

## Kubernetes Online Training

### About Course

Besant Technologies Kubernetes Online Training Offered by Industry Experts. This Course will teach you how to use Kubernetes Containers for load balancing, Scaling and automate the applications in efficient Manner. Learn Basic and Advanced level of AWS, Azure Cloud infrastructure using Kubernetes and Dockers in the Real-time Projects. By learning Kubernetes on Besant technologies you can Clear Certified Kubernetes Administrator (CKA) and Kubernetes Certified Application Developer (CKAD) exams.

### Course Syllabus

#### **Kubernetes Introduction:**

#### **Learning Objective :**

Introduction to kubernetes, setup and running docker containers. Running your first app in kubernetes and load balancing using load balancer.

- Containers introduction
- Kubernetes setup
- Local setup with minikube
- Installing kubernetes using the docker client
- Minikube vs docker client vs kops vs kubeadm
- Introduction to kops
- Building docker images
- Docker image registry
- Running 1st app on kubernetes
- Service with load balancer
- Service with AWS ELB load balancer
- Practise test.

### **Hands-On**

- Kubernetes setup using Minikube
- Building docker images
- Run app in kubernetes
- Load balance the app
- Load balance the app using AWS load balancer

### **Kubernetes basics**

#### **Learning Objective :**

Understanding the architecture and pod lifecycle, creating different services, replicas and setting the healthchecks for your pods.

- Node architecture
- Replication controller
- Deployments
- Services
- Labels
- Healthchecks
- Readiness probe
- Pod state
- Pod lifecycle
- Secrets
- WebUI
- Practise test

### **Hands-On**

- Deploying different kind of services.
- Replica set and replication controller
- Deployments and healthchecks

## Advanced topics

### Learning Objective:

Creating persistent volumes, setting up auto scaling and tolerations, monitoring the resource usage.

- Service directory
- Configmap
- Ingress controller
- External DNS
- Volumes
- Volumes auto-provisioning
- Pod presets
- Statefulsets
- Daemon sets
- Resource usage monitoring
- Auto scaling
- Affinity / auto-affinity
- Interpod affinity and anti-affinity
- Taints and tolerations
- Custom Resource Definitions (CRDs)
- Operators
- Practise test

### Hands-On

- Using volumes
- Using daemon sets
- Auto scaling
- Working with statefulsets
- Monitoring the resources
- Using tolerations

- Creating affinity and interpod affinity

## **Kubernetes administrator**

### **Learning Objective:**

Managing the users, Maintaining the nodes, making the nodes highly available and using TLS.

- The kubernetes master services
- Resource quotas
- Namespaces
- User management
- RBAC
- Networking
- Node maintenance
- High availability
- TLS on ELB using annotations

### **Hands-On**

- Managing user
- Working with networking
- Viewing the resource quotas
- Maintainin the nodes
- Making the nodes highly available

## **Packaging and deploying on kubernetes**

### **Learning Objective:**

Understanding and creating helm charts.

- Introduction to Helm
- Creating your own helm charts

### **Hands-On**

- Working with Helm
- Own helm charts

### **Continuous development with Kubernetes**

#### **Learning Objective:**

Understanding skaffold on a high level.

- Introduction to skaffold

### **Hands-On**

- Getting to know skaffold

### **Serverless on kubernetes**

#### **Learning Objective:**

Understand serverless and kubernetes and what you can do with this.

- Introduction to serverless
- Introduction to kubernetes

### **Hands-On**

- Serverless and kubernetes

### **Microservices**

#### **Learning Objective:**

Understanding istio, authenticating the users using istio.

- Introduction to istio
- Mutual TLS
- RBAC with istio
- End-user authentication with istio (JWT)

### **Hands-On**

- Working with Istio
- Authenticating using Istio

### **Installing kubernetes using kubeadm**

#### **Learning Objective:**

- Installing kubernetes using kubeadm.
- Introduction to kubeadm

### **Hands-On**

- Running basic commands using kubeadm

### **On-prem or cloud agnostic kubernetes**

#### **Learning Objective:**

- Using TLS certificates, understanding kubernetes dashboard and working with prometheus.
- Managing TLS certs with cert-manager
- Kubernetes dashboard
- Kubernetes with Prometheus

### **Hands-On**

- Using TLS certificates
- Dashboard in kubernetes
- Using prometheus with kubernetes

## **Reviews**

### **Review 1:**

I would like to highlight a few points about my association with Besant Technologies. The faculty members out here are super supportive. They make you understand a concept till they are convinced you have gotten a good grip over it. The second upside is definitely the amount of friendliness in their approach. I and my fellow mates always felt welcome whenever we had doubts. Thirdly, Besant offers extra support to students with a weaker understanding of the field of IT.

### **Review 2:**

When I joined Besant Technologies, I didn't really expect a lot from it, to be extremely honest. But as time went by, I realised I got from Besant Technologies exactly what I wanted- a healthy environment for learning. Cordial teachers and their valuable lectures make understanding things so much easy. I thank Besant for having been so supportive throughout the course.

