

Fast Track for Deploying HPE FlexNetwork Comware H8D09S

HPE course number	H8D09S
Course length	5 days
Delivery modes	ILT, VILT
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This 5-day course gives network engineers an opportunity to plan for and implement networks utilizing HPE Comware devices. Participants will work HPE IRF, ACLs, QoS, OSPF, BGP, and Multicast technologies.

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.

Why HPE Education Services?

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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.

This Course is composed of HPE Education Courses H4C88S and H4C87S.

Audience

This course is intended for network or systems administrators, network engineers, and consultants who plan to deploy HPE Comware 7 switches into a new or existing network.

Prerequisites

- This course is recommended for students who need to deploy HPE FlexNetwork technologies based on Comware. It does not require completion of any previous HPE networking courses
- Network experience is required

Course objectives

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

- Protect devices with local and remote authentication using telnet, SSH, web, and SNMP access
- Navigate the HPE Comware CLI and manage the flash file system
- Upgrade the Comware switch operating system
- Configure VLANs on HPE Comware switches
- Configure a Comware switch for DHCP server and DHCP relay
- Configure multiple spanning tree and apply STP security features
- Differentiate between static and dynamic Link Aggregation
- Configure and troubleshoot Link Aggregation on HPE switches
- Implement and deploy HPE IRF with MAD technologies to protect your network
- Configure, design, and deploy Access Control Lists (ACLs)
- Configure, design, and deploy Open Shortest Path First (OSPF), in multi-area, and work with external routes
- Configure, design, and deploy Border Gateway Protocol (BGP)
- Configure, design, and deploy Quality of Service (QoS)
- Configure, design, and deploy Multicast (Protocol Independent Multicast Dense Mode and Spare mode) along with IGMP technologies

Course outline

Module 1: Introduction	<ul style="list-style-type: none"> • Course overview and objectives
Module 2: Basic setup	<ul style="list-style-type: none"> • Initiate a console connection to an HPE Comware switch • Describe characteristics and purpose of each privilege level • Navigate the Comware CLI • Perform basic configuration • Configure interfaces • Troubleshoot common problems with basic connectivity
Module 3: Protecting management access	<ul style="list-style-type: none"> • Apply password protection to local and remote authentication • Associate user roles with password and scheme authentication • Implement remote management with Telnet, SSH, Web, and SNMP access
Module 4: Managing software and configurations	<ul style="list-style-type: none"> • Understand the boot up process of Comware switches • Use the Comware device flash file system • Upgrade the Comware switch operating system • Manage configuration files on Comware switches
Module 5: VLANs	<ul style="list-style-type: none"> • Understand the use of VLANs and the various types of VLAN • Choose the correct VLAN port type for various situations • Configure VLANs and assign IP addresses to VLAN interfaces implement basic routing on directly connected VLANs • Verify connectivity within and between VLANs
Module 6: IP services	<ul style="list-style-type: none"> • DHCP server and DHCP relay • NTP • Logging • DNS
Module 7: Spanning Tree Protocol	<ul style="list-style-type: none"> • Understand the operation of the original IEEE 802.1D standard (pre-2004) • Recognize the enhancements included in RSTP • Understand the implementation of PVST+ • List the components and load sharing benefits of MSTP • Configure MSTP • Configure STP security features
Module 8: Link Aggregation	<ul style="list-style-type: none"> • Understand the problems and limitations of STP and load sharing • Differentiate between static and dynamic Link Aggregation • Understand how the Link Aggregation Control Protocol works (LACP) • Configure Link Aggregation on Comware switches • Troubleshoot Link Aggregation on Comware switches
Module 9: IRF	<ul style="list-style-type: none"> • Understand the technologies and concepts involving IRF • Understand the advantages that IRF provides • Describe a split stack and how the Multi-Active Detection (MAD) protocol deals with this problem • Configure a simple IRF topology • Verify and troubleshoot an IRF topology

Course data sheet

Module 10: Basic IP routing

- Describe how Comware switches forward traffic between directly connected VLANs
- Configure static routes on a Comware switch
- Describe the basic operation of RIP
- Describe the basic operation of OSPF and configure single-area OSPF
- Deploy HPE products in single-area and multiple-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
- Promote fast, effective convergence during a variety of failover situations
- Use virtual links as required to establish nondirect connections to the backbone
- Implement OSPF authentication

Module 11: Access Control Lists

- Define ACL and identify the criteria by which ACLs select traffic
- Configure ACLs on HPE Comware based switches to select given traffic
- 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 12: Quality of Service

- 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
- 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

Module 13: 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 14: Multicast

- Route Multicast traffic using Protocol Independent Multicast-Dense Mode (PIM-DM) or Protocol Independent Multicast-Sparse Mode (PIM-SM)
 - Select and configure Rendezvous Points (RPs) based on particular environmental needs such as redundancy and efficient operation
 - Minimize unnecessary Multicast flooding
 - Apply advanced controls such as Source-Specific Multicasting (SSM) and administrative scopes to a PIM-SM deployment
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