



# Arista Academy Campus Engineering Track

## COURSE OVERVIEW

The Arista Academy Campus course equips network professionals with the knowledge and skills required to configure, troubleshoot, and manage Arista Layer 2 and 3 Campus network designs. You will explore key topics such as Arista Campus Architecture, CloudVision (CVP/CV-CUE), Layer 2 and 3 Wired Campus Networks, Wireless Fundamentals, Campus Wireless Deployment, and Campus Security. This course also includes hands-on labs to reinforce theoretical knowledge with practical application. This is a 5-day Instructor-Led Training (ILT).

The Campus track is divided into two distinct sub-tracks: Operations and Engineering. Operations focus on Day-2 tasks such as telemetry and troubleshooting, while Engineering concentrates on the design and architecture of L2 campus networks. Both tracks include hands-on labs with a focus on the distinct tasks for each of these roles.

## WHO WILL BENEFIT FROM THIS COURSE?

Network engineers and administrators managing campus network infrastructure and responsible for troubleshooting and maintaining campus networks.

## PREREQUISITES

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

## COURSE OBJECTIVES

- Understand and implement Arista's modern Layer 2 and 3 Campus network solutions.
- Configure and manage wired and wireless campus networks.
- CloudVision for network automation and management.
- Strengthen campus network security using Zero Trust principles.

## COURSE OUTLINE

Arista Cognitive Campus Solution

- Arista Cognitive Campus Overview

Arista campus architecture overview

- Traditional campus architecture overview
- Arista Universal cloud network architecture
- Campus fabric architecture

Arista Campus Design

- Campus network design options • Design 1 – L2LS with external gateway

- Design 2- L2LS
- Design 3- L2LS with VXLAN-EVPN
- Design 4- L3LS
- Design 5- L3LS with Border leafs
- Design 6- L3LS with VXLAN-EVPN
- Design 7- L3LS with VXLAN-EVPN and Border leafs

#### Resiliency solutions

- Cognitive PoE
- Stateful Switchover (SSO)
- Smart System Upgrades (SSU)

#### Arista attacking

- SWAG Overview
- SWAG Architecture
- MLAG vs SWAG
- SWAG Provisioning

### **Building a L2 wired campus network**

#### VLANs and Inter-VLAN routing

- VLAN Overview
- Configuring Access and Trunk Ports
- Introduction to Inter-VLAN Routing
- Configuring Sub Interfaces
- Configuring SVIs
- Troubleshooting VLANs
- Lab - Configuring VLANs

#### Spanning Tree

- Spanning Tree Overview
- STP Enhancements
- Configuring STP on an Arista Switch
- Troubleshooting STP on an Arista Switch
- Lab - Configuring MSTP

#### LACP

- LACP Overview
- Configuring LACP
- Troubleshooting LACP

#### MLAG

- MLAG Overview
- Configuring MLAG
- Troubleshooting MLAG
- Lab - Deploying MLAG



#### First Hop Redundancy Protocol

- FHRP Overview
- Configuring VRRP
- Configuring VARP
- Lab - Configuring VARP

#### Build L2LS Campus network using CLI

- Configuring L2LS Campus with SLI

#### Build L2LS Campus network using CVP configlets

- L2LS Campus design and topology overview
- Configure L2LS campus with CVP configlets

#### Build L2LS Campus network using CVP Studios

- Onboarding devices to Studios
- Configure L2LS network using Studios
- Configure access interfaces
- Submit workspace and execute change control
- Configure L2LS Campus w/ext gateway using Studios
- Lab – Deploying L2 Campus with Studios

### **Building a L3 wired campus network**

#### L2LS Review

- L2LS Design Review
- L2LS Example

#### L3LS Design

- Introduction to L3LS Design
- VXLAN and EVPN Importance in L3LS Design
- Why BGP Underlay in L3LS Design

#### Introduction to BGP

- Introduction to BGP and Routing
- BGP Functions and Facts
- BGP Operation
- BGP Route Advertisement

#### eBGP Underlay configuration

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

#### BGP underlay deployment options

- BGP with MLAG
- Variations of BGP in L2LS
- Lab – L3LS Campus underlay with eBGP



## Deploying Campus wireless networks

### Campus wireless architecture

- Traditional Campus wireless architecture
- Arista Campus wireless architecture

### Arista CV-CUE

- CV-CUE overview
- Deploying CV-CUE
- Navigating CV-CUE
- Using checkpoints in CV-CUE
- Lab – Navigating CV-CUE

### Deploying access points in campus

- Onboarding access points to CV-CUE
- Assigning AP's to locations and AP groups
- Lab – Configuring folders and groups

### Managing Aps in CV-CUE

- Configuring APs devices settings
- Connecting APs using LAG
- Configuring APs radio settings

### Configuring network profiles

- Configuring port profiles
- Configuring radius servers
- Configuring role profiles
- Configuring tunnel interfaces

### Configuring basic enterprise SSID settings

- Understanding mandatory SSID settings
- Understanding types of SSID security
- Understanding SSID network types
- Configuring a WLAN with PSK/GPSK
- Configuring a WLAN with 802.1x
- Lab – Configuring basic SSID settings

### Configuring advanced enterprise SSID settings

- Enabling access control for clients
- Optimizing RF settings
- Enabling traffic shaping & QOS

### Configuring WIPS

- WIPS overview
- Configuring WIPS settings

## Securing the Campus network

### Zero Trust overview

- Why Zero Trust security

- Zero Trust model
- Zero trust stages
- Challenges with Zero Trust implementation
- Arista Zero Trust solutions

#### Security basics

- Security basics overview
- ACL overview
- IP Locking
- IP source guard
- Private VLANs
- AAA overview
- RADsec and RADsec proxy
- Encryption and PKI
- EAP overview
- Lab – Deploying control plane ACLs
- Lab – Segmentation using private VLANs

#### 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
- DF Bit, VTEP, MLAG, and Timers

#### 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 IRB vs asymmetric IRB
- Symmetric IRB deep dive
- Configuring symmetric IRB
- Configuring asymmetric IRB
- Lab – L3 EVPN Symmetric IRB

#### eVPN design best practices

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

#### Build L3LS Campus network using CVP Studios

- Configuring L3LS Campus with CVP Studios
- Configuring L3LS Campus with VXLAN and eVPN using Studios
- Lab – Deploying L3LS Campus with VXLAN and eVPN using Studios

### Wireless

#### Wireless signalling basics

- Introduction to radio frequency waves and signals
- Radio frequency wave properties
- Radio frequency wave propagation

#### Measuring wireless signals

- Measuring signal strength
- Antennas
- Radiated power measurement

#### Representing data in radio frequency waves

- Modulation
- DSSS vs OFDM
- OFDMA

#### Wi-Fi standards

- Radio frequency channels
- 802.11 standards

#### WLAN Communications

- 802.11 frames
- Wireless client association
- Wireless frame transmission
- Wireless client roaming

#### 802.11 Standards enhancements

- 802.11i MAC security
- 802.11k Radio resource measurement

- 802.11r Fast BSS transition
- 802.11v Wireless network management
- 802.11w Protected management frames
- 802.11e QOS

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