Kubernetes has been an awesome production grade container orchestration engine since long.

Prerequisite :

- Good understanding of linux
- Basic Understanding of networking & DNS , DHCP
- Knowledge of Git

Day 1:

Container Technology Overview

- Instructor Docker Demo
- Application Management Landscape
- Application Isolation
- Resource Measurement and Control
- Container Security
- OverlayFS Overview
- Container Security
- Open Container Initiative
- Docker Alternatives
- Docker Ecosystem

Installing Docker

- Installing Docker
- Docker Architecture
- Starting the Docker Daemon
- Docker Daemon Configuration
- Docker Control Socket
- Validating Docker Install

Managing containers :

- Creating a New Container
- Listing Containers
- Managing Container Resources
- Running Commands in an Existing Container
- Interacting with a Running Container
- Stopping, Starting, and Removing Containers
- Copying files in/out of Containers
- Inspecting and Updating Containers
- Docker Output Filtering & Formatting

Dockerfile :

- Dockerfile
- Caching
- docker image build
- Dockerfile Instructions

- ENV and WORKDIR
- Running Commands
- Getting Files into the Image
- Defining Container Executable
- Best Practices

Day 2

Managing public and private registry

- PUblic registry with Dockerhub
- Deploying custom private registry
- Using azure container registry

Dockerfile Docker Volumes

- Volume Concepts
- The docker volume Command
- Creating and Using Internal Volumes
- Internal Volume Drivers
- Removing Volumes
- Creating and Using External Volumes

Networking

- Overview
- Data-Link Layer Details
- Network Layer Details
- Hostnames and DNS
- Service Reachability
- Container to Container Communication
- Container to Container: Private Network
- Managing Private Networks
- Networking drivers

Docker compose

- Docker compose starting
- Docker compose single app deployment
- Docker compose multi tier app deployment

Day 3 :

Kubernetes:

- . Introduction to Kubernetes:
- Evolution of Kubernetes
- What is Kubernetes
- Kubernetes Use Cases
- Differences between Kubernetes and Docker Swarm
- . Kubernetes Architecture:
- Understand Kubernetes Architecture
- Introduction to Kubernetes Master
- Components of Kubernetes Master
- Introduction to Node Components
- .Installing Kubernetes :
- Creating Kubernetes Cluster in amazon cloud

- Introduction to Pods • Pods Lifecycle
- Working with Pods to manage multiple containers
- Deploying Pods via Replication Controllers
- Services, Labels and Replica Sets:
- Overview of Services
- Labels and Selectors
- Scale out deployment using Replicas
- Managing State with Deployments

Day 4 :

- Understanding Namespaces
- Horizontal Pod Autoscaling
- Load Balancing
- Rolling Updates
- Managing multiple users
- Managing multi tenant based admin/ developer
- Connecting to multiple k8s cluster prod/dev/test env
- Deployment of multi pod applications
- Deployment of multi tenant based application
- Microservice architecture examples with python flask / php
- Private registry based deployment

Day 5 :

- Storage implementation
- Wordpress deployment
- RBAC in k8s
- Secretes in k8s
- Deployment of database with storage
- Network policies in k8s
- Overview of ingress controller
- CKA and CKAD exam overview