

# Interacting With Your Cluster

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# Course Overview

- **Module 0** - Introduction
- **Module 1** - Container Fundamentals
- **Module 2** - Kubernetes Architecture and API Objects
- **Lunch @ 12:00-12:45**
- **Module 3** - Interacting With Your Cluster
- **Module 4** - Deploying Applications in Kubernetes
- **Module 5** - Building and Deploying Container-based Applications in Kubernetes

# Agenda

- **Interacting With Your Cluster**
  - Using `kubectl` to Interact with Your Cluster
  - Application Deployment Basics in Kubernetes

# 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 to stdout
  - **yaml** - YAML formatted API object
  - **json** - JSON formatted API object

<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/>



# Application Deployment in Kubernetes

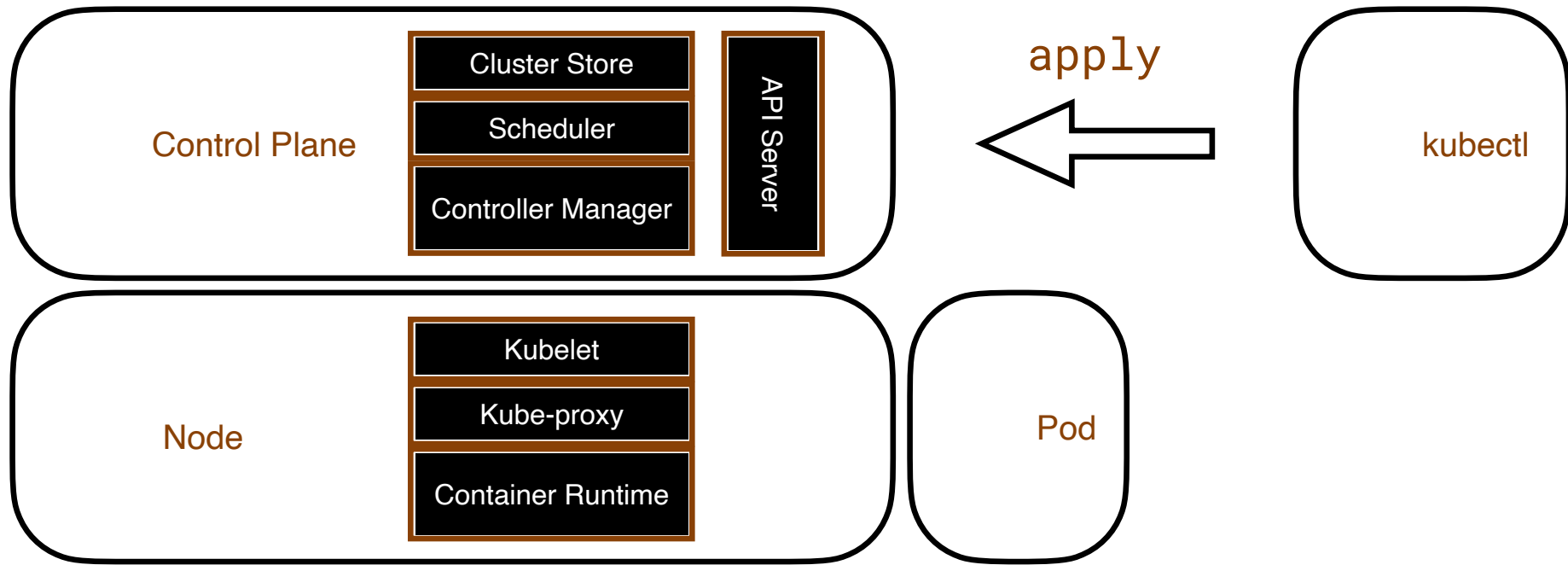
- Imperative
  - **kubectl create deployment hello-world \**  
**--image= psk8s.azurecr.io/hello-app:1.0**
  - **kubectl run hello-world \**  
**--image= psk8s.azurecr.io/hello-app:1.0**
- Declarative
  - Define our desired state in code
  - Manifest
  - YAML or JSON
  - **kubectl apply -f deployment.yaml**

# Defining a Deployment

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: hello-world
spec:
  replicas: 2
  selector:
    matchLabels:
      app: hello-world
  template:
    metadata:
      labels:
        app: hello-world
    spec:
      containers:
      - image: psk8s.azurecr.io/hello-app:1.0
        name: hello-world
        ports:
        - containerPort: 80
```

kubectl apply -f deployment.yaml

# Application Deployment Process



# Hands on lab

- Using **kubect1**
  - Nodes
  - Pods
  - API Resources
- Declaratively and Imperatively Deploying resources in your Cluster

# Review

- **Interacting With Your Cluster**
  - Using `kubectl` to Interact with Your Cluster
  - Application Deployment Basics in Kubernetes