How to Teach Old Apps New Tricks with Ansible-based Operators: Part 1

Chris Short
Principal Product Marketing Manager
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@ChrisShort

PART ONE

- What is Kubernetes?
- Containers and State
- What’s an Operator?
- Ansible-based Operators

WHAT IS KUBERNETES?

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“Kubernetes (k8s) is an open-source system for automating deployment, scaling, and management of containerized applications.”
https://kubernetes.io/

ENTERPRISE KUBERNETES

Red Hat® OpenShift® Container Platform offers enterprises full control over their Kubernetes environments, whether they're on-premise or in the public cloud.
https://www.openshift.com/

CONTAINERS AND STATE

STATELESS IS EASY

ORGANIZATIONS RUN ON STATE

STATELESS IS EASY, STATEFUL IS HARD

WHAT'S AN OPERATOR?

KUBERNETES OPERATORS

Kubernetes Operators encode the human knowledge required to install, upgrade / patch, recover from failure, and tune applications and services.

https://github.com/operator-framework/operator-sdk

OPERATORS MANAGE STATE

Declare operational knowledge from experts as code

Operator SDK

Deployments
StatefulSets
Autoscalers
Secrets
Config maps

ANSIBLE-BASED OPERATORS

YAML: YEAH YOU KNOW ME!

k8s-deployment.yaml

```
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: motd-operator
spec:
  replicas: 1
  selector:
    matchLabels:
      name: motd-operator
  template:
    metadata:
...
```

ansible-task.yml

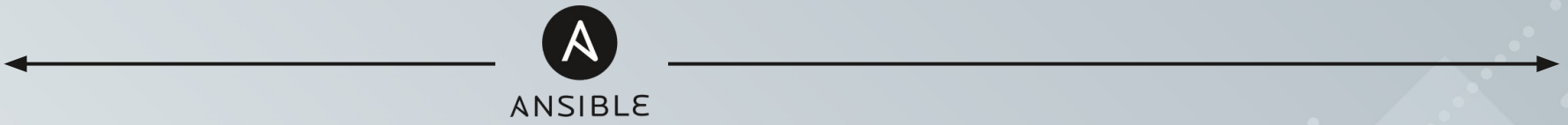
```
---
- name: Save the STATE
  copy:
    dest: /motd.timestamp
    src: /etc/motd
    owner: root
    group: root
    mode: 0644
    remote_src: true

...
```

OPERATOR SDK ♡ ANSIBLE

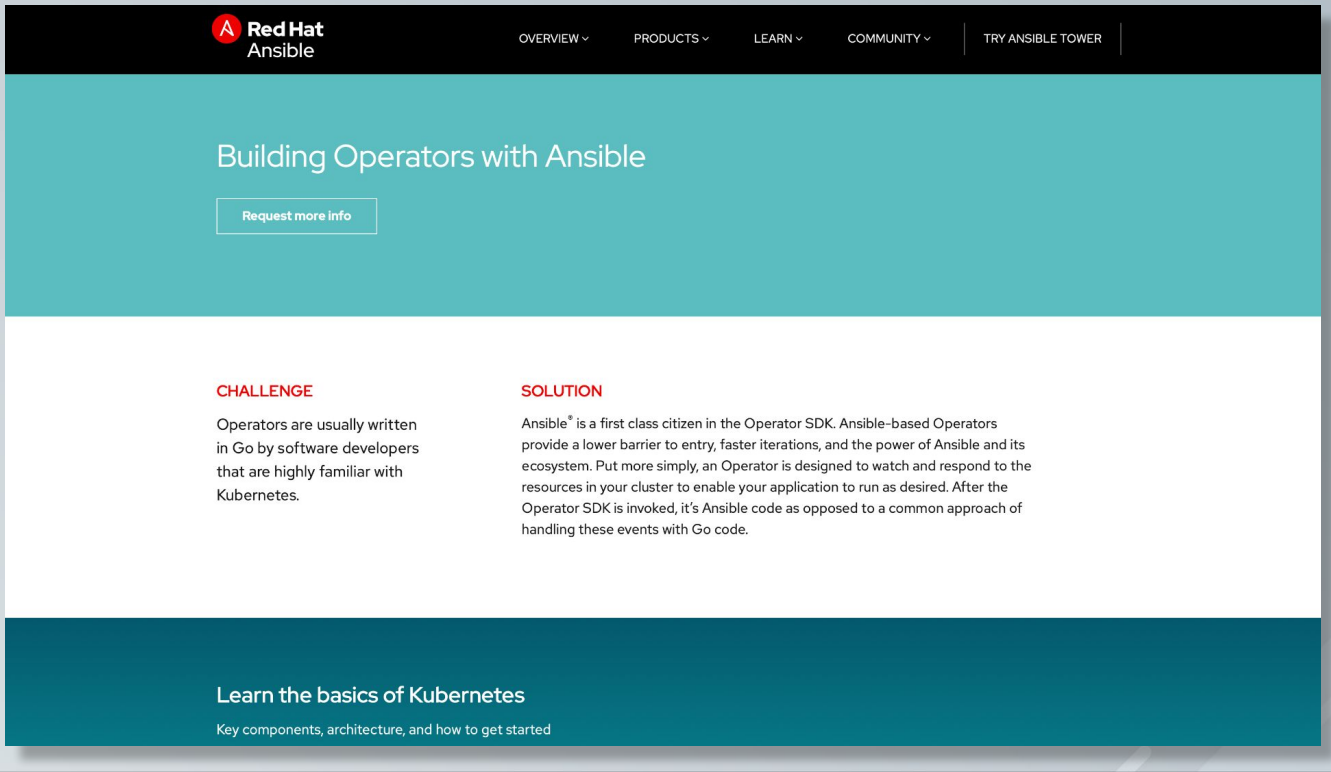
The Ansible Kubernetes module enables the Operator SDK to utilize Ansible and its ecosystem to manage applications inside Kubernetes and OpenShift

OPERATOR CAPABILITY LEVEL

Phase I	Phase II	Phase III	Phase IV	Phase V
Basic Install	Seamless Upgrades	Full Lifecycle	Deep Insights	Auto Pilot
Automated application provisioning and configuration management	Patch and minor version upgrades supported	App lifecycle, storage lifecycle (backup, failure recovery)	Metrics, alerts, log processing and workload analysis	Horizontal/vertical scaling, auto config tuning, abnormal detection, scheduling tuning



ansible.com/operators



BUT WAIT THERE'S MORE IN PART TWO

THANK YOU

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