

ID CAMPENG Price on request Duration 5 days

Who should attend

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

This course is part of the following Certifications

ACE - L3 - Specialist Campus Engineering Wired (ACE-L3-CAMPENG)

Prerequisites

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

Course Objectives

At the end of the course, you should be able to:

- Describe the Arista Cognitive Campus architecture and compare it with traditional campus designs.
- Design and implement both L2 and L3 wired campus networks using CLI, CVP configlets, and CVP Studios.
- Configure key campus technologies such as VLANs, STP, LACP, MLAG, VARP, and BGP underlay.
- Deploy and manage VXLAN and eVPN overlays, including advanced features like symmetric/asymmetric IRB and multihoming.
- Set up and operate Arista wireless networks using CV-CUE, including SSID settings, AP onboarding, and RF optimization.
- Apply Zero Trust principles and security configurations such as ACLs, Private VLANs, and AAA.
- Monitor and troubleshoot wired and wireless campus infrastructure using CVP tools, dashboards, and event management.

Course Content

ARISTA CAMPUS ARCHITECTURE

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 stacking

- 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 CLI

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

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

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

Training Centres worldwide





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