

COURSE OUTLINE

Course Name: HCIP Datacom Advanced Routing & Switching Technology

Course Code: HW-HCIP-DARST



DURATION	SKILL LEVEL	DELIVERY METHOD	TRAINING CREDITS	TECHNOLOGY
5 Day(s)	Intermediate	ILT/VILT Theoretic & Hands on practice	Huawei Voucher	Datacom

Course Overview

HCIP-Datacom-Advanced Routing & Switching technology certification course covers advanced routing and switching knowledge in the data communication field, including advanced IGP features, advanced BGP features, IPv6 routing, advanced Ethernet technologies, MPLS technologies, Network O&M, Network Troubleshooting, and Network Cutover.

Target Audience

- Those who want to become senior Data Communication engineers.
- Those who want to obtain the HCIP-Datacom-Advanced Routing & Switching Technology certification.

Prerequisites

- Be familiar with common operations of Huawei network devices.
- Have the knowledge and skills described in the HCIP-Datacom-Core Technology course.

Course Objectives

- Describe various fast convergence techniques of OSPF and IS-IS.
- Configure OSPF and IS-IS equal-cost routes.
- Configure OSPF and IS-IS to advertise default routes.
- Describe the application scenarios of OSPF and IS-IS multi-process.
- Describe the application scenarios of OSPF forwarding address (FA).
- Describe the implementation of IS-IS LSP fragment extension.
- Use regular expressions during the configurations of AS_Path and community filters.
- Use AS_Path and community filters to control BGP routes.
- Apply the ORF and peer group functions of BGP.
- Perform basic configurations of BGP security.
- Learn about the networking modes of BGP RRs.
- Configure IPv6 static routes.
- Analyze the differences between OSPFv3 and OSPFv2.
- Configure basic OSPFv3 functions.
- Describe the extension of IS-IS to IPv6.
- Configure basic IS-IS (IPv6) functions.
- Describe the extension of BGP to IPv6.
- Configure basic BGP4+ functions.
- Describe the working mechanism of VLAN aggregation.
- Describe application scenarios of MUX VLAN.
- Describe QinQ implementation.
- Perform configurations of VLAN aggregation, MUX VLAN, and QinQ.
- Describe types and configurations of port isolation.
- Illustrate the working mechanism of port security.
- Describe MAC address flapping detection.
- Explain traffic suppression and storm control functions of switches.
- Describe application scenarios of DHCP snooping.
- Illustrate the working mechanism of IP source guard.
- Understand basic MPLS concepts and terms.
- Understand the principles of MPLS.
- Configure static LSPs.
- Describe the MPLS forwarding process.
- Understand LDP's basic concepts and working mechanisms.
- Describe the MPLS label distribution control mode, advertisement mode, and retention mode.
- Perform basic LDP configurations.
- Describe the MPLS VPN model.

- Understand basic concepts of MPLS VPN.
- Describe the MPLS VPN route transmission and label distribution process.
- Describe the MPLS VPN data forwarding process.
- Perform basic MPLS VPN configurations.
- Understand the usage scenarios and networking types of MPLS VPN.
- Deploy the intranet solution with MPLS VPN.
- Deploy the MPLS VPN Hub&Spoke solution.
- Understand extended functions of OSPF for MPLS VPN.
- Understand check items in routine maintenance.
- Understand the functions and features of Huawei datacom product information center.
- Use common maintenance tools.
- Understand the troubleshooting methods.
- Analyze loop faults.
- Analyze failures to establish neighbor relationships of routing protocols.
- Write a troubleshooting guide.
- Clarify the operation procedure and specifications of the migration.
- Describe common migration scenarios.

Course Content

Advanced IGP Features

- Advanced IGP Features
 - OSPF fast convergence
 - OSPF Route Control
 - Other OSPF Features
 - Advanced IS-IS Features
- Advanced IGP Features Experiment
 - Advanced IGP Features Experiment

Advanced BGP Features

- Advanced BGP Features
 - BGP route control
 - Introduction to BGP Features
 - Networking of BGP RRs
- Advanced BGP Features Experiment
 - Advanced BGP Features Experiment

IPv6 Routing

- IPv6 Routing
 - IPv6 static route
 - OSPFv3 Principles and Configuration
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- IS-IS (IPv6) Principles and Configuration
- BGP4+ Principles and Configuration
- IPv6 Routing Experiment
 - IPv6 Routing Experiment

Advanced Ethernet Technologies

- Advanced VLAN Technologies
 - Super-VLAN
 - MUX-VLAN
 - QinQ
- Advanced VLAN Technology Experiment
 - Advanced VLAN Technology Experiment
- Ethernet Switching Security
 - Port Isolation
 - MAC Table Security
 - Port security
 - MAC Address Flapping Prevention and Detection
 - MACsec
 - Switch traffic control
 - DHCP Snooping
 - IP Source Guard
- Ethernet Switching Security Experiment
 - Ethernet Switching Security Experiment

MPLS Technology

- MPLS Implementation and Configuration
 - MPLS Overview
 - MPLS Forwarding
 - Static LSP
 - LDP Principles and Configurations
 - Basic Concepts of LDP
 - Working Principle of LDP
 - Basic LDP Configurations
 - MPLS VPN Basics
 - MPLS VPN Overview
 - MPLS VPN route exchange
 - MPLS VPN packet forwarding
 - MPLS VPN Configuration and Implementation
 - MPLS VPN Deployment and Application
 - MPLS VPN Application and Networking Overview
 - Typical Application Scenarios and Deployment of MPLS VPN
 - OSPF VPN expansion
 - BGP/MPLS IP VPN Experiment
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- BGP/MPLS IP VPN Experiment

Network O&M

- Network O&M
 - Routine Maintenance
 - Information collection tool

Troubleshooting

- Network Fault Troubleshooting
 - Structured troubleshooting process
 - Core Ideas and Methods of Network Troubleshooting
 - Troubleshooting Common Network Faults

Network Migration

- Network Migration
 - Basic Concepts of Migration
 - Migration Process

Associated Certification & Exam

This course prepares delegates to take the HCIP-Datacom-Advanced Routing & Switching Technology exam H12-831.

Passing HCIP-Datacom-Advanced Routing & Switching Technology V1.0 indicates that the candidate is competent for the position of network engineer in a medium- or large-sized enterprise and can plan, design, deploy, maintain, and troubleshoot medium- or large-sized enterprise networks using Huawei datacom devices, while designing solutions with high security, availability, and reliability for network applications.

You need to pass the following exam(s) to obtain the certificate.

HCIP-Datacom-Core Technology

Exam Code: H12-821

Exam Type: Written examination

Exam Format: Single-answer Question, Multiple-answer Question, True or false, Short Response Item, Drag and Drop

HCIP-Datacom-Advanced Routing & Switching Technology

Exam Code: H12-831

Exam Type: Written examination

Exam Format: Single-answer Question, Multiple-answer Question, True or false, Short Response Item, Drag and Drop

