

uCertify

Course Outline

CompTIA Network+ (N10-009)



12 Jul 2024

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Here's what you get

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1. Course Objective

The CompTIA Network+ (N10-009) course covers essential networking concepts, including network architectures, protocols, troubleshooting techniques, and security principles. Through a blend of interactive lessons, hands-on labs, and practice tests, you'll gain practical skills in configuring, managing, and maintaining network infrastructure. The curriculum aligns closely with the latest exam objectives, ensuring you're well-equipped to tackle real-world networking challenges and ace your certification test. Whether you're a beginner looking to start a career in IT networking or a professional aiming to validate your skills, this course provides the knowledge and tools you need to succeed in today's interconnected digital landscape.

2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

3. Exercises

There is no limit to the number of times learners can attempt these. Exercises come with detailed remediation, which ensures that learners are confident on the topic before proceeding.

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EXERCISES

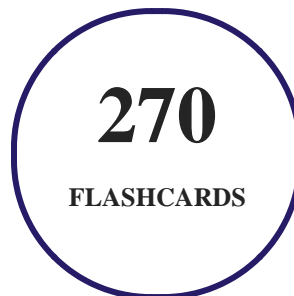
4. Quiz

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.



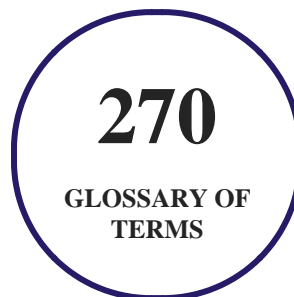
5. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.



6. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.



7. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

8. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

9. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

10. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been

recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**

1. Best Postsecondary Learning Solution

- **2015**

1. Best Education Solution
2. Best Virtual Learning Solution
3. Best Student Assessment Solution
4. Best Postsecondary Learning Solution
5. Best Career and Workforce Readiness Solution
6. Best Instructional Solution in Other Curriculum Areas
7. Best Corporate Learning/Workforce Development Solution

- **2016**

1. Best Virtual Learning Solution
2. Best Education Cloud-based Solution
3. Best College and Career Readiness Solution
4. Best Corporate / Workforce Learning Solution
5. Best Postsecondary Learning Content Solution
6. Best Postsecondary LMS or Learning Platform
7. Best Learning Relationship Management Solution

- **2017**

1. Best Overall Education Solution
2. Best Student Assessment Solution
3. Best Corporate/Workforce Learning Solution
4. Best Higher Education LMS or Learning Platform

- **2018**

1. Best Higher Education LMS or Learning Platform

2. Best Instructional Solution in Other Curriculum Areas
3. Best Learning Relationship Management Solution

- **2019**

1. Best Virtual Learning Solution
2. Best Content Authoring Development or Curation Solution
3. Best Higher Education Learning Management Solution (LMS)

- **2020**

1. Best College and Career Readiness Solution
2. Best Cross-Curricular Solution
3. Best Virtual Learning Solution

11. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Introduction

- What Is the Network+ Certification?
- Why Become Network+ Certified?
- How to Become Network+ Certified

- Tips for Taking the Network+ Exam
- Who Should Read This Course?
- What Does This Course Cover?
- How to Use This Course
- N10-009 Exam Objectives
- Objective Map

Chapter 2: Introduction to Networks

- First Things First: What's a Network?
- Physical Network Topologies
- Topology Selection, Backbones, and Segments
- Summary
- Exam Essentials

Chapter 3: The Open Systems Interconnection (OSI) Reference Model

- Internetworking Models
- Introduction to Encapsulation
- Modulation Techniques

- Summary
- Exam Essentials

Chapter 4: Networking Connectors and Wiring Standards

- Physical Media
- Cable Properties
- Wiring Standards
- Installing Wiring Distributions
- Summary
- Exam Essentials

Chapter 5: The Current Ethernet Specifications

- Network Basics
- Ethernet Basics
- Ethernet at the Data Link Layer
- Ethernet at the Physical Layer
- Ethernet over Other Standards (IEEE 1905.1-2013)
- Summary
- Exam Essentials

Chapter 6: Networking Devices

- Common Network Connectivity Devices
- Other Specialized Devices
- Networked Devices
- Planning and Implementing a Basic SOHO Network Using Network Segmentation
- Summary
- Exam Essentials

Chapter 7: Introduction to the Internet Protocol

- Introducing TCP/IP
- Data Encapsulation
- Summary
- Exam Essentials

Chapter 8: IP Addressing

- IP Terminology
- The Hierarchical IP Addressing Scheme
- IPv4 Address Types

- Internet Protocol Version 6 (IPv6)
- Summary
- Exam Essentials

Chapter 9: IP Subnetting, Troubleshooting IP, and Introduction to NAT

- Subnetting Basics
- Troubleshooting IP Addressing
- Introduction to Network Address Translation (NAT)
- Summary
- Exam Essentials

Chapter 10: Introduction to IP Routing

- Routing Basics
- The IP Routing Process
- Testing Your IP Routing Understanding
- Static and Dynamic Routing
- Summary
- Exam Essentials

Chapter 11: Routing Protocols

- Routing Protocol Basics
- Distance-Vector Routing Protocols
- Link-State Routing Protocols
- High Available Routes
- Advanced IPv6 Concepts
- IPv6 Routing Protocols
- Summary
- Exam Essentials

Chapter 12: Switching and Virtual LANs

- Networking Before Layer 2 Switching
- Switching Services
- Spanning Tree Protocol
- Virtual LANs
- VLAN Trunking Protocol
- Advanced Features of Switches
- Summary

- Exam Essentials

Chapter 13: Wireless Networking

- Introduction to Wireless Technology
- Cellular Technologies
- The 802.11 Standards (Regulatory Impacts)
- Comparing 802.11 Standards
- Wireless Network Components
- Installing a Wireless Network
- Site Survey
- Wireless Security
- Summary
- Exam Essentials

Chapter 14: Remote Network Access

- Site-to-Site VPN
- Client-to-Site VPN
- Remote Desktop Connection

- Virtual Network Computing
- Connection Methods
- Jump Box/Host
- In-Band vs. Out-of-Band Management
- Summary
- Exam Essentials

Chapter 15: Using Statistics and Sensors to Ensure Network Availability

- Performance Monitoring/Metrics/Sensors
- SNMP
- Application Programming Interface Integration
- Protocol Analyzer/Packet Capture
- Flow Data
- Log Aggregation
- Summary
- Exam Essentials

Chapter 16: Organizational Documents and Policies

- Plans and Procedures

- Hardening and Security Policies
- Common Documentation
- IP Address Management
- Common Agreements
- Summary
- Exam Essentials

Chapter 17: High Availability and Disaster Recovery

- Load Balancing
- Multipathing
- Network Interface Card (NIC) Teaming
- Redundant Hardware/Clusters
- Facilities and Infrastructure Support
- Redundancy and High Availability Concepts
- Backups
- Testing
- Summary
- Exam Essentials

Chapter 18: Data Center Architecture and Cloud Concepts

- Cloud Computing
- Infrastructure as Code
- Software-Defined Networking
- Virtual Extensible Local Area Network
- Zero Trust Architecture
- Secure Access Secure Edge/Security Service Edge
- Summary
- Exam Essentials

Chapter 19: Network Troubleshooting Methodology

- Narrowing Down the Problem
- Troubleshooting Steps
- Troubleshooting Tips
- Summary
- Exam Essentials

Chapter 20: Network Software Tools and Commands

- Software Tools
- Using traceroute
- Using ipconfig, ifconfig, and ip
- Using the ifconfig Utility
- Using the ip Utility
- Using the iptables Utility
- Using the ping Utility
- The Address Resolution Protocol
- Using the arp Utility
- Using the nslookup Utility
- Resolving Names with the Hosts File
- Using the mtr Command (pathping)
- Using the Nmap Utility
- Using the route Command
- Using the netstat Utility
- Using tcpdump
- Basic Networking Device Commands

- Hardware Tools
- Summary
- Exam Essentials

Chapter 21: Network Security Concepts

- Common Security Terminology
- AAA Model
- Regulatory Compliance
- Summary
- Exam Essentials

Chapter 22: Common Types of Attacks

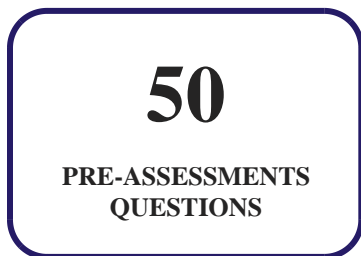
- Technology-Based Attacks
- Human and Environmental
- Hardening Security
- Implementing Network Segmentation
- Physical Security Concepts
- Summary
- Exam Essentials

Chapter 23: Appendix A: Subnetting Class A

- Subnetting Practice Examples: Class A Addresses
- Subnetting in Your Head: Class A Addresses

12. Practice Test

Here's what you get



Features

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode,

learners can read through one item at a time without attempting it.

13. Live Labs

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations
- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality
- No hardware costs

Lab Tasks

Introduction to Networks

- Exploring a Single Location in a Lab
- Connecting Devices in a Peer-To-Peer Architecture
- Configuring an iSCSI Target and Initiator
- Connecting Devices in a Mesh Topology
- Creating a Bus Topology

The Open Systems Interconnection (OSI) Reference Model

- Generating and Examining the ARP Packets

Networking Connectors and Wiring Standards

- Connecting Patch Panel Cables
- Connecting Fiber Optic Cables

- Establishing an Internet Connection Between Two Switches Using a Media Converter

The Current Ethernet Specifications

- Configuring the Speed and Duplex Settings of a Network Interface
- Configuring NIC Teaming
- Connecting to an Ethernet Network
- Reconnecting to an Ethernet Network

Networking Devices

- Mounting and Stacking Switches in a Server Rack
- Connecting Systems to the Internet Through a Firewall Router
- Implementing Intrusion Detection and Prevention
- Configuring a Firewall
- Configuring DHCP on a Router
- Creating an ALB in AWS
- Configuring a Router
- Configuring Autonomous Access Points
- Connecting to a VoIP
- Connecting to a Cable Modem
- Configuring a DNS Server
- Configuring Zone Transfers
- Connecting to a DSL Network
- Configuring a Basic Switch
- Viewing and Creating a Record Type
- Examining DNS Entries
- Configuring a Proxy Server
- Providing Remote Internet Access Using Analog Modem
- Configuring Multi-stratum NTP
- Creating a Demilitarized Zone
- Powering a VoIP Phone Using PoE Injector
- Implementing a SOHO Network

Introduction to the Internet Protocol

- Viewing the IPv4 Header
- Understanding ICMP
- Understanding HTTP/HTTPS
- Analyzing the Structure of TCP and UDP Segments
- Using the ping and tracet Commands
- Exploiting SMTP
- Examining Port Numbers
- Configuring an SSH Server on a Linux System
- Connecting to a Remote Computer Using the Remote Desktop Connection
- Configuring IPsec
- Configuring GRE Tunnels

IP Addressing

- Exploring APIPA and Loopback Addresses
- ?Configuring an IPv4 Address
- Configuring an IPv6 Address
- Configuring Stateless and Stateful DHCPv6
- Configuring SLAAC

IP Subnetting, Troubleshooting IP, and Introduction to NAT

- Configuring an IP Address in Linux
- Configuring Network Address Translation

Introduction to IP Routing

- Configuring Static Routing

Routing Protocols

- Configuring BGP
- Configuring EIGRP
- Configuring OSPF
- Configuring IPv6 on a Router

Switching and Virtual LANs

- Viewing the Default Status of the Interfaces on a Switch
- Configuring a Loop Guard on a Switch Port
- Observing the STP Modes
- Investigating STP Loop Prevention
- Configuring a BPDU Guard on a Switch Port
- Configuring PortFast and Rapid Spanning Tree
- Configuring an Access Port
- Creating a VLAN and Placing a Switch Port into It
- Configuring DHCP Snooping
- Configuring Speed, Duplex, and Description on a Switch
- Configuring VLAN and Trunking
- Configuring EtherChannel
- Enabling Jumbo Frame Support

Wireless Networking

- Creating a Home Wireless Network
- Working with a Mobile Hotspot
- Connecting an iPhone to a Laptop via Bluetooth

Remote Network Access

- Creating a Site-to-Site VPN Connection
- Configuring a VPN Connection on an iPad

Using Statistics and Sensors to Ensure Network Availability

- Using a Visual Fault Locator
- Monitoring the System's Performance Using Performance Monitor
- Viewing and Exporting Event Logs
- Configuring Syslog and Observing the Log Settings

Organizational Documents and Policies

- Setting Up a Password Policy
- Strengthening iPad Security
- Installing the IPAM Feature

High Availability and Disaster Recovery

- Creating Redundant Storage
- Configuring HSRP
- Backing Up Files
- Creating a Restore Point
- Restoring Files
- Creating a Local Backup

Data Center Architecture and Cloud Concepts

- Creating a VPN Connection
- Creating a Virtual Switch
- Creating a VPC in AWS
- Creating a Virtual Network in Azure
- Creating a Network Firewall in AWS
- ?Creating a NAT Gateway
- Creating an Internet Gateway in AWS

Network Troubleshooting Methodology

- Troubleshooting IP Addressing Issues
- Troubleshooting Switching Issues

Network Software Tools and Commands

- Using the Protocol Analyzer Tool
- Understanding Networking and Network Diagnostics Command Line Tools
- Using Command Line Tools
- Using Networking Device Commands
- Testing an RJ-45 Cable Using a Cable Tester
- Using a Network Tap

- Providing Cooling and Ventilation to a Motherboard

Network Security Concepts

- Examining a Self-Signed Certificate
- Examining PKI Certificates
- Adding a Digital Certificate
- Creating Asymmetric Key Pairs
- Understanding Symmetric Encryption
- Configuring the RADIUS Server

Common Types of Attacks

- Spoofing a MAC Address
- Defending Against IP Spoofing
- Simulating a DoS Attack
- Performing ARP Spoofing
- Using Anti-phishing Tools
- Using the SET Tool
- ?Creating a Network ACL
- Cracking Passwords Using Cain and Abel
- Using Honeypot
- Disabling Unnecessary Services in Windows
- Implementing Physical Security

Here's what you get

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LIVE LABS

94

VIDEO TUTORIALS

03:08


HOURS

14. Post-Assessment


After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

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