

# Implementing Cloud-Native Contrail Networking (CN2)

ID CN2 Prix US \$ 4 000,— (Hors Taxe) Durée 4 jours

## A qui s'adresse cette formation

Individuals working with software-defined networking solutions in data-center, service provider, and enterprise network environments

## Pré-requis

- Basic networking knowledge;
- Basic BGP knowledge; and
- Completion of the [Juniper Cloud Fundamentals \(JCF\)](#) course, or equivalent knowledge

## Objectifs

After successfully completing this course, you should be able to:

- Describe what Contrail networking is and how it enhances cloud networking.
- Use Kubernetes to manage workloads.
- Validate and manage a cluster with multiple namespaces.
- Describe the architecture of a Contrail networking cluster.
- Validate that Contrail is operating correctly.
- Install and validate virtual networks.
- Route traffic between virtual networks.
- Implement security between and within virtual networks.
- Install and validate network services.
- Provide external access to services.
- Configure and monitor analytics to understand the state of a use case.

## Contenu

### Course Introduction

#### Course Prologue

- Describe the basics of the Cloud-Native Contrail Networking solution
- Identify the key Contrail use cases
- Outline a use case scenario for the course

### Kubernetes Overview

- Describe Kubernetes fundamentals

- Describe the Kubernetes objects
- Describe Kubernetes networking
- Describe connecting applications with services

#### Lab 1: Working with Kubernetes

### Describing Cloud-Native Contrail Networking Architecture

- Describe the Contrail architecture and its core components
- Describe component communications
- Describe deployment models
- Describe the configuration resources

### Installing Cloud-Native Contrail Networking

- Describe the installation process for Contrail on Upstream Kubernetes
- Identify other components to be installed

### Verifying and Troubleshooting Contrail Installation

- Validate cluster state using kubectl
- Validate using log files
- Validate using Contrailstatus plug-in
- Describe Kubernetes-specific validations

#### Lab 2: Validating the Contrail installation

### Describing Contrail CNI

- Define CNI plugins
- Explain the CN2 CNI default implementation
- Explain the CN2 CNI custom implementation

### Implementing Namespaces

- Describe namespaces
- Implement an additional namespace
- Implement an isolated namespace

#### Lab 3: Implementing Namespaces

### Describing Services

- Describe service support

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## Implementing Services

- Implement a ClusterIP service
- Implement a NodePort service
- Implement a LoadBalance service
- Implement ingress access

Lab 4: Implementing Services

## Describing Network Policies

- Describe the Kubernetes network policy concepts
- Describe the network policies YAML template

## Implementing Network Policies

- Isolate pods from traffic sourced from other namespaces
- Implement a policy based on namespace, pod, and port
- Implement an ingress policy based on IP Block and port, with egress enabled based on namespace

Lab 5: Implementing Network Policies

## Describing Virtual Networks

- Describe virtual networks
- Describe network attachment definitions with Multus
- Describe user-defined virtual network templates

## Implementing Virtual Networks

- Implement a user-defined virtual network
- Attach deployments to a virtual network
- Implement user-defined pod network
- Attach deployments to a user-defined pod network

Lab 6: Implementing Virtual Networks

## Implementing Route Targets

- Describe route targets
- Implement route targets

Lab 7: Implementing Route Targets

## Implementing Virtual Network Routers

- Describe virtual network routers
- Implement mesh virtual network routers
- Implement hub-and-spoke virtual network routers
- Implement multi-namespace virtual network routers

Lab 8: Implementing Virtual Network Routers

## Implementing IP Forwarding and Fabric Source NAT

- Implement IP forwarding
- Implement fabric source NAT

Lab 9: Implementing IP Forwarding and Fabric Source NAT

## Basic CN2 Troubleshooting

- Describe basic CN2 troubleshooting

Lab 10: Performing Basic CN2 Troubleshooting

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## Centres de formation dans le monde entier



## Fast Lane Institute for Knowledge Transfer (Switzerland) AG

Husacherstrasse 3  
CH-8304 Wallisellen  
Tel. +41 44 832 50 80

[info@flane.ch](mailto:info@flane.ch), <https://www.flane.ch>