Implementing AOS-CX Switching (ICXS)

ID ICXS **Price** 4,950.— €(excl. VAT) **Duration** 5 days

Who should attend

Typical candidates for this course have experience in advanced level implementation and maintenance of wired solutions. They possess experience assessing and interpreting existing networks and network design documentation. They regularly troubleshoot, resolve issues, and perform ongoing support of large network environments. They have familiarity with wired network security best practices and perform duties independently with at least two years of experience working as a member of the team that supports maintaining multiple campus topologies, edge branches, and data center networks.

This course is part of the following Certifications

HPE Aruba Networking Certified Professional – Data Center (ANCPDC)
HPE Aruba Networking Certified Professional - Switching (ACP-S)

Prerequisites

It is highly recommended that candidates already have some advanced knowledge of networking (routing, switching, and security). Candidates are encouraged to have taken the AOS-CX Switching Fundamentals (CXSF) course and achieved the ACA - Switching certification.

Please take this short self-assessment to make sure whether Implementing AOS-CX Switching is the right course for you.

Course Objectives

After you successfully complete this course, expect to be able to:

- Compare AOS-CX switching models and describe features
- Use NAE and scripts to ease monitoring, troubleshooting of operational issues as well as sFlow traffic flows and port mirroring
- Describe VSX use cases, operation, and best practices for resiliency and scalability
- Describe and configure access control lists for improved security, protecting management traffic and ease troubleshooting
- Describe and deploy multiarea OSPF networks, virtual links and improved convergence times as well as security
- Establish, monitor, manipulate, and filter BGP route relationships, path selection and advertisements
- Describe multicast addressing, IGMP, and IGMP snooping
- Describe and implement Protocol Independent Multicast (PIM)- Dense mode (PIM-DM) and Sparse mode (PIM-SM)
- Describe the components of 802.1x authentication, implementing it on AOS-CX switch ports, and integrate it with HPE Aruba Networking ClearPass
- Implement RADIUS-based MAC authentication and device profiles
- Understand user-based tunneling and configure Dynamic Segmentation and PAPI
- Describe and implement various Quality of Service (QoS) mechanisms, including classifications, marking, queues and schedules
- Implement VRF to isolate routed traffic and manipulate traffic routing with Policy-Based Routing (PBR)
- Understand and configure captive portal configuration with ClearPass Guest and BYOD solutions

Course Content

Intro to AOS-CX Switching

- AOS-CX switch overview
- Legacy management systems
- Modern management approach
- The REST API and URIs
- NAE and the Time-series database
- Dynamic Segmentation
- Always on POE

Virtual Output Queuing

- Virtual Switching eXtension
- Virtual switching technologies
- VSX components
- VSX synchronization
- Split brain scenarios

Layer 2 Optimization

- UDLD

- Private VLAN
- Basics of Spanning Tree Protocol
- RPVST+

Advanced OSPF

- OSPF overview
- Multi-area OSPF
- Route redistribution using ASBRs
- OSPF area types
- OSPF redundancy
- Additional OSPF features

Border Gateway Protocol

- BGP overview
- BGP neighbor connections
- BGP route advertisements
- BPG route selection metrics and tuning
- Controlling eBGP routes

Additional Layer 3 Features

- Virtual routing and forwarding (VRF)
- Policy-based routing
- ARP protection
- DHCP snooping
- IPsec and NAT

IGMP

- Multicast introduction
- IGMP overview

Multicast Routing

- PIM introduction
- PIM-DM
- PIM-SM
- PIM-SM build-up process
- BSR mechanism
- VSX and PIM

Access Control Lists

- ACL introduction and creation
- ACL application scenarios
- Applying ACLs
- Object groups
- Classification policies
- Restrictions and resource utilization

802.1X Authentication

- Authentication overview
- 802.1X authentication overview
- Configuring 802.1X on switch ports
- RADIUS attributes for the dynamic settings
- User roles overview
- Device fingerprinting overview

MAC Authentication

- MAC authentication overview
- MAC-auth with multiple clients
- MACsec overview

Dynamic Segmentation

- Dynamic Segmentation overview
- User-based tunneling
- Configuring UBT
- UBT with MC cluster
- Troubleshooting

REST API

- REST API introduction
- REST basic concepts
- Enabling the REST interface on an AOS-CX switch
- Sending requests to the REST API
- Accessing the REST API reference interface
- Use cases and resources

Quality of Service

- QoS overview
- Classifying traffic and applying policies
- LLDP-MED and device profiles

Network Analytics Engine (NAE)

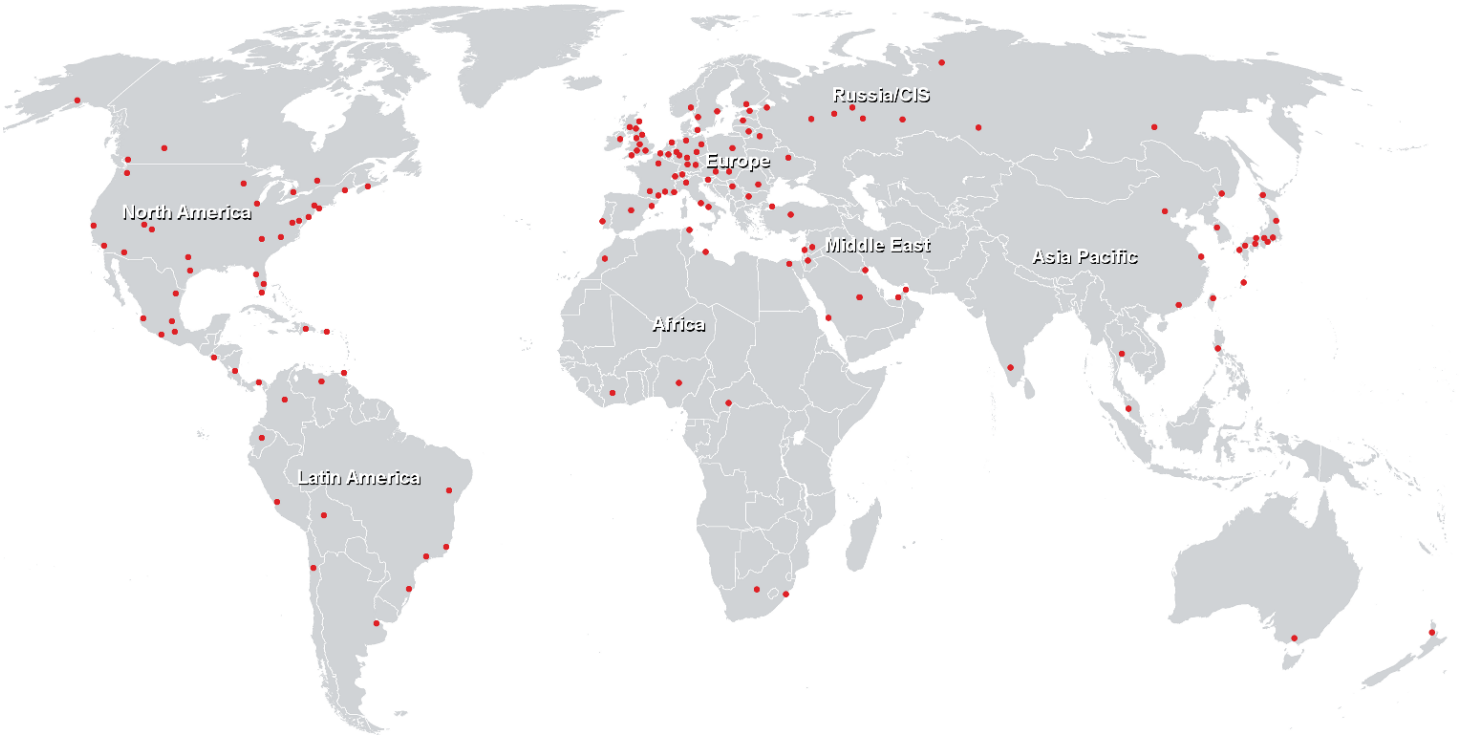
- NAE overview
- NAE agents
- Agent actions

Troubleshooting

- Troubleshooting overview
- Troubleshooting principles
- Components of effective troubleshooting
- Need for a methodical approach
- Problem-solving methodology
- Network troubleshooting tools

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