Hewlett Packard Enterprise

Designing & Deploying Network Solutions

Exam description

This exam tests your skills on designing and deploying network solutions.

Who should take this exam?

This exam is for students and beginning technologists who require an in-depth introduction to designing and developing network solutions.

- Post-secondary or high school students
- Vocational students
- Entry-level IT business professionals

Exam contents

Here are types of questions to expect:

- Multiple choice (multiple responses)
- Multiple choice (single response)

Tips for taking this exam

To pass this exam, you must have an essential understanding of desktop, mobile and other connected devices, along with general understanding of IT principles. Exams are based on an assumed level of industry standard knowledge that may be gained from the training, hands on experience, or other prerequisite events.

Supporting courses

These recommended courses help you prepare for the exam:

- 00422833: Designing & Deploying Network Solutions

Objectives

This exam validates that you can successfully perform the following:

Exam ID	HP4-A02
Exam type	HP Institute exams (HP University exams) administered by Certiport
Exam duration	1 hour 20 minutes
Passing score	70%
Delivery languages	English

Register for this Exam

To register, please go to Certiport and register for the course & exam.

During the exam, you can make specific comments about the items (i.e. accuracy, appropriateness to audience, etc.). HP welcomes these comments as part of our continuous improvement process.

Related certifications	• HP ATA - Networks V1

Sections/Objectives

Explain and Recognize Networking technologies and their implications on customer needs

- Describe the OSI Model
  - o Identify each layer and describe its purpose and function
  - o Map the most common IP suite protocols to the OSI layers
- Describe and recognize the most common Data Link protocols and their associated physical connections (Layers 1 and 2)
  - o Recognize and describe the common network topologies
  - o Describe the most common layer media (Layer1)
  - o Describe the common Data Link (Layer 2) connections
  - o Describe Ethernet technology and media
  - o Describe Wireless technology and media
- Describe Layer 3 routing concepts with detailed focus on IP
  - o Compare/contrast classful subnets versus classless networks
  - o Explain IP addressing rules
  - o Describe Dynamic Host Control Protocol (DHCP)
  - o Explain WHY IPv6 was invented (To support larger number of device addresses)
  - o Describe how IPV4 routing works
- Identify common dynamic routing protocols and describe their function on a network
  - o Compare and contrast with static routes
  - o Describe Routing Information Protocol (RIP)
  - o Describe Open Shortest Path First (OSPF) and why it exists
- Describe the purpose and function of Layer 4 (Transport) protocols on an IP network
  - o Compare and contrast TCP and UDP within the IP protocol stack
- Describe the common IP-based upper layer (Layers 5, 6, & 7) protocols and applications
  - o Identify and describe the purpose of a port
  - o Identify the common upper-layer applications and their functions
- Describe multicast technology and its purp
  - o Describe how a switch deals with multicast traffic differently
  - o Identify common applications and protocols that use multicast on a network
- Describe the concept of QoS (Quality of Service)
  - o Describe the common use cases for Quality of Service
  - o Apply the essential axiom of prioritization: “If there is no congestion, prioritization has no effect"
  - o Describe the difference between "over-provisioning" and prioritization and when to use one versus the other in a small business context
- Describe how to secure a network using basic security features
  - o Define basic security concepts
  - o Describe common network access security methods
  - o Identify and describe common administrative access security methods (i.e. for infrastructure devices)
  - o Describe the concepts and functions of Virtual Private Networks (VPN) concepts
  - o Describe the purpose and functions of firewalls, and Proxy Servers at a high level
  - o Describe the common Data Integrity technologies (Encryption, Certificates, etc.)
- Describe the common ways to increase availability and performance of a Network
  - o Describe the concept of redundancy
  - o Describe the concept of Link Aggregation
- Describe the concept and use of VLANs
  - o Describe a VLAN and its benefits
  - o Describe Port Based VLANS IEEE 802.1Q
- Describe the common Network Management technologies
  - o Describe Device Management
  - o List and describe the common tools used to manage traffic on a network

Sections/Objectives

Plan and design wired and wireless network solutions for SMB customers

- Consult with an SMB customer to assess their business and technical needs and create a plan for a networking solution
  - o Gather/Analyze customer business requirements
  - o Plan for cable and port requirements
  - o Plan for bandwidth and QoS requirements (Including types of traffic, ISCSI etc.)
  - o Plan for critical and high traffic users/servers
  - o Plan for anticipated future growth of network
  - o Plan for serviceability and management
  - o Plan for mobility and wireless
  - o Plan for security
  - o Plan for voice
  - o Plan for green IT
- Design a networking solution to meet the customer needs identified in the planning stage
  - o Specify number of ports and types including:
  - o Determine speed requirements including: Access speed, uplink speed, backplane speeds
  - o Design network topology
  - o Determine types of media
  - o Determine number uplinks required
  - o Determine redundancy scheme including: spanning tree topology, layer 3 routing protocols, link aggregation or when multiple links per host are required
  - o Assess business requirements and design all elements of network security into a single, integrated security solution
  - o Specify network management tools to be used
  - o Design wireless & mobility
- Identify and describe best practices for designing solutions
  - o Take advantage industry standards and HP developed best practices
  - o Take into consideration HP Networking strengths in the design
  - o Sflow and traffic monitoring

Install, configure, startup, and upgrade the network solutions for SMB customers

- Prepare for and install networking equipment
  - o Perform pre-project survey to validate appropriate design
  - o Install modules and components in devices in specified slots based on manufacturer and design requirements
  - o Build initial configuration files as required by design
  - o Update firmware and initial configuration files
  - o Perform specific configuration of devices - Device name, Port names, VLANs, Routing, Certificates, Spanning Tree, SSIDs, PoE, DHCP Servers and Relays, etc.
  - o Configure WAN devices
  - o Implement required security devices
  - o Physically connect devices per design requirements
- Install and configure management and administration solution
  - o Install management software (PMC+)
  - o Configure management software per design requirements (Application security)
  - o Run device discovery for specified devices
  - o Run and store default reports including discovered devices, network map, etc.
  - o Develop and implement management policies per design requirements
- Validate installed solution
  - o Install management software (PMC+)
  - o Configure management software per design requirements (Application security)
  - o Run device discovery for specified devices
  - o Run and store default reports including discovered devices, network map, etc.
  - o Develop and implement management policies per design requirements

Optimize wireless, switched, and routed network infrastructures for SMB customers

- Manage network assets using HP and 3rd party tools
  - o Interpretation of counters and logs
  - o Use HP tools to ease deployment of multiple devices
  - o Interpret output of or data within existing HP tools
- Optimize network performance by improving segmentation and topology
  - o Small scale capacity planning - thinking ahead, planning for expansion and future growth
  - o Verify identified bottleneck or limitation
- Optimize L3 routing protocol convergence and scalability
  - o Tune advanced layer 3 routing protocols, including dynamic and static
- Optimize network availability
  - o Implement trunking
- Optimize and scale wireless network configuration
  - o Use wireless optimization tools and techniques
  - o Optimize RF Coverage, User count, and cell size adjustments
- Optimize security on wired/wireless networks and devices
  - o Centralize security implementation and administration
- Optimize power utilization by implementing Green IT practices
  - o Implement Power, Cooling, PoE

Sections/Objectives
Troubleshoot wireless, switched, and routed network infrastructures for SMB customers • Troubleshoot routed and switched networks o Describe specific tools appropriate for troubleshooting wired or wireless networks, and manage network assets using appropriate tools • Troubleshoot remote connectivity o Troubleshoot VPNs o Troubleshoot mobile devices (tablets, phones and laptops)

For more information

Contact our program

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