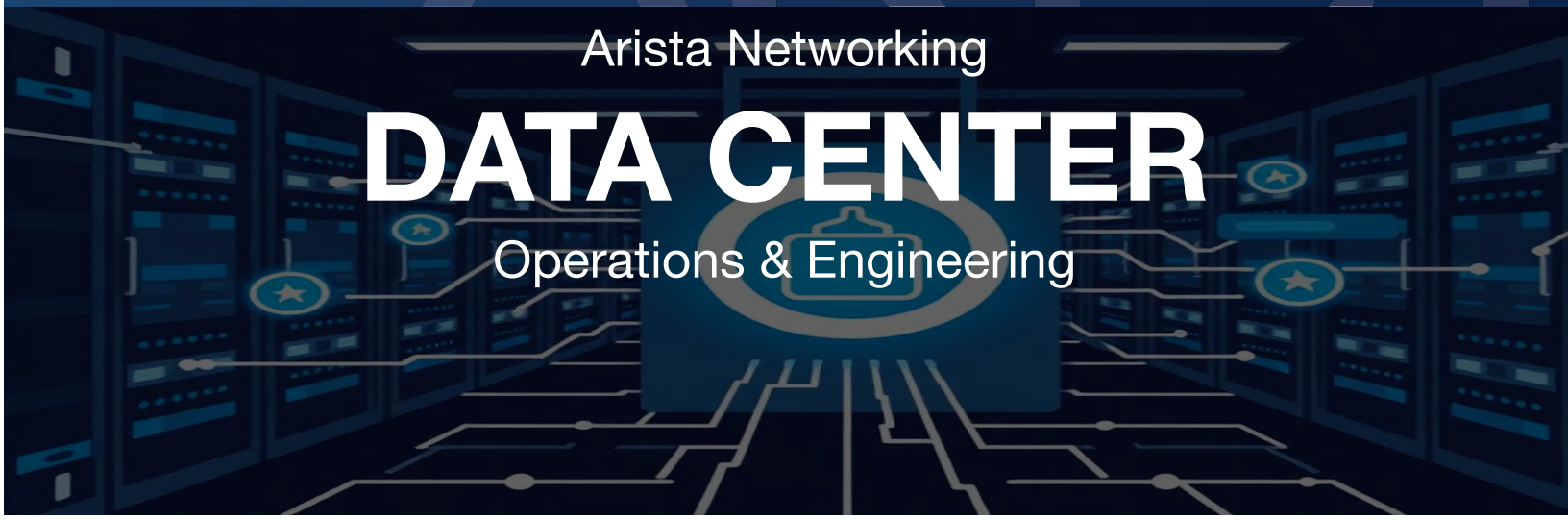
ARISTA | ACADEMY



Arista Networking

DATA CENTER

Operations & Engineering

Arista Academy Data Center Track

The Data Center learning track provides an in-depth understanding and hands-on experience with advanced Arista technologies focusing on both Layer 2 and 3 networking designs with underlay and overlay configurations, and VXLAN in the context of a Data Center deployment. You will gain essential skills to configure, troubleshoot, and manage complex network infrastructures using Arista's cutting-edge solutions. The Data Center track covers key topics such as BGP in Leaf-Spine architectures, EVPN, and Arista's CloudVision platform.

Who Should Enroll

Senior network engineers & architects, network operations & advanced-level network administrators

Learning Format

Arista Data Center track is available as Self-Paced learning (Academy Digital) or Private live instructor lead class (Academy Live)

Skills Developed

- Design and implement L2 and L3 Leaf-Spine architectures
- Configure and troubleshoot BGP for both underlay and overlay networks
- Design VXLAN overlay with BGP EVPN
- Integrate Arista's CloudVision to automate and orchestrate network operations

Prerequisites

- Solid understanding of Layer 2 and 3 core network technologies and protocols
- Understanding of Spine/Leaf designs is a benefit

Develop REAL-WORLD Data Center Experience

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 concentrates on the design and architecture of L2 and L3 leaf-spine Data Center networks.
Both tracks include hands-on labs with a focus on the distinct tasks for each of these roles.

Layer 2 Leaf Spine Design Overview

L2LS architecture

- Drivers for L2LS topologies
- L2LS design overview
- L2LS performance, redundancy and scale

Layer 2 Technologies

VLANs

- VLAN overview
- Configuring access and trunk ports
- Introduction to inter-vlan routing
- Configuring sub-interfaces
- Configuring SVI's
- Troubleshooting VLANs

STP

- Spanning tree overview
- STP enhancements
- Configuring STP
- Troubleshooting STP
- *LAB – STP*
- *LAB – Troubleshooting STP*

LACP

- LACP overview
- Configuring LACP
- Troubleshooting LCP

MLAG

- MLAG overview
- Configurating MLAG
- Troubleshooting MLAG
- *LAB – deploying MLAG*
- *LAB – troubleshooting MLAG*

Default gateway redundancy (FHRP)

- FHRP overview
- Configuring VRRP
- Configuring VARP

Building L2LS Fabric

Build LSLS DC network using CLI

- Configuring L2LS with CLI
- LAB – Build LSLS with MLAG and VARP

Build LSLS DC network using CVP Configlets

- L2LS design and topology review
- Configuring L2LS with CVP configlets

LAYER 3 Leaf Spine Design Overview

L2LS review

- L2LS Design review
- L2LS Example

L3LS design

- Introduction to L3LS designs
- VXLAN and eVPN importance in L3LS designs
- Why BGP underlay in L3LS designs

Underlay routing options

OSPF

- OSPF overview

IS-IS

- IS-IS overview and operations
- IS-IS communications

Introduction to BGP

- BGP Overview
- BGP functions and facts
- BGP operations
- BGP route advertisement

eBGP underlay configuration

- L3LS eBGP underlay configuration
- eBGP load balancing configuration
- eBGP configuration enhancements

BGP underlay deployment options

- BGP with BLAG
- Variations of BGP in L3LS
- *LAB – Underlay addressing with eBGP*

VXLAN Design

VXLAN Overview

- Introduction to VXLAN
- VXLAN load balancing with ECMP

VXLAN control plane options

- ARP refresher
- VXLAN multicast control plane
- VXLAN HER control plane
- Configuring VXLAN HER
- VXLAN VCS control plane
- VXLAN eVPN control plane
- *LAB – Configure VXLAN data plane with HER*

VXLAN with MLAG

- Introduction to VXLAN with MLAG
- Configuring VXLAN with MLAG

VXLAN best practices
- MTU and Jumbo frames

Troubleshooting VXLAN
- Troubleshooting VXLAN

eVPN Overlay

eVPN fundamentals
- Introduction to eVPN
- eVPN terminology
- VRF operations
- MP-BGP control plane
- Configuring MP-eBGP for eVPN
- eVPN route type 2 (MAC-IP)
- eVPN route type 5 (IP Prefix)
- eVPN route type 3 (IMET)
- *LAB – L2eVPN*

eVPN advanced concepts
- VLAN based service interface
- VLAN aware bundle service interface
- Introduction to IRB
- Symmetric vs. Asymmetric IRG
- Symmetric IRB deep dive
- Configuring Symmetric IRB
- Configuring Asymmetric IRB
- *LAB – L3 eVPN Symmetric IRB*
- *LAB – L3 eVPN Asymmetric IRB*

eVPN Multihoming
- Introduction to Active-Active multihoming
- Route type 1 and ESI
- Route type 1 and route type 4
- 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 L3LS DC network with CVP Studios
- Configuring L3LS using Studios
- Configuring eVPN services, host interfaces and external networks using Studios
- *LAB – Building L3LS, eVPN and MLAG with Studios*

CloudVision overview and setup

CloudVision overview

- Why CloudVision
- Approaches to network automation
- Introduction to CloudVision
- Positioning CVP

CloudVision setup

- CVP Clustering
- CVP multi-node OVA installation
- CVaaS initial onboarding
- Upgrading
- Backup and restore
- Getting familiar with CVP interface
- Profiles
- Help center
- License key management
- *LAB – Navigating CVP*

CloudVision provisioning

Device registration

- Connecting devices
- Manual onboarding

Network provisioning

- Containers
- Configuration sources
- Designed and running config
- Configlets
- Tasks and change control
- Applying configlets to containers
- Reconcile
- *LAB – Configlets*
- Snapshots and staging
- Redesigned change control UI
- Rollback
- *LAB – Snapshots*
- *LAB – Change Control*
- Configlet builder
- *LAB – Configlet builder*
- Image repository

Zero touch provisioning

- Zero touch provisioning (ZTP)
- Deploying and onboarding vEOS to CVP using ZTP
- Zero touch replacement (ZTR)
- Replacing a device using ZTR

CloudVision Studios

Studios Overview

- Introduction to Studios and tags
- Workspaces
- Studio deployment and execution
- *LAB – Using Studios*
- *LAB – Clean up Studios*

Studios in action

- New Studios UI
- Static configuration Studio
- Management connectivity Studio
- Software management Studio
- Authentication Studio
- Mirroring Studio
- End to End provisioning with Studios
- Provision new devices with ZTP and Studios
- *LAB – Static configuration Studio*

Configuring L3LS DC Network with CVP Studios

- Configuring L3LS using Studios
- Configuring eVPN services, host interfaces and external networks using Studios
- *LAB – Building L3LS, eVPN and MLAG with Studios*
- *LAB – Day 2 operations with Studios*

Monitoring with CVP

Monitoring devices with CVP

- Compliance overview
- Device input power
- CloudVision and DMF integration
- 802.1x details in endpoint search

Dashboards

- Dashboards Enhancements
- Device connectivity health panel dashboard
- Compliance counts dashboard
- Syslog filters dashboard
- Dashboard tabs layout
- Exporting and importing dashboards

Events

- Events & Event groups
- Compliance events
- Config sanity check events
- PTP events
- *LAB – Dashboards and events*

Topology
- Introduction to topology
- Topology icons and settings
- Custom topology hierarchies
- User defined topology filters
- PTP overlay in CVP topology
- *LAB - Topology*

EOS operations, upgrades, monitoring and troubleshooting

EOS reloads and upgrades
- Understanding EOS upgrades
- Standard upgrade vs. smart system upgrade
- Upgrading EOS with CLI
- Upgrading EOS with CVP
- MLAG ISSU upgrade and reload with CLI
- Chassis upgrade and reload
- MLAG upgrade and reload with CVP

EOS monitoring tools
- SNMP
- sFLOW
- Watch and Diff commands
- Latency Analyzer (LANZ)
- Port mirroring
- TapAgg

Advanced Event Management (AEM)
- AEM – CLI scheduler
- AEM – Event monitor
- AEM – Event manager
- *LAB - AEM*

Troubleshooting EOS hardware and Software
- System and software troubleshooting
- SFP and physical errors
- EOS health checks – CLI and CVP
- Hardware troubleshooting
- Memory and flash errors
- Tcpdump and Iperf
- Installing extensions
- Recovery procedures

CERTIFICATION

DC Operations and Engineering Specialist each have an optional 4-hour practical open-book exam. Achieving both specializations automatically grant you the DC PROFESSIONAL certification.