CompTIA Network+

Practice Labs™

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Lab Outline

The CompTIA Network+ Practice Lab will provide you with the necessary platform to gain hands-on skills in networking technologies.

By completing the lab tasks, you should be able to give a clear explanation of infrastructure, networking concepts, network operations, security, networking troubleshooting and tools.

These same tasks will help you understand the objectives and competencies required by the CompTIA Network+ (N10-007) certification exam.

Outcomes

After completing this Practice Lab, students will be able to:

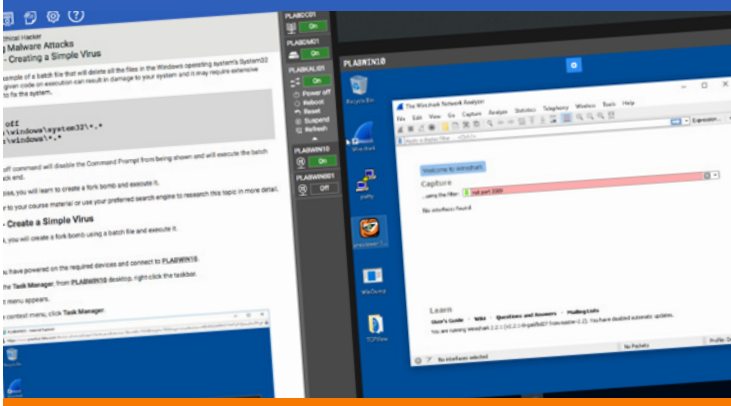
- Explain the structure of the OSI model
- Setup network connectivity between IPv4 and IPv6 devices
- Create and modify network diagrams using LibreOffice Draw
- Configure common Windows update properties
- Identify DNS server vulnerabilities
- Configure firewall rules using Windows Firewall and remote access
- Install and configure Hyper-V
- Analyze and resolve internet connectivity issues
- Prepare, install and configure DHCP and DNS
- Create documents for collaboration using OneDrive
- Detecting system bottlenecks
- Troubleshoot connectivity with network utilities
- Install and configure VPN Technologies and Services
- Install and configure Network Load Balancing Nodes
- Trunk, VLAN and EtherChannel configuration
- Configure access to the ARP process on trusted links
- Examine switch interface information and operations
- Learn about the restore capabilities of the Backup and Restore (Windows 7) utility
- Compare static and dynamic routing
- Manipulate HSRP and its parameters
- Configuring an email service and mail client
- Use the Monitoring Software to Perform a Network Inventory
- Install Network Policy Server - Microsoft RADIUS
- Run MBSA to scan computers and discover potential vulnerabilities

Course Code
N10-007

Skill Level
Intermediate

Released
Mar 2018

Duration
26 hours



Prerequisites

It is recommended that you have gained the following certification before attempting the CompTIA Network+ exam:

- CompTIA A+

No prior hands-on experience is required to use or complete this Practice Lab. However, it would be beneficial to be familiar with operating system fundamentals.

Who is it For?

The CompTIA Network+ certificate is aimed computer technicians, help desk technicians, system engineers, network support specialists, network analysts or if you are looking to further your knowledge in networking.

Additional Info

This Practice Lab focuses on the practical aspects of the CompTIA Network+ (N10-007) exam objectives. It is therefore advised to refer to your own course materials to gain a deeper understanding of any theoretical aspects of the exam objectives.

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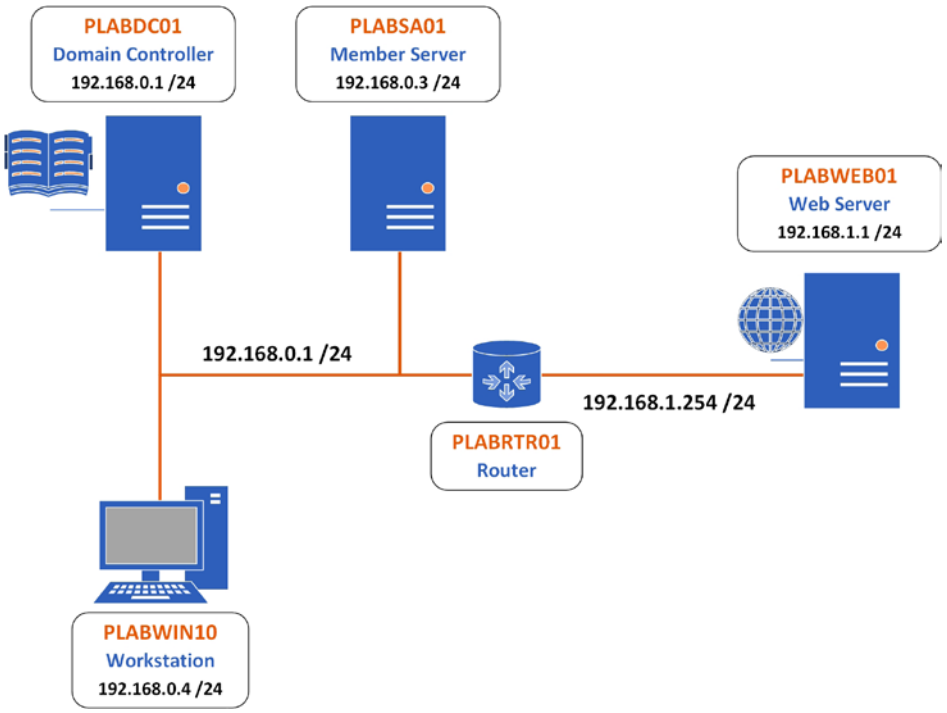
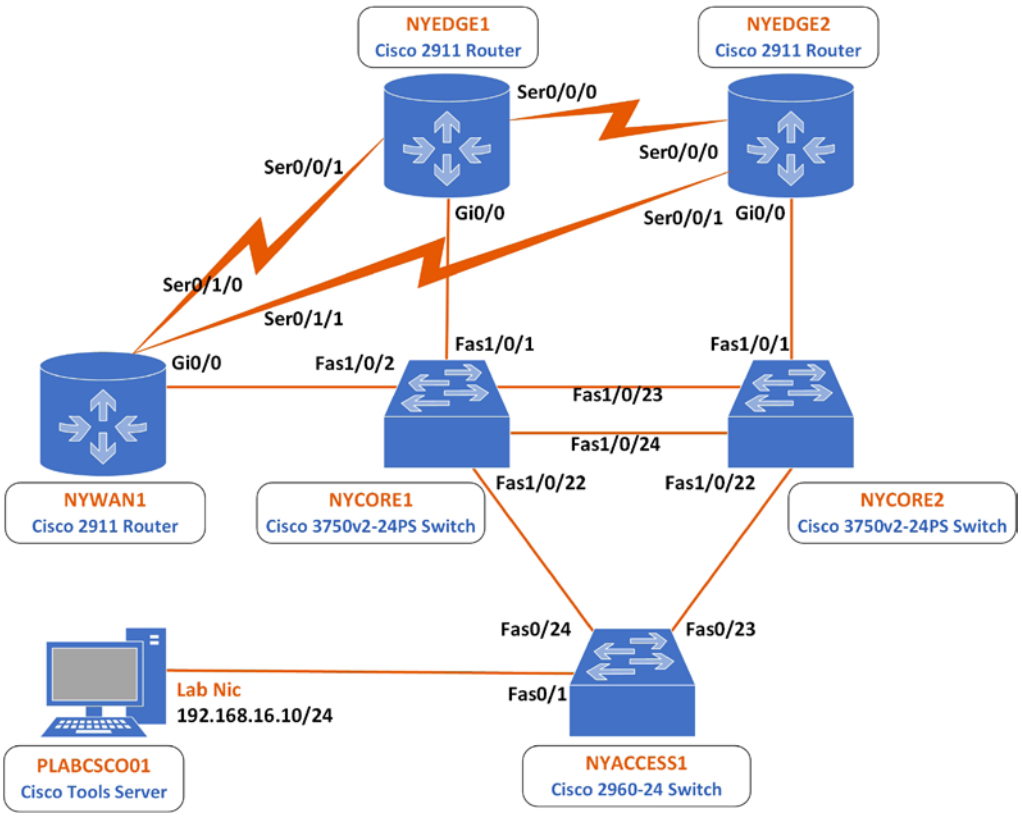
Lab Topologies

You will also have access to the following topologies:





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Modules and Exercises

Introduction to the OSI Model
Exercise 1 - Understand the OSI model
Exercise 2 - Layers 1 to 3 of the OSI model
Exercise 3 - Layers 1 to 3 of the OSI model

Configure IPv4 and IPv6 Addressing
Exercise 1 - Configure the Network to use an ISATAP Router
Exercise 2 - Setup Network Connectivity between IPv4 and IPv6 Devices

Network Management – Diagrams, Symbols, and Documentation
Exercise 1 - Introduction to LibreOffice Draw
Exercise 2 - Create Network Diagrams with LibreOffice Draw

Network Services and Protocols (Part 1)
Exercise 1 - Troubleshooting ICMP Related Issues (including Ping and Traceroute)
Exercise 2 - Understand How ARP Works

Network Services and Protocols (Part 2)
Exercise 1 - Verify Port 80 for HTTP
Exercise 2 - Verify Port 443 for HTTPS
Exercise 3 - Contrast TCP and UDP Protocols
Exercise 4 - Using a Port Scanner

Network Services and Protocols (Part 3)
Exercise 1 - Configuring Port 21 for FTP
Exercise 2 - Configuring Port 161 for SNMP
Exercise 3 - Configuring Port 23 for Telnet
Exercise 4 - Configuring Port 445 for SMB
Exercise 5 - Configuring Port 3389 for RDP
Exercise 6 - Using VNC and SSH

Install OS Updates and Configure Security Policy
Exercise 1 - Configure and Run Windows Update
Exercise 2 - Configure Network Security Policy

Understand Common Network Vulnerabilities
Exercise 1 - Spoofing a DNS Server
Exercise 2 - Exploring DNS Server Vulnerabilities
Exercise 3 - Using Anti-Phishing configuration

Implement a Host-based Firewall
Exercise 1 - Preliminary Tasks
Exercise 2 - Configuring Firewall Rules Using Windows Firewall
Exercise 3 - Configuring Firewall Rules using Windows Firewall with Advanced Security
Exercise 4 - Configuring Firewall Rules from the Command Line Interface

Install Hyper-V
Exercise 1 - Enable Hyper-V Feature

Troubleshoot Internet Connection and DNS Issues
Exercise 1 - Troubleshoot Internet Connectivity Issues
Exercise 2 - Troubleshoot Network Connectivity due to DNS settings

Install and Configure DHCP and DNS Servers
Exercise 1 - Installing and Configuring DHCP
Exercise 2 - Installing and Configuring DNS

Introduction to Software as a Service (SaaS)
Exercise 1 - Using OneDrive for Document Storage
Exercise 2 - Using OneDrive for Document Sharing

Detecting System Bottlenecks and Log Management
Exercise 1 - Monitor System Performance
Exercise 2 - Detecting System Bottlenecks

Troubleshoot Network Connectivity with Network Utilities
Exercise 1 - Using ipconfig
Exercise 2 - Using pathping
Exercise 3 - Using route
Exercise 4 - Using iptables
Exercise 5 - Using tcpdump
Exercise 6 - Using nmap

VPN Technologies and Services
Exercise 1 - Install VPN Server
Exercise 2 - Configure VPN Server Properties
Exercise 3 - Using PPTP
Exercise 4 - Using L2TP and IPSec

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Install and Configure Network Load Balancing

Exercise 1 - Installing Network Load Balancing Nodes
Exercise 2 - Configuring a New NLB Cluster
Exercise 3 - Adding a Secondary Node to an NLB Cluster
Exercise 4 - Examining the working of an NLB cluster
Exercise 5 - Configuring and validating port rules for NLB cluster

Configure Switching Features

Exercise 1 - Trunk Configuration Part 1
Exercise 2 - VLAN Trunk Protocol
Exercise 3 - Trunk Configuration Part 2
Exercise 4 - Native VLAN Configuration
Exercise 5 - Adding and Removing VLANs from a Trunk
Exercise 6 - Configuring EtherChannel

Configure and Verify Switch Security Features

Exercise 1 - ARP Inspection, DHCP Snooping, and IP Source Guard
Exercise 2 - Private VLANs (PVLANs)

Configure Switching Concepts

Exercise 1 - Examining the functionality of a Switch
Exercise 2 - Examining the MAC Address Table
Exercise 3 - Examining MAC Address Aging
Exercise 4 - Frame Flooding
Exercise 5 - Creating and Managing VLANs

Backup and Restore

Exercise 1 - Restoring a Windows Computer Using System Image Backup
Exercise 2 - Using Windows 10 backup utilities
Exercise 3 - Automating Windows Server Backup

Routing Concepts and Protocols

Exercise 1 - Static Routing
Exercise 2 - Dynamic Routing
Exercise 3 - Static and Dynamic Routing
Exercise 4 - Floating Static Route
Exercise 5 - Configuring Multiple Dynamic Routing Protocols

Configure Gateway Redundancy Protocols

Exercise 1 - Configuring HSRP
Exercise 2 - Priority and Pre-emption
Exercise 3 - Examining HSRP

Configure Email Client Protocols

Exercise 1 - Configuring an Email Service
Exercise 2 - Configuring a Mail Client

Install and Configure SNMP

Exercise 1 - Installing the Monitoring Software
Exercise 2 - Installing and Configuring SNMP
Exercise 3 - Performing a Network Inventory

Controlling VPN Access with RADIUS

Exercise 1 - Install Network Policy Server - Microsoft RADIUS
Exercise 2 - Configure VPN Ports
Exercise 3 - Viewing the NPS Logs

Assess Network Vulnerabilities and Threats using MBSA

Exercise 1 - Running MBSA to Detect System Vulnerabilities

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