



Move MySQL Apps to Oracle Cloud

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Introducing OCI - MySQL Database Service & HeatWave

Developed by MySQL Team based on latest Enterprise Edition with In-memory Analytics Accelerator

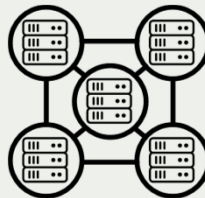
E-Commerce
Applications

Custom Applications

ISV Applications



MySQL
Database Services



HeatWave

Oracle Cloud Infrastructure

- **MySQL Database Service (MDS)** is a fully Managed Database Services using MySQL Enterprise Edition
- **HeatWave** gives MySQL a Turbo Boost on performance for both OLTP and OLAP queries.
- **Oracle Cloud Infrastructure (OCI)** offers multi-region cloud infrastructure with enterprise grade for manageability and security



Move MySQL Apps to OCI with MySQL Database Service and HeatWave

Scenarios

Existing Workloads

Benefits

1

Migrate MySQL Apps from on-premises to cloud



MySQL 5.x or 8.0



LAMP & Ecommerce App

- Better management
- Stronger Security
- Reduced downtime

2

Migrate MySQL Apps from other cloud providers



AWS Aurora or RDS for MySQL



Azure Database for MySQL



GCP Cloud SQL

- Best Support + MySQL EE 8.0
- 1100x Faster than Aurora
- 1/3 of the price

3

Migrate Analytics workload from other cloud providers



RedShift



Snowflake

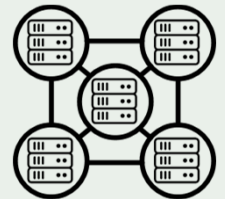


BigQuery

- Single DB for OLAP & OLTP
- 2.7x Faster than RedShift
- 1/3 of the price



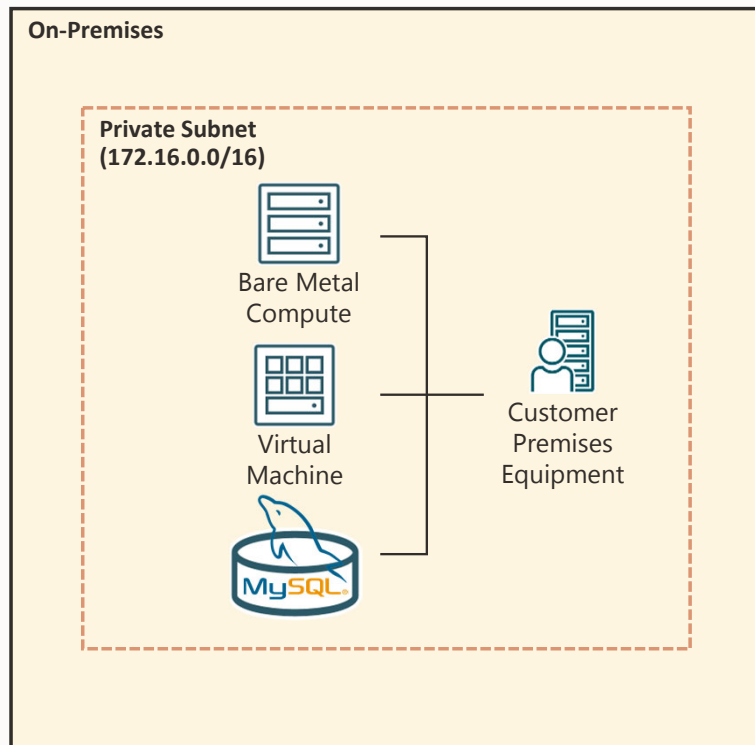
MySQL Database Services



HeatWave

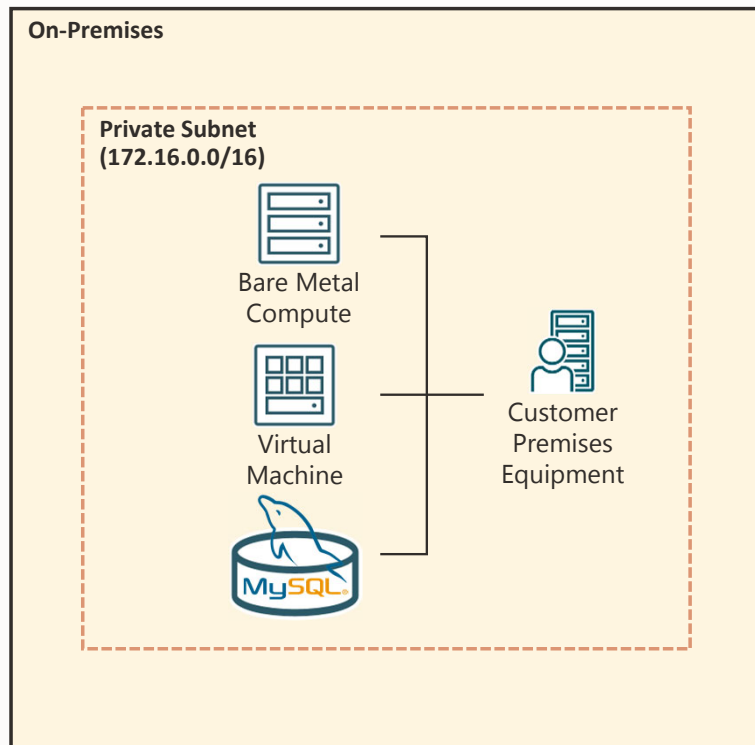


As-Is Application Architecture



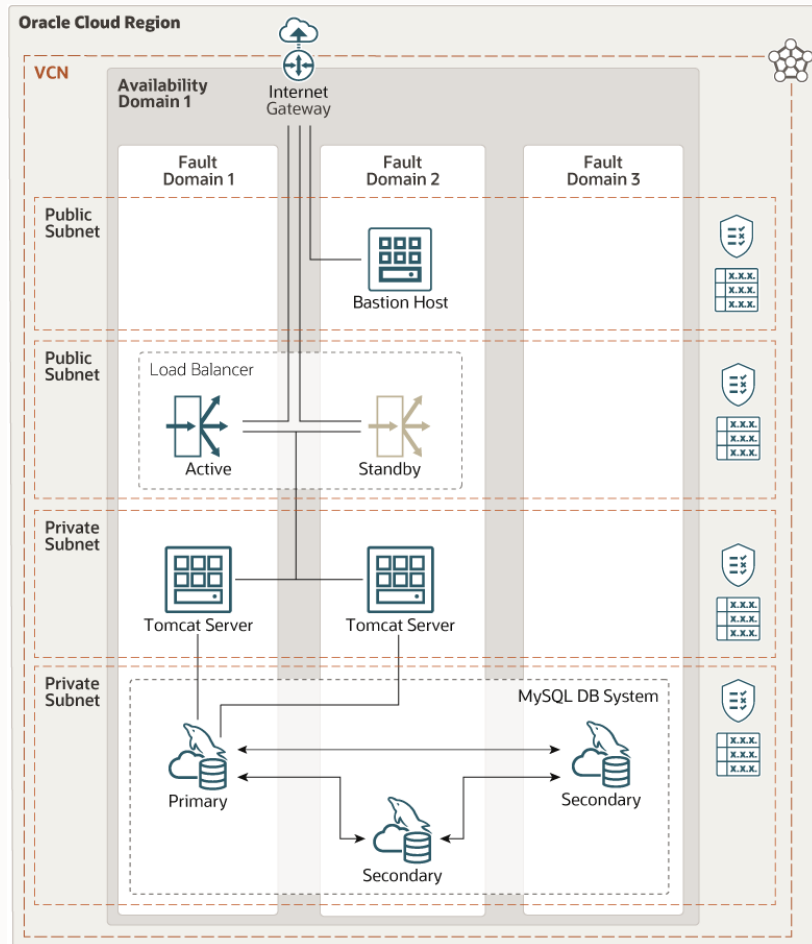
1. Application Details
 - Internal/External accessible?
 - Application framework (PHP, Nodes, Java, Python, etc)
 - Hardware specification
 - Operating System
2. MySQL Database
 - Releases (5.7.X, 8.0.X)
 - Commercial/Community
 - Database size
 - MySQL Connector used (PHP, Python, Java, .NET, etc)

Non-Functional Requirements



1. Availability
 - 24x7 operation?
 - Redundancy?
 - Backup
2. Scalability
 - Number of concurrent sessions
 - Throughput (TPS)
 - Response time
3. Security
 - Encryption?
4. Manageability
 - Automation
 - Alerts

To-Be Application Architecture with Virtual Machines



1. 3-tier Network architecture

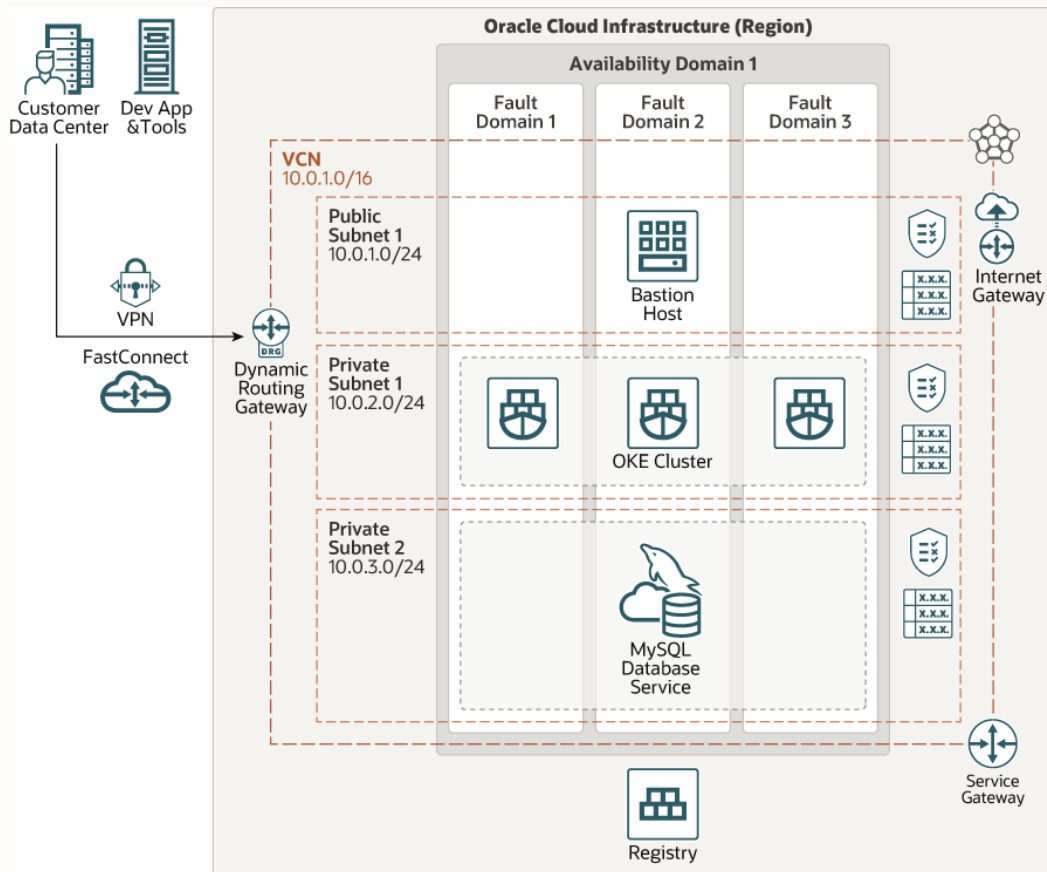
- Load Balancer deployed in public subnet
- Application deployed on Virtual Machines in private subnet
- MDS deployed in private subnet

2. MDS shapes available

- AMD E3 shapes (2 vCPU to 16GB RAM)
 - 2 vCPU, 8GB RAM
 - 2 vCPU, 16GB RAM
 - 4 vCPU, 32GB RAM
 - ...
 - 128 vCPU, 1TB RAM

Go to -> [Oracle Architecture Center](#)

To-Be Application Architecture with Kubernetes



1. 3-tier Network architecture

- Load Balancer deployed in public subnet
- Application deployed on Kubernetes cluster in private subnet
- MDS deployed in private subnet

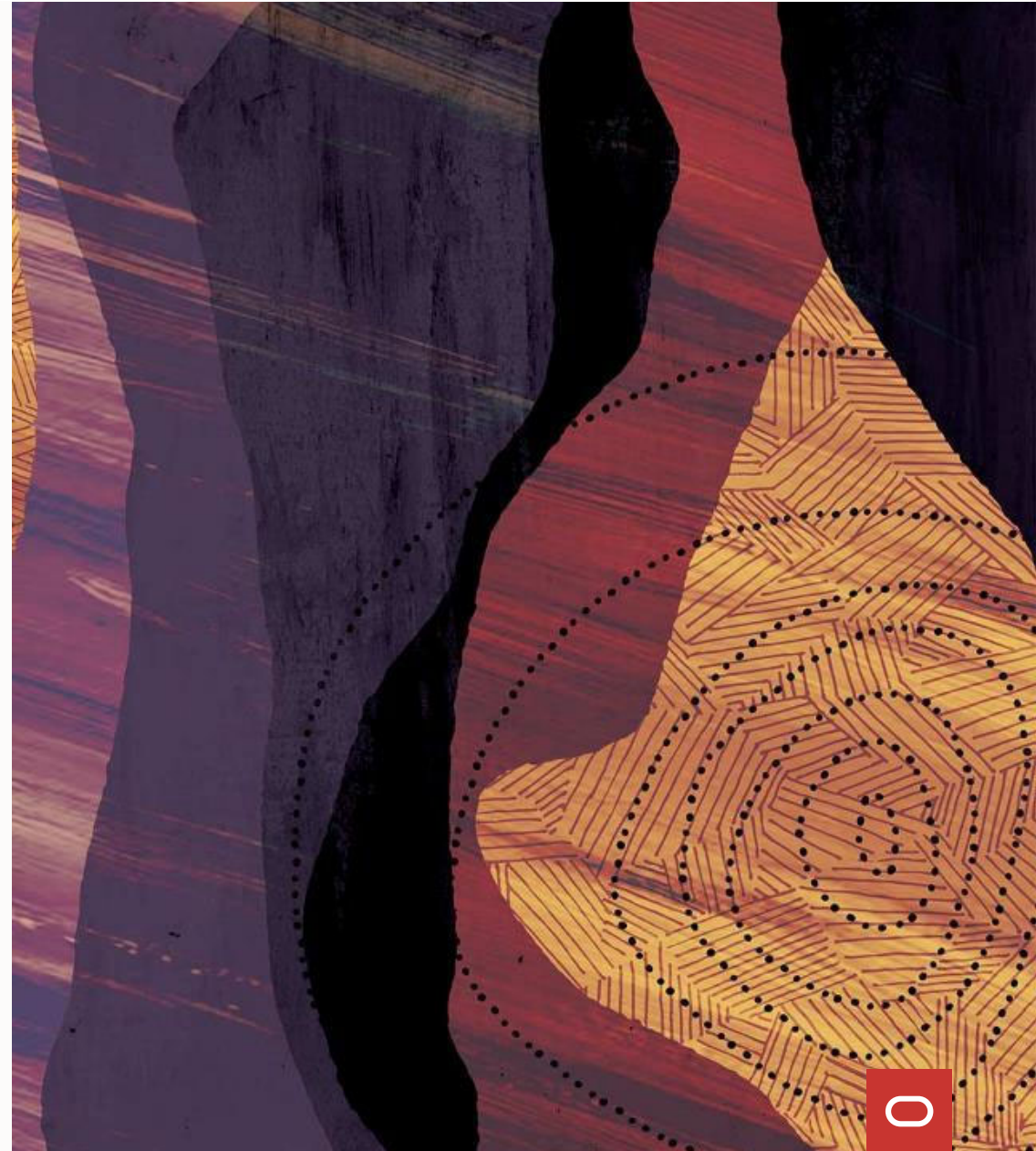
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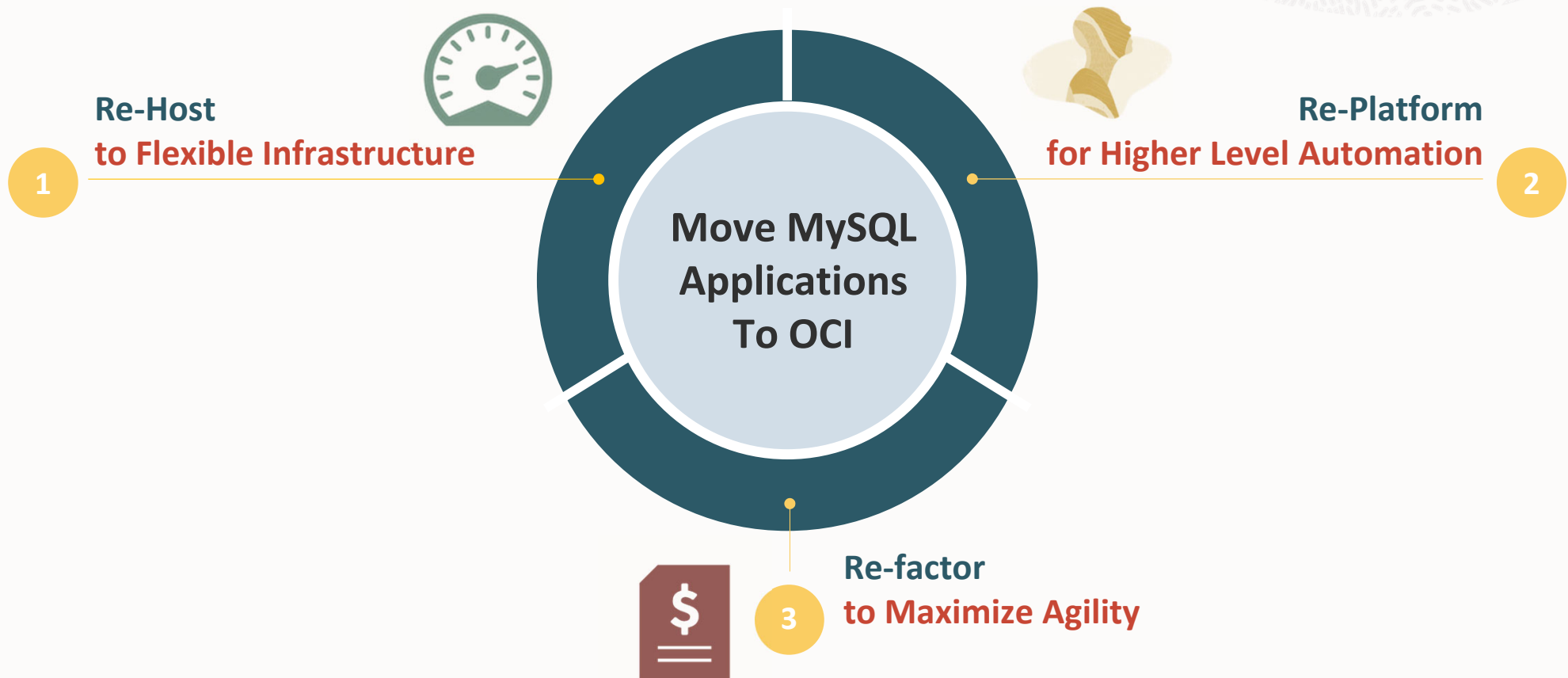
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Demo

**Deploying Wordpress
with MySQL Database Service and Kubernetes
on OCI**



Phases of moving MySQL apps to OCI



Re-host to Flexible Infrastructure



Benefits Running Custom Application on OCI vs. On Premises

On Premises Infrastructure

- Rigid
- Long Lead Time CAPEX purchase
- Lack New Features
- Growing cost of ownership



Growing cost
of ownership



Oracle Cloud Infrastructure

- Eliminate Hardware & Maintenance -> On Demand OPEX service
- A Cost Effective Enabler of DR -> Flexible & Optimization Opportunity
- Realize Gains in Business & IT Ops -> Monthly Feature Enhancement

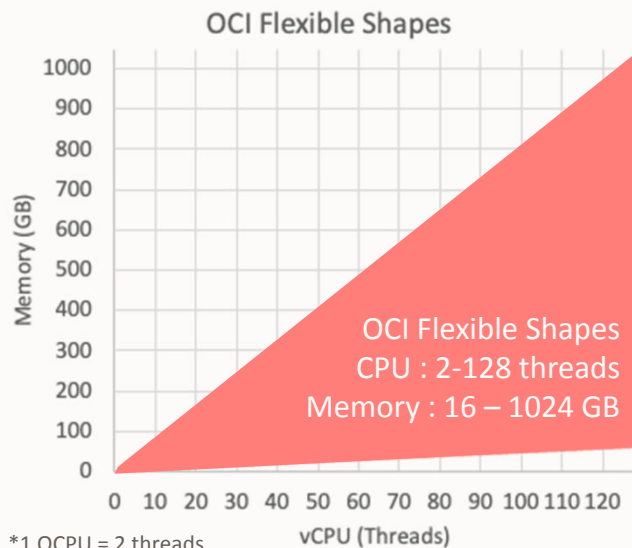


OCI - Flexible Infrastructure

Right Fit Resources

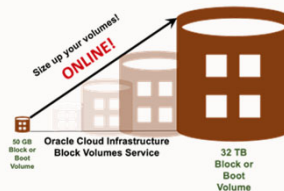
Flexible Shapes

Your choice of CPU / memory mix

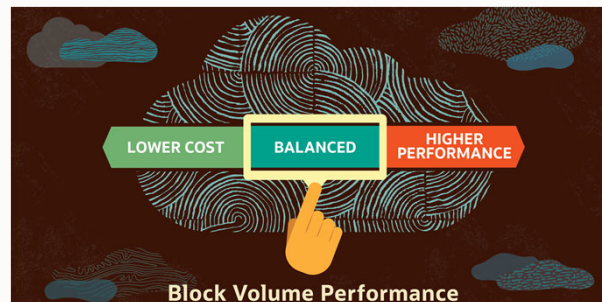


Flexible Storage

Online Resize & Performance Tuning

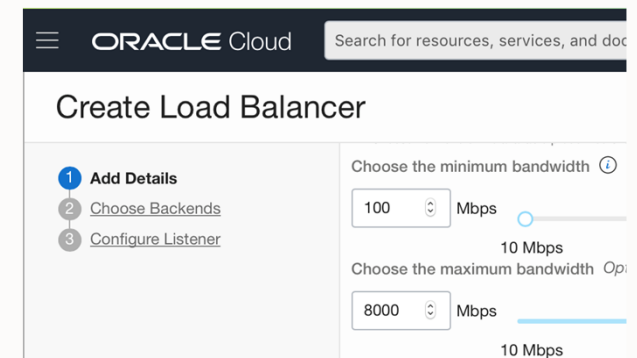
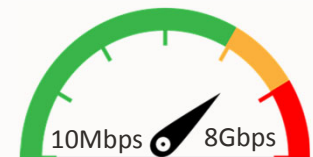
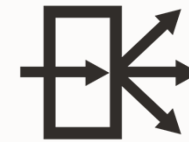


Auto Tuning



Flexible Load Balancer

Autoscale from 10Mbps to 8Gbps



OCI – Choices Of Operating System and Database

Open and Compatible

Operating System

- Oracle Enterprise Linux
- Redhat Compatible
- Alternative for CentOS
- Free Enterprise Support



Database

Database
Services



OCI
Marketplace



OCI
Quick Start
Terraform



OCI Cost Benefit vs. Other Cloud Provider

58% Saving for Custom App with MySQL database

Sample Custom App with MySQL database
OCI deliver 58% saving vs. AWS

Sample Architecture	Quantity	AWS Monthly List (USD)	OCI Monthly List (USD)
Load Balancer	Load Balancer : 2 x 720hr Mbps : 1000 Mbps	\$40	\$88
Compute	2 VM x 8 OCPU	\$1498	\$735
Database Cloud Service	2 VM x 2 OCPU, MySQL	\$778	\$211
Block Volume	2000 GB - Balanced Performance	\$495	\$85
Object Storage	4000GB	\$100	\$102
	Monthly Total	\$2,910	\$1,221
	Annual Total	\$34,922	\$14,653

OCI offers free ancillary services

Audit, Cloud Guard, Data Transfer (First 10TB Outbound, Inter AD, Inter-VCN), NAT / Service Gateway, Enterprise Support

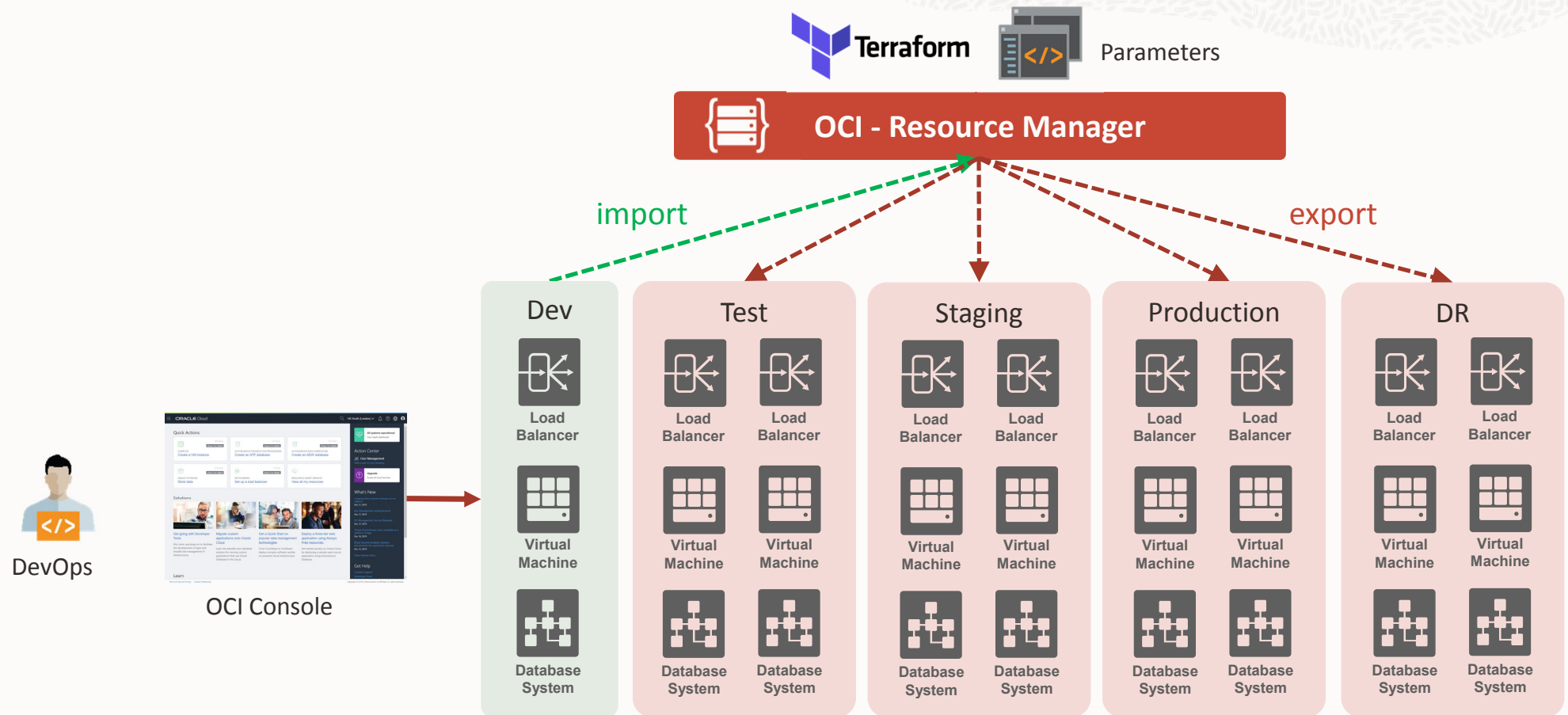


Re-platform for Higher Level Automation



Provisioning Automation Ensures Environment Consistency

Full Stack Deployment Automation with OCI Resource Manager



Scaling Automation

Scaling Across All Tiers

Flexible Load Balancer

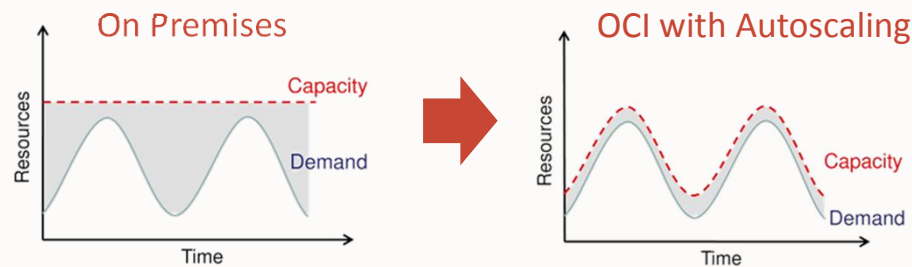
- 10Mbps to 8Gbps autoscaling
- Minimum / Maximum bandwidth setting enable predictable performance & expenses

Web / App Tier - Compute Autoscaling

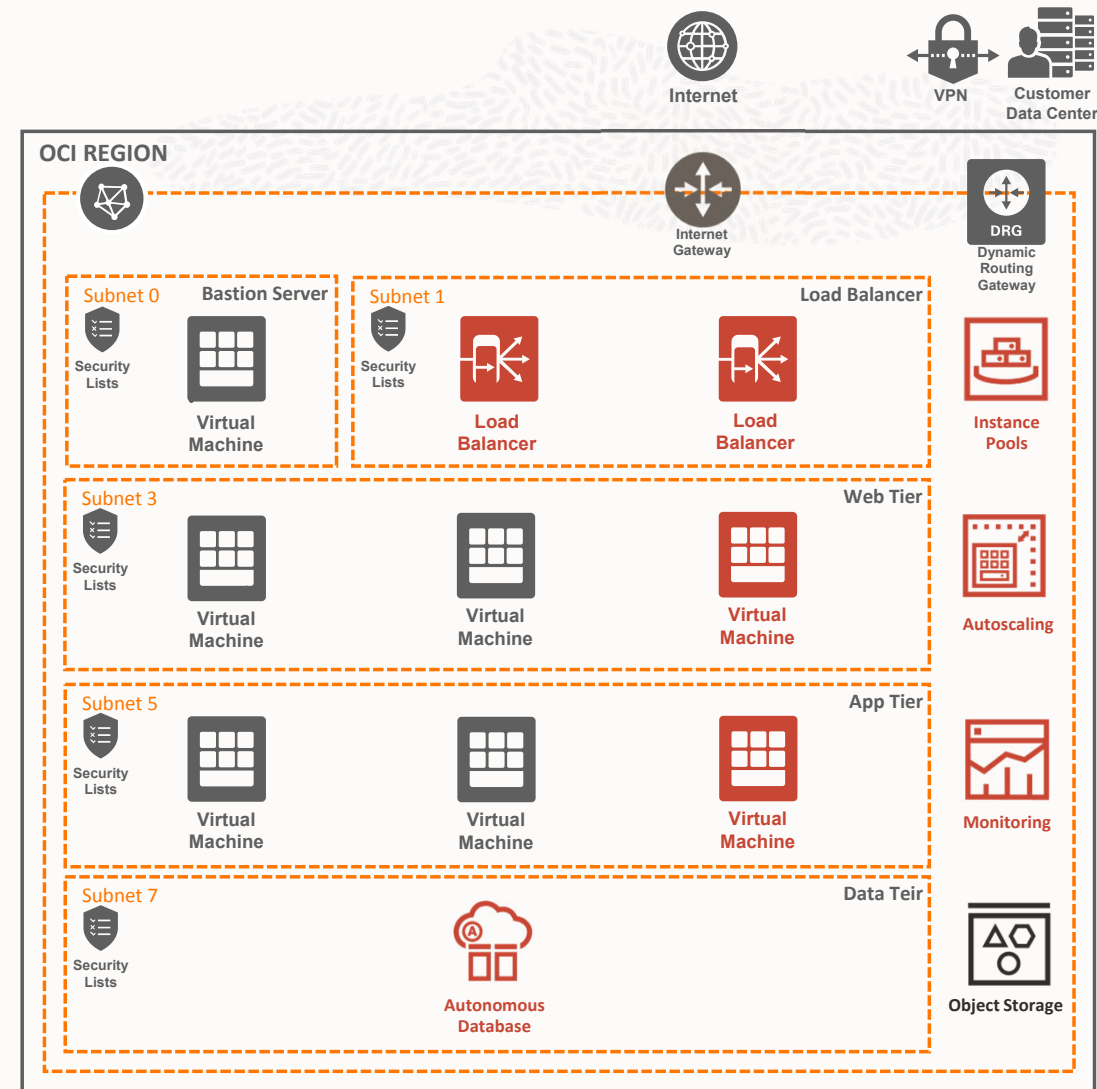
- Instance Pool - Scale out / in VM instances based
- Metric or schedule based
- Load Balancer distribute traffic to instances in the pool

Data Tier – Autonomous Database

- Zero Down Time Scale up / down
- Autoscale up to 3x provisioned capacity
- Save cost by sizing for base Load and spike



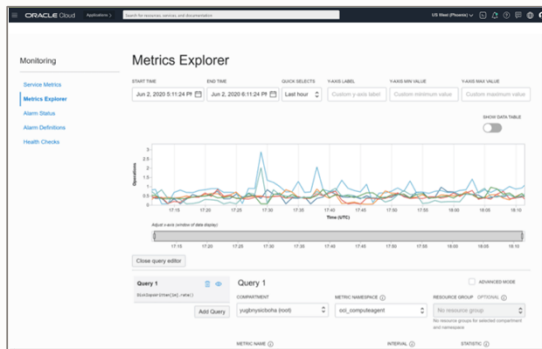
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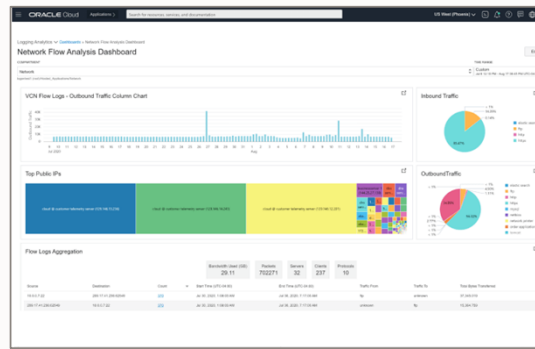
Observation and Management Automation

OCI Simplify Cloud Native Application Observability & Management

Monitoring



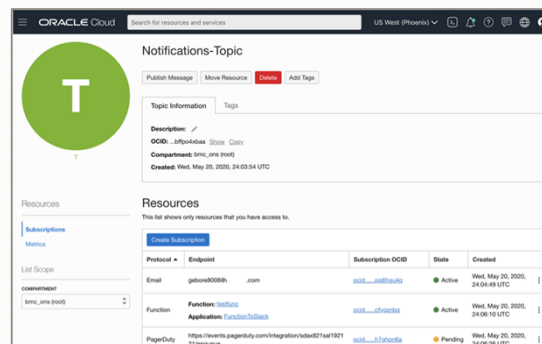
Logging & Analytic



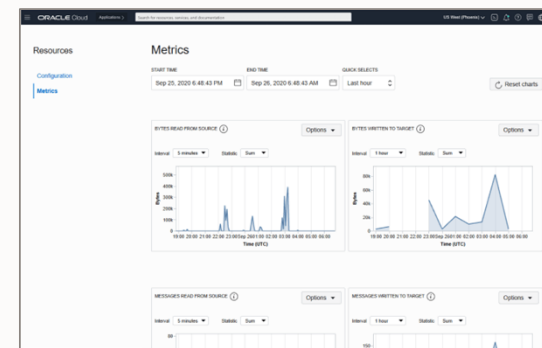
Application Performance Management



Notification

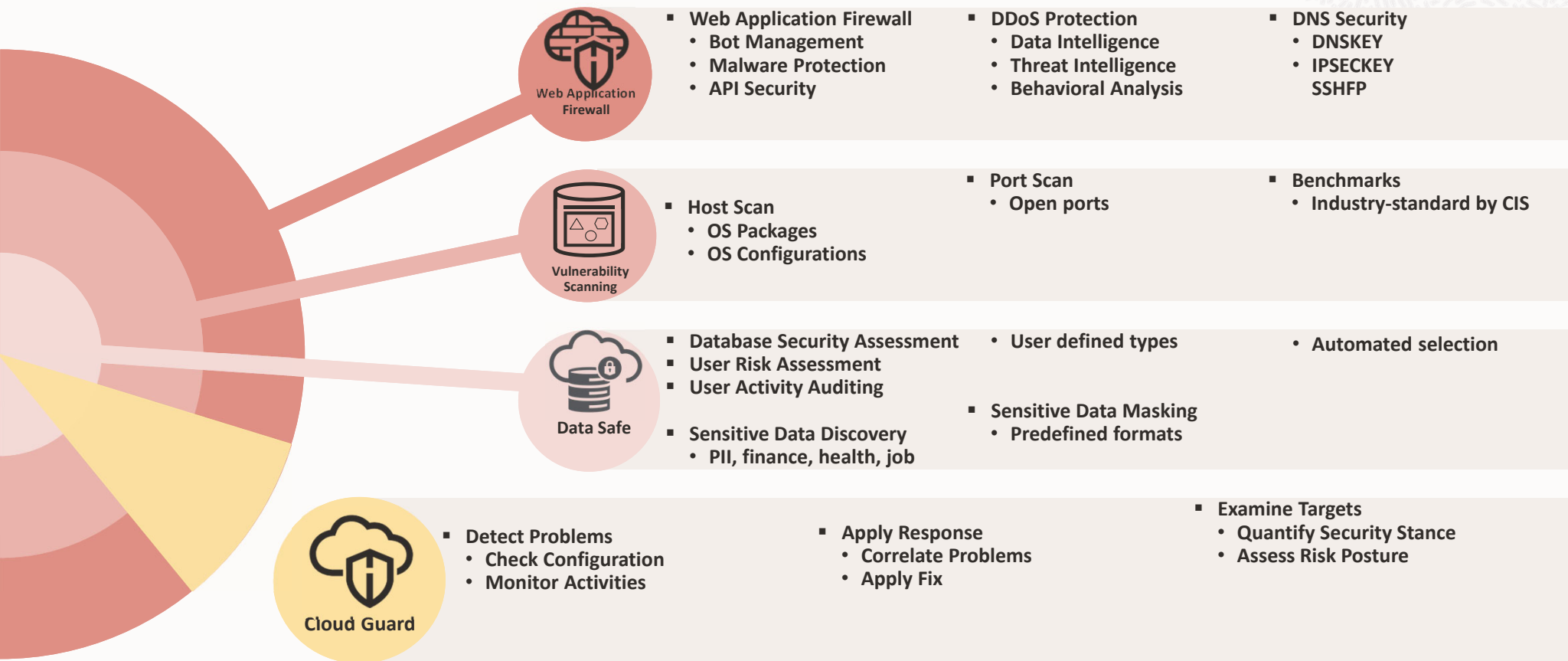


Service Connector Hub



Security Automation

OCI – Security First Design & Tiered Defense



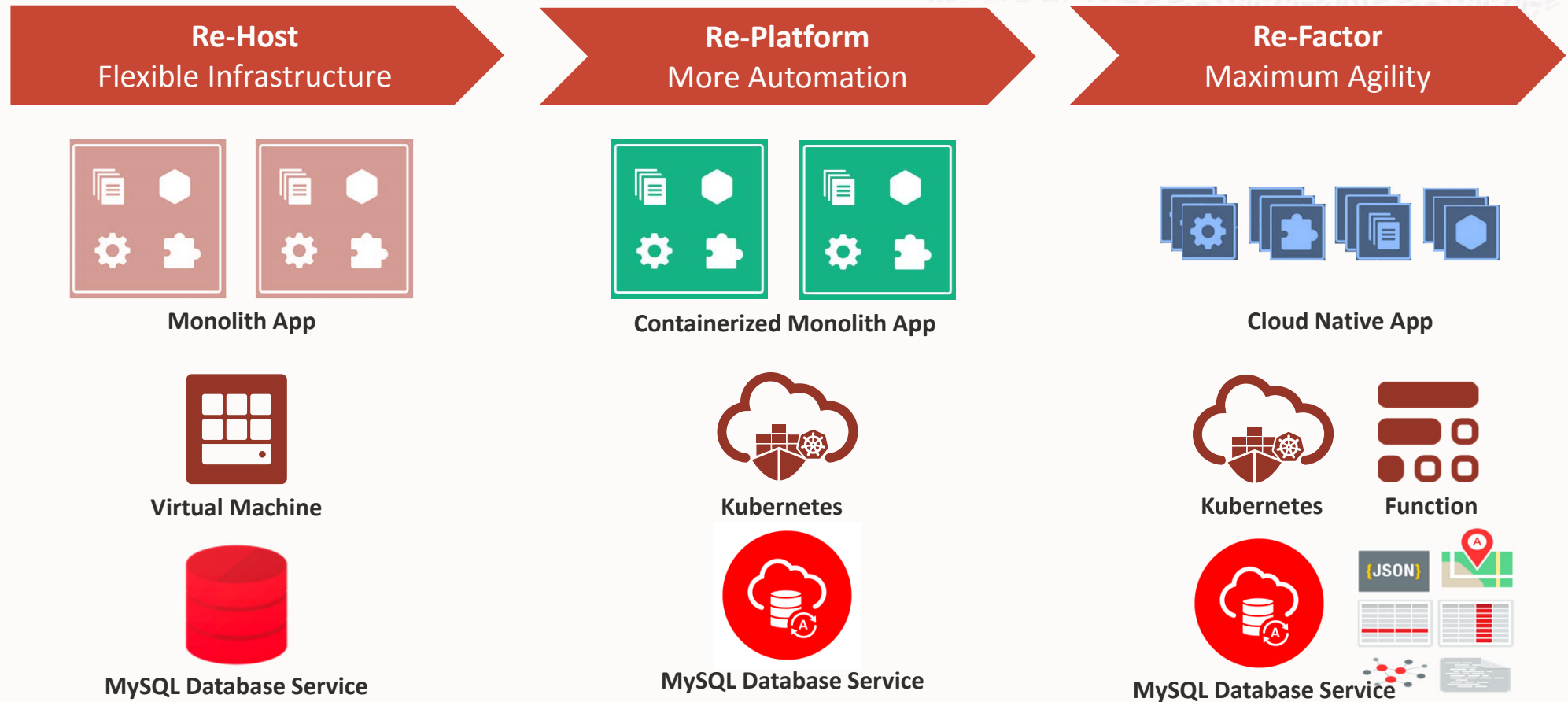
Re-factor to Maximize Agility



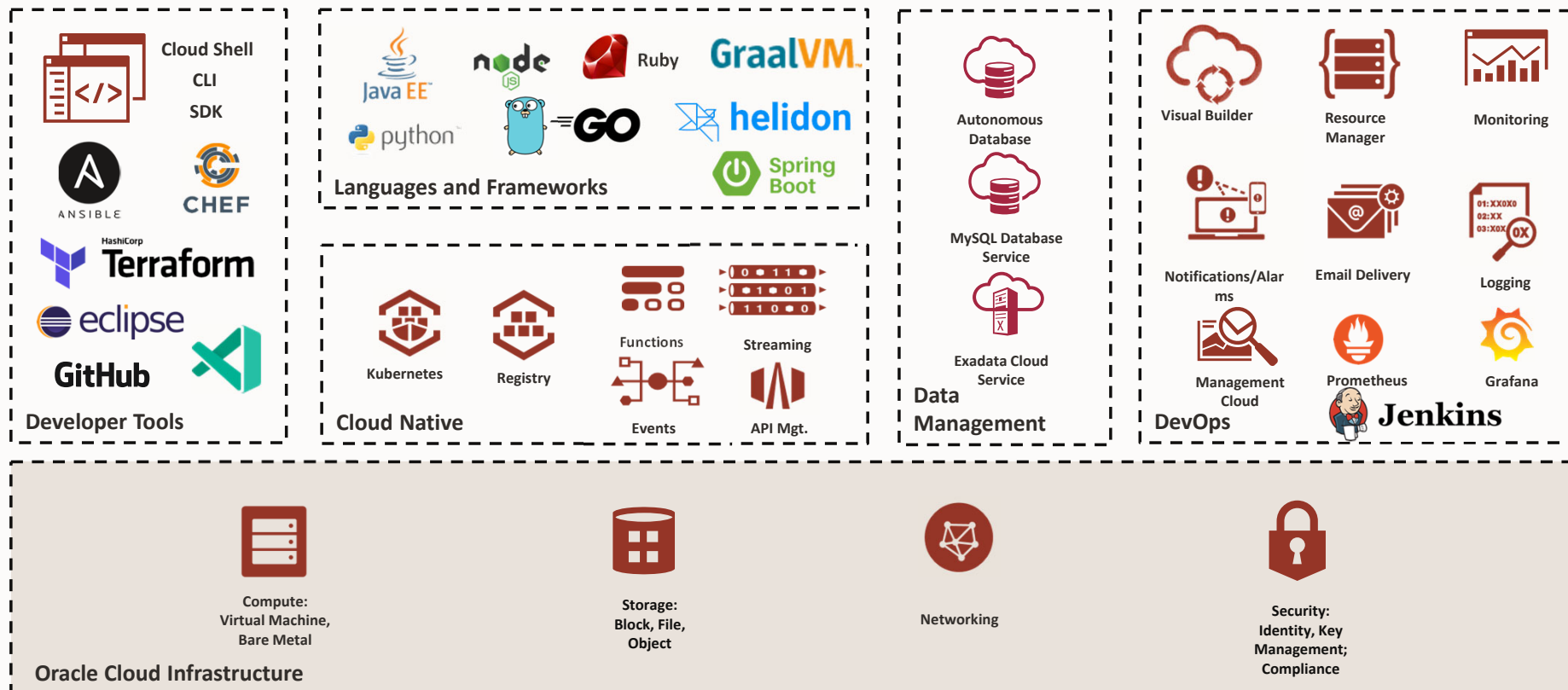
Re-factor
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OCI Enables Smooth Evolution

From Monolith to Cloud Native Application



Oracle Cloud for Cloud Native, DevOps, Database, and Infrastructure



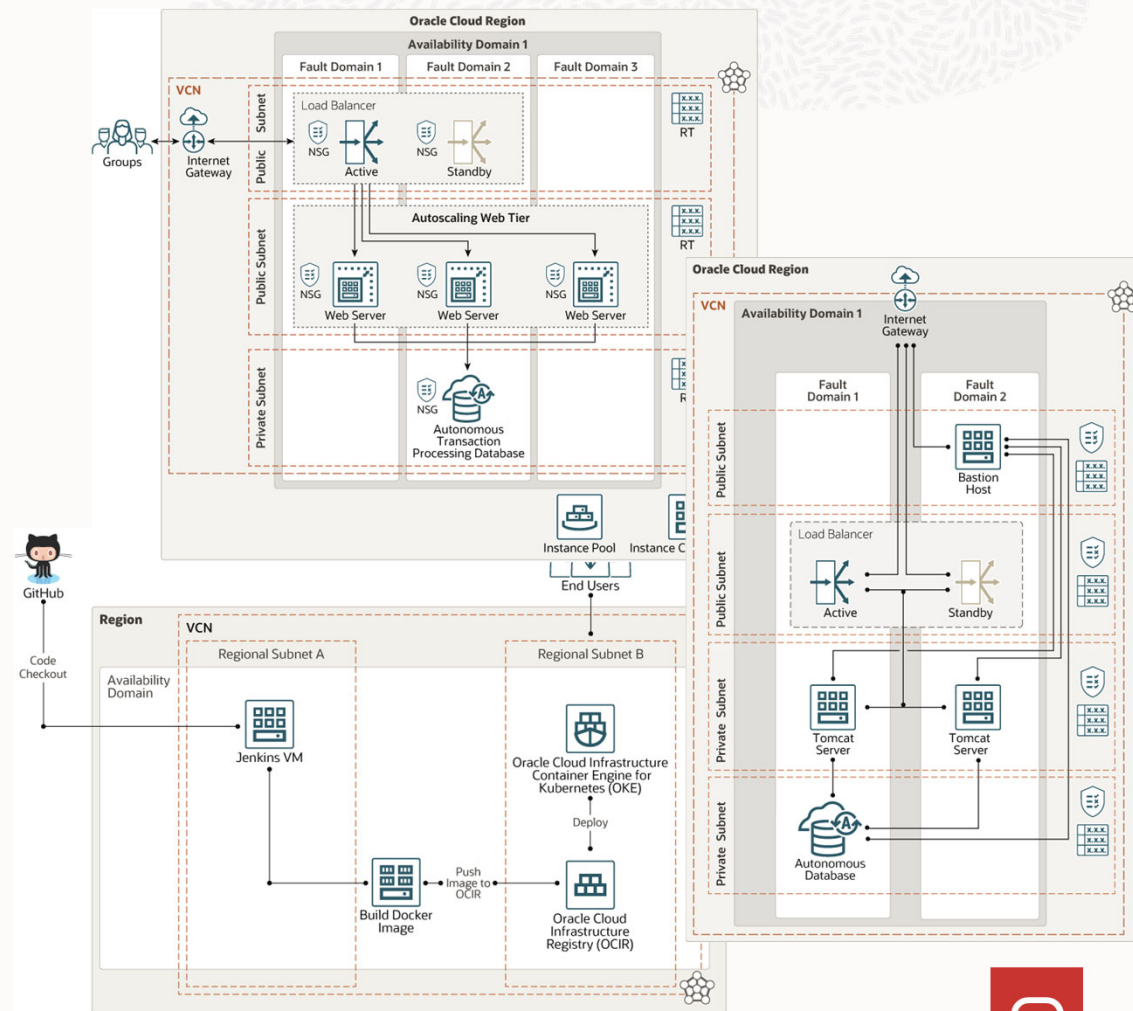
Reference Architecture for Common Patterns

Accelerate Deploying Custom Applications to OCI

Reference Architectures

- Deploy Apache Tomcat connected to MySQL Database Service
- Deploy the Spring Boot framework on Oracle Cloud Infrastructure with MySQL Database Service
- Deploy cloud native applications that use Oracle MySQL Database Service to the cloud
- Deploy Magento e-commerce platform by using Redis and MySQL Database
- Set up a CI/CD pipeline for cloud deployments
- Autoscale a load-balanced web application
- Secure your web application in a PCI-compliant environment

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OCI + MDS + Heatwave - Benefits

Cost Saving

- Flexible Infrastructure (variable compute vs memory)
- Low network charge
- MDS is 1/3 of the price of AWS RDS

Better DevOps

- Single DBs for OLTP & OLAP
- No Code change
- Support Any language - .Net, Java, PHP, Perl, Go)
- Support different deployment options: Docker & VM

Higher Performance

- MDS 1100X faster than RDS
- MDS Heatwave 2.7X faster than Redshift
- Analysis with Oracle Analytics Cloud, Tableau, Grafana, ...

Better Manage and Secured

- DevOps toolchains
- Cloud operation for logging and manageability
- Web Firewall
- API SDK & Management





Experience Workshop for MDS + Heatwave

Experience Workshop

Get hands-on experience with MDS + heatwave for innovation, cost saving and better management for Application Development

Your Application

Any B2B, B2E or B2C app developed on top of MySQL database either on-prem or in the cloud

Approach



Thank you



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