

# Configuring HPE FlexFabric Technologies for Comware Devices H4C87S

<b>HPE course number</b>	H4C87S
<b>Course length</b>	3 Days
<b>Delivery mode</b>	ILT, VILT
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This course introduces network professionals to the basic features of modern networks such as VLANs, redundancy technologies such as MSTP, IRF, link aggregation technologies like LACP, static IP routing, and dynamic routing with OSPF. In this course, participants will learn how these technologies are implemented in the HPE Comware 7 switch platform, and will have opportunities to practice configuring these features, monitor their functionality, and design a solution based on provided criteria. This course is approximately 40 percent lecture and learning activities and 60 percent hands-on lab activities.

## 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 FlexFabric 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
- Implement basic routing on directly connected VLANs or links
- Configure a Comware switch for DHCP server and DHCP relay
- Interpret Comware logs
- Understand how different varieties of spanning tree are implemented on Comware 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 Intelligent Resilient Framework (IRF)
- Identify IRF's advantages when compared with other technologies that manage redundant paths
- Describe how the Multi-Active Detection (MAD) protocol deals with an IRF split stack
- Configure and verify a simple IRF topology
- 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

## Detailed course outline

<b>Module 1: Introduction</b>	<ul style="list-style-type: none"> <li>Welcome to Configuring HPE FlexFabric Technologies for Comware Devices</li> <li>Course schedule</li> </ul>	<ul style="list-style-type: none"> <li>Introductions</li> </ul>
<b>Module 2: Basic Setup</b>	<ul style="list-style-type: none"> <li>Accessing the console of an HPE Comware switch</li> <li>Levels of access and privilege levels</li> <li>CLI introduction and navigation</li> </ul>	<ul style="list-style-type: none"> <li>Basic configuration</li> <li>Interface configuration</li> <li>Troubleshooting</li> </ul>
<b>Module 3: Protecting Management Access</b>	<ul style="list-style-type: none"> <li>Applying password protection to local and remote authentication</li> <li>Associating user roles with password and scheme authentication</li> </ul>	<ul style="list-style-type: none"> <li>Implementing remote management with telnet, SSH, web, and SNMP access</li> </ul>
<b>Module 4: Management of Software and Configuration Files</b>	<ul style="list-style-type: none"> <li>Understanding the boot up process of the HPE switches</li> <li>Understanding how to use the flash file system on the HPE switches</li> </ul>	<ul style="list-style-type: none"> <li>Upgrading the operating systems on the HPE switches</li> <li>Managing configuration files on the HPE switches</li> </ul>
<b>Module 5: VLANs</b>	<ul style="list-style-type: none"> <li>Reviewing VLANs and the various types of VLAN</li> <li>Understanding when to use each of the three VLAN port types</li> <li>Configure VLANs and assign IP addresses to VLAN interfaces</li> </ul>	<ul style="list-style-type: none"> <li>Implementing basic routing on directly connected VLANs</li> <li>Verify connectivity within and between VLANs</li> </ul>
<b>Module 6: IP Services</b>	<ul style="list-style-type: none"> <li>Implementing DHCP server and DHCP relay on Comware switches</li> <li>Implementing secure NTP on Comware switches</li> </ul>	<ul style="list-style-type: none"> <li>Understanding and configuring basic logging options</li> <li>Implementing DNS to resolve names to addresses</li> </ul>
<b>Module 7: Spanning Tree Protocol</b>	<ul style="list-style-type: none"> <li>Overview of pre-2004 IEEE 802.1D standard</li> <li>Overview of RSTP</li> <li>Overview of PVST+</li> </ul>	<ul style="list-style-type: none"> <li>Overview and configuration of MSTP on Comware switches</li> <li>Configuration of STP security features on Comware switches</li> </ul>
<b>Module 8: Link Aggregation</b>	<ul style="list-style-type: none"> <li>Reviewing problems with STP and load sharing with STP</li> <li>Introducing link aggregation</li> </ul>	<ul style="list-style-type: none"> <li>Comparing and contrasting the different link aggregation types</li> <li>Configuring and verifying link aggregation on Comware switches</li> </ul>
<b>Module 9: IP Routing</b>	<ul style="list-style-type: none"> <li>VLANs and routing</li> <li>Static routing</li> <li>Dynamic routing with RIP</li> </ul>	<ul style="list-style-type: none"> <li>Dynamic routing with OSPF</li> <li>Single area OSPF configuration</li> </ul>
<b>Module 10: Intelligent Resilient Framework (IRF)</b>	<ul style="list-style-type: none"> <li>Understanding the technologies and concepts involving IRF</li> <li>Understanding the advantages that IRF provides</li> <li>Describing a split stack and how the Multi-Active Detection (MAD) protocol deals with this problem</li> </ul>	<ul style="list-style-type: none"> <li>Configuring a simple IRF topology</li> <li>Verifying and troubleshooting an IRF topology</li> </ul>

## Detailed lab outline

<b>Lab 1 : Accessing HPE vLabs</b>	<ul style="list-style-type: none"> <li>Task 1: Connect to Your Labgroup</li> </ul>	
<b>Lab 2: Basic Setup</b>	<ul style="list-style-type: none"> <li>Task 1: Verify starting state of switches</li> <li>Task 2: Explore the CLI</li> </ul>	<ul style="list-style-type: none"> <li>Task 3: Configuring IP Addressing and Verifying Connectivity</li> </ul>
<b>Lab 3: Protecting Management Access</b>	<ul style="list-style-type: none"> <li>Task 1: Initialize the Lab Topology</li> <li>Task 2: Restrict Privileges on Comware</li> </ul>	<ul style="list-style-type: none"> <li>Task 3: Set up Telnet and SSH Access for Comware</li> </ul>
<b>Lab 4: Management of Software and Configuration Files</b>	<ul style="list-style-type: none"> <li>Task 1: Initialize the Lab Topology</li> <li>Task 2: Password Recovery on the Comware Switches</li> </ul>	<ul style="list-style-type: none"> <li>Task 3: Manage Files on the Comware Switches</li> </ul>
<b>Lab 5: Vlans</b>	<ul style="list-style-type: none"> <li>Task 1: Initialize the Lab Topology</li> <li>Task 2: Creating VLANs</li> <li>Task 3: Enabling Connectivity in VLAN 11</li> </ul>	<ul style="list-style-type: none"> <li>Task 4: Enable connectivity in VLAN 12</li> <li>Task 5: Enable connectivity between VLANs 11 and 12</li> </ul>
<b>Lab 6 : IP Services</b>	<ul style="list-style-type: none"> <li>Task 1: Initialize the Lab Topology</li> <li>Task 2: Configure a Comware Switch as a DHCP Server</li> <li>Task 3: Implement DHCP Relay</li> </ul>	<ul style="list-style-type: none"> <li>Task 4: Synchronize Time using NTP</li> <li>Task 5: Implement a Syslog Solution</li> </ul>
<b>Lab 7 : Spanning Tree Protocol</b>	<ul style="list-style-type: none"> <li>Task 1: Initialize the Lab Topology</li> <li>Task 2: Configure Single Instance STP</li> </ul>	<ul style="list-style-type: none"> <li>Task 3: Configure Multiple Instance STP</li> <li>Task 4: Examine MSTP Operation with Redundant Links</li> </ul>
<b>Lab 8 : Link Aggregation</b>	<ul style="list-style-type: none"> <li>Task 1: Initialize the Lab Topology</li> </ul>	<ul style="list-style-type: none"> <li>Task 2: Configure and Verify Link Aggregation</li> </ul>
<b>Lab 9 : IP Routing</b>	<ul style="list-style-type: none"> <li>Task 1: Initialize the Lab Topology</li> <li>Task 2: Basic VLAN and IP Configuration</li> <li>Task 3: Configure and Verify Static Routing</li> </ul>	<ul style="list-style-type: none"> <li>Task 4: Configure Loopback Interfaces</li> <li>Task 5: Configure OSPF in a Single</li> <li>Task 6: Configure Silent</li> </ul>
<b>Lab 10 : Intelligent Resilient Framework (IRF)</b>	<ul style="list-style-type: none"> <li>Task 1: Initialize the Lab Topology</li> <li>Task 2: Prepare for IRF</li> <li>Task 3: Establish an IRF Topology</li> </ul>	<ul style="list-style-type: none"> <li>Task 4: Establish Distributed Link Aggregation</li> <li>Task 5: Restore your configurations from Lab 9</li> </ul>

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