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Manageability, Patching and Upgrading your WebLogic Platform and Applications

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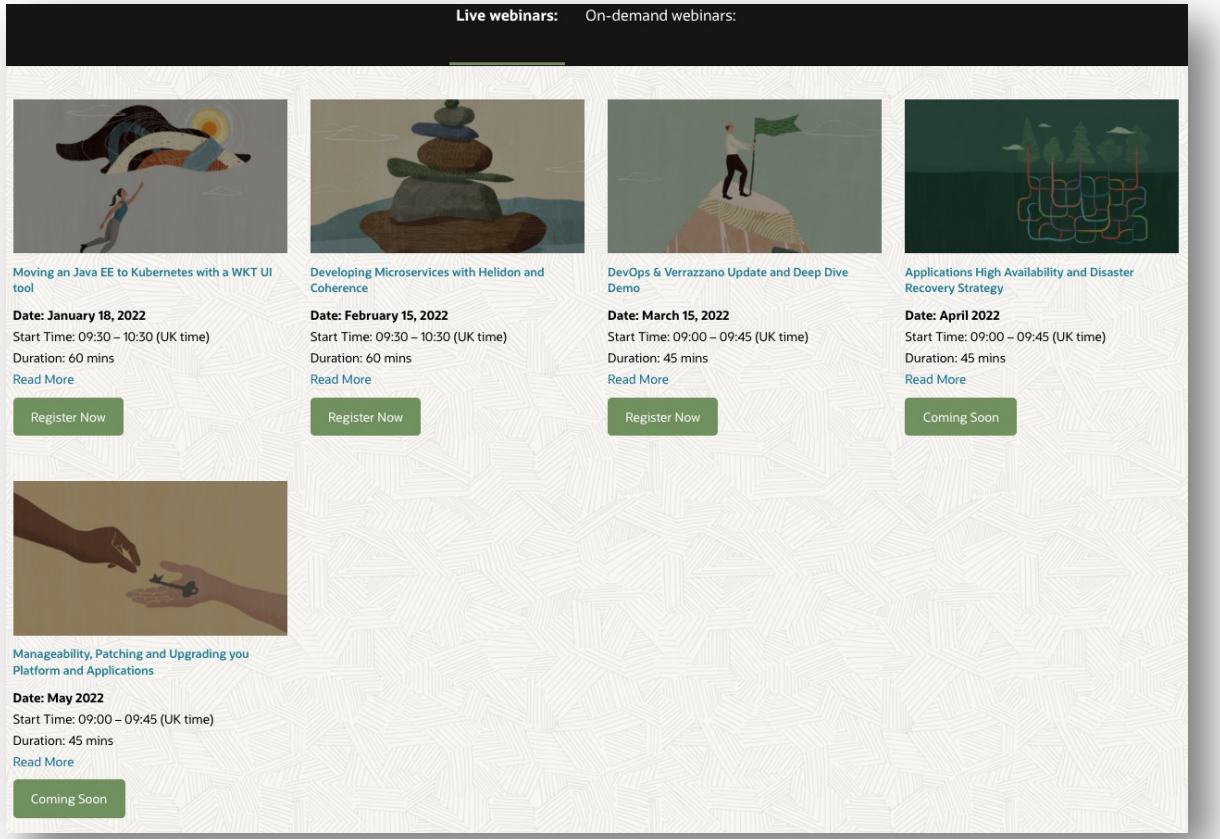
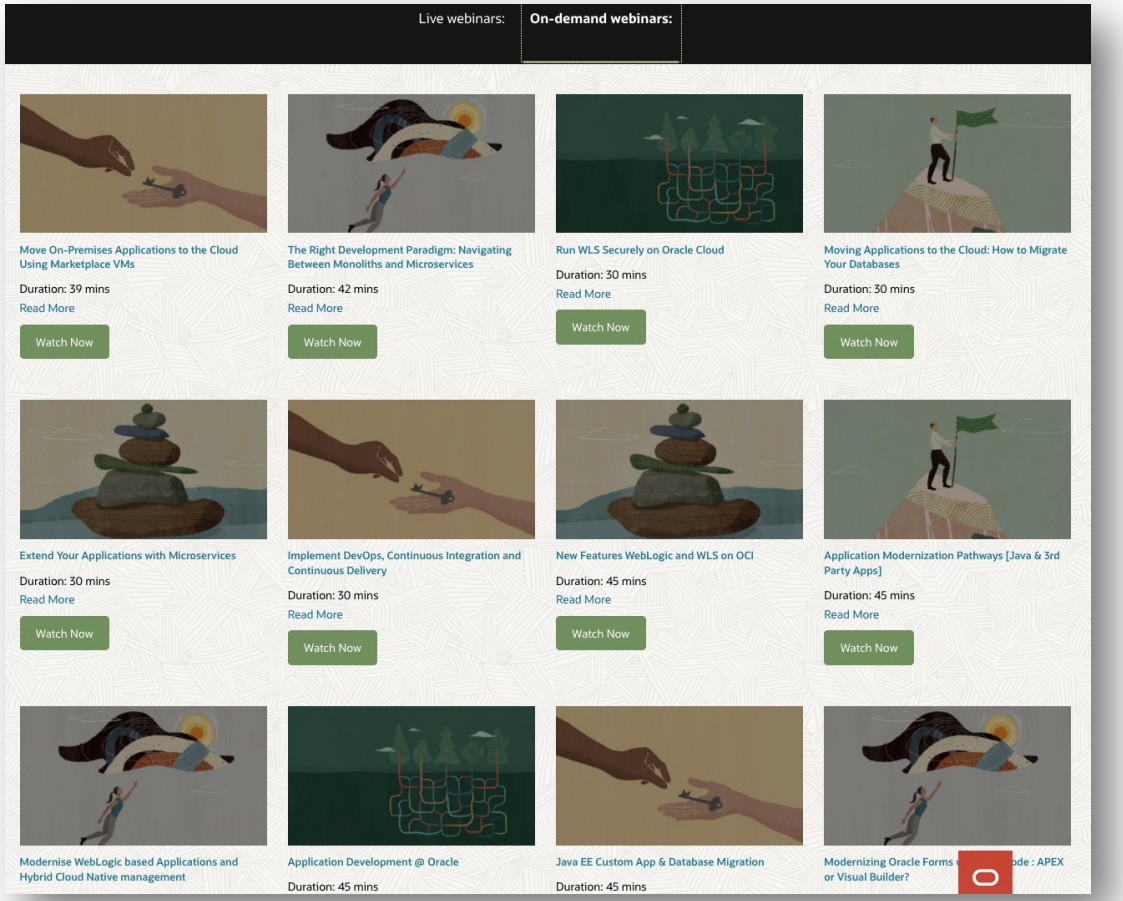
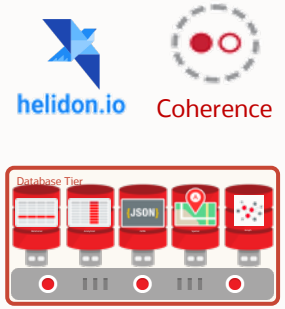
http://bit.ly/AppDevWebcast





WebLogic : Product Roadmap

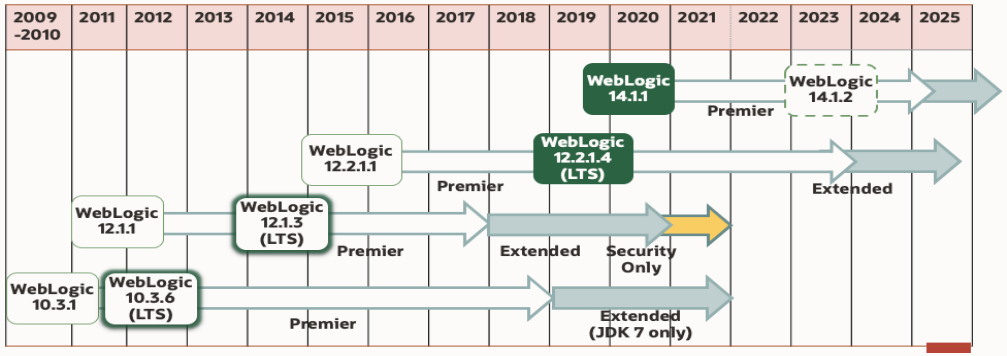
- **Embrace Cloud Native**
  - Key trend in Application Development
  - Modernize your existing applications without code changes
  - Large toolset to embrace modern development automation (CI/CD)
  - Enable Modern Monitoring and Logging tooling



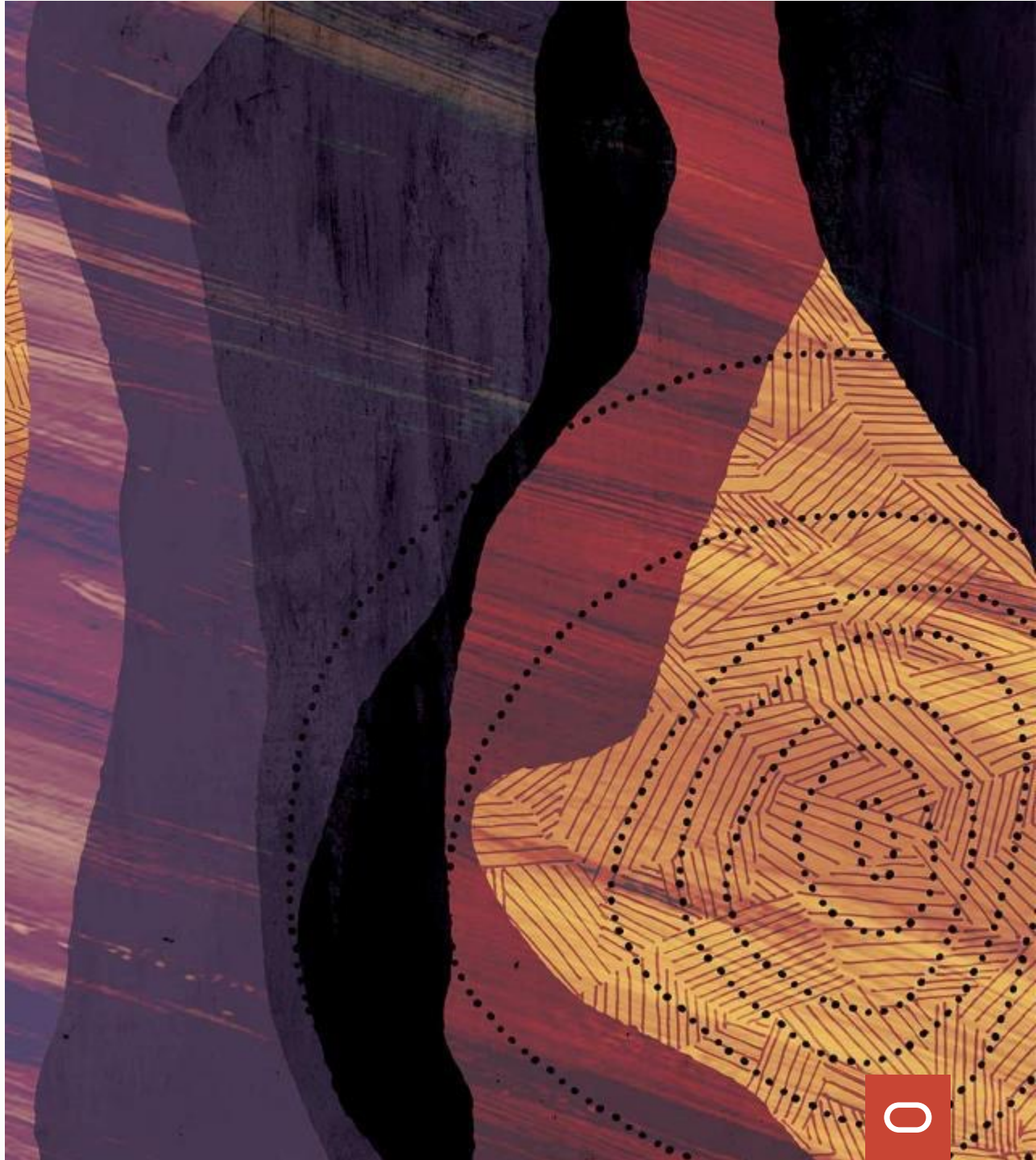
- **Micro Service Ready**
  - Easy adoption of Java Microservices with Helidon
  - Hybrid applications: WebLogic + Helidon combined
  - Coherence: interaction between microservices
- **Converged Database**
  - Relational, Columnar, JSON, Spatial, …

- **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**



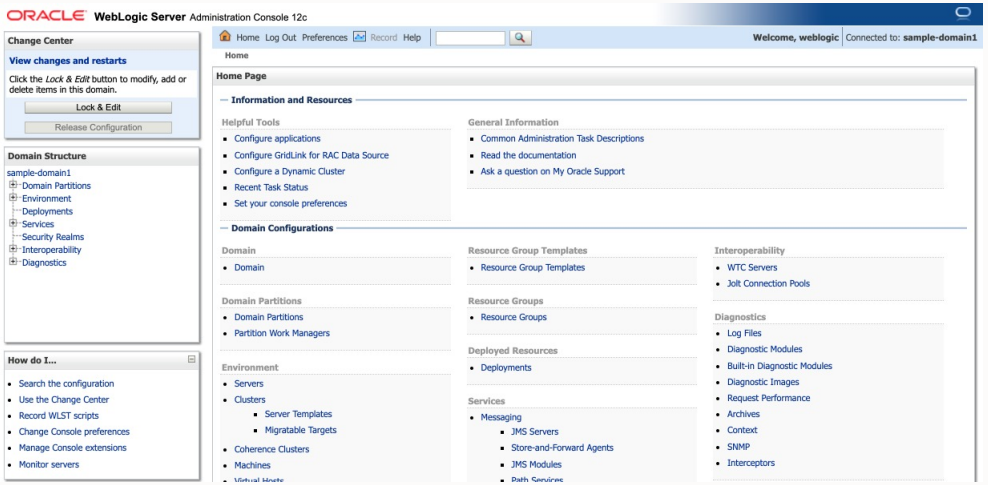
Manageability



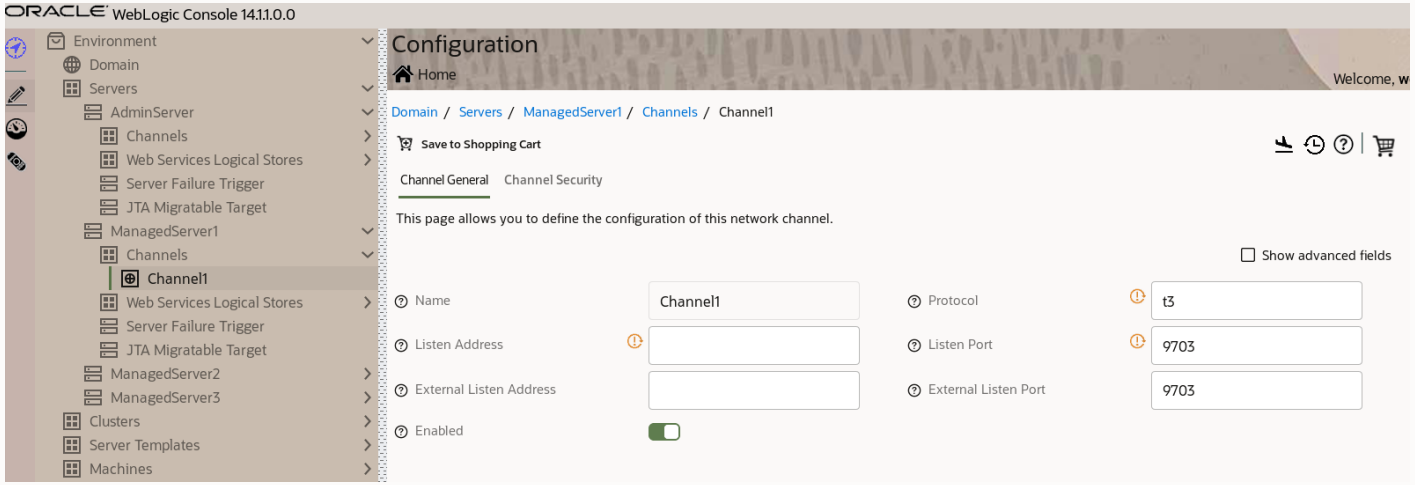
WebLogic Server Console

NEW

Admin console



Remote console



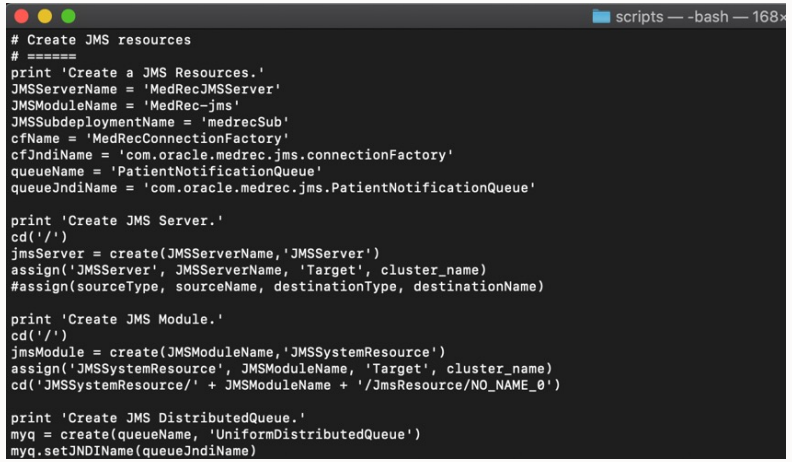
- Web Application accessible from browser
- Configure, Monitor, Manage WebLogic domain resources
- Uses WebLogic MBeans
- Includes WLST Script recorder

- Modern look and feel
- Redwood-compliant via JET
- Uses WebLogic Management REST API
- Multi-release support
- Reduce size of WebLogic installers and images

WebLogic Server Management tools

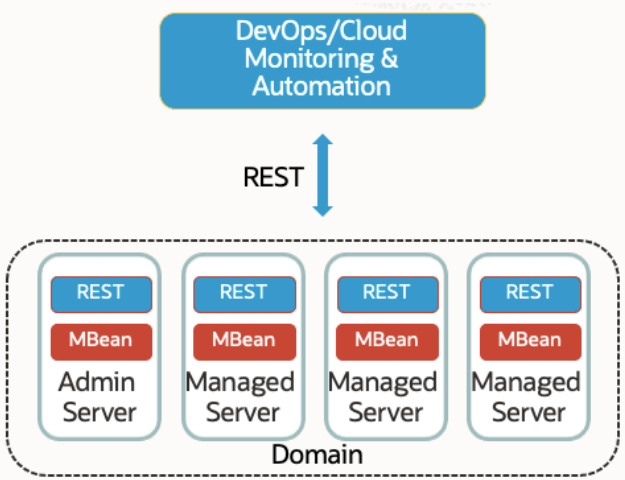
WebLogic Scripting Tool – WLST

- Scripting tool for administering the WebLogic domain resources
- Based on Jython
- Great for automating repetitive tasks
- One of the most compelling and favorite feature



WebLogic Server REST Management API

- Consistent and comprehensive, covering all of WebLogic management
- Natural management API for Cloud
  - HTTP, no WebLogic client required
  - Exposing MBeans using cloud friendly API



WebLogic Server Diagnostic tools

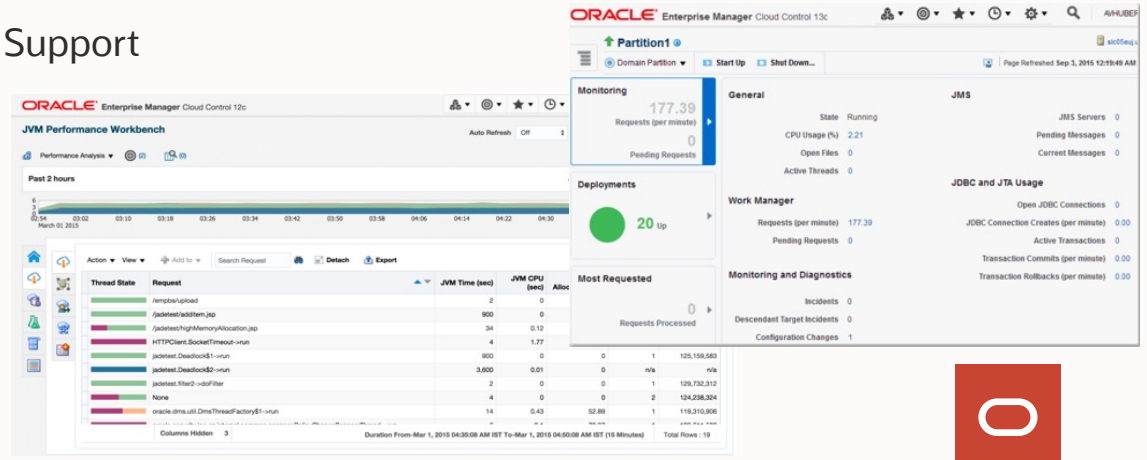
WebLogic Diagnostics Framework

A framework for diagnosing problems that happen at runtime in a WebLogic Server environment and in the applications that are deployed on the server(s)

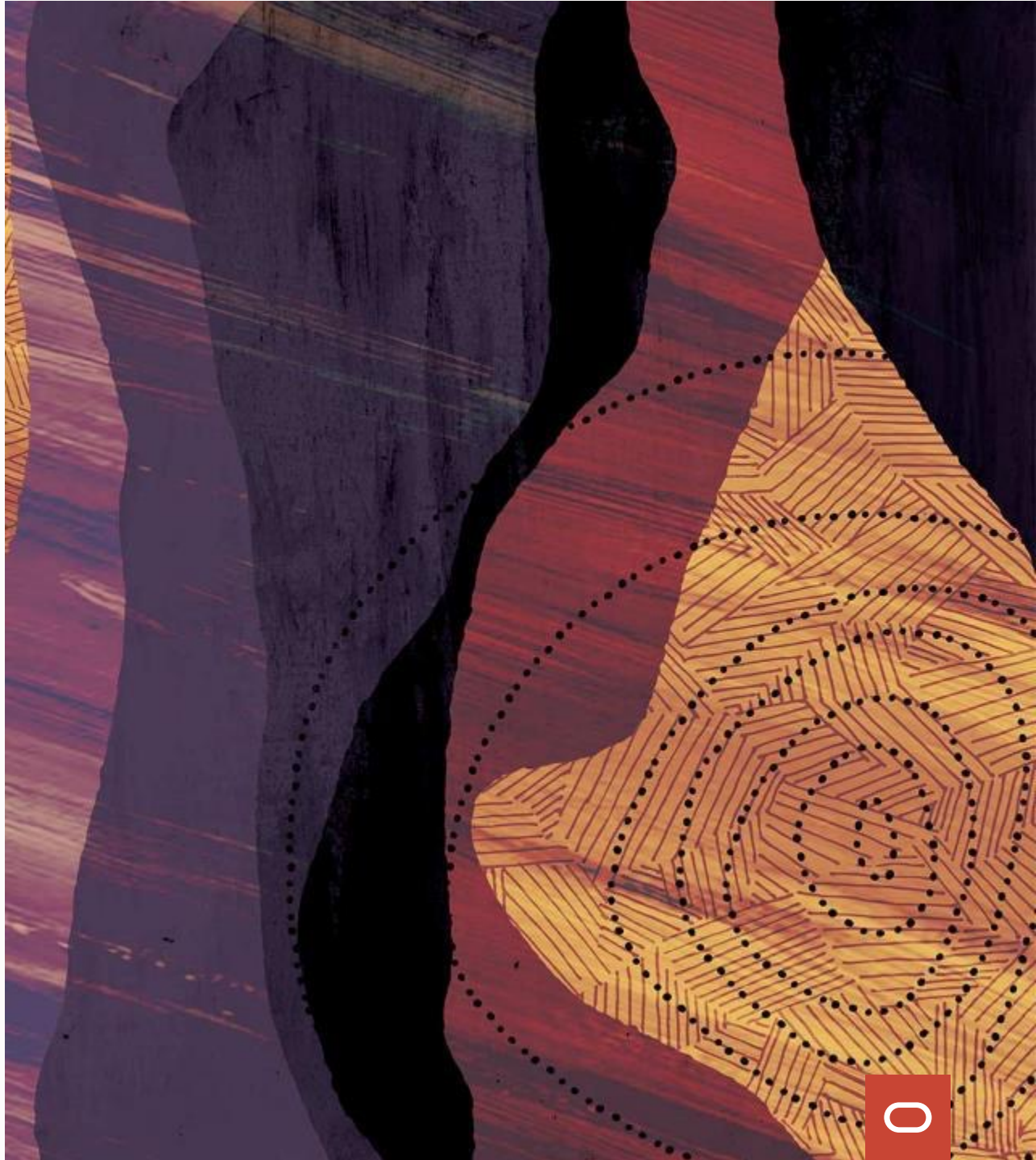
- Provides a watch/notification system with many options for defining conditions to watch for
- Provides pointcut weaving for *advanced* code instrumentation and troubleshooting
- Enables you to dump a diagnostic image to
- Integrates with Java Flight Recorder to capture WebLogic Events

Integration with Oracle Enterprise Manager

- Administration, Domain provision, copy, export, import
- Application management
- Java Activity Monitoring and Workload Explorer
- Automate discovery of configuration items
- Detect and track configuration changes
- Correlate configuration changes with performance metrics
- Receive automatic patch recommendations via My Oracle Support



Patching



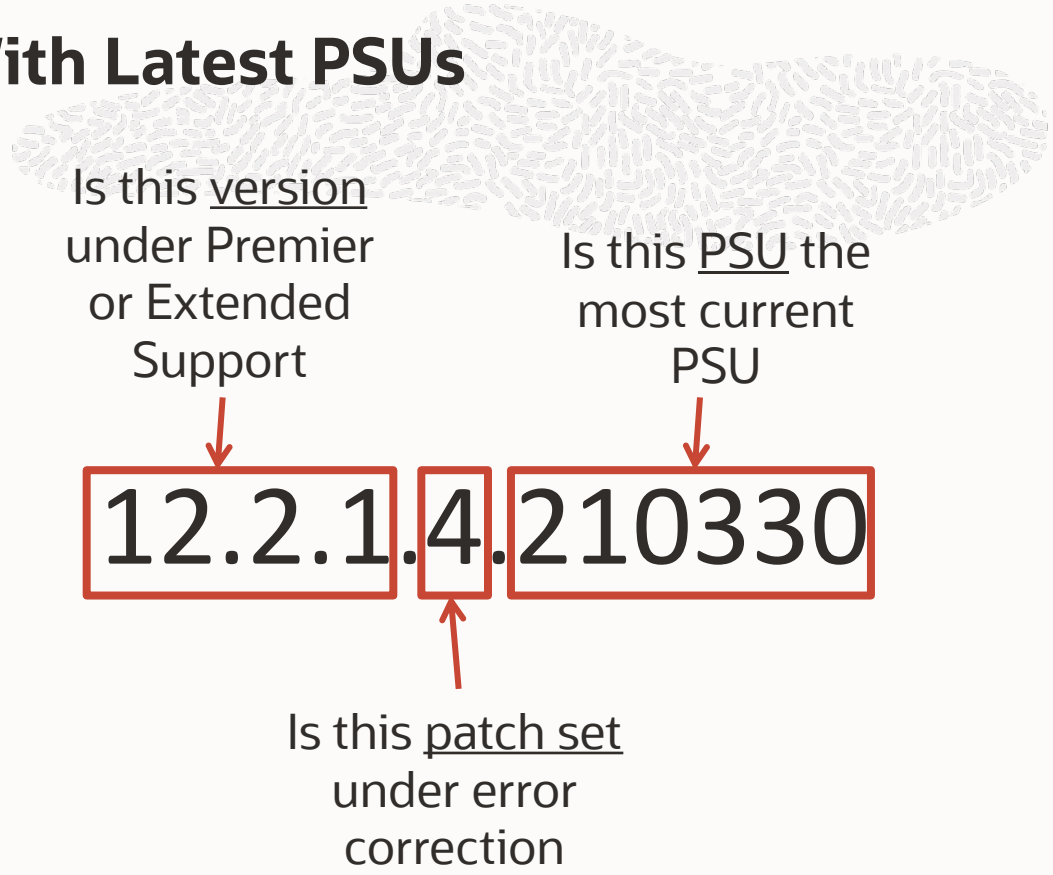
Maintaining WebLogic Server Versions With Latest PSUs

Recommended best practice

- For security and supportability

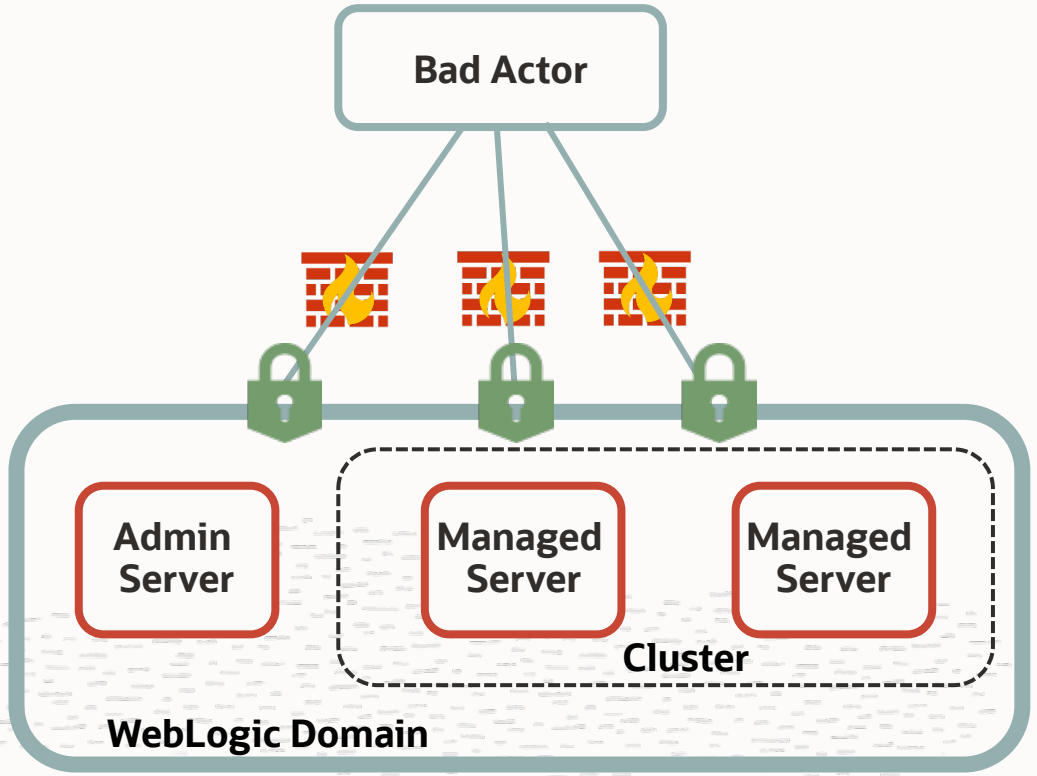
Maintaining WLS versions means using

- Versions under Premier or Extended Support
  - See Oracle FMW Lifetime Support Policy Document
- Patch sets for that version under Error Correction
  - See MOS Doc: "Error Correction Support Dates for Oracle WebLogic Server (Doc ID 950131.1)"
- WebLogic Patch Set Updates (PSUs)
  - See MOS Doc: Patch Set Update (PSU) Release Listing for Oracle WebLogic Server (WLS) (Doc ID 1470197.1)
- Java CPUs, Coherence PSUs, Samples SPUs, ADR CPUs, OPatch Updates



WebLogic Security Strengthening

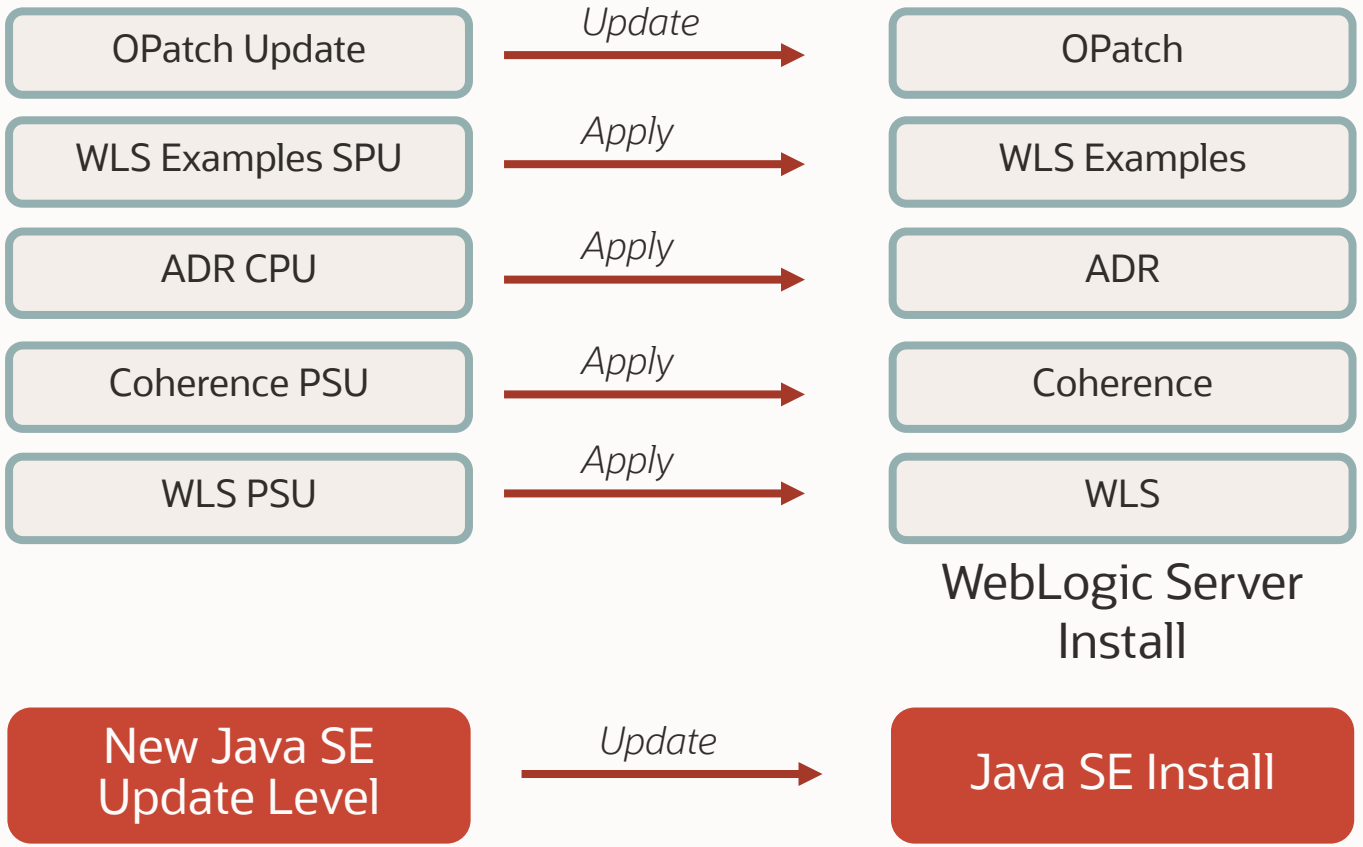
1. Ongoing PSU/CPU program
2. Updates to security best practices documentation
3. Important Security Updates for [12.2.1.3, 12.2.1.4, 14.1.1]
   - April PSU
     - Simplified PSUs – Stack Patch Bundle
     - Block unauthenticated T3/IIOP access
     - “Dynamic blocklists”
   - July PSU
     - Security validation in WebLogic console
     - “Allow lists”
4. Best practices adoption in WebLogic for OCI/OKE



Applying WebLogic Server PSUs

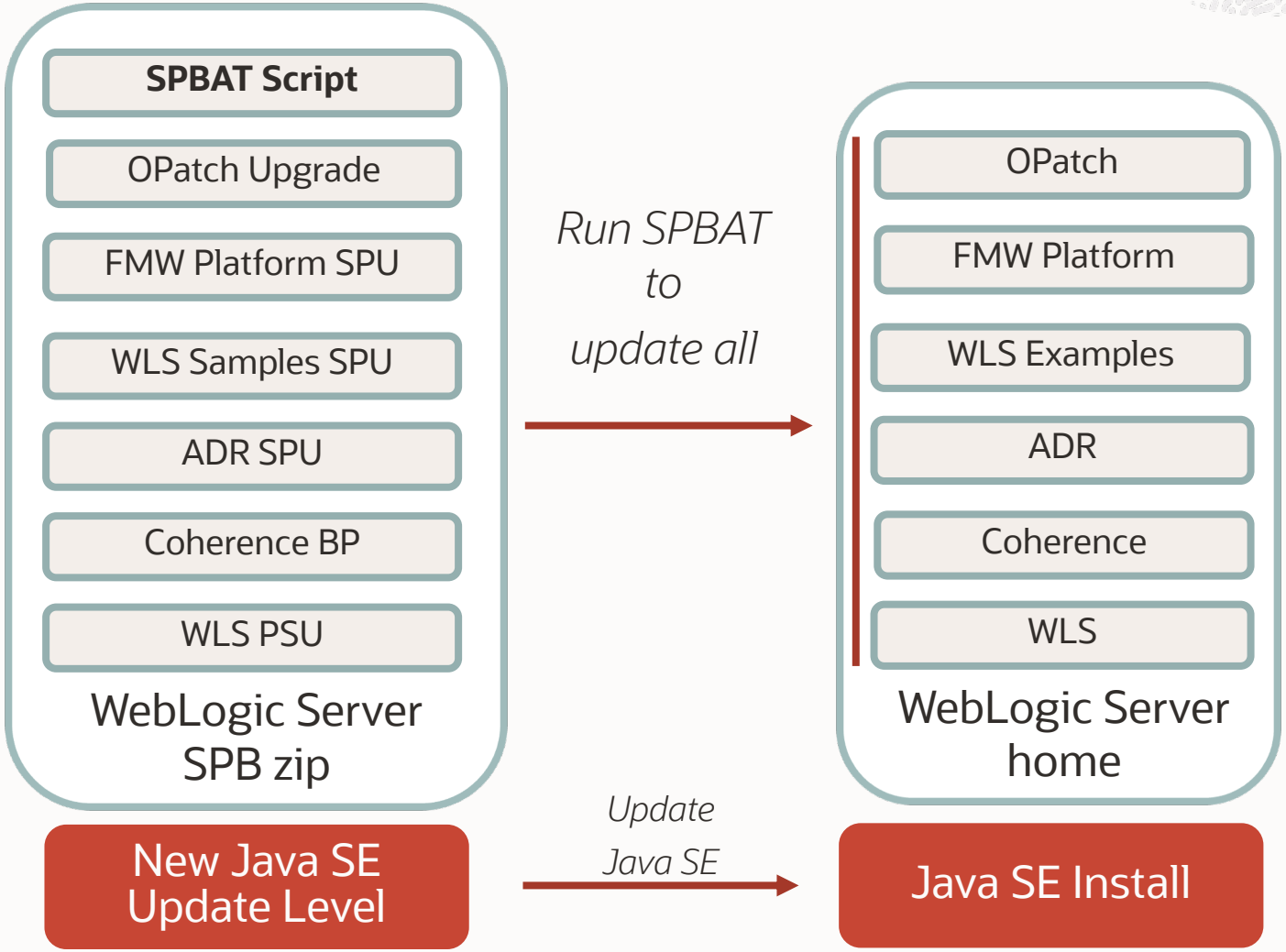
"Typical" Process (For versions patched with OPatch - 12.1.3+)

Download Java SE
Download four patches (if required)
Download Opatch (if required)
Update Java SE
Update OPatch (if required)
Apply four patches (if required)
Can be complex for administrator



SPB w/ Stack Patch Bundle Automation Tool (SPBAT)

New Feature Introduced July 2021 for 12.2.1.3+



WLS SPB - Single Zip file

- Includes all WLS install maintenance
- Same zip file for all OS/Platforms
- Script to check and applying patches

Update Java SE separately

OPatch napply OR

SPBAT script (Linux/Solaris/Windows)

- Checks Java SE version
- Checks, updates OPatch version if required
- Checks WLS install version
- Applies patches using OPatch napply
- Appropriate handling

Simpler, more reliable, more secure

Introducing the Stack Patch Bundle (SPB) w/ SPBAT for Oracle WebLogic Server (Doc ID 2764636.1)

WebLogic Zero Downtime Patching Framework

Framework for automating patch rollout in clusters

- WebLogic Server
- Java versions
- Applications

No interruptions to applications

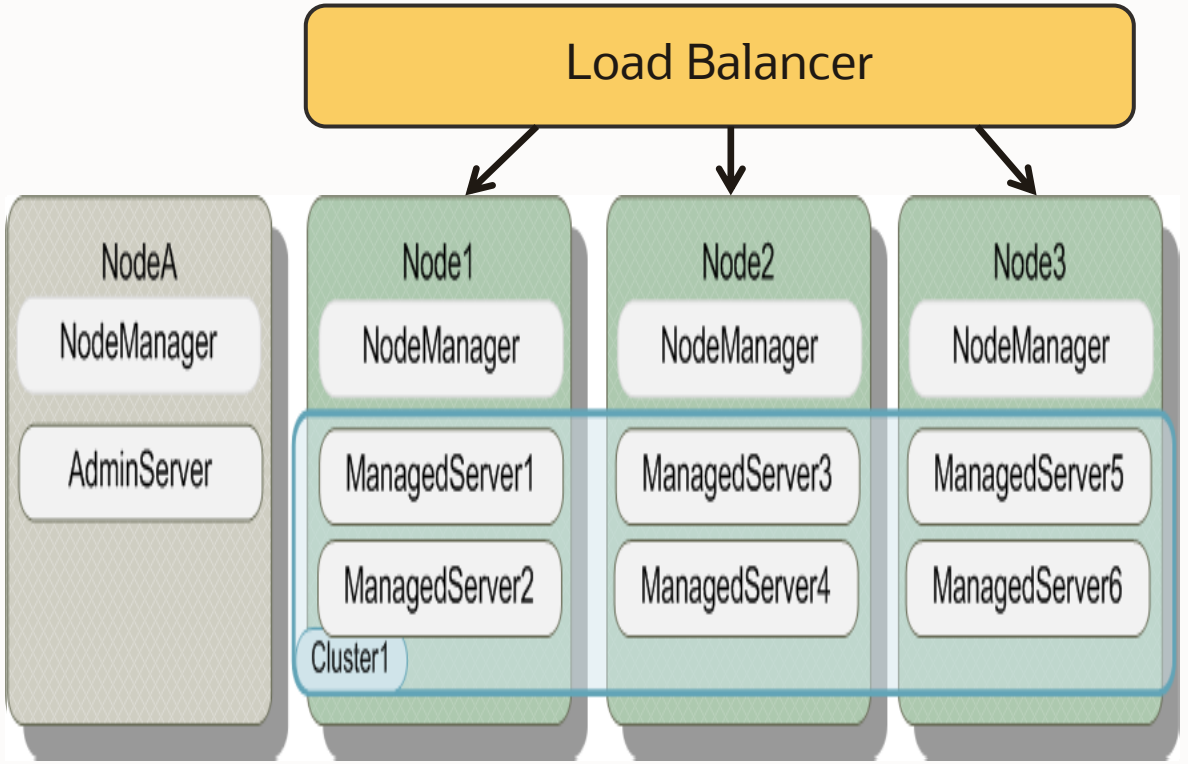
Ensures session information is preserved.

Automatic revert capabilities

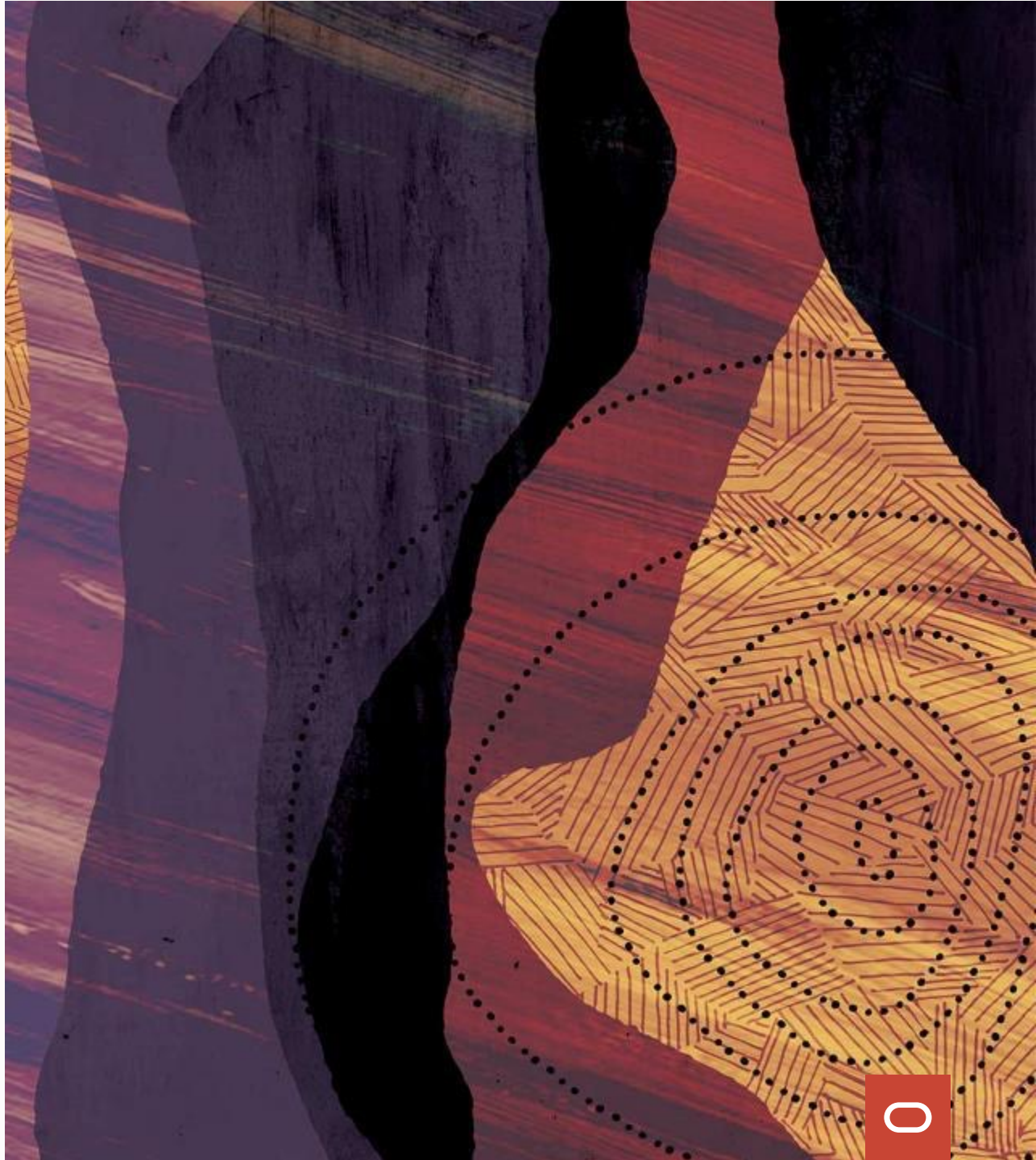
Patches tested for ZDT patching support

Works transparently with EBR

Simplifies patch verification before updating production systems



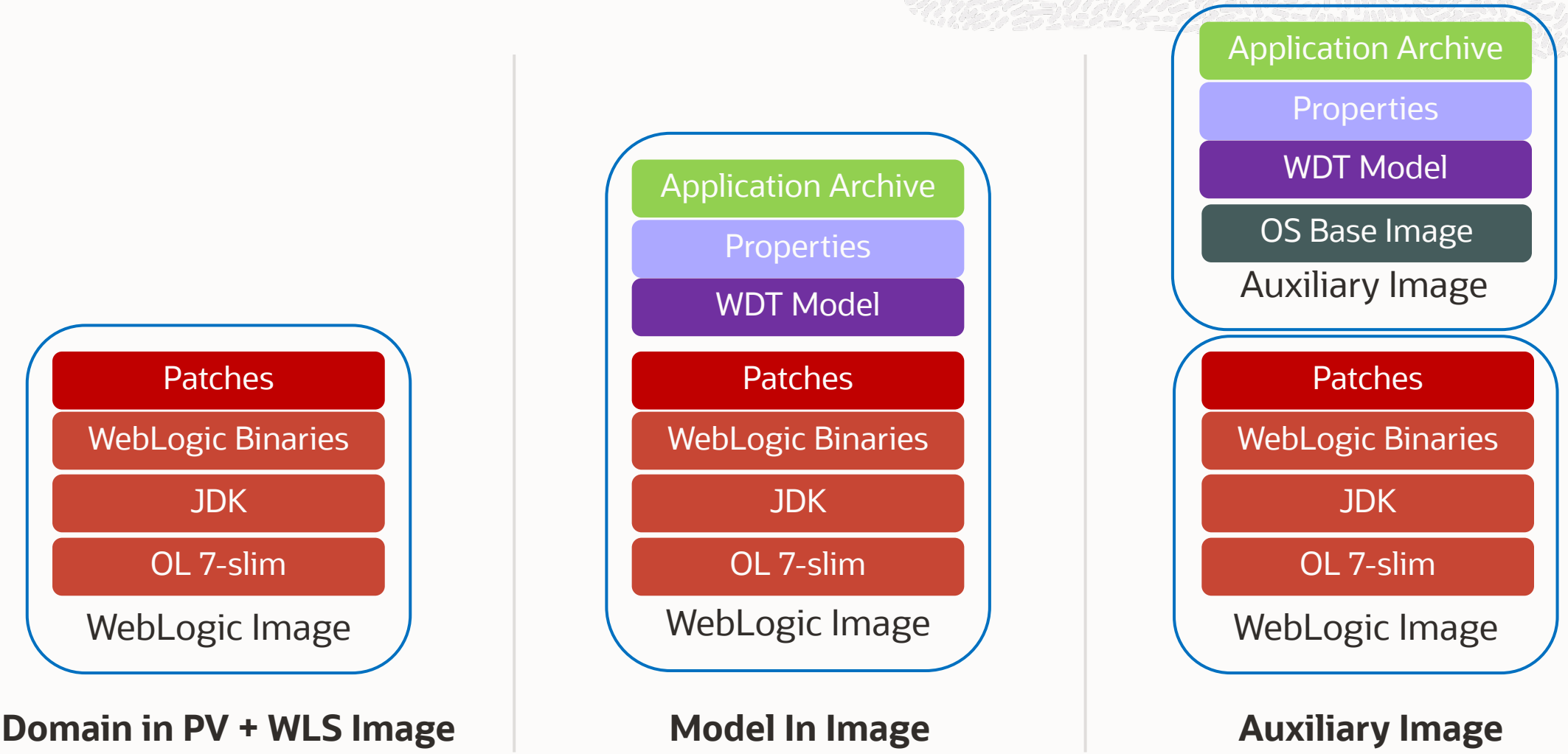
Patching & Upgrading in Cloud Native



Build And Deploy Containerized Applications That Run Anywhere

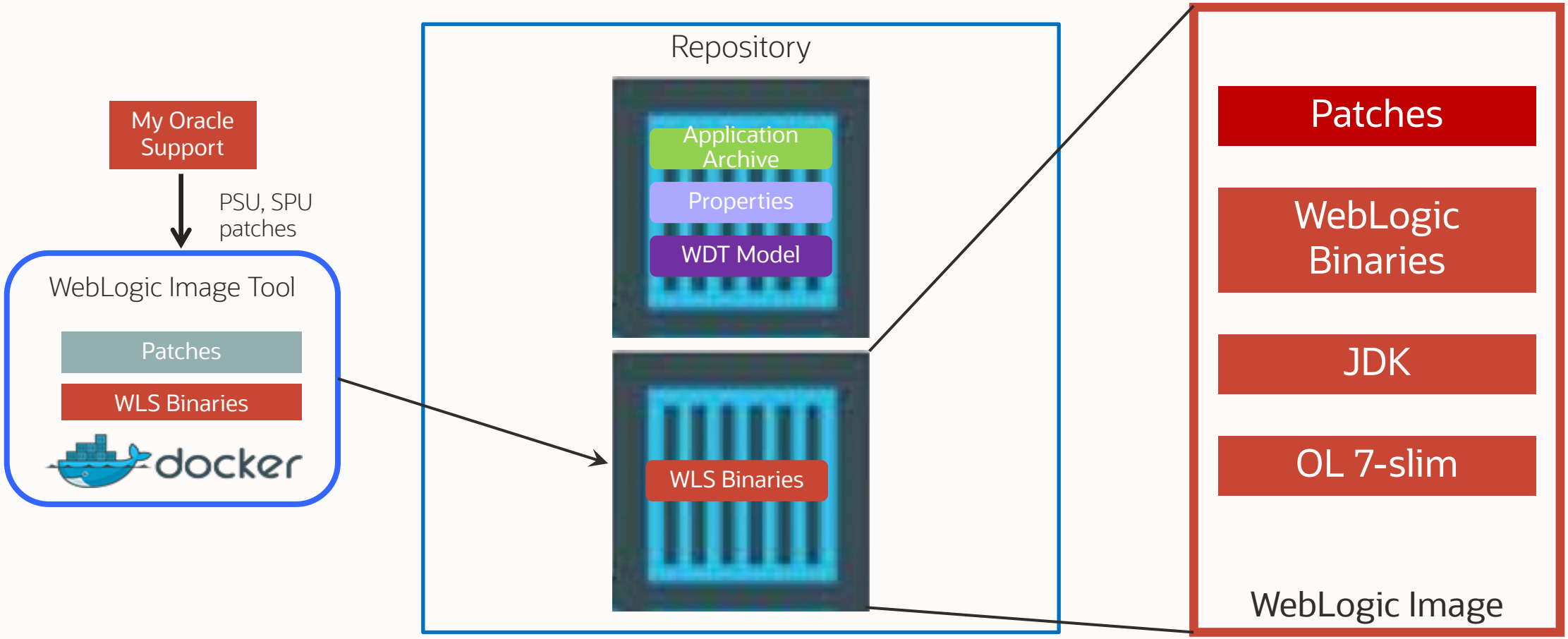
- Easily deploy applications using Docker and Kubernetes
  - ✓ Containers are more efficient and easier to manage than using virtual machines
  - ✓ Oracle Container Repository
- Use certified open source, cloud-neutral toolchains
  - ✓ Oracle is aligned with Cloud Native Computing Foundation (CNCF)
  - ✓ 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

WebLogic Container Image Options

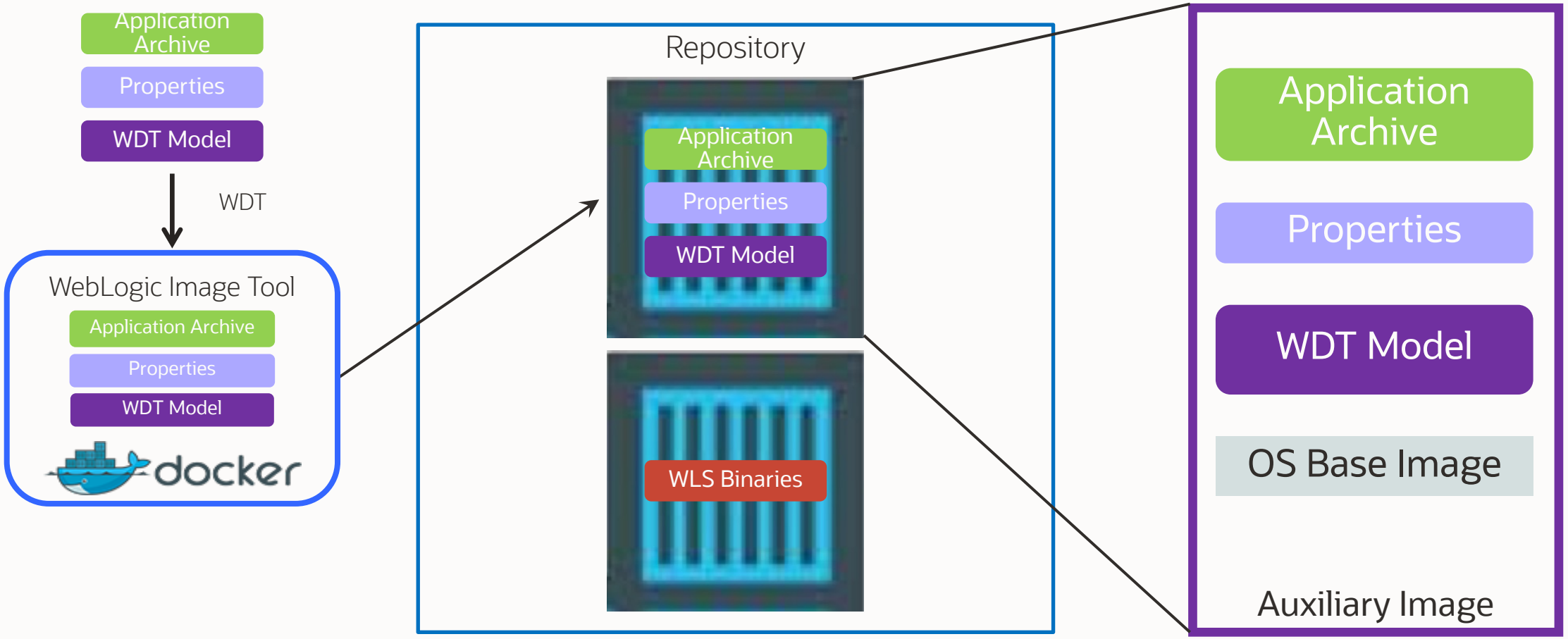


Domain in PV + WLS Image | **Model In Image** | **Auxiliary Image**

WebLogic Image

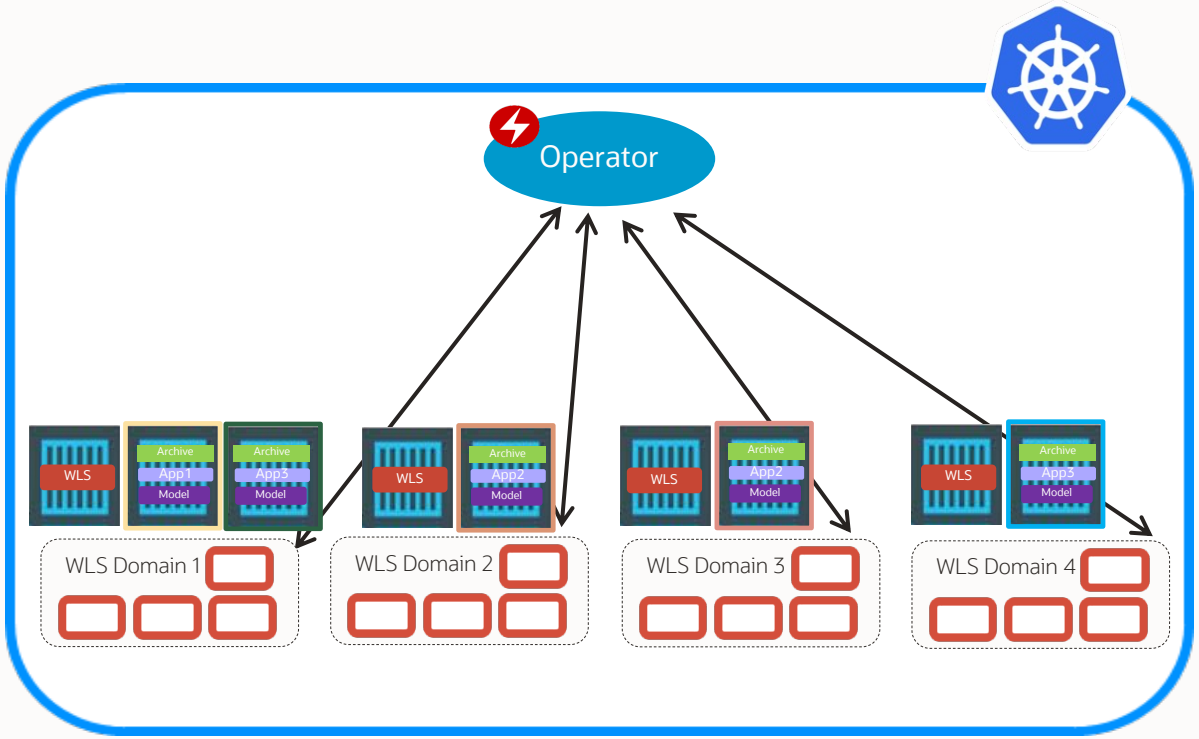


Auxiliary Image

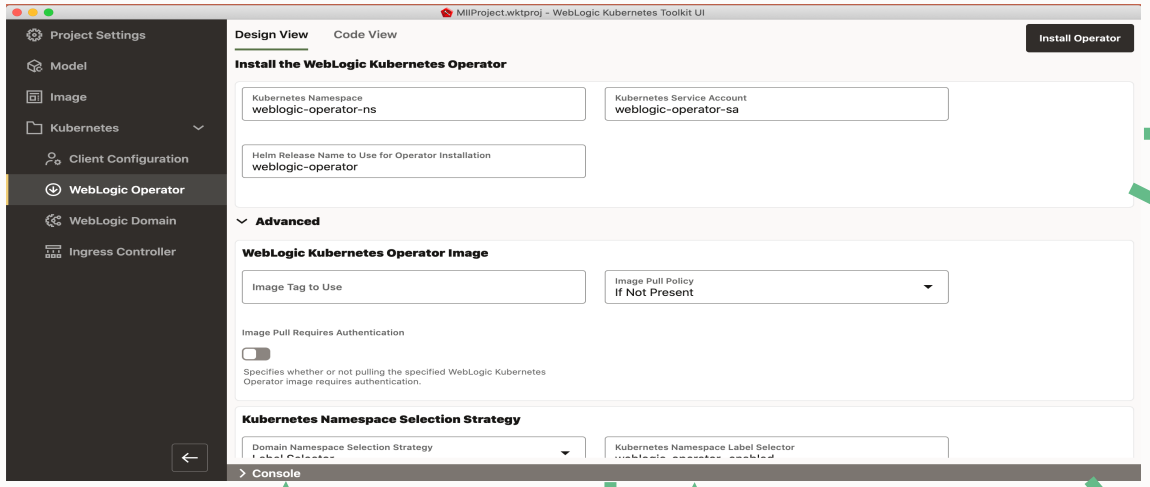


Benefits of Auxiliary Image

- When updating WebLogic or JDK only need to change a single image for multiple domains
- The Operator can apply updates in a rolling fashion to domains
- Updates can be automated through CI/CD pipelines
- Application updates can be isolated to a single Auxiliary image
- Smaller images
- Multiple Auxiliary image can be applied to a single domain, providing extreme flexibility



WebLogic Kubernetes ToolKit UI Example - Migrate to Kubernetes



Create & Publish Image

Repository

WLS Image

docker

Install Operator, Domain CR, and Ingress

Introspect Domain

Edit and Prepare Model

Consume Model

Connect to Kubernetes

WLS Domain

Physical & VMs

WDT Model

Ingress

Domain CR

Operator

cri-o

docker

Kubernetes Cluster

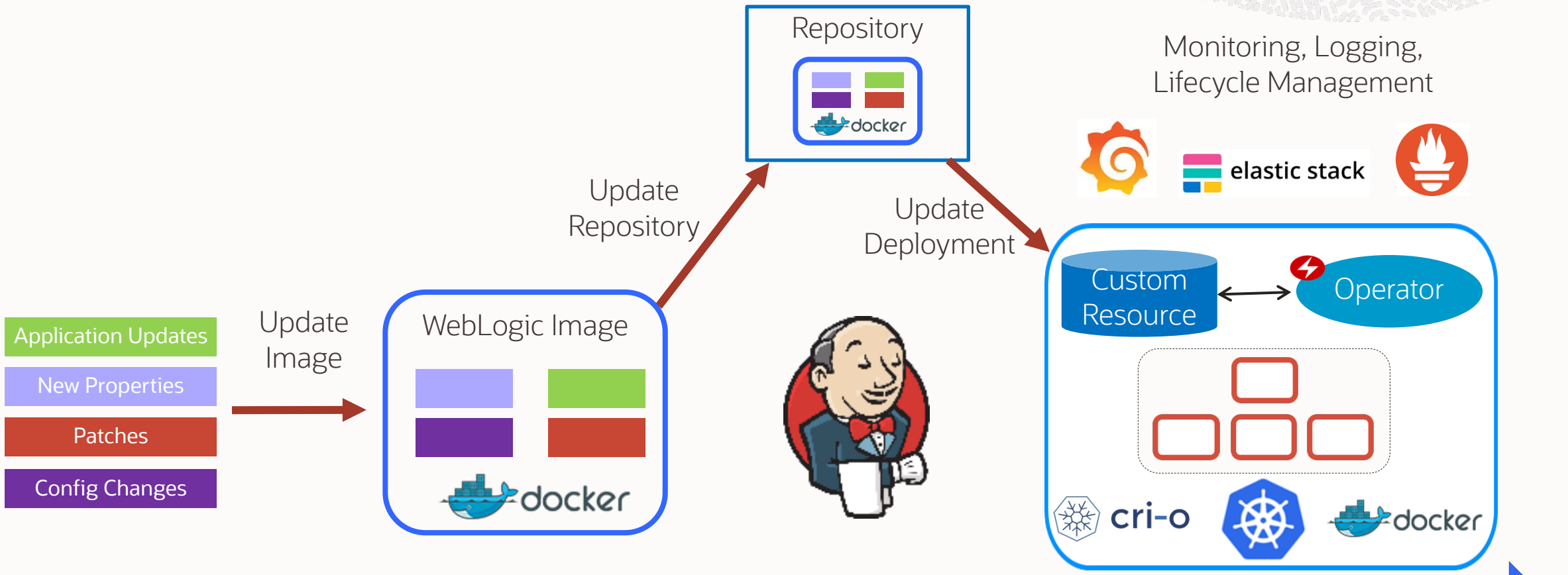
Monitoring, Logging, Lifecycle Management

elastic stack

VERRAZZANO

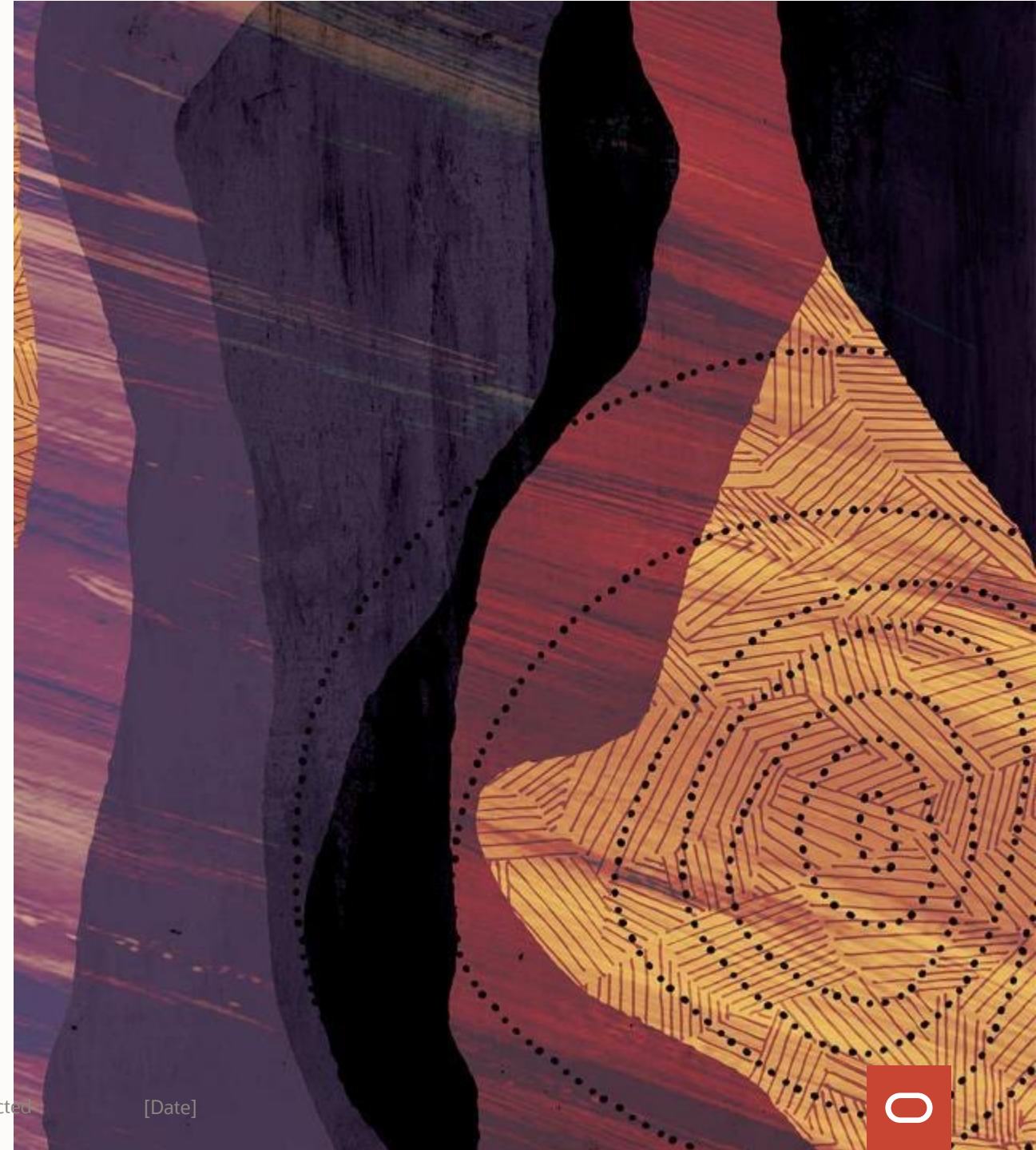
Provide advice how to install Kubernetes Clients

WebLogic Kubernetes ToolKit Example – Automate Updates

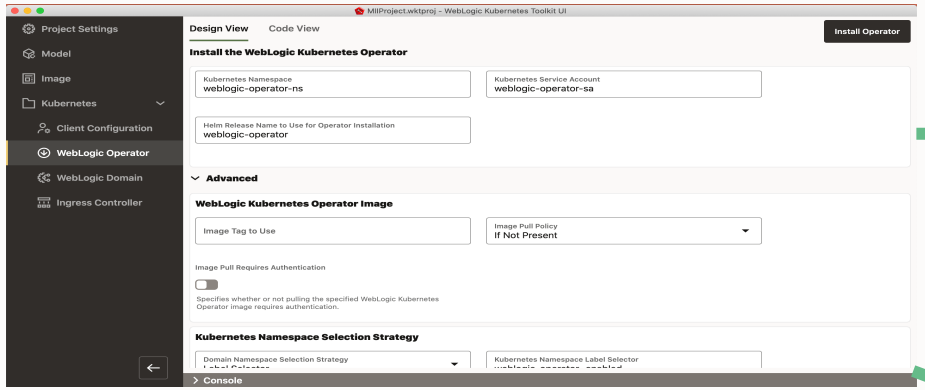


Automate Application Delivery and Updates with Standard DevOps Tools

Upgrading Demo

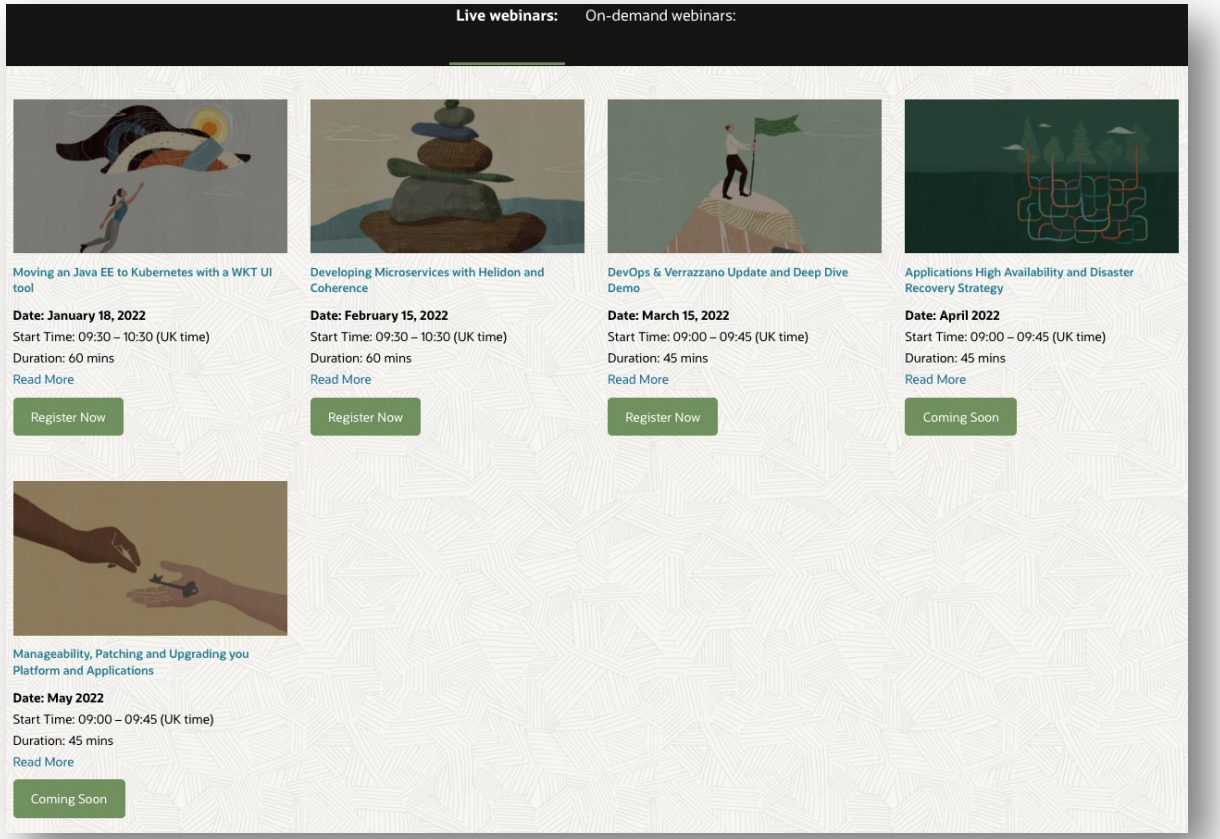


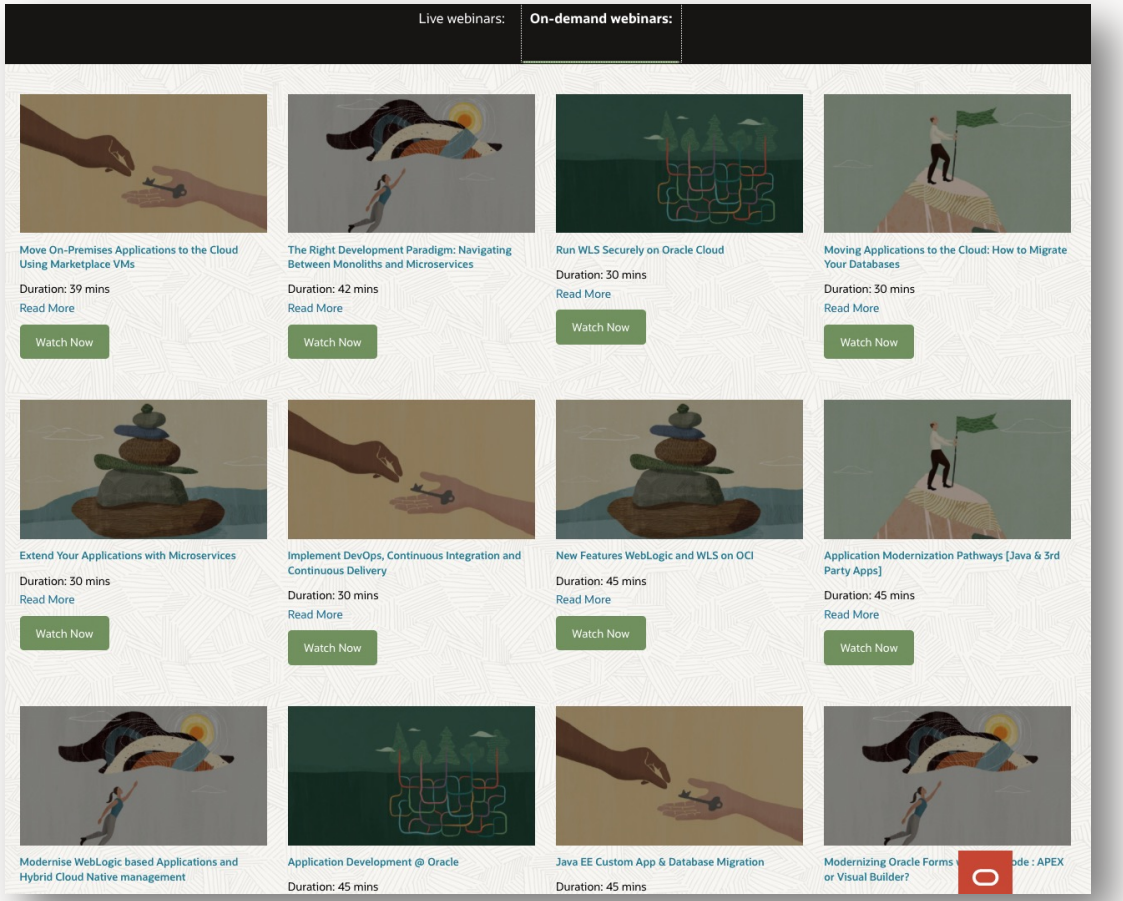
WebLogic Kubernetes ToolKit UI Demo – Patching / Upgrade



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

Modernise WebLogic Webinars





Q & A

Thank You!

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