Szkolenie: HPE

HPE Comware Configuring Core Networking Technologies

Hewlett Packard Enterprise

Cel szkolenia:

This course gives network engineers an opportunity to plan for and implement core networks utilizing HPE Comware devices. Participants configure HPE Intelligent Resilient Framework Multi-Active Detection, Multi Area OSPF, BGP, Multicast, and Virtual Routing technologies. This course covers advanced topics; learners experience both theory and hands-on with real hardware through lab exercises.

Course objectives

By the end of this class, you should be able to:

- Implement and deploy HPE Intelligent Resilient Framework with Multi-Active Detection technologies to protect your network
- 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 Multicast (Protocol Independent Multicast) along with IGMP technologies
- Understand, describe and configure Multi-CE (MCE) which enables a switch to function as a Customer Edge (CE) device of multiple VPN instances

Audience

This course is for network administrators and engineers who plan to deploy HPE Comware switches into new or existing networks.

Plan szkolenia:

- Module 1: HPE IRF Multi-Active Detection
  - Describe the HPE Intelligent Resilient Framework Multi-Active Detection functionality
  - Configure BFD Multi-Active Detection
  - Lab Activity 1: Configuring HPE IRF MAD
    - Establish an HPE IRF topology
    - Establish distributed link aggregation
    - Configure BFD Multi-Active Detection

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ul. Tatarska 5, 30-103 Kraków, tel.: (12) 298 47 77
ul. Bielska 17, 02-394 Warszawa, tel.: (22) 417 41 70
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        - Test BFD Multi-Active Detection
        - Restore your original configurations
- Module 2: Multi-Area OSPF
    - Describe area types
    - Describe LSA types (Type 3)
    - Explain summarization
    - Explain external route redistribution
    - Lab Activity 2: IP Routing with Multi-Area OSPF
    - Lab 2.1: Implement Single-Area OSPF
        - Build the topology
        - Configure OSPF with one area
        - Explore and observe Multi-Area LSAs
        - ABR Route Summarization and Route Filtering (notadvertise)
        - Observe effects of route aggregation
    - Lab 2.2: Implement Multi-Area OSPF
        - Divide the OSPF system into multiple areas
        - Explore the multi-area OSPF AS
        - Configure aggregated area summaries
        - Prohibit advertisements of area 0 routes in other areas
    - Lab 2.3: Implement Multi-Area OSPF
        - Reconfigure routers to support new topology
        - Configure the ASBR
        - Add a redundant connection to the new site
        - Configure a redundant ASBR
        - Configure stub areas
        - Configure totally stub areas
        - Add a redundant ABR
- Module 3: IP Routing Using BGP Protocol
    - Explain BGP concepts
    - Explain BGP peering
    - Describe BGP BFD
    - Describe BGP route filtering
    - Lab Activity 3: IP Routing Using BGP protocol
    - Lab 3.1: Configuring topology and establishing BGP sessions
        - Build the topology
        - Configure a BGP session to ISP1 on the company router

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- Configure a BGP sessions on the ISP1 router
- Configure BGP sessions between ISP1 and ISP2
- Configure authenticated BGP sessions between local AS and ISP2

- Lab 3.2: Advertise and receive routes using eBGP
  - Explore the BGP routing
  - Inject a network into BGP using a null route
  - Inject a network into BGP using a null route
  - Connect the company router to the OSPF AS
  - Advertise a default route in OSPF
  - Test the routing
  - Filter other ISP routes from BGP advertisements

- Module 4: Multicast (IGMP/PIM)
  - Explain and configure IGMP protocol
  - Explain and configure PIM dense mode
  - Explain and configure PIM sparse mode
  - Lab Activity 4: Configuring IGMP and PIM-Sparse Mode
    - Restore and verify the network topology
    - Prepare the multicast sender and receiver
    - Enable multicast routing and IGMP on receivers' default gateway
    - Enable PIM-SM on routers between the source and receivers
    - Configure a static RP
    - Stream multicast traffic
    - Configure dynamic RPs

- Module 5: MCE (Multi-VPN Instance Customer Edge) aka VRF-Lite
  - Describe and configure MCE and vpn-instance
  - Describe route leaking
  - Lab Activity 5: Configuring Multi-VPN Instance Customer Edge (aka VRF-Lite)
  - Lab 5.1: Configuring basic MCE (VRF Lite)
    - Restore devices to lab default settings
    - Configure backbone IP connectivity
    - Configure IP VPN services for Customer A
    - Configure OSPF dynamic routing inside IP VPN instance
  - Lab Activity 5.2: Configuring advanced MCE (VRF Lite)
    - Configuring IP VPN instance routing limits
    - Configuring route leaking between VPN instances

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Wymagania:

Prior to this course, students should have basic networking experience.

Poziom trudności

Certyfikaty:

The participants will obtain certificates signed by HPE (course completion).

Prowadzący:

Authorized HPE Trainer.

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