Docker and Kubernetes – Course Outline

1 Duration

- 3 days

2 Objectives

At end of this workshop, participants will able to :

- Get understanding of Docker fundamentals, architecture, features and usage
- Get understanding of Kubernetes fundamentals, architecture, features and usage
- Containerize web applications / services using Docker and deploy into Kubernetes platform

Note: *This course is designed for beginner to intermediate level.*

3 Audience

Developers who are interested to learn how to containerize applications / services using Docker and manage the containers to handle scalability, fault tolerance, high availability using Kubernetes platform.

4 Pre-requisite

- Knowledge on Virtualization
- Knowledge on Distributed Computing
- Familiarity on Application Packaging and Deployment

5 Hardware & Network Requirements

- Desktop/Laptop with minimum 8GB RAM
- Open Internet connection (minimum 1 Mbps per user)

6 Software Requirements

- Windows / Linux / Mac OS
- Oracle VirtualBox

* Pre-configured image with all required softwares to be shared along with setup instructions before the training for labs.

7 Outline

Module-1: Introduction to Docker

- Docker Overview
- Docker Architecture
- Virtual Machines vs Containers
- Docker Setup and Configuration
- Components
    - Docker Engine
    - Docker Registry
    - Docker Compose
    - Docker File
    - Images
- Features Overview
    - Container Linking
    - Storage
    - Networking
    - Logging
- Create Docker File for web application
- Build Docker image and upload to registry

Module-2: Introduction to Kubernetes

- Kubernetes Overview
- Kubernetes Architecture
- Kubernetes Setup and Configuration
- Components
    - Master Components
    - Node Components
    - Client Components
- Kubernetes Objects
- Kubernetes Containers
- Kubernetes Workloads
    - Pods
    - Deployments
    - Jobs
    - Replication
- Services and Load Balancing
- Networking
- Storage Volumes
- Security
- Creating and deploying an application in Kubernetes with Docker
- Configure Auto Scaling and High Availability
- Managing and accessing Kubernetes cluster with API and KubectI
- Kubernetes Monitoring with Dashboard