Datacipher Education Services

Juniper Cloud Fundamentals

JUNIPER NETWORKS | Education Services

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

Introductory

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:

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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.

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COURSE CONTENTS

DAY 1

1 Course Introduction

2 Fundamental Cloud Concepts

- Describe key cloud concepts
- Describe components of a cloud architecture
- Identify Juniper solutions for cloud infrastructure

3 Linux Virtualization

- Describe virtualization techniques
- Describe the Linux architecture
- Examine key virtualization concepts

Lab 1: Linux Virtualization

4 Linux Namespaces

- Describe Linux namespaces and other kernel containment features
- Describe network namespaces
- Identify the concept of routing instance segregation

Lab 2: Linux Namespaces

5 Containerization

- Describe a container
- Define the Docker architecture
- Examine the process of creating a container using Docker
- Describe Docker networking

Lab 3: Containerization

Lab 4: cSRX

6 Network Virtualization

- Explain the concepts of a virtual network
- Describe how to extend virtual networks

Lab 5: Network Virtualization

DAY 2

7 Software-Defined Networking and Network Functions Virtualization

- Describe SDN architecture and its benefits
- Describe NFV architecture and its benefits
- Summarize the relationship between SDN and NFV

8 Introduction to OpenStack

- Describe the basics of OpenStack
- Discuss OpenStack services
- Review basic OpenStack concepts
- Create and manage OpenStack instances

Lab 6: OpenStack web UI Configuration

9 OpenStack Configuration

- Describe the OpenStack CLI
- Examine the OpenStack API
- Describe orchestration through Heat templates

Lab 7: OpenStack CLI Configuration

10 OpenStack Networking

- Explain how OpenStack networking is implemented
- Determine how to create a network
- Describe security groups for VMs
- Explain how to set up OpenStack routing
- Describe the concept of floating IP addresses
- Review the load-balancing techniques

Lab 8: Exploring OpenStack Networking Concepts

Continued on the next page.

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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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