

The background is a dark teal color with a pattern of white snowflakes and small white dots. There are two light green, cloud-like shapes in the center. In the top right corner, there is a large, stylized sun or moon with concentric orange and yellow circles and dotted lines around it.

ORACLE

Oracle Cloud Winter Camp

OCI - Cloud Native

26 Febrero 2020

Speakers

Victor Mendo

Cloud Architect, Oracle

Iván Sampedro

Cloud Architect, Oracle



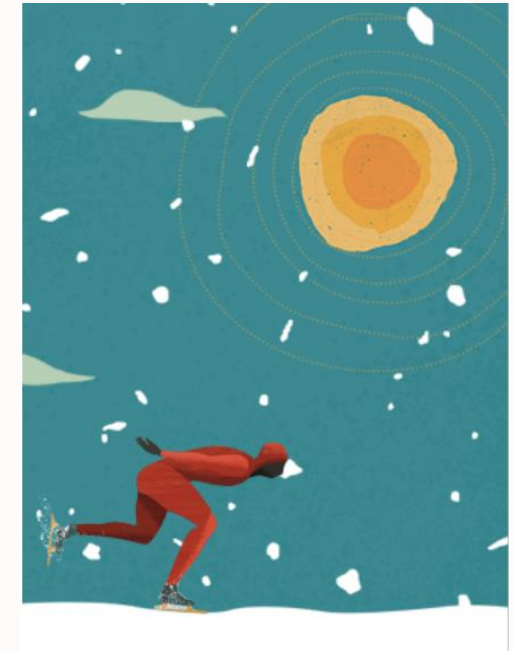
Safe harbor statement

A decorative graphic on the right side of the slide, featuring a stylized fingerprint pattern in light gray, with a yellow and orange textured background at the top left.

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, timing, and pricing of any features or functionality described for Oracle's products may change and remains at the sole discretion of Oracle Corporation.

Cloud Native | Agenda

| | |
|---------------|---|
| 10:00 – 10:05 | Welcome |
| 10:05 – 10:50 | OCI Kubernetes Engine (OKE) Serverless – API Gateway Java Microservices Frameworks DB Management in Cloud Native Low Coding (APEX – Visual Builder) |
| 10:50 – 11:25 | Gigi's Pizza Demo & HOL |



Oracle Cloud in 8 Steps | Agenda

- 4th Feb **Immersion in the 2nd Generation Cloud**
Borja Gómez, Jesús Brasero
- 5th Feb **High-reliability architectures for mission-critical applications**
Alejandro de Fuenmayor, Raúl de Diego
- 11th Feb **Forecasting, optimization and cost management in the Cloud**
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Andrés Araujo, Serena Pérez
- 24th Feb **How to migrate enterprise applications to the Cloud**
Mariano Jimenez, Guillermo Best
- 26th Feb **Cloud-Native development with Oracle Cloud**
Iván Sampedro, Victor Mendo



Scan to see all events

Format

Day of the event

1. Topic Presentation
2. Demo
3. Live Q&A Chat











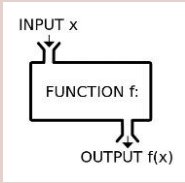
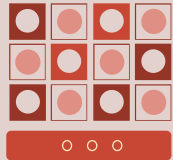


Post event | During the week

4. Hands-on @home
5. Need help? Dedicated group on LinkedIn (<https://bit.ly/2NCCp7P>)



Code is everywhere

Evolution of Development and Deployment

| | Development Process | Application Architecture | Deployment Packaging | Application Infrastructure |
|---------|---|---|--|---|
| 2000-07 | Waterfall  | Monolithic  | Physical Server  | Datacenter  |
| 2008-15 | Agile  | N-Tier  | Virtual Server  | Hosted  |
| 2016+ |  | Microservices Functions   | Containers Serverless   | Cloud - IaC  |

Terms Associated with Cloud Native

Technology to easily package and move apps.

Containers

Microservices

A software design style that advocates use of small services to build apps. Msvcs can be packaged in containers.

Automated testing to release apps frequently and quickly.

Continuous Integration / Delivery (CI/CD)

DevOps

A culture that emphasizes collaboration between developers and operators for increased productivity.

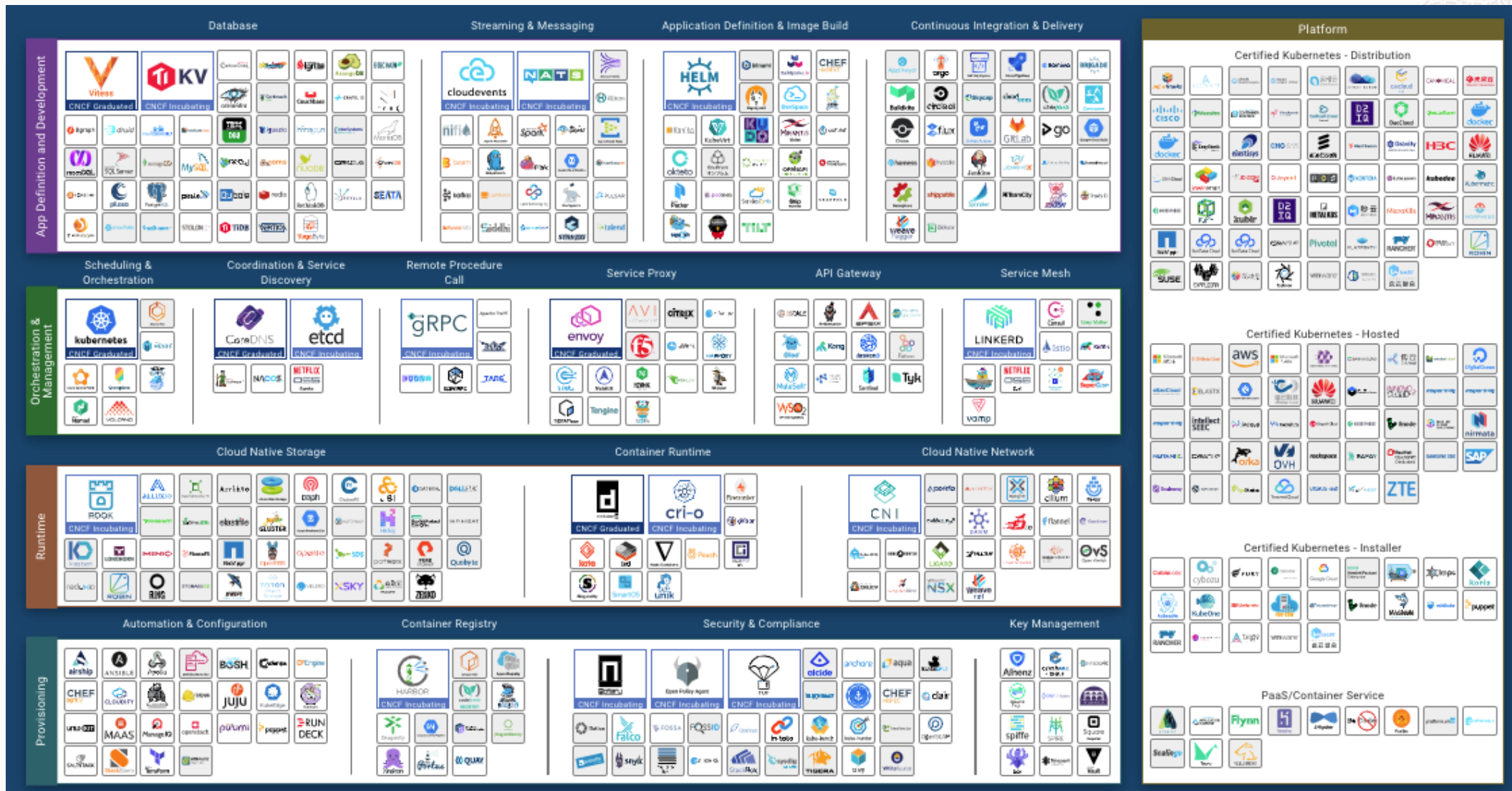
Or, Infrastructure as Code (IaC): Use of software for infrastructure deploys, updates and teardowns

Infrastructure Automation

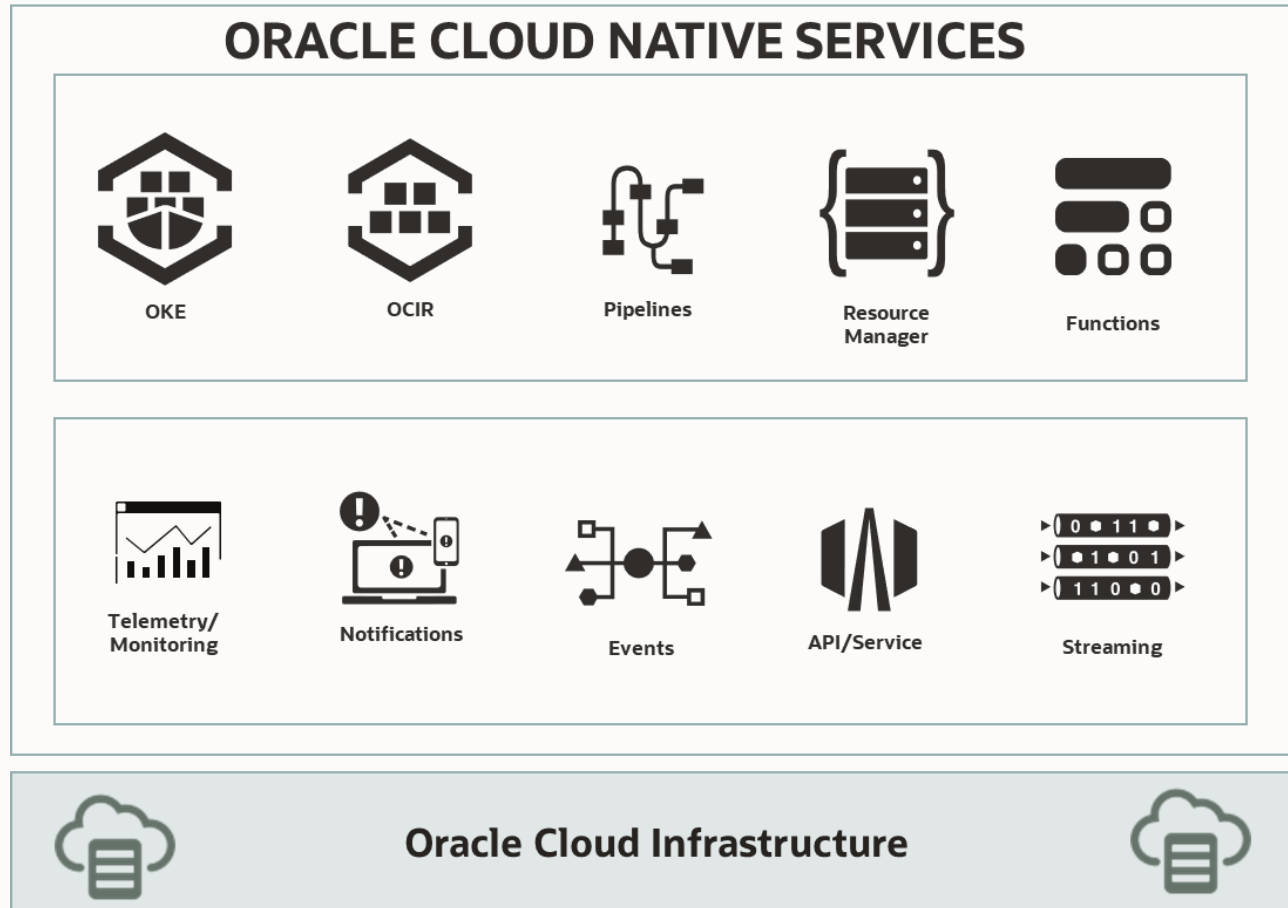
Serverless / Functions

Technology to just run code, without building infrastructure. Serverless is enabled by containers.

Adopting Cloud Native is easier said than done



Oracle Cloud Native Services



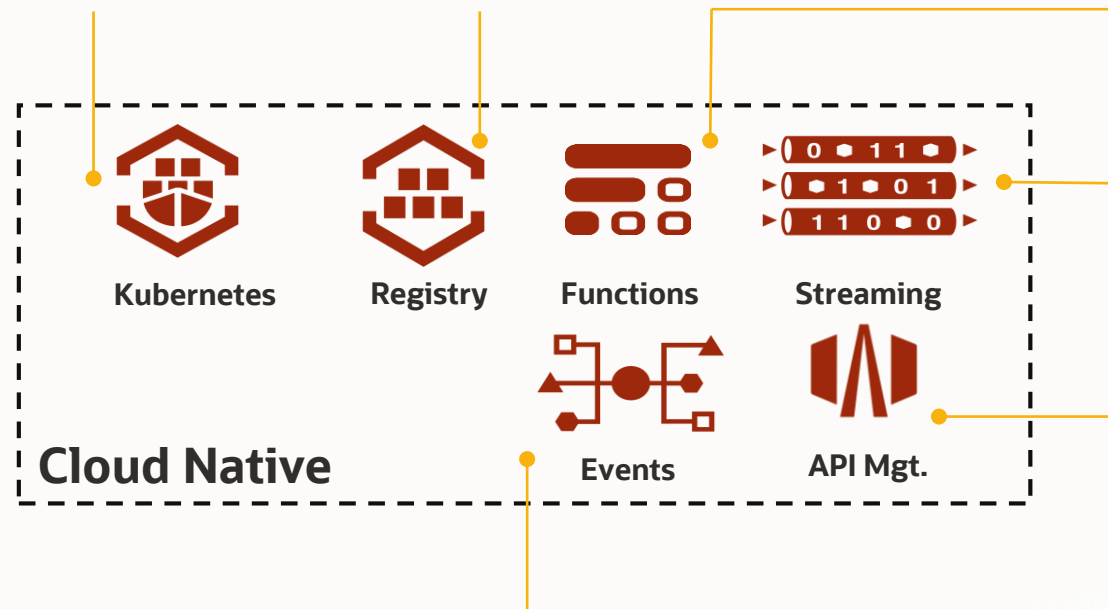
- 100% Opensource Standards
- No privative Forks
- No vendor locking for our customers
- Cutting edge technology (Helidon, GraalVM, etc.)

Oracle Cloud for Cloud Native

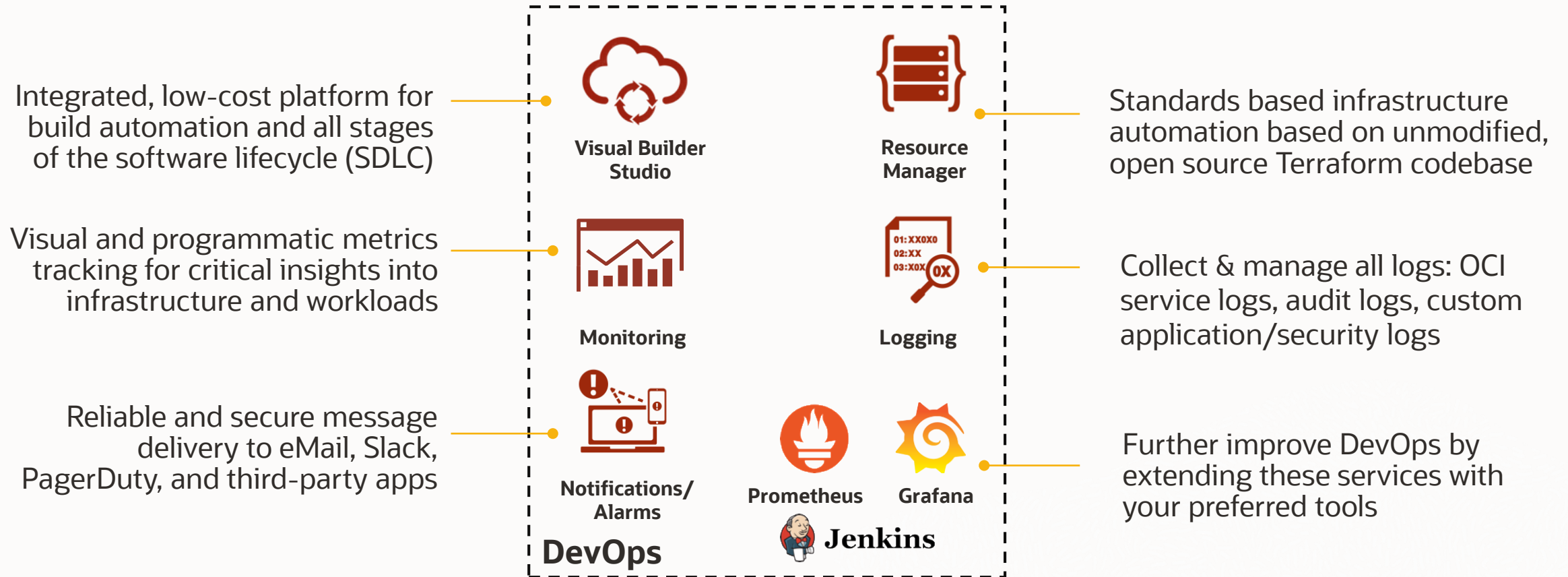
Fully managed, certified, Kubernetes service available in all commercial regions

Docker standard-based registry to reliably and securely store & share container images

Economical and scalable serverless functions service that supports various languages



Oracle Cloud for DevOps



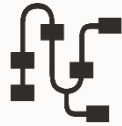
ORACLE CLOUD NATIVE SERVICES



OKE



OCIR



Pipelines



Resource
Manager



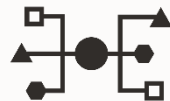
Functions



Telemetry/
Monitoring



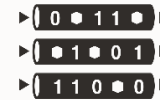
Notifications



Events



API/Service



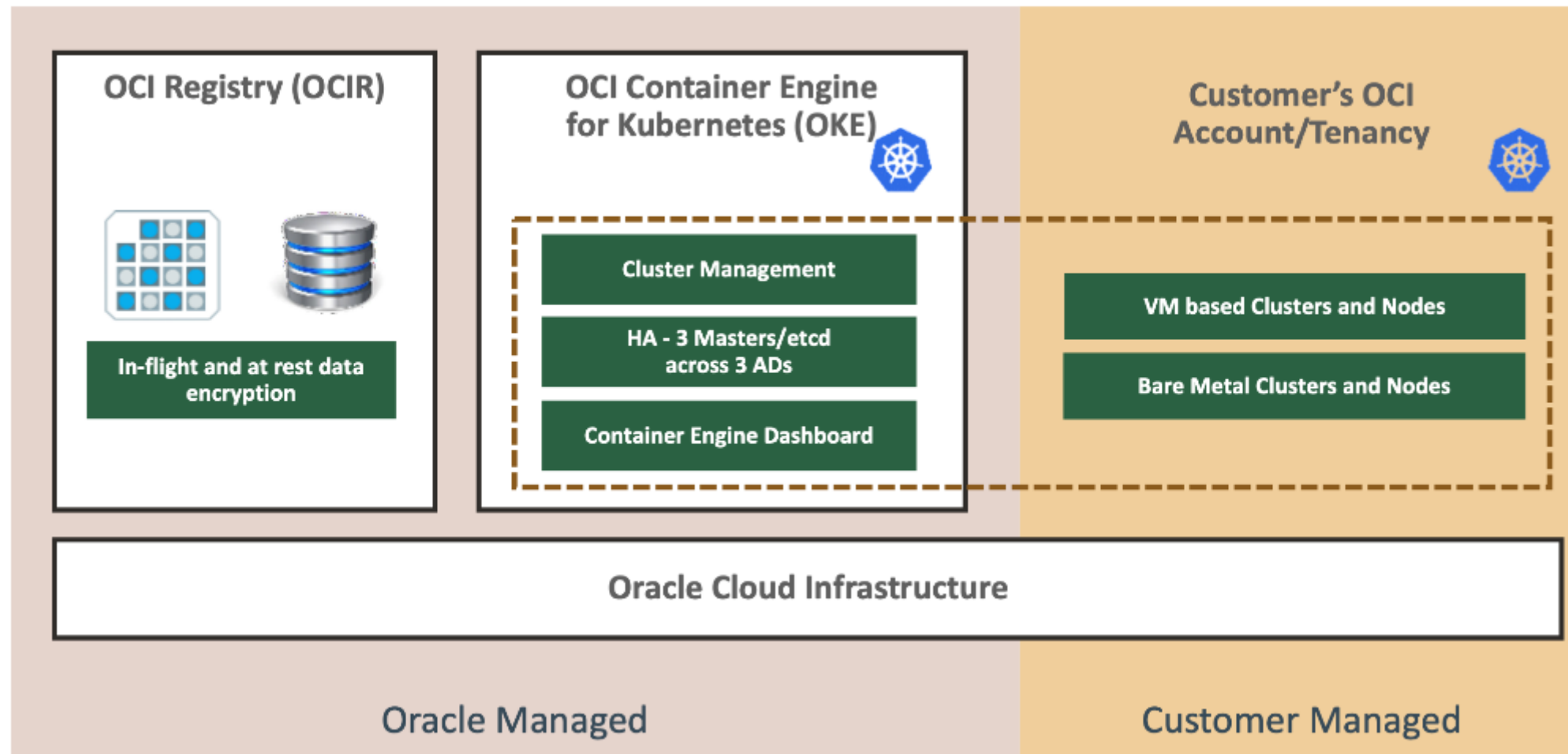
Streaming



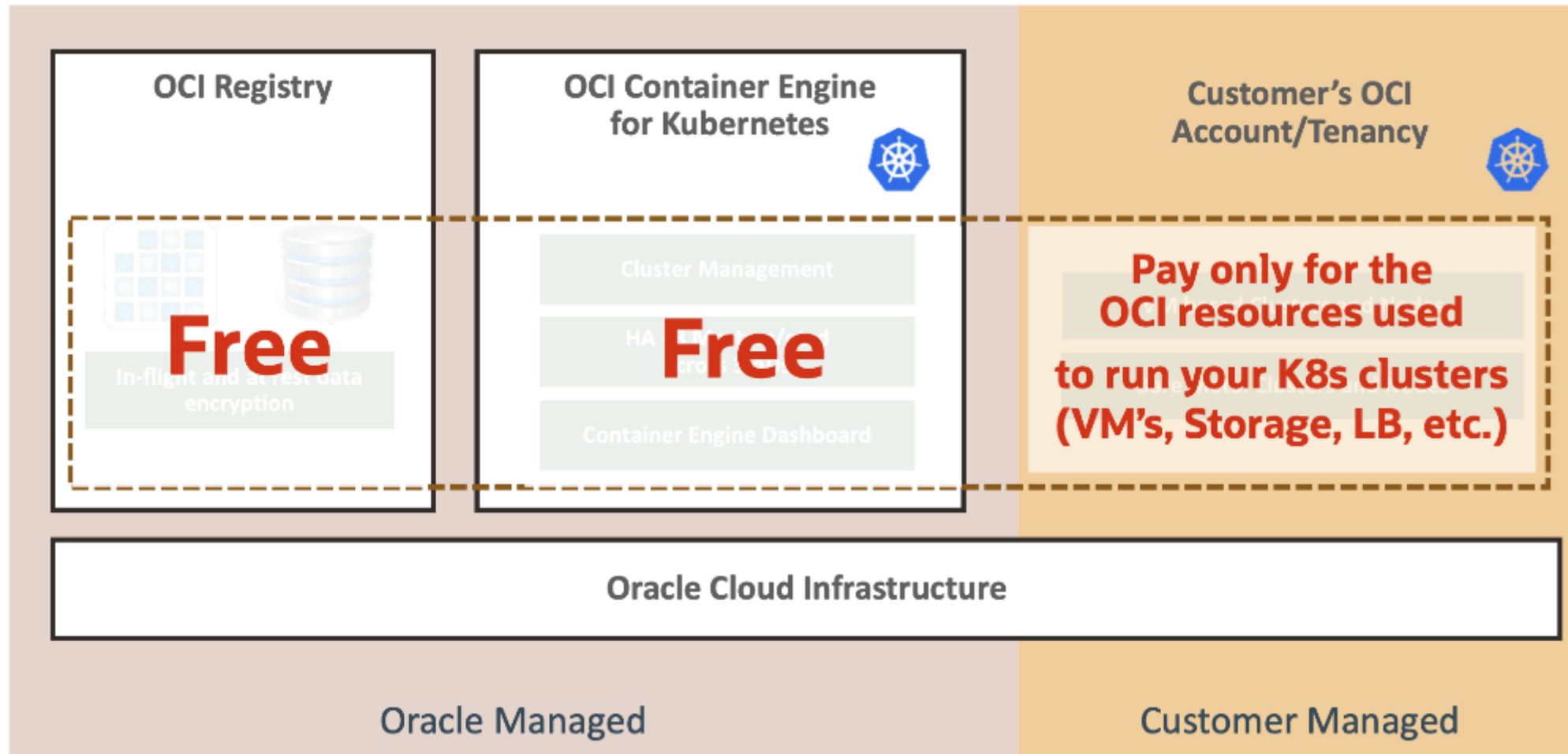
Oracle Cloud Infrastructure



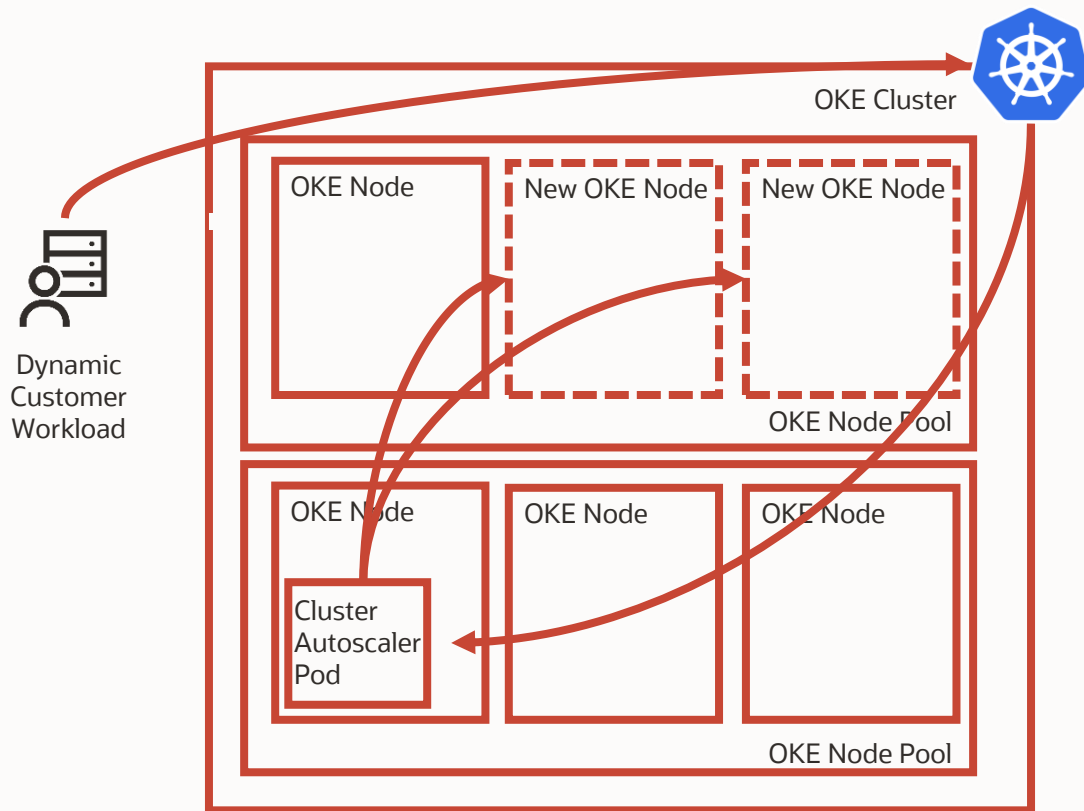
Working with OKE and OCIR on OCI



OKE/OCIR Pricing and Packaging



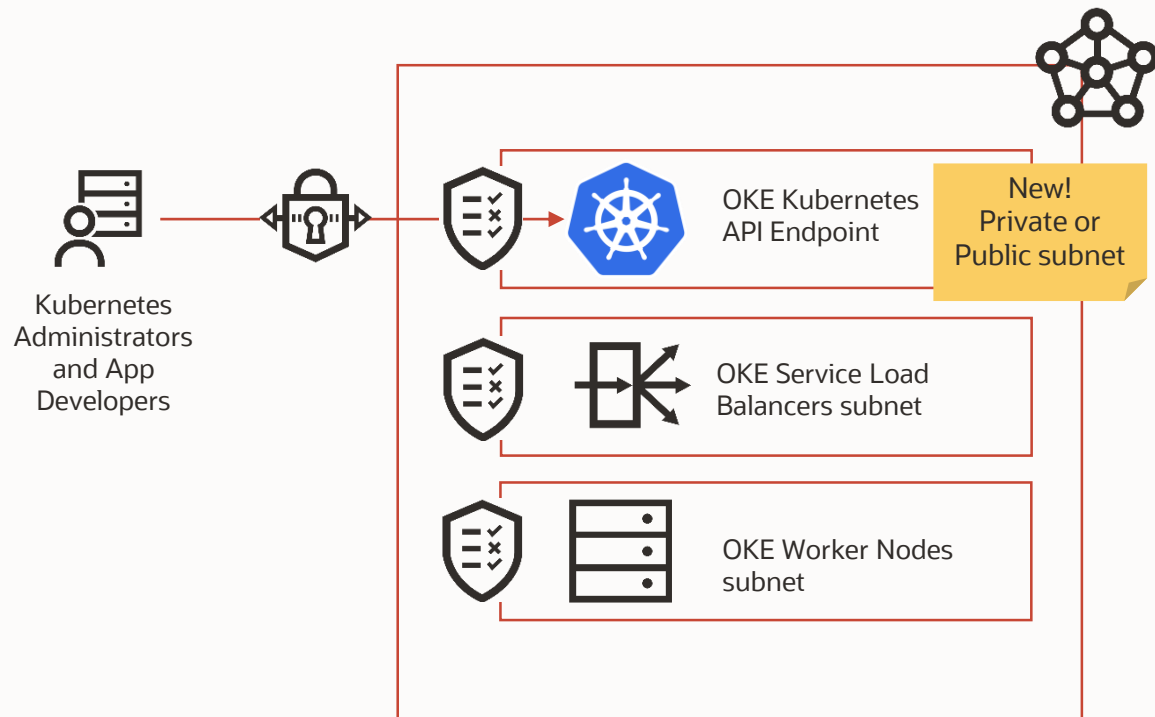
NEW: Node Autoscaling with Kubernetes Cluster Autoscaler



Automatically adjust node pool size based on workload demands

- The Kubernetes Cluster Autoscaler is deployed as a pod in your cluster
- Define the node pools you would like to scale and the maximum and minimum size for each pool
- Use expanders and config parameters for granular control over which node pools to scale and how to scale them

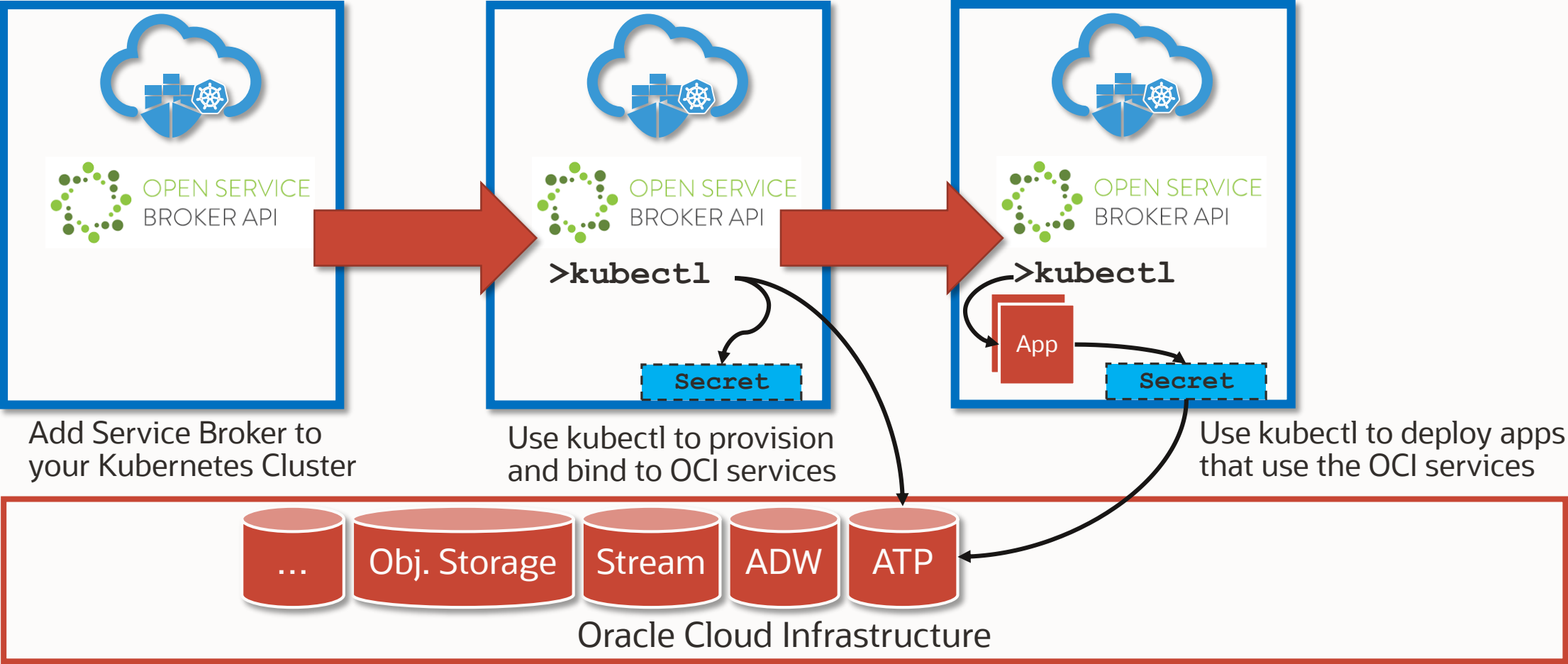
NEW: Improved Security with OKE VCN-Native API Endpoint



Kubernetes API Endpoint is accessed through your own VCN

- The Kubernetes API endpoint is part of a Private or Public subnet in a VCN
- You can access your Kubernetes API endpoint from authorized networks only (on-prem network for example)
- Granular access is controlled via Network Security Groups (NSG)

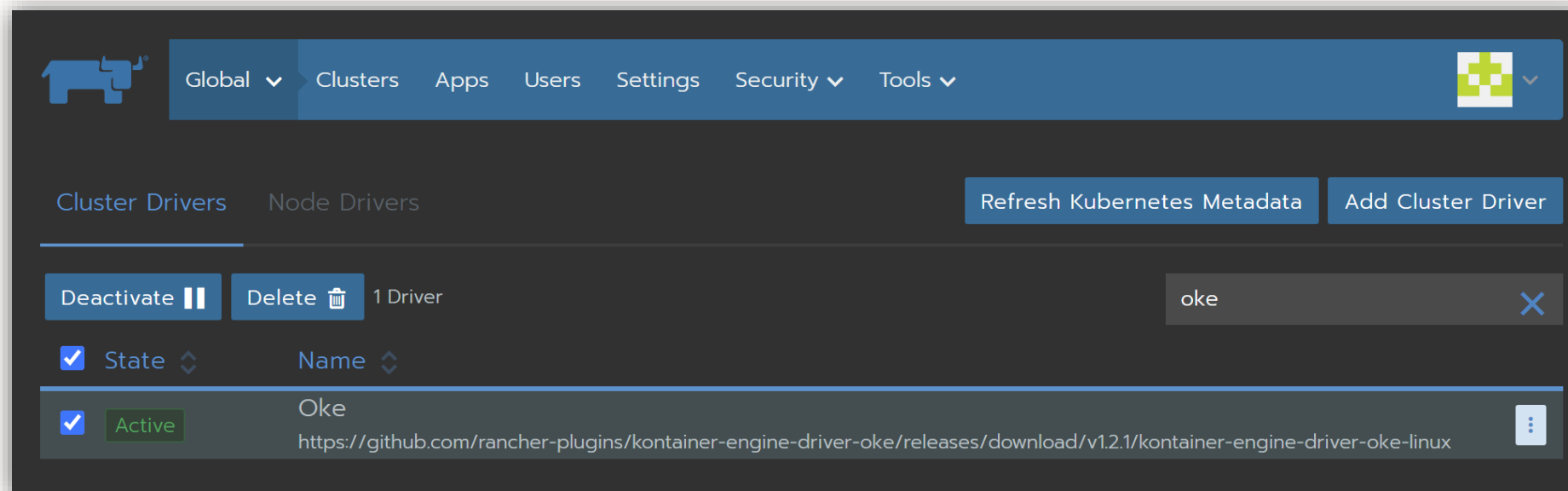
OCI Service Broker for Kubernetes





OKE in Rancher

- Rancher is an Enterprise Platform for Managing Kubernetes Everywhere your organization deploys it.
- It's not from Oracle but we have an **OKE driver** to manage OKE clusters from Rancher.



<https://github.com/rancher-plugins/kontainer-engine-driver-oke/releases>

ORACLE CLOUD NATIVE SERVICES



OKE



OCIR



Pipelines



Resource
Manager



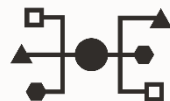
Functions



Telemetry/
Monitoring



Notifications



Events



API/Service



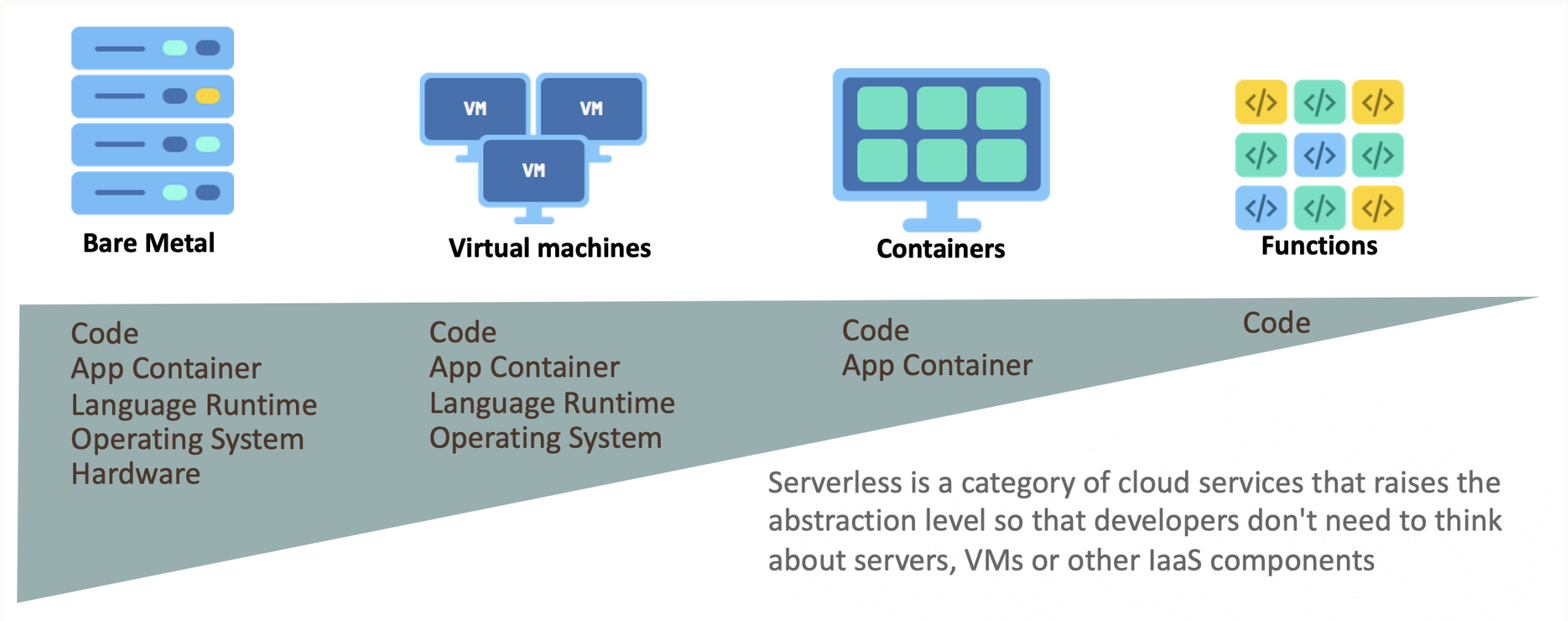
Streaming



Oracle Cloud Infrastructure



Serverless Compute – Functions-as-a-service (FaaS)



Benefits of Serverless



Economics



Agility



Reliability



Innovation

Functions Landscape



- ✗ Primarily proprietary, but some open source
- ✗ Many common concepts across platforms, but no standards
- ✗ Poor development experience—low fidelity between dev and prod
- ✗ Poor to non-existent Java support

Oracle Functions

Oracle Functions

Functions-as-a-Service on Oracle Cloud Infrastructure

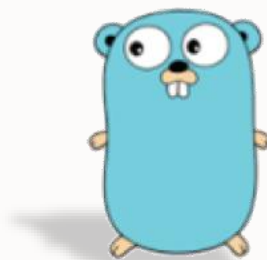
Fully managed, multi-tenant, secure cloud service

No lock-in, open source, container native (FaaS Platform)

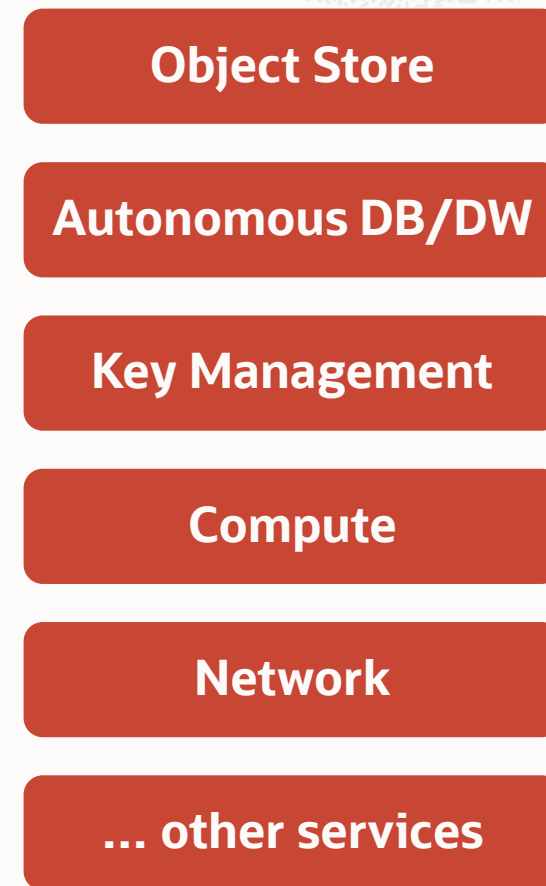
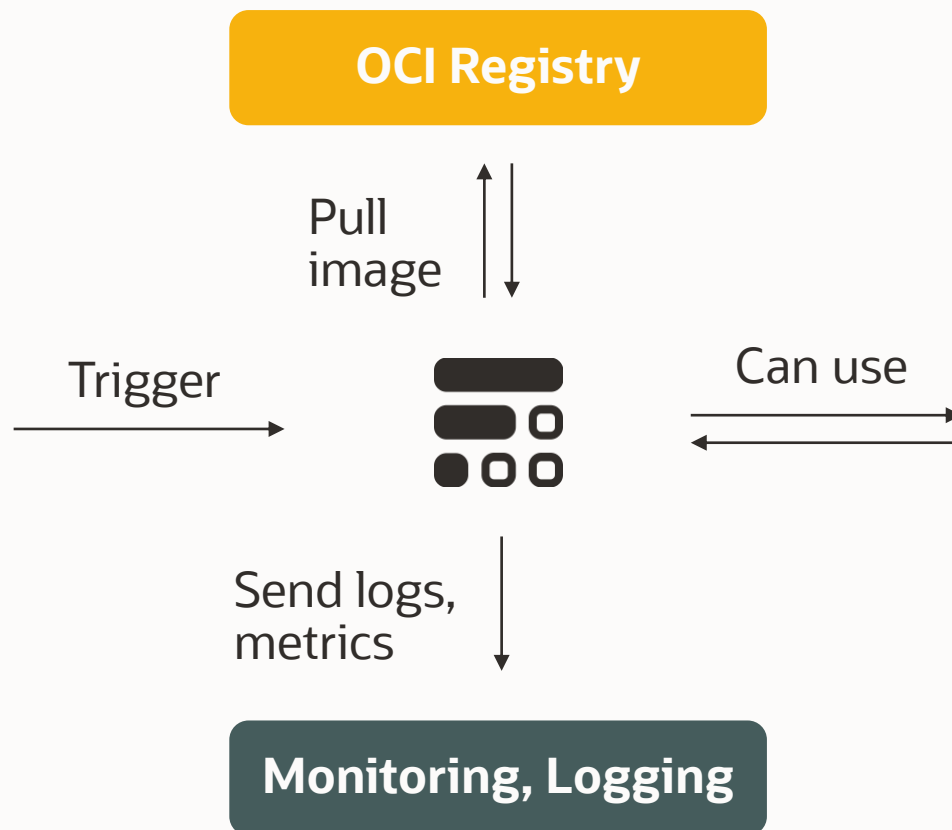
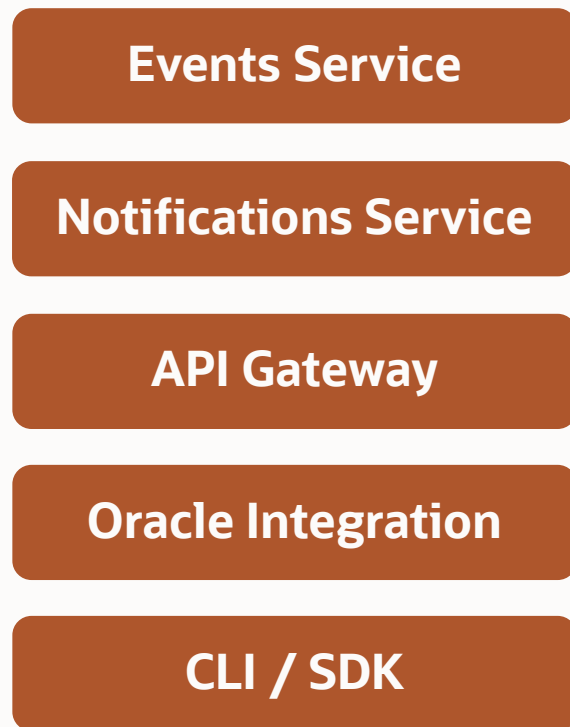
Pay per use, only for execution time, not for idle time

Packaging Code as Containers

- Functions are packaged as containers
- Package and reuse open source libraries as functions!
- Python, Java, Go, Node, Ruby
- BYO Dockerfile, Micronaut, GraalVM Native



How Does it Work?



ORACLE CLOUD NATIVE SERVICES



OKE



OCIR



Pipelines



Resource
Manager



Functions



Telemetry/
Monitoring



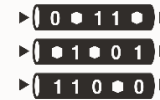
Notifications



Events



API/Service



Streaming



Oracle Cloud Infrastructure



OCI Events Service

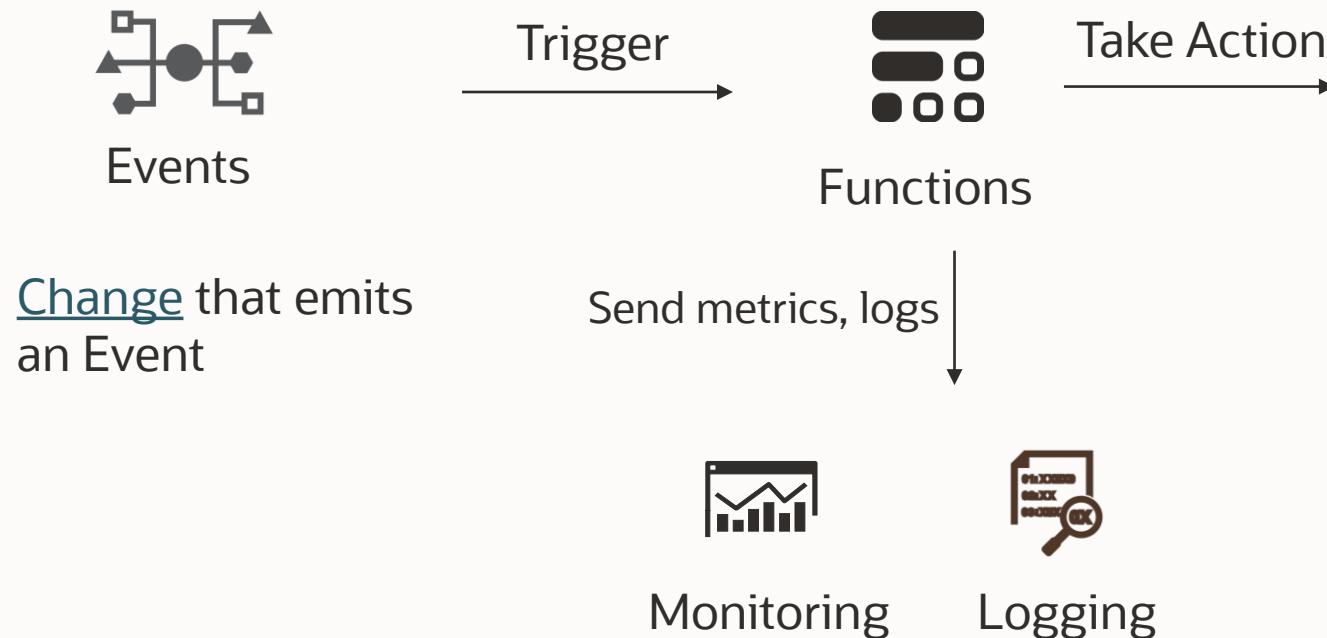


Real time, event alerts and rules to track changes to cloud resources using an open standard

- Tracks user initiated, system and resource lifecycle changes
- Allows admins to define rules and actions for event types
- Integrates with Oracle Streaming, Notifications and Oracle Functions
- Industry standard event exchange format



Oracle Functions for serverless applications

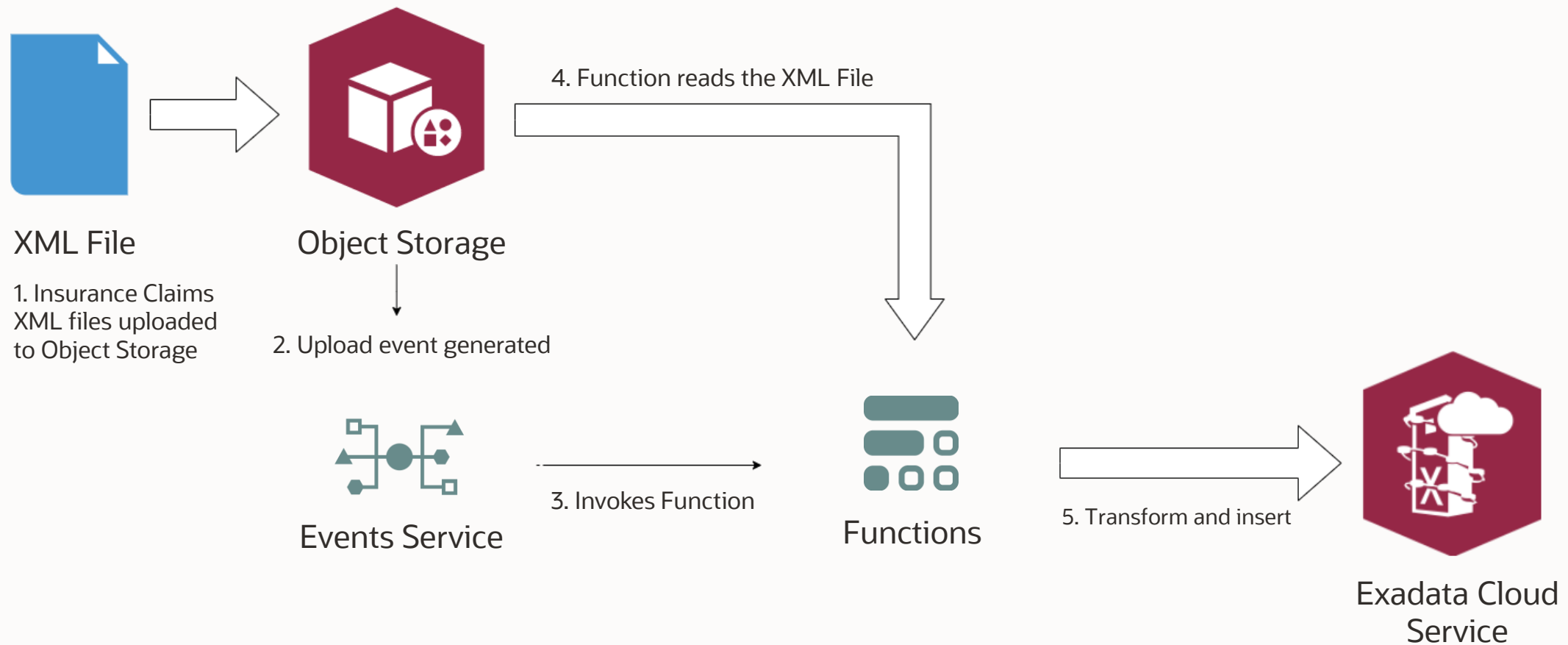


Change that emits
an Event

- ✓ Update database tables
- ✓ Transform files in Object Storage
- ✓ Send logs to 3rd party application, e.g. Splunk
- ✓ High volume extract-transform-load (ETL)
- ✓ Enforce compliance per security policies
- ✓ Extend SaaS applications
- ✓ etc.

Example: High Volume ETL Solution

Processes ~1-1.5 million files per day



ORACLE CLOUD NATIVE SERVICES



OKE



OCIR



Pipelines



Resource
Manager



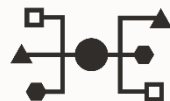
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Monitoring



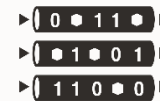
Notifications



Events



API/Service



Streaming

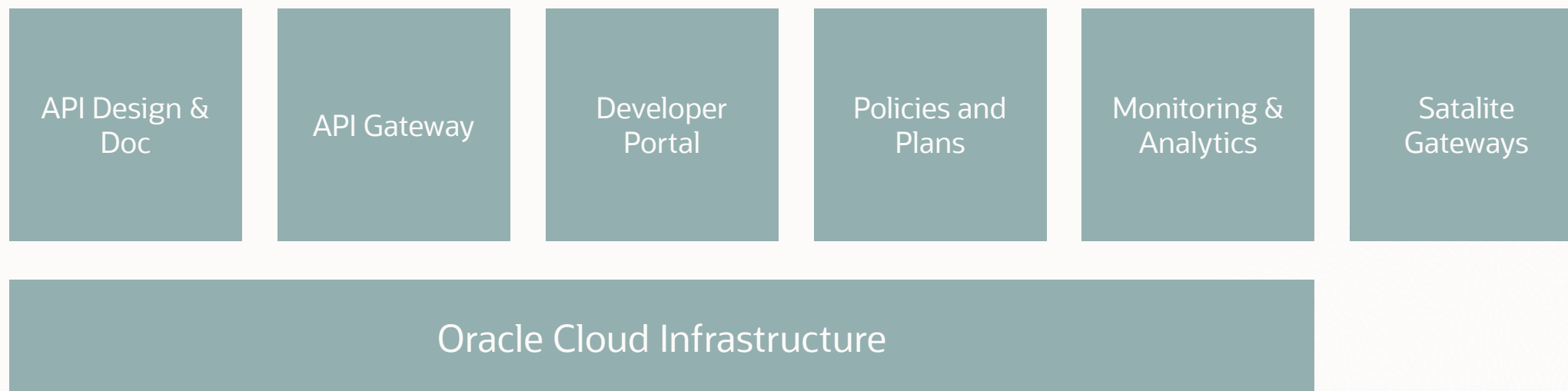


Oracle Cloud Infrastructure



OCI API Management

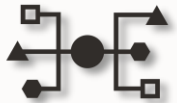
Cloud native technologies empower organizations to build and run scalable applications in modern, dynamic environments such as public, private, and hybrid clouds. Containers, service meshes, microservices, immutable infrastructure, and declarative APIs exemplify this approach.



What is an API Gateway?



Single entry point for all Clients
(Mobile, Web, Chatbots.. And
Others)



Enable routing to appropriate
service



Monitoring and Analytics



Secure access to underlying
services



Provides policy-based validation
and/or transformation of
incoming requests

Oracle Cloud Infrastructure API Gateway

- REST APIs for OCI Services
 - Oracle Functions, OKE, HTTP(s)
- Routing
- Rate-limiting
- Cross-origin Resource Sharing (CORS)
- Custom Authentication
- Metrics/Logging
- Fully Oracle Managed
- Terraform
- Regional OCI Service

The screenshot displays the Oracle Cloud Infrastructure API Gateway console. The top navigation bar shows 'ORACLE Cloud' and the region 'US West (Phoenix)'. The main content area is titled 'API Gateway' and 'Gateways'. A 'Create Gateway' button is visible. Below it, a table lists two gateways:

| Name | State | Type | OCID | Hostname | Updated |
|-----------------------------------|--------|---------|---|---|------------------------------------|
| rdw-api-gateway-5 | Active | Public | ...cek6xtegia Show Copy | ...er-oci.com Show Copy | Sat, Sep 14, 2019, 12:05:05 AM UTC |
| rdw-api-gateway-4 | Active | Private | ...rci6gnyxua Show Copy | ...er-oci.com Show Copy | Fri, Sep 13, 2019, 8:35:30 PM UTC |

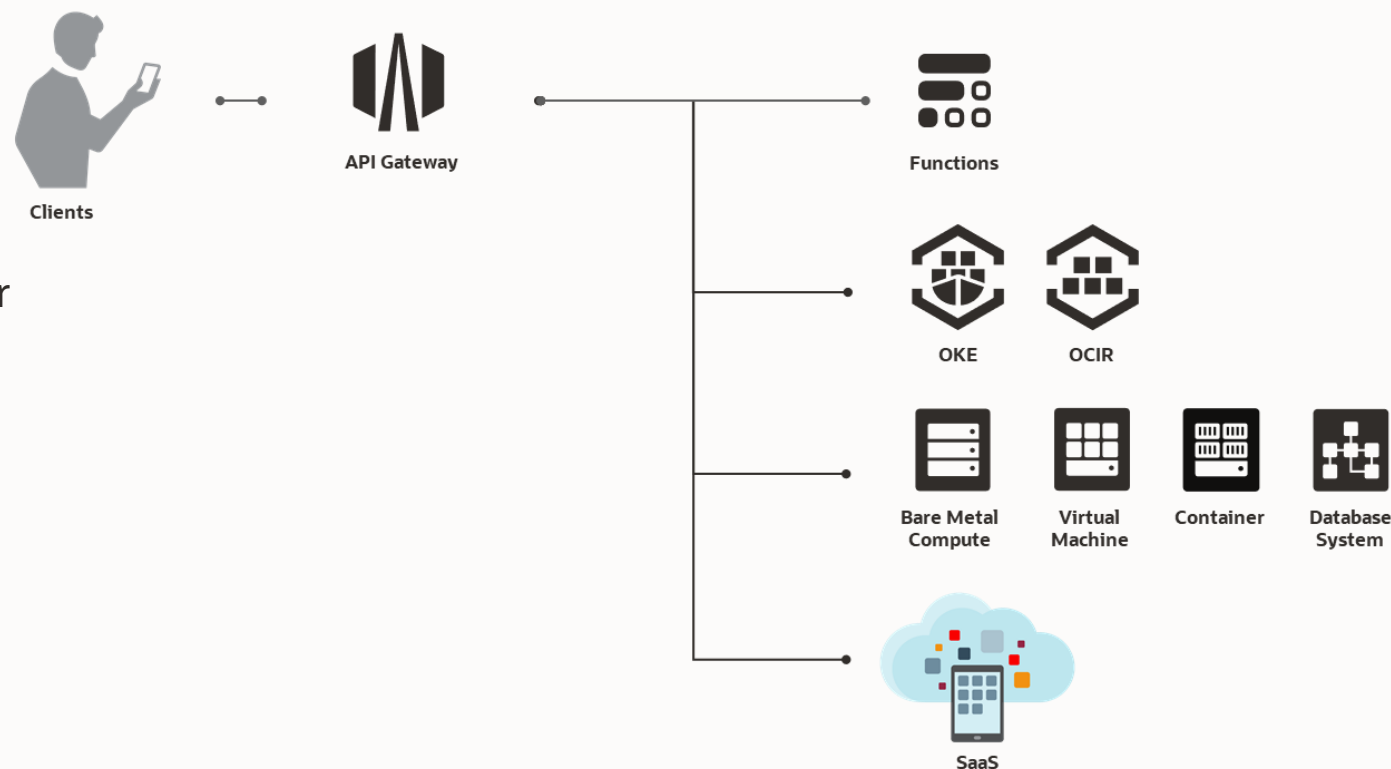
Below the table, the 'API Request Policies' section is expanded, showing three policy types: Authentication, CORS, and Rate Limiting. Each policy has an 'Edit' button.

- Authentication:** Type: Custom, Token Header: test, Enable Anonymous access: No. Function Id: ...phwnguyk2q [Show](#) [Copy](#).
- CORS:** Allowed Origins: Access-Control-Allow-Origin: *, Allowed Headers: Expires: Tue, 21 Oct 2021 07:28:00 GMT, Allowed Methods: GET,PUT,POST.
- Rate Limiting:** Number of requests per second: 100, Type of Rate Limit: Per client (IP).

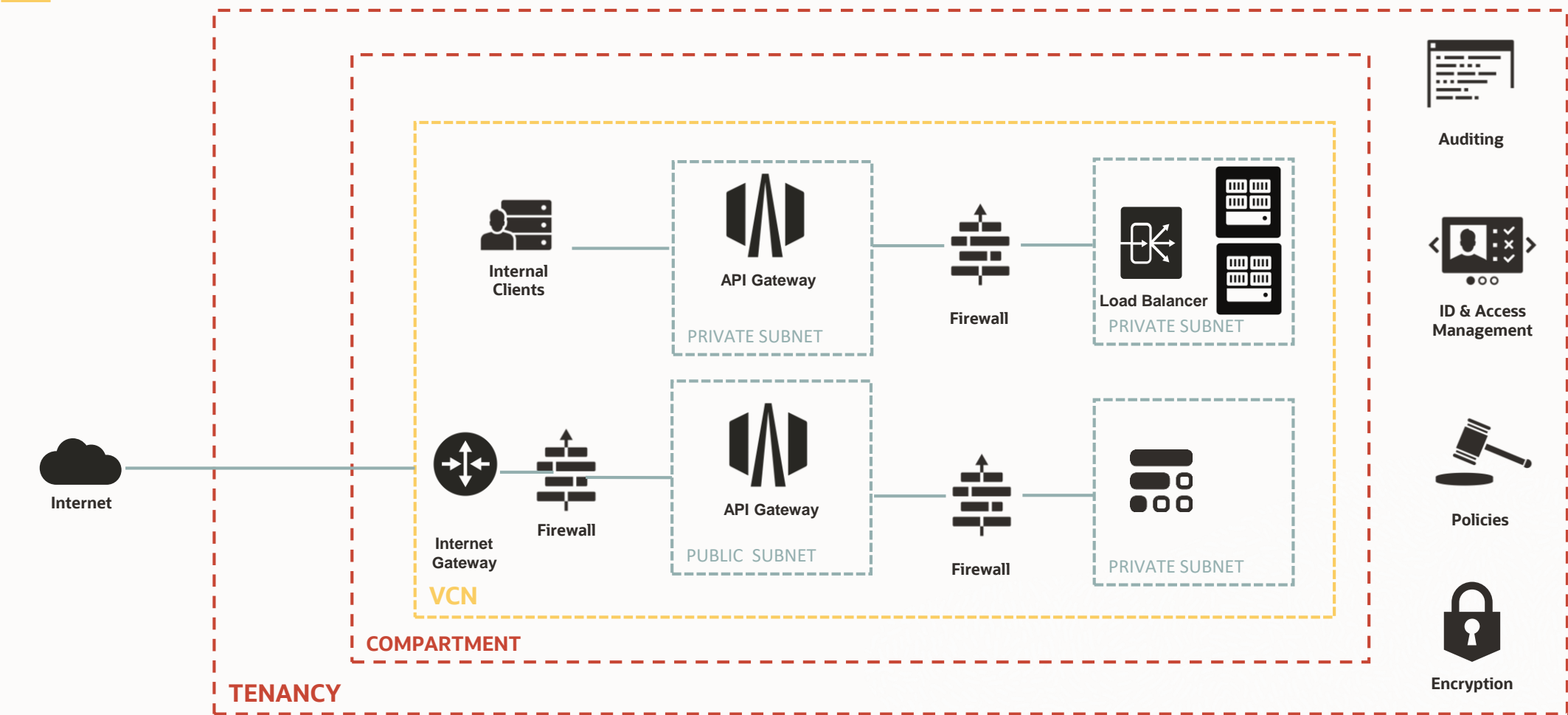


How to use in OCI?

- **RESTful APIs for Functions**
 - Extend applications
 - Manages security context
 - No SDK required
- **APIs for purpose-built HTTP(s) Services**
 - Oracle Kubernetes Engine (OKE) and other services running on Compute
- **APIs for SaaS**
 - Protect SaaS end-points
 - Native service to extend ATP/ADW



Public and Private APIs



ORACLE CLOUD NATIVE SERVICES



OKE



OCIR



Pipelines



Resource
Manager



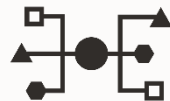
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Monitoring



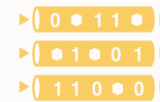
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Events



API/Service



Streaming



Oracle Cloud Infrastructure



Oracle Streaming Service

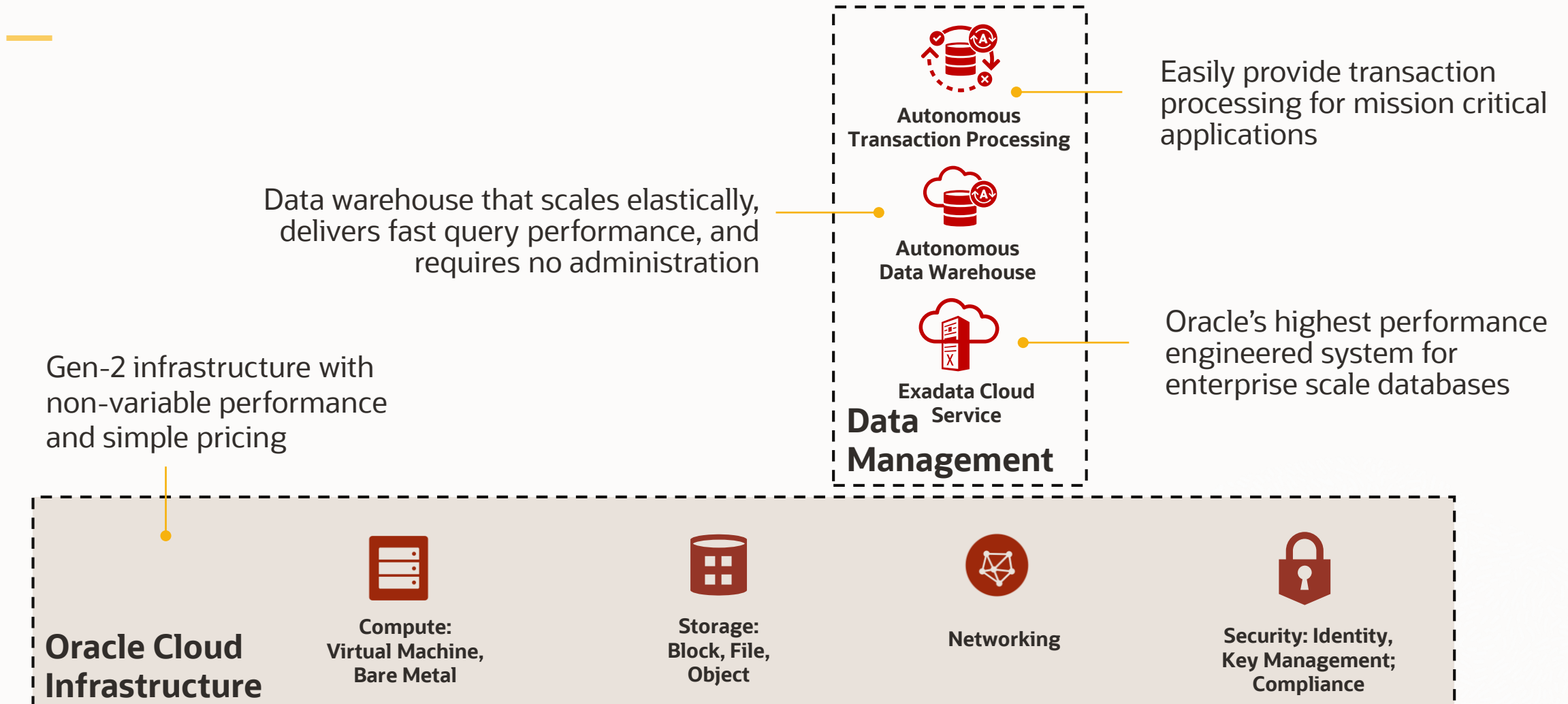
What is it?

- Continuous flow of data from producers to consumers. Allows data collection from numerous sources and process them quickly. **Kafka compatible**
- **Fully managed**, eliminating maintenance and patching of streaming platform
- **Durable storage**: incoming messages are geo-distributed to three Availability Domains
- **Fault tolerant**: same level of performance even after Availability Domain failure
- **Fully integrated with OCI**: Fully integrated with all platform services from access control to tagging and cost tracking

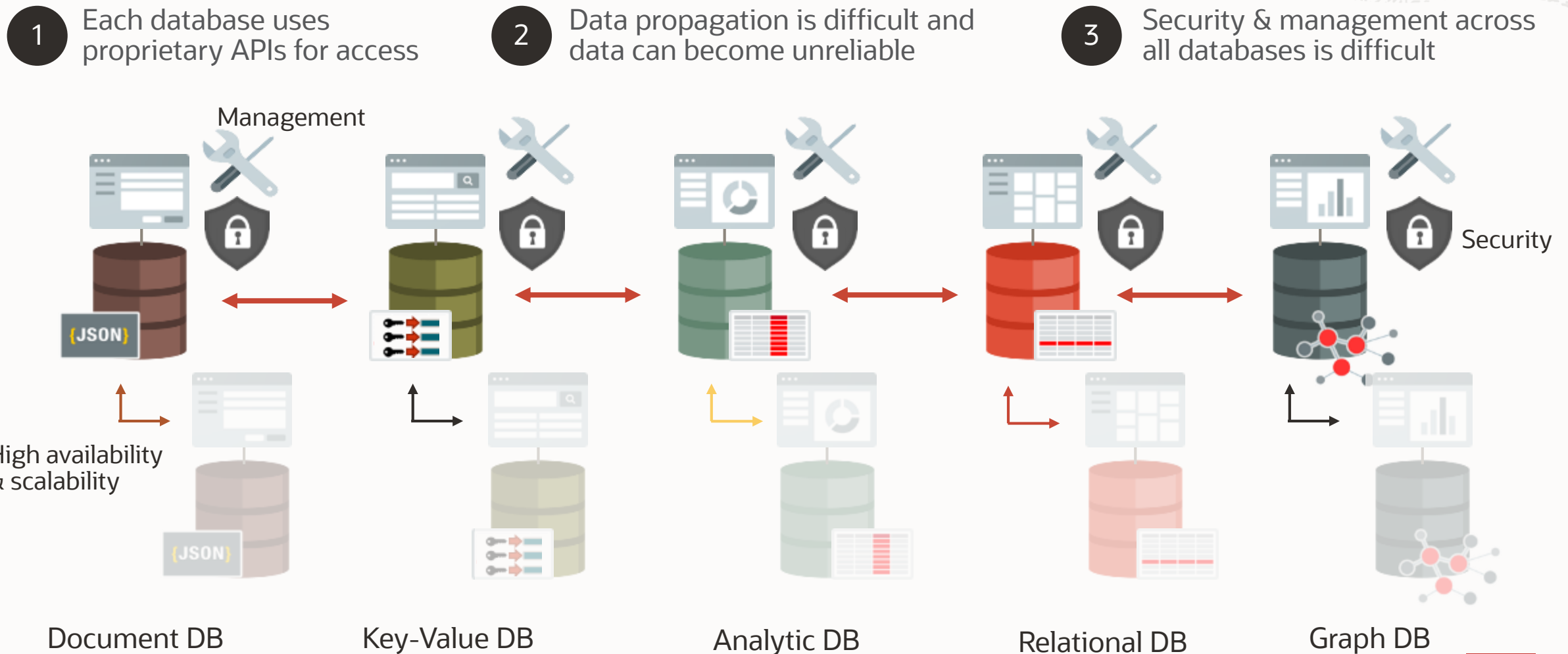
What benefits does it provide?

- **Pay-as-you-use**. Don't pay for overprovisioned capacity, only for data you transmit. Useful for applications with huge data spikes
- Easy consumption of data from a stream by offloading load balancing and coordination of consumers

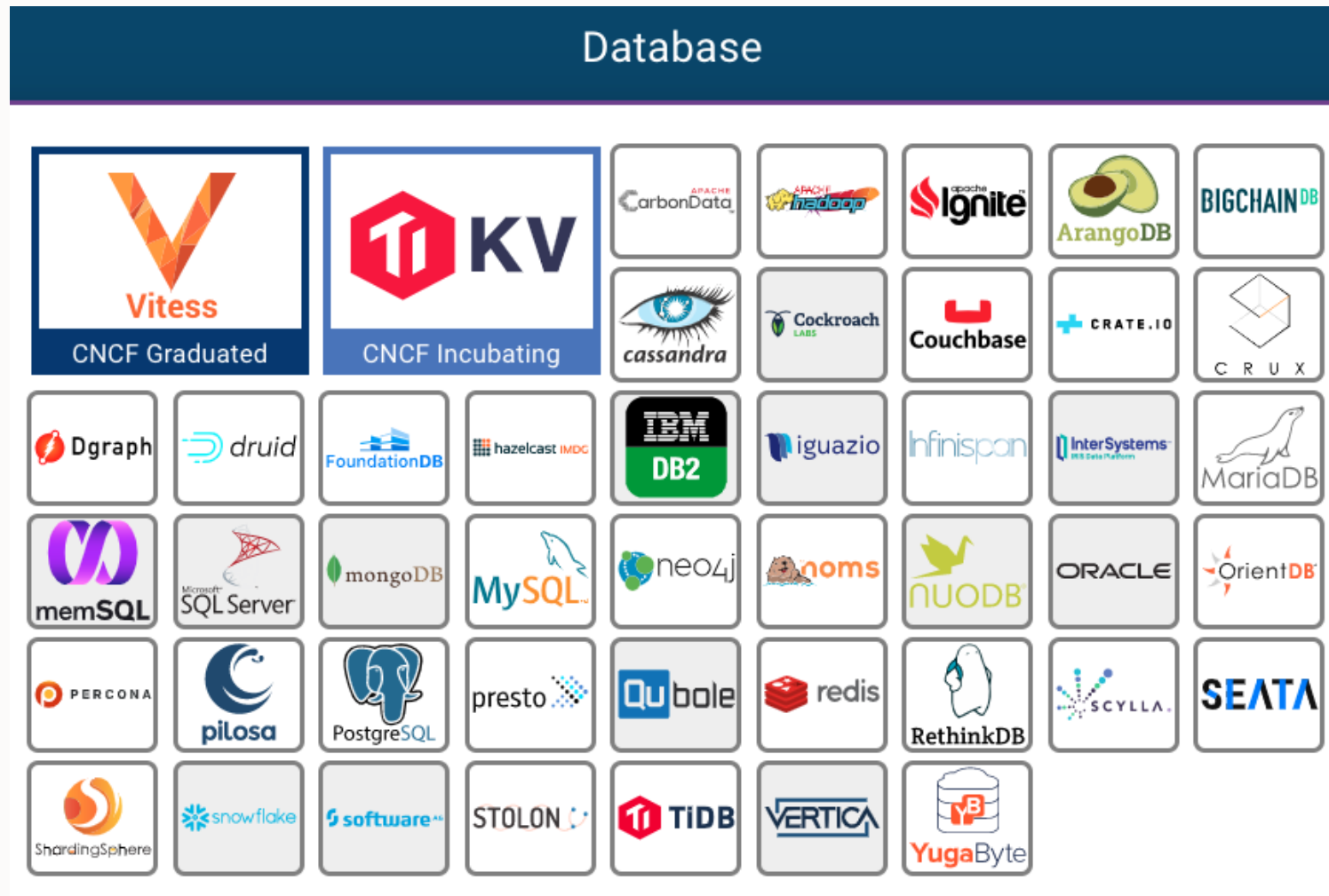
And What about Database & Microservices?



Database management with Cloud Native Apps is hard



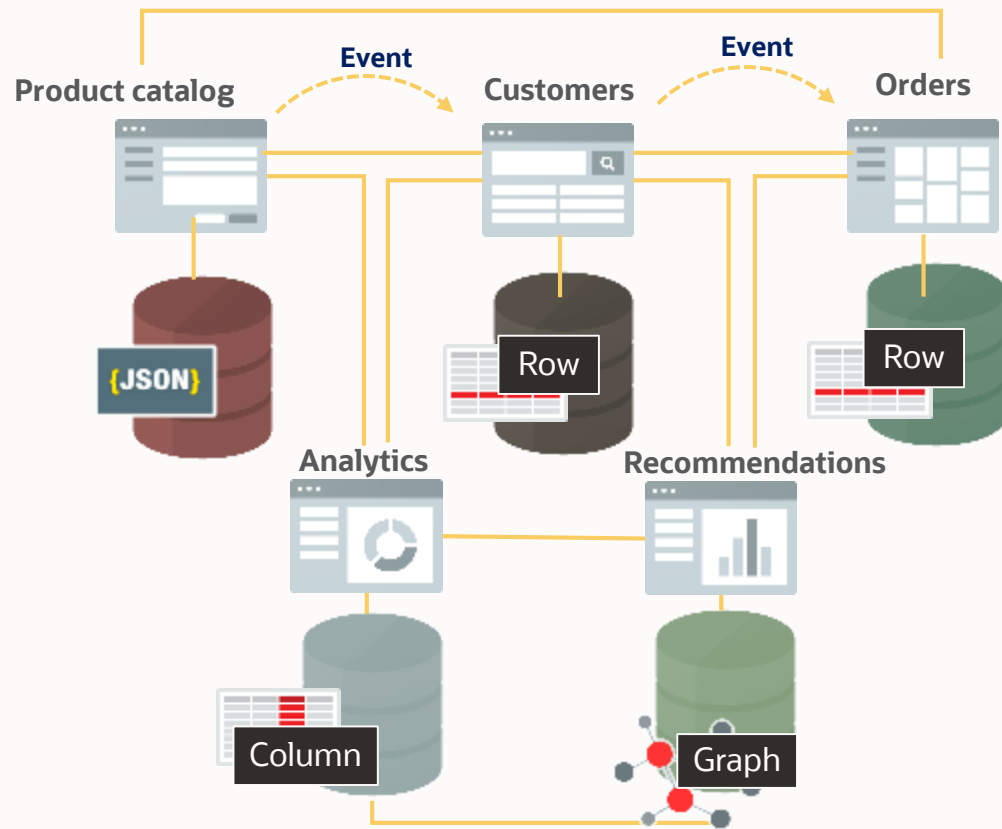
Database management with Cloud Native Apps is hard



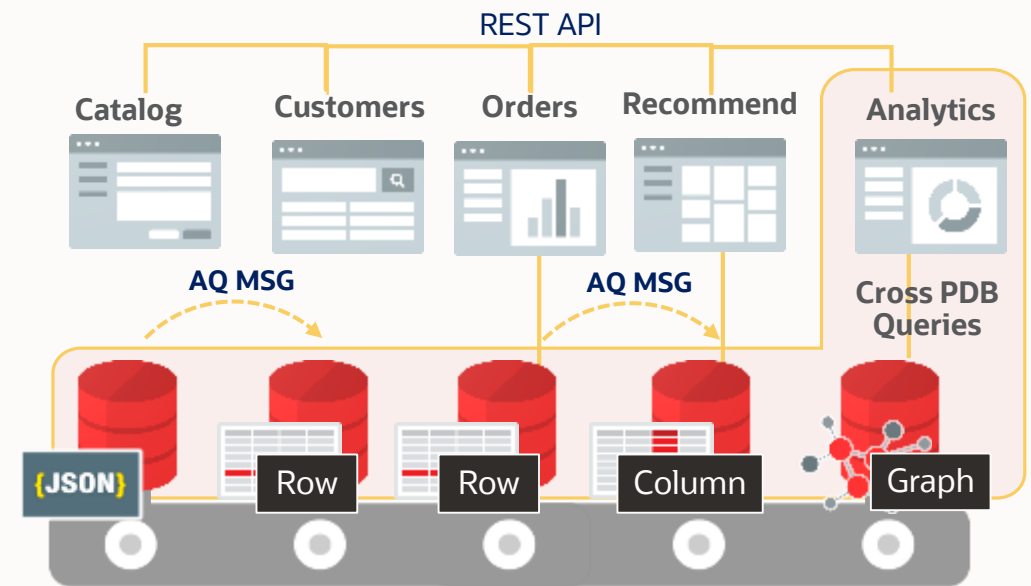
Relational DBs
NoSQL DBs
Document DBs
Graph DBs
Key Value DBs
...
...
So many choices!

Simplified data management for cloud native apps

Multiple self-managed databases



Oracle Database Cloud Services



Multi model database



Microservices

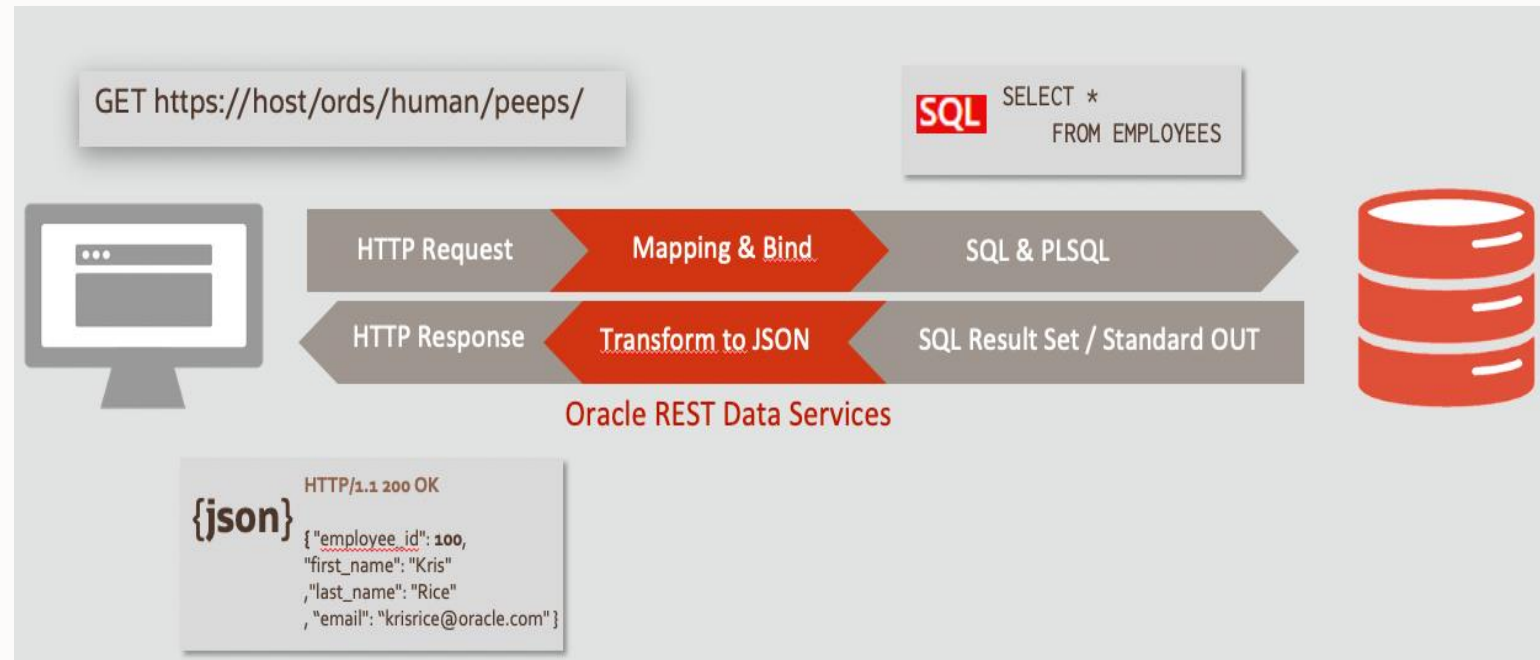


Databases



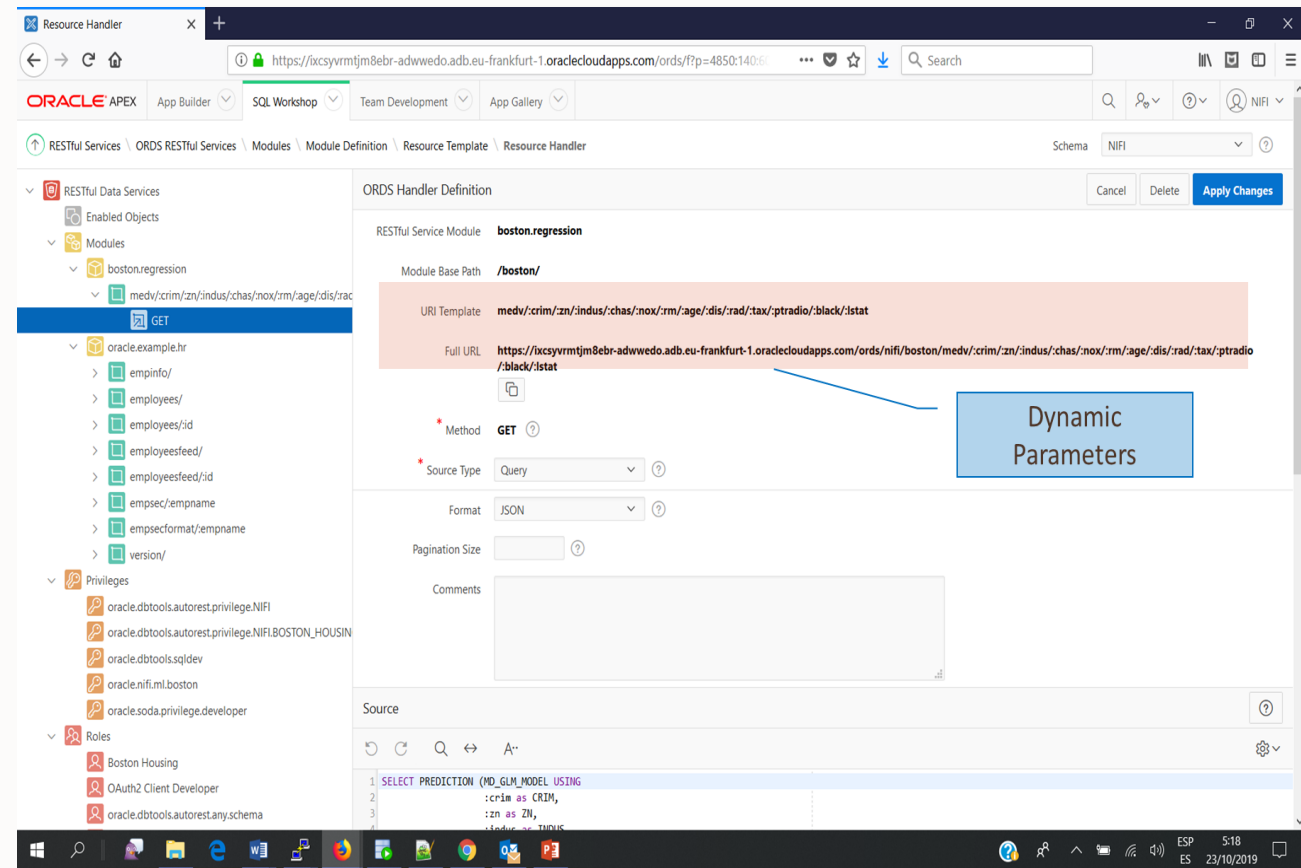
Oracle REST Data Services (ORDS)

- Provides external data & model access via HTTP
- Makes underlying data easy to consume
 - Input: maps / binds URI to SQL and PL / SQL
 - Output: transforms results to JSON and other formats
- Enables rapid application development with RESTful data exposure
 - Complimentary choice for JavaScript (web) and mobile
 - No-coding needed



Oracle REST Data Services (ORDS)

- Available in 11g, 12c, 18c and 19c no extra cost
- Results in JSON or CSV
- Mapping of URI to SQL or PL/SQL
- All HTML methods GET, PUT, POST, DELETE
- OAuth2 integration
- Data stored in standard relational tables and columns
- Oracle REST Data Services (ORDS) Developer defines URI<>SQL mapping



ORACLE

Low Coding Programming

Oracle Visual Builder

Build and host web and mobile applications in a faster and simpler way with zero install and visual development experience



Visual Builder

Key principles



Cloud Based

Nothing to install or configure, runs in the browser. Applications accessible from any device.



Easy to Use

Drag and drop visual development with live WYSIWYG designer



Integrated

Fully integrated with other Oracle Cloud PaaS Services
Easy access to Oracle SaaS data and easily embeddable in Oracle SaaS

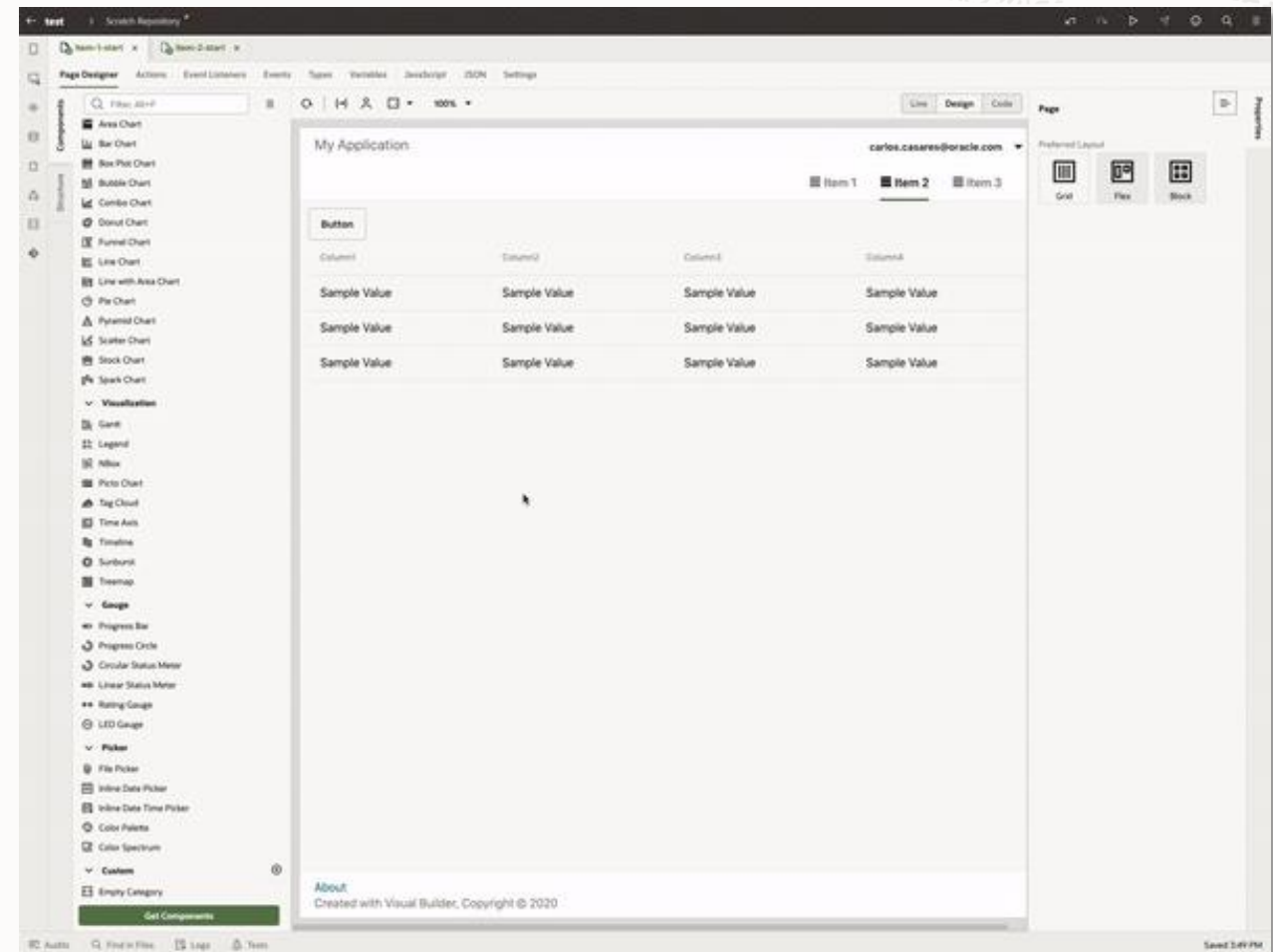


Extensible

More complex behavior can be implemented in standard JavaScript, HTML and CSS

Simple UI Development


- Based on JET (Open Source Javascript Extension Toolkit)
- Component Palette
- Add Additional Web Components
- Drag and Drop
- WYSIWYG
- Property inspector
- Multi-device live preview
- Security role preview




Cloud-Native-Computing-Iberia

<https://community.cncf.io/malaga/>

Online Monthly Meetups





Chapters Events Apply


Europe Málaga

16 Group Members

[JOIN](#)

Upcoming Event

[Organizer](#)




FEB 25, 2021 - ONLINE EVENT

Cloud Native Talks: Fast and Efficient Java Microservices with GraalVM with Alina Yurenko

In this session we'll talk about building Java microservices that start in milliseconds and have a low memory footprint, which makes them perfect for cloud deployments. They can be built using GraalVM — a high-performance virtual machine, that can also compile Java applications into native executables.

[VIEW DETAILS](#)



Cloud Native Computing Iberia

[Málaga Region](#)
[Full members](#) [Public group](#)
[Organized by Alina Yurenko and 4 others](#)

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What we're about

Our Statement is: The Cloud Native Computing Iberian Statement is...

[Read more](#)

Upcoming events (1)

[See all](#)

FEB 25, 2021 - ONLINE EVENT

Cloud Native Talks: Fast and Efficient Java Microservices with GraalVM

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Organizers

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[Málaga](#)

Members (114)

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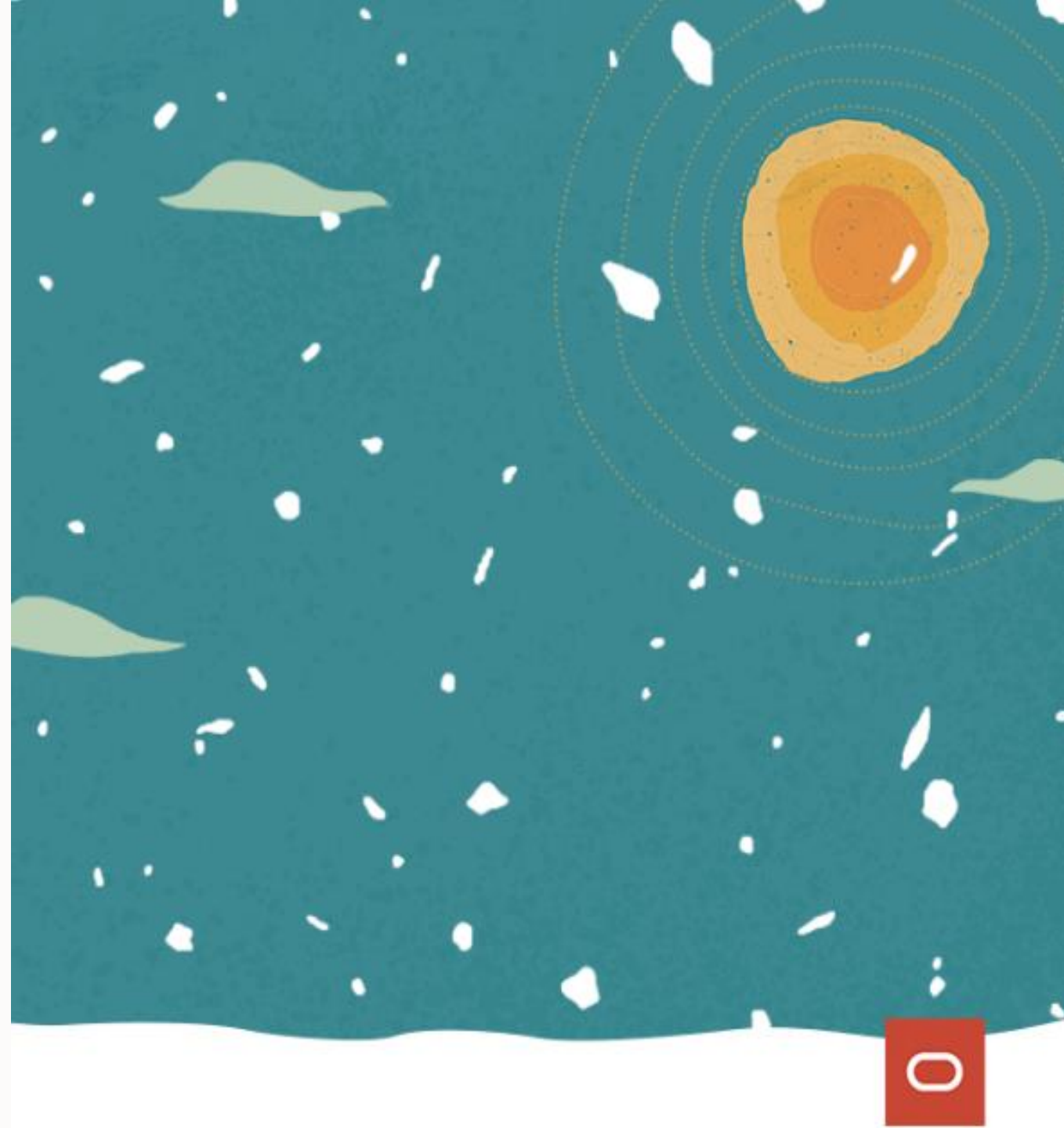


Register now for next events!

Thank you

ivan.sampedro@oracle.com

victor.mendo@oracle.com





ORACLE