Working with Your Kubernetes Cluster

Anthony E. Nocentino
ENTERPRISE ARCHITECT @ CENTINO SYSTEMS

@nocentino www.centinosystems.com

Course Overview

Introduction

Exploring Kubernetes Architecture

Installing and Configuring Kubernetes

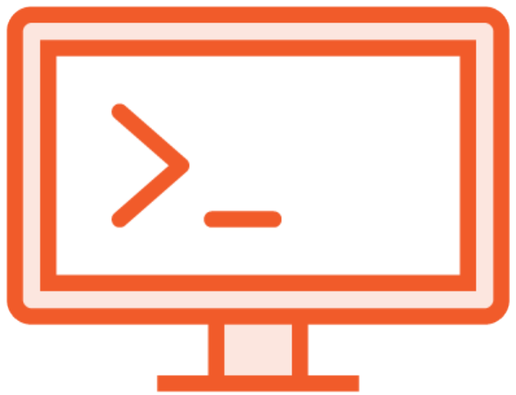
Working with Your Kubernetes Cluster

Overview

Using `kubectl` to Interact With Your Cluster

Application Deployments

Using kubectl

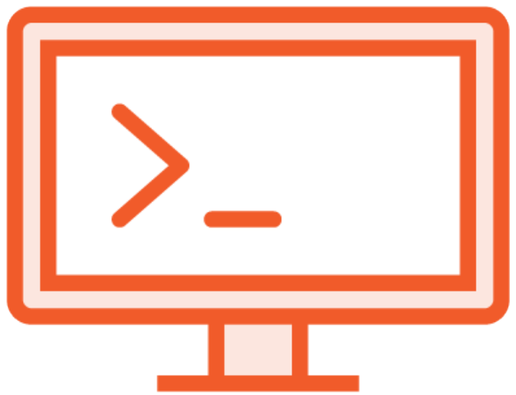


Primary CLI tool

Control your Kubernetes Cluster

- Operations - what you want to do
- Resources - what you want to do it to
- Output - if there's output, its format

Operations - what do you want to do?



`apply/create` **- create resource(s)**

`run` **- start a pod from an image**

`explain` **- documentation of resources**

`delete` **- delete resource(s)**

`get` **- list resources**

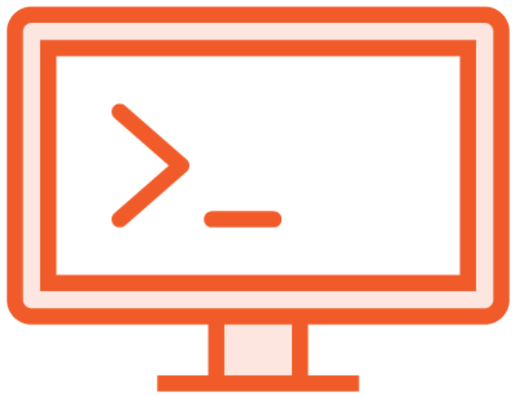
`describe` **- detailed resource information**

`exec` **- execute a command on a container**

`logs` **- view logs on a container**

https://kubernetes.io/docs/reference/kubectl/overview/#operations

Resources - what do you want to do it to?



`nodes (no)`

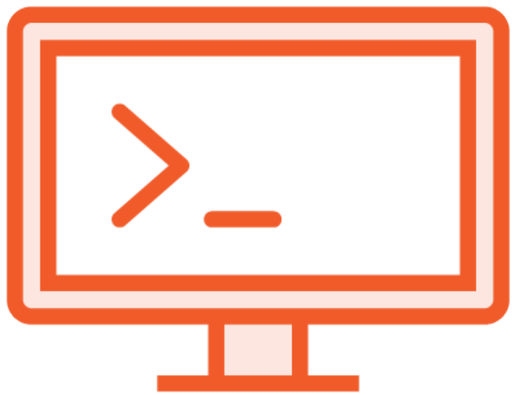
`pods (po)`

`services (svc)`

..and many more

https://kubernetes.io/docs/reference/kubectl/overview/#resource-types

Output



Specify `kubectl`'s output format

`wide` - output additional info

`yaml` - YAML formatted API object

`json` - JSON formatted API object

`dry-run` - print an object without sending it to the API Server

https://kubernetes.io/docs/reference/kubectl/overview/#output-options

kubectl

`kubectl`	`[command]`	`[type]`	`[name]`	`[flags]`
`kubectl`	`get`	`pods`	`pod1`	`--output=yaml`
`kubectl`	`create`	`deployment`	`nginx`	`--image=nginx`

https://kubernetes.io/docs/reference/kubectl/kubectl/

https://kubernetes.io/docs/reference/kubectl/cheatsheet/

Demo

Using kubectl

- **Nodes**
- **Pods**
- **API Resources**
- **Configure bash auto-completion**

Application Deployment in Kubernetes

Imperative

```
kubectl create deployment nginx \
--image=nginx
```

```
kubectl run nginx --image=nginx
```

Declarative

Define our desired state in code

Manifest

YAML or JSON

```
kubectl apply -f deployment.yaml
```

Basic Manifest - Deployment

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: hello-world
spec:
  replicas: 1
  selector:
    matchLabels:
      app: hello-world
 template:
    metadata:
     labels:
        app: hello-world
    spec:
      containers:
      - image: gcr.io/google-samples/hello-app:1.0
        name: hello-app
```

```
kubectl apply -f deployment.yaml
```

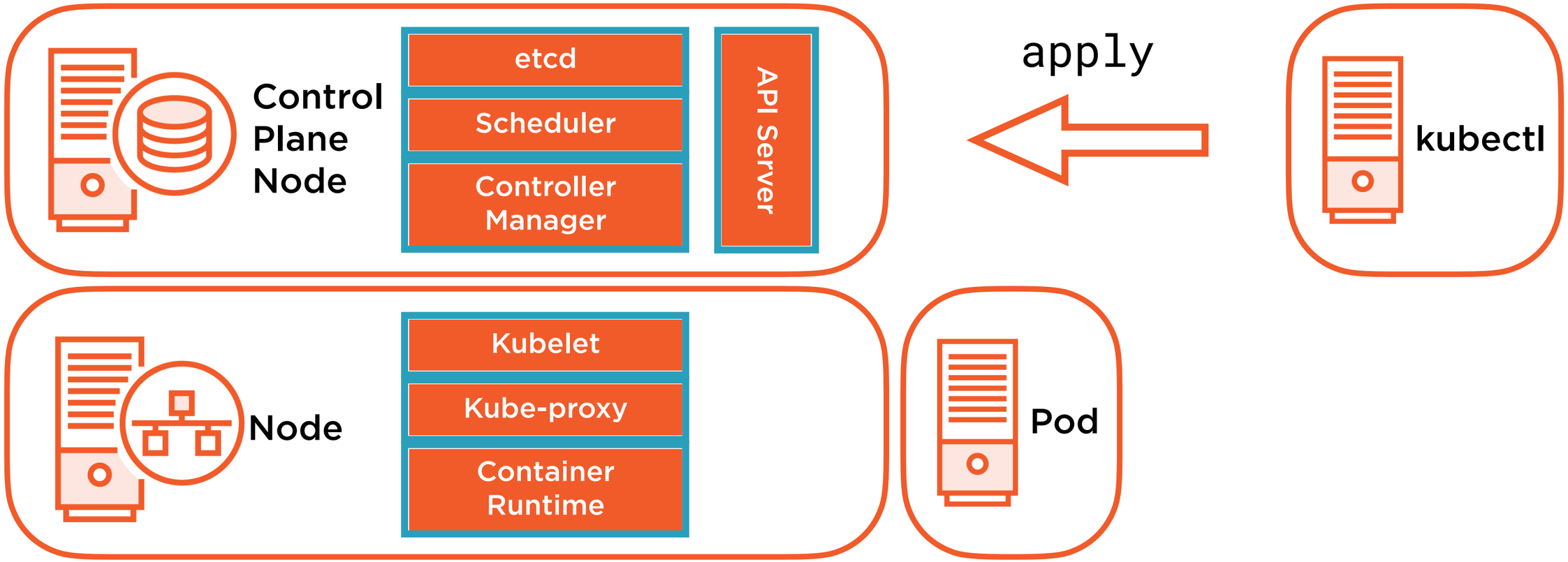
```
kubectl create deployment hello-world \
     --image=gcr.io/google-samples/hello-app:1.0 \
     --dry-run=client -o yaml > deployment.yaml


kubectl apply -f deployment.yaml
```

Generating Manifests with dry-run

Deployments

Application Deployment Process



Demo

Imperatively and Declaratively

Deploying resources in your Cluster

- Deployments
- Pods
- Services

Making changes to existing resources

Summary

Using `kubectl` to Interact With Your Cluster

Application Deployments

Thank You!

@nocentino

www.centinosystems.com