



Deploying HPE FlexCampus Technologies for ProVision Based Devices H8D08S

HPE course number	H8D08S
Course length	5 days
Delivery mode	ILT
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This course introduces network professionals to the basic features of modern networks such as VLANs, redundancy technologies such as MSTP, Backplane Stacking, link aggregation technologies like LACP, static IP routing, and dynamic routing with OSPF, ACL's, Multicast, and an introduction to BGP.

Course description

This course covers basic and advanced topics within the HPE FlexCampus Architecture. The learner will experience both theory and hands on experience utilizing real hardware through lab exercises over four days. The learner will configure and monitor Comware devices using open standard technologies. You will work with layer 2 technologies, such as Multiple Instance Spanning Tree (MSTP) and Link-Aggregation (Trunks). You will also learn about Backplane Stacking. Layer 3 technologies, such as static routes, Open Shortest Path First (OSPF) with Multi-Area implementations, and Border Gateway Protocol (BGP), along with multicast solutions leveraging Protocol independent Multicast (PIM) both dense and sparse modes.

Audience

- IT professionals who will deploy and manage networks based on HPE ProVision products

Prerequisites

- Students should possess experience with networking and common LAN protocols

Course objectives

At the conclusion of this course, you should be able to:

- Describe how HPE's FlexNetwork strategy applies to components such as FlexCampus, FlexBranch, FlexManagement, and Software-Defined Networks (SDN)
- Protect devices with local and remote authentication using telnet, SSH, web, and SNMP access
- Navigate the HPE Provision CLI and manage the flash file system
- Upgrade the Provision switch operating system
- Configure VLANs on HPE Provision switches
- Implement basic routing on directly connected VLANs or links
- Configure a Provision switch for DHCP server and DHCP relay
- Interpret Provision logs

- Understand how different varieties of spanning tree are implemented on Provision switches
- Configure multiple spanning tree and apply STP security features
- Differentiate between static and dynamic link aggregation
- Configure and troubleshoot link aggregation on HPE switches
- Identify applications for static and dynamic routing
- Configure single-area OSPF routing
- Understand the basic operation of HPE's Backplane Stacking technologies
- Configure and verify a simple backplane stacking topology
- Differentiate applications for two- and three-tier network designs
- Identify an appropriate VLAN design based on a given scenario
- Based on a given scenario, choose appropriate link types and redundancy solutions
- Use best practices for IP addressing and OSPF routing when implementing a network design

Benefits to you

This course will enhance your knowledge and skills in several areas of networking. You will gain proficiency in using the Provision CLI, including the application of device access security, updating software, and managing the Provision file system. As a learner you will have sole control of set of equipment that includes Provision switches, as well as a server and client.

Detailed course outline

Module 1: Introduction	<ul style="list-style-type: none"> • HPE Introduction 	<ul style="list-style-type: none"> • Network Design Introduction
Module 2: Basic Setup	<ul style="list-style-type: none"> • Connect your management station to the console port on an HPE ProVision switch and access the CLI • Navigate the CLI 	<ul style="list-style-type: none"> • Configure basic settings, such as the hostname and IP address for VLAN 1 • Verify your configuration settings
Module 3: Protecting Management Access	<ul style="list-style-type: none"> • Implement basic protection using local and remote authentication 	<ul style="list-style-type: none"> • Implement remote management with Telnet, SSH, Web, and SNMP access
Module 4: Management of Software and Configurations	<ul style="list-style-type: none"> • Describe the switch bootup process • Upgrade the switch operating system 	<ul style="list-style-type: none"> • Manage switch configuration files
Module 5: VLANs	<ul style="list-style-type: none"> • Understanding the use of VLANs and the VLAN types • Understanding VLAN port types 	<ul style="list-style-type: none"> • Configuring VLANs on HPE switches • Implementing basic VLAN routing on directly connected VLANs or links
Module 6: IP Services	<ul style="list-style-type: none"> • DHCP server and DHCP relay • NTP 	<ul style="list-style-type: none"> • Logging • DNS
Module 7: Spanning Tree	<ul style="list-style-type: none"> • Explain how RSTP operates and enhances the original 802.1D standard • Explain the implementation of PVST+ 	<ul style="list-style-type: none"> • Configure MSTP and use MSTP to provide load sharing • Configure STP security features
Module 8: Link Aggregation	<ul style="list-style-type: none"> • Identify problems and limitations of STP in load sharing • Differentiate between static and dynamic link aggregation 	<ul style="list-style-type: none"> • Describe how the Link Aggregation Control Protocol works (LACP) • Configure and troubleshoot link aggregation on HPE ProVision switches
Module 9: Backplane Stacking	<ul style="list-style-type: none"> • Describe how switches in a backplane stack operate as one virtual switch • Describe the three topologies supported with backplane stacking and the roles members play in the stack 	<ul style="list-style-type: none"> • Explain how backplane stacking handles stack fragments
Module 10: IP Routing	<ul style="list-style-type: none"> • Describe VLANs, routing, and static routing • Describe dynamic routing with RIP and OSPF 	<ul style="list-style-type: none"> • Explain single area OSPF configuration
Module 11: OSPF (Multi-area and external area)	<ul style="list-style-type: none"> • Deploy HPE products in single-area and multi-area OSPF systems • Use area definitions and summaries to create efficient and scalable multiple area designs • Advertise routes to external networks in a variety of OSPF environments 	<ul style="list-style-type: none"> • Promote fast, effective convergence during a variety of failover situations • Use virtual links as required to establish non-direct connections to the backbone • Implement OSPF authentication
Module 12: ACLs	<ul style="list-style-type: none"> • Define ACL and identify the criteria by which ACLs select traffic • Configure ACLs on HPE Comware based switches to select given traffic 	<ul style="list-style-type: none"> • Apply static ACLs to interfaces to meet the needs of a particular scenario • Examine an ACL configuration and determine the action taken on specific packets
Module 13: QoS	<ul style="list-style-type: none"> • Configure HPE switches to honor the appropriate QoS marks applied by other devices • Create a QoS policy that assigns a specified class of traffic to a priority queue • Select and implement an appropriate strategy for queue scheduling • Implement traffic policing policies that enforce the negotiated committed information rate (CIR), committed burst size (CBS), peak information rate (PIR), and excessive burst size (EBS) for a specified class of traffic 	<ul style="list-style-type: none"> • Respond to congestion in advance by applying the appropriate traffic shaping and Weighted Random Early Detection (WRED) policies • Determine the QoS mark that an HPE switch will assign to specific outbound traffic and, if necessary, adjust the mark

Course data sheet

Module 14: BGP

- Establish and monitor eBGP sessions between your routers and Internet Service Provider (ISP) routers
- Advertise an IP block to multiple ISP routers
- Filter BGP routes as required for a dual-homed ISP connection
- Configure a BGP router to advertise a default route in OSPF or to redistribute and aggregate BGP routes, as appropriate

Module 15: Multicast

- Route multicast traffic using PIM-DM or PIM-SM
 - Select and configure RPs based on particular environmental needs such as redundancy and efficient operation
 - Minimize unnecessary multicast flooding
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