

## Training by Kubernetes Certified professional(CKA & CKAD)

### **Kubernetes:**

#### **Based on CKA&CKAD basis:**

#### ***Introduction***

- Cluster Architecture
- Kube-API server
- ETCD
- Kube Controller Manager
- Kube Scheduler
- Kubelet
- Kube proxy
- Pods
- YAML Explanation
- Replication Controllers
- Replica sets
- Deployments
- Namespaces
- Services

#### ***Scheduling***

- Introduction to Scheduling
- Manual Scheduling
- Labels and Selectors
- Taints and Tolerations
- Node Selectors
- Node Affinity
- Resource Requirements and Limits
- DaemonSets
- StaticPods
- Multiple schedulers

#### ***Logging and Monitoring:***

- Introduction
- Monitor Cluster Components
- Managing the Application Logs

#### ***Application Lifecycle Management***

- Introduction
- Rolling updates and Rolling Backs
- Configure Applications
- Commands
- Commands and Arguments

- **Configuring Environment Variables in Application**
- **Configuring ConfigMaps in Application**
- **Configuring Secrets in Application**
- **Scaling the Applications**
- **Multi Container Pods**
- **Multi container pods design patterns**
- **Init Containers**
- **Self-Healing Applications**

### ***Cluster Maintenance***

- **Introduction**
- **OS Upgrade**
- **Kubernetes S/W versions**
- **Cluster upgrade Process**
- **Backup and restore Methods**

### ***Security***

- **Introduction**
- **Kubernetes Security Primitives**
- **Authentication**
- **TLS Introduction**
- **TLS Basics**
- **TLS in Kubernetes, Certificates Creation and view certificate details**
- **Certificate API**
- **Kube Config**
- **Persistent Key Value Store**
- **API Groups**
- **Role based Access Controls (RBAC)**
- **Cluster Roles and Role Bindings**
- **Image Security**
- **Security Contexts**
- **Network Policy**

### ***Storage***

- **Introduction**
- **Volumes**
- **Persistent Volumes**
- **Persistent Volume Claims**
- **Application configuration**

## **Networking**

- Introduction
- Switching
- Routing
- CoreDNS
- Network Namespaces
- Docker Networking
- CNI
- Cluster Networking
- Pod Networking
- CNI in Kubernetes
- CNI Weave
- IPAM-Weave
- Service Networking
- DNS in Kubernetes
- Core DNS in Kubernetes
- Ingress

## ***KTHW <<Install and configure from scratch***

## ***Troubleshooting***

## ***Managed kubernetes service (GKE/EKS/AKS...)***

## **HELM**

- About Helm
- Installing and configuring Helm2
- Deploying applications using Helm2
- Installing and configuring Helm3
- Migrating the Helm2 charts and config to Helm3
- Installing Helmfile and managing the helm charts using the Helmfile.

## ***Certification***

- Tips
- Shortcuts for commands
- Easy way of writing the yaml files
- Time management in certification Exam
- Dos and Don'ts in Exam.

## ***Monitoring***

- Grafana
- Prometheus

**Practice Labs: Both CKA,CKAD and scenarios**

