

Kubernetes Training

Advanced training on kubernetes platform usage and management.

About Trainer

Raghu is a real-time working professional who train professionals on DevOps and related technologies online. He has delivered almost 100+ batches on different technologies and he is the top-rated trainer on UrbanPro especially for DevOps and AWS training. He has almost 2years of experience on Kubernetes and OpenShift and almost 5years on Container technologies.

About Course

There is a huge shift in DevOps from virtualization to containerization. Docker has been the buzzword in the technology sphere, in the recent past to ship applications as containers.

A research states that there are already 10,000 companies who have adopted containers for taking their application to production and there are already 185 million containers on use in the world. The rate of adoption of Docker is increasing by 40% every year. Now that Docker has become the most integral part of production environment, various organizations are now looking out for tools that can help them effectively manage and orchestrate their containers.

Here is when industries started adopting a Google open sourced tool called Kubernetes for effectively managing the containers.

Pre-requisites of Course

Following are the pre-requisites:

- Basics of Devops and it's need
- Understanding the process of deploying an application from scratch to production servers
- Basic understanding of Docker

Introduction to Docker:

- What is Virtualization?
- What is Containerization?
- Why Containerization?
- How Docker is good fit for Containerization?
- Docker Architecture
- Docker Installations & Configurations
- Docker Components
 - Docker Engine
 - Docker Image
 - Docker Containers
 - Docker Registry
- Docker Basic Workflow
- Managing Docker Containers
- Creating our First Image
- Understanding Docker Images
- Creating Images using Dockerfile
- Managing Docker Images
- Using Docker Hub registry
- Docker Networking
- Docker Volumes

Introduction to Kubernetes:

- Understanding the Need of Kubernetes
- Understanding Kubernetes Architecture
- Understanding Kubernetes Masters and its Component
- Understanding Kubernetes Nodes and its Component
- Understand Kubernetes Concepts
- Understand Kubernetes Terminology
- Understand different ways of setting up Kubernetes Cluster.

Kubernetes in action on GKE:

- Configuring **GKE**
- Install and Configure **Kubect!**
- Namespaces and its purpose.
- Define your first Kubernetes pod
 - Run a POD from kubect!
 - Run a POD from PODSPEC YAML file.
- YAML
 - YAML Intro
 - LISTS and MAPS in YAML
- Working with Kubernetes pod
 - Create and run multi containers.
 - Communication between Containers.
 - Communication between Pods.
- Define your first replication controllers pod.
- Labels and Selectors.
- Working with Kubernetes ReplicaSet.
 - Create ReplicaSet
 - Scale ReplicaSet
- Services
 - Need for Services
- Working with Kubernetes Services
 - Service mapping with ReplicaSet using Selector
 - Communication with Pod of another namespace.
- Deploy a Java stack app using Kubernetes
- Deploy a NodeJS stack app using Kubernetes

Production Grade Kubernetes

- Getting Started Kubernetes with KOPS on GKE
- Configure Kubernetes Clusters on GKE
- Installing and Configuring Kubernetes Tools
 - Kubeadm
 - Kops
 - Helm
 - Helm Charts DeepDive
 - Kompose
- Volumes
 - Volume using a directory
 - Volume using NFS
 - Volume using a Google Compute Disk
- Secrets
 - Secrets as files
 - Secrets as environment variables
- ConfigMaps
 - ConfigMaps as files
 - ConfigMaps as environment variables
- Using Advance Labels for Querying Kubernetes
 - Affinity and anti-affinity
- Understanding & Deepdive into Kubernetes networking.
 - NodePort
 - ClusterIP
 - LoadBalancer
 - INGRESS
- Run Node.js application in kubernetes way
- Run Java application in kubernetes way

Kubernetes Management:

- Stern: Log tailing for Kubernetes
- Prometheus: Monitoring and alerting Kubernetes Infrastructure
- Kubernetes cluster High Availability
- Understanding & Deepdive into Kubernetes Security
 - Goals
 - Roles
 - Attribute Based Access Control
 - Policies
 - Service Accounts
 - Secrets
- Real time scenario based project Implementations
- Idea on setting up and using Kubernetes clusters in Physical Servers.
- Cluster Add-ons
 - Cluster DNS
 - Logging with Elasticsearch and Fluentd
 - Container Level Monitoring
 - cAdvisor
 - Prometheus
- Deployments in Kubernetes.
- CI/CD with Kubernetes
 - Canary Release
 - Blue Green Deployment
 - A/B Testing
 - Rolling Update