A Customer’s Journey to Migrate On-Premise Applications to Kubernetes

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WebLogic, Coherence and Cloud Native Trends

• Industry trends
  Microservices, serverless
  Private and public clouds
  Containers, orchestration frameworks
• WebLogic, Coherence customer demand
  Leverage cloud neutral infrastructure
  Integrate with new tools and services
  Evolve WebLogic, Coherence for these environments
Oracle Enterprise Java Strategy
Evolve Products to Meet Customer Demand

- Migrate to Kubernetes on premise
  Tools for migration and management
  Support existing and new applications
- Migrate to Kubernetes on Oracle Cloud
  Leverage management tools on OCI
  Availability, security, scaling, low-cost
- Integrate with Microservices
  Flexibility for developers
  Evolve and manage applications
WebLogic Server on Kubernetes - Building Blocks

- Docker and CRI-O certification
  Docker images, Dockerfiles, examples
- WebLogic Kubernetes certification
  How-to, best practices
- Value add integration
  Management: Operator
  Monitoring: Exporter for Prometheus
  Migration: Deploy tooling
  Logging: Exporter for Elastic Stack
  Image Creation: WebLogic Image Tool
Bryan Tidd
Platform Engineer, DataScan
2019 Oracle OpenWorld

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Who We Are!

DataScan is a global leader in wholesale asset financing and risk management systems.

We are part of World Omni Financial Corporation and their parent JM Family Enterprises, Inc.
### DataScan and Oracle WebLogic Team

#### Kubecon 2017
- Met Oracle WebLogic Team
- Discussed Shared Interests

#### Early Access Partner
- Small Group of Customers
- Open Issues & Test
- Advise

#### Early Adopter
- Present Use Cases
- Open Issues & Test
- Provide Samples & Code
What We Do: DevOps!

Datacenter Switch every 6 Months

4 Hour Recover Time Objective

1 Hour Recovery Point Objective
What We Do: DevOps!

- 100+ Deployments
- 30 Elements Per Deployment
- Each Similar but Unique
Legacy Stack

Legacy & Database
Modern Stack

Services & New Development

Legacy & Database

AdminServer
Managed Server
Problem Space

Deployment and Operational Quality with Cloud Native Methodology

- Kubernetes
- VMware
- WebLogic Operator 2.3.0
- Oracle DB

Physical Hardware
Solution

Automation
• Infrastructure
• ?

Automation
• Middleware
• ?

Automation
• Applications
• ?
Solution

Automation
- Infrastructure
- Ansible
- Terraform
- Custom Scripts

Automation
- Middleware
  - Oracle WebLogic Server
  - Kubernetes Operator

Automation
- Applications
  - Oracle WebLogic Server Deploy Tooling
WebLogic Operator 2.3.0 & WDT

AdminServer and Managed Server Lifecycle Management

Zero to Deployed Application in Less than 12 Minutes

Open Source Initiative

Completely Automated Deployments

Oracle Supported Images
WebLogic Operator 2.3.0 & WDT

AdminServer and Managed Server Lifecycle Management

- Domain Creation
- Server & Cluster Creation
- Server Restarts
- Scaling Cluster
Zero to Deployed Application in Less than 12 Minutes

- Domain Creation
- Server & Cluster Creation
- Configuration
- Application Deployment
WebLogic Operator 2.3.0 & WDT

Completely Automated Deployments

- WebLogic Operator 2.3.0
- WebLogic Deploy Tooling
- DataScan Developed Application/API
- Custom Scripts by DataScan
Oracle Supported Images

- WebLogic Operator 2.3.0
- WebLogic Server
- Oracle Server JRE
- And more

https://github.com/oracle/docker-images
https://hub.docker.com
WebLogic Operator 2.3.0 & WDT

Open Source Initiative
- Oracle Leadership and Commitment
- Oracle Architecture and Engineering
- Public, Open, and Active
- Very Customer Focused Roadmap

https://github.com/oracle/weblogic-kubernetes-operator
https://github.com/oracle/weblogic-deploy-tooling
WebLogic Operator 2.3.0 & WDT

DataScan Use Case

GA of Capability

Create Issue

Branch Release of Capability

WebLogic Operator Team Review

Integration of Dynamic Persistent Volume Claims
- NFS, Custom Storage Classes
WebLogic Operator 2.3.0 & WDT

DataScan Use Case

Integration of Dynamic Persistent Volume Claims
- NFS, Custom Storage Classes
- InitContainers
- Persistent Volume Preparation
- Security Agent Install

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WebLogic Operator Team Review

Branching
WebLogic Operator 2.3.0 & WDT

- **DataScan Use Case**
- **Create Issue**
- **GA of Capability**
- **Branch Release of Capability**
- **WebLogic Operator Team Review**

Integration of Dynamic Persistent Volume Claims
- NFS, Custom Storage Classes

- **InitContainers**
  - Persistent Volume Preparation
  - Security Agent Install

- **Domain in Image**
  - Immutable for Testing
WebLogic Operator 2.3.0 & WDT

- **DataScan Use Case**
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- **WebLogic Deploy Tooling**
- Custom Authenticator
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WebLogic Deploy Tooling
• Custom Authenticator

Cluster ServerPod Templating
• Persistent Volume Templating like StatefulSets
• Based on Built-in Variable Names
“With the introduction of the WebLogic Kubernetes Operator, DataScan has been able to increase automation of application deployments. What started out as many Jira tasks and several individuals completing manual processes has been reduced to a self-service request. All in all the operator has helped us reduce deployment time from 3 - 5 days to 12 minutes. We are working diligently to move this technology to production by the end of the first quarter of 2020.”

Bryan Tidd
Platform Engineer
DataScan
“Working with the WebLogic team on open source projects like the WebLogic Kubernetes Operator and the WebLogic Deployment Tooling has been an excellent experience. Together we have been able to introduce features and capabilities into those projects that fulfill five major use cases for DataScan.”

Bryan Tidd
Platform Engineer
DataScan
“The WebLogic Team has brought the best of Oracle to bare in developing open source solutions for lifting WebLogic based applications to cloud native heights. It's given us the ability to run all our workloads within Kubernetes, simplifying our infrastructure footprint. It might just be the best way to run WebLogic Server.”

Bryan Tidd
Platform Engineer
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Thank you!
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Safe Harbor

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