

Kubernetes:

Introduction to Kubernetes

- Brief history of Deployment era
- Features of Containers
- Introduction to Kubernetes
- Working of Kubernetes (overview)
- Installation of Kubernetes

Installation, Configuration and Validation

- Design a Kubernetes Cluster
- Installation of Kubernetes Master and Nodes using Hard Way Method
- Bootstrapping the ETCD Cluster
- Bootstrapping the Kubernetes Control Plane
- Bootstrapping the Kubernetes Worker Nodes
- Configure kubectl
- Verify Installation

Kubernetes Architectures

- Understand Kubernetes Architecture
- What are Kubernetes objects?
- What are YAML files?
- Name, Namespaces, Labels & selectors , Annotations

Introduction to Volumes

- What are volumes?
- Types of volumes
- Persistent volumes
- Introduction to secrets
- Taints and tolerations

Ingress, Dashboard and Kubernetes Security

- What is Ingress
- What is a Kubernetes Dashboard?
- Setting up Kubernetes Dashboard
- Security practices for Kubernetes

Monitoring

- Introduction to Federation
- Kubernetes Monitoring
- Setting up Prometheus
- Setting up Grafana

Revise Managing Resource

- Managing Pods
- Managing Labels and Selectors
- Managing Replication Controller and Replica Set
- Managing Service
- Managing Deployments
- Managing DaemonSet

Storage

- Understand storage classes
- Persistent Volume – HostPath
- Persistent Volume - NFS
- Understand volume mode, access modes and reclaim policies for volumes
- Understand persistent volume claims primitive
- Know how to configure applications with persistent storage

Managing Statefulset

- What is StatefulSet
- Why StatefulSet
- Manage StatefulSet
- Managing Headless Service
- StatefulSet DNS Entry

- Storage with StatefulSet

Logging and Monitoring

- Understand how to monitor all cluster components
- Prometheus Tool
- Integration of Elastic Search and Kibana with Kubernetes

Helm

- Understand Helm and Helm Charts
- Helm Commands
- Deploy Kubernetes Dashboard using Helm
- Create Helm Chart and Deploy Applications using Helm Chart
- Test Helm Chart
- Upgrade Application using Helm Chart
- Downgrade Application using Helm Chart