

Updated on 04/14/2026

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Arista Networking Training: Data Center Engineering (DCENG)

5 days (35 hours)

Overview

The Data Center track provides in-depth understanding and hands-on experience with Arista's advanced technologies, focusing on Layer 2 and Layer 3 network designs with underlay and overlay configurations, and VXLAN in a data center deployment.

You will gain the essential skills to configure, troubleshoot, and manage complex network infrastructures using Arista solutions. The Data Center track covers key topics such as BGP in Leaf-Spine architectures, eVPN, and Arista's CloudVision platform.

The Data Center track is divided into two distinct sub-tracks: Operations and Engineering. Operations focuses on Day-2 tasks such as telemetry and troubleshooting, while Engineering focuses on the design and architecture of Layer 2 and 3 Leaf-Spine networks. Both tracks include hands-on exercises focused on role-specific tasks.

Like all our training courses, this one will introduce you to **the latest stable version** of the technology and its new features.

Objectives

- Understand the principles and architectural differences between Layer 2 and Layer 3 Leaf-Spine designs.
- Configure VLANs, STP, LACP, and MLAG to implement robust Layer 2.
- Deploy default gateway redundancy mechanisms such as VRRP and VARP in a data center.

- Design and implement Layer 3 Leaf-Spine networks using a BGP-based underlay and VXLAN-eVPN overlays.
- Configure VXLAN data plane and control plane options, including HER and eVPN route types.
- Implement symmetric and asymmetric IRB models for advanced routing scenarios.
- Build and manage L2LS and L3LS data center fabrics using Arista CVP Studios.

Target Audience

- Senior network engineers and architects, network operations engineers, and experienced network administrators

Prerequisites

- Solid understanding of Layer 2 and Layer 3 network technologies and protocols
- Knowledge of Spine/Leaf architectures is a plus

Technical prerequisites

- 16 GB recommended (8 GB minimum for lightweight topologies)

OUR TRAINING PROGRAM Arista Networking: Data Center Engineering (DCENG)

[Day 1 - Morning]

L2LS Architecture

- Factors in deploying L2LS topologies
- Overview of L2LS Design
- L2LS Performance, Redundancy, and Scalability

[Day 1 - Afternoon] Layer 2

Technologies: VLANs

- Introduction to VLANs
- Configuring Access Ports and Trunks
- Introduction to Inter-VLAN Routing

- Configuring subinterfaces
- Configuring SVIs
- Troubleshooting VLANs

STP

- Overview of Spanning Tree
- STP Enhancements
- Configuring STP
- Troubleshooting STP
- LAB – STP
- LAB – Troubleshooting STP

LACP

- Introduction to LACP
- LACP Configuration
- LACP Troubleshooting

[Day 2 - Morning]

MLAG

- Introduction to MLAG
- MLAG Configuration
- MLAG Troubleshooting
- LAB – Deploying MLAG
- LAB – Troubleshooting MLAG

[Day 2 – Afternoon]

Failover Hub Redundancy Protocol (FHRP)

- Introduction to FHRP
- VRRP Configuration
- VARP Configuration

Building an L2LS Fabric Building an L2LS DC Network Using the CLI

- Configuring L2LS via the CLI

- LAB – Building an L2LS with MLAG and VARP

Building an L2LS DC Network Using CVP Configlets

- Review of L2LS Design and Topology
- Configuring L2LS with CVP Configlets

L2LS Review

- Review of the L2LS design
- L2LS Example

[Day 3 - Morning]

L3LS Design

- Introduction to L3LS Designs
- Importance of VXLAN and eVPN in L3LS Designs
- Why Use a BGP Underlay in L3LS Designs

[Day 3 - Afternoon]

OSPF Underlay Routing Options

- Introduction to OSPF

IS-IS

- Introduction to and operation of IS-IS
- IS-IS Communications

Introduction to BGP

- Overview of BGP
- Functions and Features of BGP
- BGP Operations
- BGP Route Announcements

Configuring the eBGP Underlay

- Configuring the eBGP Underlay for L3LS
- Configuring eBGP Load Balancing
- eBGP Configuration Enhancements

BGP underlay deployment options

- BGP with BLAG
- BGP Variants in L3LS Designs
- LAB – Underlay Addressing with eBGP

[Day 4 - Morning]

Introduction to VXLAN

- Introduction to VXLAN
- VXLAN Load Balancing with ECMP

VXLAN Control Plane Options

- Review of ARPPlan VXLAN Multicast Control PlanePlan VXLAN HER Control PlaneConfiguring VXLAN HERPlan VXLAN VCS Control PlanePlan VXLAN eVPN Control PlaneLAB – Configuring the VXLAN Data Plane with HER

[Day 4 - Afternoon]

VXLAN with MLAG

- Introduction to VXLAN with MLAG
- Configuring VXLAN with MLAG

VXLAN Best Practices

- MTU and Jumbo Frames

VXLAN Troubleshooting

- Troubleshooting VXLAN
- EVPN Overlay

[Day 5 - Morning]

eVPN Fundamentals

- Introduction to eVPN
- eVPN Terminology
- How VRF Works
- MP-BGP Control Plane
- Configuring MP-eBGP for eVPN
- Type 2 eVPN Route (MAC-IP)
- Type 5 eVPN Route (IP Prefix)
- Type 3 eVPN route (IMET)
- LAB – L2eVPN

Advanced eVPN Concepts

- VLAN-based service interface
- VLAN-aware grouped service interface
- Introduction to IRB
- Symmetric vs. Asymmetric IRB
- In-Depth Analysis of Symmetric IRB
- Configuring Symmetric IRB
- Configuring Asymmetric IRB
- LAB – L3 eVPN Symmetric IRB
- LAB – L3 eVPN Asymmetric IRB

[Day 5 – Afternoon]

eVPN Multihoming

- Introduction to Active-Active Multihoming
- Type 1 Route and ESI
- Type 1 route and Type 4 route
- Active-active multihoming configuration
- LAB – eVPN Multihoming

eVPN Design Best Practices

- iBGP between MLAG pairs and eBGP multihop command
- eBGP for underlay and overlay

Configuring the DC L3LS network with CVP Studios

- Configuring L3LS using Studios
- Configuring eVPN services, host interfaces, and external networks with Studios
- LAB – Building an L3LS, eVPN, and MLAG with Studios

Target Audience

This training is intended for both individuals and companies, large or small, wishing to train their teams in new advanced IT technologies or to acquire specific professional knowledge or modern methods.

Entry-Level Assessment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency in various types of technologies, as well as their expectations and personal goals regarding the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

Practical Course: 60% Practical, 40% Theory. Training materials distributed in digital format to all participants.

Organization

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

Assessment

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

Certification

A certificate will be issued to each trainee who has completed the entire training program.

