

COURSE OVERVIEW

This three-day course provides students with the foundational knowledge required to work with basic cloud components in a Juniper environment. The course summarizes cloud concepts, virtual networks, containerization, and cloud management.

COURSE LEVEL

Foundational-level course

AUDIENCE

Individuals who want a basic understanding of cloud solutions using Juniper products, virtualization, OpenStack, Red Hat OpenShift, and containerization, including Docker and Kubernetes.

PREREQUISITES

- Basic networking knowledge and general understanding of data center environments
- General understanding of enterprise WAN environments, and basic understanding of virtualization
- General understanding of Linux and basic Linux CLI commands
- Basic understanding of containerization and some experience using Docker or the equivalent
- Completion of the e-learning course, *Getting Started with Cloud*

RELATED CERTIFICATION

[JNCIA-CLOUD](#)

RECOMMENDED NEXT COURSE

[Implementing Cloud-Native Contrail Networking](#)

CONTACT YOUR REGIONAL EDUCATION SERVICES TEAM:

Americas: training-amer@juniper.net

EMEA: training-emea@juniper.net

APAC: training-apac@juniper.net

Key topics include:

- Learning fundamental cloud concepts
- Identifying the concepts of Linux virtualization
- Describing the concepts of Linux namespaces
- Learning how Linux containerization works
- Identifying the basics behind a virtual network
- Understanding how software-defined networking (SDN) and Network Functions Virtualization (NFV) work
- Learning the basics of OpenStack and how to configure and implement OpenStack networking
- Describing how Kubernetes operates and examining the various Kubernetes networking utilities
- Identifying the key concepts of Red Hat OpenShift
- Reviewing the basics of Cloud-Native Contrail Networking (CN2)

Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring cloud automation tools and using various cloud configuration formats. Students will also become familiar with several cloud-native applications. Students will learn and better identify the Juniper solutions for cloud infrastructure, including virtualization (vSRX, vMX), containerization (cSRX, cRPD), and CN2. This course is based on Junos OS Release 22.4.

OBJECTIVES

- Identify the key fundamental cloud concepts.
- Identify the concepts of Linux virtualization.
- Identify the concepts of Linux namespaces.
- Identify the concepts of Linux containerization.
- Identify the basics of network virtualization.
- Describe the main concepts of software-defined networking and Network Functions Virtualization.
- Describe the fundamentals of OpenStack.
- Identify the key concepts of the OpenStack configuration.
- Identify the basics of OpenStack networking.
- Identify the basics of Kubernetes.
- Identify the key concepts of Kubernetes networking.
- Identify the key concepts of Red Hat OpenShift.
- Describe the Cloud-Native Contrail Networking (CN2) solution.

COURSE CONTENTS

DAY 1

1	Course Introduction
2	Fundamental Cloud Concepts <ul style="list-style-type: none">Describe key cloud conceptsDescribe components of a cloud architectureIdentify Juniper solutions for cloud infrastructure
3	Linux Virtualization <ul style="list-style-type: none">Describe virtualization techniquesDescribe the Linux architectureExamine key virtualization concepts Lab 1: Linux Virtualization
4	Linux Namespaces <ul style="list-style-type: none">Describe Linux namespaces and other kernel containment featuresDescribe network namespacesIdentify the concept of routing instance segregation Lab 2: Linux Namespaces
5	Containerization <ul style="list-style-type: none">Describe a containerDefine the Docker architectureExamine the process of creating a container using DockerDescribe Docker networking Lab 3: Containerization Lab 4: cSRX
6	Network Virtualization <ul style="list-style-type: none">Explain the concepts of a virtual networkDescribe how to extend virtual networks Lab 5: Network Virtualization

DAY 2

7	Software-Defined Networking and Network Functions Virtualization <ul style="list-style-type: none">Describe SDN architecture and its benefitsDescribe NFV architecture and its benefitsSummarize the relationship between SDN and NFV
8	Introduction to OpenStack <ul style="list-style-type: none">Describe the basics of OpenStackDiscuss OpenStack servicesReview basic OpenStack conceptsCreate and manage OpenStack instances Lab 6: OpenStack web UI Configuration
9	OpenStack Configuration <ul style="list-style-type: none">Describe the OpenStack CLIExamine the OpenStack APIDescribe orchestration through Heat templates Lab 7: OpenStack CLI Configuration
10	OpenStack Networking <ul style="list-style-type: none">Explain how OpenStack networking is implementedDetermine how to create a networkDescribe security groups for VMsExplain how to set up OpenStack routingDescribe the concept of floating IP addressesReview the load-balancing techniques Lab 8: Exploring OpenStack Networking Concepts

Continued on the next page.

COURSE CONTENTS (continued)

DAY 3

11 Introduction to Kubernetes

- Explain the fundamentals of Kubernetes
- Describe the Kubernetes objects
- List the Kubernetes tools
- Illustrate the basics of KubeVirt
- Define Kubernetes namespaces

Lab 9: Reviewing Kubernetes Fundamental Concepts

12 Kubernetes Networking

- Describe Kubernetes networking
- Examine connecting applications with services
- Review a multitier application deployment on a Kubernetes cluster

Lab 10: Kubernetes Networking

13 Red Hat OpenShift

- Describe the relationship between Kubernetes and OpenShift
- Explain the installation process for OpenShift
- Navigate the Web UI for OpenShift
- Create an application using the OpenShift Web UI
- Navigate the OpenShift CLI
- Create an application using the OpenShift CLI

14 Introduction to Cloud-Native Contrail Networking and Basic Configuration

- Explain the CN2 challenges
- Summarize the CN2 solution
- Identify features of the CN2 solution and key use cases
- Describe the CN2 architecture and core components
- Cover the CN2 installation requirements
- Explain what configuration resources are available
- Create custom Kubernetes networks and multi-interface pods using CN2

Lab 11: Implementing Virtual Networks

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