



# CNF and Kubernetes Orchestration Essentials

**NWV\_210x | Expert-Led Live | 5G Core | Expert**

**Course Duration:** 1 day

Networks such as 5G have been designed to better support containerization. Containerized Network Functions, CNFs, allow for higher capacity, but they have a number of challenges around networking, performance, isolation, and orchestration. The course provides a high-level introduction to deploying a containerized network in terms of the architecture, requirements, challenges, operations, and management. The course also discusses highlights of deployment, orchestration and operations considerations of cloud native functions, and microservices.

## Intended Audience

This course is intended for personnel who are looking for a high-level introduction to Containers, Kubernetes and Docker-based cloud environments.

## Objectives

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

- Identify applications of containerized network and/or cloud native functions (i.e., 5G)
- Discuss CNF deployment options
- Identify key service deployment considerations
- Summarize the role of containerization in networks (i.e., 5G)
- Explain networking performance enhancement for containers
- List main Docker and Kubernetes components and functions
- Discuss the role of Docker and Kubernetes in enabling NFs CNFs
- List and describe containerized NF lifecycle management

## Course Prerequisites

[Welcome to Telco Cloud Part 1: Virtualization and Orchestration](#)

## Outline

1. Containers and Kubernetes In a Nutshell
  - 1.1 Need for cloud native network functions
  - 1.2 Microservices and Containers
  - 1.3 Role of Docker and Kubernetes orchestration
2. Virtualized Infrastructure
  - 2.1 Network functions cloud deployment options
  - 2.2 Docker components
  - 2.3 Kubernetes orchestration
  - 2.4 CNF deployment considerations
3. Network Functions Virtualization
  - 3.1 Service-Based Architecture
  - 3.2 Network functions as microservices considerations
4. Service Deployment Considerations
  - 4.1 Container performance considerations
  - 4.2 Container I/O performance enhancements
  - 4.3 Lifecycle management