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HCIP-Datacom-Advanced Routing & Switching Technology

Online Course

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Course Modules

1.IP Routing Basics

- Intro to Netwrk Devices: Hardware modules of modular swtchs
- 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 neighbour relationship
- Basic OSPF configuration
- OSPF Route Calculation: Intra-area route calculation
- Inter-area route calculation
- External route calculation
- OSPF Special Area & Other Features: Stub area & totally stub
- NSSA area and totally NSSA area
- Inter-area route summarization & external route summarization
- OSPF Features

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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 & Forwarding Path Contrl: 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
- Intro to the IGMP feature PIM Principles and Config: PIM basics
- PIM-DM, PM-SM

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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
- 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
- Intro to Network Mangmnt Protocols: Development of network
- Functional features of network management
- Network management protocols
- Application scenarios of network management

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12. Large-scale WLAN Architecture

- Large-Scale WLAN Networking and Deployment
- 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
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14. Advanced IGP Features

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

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15. Advanced BGP Features

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

16. IPv6 Routing

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

17. 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

18. 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 & App: MPLS VPN App & Networking
- Typical Application Scenarios and Deployment of MPLS VPN
- OSPF VPN expansion

19. Network O&M

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

20. Troubleshooting

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

21. Network Migration

- Network Migration: Basic Concepts of Migration
- Migration Process

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