

# Kubernetes Orchestration Workshop

Competitive advantages of business agility drives the need for responsive and flexible IT infrastructure; which can be slow and expensive. The lead time to procure, install, configure, and commission new HW can take weeks. Containerization brings speed, agility, scalability, and availability with lower CapEx and OpEx. Hands-on operational exercises are provided with detailed explanations of Kubernetes component implementation, along with the basics for troubleshooting. Participants become Tenants and create multi-tiered network topologies and web service applications, enabling the participant to more adeptly deploy and support Containerized applications in a Kubernetes environment.

## Intended Audience

A hands-on in-depth technical training to personnel involved in design, engineering, and operations and monitoring telecom networks.

## Objectives

After completing this course, the student will be able to:

- Describe Container Orchestration
- Identify applications of Kubernetes in NFV
- Describe Kubernetes physical architectures
- Provision, manage and monitor Kubernetes resources
- Create a simple virtual network
- Explore Kubernetes Services
- Contrast the benefits of Networking Options
- Deploy and update Pods using Repos

## What You Can Expect

- Expert-Led Live Duration: 21 HOUR
- Prerequisite: Cloud Native NFV Architecture and Operations
- Required Equipment: Recommend an additional monitor to run exercises

## Outline

### 1. Kubernetes Foundations

- 1.1 Kubernetes components and architecture
- 1.2 Kubernetes physical hosts and networks
- 1.3 Tenant segregation techniques

**Exercise:** Kubernetes namespaces and RBAC

### 2. Deployment of Pods

- 2.1 Kubernetes capabilities and components
- 2.2 Pod Deployment & provisioning trace
- 2.3 Scheduler and filter algorithms

**Exercise:** Pod Operations

### 3. Networking Services

- 3.1 Networking capabilities and components
- 3.2 Network use cases

3.3 Under-the-hood implementation

3.4 Network frame trace

**Exercise:** Network Services

### 4. Using Repos - Lab Only

**Exercise:** Image operations

**Exercise:** Using Helm charts

### 5. Kubernetes Services

5.1 Kubernetes Services

5.2 Using Kubernetes Services

**Exercise:** Kubernetes services

**Exercise:** Additional Optional Labs