Training: Aruba
# Implementing Data Center Networks

## TRAINING GOALS:

The Implementing Data Center Networks course provides the skills and knowledge to design, implement, and configure complex data center solutions based on AOS-CX switches. Data center networks are at a breaking point. HPE offers a new architectural approach that provides simplified, scalable, and automated connectivity for virtualized compute, storage, and cloud. Data center networking requirements have evolved rapidly, with emerging technologies increasingly focused on supporting more automation and simplified operations in virtualized data centers.

This course will explain the HPE Aruba Networking solutions and technologies for data center networks and their use cases for traditional two and three-tier and modern spine and leaf data center architectures.

### Objectives

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

- Describe data center (DC) networking requirements and typical use cases for the HPE Aruba Networking portfolio in this environment.
- List common methods for deploying AOS-CX switches into data centers.
- Explain the technologies and frequent configurations used in an L2 collapsed core and spine and leaf DC implementations.
- Identify monitoring and troubleshooting options from HPE for data center networks.
- Recognize possible optimizations for DC switch configurations.
- Implement security policy for your data center network.
- Design and validate a data center network.
- Deploy HPE Aruba Networking data center switches into greenfield or brownfield network environments.
- Integrate HPE Aruba Networking data center switches with other products, such as servers, storage, hypervisors, and so forth, from HPE or 3rd party vendors.
- Troubleshoot, monitor, and maintain data center networks.

### Target Audience

Typical candidates for this course are network professionals responsible for planning, implementing, and supporting data center networking infrastructure.



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## CONSPECT:

- Introduction to data center networks
  - Define data center networks
  - Discuss common drivers for data center networks
  - Distinguish common data center network requirements
  - Differentiate data center versus campus networks
- Data center network products and technologies
  - Introduce HPE Aruba Networking data center products and technologies
  - Compare the data center management options and advantages
  - Deployment models, products, and technologies
  - List and demonstrate connection high availability, fault tolerance and load balancing
- Data center network design
  - Define requirements for data center network design
  - Introduce data center network design
  - Describe data center policy design
  - Compare the data center management options and advantages
  - Demonstrate the supported HPE Aruba Data Center Reference Architectures
- Switch provisioning and staging
  - Switch staging options
  - Manual provisioning
  - ZTP provisioning
  - Remote management
- Layer 2 collapsed core
  - Debate the L2 collapsed core solution and advantages
  - Describe the components of the solution
- Switch virtualization and stacking
  - List HPE Aruba Networking switch virtualization and stacking options and their characteristics
  - Explain the difference between stacking and virtualization and their use cases on DCN
  - Describe HPE Aruba Networking VSX technology
  - Explain how VSX could be deployed in a data center
  - Examine the usage and benefits of VSX in a data center
- Loop prevention
  - Link aggregation group (LAG) and multi-chassis LAG
  - Load balancing



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- Spanning tree protocols
- Redundant network links:
  - Multiple Spanning Tree Protocol
  - Loop protect
  - Rapid Ring Protection Protocol

- Virtual Routing and Forwarding (VRF)
  - Describe the concepts behind VRF
  - Explain VRF features
  - Demonstrate common use cases for VRF
  - Configure and maintain an AOS-CX switch running multiple VRFs
- Leaf spine networks
  - Debate the spine and leaf solution and advantages
  - Describe the components of the solution
- Virtual Extensible VLAN (VXLAN)
  - Describe the VXLAN feature
  - Describe basic VXLAN operations
  - Describe the MAC learning process in a VXLAN
  - Describe virtual VXLAN to physical VLAN network integration
  - Explain the basic configuration of a VXLAN tunnel
- EVPN
  - Introduce EVPN concepts and use cases
  - Explain the EVPN configuration process
  - Describe EVPN monitoring and troubleshooting
  - Optimize the EVPN environment with ARP and ND suppression
  - Describe the EVPN fabric configuration steps to handle multicast traffic
  - Explain IPv6 EVPN overlay over an IPv4 underlay configuration
- Aruba Fabric Composer
  - Define the purpose of Aruba Fabric Composer
  - Navigate menus and identify icons
  - Manage network services using Guided Set Up
  - Explain the benefits of integrating Aruba Fabric Composer with VMware vSphere, HPE ILO, and Pensando Policy Service Manager
  - Integrate Aruba Fabric Composer with VMware products and solutions
  - Integrate Aruba Fabric Composer with HPE iLO to configure, monitor securely, and update your HPE servers
  - Integrate Aruba Fabric Composer with Pensando Policy Services Manager to set up policy for securing your network



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- Securing the data center with the Aruba CX 10000 Switch
  - Define and describe 10K Switch features that improve network performance, security and design
  - Manage network services with Aruba Fabric Composer
  - Implement policy and network segmentation using Aruba Fabric Composer or Pensando Policy Service Manager
  - Utilize analytics gathered by telemetry to view network configuration and view alerts
- Data center bridging (DCB)
  - Describe DCB and IP ECN
  - Configure DCB and IP ECN
  - Describe DCB monitoring options
- Network Analytics Engine (NAE)
  - Describe NAE use cases to monitor and troubleshoot the network.
  - Describe NAE agents
  - Describe NAE troubleshooting
- REST API
  - Describe the need for the API
  - List the REST API features and functions
  - Demonstrate an AOS-CX REST API use case
- Aruba Central on Prem (COP)
  - Describe COP
  - Explain COP use cases for DCN

## REQUIREMENTS:

- ArubaOS-CX Switching Fundamentals
- Implementing ArubaOS-CX Switching

or

- Aruba Campus Access Fundamentals
- Implementing Aruba Campus Access

## Difficulty level



## CERTIFICATE:



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The participants will obtain certificates signed by Aruba Networks.

This course prepares you additionally to the Aruba Certified Data Center Professional certification exam

https://certification-learning.hpe.com/tr/datacard/Exam/HPE7-A05

## TRAINER:

Aruba Networks Certified Trainer



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