Managing Container Micro-services Using Kubernetes

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Overview

Kubernetes and Micro-services

- Adding scalability and reliability to containers
- Deployment
- Pods
- Services

Kubernetes

Kubernetes adds clustering to your container applications adding reliability and the ability to scale services to meet demand.

```
$ sudo snap install microk8s --classic
$ sudo gpasswd -a $USER microk8s
$ microk8s status
$ microk8s kubectl get all
```

Installing MicroK8s on Ubuntu 20.04

MicroK8s is a CNCF (Certified Cloud Native Foundation) upstream Kubernetes deployment that allows for a simple setup om a single host. Ideally a Kubernetes cluster would consist of many systems.

Demo

Working on the Ubuntu 20.04 System:

- Install MicroK8s
- Add user to group
- Verify cluster status

Deployments

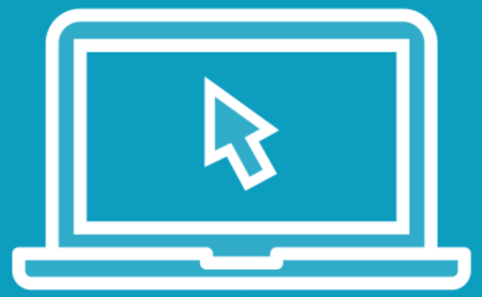
A deployment exists as one on more pods running on one or more nodes within the cluster. A pod represents a container. A deployment becomes a micro-service when a cluster-ip is assigned via exposing a port.

```
$ microk8s kubectl create deployment web --image=nginx
$ microk8s kubectl scale deployment web --replicas=2
$ microk8s kubectl expose deployment web --type=NodePort --port=80 --name=nginx-web
$ microk8s kubectl get service
```

Creating the Nginx Deployment

For availability we can create a deployment of Nginx with two replicas, in our case the replicas will run on the single node but is adequate for the demonstration .

Demo



Deploying the Nginx Micro-Service

Summary

Working with Kubernetes and Micro-Services:

- **deployments** : Creating containers instances
- **pods** : a single container instance from a deployment
- **services** : Accessible via a Cluster IP

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