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Sign up

Juniper Contrail Cloud Training

4 days (28 hours)

Overview

Our Juniper Contrail Cloud training course will enable you to master the architecture, configuration and monitoring of Juniper Contrail Cloud (CN2), a cloud-native SDN solution designed to connect, isolate and secure workloads on private, public and hybrid environments.

You'll learn how to integrate CN2 at the heart of your DevOps workflows, define granular security policies, drive QoS and automate your network deployments with Ansible, Terraform and GitOps practices, while benefiting from powerful network governance and operational visibility at scale.

At the end of the course, you'll be able to design a highly available, observable and scalable Contrail environment, optimize vRouter performance and make your operations more reliable with network CI/CD pipelines.

Like all our training courses, this one is based on the latest stable version of Cloud-Native Networking.

Objectives

- Understand CN2 architecture and key components
- Install, configure and secure a Contrail environment
- Integrate CN2 with Kubernetes and OpenStack
- Implement QoS, HA and monitoring analytics
- Automate via API, Ansible, Terraform and GitOps
- Troubleshoot and optimize vRouter performance

Target audience

- DevOps & SRE engineers
- Cloud / network administrators
- Hybrid infrastructure architects

Prerequisites

- Knowledge of Kubernetes and/or OpenStack
- Linux / DevOps administration experience recommended

Juniper Contrail Cloud training program

[Day 1 - Morning]

Understanding the Juniper Contrail Cloud ecosystem

- Positioning Juniper Contrail / CN2 in a hybrid cloud environment
- Components : Controller, Analytics, vRouter, API and UI
- SDN concepts: overlays, VRF, VN, policies, service chaining
- Typical integrations: Kubernetes, OpenStack, physical gateways
- Practical workshop: Quick installation of a Controller in the lab.

[Day 1 - Afternoon]

Installation & initial configuration

- System requirements: OS, network, storage, DNS/PKI, sizing
- Contrail Controller deployment and node registration
- Creation of first Virtual Networks, IPAM and BGP links
- Checks via UI and REST API (endpoints, status, health)
- Practical workshop: Initial VN configuration + basic routing.

Security and segmentation

- Security Groups, Policies, microsegmentation & multitenancy
- Isolation by namespace/project, RBAC and best practices
- East/West & North/South flows, NAT and service publication
- Security logging and access auditing
- Practical workshop: Policies for isolating two critical applications.

[Day 2 - Morning]

CN2 as a Kubernetes CNI

- Role of CN2 on the CNI side: Pod attachment, Service/LoadBalancer, DNS
- NetworkPolicies and Namespace Security Policies
- Virtual services, VIPs, egress and external traffic management
- Basic observability (events, CNI metrics)
- Hands-on workshop: Deploying a K8s app exposed via CN2.

[Day 2 - Afternoon]

OpenStack integration & virtual networks

- Integration with Neutron: plugins, VN/VIF/port mapping
- Multitenant use cases, interco VM? Pod, route leaking (VNR)
- BGP, EVPN, physical gateways and FIP links
- Addressing strategies and IPAM management
- Practical workshop: OpenStack multi-project isolated network + controlled access.

Quality of service & optimization

- QoS principles, DSCP, bandwidth limitation
- Policy-based QoS and flow prioritization
- Performance monitoring: throughput, latency, losses
- Best practices in vRouter and datapath tuning
- Practical workshop: applying QoS to a critical flow.

[Day 3 - Morning]

Observability & Analytics

- Analytics architecture & dashboards (Grafana/Prometheus)
- Flows, sessions, logs: which metrics to monitor and why
- Alerting, event correlation and capacity planning
- Export & retention: archiving practices and compliance
- Practical workshop: Building a CN2 health dashboard.

[Day 3 - Afternoon]

High availability & resilience

- HA models for controllers, quorum & clustering
- vRouter resilience, BGP/EVPN redundancy and gateways
- Config backup/restore, seamless upgrade
- Scheduled failover / failback tests
- Practical workshop: Setting up a control plane in HA and validating the failover.

Troubleshooting & investigation methods

- Troubleshooting approach: from symptom to root cause
- Tools: CLI commands, flow traces, captures, APIs & logs
- Typical failures (policies, routing, IPAM, DNS, MTU) and remedies
- Maintenance plans & operational checklists
- Practical workshop: Correcting an inter-VN BGP failure.

[Day 4 - Morning] Automation

via API & IaC

- CN2 REST API: endpoints, authentication
- Ansible, Terraform & GitOps pipelines
- Modeling networks "as code": structures & controls
- Automatic testing, linting & compliance
- Practical workshop: Provisioning a CN2 network via IaC.

[Day 4 - Afternoon]

Scalability & performance

- Scale-out / scale-in strategies
- Analytics optimization, sharding and cluster sizing
- Load testing: methodology and acceptance criteria
- Multi-datacenters & federation
- Practical workshop: Simulating scalability.

Case studies & roadmap

- Private cloud, multi-cloud, edge, 5G
- Advanced security & eBPF dataplane (tech preview)
- Best practices in industrialization & governance
- Summary, resources & post-training action plan
- Practical workshop: Target architecture design & migration plan.

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced IT technology, or to acquire specific business knowledge or modern methods.

Positioning at training start

Positioning on entry to training complies with Qualiopi quality criteria. As soon as registration is confirmed, the learner receives a self-assessment questionnaire enabling us to

assess the learner's estimated level of proficiency in different types of technology, as well as his/her expectations and personal objectives for the forthcoming course, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical training: 60% hands-on, 40% theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire is used to check that skills have been correctly acquired.

Certification

A certificate will be awarded to each trainee who completes the training course.