HCIP-Datacom-Advanced Routing & Switching Technology

Duration: 5 Days

Prerequisites:

It is recommended that you learn HCIA-Datacom in advance.

Course Description:

Passing HCIP-Datacom-Advanced Routing & Switching Technology V1.0 certificate indicates that you are competent for the position of network engineer in a medium-or large-sized enterprise, be capable of planning and designing, deploying and maintaining, and locating faults on a medium-or large-sized enterprise network by using Huawei datacom devices, and design solutions with high security, availability, and reliability for network applications.

Target Audience:

Those who want to achieve HCIP-Datacom-Advanced Routing & Switching Technology. Those who want to be datacom senior engineer

Course Outlines:

1. IP Routing Basics
   - Introduction to Network Devices: Hardware modules of modular switches, Three planes of network devices, Packet processing on network devices.
   - IP Routing Basics: RIB and FIB, Route import scenario.

2. OSPF Core Knowledge
   - OSPF Basics: Introduction to dynamic routing protocols, Basic OSPF concepts, Process of establishing an OSPF neighbor relationship, Basic OSPF configuration
   - OSPF Route Calculation: Intra-area route calculation, Inter-area route calculation, External route calculation
   - OSPF Special Area and Other Features: Stub area and totally stub area, NSSA area and totally NSSA area, Inter-area route summarization and external route summarization, OSPF Features
3. IS-IS Core Knowledge
   - IS-IS Principles and Configuration: Basic concepts of IS-IS, IS-IS working principle, Basic IS-IS configuration

4. BGP Core Knowledge
   - BGP Basics: BGP overview, Basic concepts of BGP, Basic BGP configuration
   - BGP Path Attributes and RRs
   - BGP route selection
   - BGP EVPN Basics: MP-BGP, EVPN overview, Common EVPN routes, Typical EVPN application scenarios

5. Routing and Traffic Control
   - Routing Policy and Route Control: Route matching tool, Routing policy tool, Route control cases
   - Traffic Filtering and Forwarding Path Control: Policy-based routing, MQC, Traffic filtering

6. Switching Core Knowledge
   - RSTP Principles and Configuration: RSTP overview, Improvements of RSTP over STP, RSTP working process, Basic RSTP configurations
   - MSTP Principles and Configuration: MSTP overview, Basic concepts of MSTP, Working principles of MSTP, Basic MSTP configuration
   - Stack and CSS: Overview of Stack and CSS technologies, Stacking principles, CSS principles, Basic configuration

7. Multicast Basics
   - IP Multicast Basics: Basic concepts of IP multicast, Multicast data forwarding principle
   - IGMP Principles and Configuration: IGMP working principle, Introduction to the IGMP feature
   - PIM Principles and Configuration: PIM basics, PIM-DM, PM-SM

8. IPv6 Core Knowledge
   - IPv6 Overview: IPv6 overview, Introduction to IPv6 addresses
   - ICMPv6 and NDP: ICMPv6 overview, NDP overview, Router discovery, Duplicate address detection, Redirection
   - IPv6 address configuration: IPv6 address configuration mode, Stateless IPv6 address autoconfiguration, DHCPv6, Implementation of IPv6 address autoconfiguration

9. Network Security Basics
   - Huawei Firewall Technology: Firewall overview, Basic concepts of firewalls, Basic firewall configuration
   - Network Device Security Features: Security hardening policies for common devices, Network device security hardening deployment example
   - VPN Technology Overview: VPN technology overview, Common VPN technologies
   - Basic Concepts and Applications of VRF

10. Network Reliability
    - BFD Principles and Configuration: BFD Overview, BFD working principle, BFD application scenarios, Basic BFD configurations
    - VRRP Principles and Configuration:VRRP overview, VRRP working principles, Typical VRRP application, Basic VRRP configuration

11. Network Service and Management
    - DHCP Principles and Configuration: DHCP background, DHCP working principle and configuration, DHCP Relay working principle and configuration
    - Introduction to Network Management Protocols: Development of network management, Functional features of network management, Network management protocols, Application scenarios of network management

12. Large-scale WLAN Architecture
    - Large-Scale WLAN Networking and Deployment: Overview of large-scale WLAN networking, VLAN pool, DHCP technology, Roaming technology, High reliability technology, Network Admission Control technology

13. Network Solution
    - Enterprise Datacom Solution Overview: Campus, Data center, SDN-WAN, SD-WAN

HCIP-Datacom-Advanced Routing & Switching Technology Training Content (5 Working days)

1. Advanced IGP Features
   - Advanced IGP Features: OSPF fast convergence, OSPF Route Control, Other OSPF Features, Advanced IS-IS Features

2. Advanced BGP Features
   - Advanced BGP Features: BGP route control, Introduction to BGP Features, Networking of BGP RRs

3. IPv6 Routing
   - IPv6 Routing: IPv6 static route, OSPFv3 Principles and Configuration, IS-IS (IPv6) Principles and Configuration, BGP4+ Principles and Configuration

4. Advanced Ethernet Technologies
   - Advanced VLAN Technology: Super-VLAN, MUX-VLAN, QinQ
   - 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

5. MPLS Technology
   - MPLS Principles and Configuration: MPLS Overview, MPLS Forwarding, Static LSP
   - MPLS LDP Principles and Configuration: Basic Concepts of LDP, Working Principle of LDP, Basic LDP Configurations
   - MPLS VPN Principles and Configuration: 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

6. Network O&M
   - Network O&M: Routine Maintenance, Information collection tool

7. Troubleshooting
   - Troubleshooting: Structured troubleshooting process, Core Ideas and Methods of Network Troubleshooting, Troubleshooting Common Network Faults

8. Network Migration
   - Network Migration: Basic Concepts of Migration, Migration Process