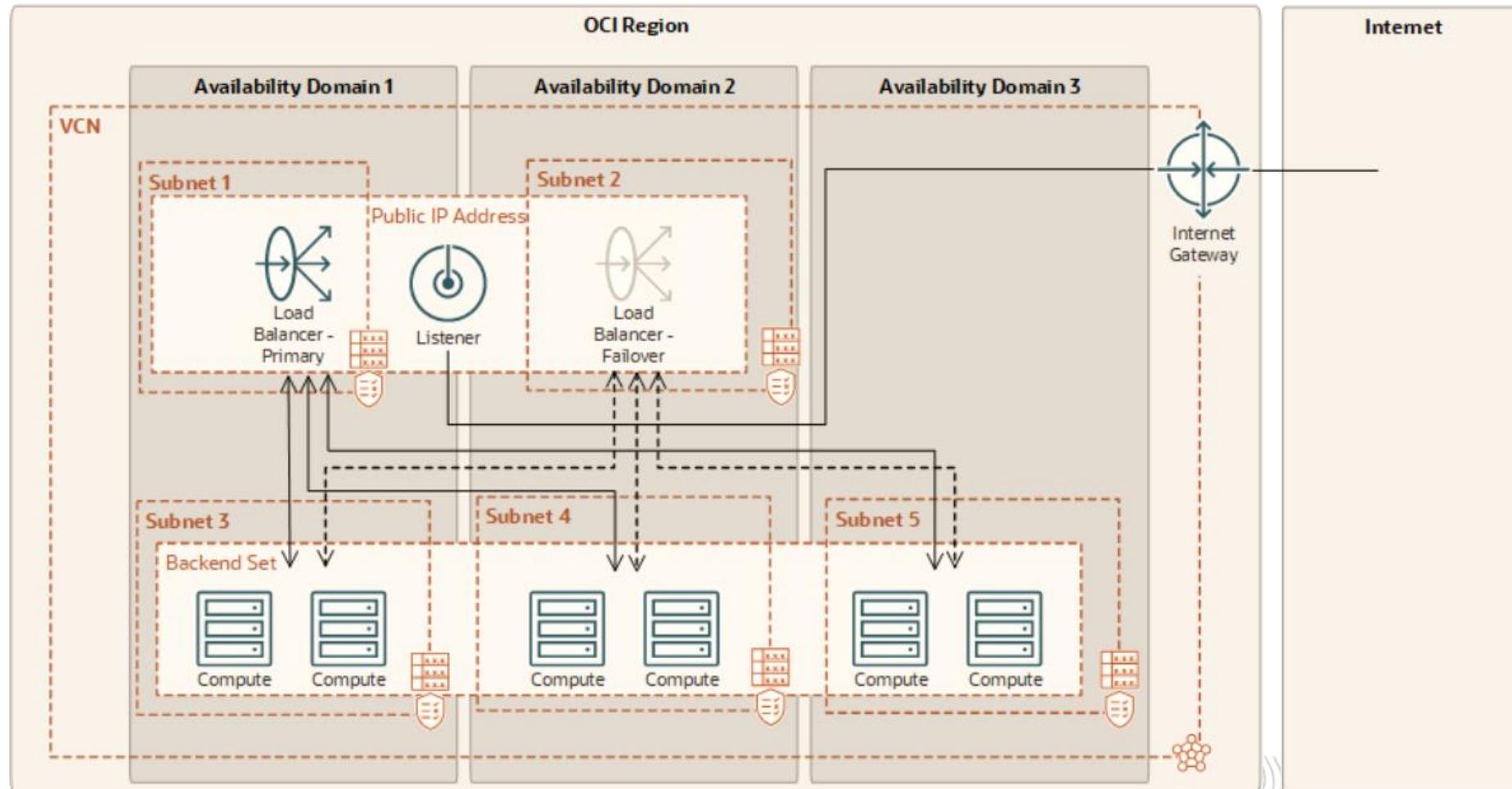
Load Balancer benefits

- **Fault tolerance and HA:** using health check + LB algorithms, a LB can effectively route around a bad or overloaded backend
- **Scale:** LB maximizes throughput, minimizes response time, and avoids overload of any single resource
- **Naming abstraction:** name resolution can be delegated to the LB; backends don't need public IP addresses



Public Load Balancer

Simple Load Balancer Diagram



Compute



OCI Compute Services



Bare Metal

Code
App Container
Language Runtime
Operating System
Virtualization



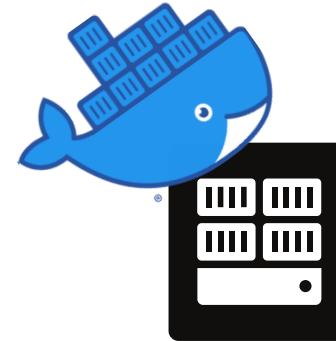
Dedicated Virtual Hosts

Code
App Container
Language Runtime
Operating System



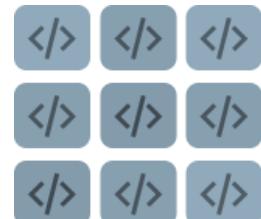
Virtual machines

Code
App Container
Language Runtime
Operating System



Container Engine

Code
App Container



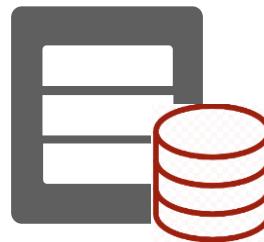
Functions

Code



Bare Metal Use Cases

Direct Hardware Access with all the Security, Capabilities, Elasticity and Scalability of OCI



Workloads that are
Performance-intensive



Workloads that are
not virtualized

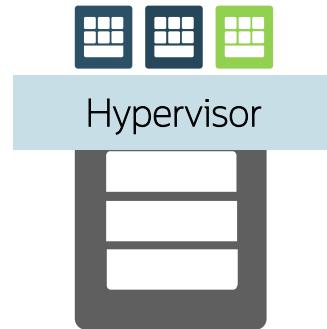


Workloads that require
a specific hypervisor



Workloads that
require BYO Licensing

VM Use Cases



Use VMs when you want to control all aspects of an environment

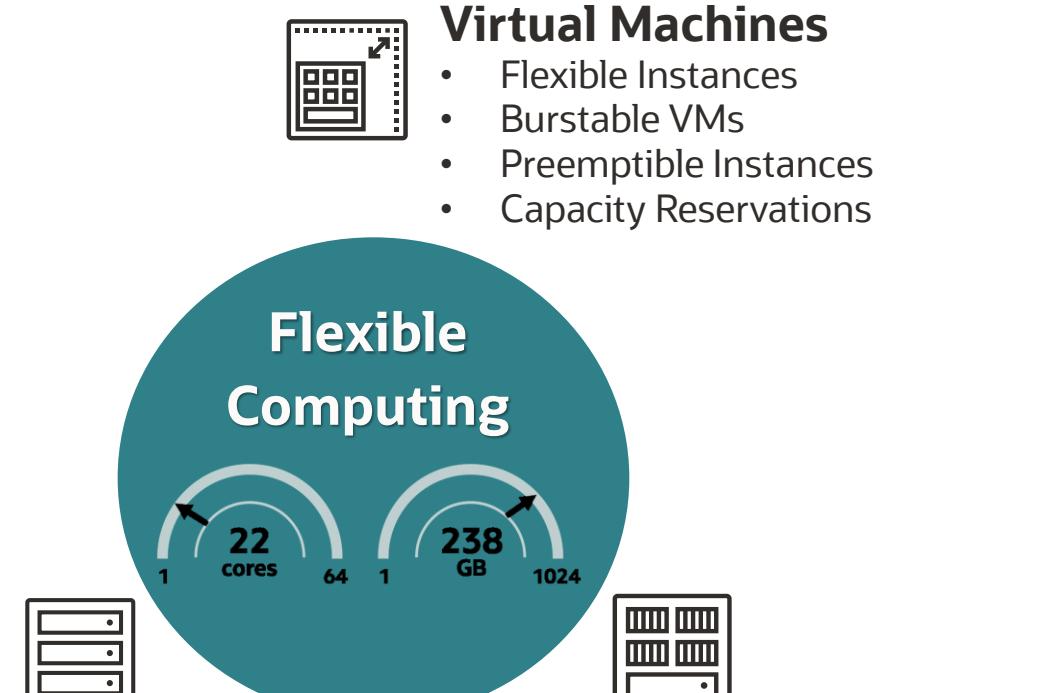
Use VMs when you want to deploy a legacy app running on Windows or Linux

You can use VMs to move applications from on-premises to Oracle Cloud Infrastructure

VMs require work – OS patch management, security configuration, monitoring, application configuration and scaling to handle variable traffic

OCI Instance Options

- **Preemptible Instances:** Run at 50% cost of on-demand compute for fault-tolerant and interruptible workloads
- **Burstable VMs:** Pay for what you need, burst to get more power
- **Flexible Instances:** Run flexible shapes with odd core counts and non-std memory (ex: 3 cores, 156G RAM)
- **Capacity Reservations:** Ensured capacity for critical events and unexpected spikes



More information

[Ensure business continuity with capacity reservations \(oracle.com\)](https://oracle.com)

[Run your low-CPU workloads more cost-effectively with burstable VMs \(oracle.com\)](https://oracle.com)



Scaling

Vertical Scaling

- Scale-up and Scale-down instance shape supported
- New shape must have the same hardware architecture.
- Downtime is required. The instance must be stopped before resize it

Horizontal Scaling

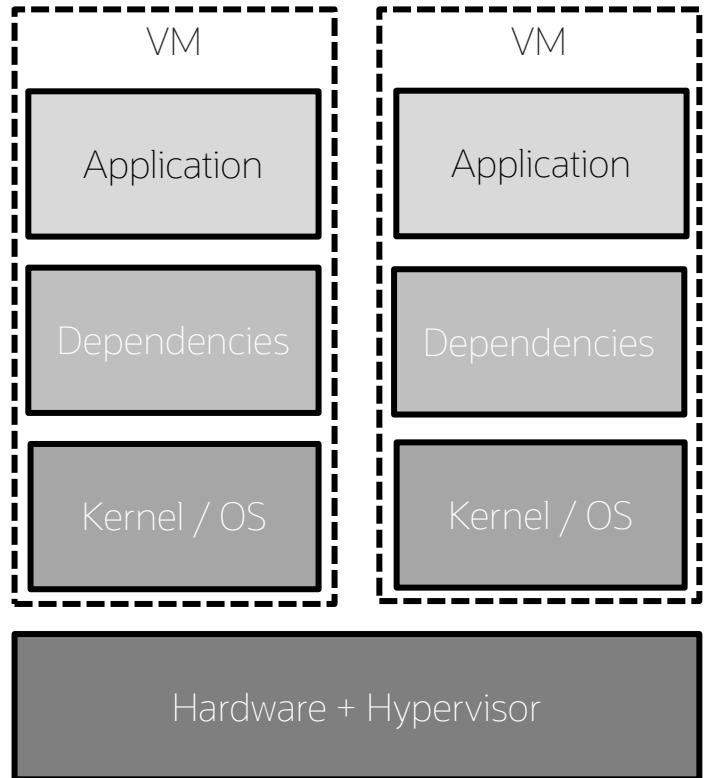
- Enables large scale deployment of VMs from a single gold image with automatic configuration
- Referred to as scale-out or scale-in
- Match traffic demand by adding or removing VMs automatically (supports auto scaling based on metrics – CPU or Memory utilization)

Bustable Instances

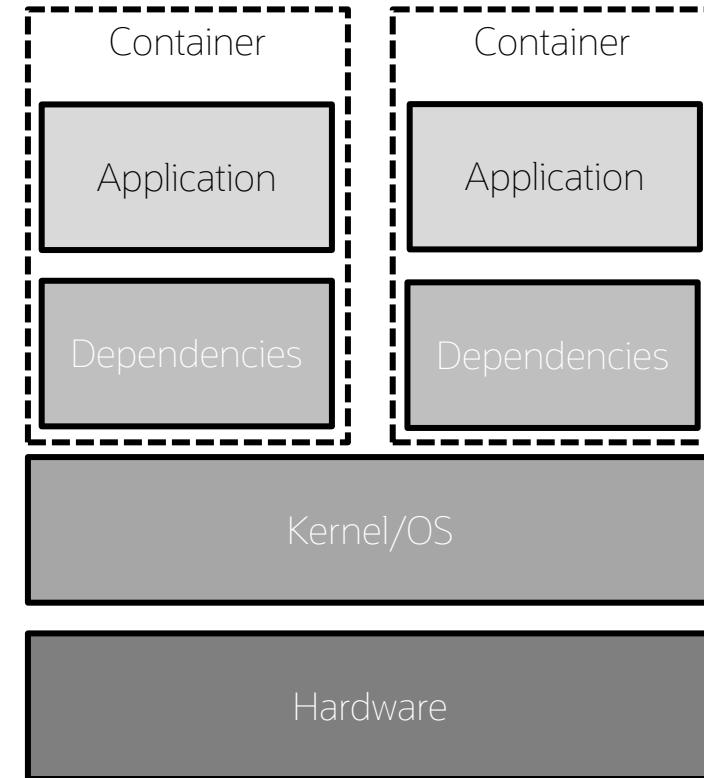
Right-Size Your VM Instances to Support Your Workload



Containers vs. VMs



Each virtual machine (VM) includes the app, the necessary binaries and libraries and an entire guest operating system

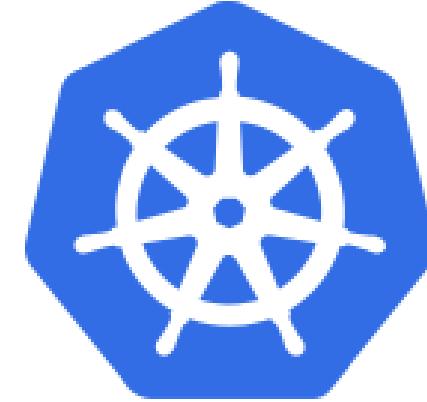


Containers include the app & all of its dependencies, but share the kernel/OS with other containers. Containers are not tied to any specific infrastructure and can run anywhere



What's Kubernetes (K8s) ?

- **Open-source system** for automating deployment, scaling, and management of containerized apps
- **K8s is synonymous with Cloud Native** and modernization – most popular technology in stack
- **Kubernetes is mainstream** – and growing rapidly
- **Use cases expand beyond applications** – includes **auxiliary workloads & IT operations**:
 - ETL, Batch jobs, Pipelines
 - Messaging, Utilities, Security operations
 - consuming compute such as HPC or GPUs
 - and even databases running in Kubernetes



2022
The year cloud native became the new normal

OKE Key Features

Built-in Management

- Fully managed control plane
- Highly-managed data plane components
- Automatic scaling

Reliability

- Highly available by default
- Node Doctor for easy troubleshooting

Price Performance

- Rightsized compute through Flex shapes and Flexible Load Balancers
- Predictable and consistent performance
- Enterprise support included



Open Standards

- Certified Kubernetes conformant
- Open Container Initiative compliant
- No vendor lock-in

Deployment Flexibility

- Choose from Managed or Virtual Nodes (for a complete serverless experience)
- DevOps integration for deployment
- Rich compute shape support: HPC, GPU, ARM, Flex, Bare Metal, and VM
- Available in all commercial regions and OCI Dedicated Region

Advanced Security

- Private clusters and registry
- Encryption by default
- Container Image Scanning & Signing
- Conformance with Kubernetes STIG, NSA, DoD, CISA
- Regulatory Compliance (FedRAMP, HIPAA, SOC, etc.)

Extensibility

- Operators for OCI services and Oracle DB
- Leverage any Kubernetes software
- Seamless integration with OCI services



Oracle Functions

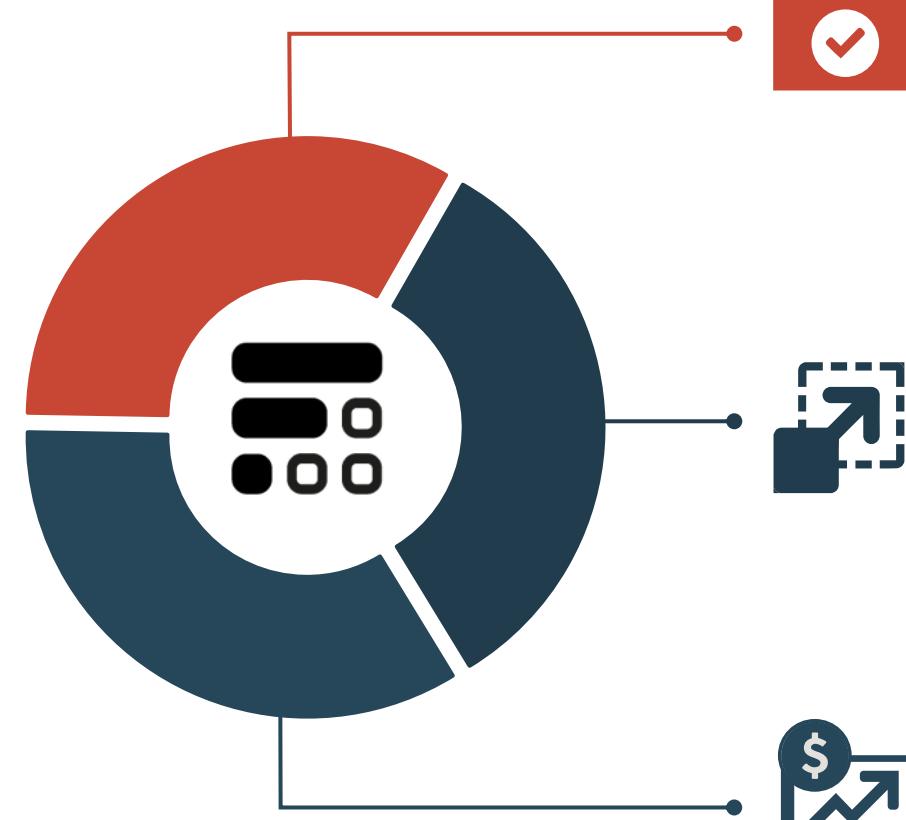
Functions-as-a-Service

Oracle Cloud Integrated

Container Native

Open Source

Secure



Pay per use

Pay for execution,
not for idle time

Autonomous

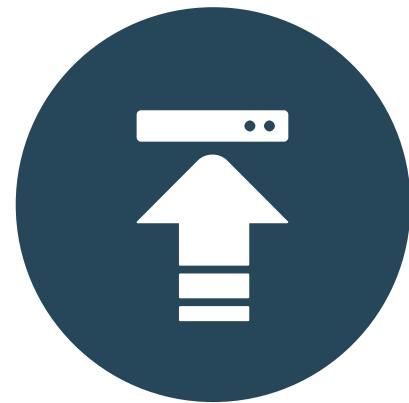
Platform auto-scales functions
No servers to provision, manage

Event-driven

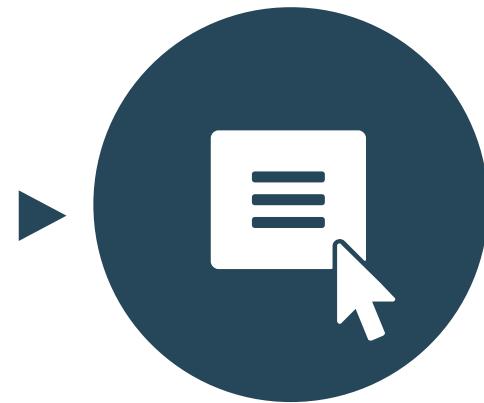
Oracle Cloud Infrastructure
triggers to run your code



How does it work ?



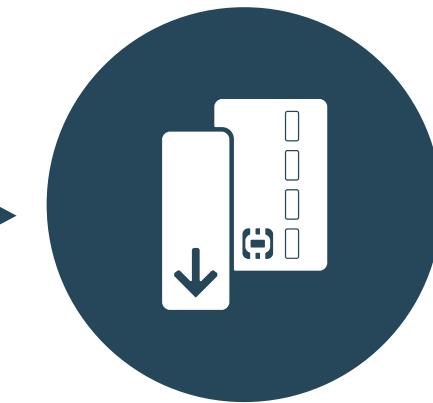
**Push function
image to
registry**



**Configure
function
trigger**



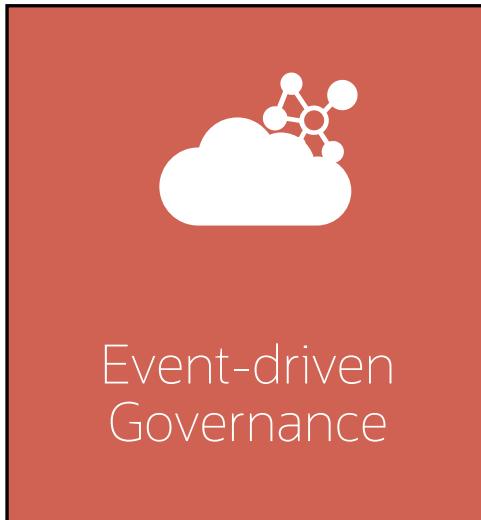
**Code runs
only when
triggered**



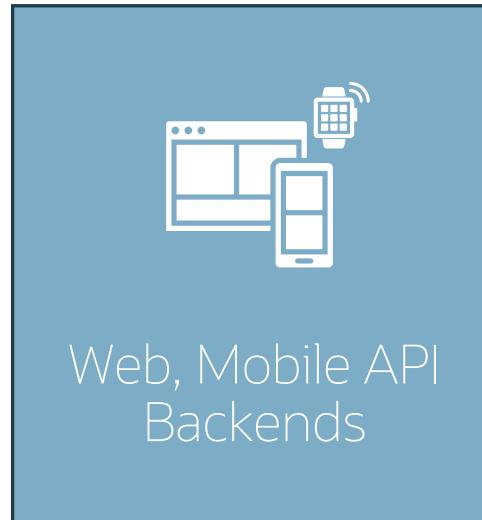
**Pay for code
execution time
only**

Common Use Cases

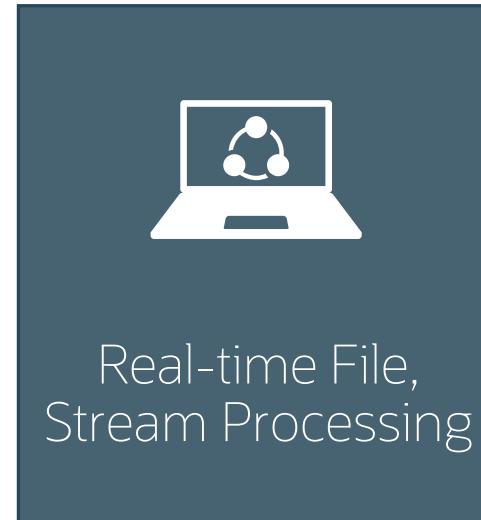
Trigger Code in Response to Events



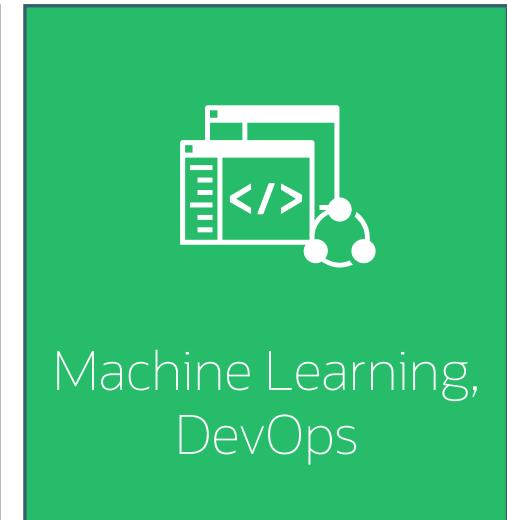
Event-driven
Governance



Web, Mobile API
Backends



Real-time File,
Stream Processing



Machine Learning,
DevOps

Storage



OCI Storage Concepts

Persistent

non-persistent

Durability

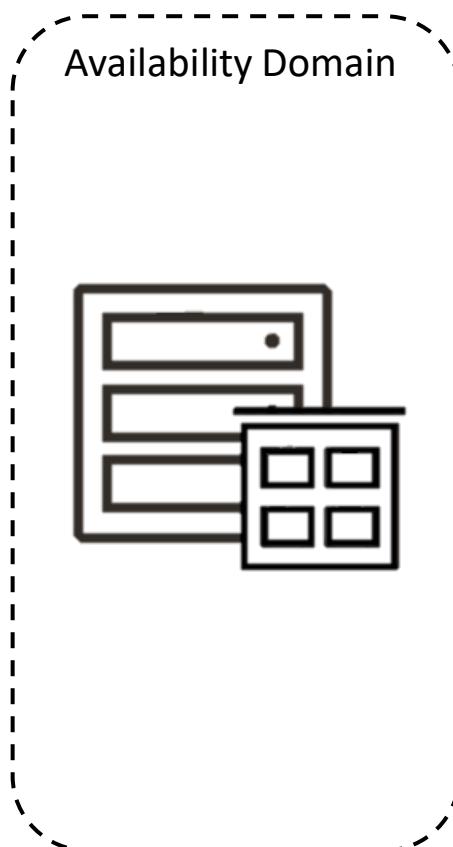
Persistence

Performance

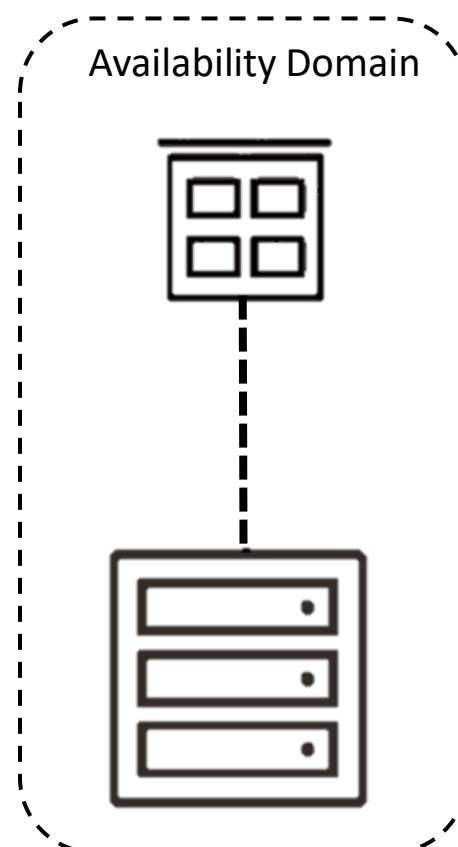
Connectivity

OCI Storage Service

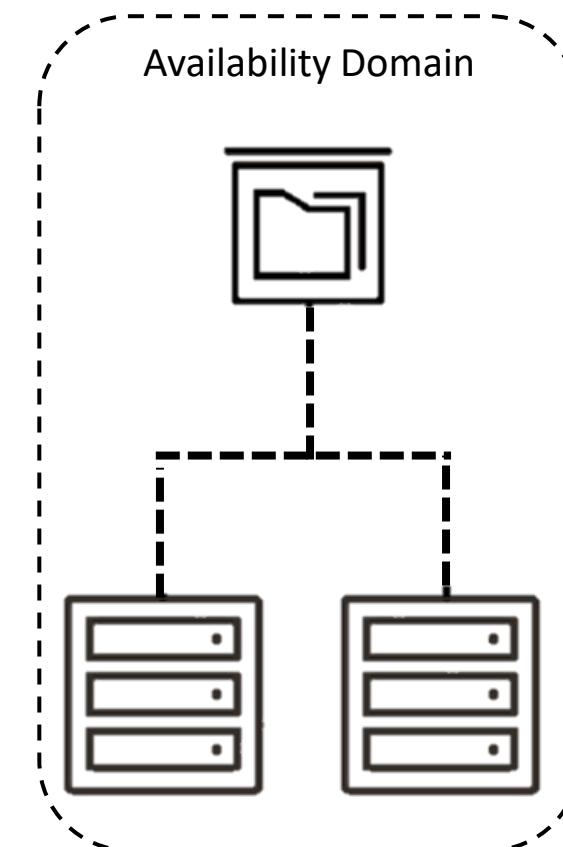
Local NVMe



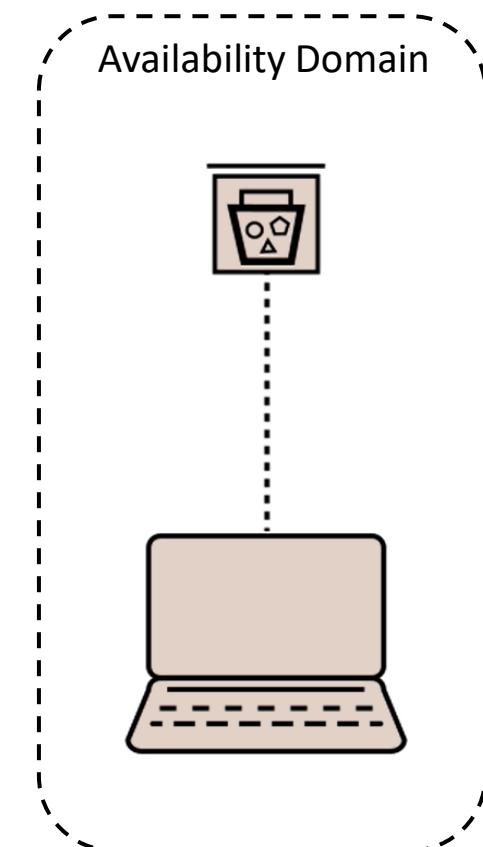
Block Volume



File Storage

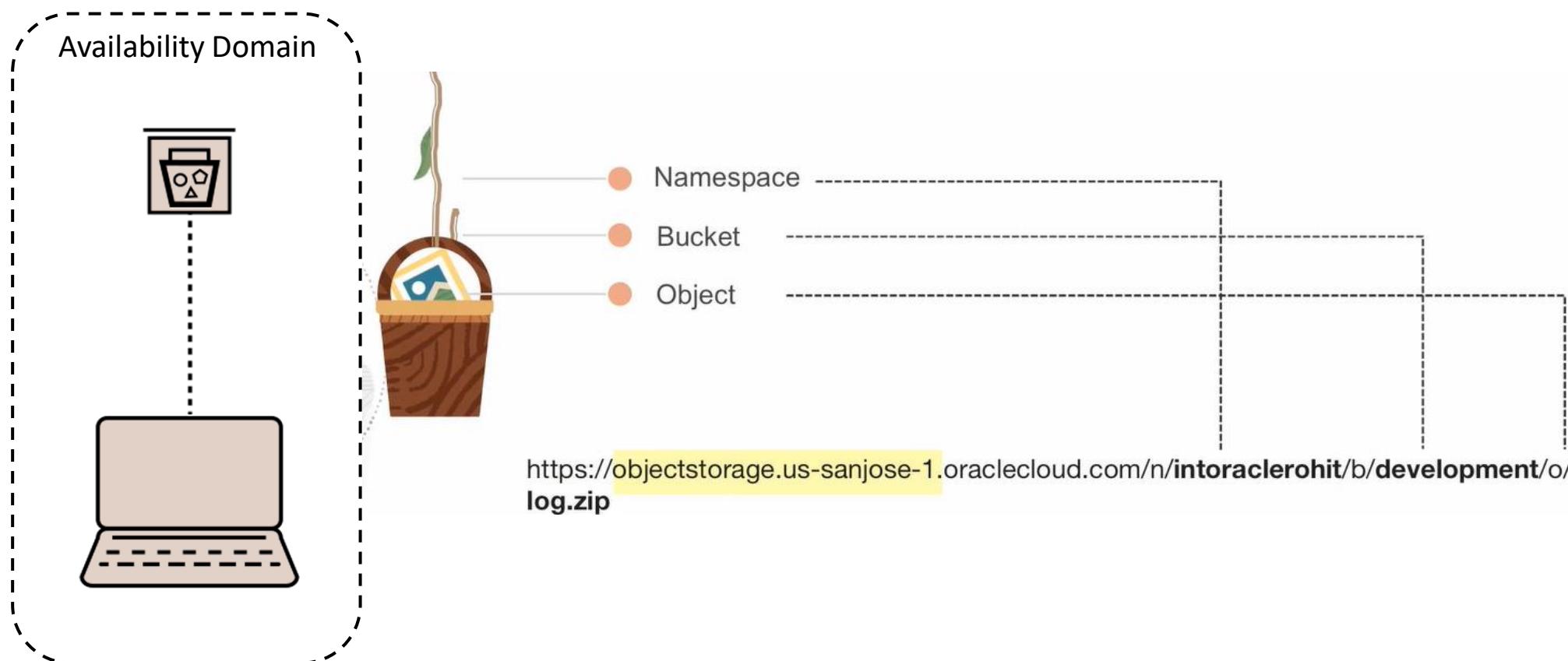


Object Storage



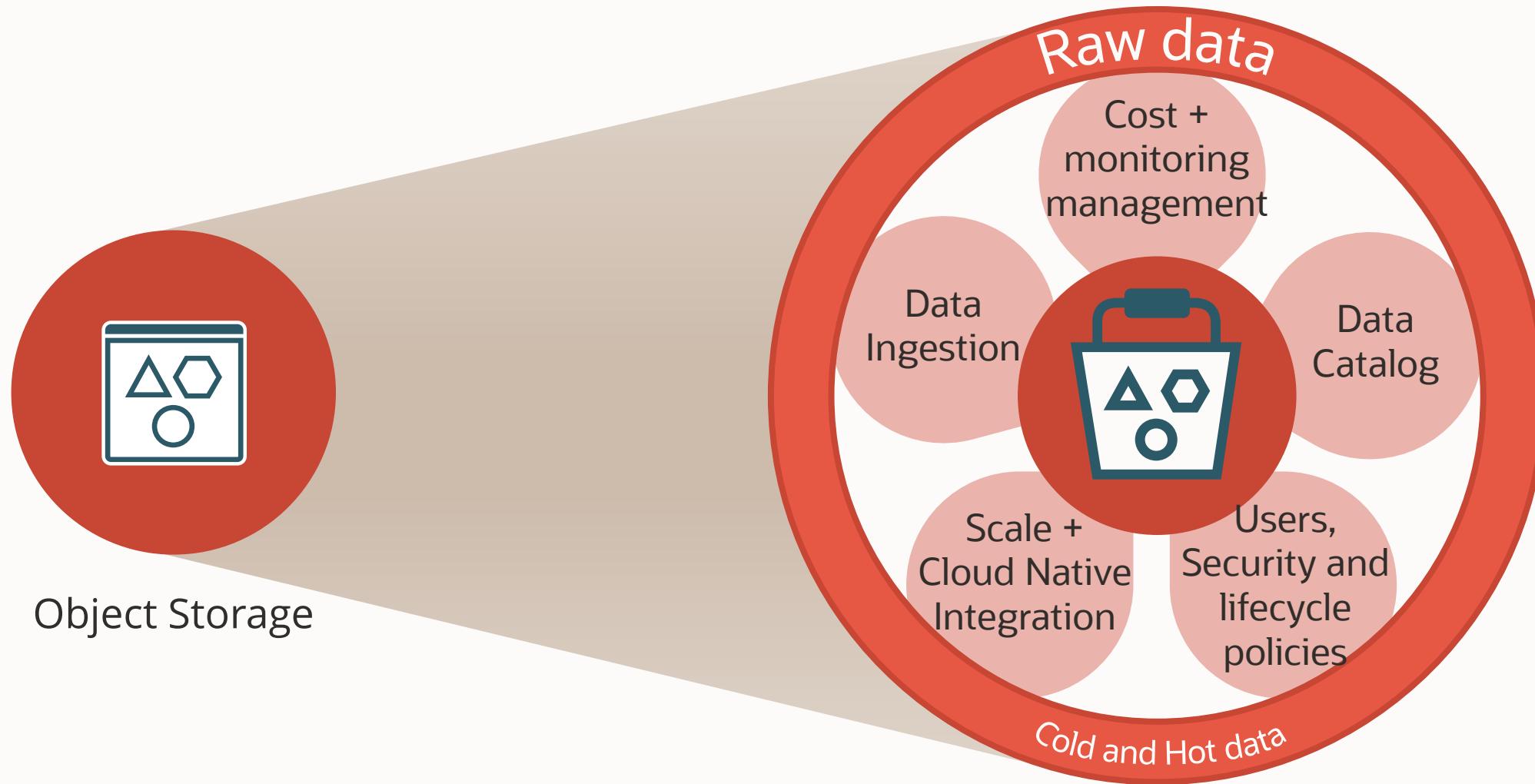
Object Storage

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)

- Infrequent 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

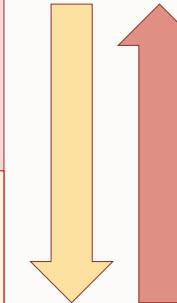
Archive Storage Tier (Cold)

- 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

Object Lifecycle Management

- You can automatically manage the archiving and deletion of objects

Auto-Tiering



Create Bucket

Bucket Name

bucket-20210410-2027]

Default Storage Tier

Standard

Archive

The default storage tier for a bucket can only be specified during creation. Once set, you can

Enable Object Versioning

Create an object version when a new object is uploaded, an existing object is overwritten

Emit Object Events

Create automation based on object state changes using the [Events Service](#).

Encryption

Encrypt using Oracle managed keys

Leaves all encryption-related matters to Oracle.

Encrypt using customer-managed keys

Requires a valid key from a vault that you have access to. [Learn more](#)

Create

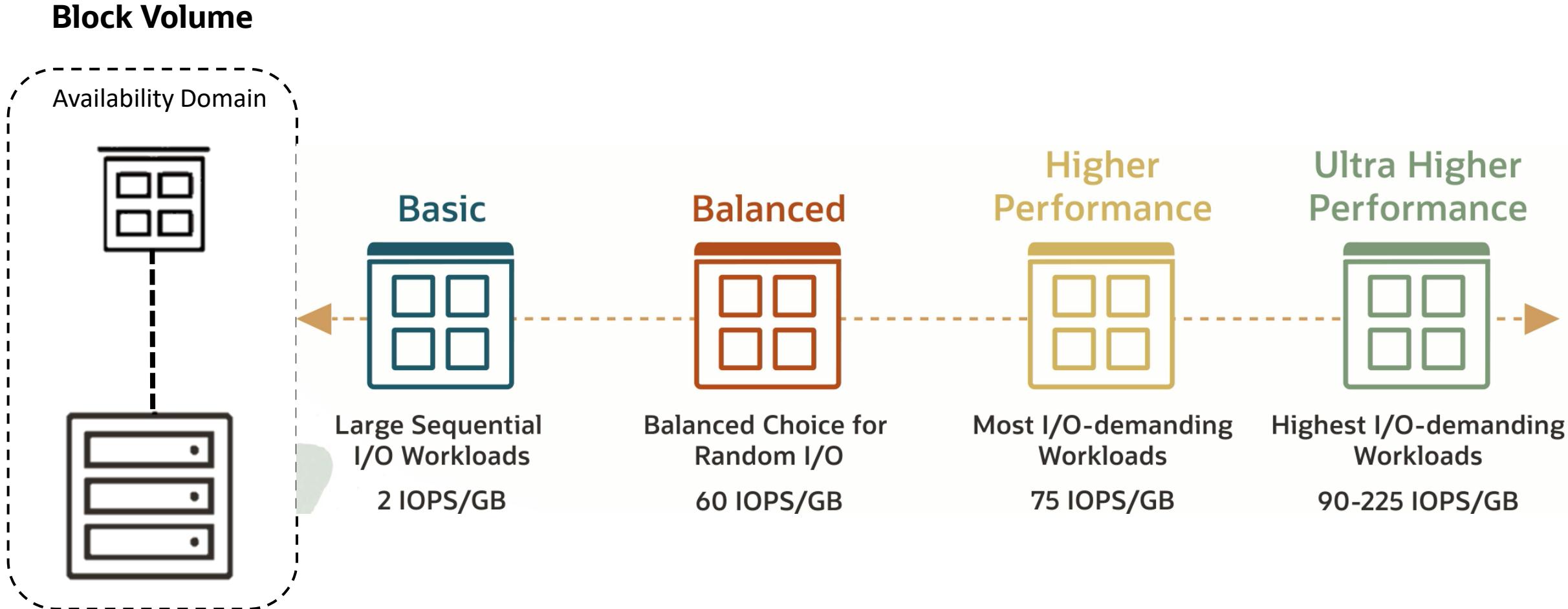
Cancel

Object Storage- Features

Auto-Tiering

Lifecycle Management

Block Volume



Block Volume Features

Autotune

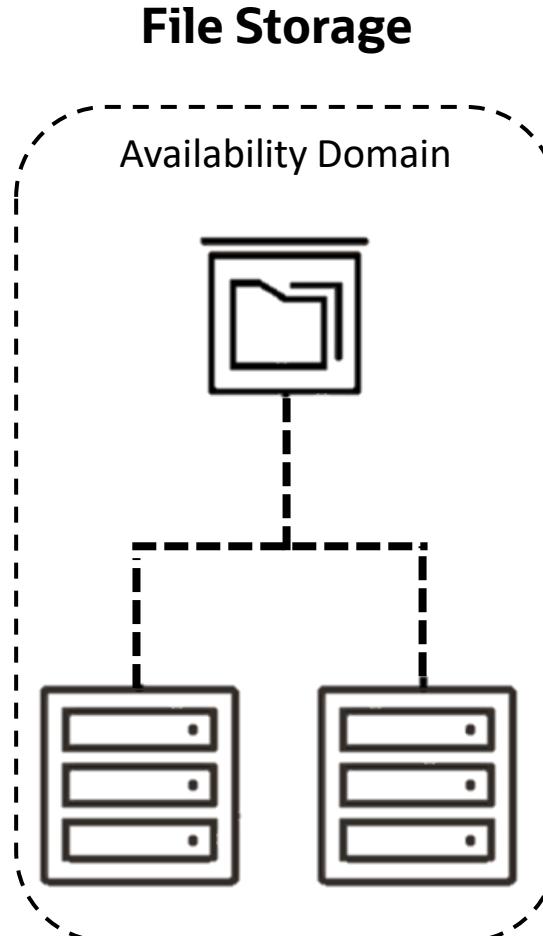
Read/Write Shareable

Online and Offline Resizing

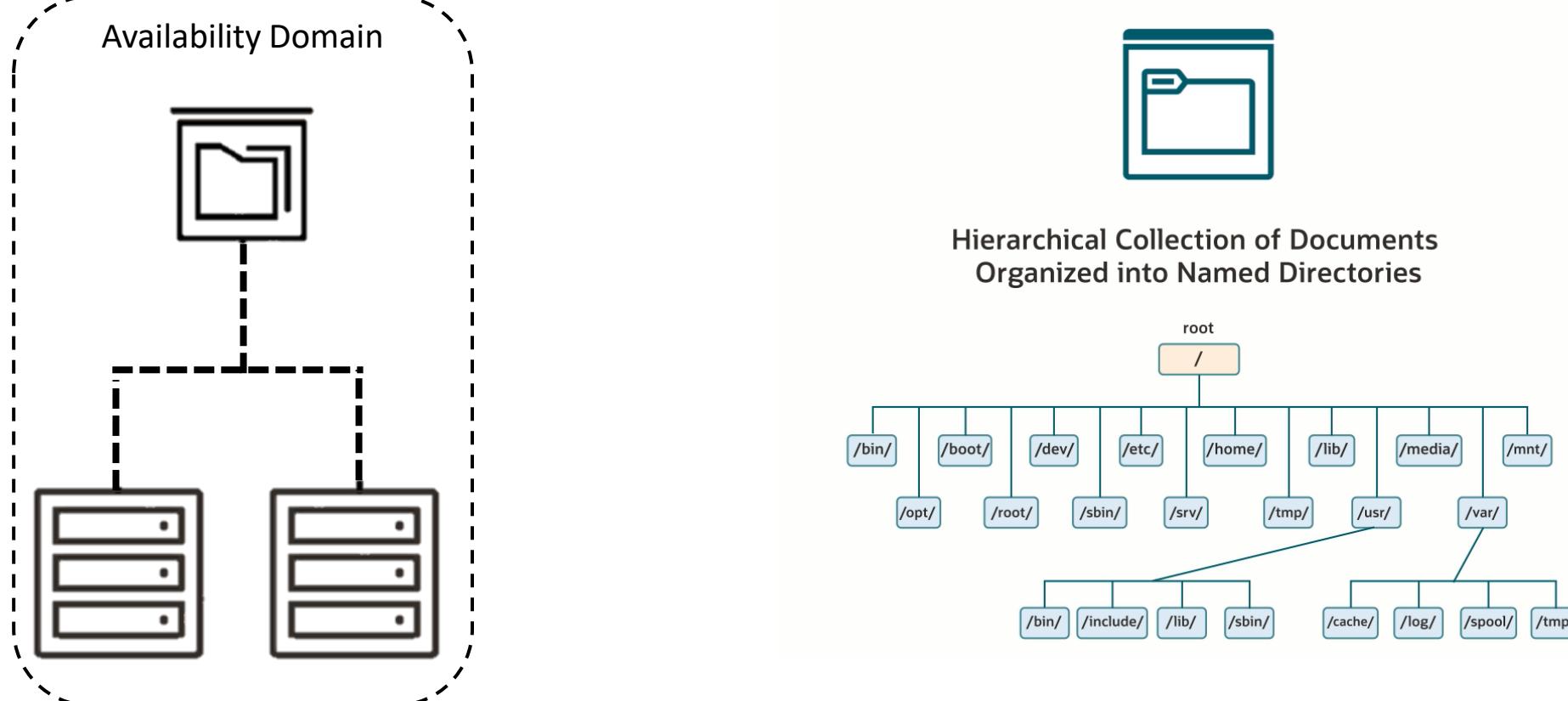
Replication of Block Volume

Block Volume Group

File Storage



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)



Databases



OCI Oracle Database options

Oracle Public Cloud



Base Database Service



Exadata Database Service on Dedicated Infrastructure



Autonomous Database on Shared & Dedicated Exadata Infrastructure

Customer Data Center



Exadata Database Service on Cloud@Customer



Autonomous Database on Exadata Cloud@Customer

Oracle Cloud Infrastructure

Co-Managed

Autonomous

Cloud@Customer

Co-Managed

Autonomous

Oracle Database Deployment

Virtual Machines (VMs)

- Easier deployment for **small databases**.
- You may provision 1 OCPU, the minimum Compute Power unit available on Oracle Cloud.
- Memory allocation related to the selected VM shape.
- Size of storage may be scaled up as needed at any time.
- The number of CPU cores on an existing VM DB system cannot be changed.
- **Option of selecting an older database version.**
- Oracle RAC may be enabled in a 2-node DB cluster.
- Data Guard within and across ADs is available for VM DB systems (requires DB Enterprise Edition).



Oracle Database Deployment

Bare Metal (BMs)

- Direct access to the machines (Bare Metal definition)
- **Better performance due to the lack of virtualization.**
- Locally attached 51 TB NVMe storage (raw).
- Start with 2 cores and **scale up/down OCPUs based on requirement.**
- Data Guard within and across ADs (requires DB Enterprise Edition).
- If single node fails, launch another system and restore the databases from current backups.
- Oracle RAC not available ([Deploy a highly available bare metal database](#))



Oracle Database Deployment

Exadata DB System

- Full Oracle Database with all advanced options.
- On fastest and most available database platform.
- Scale-Out Compute, Scale-Out Storage.
- Complete Isolation of tenants with no overprovisioning.
- All Benefits of Public Cloud in Cloud@Customer.
- Fast, Elastic, Web Driven Provisioning.
- Oracle Experts Deploy and Manage Infrastructure.



Oracle Exadata is the best place to run Oracle Database

A fully automated and optimized platform coengineered with Oracle Database



Autonomous Database and Oracle Database

- Unique capabilities available only with Exadata
- Available in OCI and customer data centers

Database-Aware System Software

- Smart system software with unique algorithms accelerate OLTP, analytics, and consolidated workloads
- Automatic storage tiering and resource management with I/O prioritization by workload

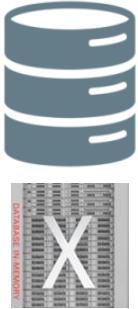
Scalable, Highly Available Hardware

- Scale-out with optimized compute, networking and storage for best performance at lowest cost
- Fully automated and optimized configuration, performance, fault-tolerance, and updates



Autonomous Database

Autonomous
- Shared Autonomous
- Dedicated



Fully managed database with 3 workload types

- Autonomous Transaction Processing
- Autonomous Data Warehouse
- Autonomous JSON Database

Deployment options

- Dedicated: you have exclusive use of the Exadata hardware. Supported for both ATP and ADW / AJD.
- Shared: you provision and manage only the Autonomous DB, while Oracle handles Exadata infrastructure deployment and management. Supported for both ATP and ADW / AJD.

Automates the following tasks

- Backing up the database
- Patching the database (incl. maintenance w/o downtime)
- Upgrading the database
- Tuning the database

MySQL Database Service

Fully managed MySQL Enterprise database running on OCI

MySQL automatizes a series of manual operations, such as scaling, applying patches and upgrades, OS management, etc...

Cheaper than running MySQL on VMs in other clouds.

Includes Security features like Masking, TDE, Audit and Backup.

User may deploy Heatwave to leverage faster analytics via this OLAP Engine

Possible to deploy HA architecture, replicated in 3 different sites.



MySQL Database Service

- Fault-tolerant system with automatic failover and zero data loss

- Single Click High Availability
- Automatic Failover
- Increased Uptime
- Zero Data Loss

- Recover Time Objective (RTO): Minutes
- Recovery Point Objective (RPO): Zero

Create MySQL DB System

Standalone

Single-instance MySQL DB System

High Availability

Run 3-node MySQL DB System providing automatic failover and zero data loss



Governance & Administration



Flexible consumption models with Universal Credits

Choice of Consumption Models

- Available with all Cloud Services BYOL, IaaS and/or PaaS subscriptions

Pay As You Go (PAYG)

Best when usage is uncertain

- No upfront fees or commitment
- Usage billed monthly in arrears
- Pay only for what you use

Annual Flex

Lowest cost without sacrificing flexibility

- Universal access to all IaaS and PaaS Oracle Cloud Services
- Annual consumption commitment of \$2k or more
- Minimum term of 1 year
- Billed in advance and debited monthly based on actual usage
- Discounts available based on consumption levels and term
- Pricing remains fixed for term of agreement with any consumption overages billed at fixed price

Simplified business experience with one simple agreement describing financial relationship.

[UC Price list](#), [BYOL FAQs](#)



Factors that impact pricing

Resource Size

Bigger resources cost more!

Data Transfer

**No Ingress cost
Careful with Egress cost**

Resource Type

**VMs v/s BMs
VMs v/s Functions
BYOL v/s managed DBs..**

All OCI regions have the same pricing!



Cost Estimator

[Page Link](#)

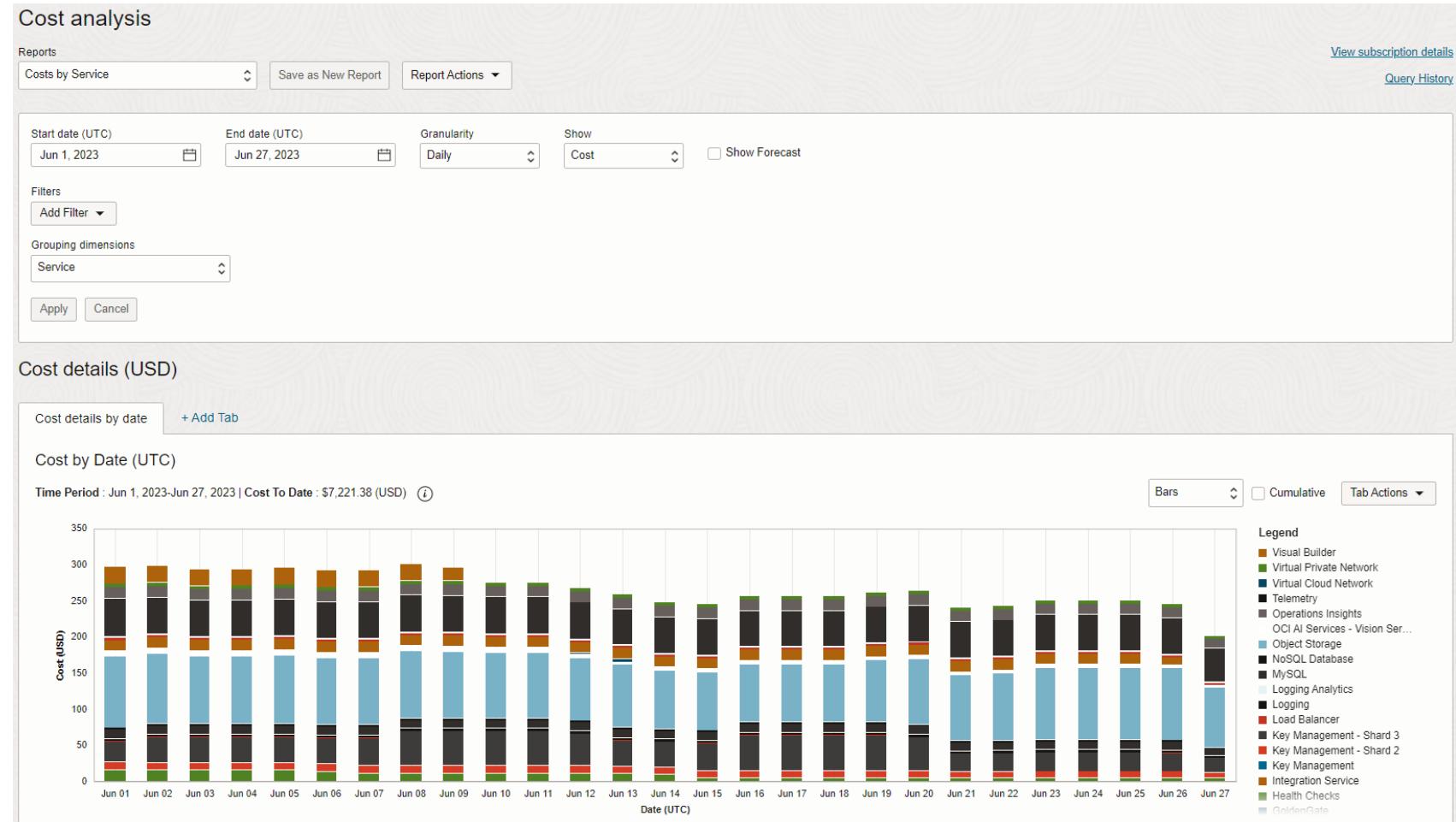
- Generate Costs Estimates based cloud services usage.
- You can choose from single services, to Reference Architectures, and can customize the services based on the customer need
- You can see price details for your customer Architecture or OCI services
- Save the estimate or export as spreadsheet to compare the TCO, ROI or just monthly costs with others cloud provides costs

The screenshot shows the 'My Estimate' dashboard. At the top, there's a navigation bar with 'My Estimate', a help icon, and a link to 'Configure and estimate costs for OCI services (Learn more)'. On the right, there are buttons for 'Start for Free', currency selection ('USD - US Dollar'), and 'Estimated Monthly Cost \$0.00' with a refresh icon. Below the navigation is a search bar with a dropdown menu for 'Select category' (set to 'All Categories') and a 'Search' input field with a clear button. A horizontal menu bar includes 'Services' (which is underlined), 'Compute shapes', 'Reference architectures', 'My favorites', and 'Advanced Search'. The main content area is titled 'Most Popular Services' and lists eight services with 'Load' buttons:

- Compute VM**: A fully scalable multi-tenant Virtual Compute environment to run applications with uncompromised performance, control and built-in resiliency.
- Base Database Service - Virtual Machine**: Base Database Service - Virtual Machine allows you to create and manage full-featured Oracle Database systems in the cloud. It can be provisioned on virtual machines with block storage to provide high performance and cost-efficient pricing.
- Object Storage**: Object Storage enables customers to store any type of data in its native format. This is ideal for building modern applications that require scale and flexibility, as it can be used to consolidate multiple data sources for analytics, backup, or archive purposes. Infrequent Access Storage and Archive Storage offer cost effective alternatives.
- Block Volumes**: Oracle Cloud Block Volumes provide reliable, high-performance block storage designed to work with a range of virtual machines and bare metal instances. With built-in redundancy, Block Volumes are persistent and durable beyond the lifespan of a virtual machine and can scale to 1 PB per compute instance.
- Autonomous Database**: Oracle Autonomous Database is a cloud database service that eliminates virtually all the complexities of operating a data warehouse, securing data, and developing data-driven applications.
- Exadata Database Service**: Oracle Exadata is the fastest platform to run the Oracle Database, allowing enterprises to accelerate their mission-critical applications while the uptake of the new platform requires no code changes, sparing enterprises expensive quality assurance and validation cycles.
- MySQL HeatWave for OLTP**: MySQL HeatWave for OLTP enables organizations to rapidly and securely develop and deploy modern, cloud-native applications using the world's most popular open source database. You can easily enable the HeatWave in-memory query accelerator to benefit from real-time analytics and machine learning, along with
- APEX Application Development**: Oracle APEX Application Development (APEX Service) enables you to rapidly build and deploy low-code apps without having to learn complex web technologies. It provides a fully managed APEX instance running in Oracle Cloud and a specialized Autonomous Database for your app data.

Cost Analysis

- Visualization tools Help understand spending patterns at a glance
- Filter costs by Date, Tags and Compartments
- To use Cost Analysis you must be a member of the Administrators group



Budgets

- A monthly threshold you define for your OCI spend
- Can be set on cost-tracking tags or compartments and track all spending in the cost-tracking tag or compartment and any child compartments
- Can define email alerts that get sent out for your budget
- Alerts are evaluated every 15 minutes, and can be triggered when your actual or forecasted spending hits either a budget % or a specified amount

Create Budget [Help](#)

Budget Scope
 Child Tenancy Compartment Cost-Tracking Tag

Name

Name can only contain alphanumeric characters, dashes, periods, and underscores.

Description

Target Compartment [i](#)
 Choose...

Schedule
 Monthly

Budget Amount (in US\$)

The minimum allowed value is US\$1.00; the maximum allowed value is US\$999,999,999.999.

Day of the month to begin budget processing [i](#)
 1

Current Budget Processing Period Based on Selection: Thu, Jun 1, 2023, 00:00:00 UTC - Fri, Jun 30, 2023, 23:59:59 UTC



Budget Alert Rule (optional)
You can set up a budget alert rule now, or add it later. You can set up multiple alerts for the same budget.

Threshold Metric [i](#)
 Actual Spend Forecast Spend

Threshold Type [i](#)
 Percentage of Budget Absolute Amount

Threshold %

 Budgets exist to help you maintain awareness and control of your spending. Create an [event](#) for your budget to trigger a function in Oracle Functions or to send a message using the Notifications service.

Email Recipients *Optional*

Enter one or more email addresses to receive the alerts. Multiple addresses can be separated using a comma, semicolon, space, tab, or new line.

Email Message *Optional*

Enter the body of the email message

Oracle Cloud Advisor

Oracle Cloud Advisor

Cloud Advisor provides recommendations to help you maximize cost savings and improve security in your tenancy. Cloud Advisor finds inefficiencies in your tenancy and provides guided solutions explaining how to fix them. In addition, built-in Cloud Guard recommendations help you see and address security vulnerabilities. You can customize Cloud Advisor by postponing or dismissing recommendations that aren't applicable, allowing you to focus on the recommendations that matter most to you.

Cost Management

last checked Thu Oct 29 2020 09:06:01 UTC

[Details](#)

\$77 estimated savings*



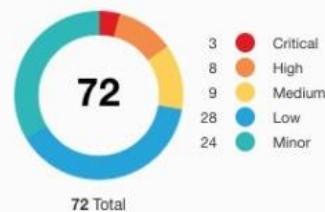
Cost Management Recommendations help you reduce costs by finding and adjusting resources that are underutilized. For example, cost management recommendations help you find underutilized compute instances, over-provisioned Autonomous Data Warehouse instances, unattached block volumes or boot volumes, and Object Storage buckets without lifecycle policy rules.

Security

last checked Thu Oct 29 2020 22:14:00 UTC

[Details](#)

48 FAIR security posture rating



Problems by region

us-ashburn-1
ap-mumbai-1
ap-sydney-1
eu-frankfurt-1
uk-london-1
us-sanjose-1



Cloud Guard helps you monitor, identify, and maintain a strong security posture on Oracle Cloud. Use the service to examine your Oracle Cloud Infrastructure resources for security weakness and to examine your operators and users for risky behavior. Upon detection, Cloud Guard can suggest, assist, or take corrective actions, based on your configuration.

* Because Cloud Advisor is unable to calculate an estimated cost savings for some recommendations, this value understates the potential savings.

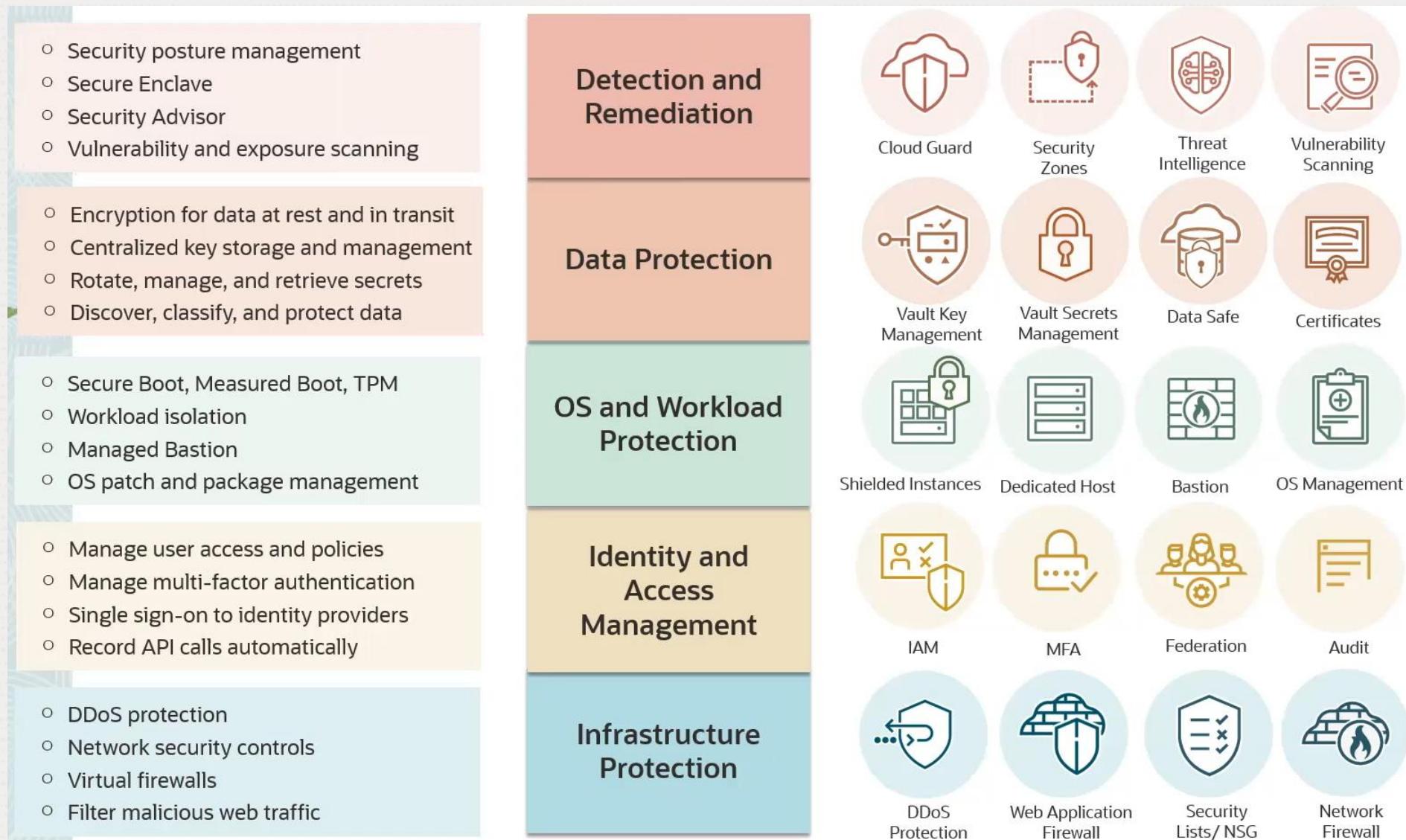
Security & Compliance



Shared Security Model



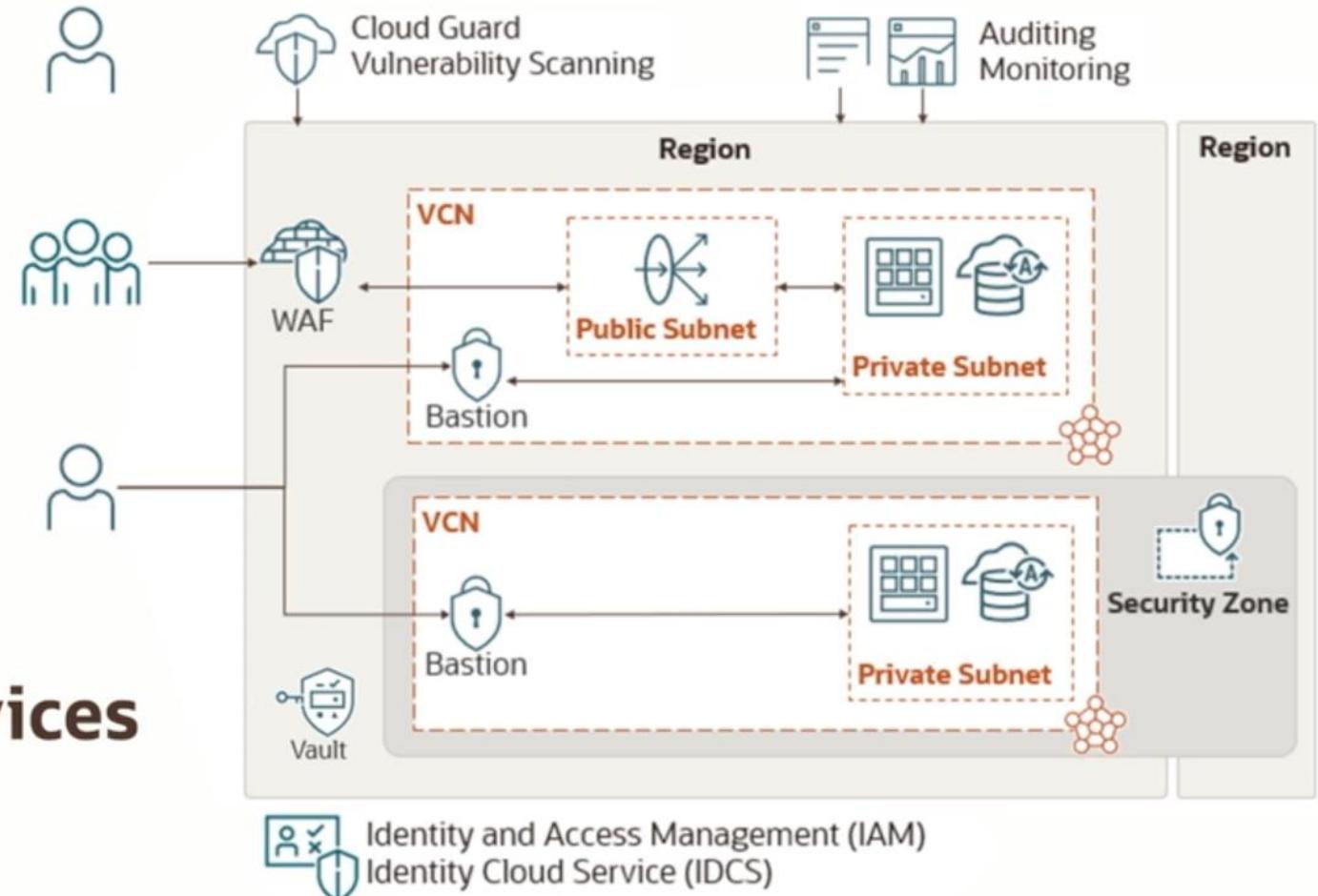
Use Cases – Security Services



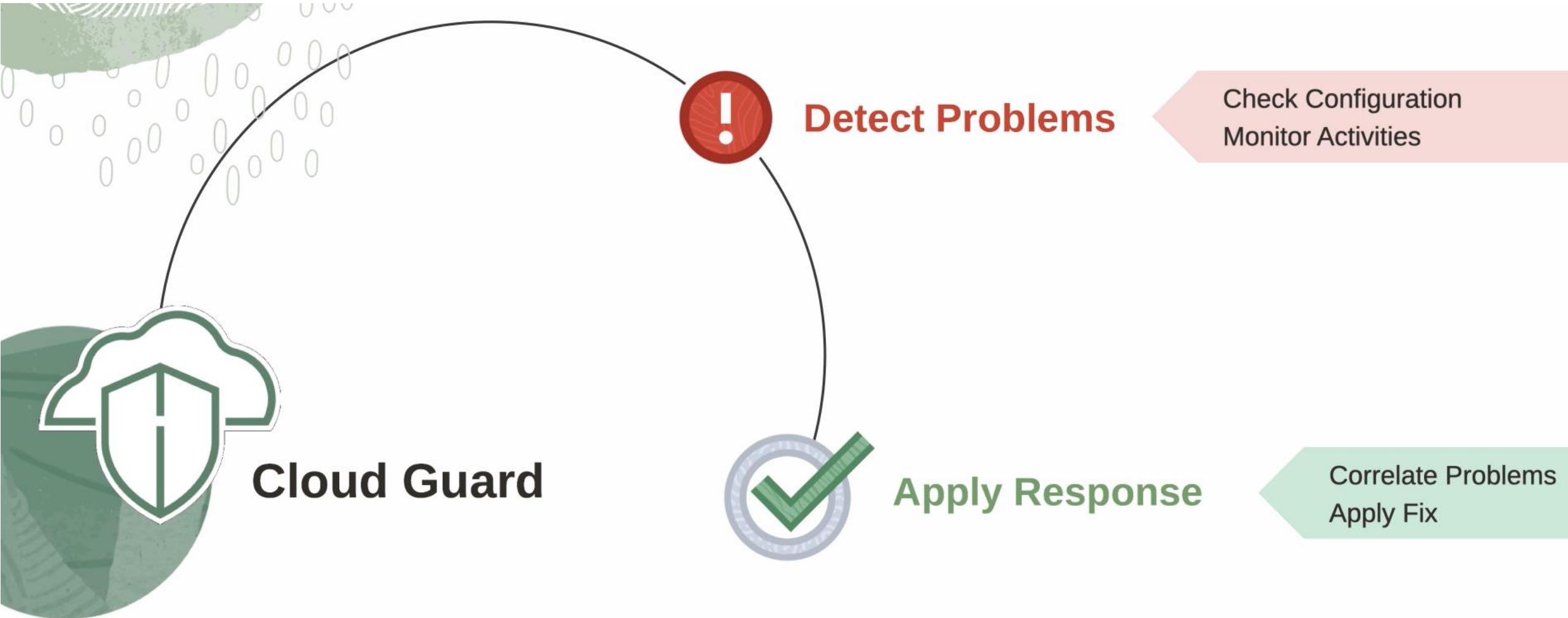
Security Services



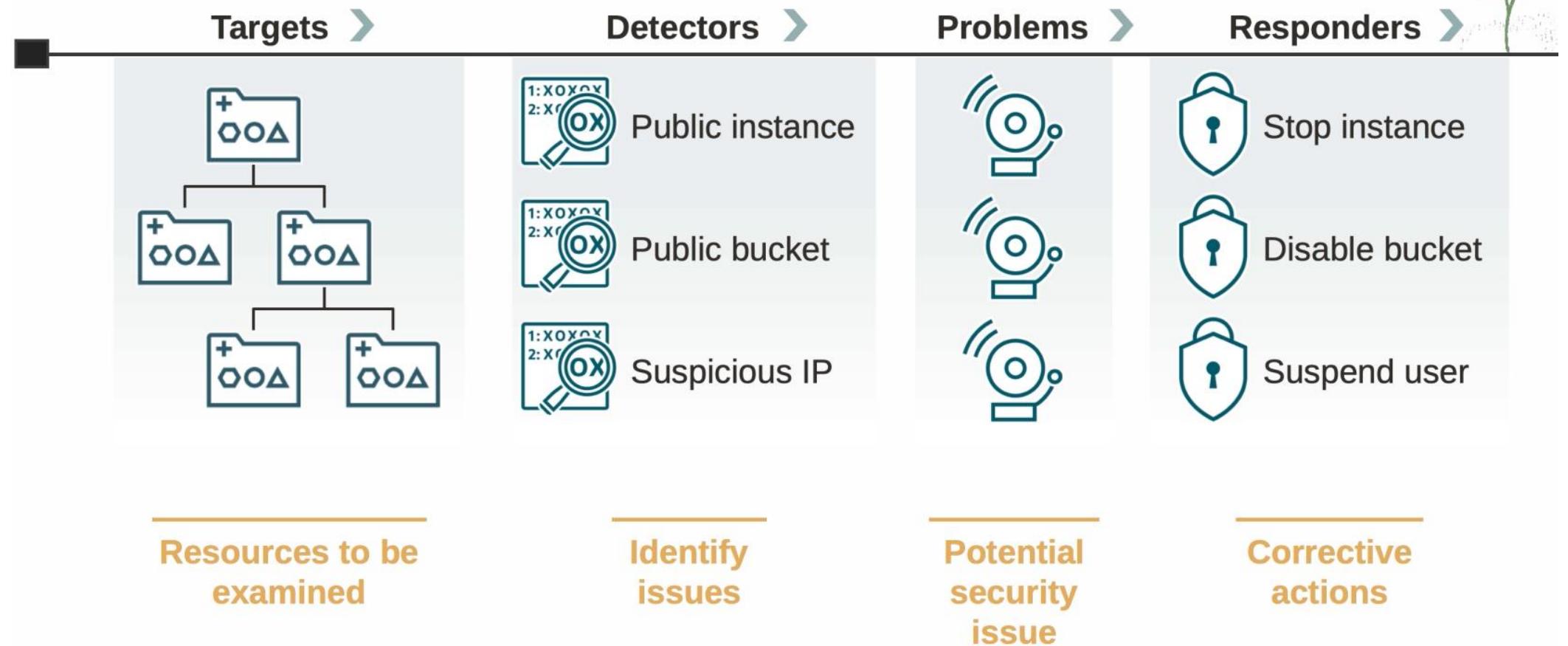
Security Services

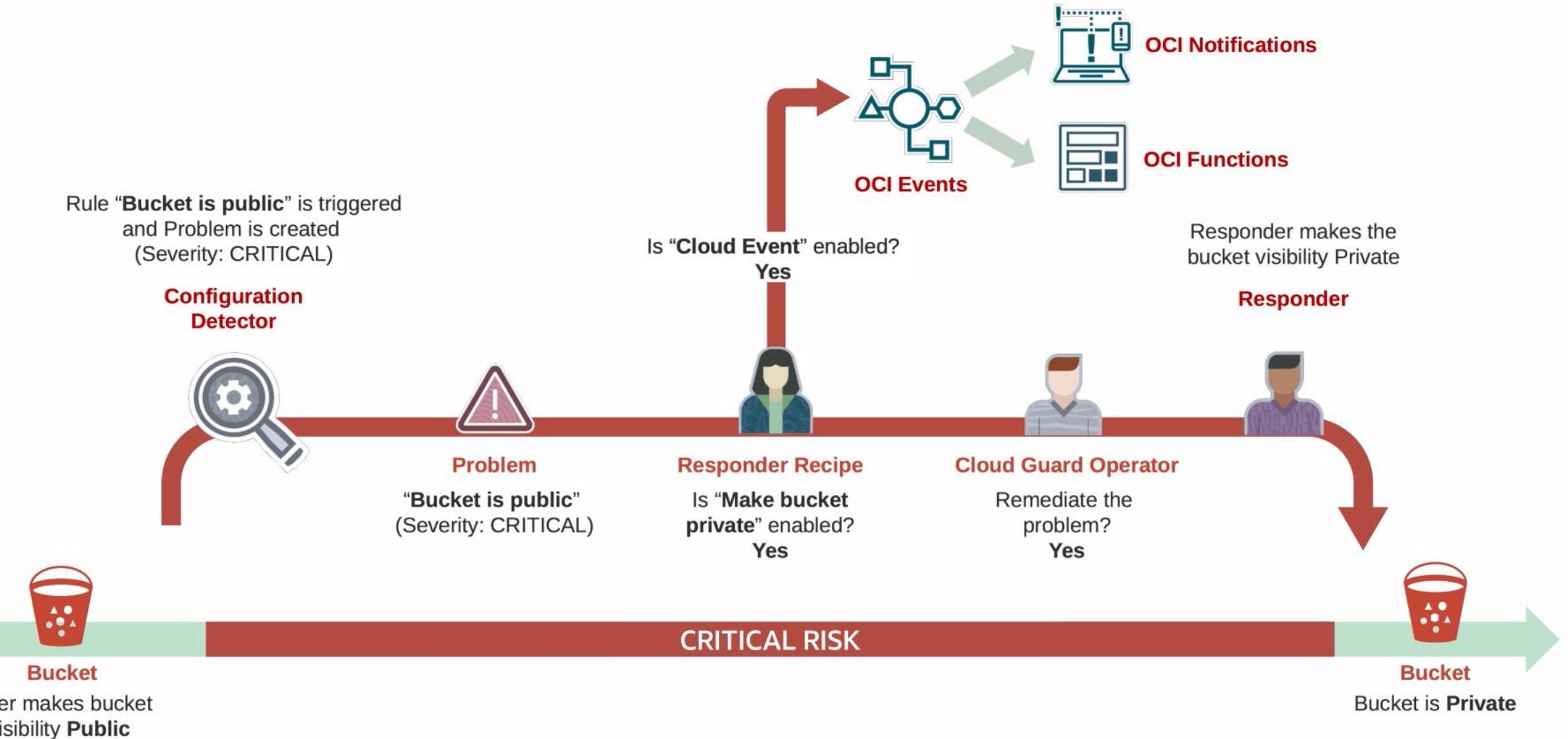


Cloud Guard



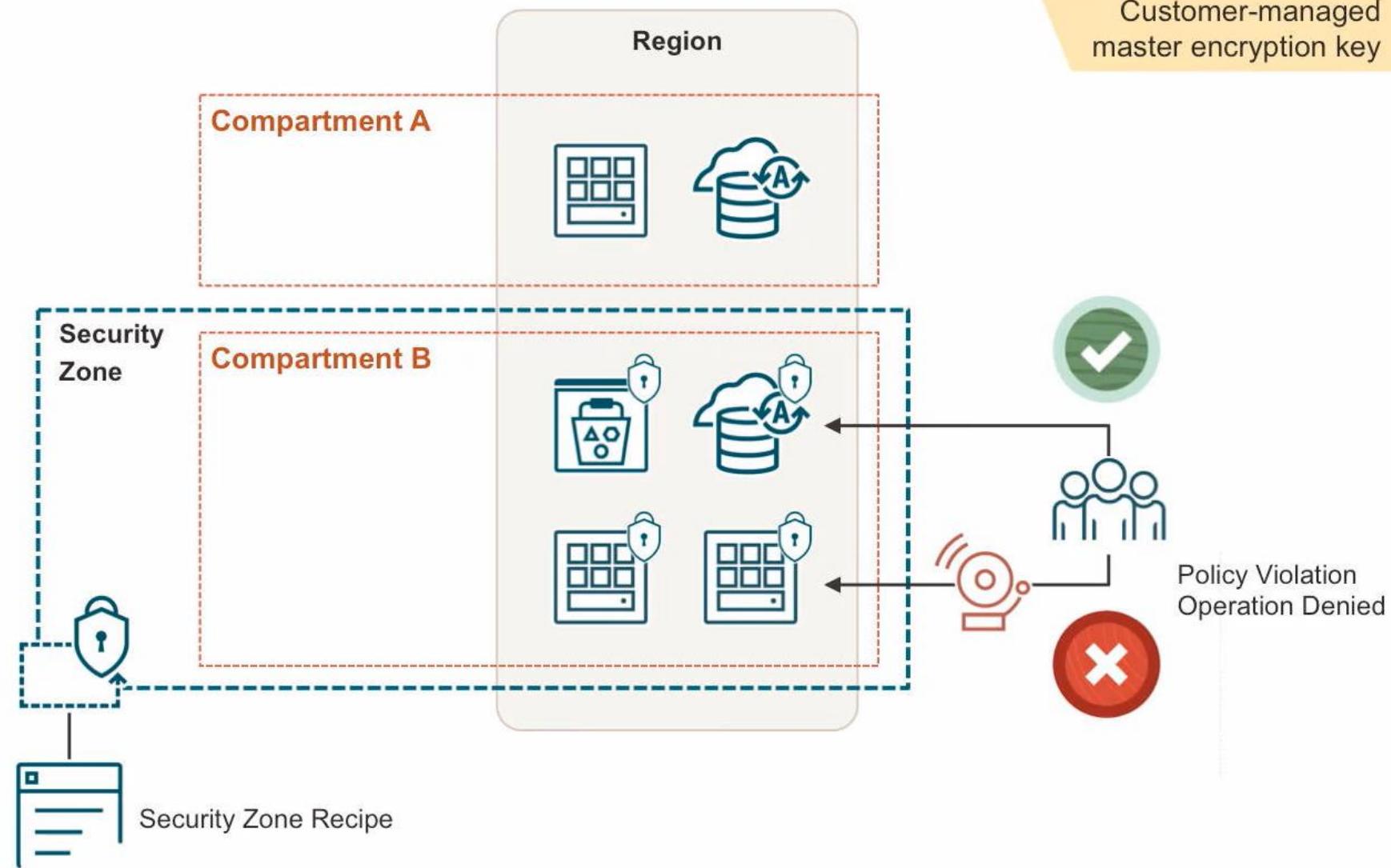
Cloud Guard





Scenario: Public Bucket

Security Zones



Security Advisor

Cloud Guard

Security Zone

Other Security Services



Secure Object Storage Buckets



Improve data security by creating a bucket and encrypting it with a key that you manage.

[Create Secure Bucket](#)

Secure File Systems



Improve file storage security by creating a file system and encrypting it with a key that you manage.

[Create Secure File System](#)

Secure Virtual Machine Instances



Improve boot volume security by creating a virtual machine instance and encrypting the attached boot volume with a key that you manage.

[Create Secure Instance](#)

Secure Block Volumes



Improve data security by creating a block volume and encrypting it with a key that you manage.

[Create Secure Block Volume](#)

Security Advisor



OCI Compliance Programs

REGIONAL



GDPR [EU]



PIPEDA [Canada]



ENS [Spain]



BSI C5 [Germany]



ISMS [Korea]



NISC [Japan]



CITC
[Saudi Arabia]



Cyber Essentials
Plus [UK]



IRAP
[Australia]

GOVERNMENT



DoD DISA SRG IL5



JAB P-ATO



CJIS



EU Model Clauses



LGPD



VPAT-Section 508



Canada Protected B



G-Cloud 12



NIST



SOC 1: SOC 2 : SOC 3



9001: 27001: 27017:
27018: 27701: 20000-1



Level 2



HIPAA



PCI DSS – Level 1



HITRUST CSF



BANCO CENTRAL
DO BRASIL



FINMA

BACEN



TISAX



GxP



FISC

GLOBAL



Level 2

Certificação: OCI Foundations 2024

- Curso Oracle University:
 - [Become an OCI Foundations Associate 2024](#)
- Laboratórios Práticos na Plataforma de LiveLabs
 - [Acesso no LiveLabs](#)

ORACLE



Alexandre Fagundes

Cloud Architect, Oracle Latin America

