



**Enterprise Computing Solutions - Education Services**

## **TRAINING OFFERING**

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CODE:	LENGTH:	PRICE:
JUN_CAC	40 Hours (5 days)	£4,250.00

## Description

This five-day course is designed to provide students with the knowledge required to work with the Juniper Contrail Enterprise Multicloud (CEM) solution.

Students will gain in-depth knowledge of how to use the Contrail Command user interface, Contrail Networking, Contrail's fabric management and administration features, Contrail Security, and the analytics features of Contrail Insights.

Students will also learn to use APIs and the CLI to perform the Contrail configuration tasks.

Through demonstrations and hands-on labs, students will gain experience with the features of Contrail and Insights.

This course is based on Contrail Release 2011.

The Cloud Automation Using Contrail (CAC) course is an intermediate level course. Relevant Juniper Product

• Automation • SDN • Software • Contrail

## Objectives

- Explain the role of Contrail SDN Controller. • List available Contrail solutions. • Describe the purpose of an orchestrator.
- Describe the basics of Kubernetes. • Describe the basics of VMware vCenter
- Identify the function of each of the main OpenStack Projects. • Describe the purpose of Contrail.
- Explain how the versions of Contrail differ. • Discuss Contrail related solutions.
- Describe the functions of the Contrail vRouter and Contrail Controller.
- Explain the role of the control, configuration, and analytic nodes. • Describe how to monitor the Contrail cluster health.
- Configure and deploy virtual DNS and IPAMs. • Create virtual networks. • Create network policies to control the flow of traffic.
- Explain the routing behavior of an IP Fabric. • Describe the steps to onboard a Greenfield IP Fabric.
- Describe the steps to onboard a Brownfield IP Fabric. • Describe the steps to add a device to an existing fabric.
- Describe the various commands to troubleshoot the onboarding of an IP Fabric. • Explain the benefits of VXLAN in the data center.
- Describe EVPN signaling for VXLAN. • Describe how CEM can bridge between a VM and a BMS.
- Implement bridging between VMs and BMSs using VXLAN and EVPN signaling.
- Describe EVPN signaling for VXLAN routing in the Spine. • Describe how to enable central routing using CEM.
- Describe EVPN signaling for DCI. • Describe how to enable DCI using CEM. • Create physical gateways.
- Connect to a third-party physical device. • Implement fabric administration operations.
- Describe architecture and capabilities of Contrail Security. • Configure main Contrail Security Tags.
- Configure Contrail Security Policies and Policy Sets. • Explain the benefits of Contrail Insights.
- Explain the operation and use of Contrail Insights. • Explain the purpose and use of the different Insights features.
- Configure Contrail Insights alarms and composite alarms.
- Describe how to use the Contrail Insights dashboard to examine the state of the network.
- Use Contrail Insights Charts to monitor Contrail and OpenStack workloads.
- Explain the benefits of Contrail Insights capacity planning. • Explain how to use Contrail Insights heat maps.
- Create Contrail Insights reports and service monitoring functionalities. • Create Contrail Insights alarms and Composite alarms.
- Explain the purpose of JTI. • Discuss native JTI sensors. • Explain OpenConfig and gRPC sensors.
- Configure native JTI and OpenConfig sensors to work with Contrail Insights.

## Audience

This course benefits individuals responsible for working with software-defined networking solutions in data center, service provider, and enterprise network environments.

## Programme

- Day 1 Course Introduction Describe SDN and Contrail Basics • Describe the main principles of software-defined networks
- List the features and advantages of Contrail • List Contrail family of products Describe Contrail Use Cases and Use Contrail
  - Describe Contrail Use Case • Demonstrate the Basic Functions of Contrail Command LAB 1: Contrail Command Walk-Through

Describe Orchestration Fundamentals Command • Describe the purpose of an orchestrator • Describe the basics of Kubernetes

- Describe the basics of VMware vCenter
- Describe OpenStack Basics • Identify the function of the primary OpenStack Projects

LAB 2: Instantiating Virtual Workloads Day 2 Describe Contrail Architecture Fundamentals

- Describe the functions of the Contrail vRouter • Describe the functions of the Contrail SDN Controller
- Describe containerized Contrail modules
- Describe Contrail Communication Fundamentals
- Describe Contrail Control Plane Communications • Describe Contrail Data Plane Communications

Describe Basic Contrail Troubleshooting • Perform Basic Contrail Troubleshooting

LAB 3: Exploring and Troubleshooting the Contrail vRouter and SDN Controller Describe Contrail Configuration Basics

- Explain Contrail Configuration Methods • Describe Configuring the Metadata Service • Describe Contrail Configuration API

Configure Tenant Communications • Configure DNS and IPAM • Implement Virtual Networks

- Implement Network Policies and Security Groups

LAB 4: Configuring Virtual Networks and Policies

Describe an IP Fabric and Implement Greenfield Automation • Describe an IP Fabric

- Describe a Greenfield Fabric Automated Creation

LAB 5: Greenfield Automation

Implement IP Brownfield Automation and Fabric Modification • Describe a Brownfield Fabric Automated Creation

- Describe How to Modify Existing Fabrics • Describe Troubleshooting a Fabric Automation

LAB 6: Modify a Greenfield Automation

Day 3 Describe VXLAN • Describe VXLANs • Describe EVPN Signaling for BMS to BMS VXLAN Forwarding

Describe VM to BMS Bridging • Describe Contrail VM to BMS Bridging • Implement a Server/Instance Example

- Implement Virtual Port Groups

LAB 7: VM to BMS Bridging Implement VXLAN Central Routing

- Describe EVPN Signaling for Central Routing • Configure a Central Routing Example

LAB 8: VXLAN Central Routing

Implement VXLAN Edge Routing • Describe EVPN Signaling for Edge Routing • Configure an Edge Routing Example

LAB 9: VXLAN Edge Routing Implement a Data Center Interconnect • Describe Data Center Interconnect

- Describe DCI Options for a VXLAN Overlay Using Contrail Automation • Configure a DCI Example Using Contrail Automation

LAB 10: Data Center Interconnect Day 4 Describe Interacting With External Networks • Describe a DC Gateway Use Case

- Implementing a DC Gateway • Describe Connecting to a Third-Party Device Use Case

- Configure Connecting to a Third-Party Device

Lab 11: DC Gateway Implement Fabric Administration

- Use Contrail Command Fabric Administration Functions • Path Finder • Telemetry Profile • Onboard Devices

- View Fabric Configurations • Custom Actions

Lab 12: Fabric Administration Implement Fabric Maintenance

- Use Contrail Command Fabric Maintenance Functions • Remove Fabric device • Return Material Authorization

- Maintenance Mode • Hitless Fabric Upgrade

Lab 13: Maintenance Mode and Fabric Device Upgrade Describe Contrail Security

- Describe the Need for Contrail Security • Configure Contrail Security

Lab 14: Contrail Security Day 5 Describe Contrail Insights

- Describe Contrail Insights • Use Contrail Insights • Describe Contrail Insights API

Implement Contrail Insights Alarms

- Implement Alarms • Implement Composite Alarms

LAB 15: Implementing insights Features Describe Junos Telemetry Interface

- Describe JTI • Describe Native Sensors for JTI • Describe OpenConfig and gRPC Sensors for JTI

LAB 16: Implementing JTI with Insights

## Follow on courses

Enterprise Multicloud Automation and Orchestration Using Contrail (EMCC)

## Test and Certification

Associated Certification JNCIS-Cloud Exams can be purchased and scheduled at an additional cost – please ask for details.

## Session Dates

On request. Please [Contact Us](#)

## Additional Information

[This training is also available as onsite training. Please contact us to find out more.](#)