

KUBERNETES ADVANCED

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Introduction to Kubernetes

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

Kubernetes Architecture

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

Installation

Using Kubeadm

Using Minikube

Introduction to Pods and Services

- What are Pods?
- What are Replication Controllers?
- What is a Deployment?
- Introduction to Kube Services and its types
- Stateful and Daemon sets
- Jobs
- Introduction to autoscaling
- The Horizontal Pod Autoscaler

Multi-Container PODs

Readiness and Liveness Probes

Container Logging
Monitor and Debug Applications

Introduction to Volumes

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

Stateful sets

Headless Services
Storage in statefulsets

Advanced

Labels, Selectors and Annotations
Rolling Updates & Rollbacks in Deployments
Updating a Deployment
Jobs & CronJobs

ConfigMaps
Secrets
Security Contexts
Security
Role Based Authentication

Network Policies
Services
Services - Cluster IP
Node Port

Taints and Tolerations
Node Selectors
Taints & Tolerations vs Node Affinity
Node Affinity

CustomResourceDefinitions

Creating CRD
Creating custom objects

Defining Custom Schema
Field Pruning
Controlling Pruning
Serving Multiple extensions
Finalizer
Validation
Scaling Resources

Ingress, Dashboard and Kubernetes best security practices

- 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