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WebLogic : Auto Scaling



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Enterprise Cloud Native Java**

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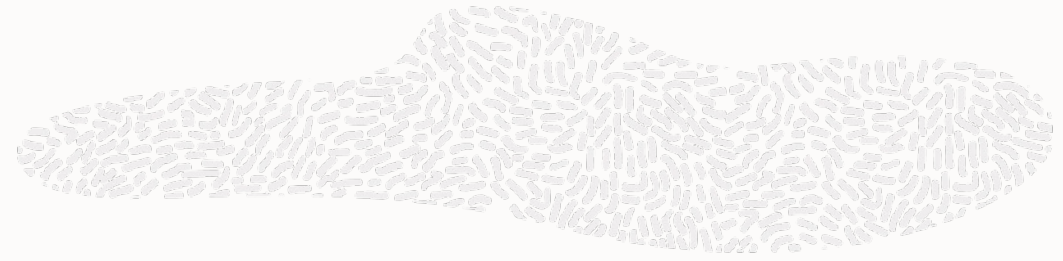
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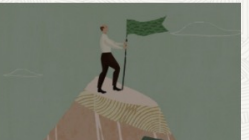
Extend Your Applications with Microservices
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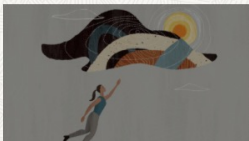
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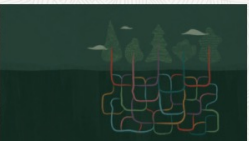
New Features WebLogic and WLS on OCI
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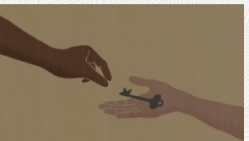
Application Modernization Pathways [Java & 3rd Party Apps]
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Modernise WebLogic based Applications and Hybrid Cloud Native management
Duration: 45 mins



Application Development @ Oracle
Duration: 45 mins



Java EE Custom App & Database Migration
Duration: 45 mins



Modernizing Oracle Forms or Visual Builder?
[Code : APEX](#)

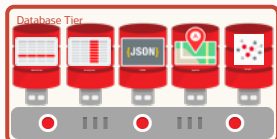


WebLogic : Product Roadmap



- **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**

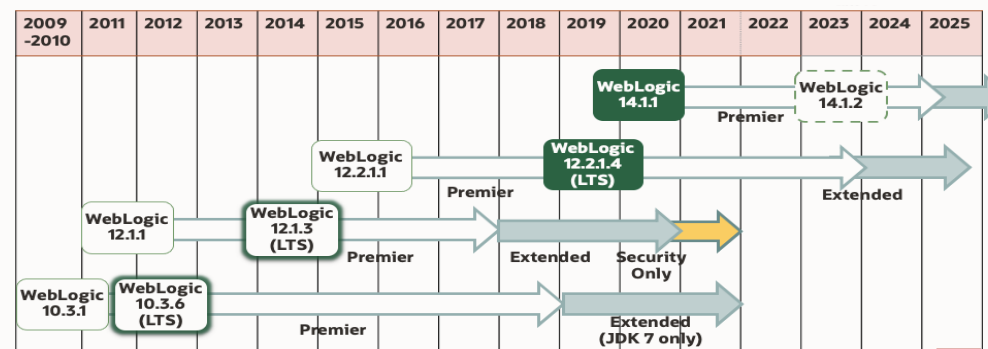
- Relational, Columnar, JSON, Spatial, ...



- **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**



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
 - ✓ [Oracle Container Repository](#)
- 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](#)
 - Simplified UI base Lifecycle Management for Toolkit with [WKT UI](#) – New*
 - Remote Management Console for WebLogic with [Remote Console](#) – New*
- Easily combine existing deployment options with newer ones using [Verrazzano](#)



Application Level Benefits From using cloud native infrastructure and Operator

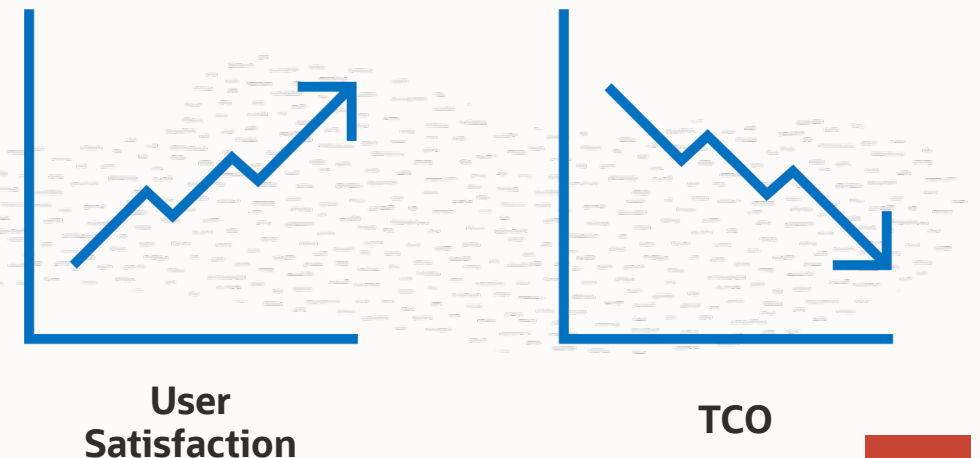
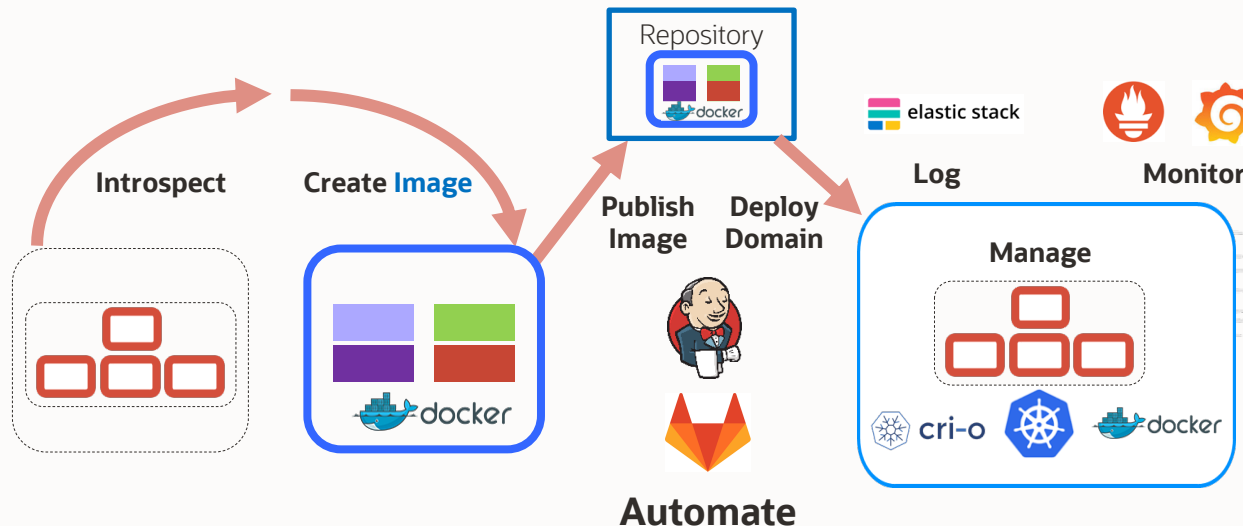
WebLogic Kubernetes ToolKit:
Operator, WDT, WIT

- Built-in provisioning and lifecycle management
- Automate application deploy/redeploy
- Automated patching
- Rolling updates to running clusters/domains
- WLS configuration update to running servers
- Automated scaling

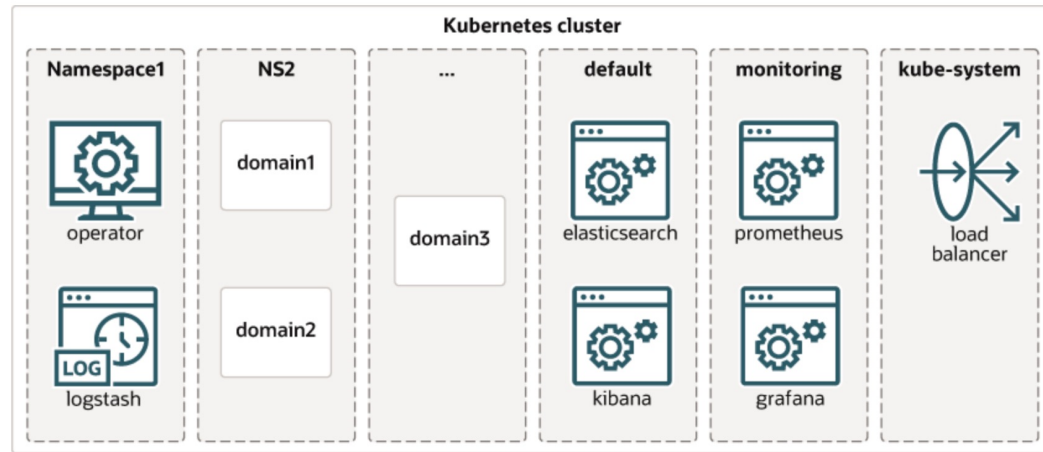


Application Benefits

- Accelerate application deployment/update
- Reduce application management costs
- Improve application security
- Increase application availability
- Increase application service levels

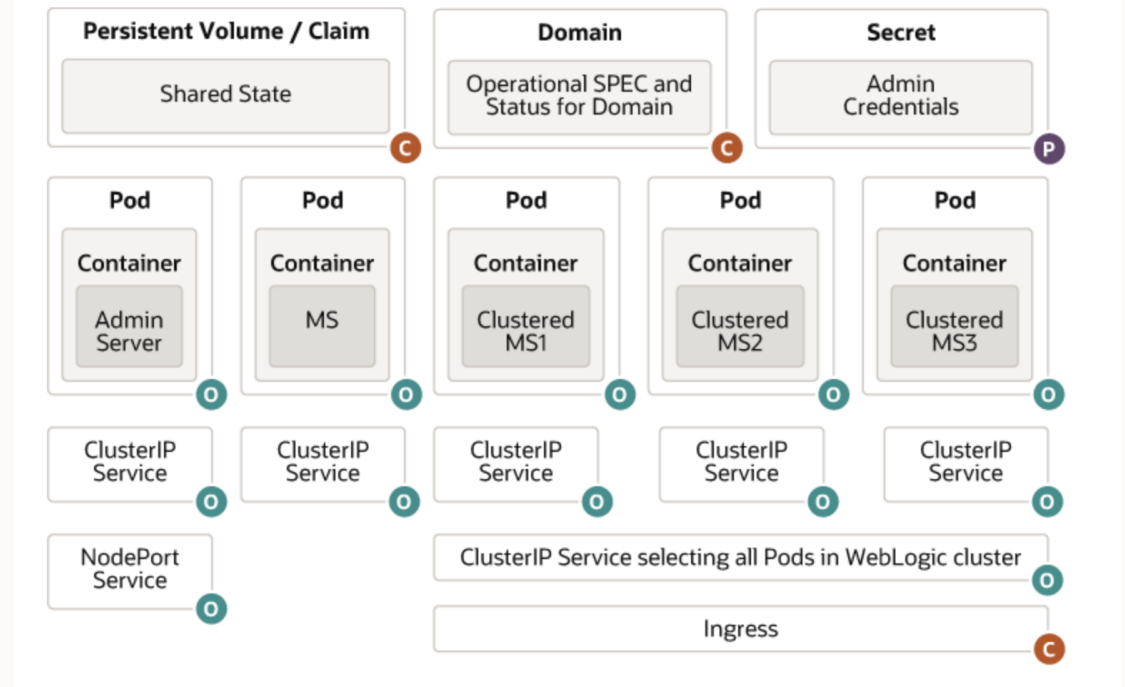


Scaling the WLS Domain with K8S



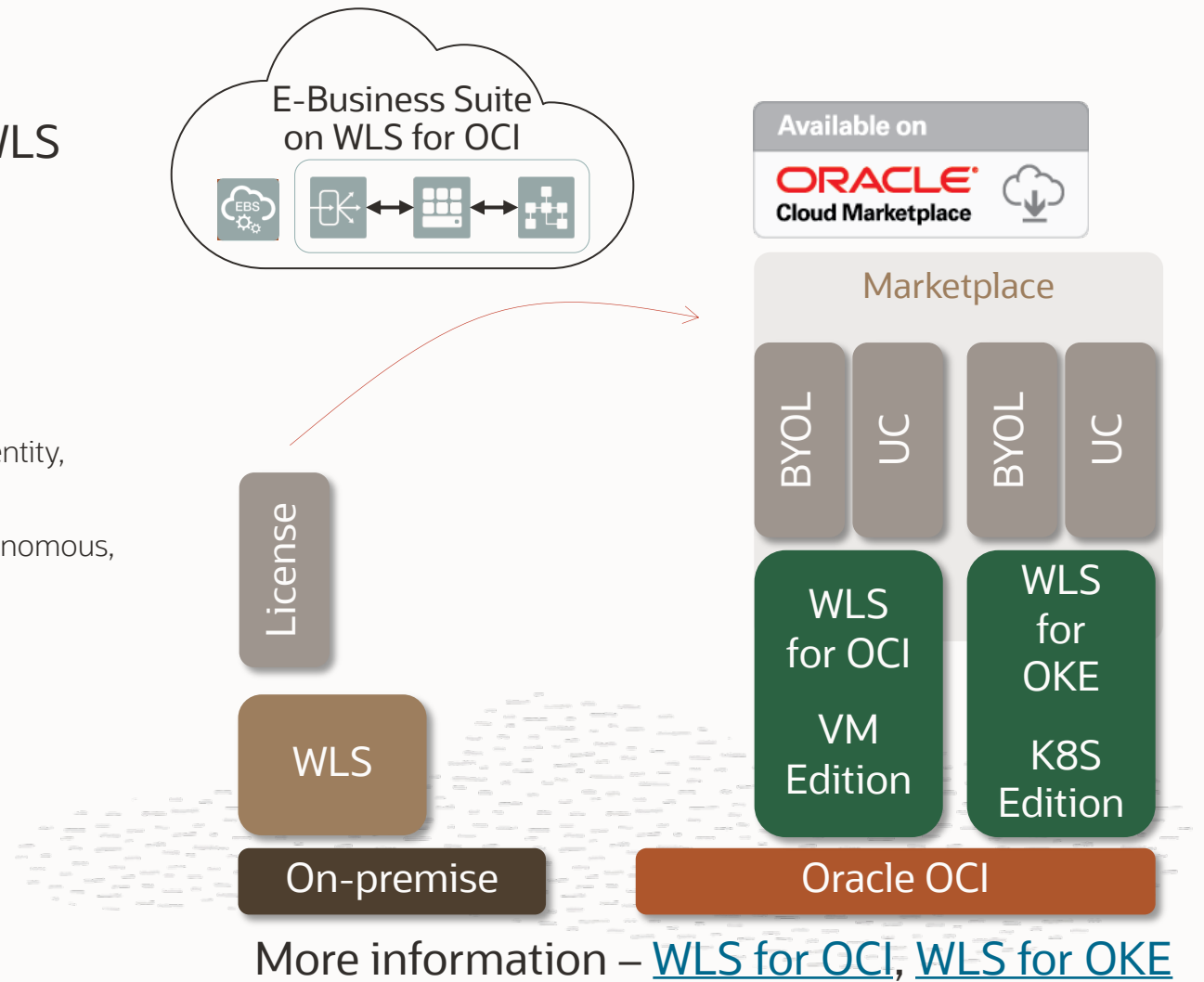
Scaling Options

- On-demand via kubectl
 - Call to the Operator REST API
 - Using a WLDF policy rule and script
 - Using a Prometheus alert action
- Manual
- Automated



Oracle WebLogic Server for OCI

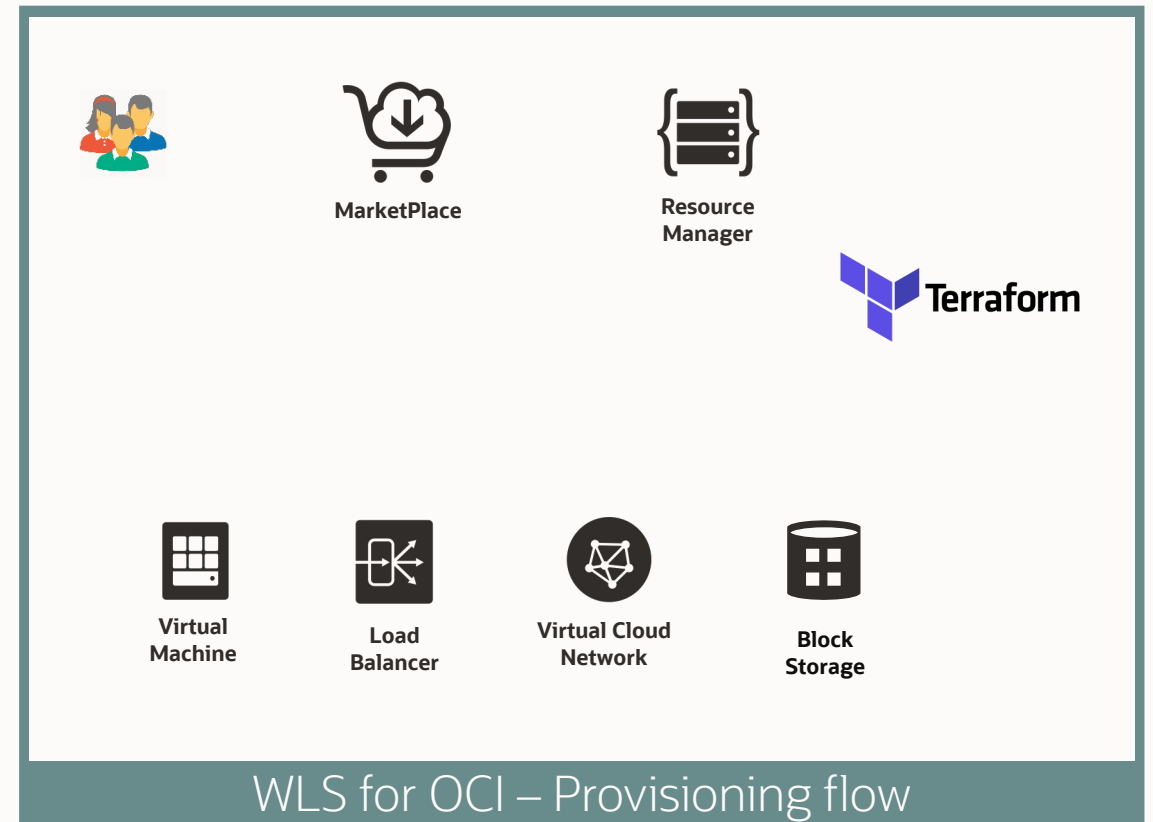
- Preferred solution for OCI deployments of WLS
- BYOL and Universal Credits pricing models
- Simplified provisioning – GUI and Terraform
- Integration with OCI
 - Services: Compute, Load Balancer, Database, Storage, Vault, Identity, Management
 - Benefits: High performance, low cost, hybrid architectures, autonomous, enterprise migration
- Security, scaling, patching, backup, cloning
- High Availability and Disaster Recovery
- JRF and Non-JRF domains
- WebLogic 12.2.1.4, 14.1.1
- Full compatibility with WLS on-premises



Oracle WebLogic Server for OCI on the Marketplace


Overview

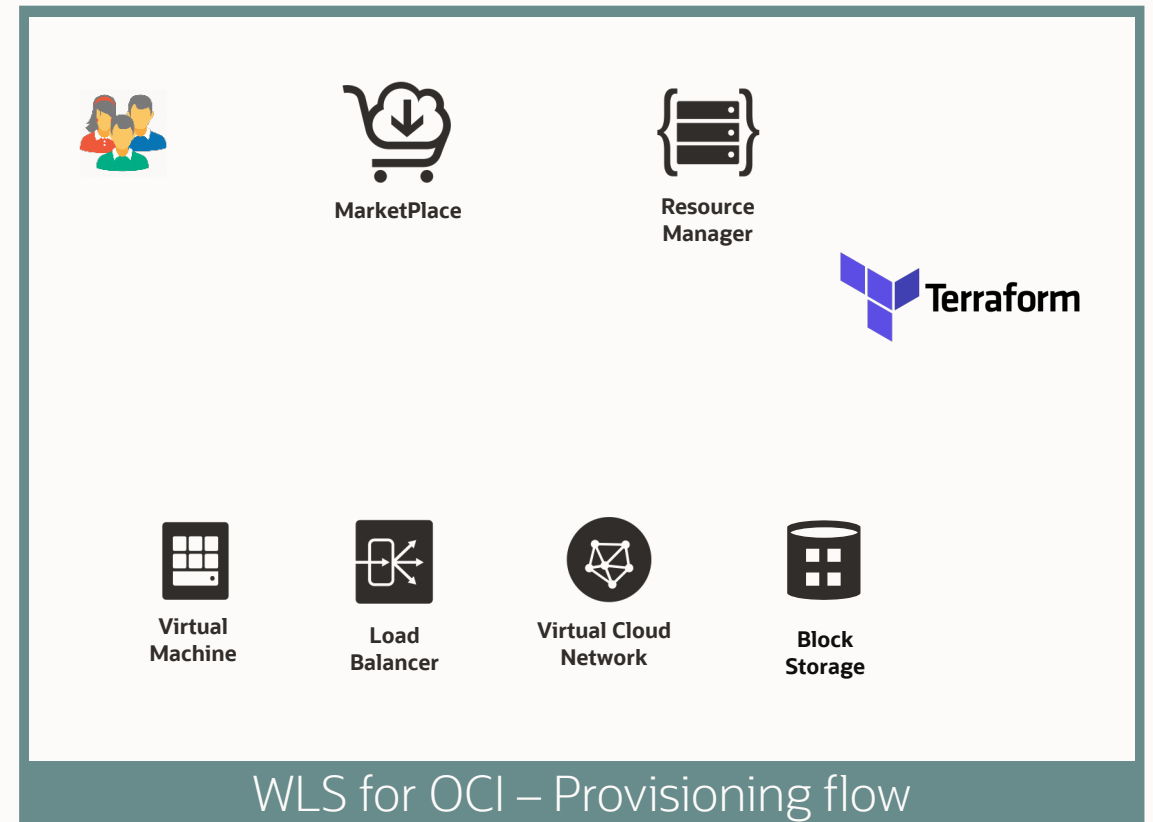
- Customer managed WebLogic
- Traditional WebLogic servers (WebLogic process running on compute)
- Stack deployment mode (Terraform)
 - Create WebLogic domains in OCI within minutes
- Image deployment mode
 - Create compute instances with the entitlement and support to run WebLogic software
- Updated every quarter with latest WLS PSUs
 - Get WebLogic patches through WLS for OCI Patching Utility
 - OS patch management through OS management service
- Monitor with OCI services
 - Application Performance Monitoring for WebLogic metrics
 - OCI monitoring for IaaS resource metrics



Oracle WebLogic Server for OCI on the Marketplace

Stack deployment mode main features

- During provisioning
 - Create or reuse Network resources
 - Create required OCI policies for privileged users
 - Existing network validation script
- Scripts/documents to manage lifecycle operations
 - Start and stop server process
 - Clone, backup, restore and delete domain
-  • Scale domain (vertically - horizontally) and Autoscaling
 - Application Performance Monitoring
- WebLogic domain configurations
 - JRF and Non-JRF domains
 - IDCS integration
- [Disaster Recovery guide](#)



Oracle WebLogic Server for OKE

Provision on OCI Container Engine for Kubernetes (OKE)

BYOL and Universal Credits pricing

Simplified provisioning – GUI and Terraform

Leverages WebLogic Kubernetes ToolKit

Create new OKE cluster or add to existing cluster

Configure WebLogic on specific nodes

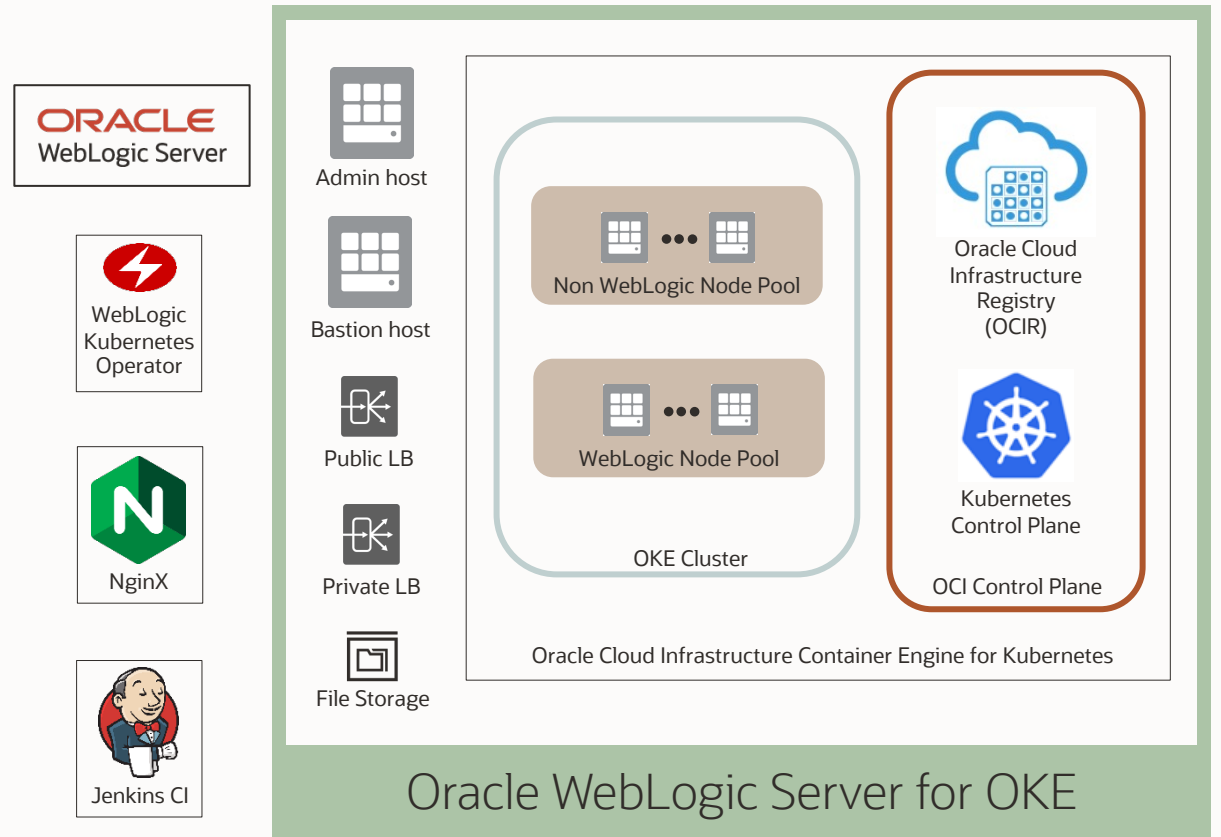
Scale K8s cluster through OCI Node Pool

Scale WebLogic domain through WLS Operator

Built in CI/CD solution using Jenkins pipelines

- Patch JDK, Patch WLS, Update/Test domain
- Backups for domain configuration changes

OCI Registry image scan for vulnerabilities



Oracle WebLogic Server for OKE

Migrating Apps to WLS on OCI

Application + Config Migration

WebLogic Deploy Tool for WLS for OCI VM
WebLogic Kubernetes toolkit UI for WLS for OKE

WebLogic Deploy Tooling

Migrate your WLS Domains

- Introspect domains
 - WebLogic 10.3.6, 12.1.3, 12.2.1.X
- Create a **WDT Model** (yaml) and **Application Archive**
- Migrate existing domains and applications
- Upgrade (if required) to 12.2.1.X

- Customize and Validate configuration to meet destination requirements
- Update from Model and deploy Apps

<https://github.com/oracle/weblogic-deploy-tooling>

The diagram illustrates the WDT workflow. It starts with 'WDT Discover' which takes an 'On Prem Domain' (containing an AS node and a cluster of five MS nodes) as input. This leads to a 'WDT model' (represented as a YAML file). The 'WDT model' is then used to create an 'App Archive'. Finally, 'WDT Create' uses the 'App Archive' to deploy a 'WLS Domain' on OCI, which also contains an AS node and a cluster of five MS nodes.

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Application Data Migration

Oracle Database Migration Solutions

An optimum migration solution from every source database to any target database on OCI

On premises, public clouds:

ORACLE Database 11g

ORACLE Database 12c

ORACLE Database 18c

ORACLE Database 19c

ORACLE on EC2

ORACLE on RDS

Migration resources:

- Offline / Physical: **RMAN** (Multiple Backup / Restore options to support DB Migrations)
- Offline / Logical: **Data Pump** (create an exact copy from source to any target DB)
- Online: **Zero Downtime Migration** * (live sync on-prem to cloud DB).
- Many additional DB Migration Tools for other specific use cases.
- Available Oracle consultative options to ensure migration success.

Oracle Cloud Database options:

ORACLE Cloud Infrastructure Compute / Storage

ORACLE Database Cloud Service Virtual Machines

ORACLE Database Cloud Service Bare Metal

ORACLE Database Cloud Service Exadata Cloud Service

ORACLE Autonomous Database Autonomous Database

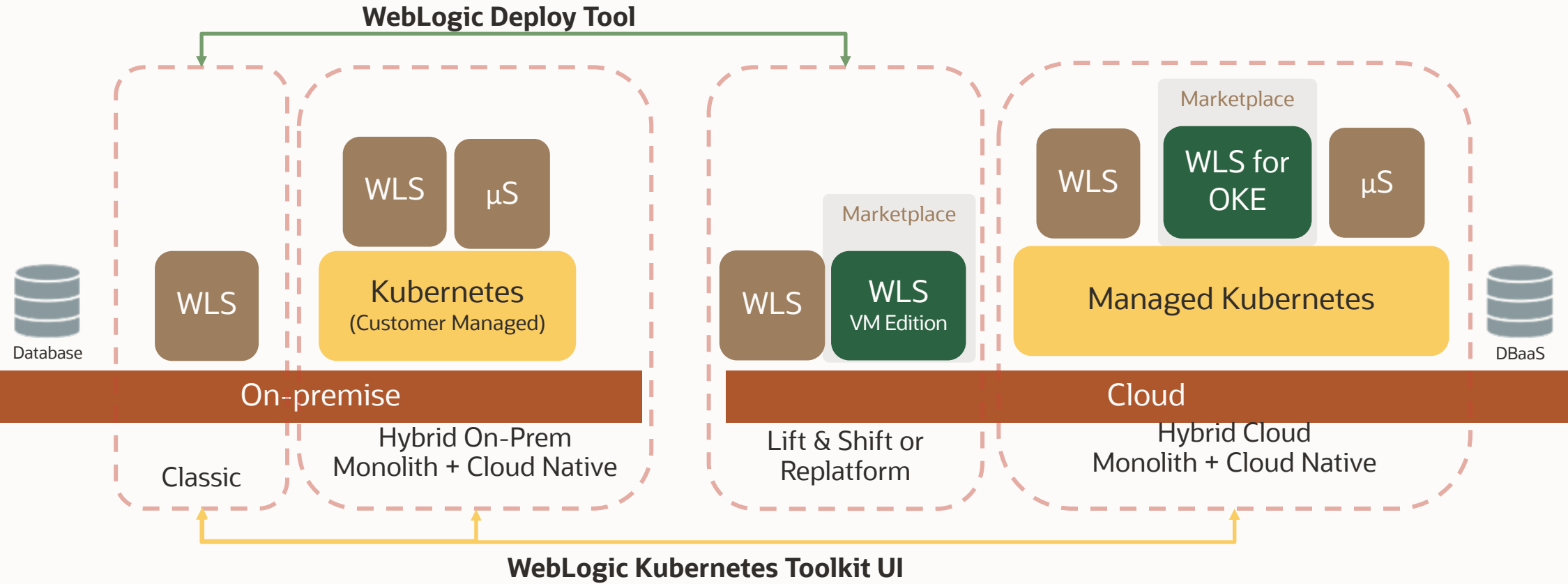
* Autonomous DB support coming soon

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Hybrid application Architectures

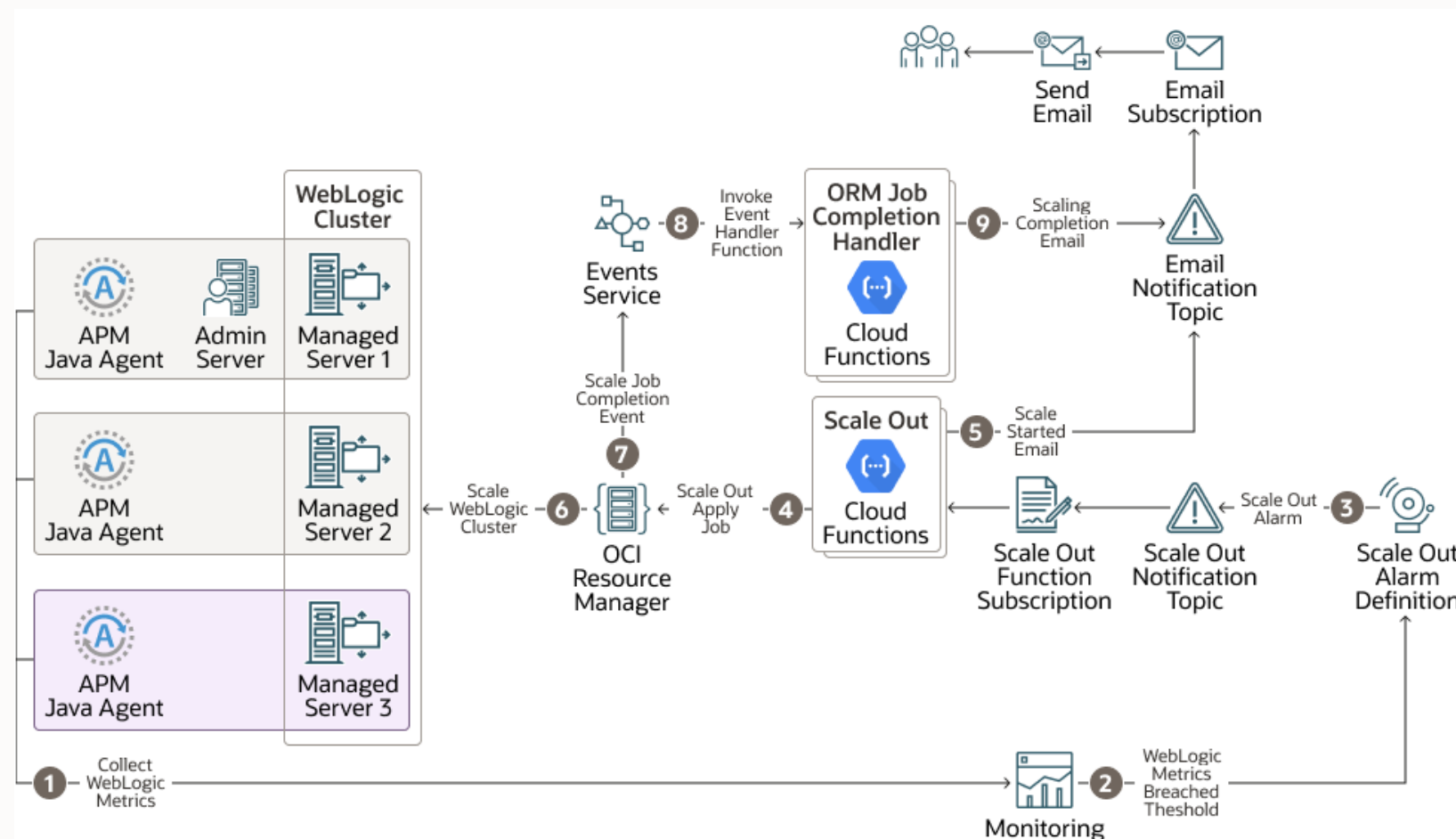
Monolith – Microservice and On-premise - Cloud



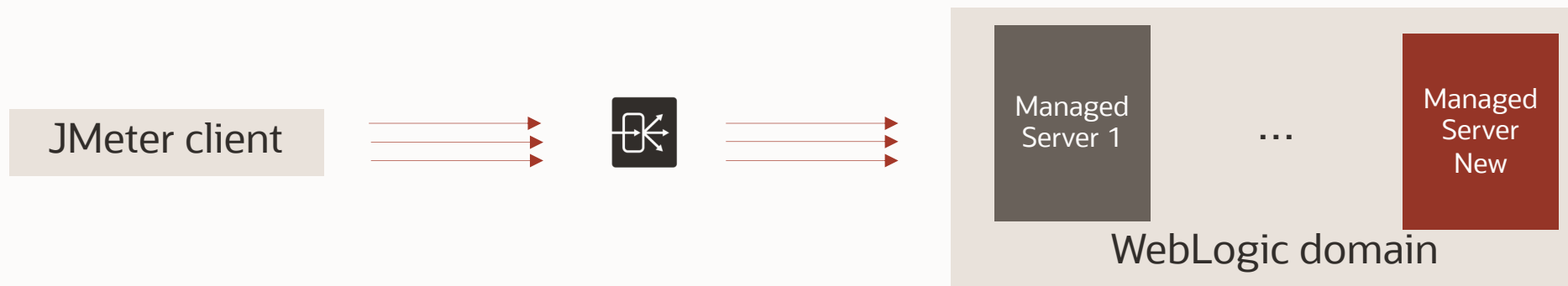
Oracle WebLogic Server for OCI stack

Auto-scale out

1. APM Java Agent send metrics to Monitoring service
2. When a threshold is breached, the scale out alarm will be fired and invoke the scale out notification topic
3. The scale out notification topic will invoke the scale out function
4. Scale out function will update ORM stack to increase the number of MS in the stack and apply the job
5. Scale out function will invoke Email notification topic
6. ORM will scale the cluster
7. Once the ORM job is completed, the ORM job completion event rule will match
8. Event service will invoke ORM Job Completion handler function
9. ORM Job Completion handler function will invoke Email notification topic



Oracle WebLogic Server for OCI : Auto Scaling Demo



Most Security Services in OCI are free*

Detect and Remediate: Security Posture Management

Data Protection

Protection of Server/OS and Workloads

Identity and Access Management, Log and Audit

Protection of Infrastructure

 Cloud Guard	 Security Zones	 Security Advisor	 Vulnerability Scanning
 Vault Key Management	 Vault Secrets Management	 Data Safe	 Certificates
 Shielded Instances	 Dedicated Host	 Bastion	 OS Management
 IAM	 MFA	 Federation	 Audit
 DDoS Protection	 Web Application Firewall **	 Security Lists/ NSG	 Network Isolation & Appliances

*) free of charge in OCI within the quotas except for **



Oracle WebLogic Server for OCI Benefits

★ Only on Oracle Cloud Infrastructure [vs On-Prem & Other Cloud Provider]

Repeatable: Full Stack Automation

- ★ Provision in 15 min
- ★ Automated patching
- ★ Infrastructure as Code [Terraform]
- ★ Standardization
- ★ Regular Updates

Agility: Instant Access To Cloud Capacity

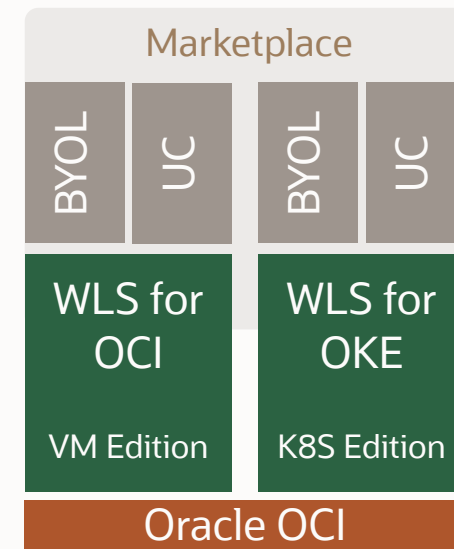
- ★ Automated scaling
- ★ Short lead time
- ★ Self Service
- ★ On demand consumption model

Resilience: Operational Excellence

- ★ Faster time to market
- ★ Always secure platform
- ★ Highly resilient architecture
- ★ DevOps enabled
- ★ Low-cost Disaster Recovery
- ★ DR Whitepapers

True Cost Control: Lower TCO

- ★ Elastic configurations
- ★ Lower Operational cost
- ★ Existing license with BYOL
- ★ Pay for what you use with UCM
- ★ Oracle Support Rewards




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

Modernise WebLogic [Webinars](#)

Live webinars:


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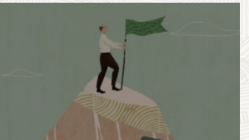
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New Features WebLogic and WLS on OCI

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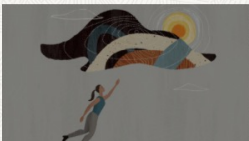
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Application Modernization Pathways [Java & 3rd Party Apps]

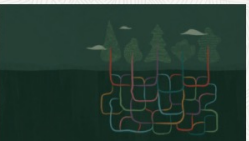
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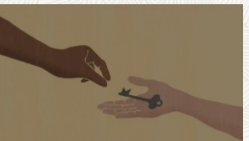
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Duration: 45 mins




Application Development @ Oracle

Duration: 45 mins



Java EE Custom App & Database Migration

Duration: 45 mins



Modernizing Oracle Forms or Visual Builder?

[Watch Now](#)



Useful Links

WLS for OCI [Datasheet](#)

Documentation

- [WLS for OCI](#)
- [WLS for OKE](#)

What's New:

- [WLS for OCI](#)
- [WLS for OKE](#)

Migrating OnPrem to WLS for OCI

- [Whitepaper](#)
- [Architecture Centre](#)

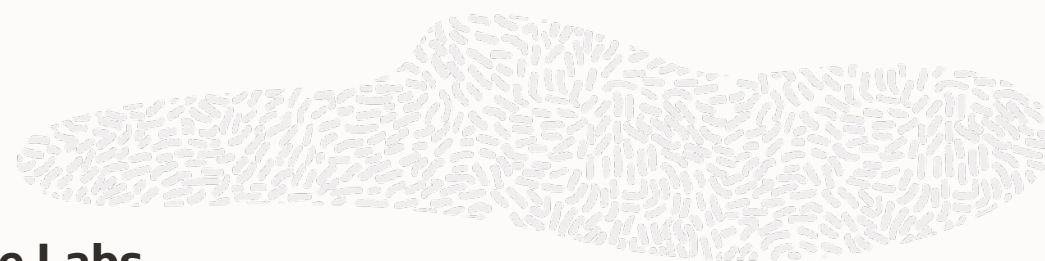
Live Labs

- [Moving WLS to OCI](#)
- [Migrate WLS to OKE](#)
- [Moving WLS to OCI with ATP](#)
- [Verrazzano Fundamental](#)
- [Helidon + Verrazzano](#)

Tutorial

- [WLS for OCI](#)
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Q & A

Thank You!



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