ORACLE

Modernise WebLogic based Applications and Hybrid Cloud Native management

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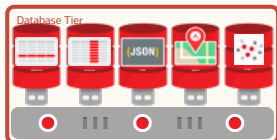
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WebLogic Modernisation

The WebLogic Product Roadmap has continued to evolve

Embrace Cloud Native
- Key trend in Application Development
- Modernize your existing applications without code changes
- Large toolset to embrace modern development automation (CI/CD)
- Enable Modern Monitoring and Logging tooling

Micro Service Ready
- Easy adoption of Java Microservices with Helidon
- Hybrid applications: WebLogic + Helidon combined
- Coherence: interaction between microservices

Converged Database
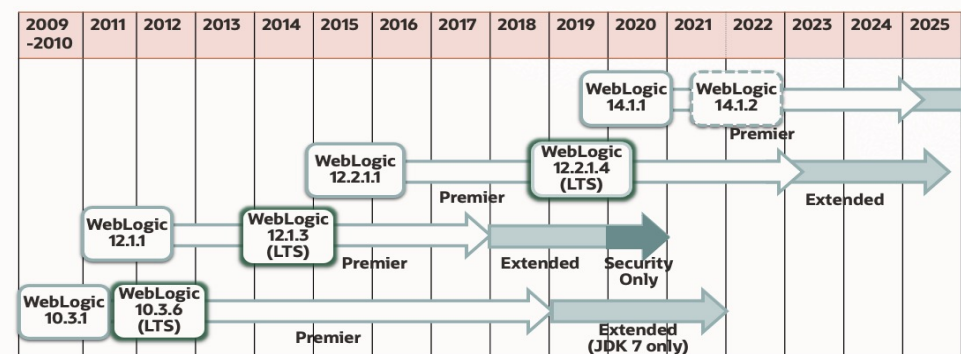- Relational, Columnar, JSON, Spatial, …

WebLogic, Coherence 14.1.1

Java EE 8, Jakarta EE 8

Java SE 8, Java SE 11

Ongoing evolution in 14.1.x
- WebLogic Java EE 8 and Jakarta EE 8 Support
- Coherence, Tracing, GraalVM polyglot
- Java SE 8 and Java SE 11 Support
- Generic, slim and quick installers

Extensive (long-term) Support Roadmap

Oracle Enterprise Cloud Native Java

- Build and deploy containerized Java EE applications that run anywhere
- Build and deploy microservices alongside traditional applications
- Easily run and manage complex applications combining existing and new
- Boost the performance of Java applications, easily use multiple languages with GraalVM
- Select an approach that make sense for you

Oracle Cloud and Other Clouds

Migrate

Physical & VMs On Premise

Kubernetes on Premise
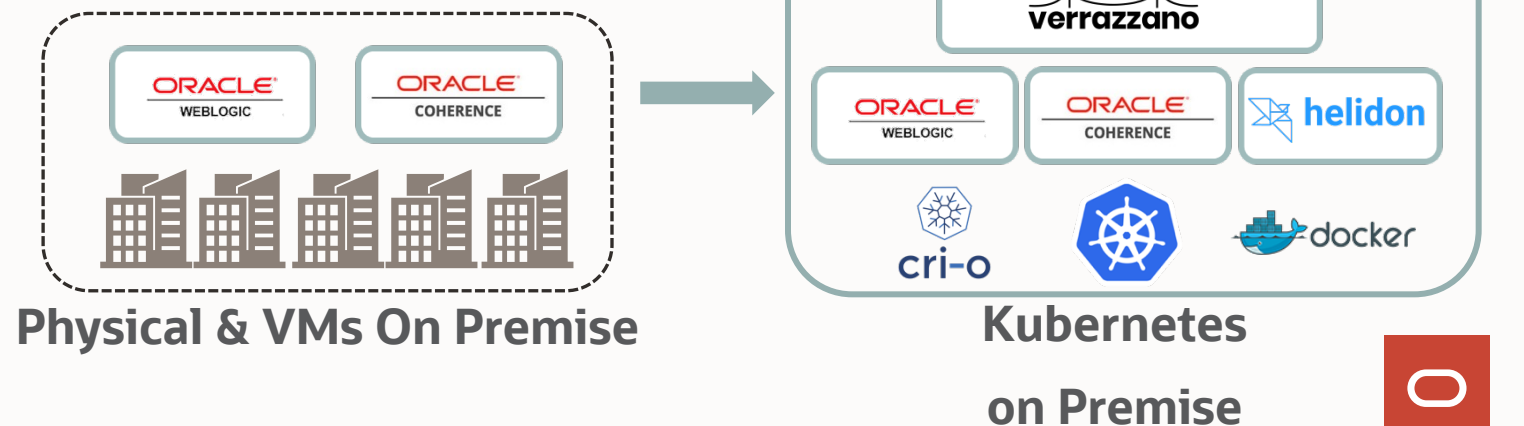
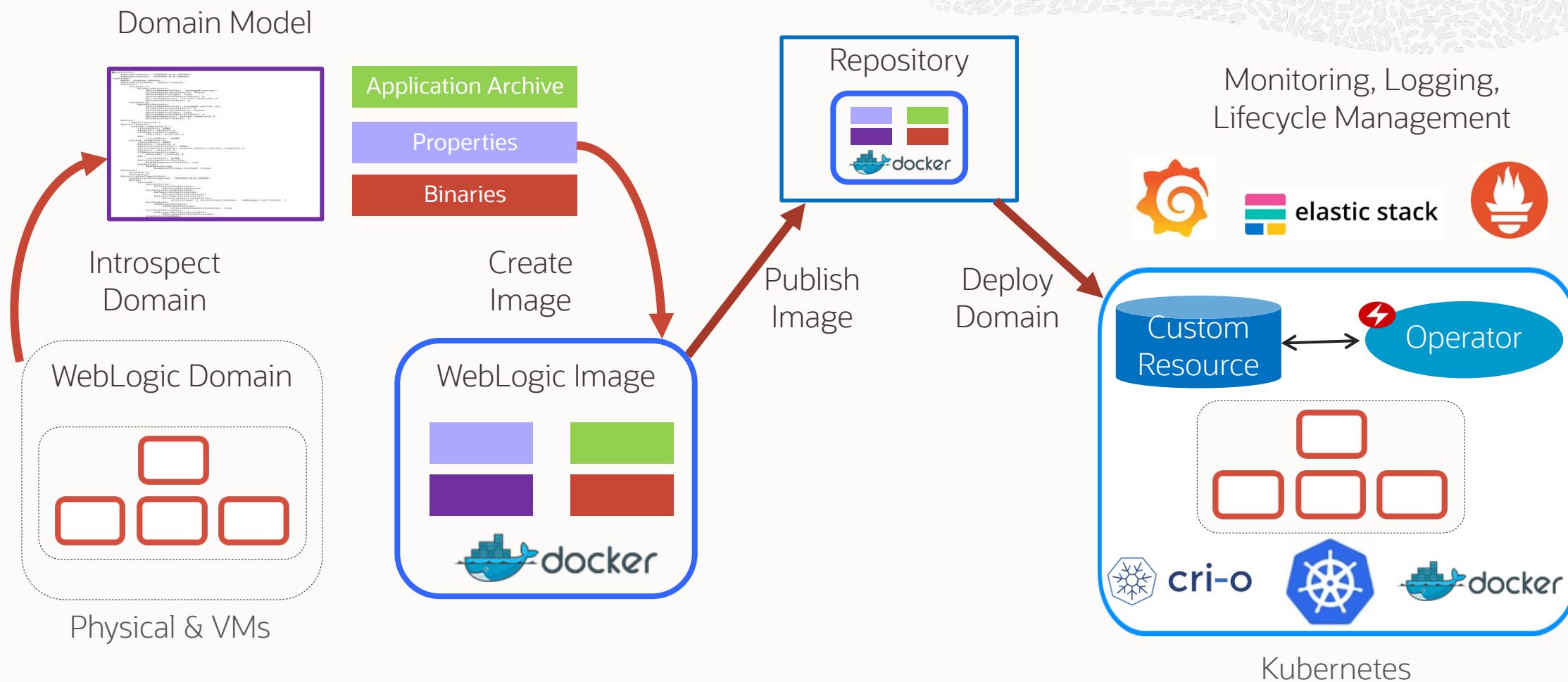# Build And Deploy Containerized Applications That Run Anywhere

- Easily deploy applications using Docker and Kubernetes
  - ✓ Containers are more efficient and easier to manage than using virtual machines

- Use certified open source, cloud-neutral toolchains
  - ✓ Oracle is aligned with Cloud Native Computing Foundation (CNCF)
  - ✓ Standard tools included in WebLogic Kubernetes ToolKit that can run anywhere
    - Manage **any Kubernetes** deployment using WebLogic Kubernetes Operator
    - Easily deploy to **any environment** using WebLogic Deploy Tool
    - Easily **create** and **update** container images using WebLogic Image Tool
    - Easily **monitor** with cloud native tooling using WebLogic Prometheus Exporter
    - Integrate with Elastic stack using WebLogic Logging Exporter

- Easily combine existing deployment options with newer ones using Verrazzano

* Oracle is a platinum member of CNCF

WebLogic Kubernetes ToolKit Example - Migrate to Kubernetes

Domain Model

Application Archive

Properties

Binaries

Repository

Monitoring, Logging, Lifecycle Management

elastic stack

Introspect Domain

Create Image

Publish Image

Deploy Domain

WebLogic Domain

WebLogic Image

docker

docker

Custom Resource ↔ Operator

Physical & VMs

cri-o

docker

Kubernetes

Modernisation Requirement & Journey

Ecommerce Site

O-shop

- Built with Java EE
- N-tier architecture
- Monthly updates

Challenges

- Legacy Hardware & Capacity
- Portability of application
- Support & Security old version of Application Server
- Application performance
- Adopting new trends
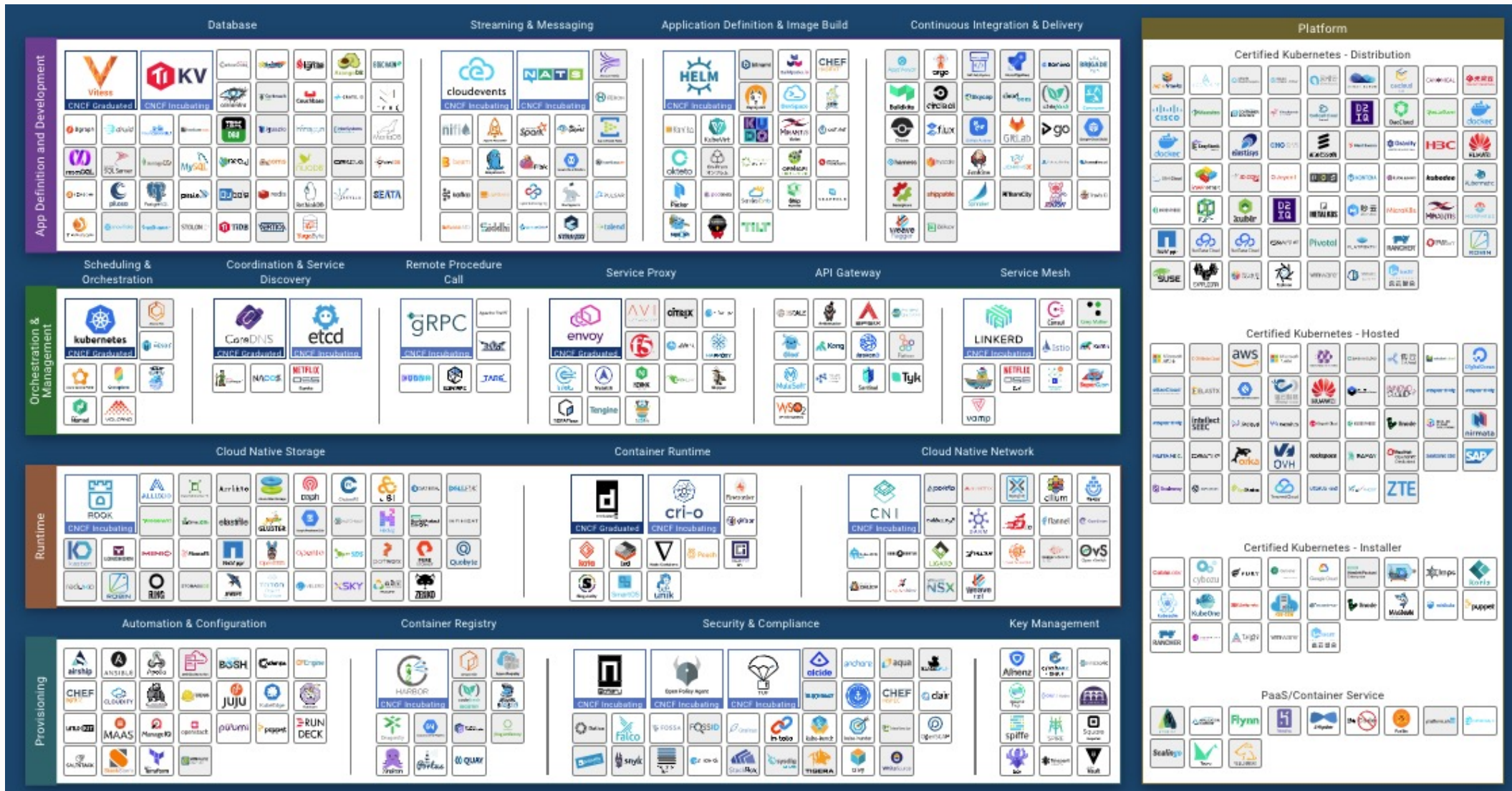- Adding Order tracking

Potential Solutions

- Containerising
- Refactor – Micro Services
- Re-Architect – new capabilities
- App Deployment, monitoring, management, Security

Monoliths + Microservices Co-Existence

Serverless

Messaging

verrazzano
linkerd envoy istio
Service Mesh

API Gateway

Ingress Controller

Java App in K8S

GraalVM

node GraalVM

Ruby GraalVM

Java App On-Prem / Cloud

Coherence CE

Monitoring with Prometheus and Grafana

Logging with FluentD + Elastic Search

verrazzano

Database - Multi Model

File Store
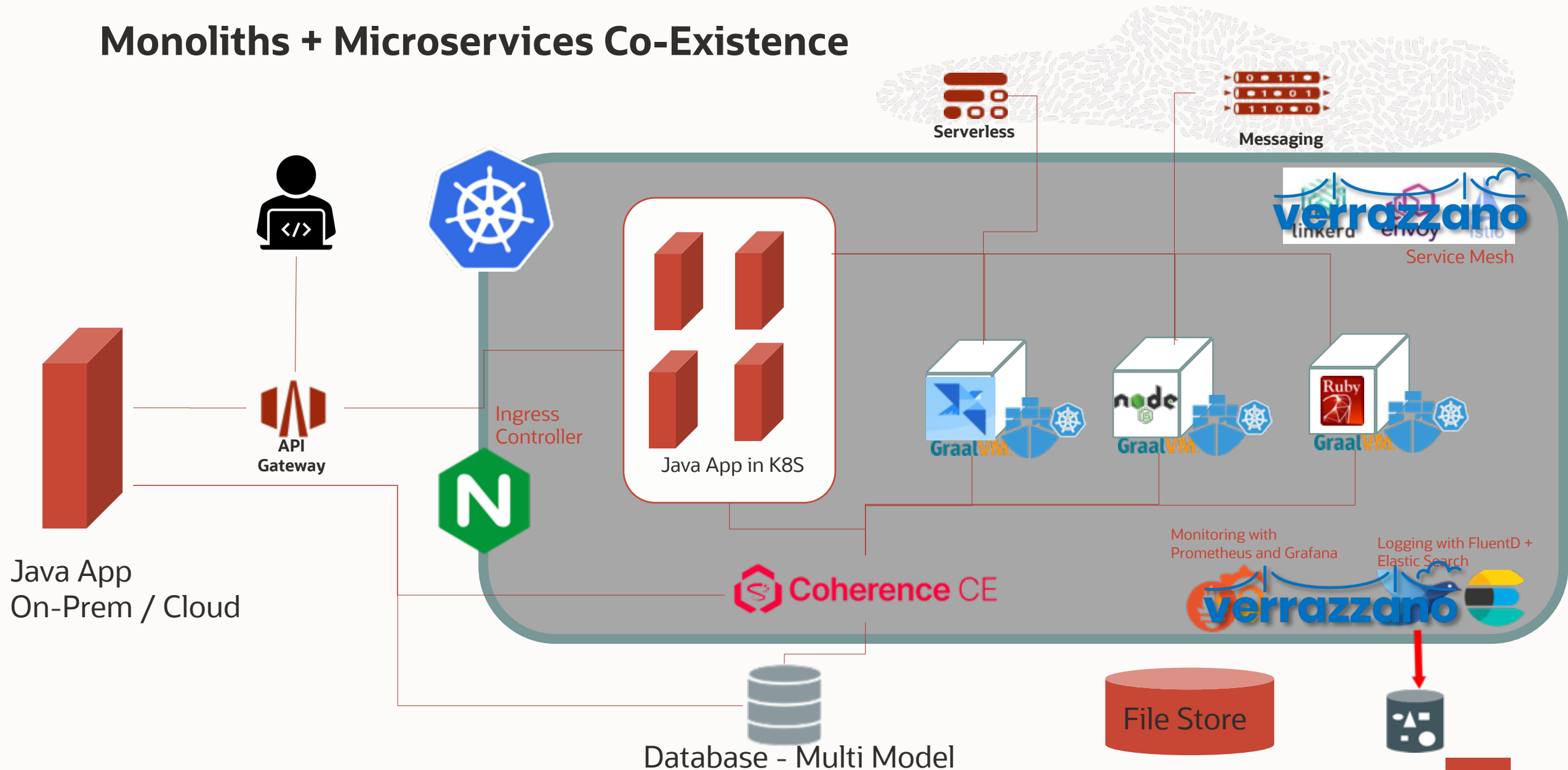
Introduction to Verrazzano

Adopting Cloud Native is easier said than done

Oracle Verrazzano Enterprise Container Platform
What is it?

- **Complete opinionated secure container platform**
  - Istio, Rancher, Keycloak, observability stack, other CNCF components
  - Oracle-authored open source custom resources and controllers
  - Curated stack
  - Java frameworks support – Helidon, Micronaut, Spring Boot
  - Coherence EE entitlement for state management
- **Simplified, automated, rapid movement of WebLogic applications to Kubernetes**
  - WebLogic, Coherence, and Helidon intelligent workload handling
  - Tools to migrate WebLogic applications
  - Day 1 and Day 2 automated management
- **Microservices/polyglot/any container workload**
- **Multi Cluster/Multi Cloud/Cloud neutral**
  - Can run on premises or on any cloud
  - Consistent platform for all of your applications

A bridge between worlds…

| Traditional Applications |
| Java Microservices |
| Polyglot Microservices |

VERRAZZANO

| App Frameworks |
| Oracle Coherence EE |
| App Runtime Mgmt |
| Application Modeling |
| Traffic Routing |
| Observability |
| Cluster Management |
| Security |

| Kubernetes | Kubernetes | Kubernetes |
| Private Cloud | Public Cloud | Multi-Cloud |

VERRAZZANO
Enterprise Container Platform

Intelligent Workload Management Across Environments **+** Application Lifecycle Management/ DevOps Enablement **+** Automated Built-in Observability **+** Multi-Cluster Infrastructure Management **+** Multi-level Security

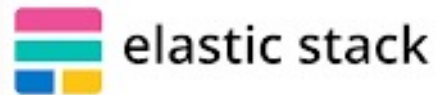Cross-cloud Consistency

VERRAZZANO
Enterprise Container Platform

Traditional Applications

Java Microservices

Polyglot Microservices

RANCHER

Istio

KEYCLOAK

kibana

elastic stack

Prometheus

Grafana

JAEGER

Kubernetes	Kubernetes	Kubernetes
Public Cloud	On-Premise	Multi-Cloud

VERRAZZANO

Enterprise Container Platform

Oracle Verrazzano Enterprise Container Platform

- Annual subscription
- Oracle Verrazzano container management platform
- Coherence Enterprise Edition
- Java frameworks support:
  - Helidon
  - Micronaut
  - Spring Boot

Included in WebLogic Suite

- Container management platform entitlement & Oracle Support

Open Source verrazzano

- Open-source container management platform, community support only

Open Application Model

Community-driven application modeling specification, driven by Microsoft and Alibaba.

Oracle is participating in the community, looking to help drive the specification to meet enterprise customers' needs.

Goals of the spec:

- Describe applications in an **environment-agnostic** way
- **Separate the concerns** for application developers, application operators, and platform operators
- Enable OAM platform providers to make use of native APIs

Open Application Model

https://github.com/oam-dev/spec/blob/master/assets/how-it-works.png
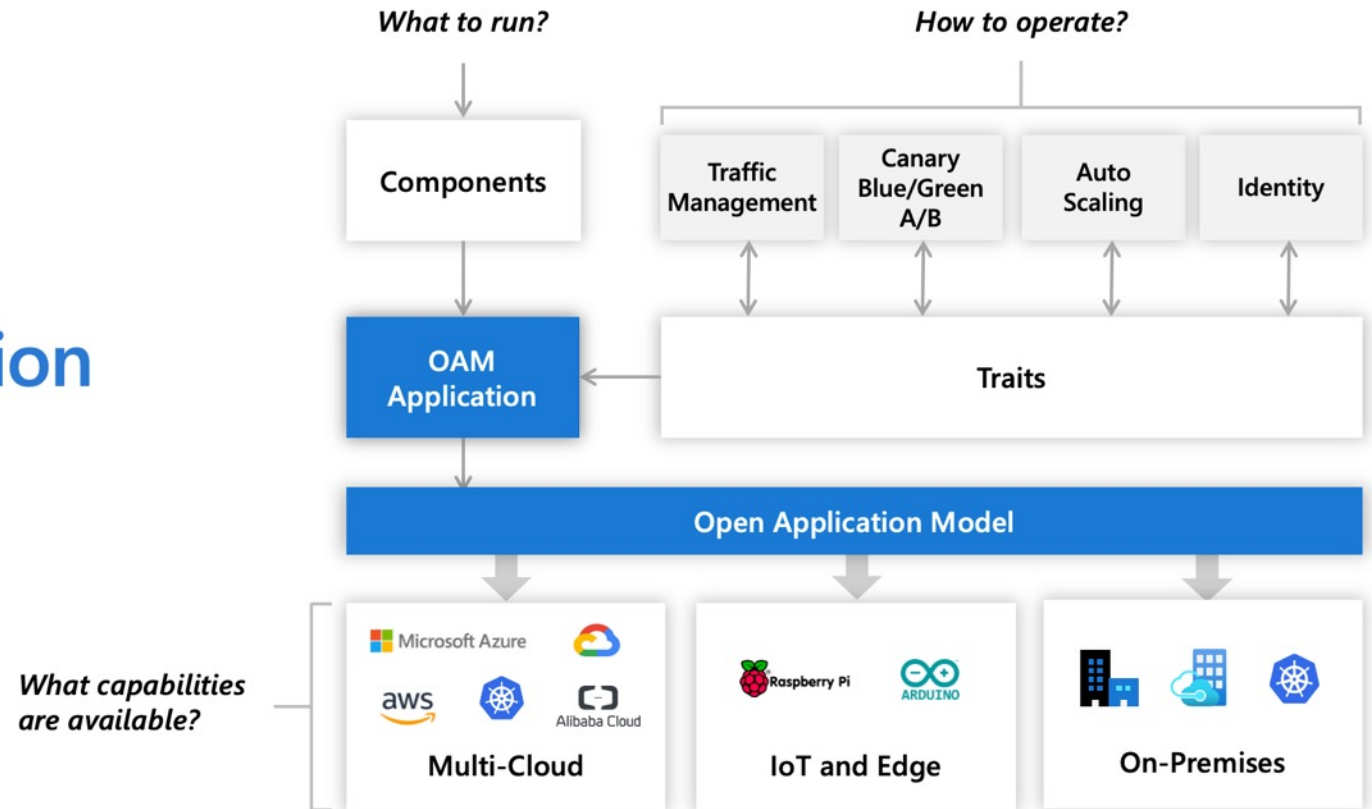
Application Deployment in Verrazzano

Application Configuration

- WebLogic Domain Components
- Coherence Cluster Components
- Helidon Application Components
- Generic Container Components
- Traits
- Scopes

WebLogic Domain Component

Coherence Cluster Component

Helidon Application Component

Generic Container Component

Logging Scope

Ingress Trait

Open Application Model

Istio Service Mesh

Verrazzano Cluster

Project

Namespace

WebLogic K8s Op

Verrazzano Operators

Grafana

Prometheus

Kibana

Elasticsearch

Namespace

Coherence Op

Namespace

Namespace

Kubernetes

Multiple Kubernetes Clusters/Multiple Clouds
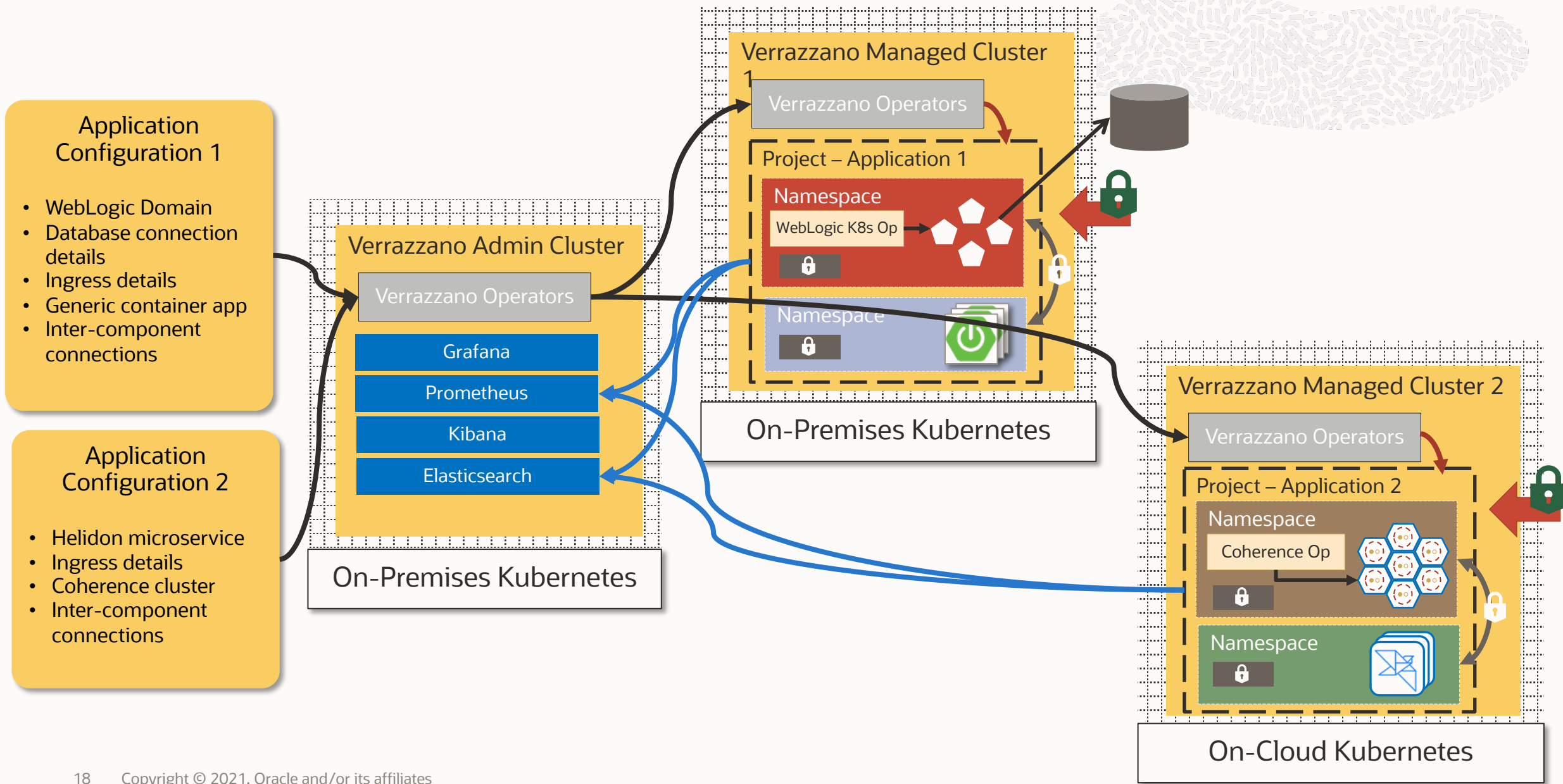
VERRAZZANO

Enterprise Container Platform

✓ **Deploy, manage and secure** container-based applications in Kubernetes.

✓ **Unify application lifecycle management** across microservices and traditional WebLogic Server applications.

✓ **Standardize management** across Kubernetes on premises, on Oracle Cloud Infrastructure, and on other public clouds.

More info:

✓ https://www.oracle.com/java/verrazzano/

✓ Video Tour: https://youtu.be/DDhHBTkC3PQ

✓ Try it out: https://github.com/verrazzano

WebLogic On Oracle Cloud

Oracle WebLogic Server for OCI

- Preferred solution for OCI deployments of WLS

- BYOL and Universal Credits pricing models

- Simplified provisioning – GUI and Terraform

- Integration with OCI

  - Services: Compute, Load Balancer, Database, Storage, Vault, Identity, Management

  - Benefits: High performance, low cost, hybrid architectures, autonomous, enterprise migration

- Security, scaling, patching, backup, cloning

- High Availability and Disaster Recovery

- JRF and Non-JRF domains

- WebLogic 10.3.6, 12.2.1.3, 12.2.1.4, 14.1.1

- Full compatibility with WLS on-premises

E-Business Suite
on WLS for OCI

Available on
ORACLE
Cloud Marketplace

Marketplace

BYOL	UC	BYOL	UC
WL for OCI (managed) VM Edition		WL for OKE (managed) K8S Edition	

License

WL

On-premise

Oracle OCI

More information – WLS for OCI, WLS for OKE
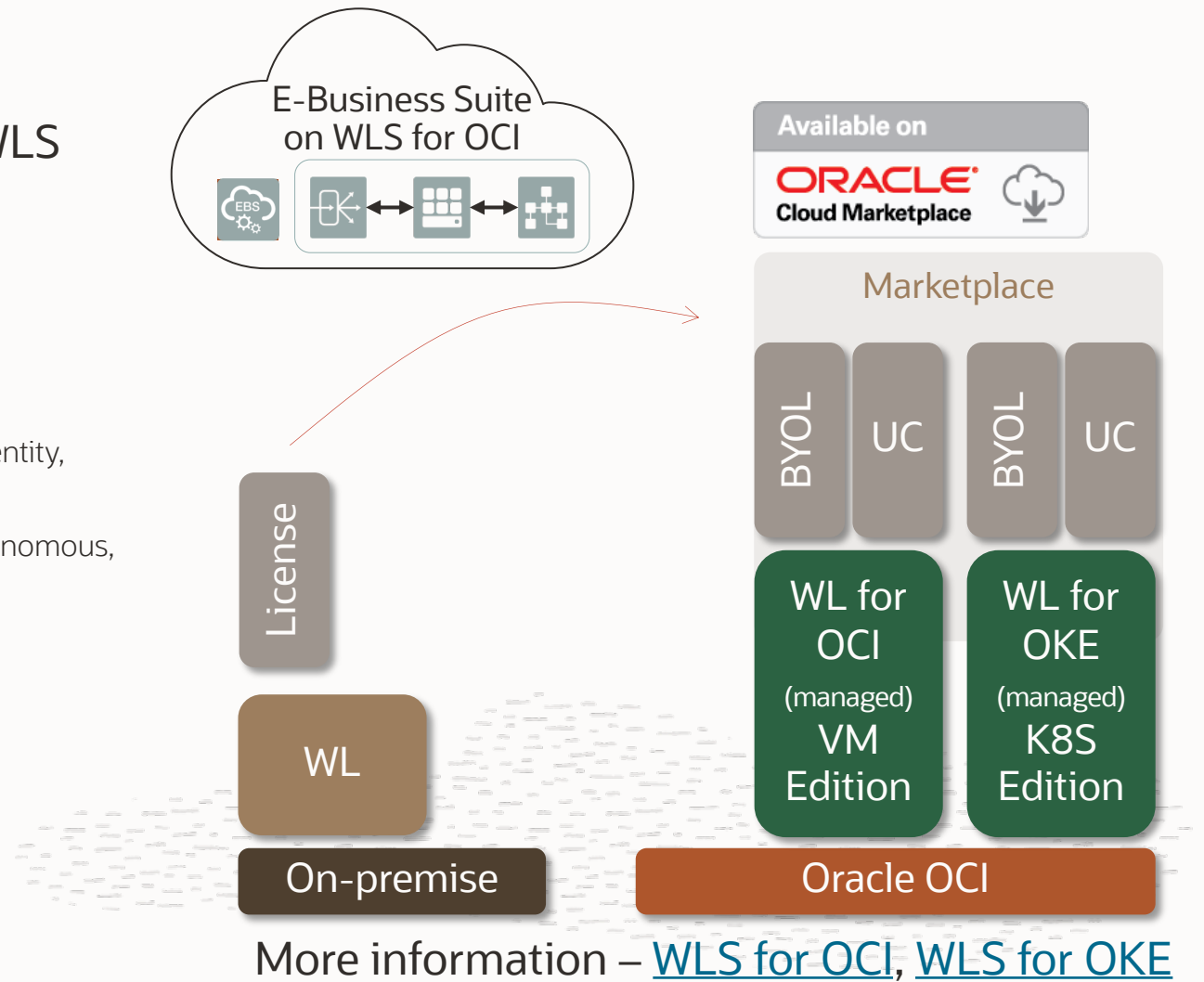
Oracle WebLogic Server for OKE

- Provision WebLogic on OCI/OKE in minutes
- Built in CI/CD solution using Jenkins
- Configured to run WebLogic on specific nodes
- Public Load Balancer for WLS Cluster
- Private Load Balancer for Admin Consoles
- Scale K8s cluster through OCI Node Pool
- Scale WebLogic domain through WLS Operator
- Backups for every domain configuration change
- Domain image scan for vulnerabilities
- Leverages WebLogic Kubernetes ToolKit

WebLogic Kubernetes Operator

ORACLE WEBLOGIC

NginX

Jenkins CI

Admin host

Bastion host

Public LB

Private LB

File Storage

Non WebLogic Node Pool

WebLogic Node Pool

OKE Cluster

Oracle Cloud Infrastructure Registry (OCIR)

Kubernetes Control Plane

OCI Control Plane

Oracle Cloud Infrastructure Container Engine for Kubernetes

WebLogic For OKE Components
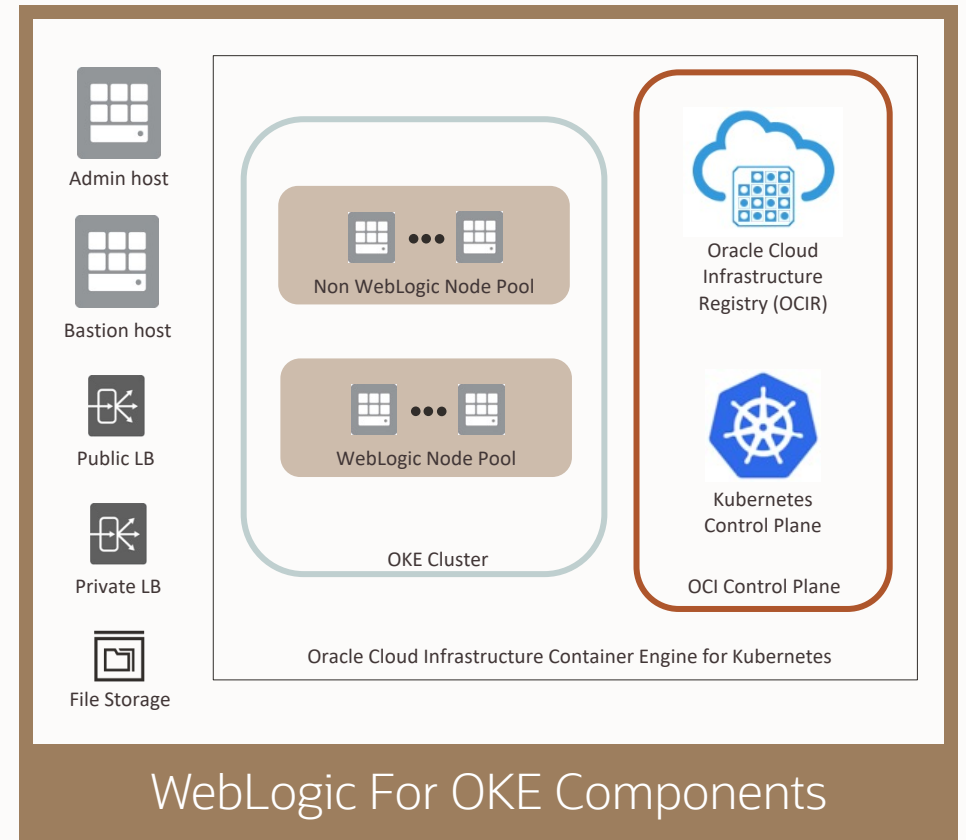
Java on Oracle Cloud

Q: Java SE Support

Support Included!!

https://blogs.oracle.com/developers/support-for-oracle-java-se-now-included-with-oracle-cloud-infrastructure

https://docs.oracle.com/en/learn/accelerate-applications-in-oracle-cloud-infrastructure-with-graalvm-enterprise/index.html#introduction

Q: Java SE & EE

- Tomcat
- Jboss
- WebSphere

Solution: https://docs.oracle.com/solutions

- Reference Architecture
- Solution Playbook
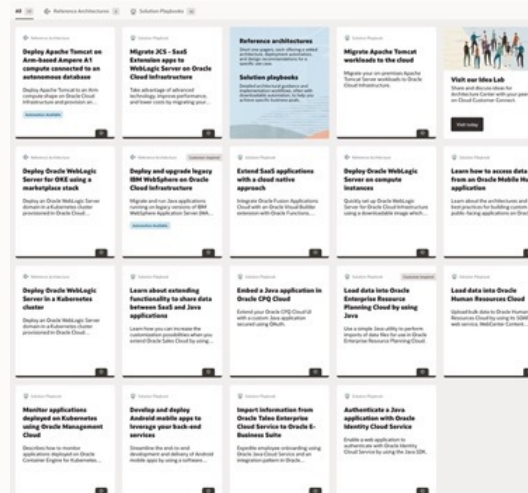
Q: Java EE

- WebLogic
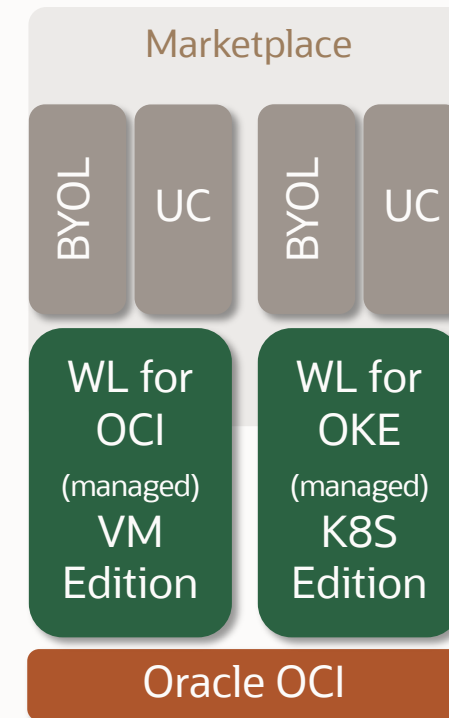
More information – WLS for OCI, WLS for OKE

Summary

WebLogic ready for Modernisation

WebLogic Kubernetes Operator

WebLogic Deploy Tool

WebLogic Image Tool

WebLogic Prometheus Exporter

WebLogic Logging Exporter

VERRAZZANO

Enterprise Container Platform

Complete, opinionated and secure container platform

WebLogic on Oracle Cloud

Marketplace

BYOL | UC | BYOL | UC

WL for OCI (managed) VM Edition

WL for OKE (managed) K8S Edition

Oracle OCI

Available on
ORACLE
Cloud Marketplace

Upcoming Events : http://bit.ly/AppDevWebcast

Modernise WebLogic Webinars

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