Certified Kubernetes Administrator (CKA)

Prerequisites:

- Knowledge of basic Unix / Linux commands will be good to have
- Knowledge of Docker and/or containers is a must
- Valid AWS (Amazon Web Services) account and individual credentials to create EC2 instances
- Should have knowledge to create AWS EC2 instances and should know how to access EC2
- instances via SSH (Secure Shell)
- knowledge of micro-services and cloud native applications

Course Outline

CKA Exam preparation

- CKA Exam Overview and details

Kubernetes Fundamentals

- Kubernetes Basics
- Kubernetes Architecture Overview
- Kubernetes Components

Kubernetes Cluster Installation & Configuration

- Kubernetes cluster creation using Kubeadm
- Managing HA Kubernetes cluster
- Etcd backup and restore
- Planning for version upgrade using Kubeadm

Hands-on: Bootstrap a Kubernetes Cluster using Kubeadm
Hands-on: Version upgrade of a Kubernetes cluster using Kubeadm
Hands-on: backup of an etcd using snapshot and restore

Kubernetes Object Management

- Working with kubectl
- Managing Role Based Access Control (RBAC)
- Service Accounts in Kubernetes
- Pod Resource Monitoring

Hands-on: Explore Kubernetes cluster with kubectl
Hands-on: Controlling access in Kubernetes with RBAC
Hands-on: Monitoring Pod resource usage

Kubernetes Objects – Pods & Containers

- Pods and Containers
- Multi-Container Pods
- Init Containers
- Resource limits in Containers
- Managing Container and Pod Health with probes
- Self-healing Pods with restart policies

Hands-on: Init Containers in Kubernetes
Hands-on: Liveliness and Readiness probes
Hands-on: Limiting resource usage inside containers

Workloads & Scheduling

- Deployments in Kubernetes
- Deployment strategies – Rolling Update and Recreate
- Scaling Applications
- Config Maps and Secrets
- Kubernetes resource limits and Pod scheduling

Hands-on: Managing Deployments in Kubernetes

Advanced Pod Scheduling

- Scheduling Pod to a specific Node
- Daemonsets in Kubernetes
- Static Pod Allocation

Hands-on: Scheduling pod to a node
Hands-on: Using Daemonsets in Kubernetes
Hands-on: Using Static Pods in Kubernetes

Services and Networking

- Kubernetes Networking Overview
- Kubernetes networking and Container Network Interface (CNI) plugins
- Understanding Kubernetes DNS
- (CNI) specification and plugins
- Network Policies in Kubernetes
- Services in Kubernetes
- Ingress controllers and Ingress
- Service Discovery using DNS

Hands-on: Configuring CNI plug-in in Kubeadm

www.cloudthat.com
+91-888-000-2200
#610, 2nd Floor, 80 Feet Road, 6th Block
Koramangala Bengaluru – 560095.

Hands-on: Exposing Pods using Services
Hands-on: Managing access using Kubernetes Ingress

Storage

- Kubernetes Storage overview
- Kubernetes volumes, Persistent Volumes and Persistent Volume Claims
- Storage Classes for Dynamic Provisioning

Hands-on: Managing container storage using Kubernetes volumes
Hands-on: Mounting ConfigMaps and Secrets as volumes
Hands-on: Using Persistent Volume and Persistent Volume Claims in Kubernetes

Cluster Management & Troubleshooting

- Troubleshooting Kubernetes Cluster
- Monitoring applications deployed in Kubernetes
- Checking cluster and node logs
- Checking container and application logs

Hands-on: Troubleshooting Kubernetes Control Plane components
Hands-on: Troubleshooting Kubernetes networking issues
Hands-on: Troubleshooting Kubernetes Application (containers & pods)

www.cloudthat.com
+91-888-000-2200
#610, 2nd Floor, 80 Feet Road, 6th Block
Koramangala Bengaluru – 560095.