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Sign up

BGP EVPN Datacenter Training

3 days (21 hours)

Overview

BGP EVPN has become the standard for modern datacenters. Used as a VXLAN control plane, it enables the construction of scalable, multi-tenant and automated networks, adapted to cloud and DevOps environments.

Our BGP EVPN Datacenter training course will teach you how to deploy, administer and automate BGP-based EVPN networks.

You'll see how to configure VXLAN, manage multi-tenant segmentation with VRF, secure your BGP peers and implement high availability.

You'll also learn how to automate your EVPN infrastructures with Ansible and Terraform, monitor your networks with Prometheus and Grafana, and prepare your architectures for cloud?native and 5G evolutions.

On completion, you'll be able to design and operate a complete, secure and resilient BGP EVPN datacenter, integrated into your DevOps workflows.

As with all our training courses, the program is aligned with IETF-referenced standards.

Objectives

- Understand the key concepts of BGP EVPN and VXLAN
- Deploy and administer a BGP EVPN datacenter
- Configure VRF, multitenancy and high availability
- Secure the BGP EVPN control plane
- Automate with Ansible, Terraform, GitOps
- Monitoring with Prometheus, Grafana and NetQ

Target audience

- DevOps engineers
- Datacenter network administrators / engineers
- Cloud & infrastructure architects
- NetOps & NetDevOps teams

Prerequisites

- Knowledge of IP networks
- Knowledge of Linux
- Notions of automation

BGP EVPN Datacenter training program

Introduction to BGP and EVPN

- Overview of the BGP protocol and its uses (intra, inter-DC, Internet)
- EVPN concepts and differences with L2VPN/VPLS
- Why EVPN in modern datacenters?
- Role of BGP as a control plane for VXLAN
- Use cases: cloud, multi-tenant, 5G, SDN
- Workshop: Configuring simple BGP peering

BGP EVPN architecture in the datacenter

- Components: leaf, spine, border leaf
- VXLAN overlay and IP underlay
- BGP EVPN roles (Route Types 2/3/5/7)
- Notion of VTEP (VXLAN Tunnel Endpoint)
- Multi-homing and EVPN redundancy
- Workshop: Deploying a leaf/spine lab with BGP EVPN

VXLAN and integration with EVPN

- VXLAN: encapsulation, VNI, MAC?in?IP
- BGP EVPN as a control plane for VXLAN
- Flood & learn vs. BGP EVPN
- Multitenant segmentation and VRF
- DC case studies: VMs, containers, multi-cloud
- Workshop: Configuring a VXLAN EVPN between two leafs

Multi?tenancy and VRF with BGP EVPN

- VRF concepts and network segmentation
- RD (Route Distinguisher) and RT (Route Target)

- Multitenancy isolation in the datacenter
- Use cases: cloud hosting, SaaS, 5G
- VRF design best practices
- Workshop: Creating two isolated VRFs with BGP EVPN

Redundancy and high availability

- Multi?homing EVPN and ESI (Ethernet Segment Identifier)
- Active-active load balancing
- Spin/leaf resilience with EVPN
- Fast convergence and associated protocols
- Case study : Multi-site distributed DC
- Workshop: Configuring EVPN dual homing

Security and compliance in EVPN

- Securing the BGP control plane (GTSM, MD5, TTL?Security)
- Route filtering and RT control
- Segmentation and isolation via EVPN
- Logging and SIEM integration
- Compliance and best practices
- Workshop: Securing BGP EVPN peering with MD5

Automation and NetDevOps

- APIs and programmability of EVPN devices
- Automation with Ansible and Terraform
- GitOps and EVPN BGP configuration validation
- CI/CD integration in network infrastructures
- NetDevOps case studies
- Workshop: Deploying an EVPN configuration via Ansible

Monitoring and observability

- EVPN BGP network monitoring
- Collecting metrics (SNMP, telemetry, gNMI)
- Monitoring with Prometheus, Grafana, NetQ
- Anomaly detection: loop, route leakage
- Dashboards & real-time alerting
- Workshop: Creating a Grafana dashboard for EVPN

Summary and outlook

- Summary of EVPN BGP experience
- Comparison with NVGRE, GENEVE and VXLAN flood & learn
- EVPN migration strategies

- Future developments (SRv6 EVPN, multi-domain)
- Real-life case studies
- Workshop: Drawing up an EVPN migration roadmap

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 on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or 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 verifies the correct acquisition of skills.

Certification

A certificate will be awarded to each trainee who has completed the entire course.