Docker & Kubernetes TOC

Objectives:

- Install Docker
- Build and manage containers
- Work with images
- Use advanced Docker networking
- Safely expose container services to the world and link containers
- Use Docker volumes to manage persistent data
- Use Docker Compose to build multi-container applications
- Secure Docker installations and containers
- Build and deploy fully functional applications
- Implement best practices

Course Outline:

Introduction Container Technology Overview

- Instructor Docker Demo
- Application Management Landscape
- Application Isolation
- Resource Measurement and Control
- Container Security
- Open Container Initiative
- Docker Alternatives
- Docker Ecosystem
- Installing Docker
- Installing Docker
- Docker Architecture
- Starting the Docker Daemon
- Docker Daemon Configuration
- Install Managing
- Containers
- Creating a New Container
- Listing Containers
- Windows 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 Managing Images
- Docker Images
- Listing and Removing Images
- Searching for Images
- Downloading Images
- Uploading Images

Docker & Kubernetes TOC

- Export/Import Images
- Save/Load Images

Creating Images with DOCKERFILE

- Dockerfile
- Caching
- docker image build
- Dockerfile Instructions
- ENV and WORKDIR
- Running Commands
- Getting Files into the Image
- Defining Container Executable
- Best Practices
- Multi-Stage builds with Docker Volumes
- Volume Concepts
- The docker volume Command
- Creating and Using Internal Volumes
- Internal Volume Drivers
- Removing Volumes
- Mapping Devices

Networking:

- Overview
- Service Reachability
- Container to Container Communication
- Container to Container: Links (deprecated)
- Container to Container: Private Network

- What is Kubernetes & why
- Kubernetes Terminology
- Kick start Kubernetes
- Comparison with Swarm
- Installation
- Initialize the cluster
- Setup the POD network
- Validate the cluster
- Master & Nodes (aka...Minions)
- KubeApiserver
- etcd key-value store
- kube Scheduler
- kube Controller-manager
- kubelet
- kube-proxy
- kubectl Client
- Introduction to Pods
- What is a Pod?

Docker & Kubernetes TOC

- Pod Lifecycle & Comparison
- Create Pods & Manage
- DaemonSets
- Deployments

- Deployments: Rolling Update & Rollback
- Why Service?
- Types of Services in k8s
- ClusterIP
- NodePort
- LoadBalancer
- Scaling UP / Scale down pods
- ConfigMaps
- Secret
- Manual Scheduling
- Nodename
- Nodeselector

- Volumes
- Persistent Volumes
- Volume Access Modes
- Persistent Volume Claims

EKS:

- what is EKS
- how it is working
- how it can be used
- how to create eks cluster
- how to access the cluster
- what is fargate profile
- why to use fargate