

# Introduction to Networks Labs and Study Guide (CCNAv7)

**Allan Johnson**

 Networking  
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# Introduction to Networks Labs and Study Guide (CCNAv7)

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## **About the Contributing Author**

**Allan Johnson** entered the academic world in 1999, after 10 years as a business owner/operator, to dedicate his efforts to his passion for teaching. He holds both an M.B.A. and an M.Ed. in training and development. He taught CCNA courses at the high school level for 7 years and has taught both CCNA and CCNP courses at Del Mar College in Corpus Christi, Texas. In 2003, Allan began to commit much of his time and energy to the CCNA Instructional Support Team, providing services to Networking Academy instructors worldwide and creating training materials. He now works full time for Cisco Networking Academy as Curriculum Lead.

## About the Technical Reviewer

**Dave Holzinger** has been a curriculum developer, project manager, author, and technical editor for the Cisco Networking Academy Program in Phoenix, Arizona since 2001. Dave works on the team that develops their online curricula including CCNA, CCNP, and IT Essentials. He has been working with computer hardware and software since 1981. Dave has certifications from Cisco, BICSI, and CompTIA.

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## Command Syntax Conventions

The conventions used to present command syntax in this book are the same conventions used in the IOS Command Reference. The Command Reference describes these conventions as follows:

- **Boldface** indicates commands and keywords that are entered literally as shown. In actual configuration examples and output (not general command syntax), boldface indicates commands that are manually input by the user (such as a **show** command).
- *Italic* indicates arguments for which you supply actual values.
- Vertical bars (|) separate alternative, mutually exclusive elements.
- Square brackets ( [ ] ) indicate an optional element.
- Braces ( { } ) indicate a required choice.
- Braces within brackets ( [ { } ] ) indicate a required choice within an optional element.

## Introduction

This book supports instructors and students in Cisco Networking Academy, an IT skills and career building program for learning institutions and individuals worldwide. Cisco Networking Academy provides a variety of curricula choices including the very popular CCNA curriculum. It includes three courses oriented around the topics of Cisco Certified Network Associate (CCNA) certifications.

**Introduction to Networks Labs and Study Guide** is a supplement to your classroom and laboratory experience with the Cisco Networking Academy. To be successful on the exam and achieve your CCNA certification, you should do everything in your power to arm yourself with a variety of tools and training materials to support your learning efforts. This book provides just such a collection of tools. Used to its fullest extent, it will help you gain the knowledge as well as practice the skills associated with the content area of the Introduction to Networks v7 course. Specifically, this book will help you work on these main areas:

- Understand advances in modern network technologies.
- Implement initial settings, including passwords, IP addressing, and default gateway parameters on network switches and end devices.
- Understand how network protocols enable devices to access local and remote network resources.
- Understand how physical layer protocols, services, and network media support communications across data networks.
- Convert between decimal, binary, and hexadecimal systems.
- Understand how media access control in the data link layer supports communication across networks.
- Understand how Ethernet operates in a switched network.
- Understand how routers use network layer protocols and services to enable end-to-end connectivity.
- Understand how ARP and ND enable communication on a network.
- Implement initial settings on a router and end devices.
- Calculate an IPv4 subnetting scheme to efficiently segment a network.
- Implement an IPv6 addressing scheme.
- Use various tools to test network connectivity.
- Compare the operations of transport layer protocols in supporting end-to-end communication.
- Understand the operation of application layer protocols in providing support to end-user applications.
- Configure switches and routers with device-hardening features to enhance security.
- Implement a network design for a small network to include a router, a switch, and end devices.

*Labs and Study Guides* similar to this one are also available for the other two courses: *Switching, Routing, and Wireless Essentials Labs and Study Guide* and *Enterprise Networking, Security, and Automation Labs and Study Guide*.

## Who Should Read This Book

This book's main audience is anyone taking the Introduction to Networks course of the Cisco Networking Academy curriculum. Many Academies use this *Labs and Study Guide* as a required tool in the course, whereas other Academies recommend the *Labs and Study Guide* as an additional resource to prepare for class exams and the CCNA certification. The secondary audiences for this book is people taking CCNA-related classes from professional training organizations. This book can also be used for college- and university-level networking courses, as well as anyone wanting to gain a detailed understanding of routing. However, the reader should know that the content of this book tightly aligns with the Cisco Networking Academy course. It may not be possible to complete some of the "Study Guide" sections and labs without having access to the online course. Fortunately, you can purchase the *Introduction to Networks v7.0 Companion Guide* (ISBN: 9780136633662).

## Goals and Methods

The most important goal of this book is to help you pass the 200-301 Cisco Certified Network Associate exam, which is associated with the Cisco Certified Network Associate (CCNA) certification. Passing the CCNA exam shows that you have the knowledge and skills required to manage a small enterprise network. You can view the detailed exam topics online at <http://learningnetwork.cisco.com>. They are divided into six broad categories:

- Network Fundamentals
- Network Access
- IP Connectivity
- IP Services
- Security Fundamentals
- Automation and Programmability

The Introduction to Networks v7 course covers introductory material related to the first five bullets. The next two courses, Switching, Routing, and Wireless Essentials v7 and Enterprise Networking, Security, and Automation v7, cover the material in more detail. Each chapter of this book is divided into a "Study Guide" section followed by a "Labs and Activities" section. The "Study Guide" section offers exercises that help you learn the concepts, configurations, and troubleshooting skills crucial to your success as a CCNA exam candidate. Each chapter is slightly different and includes some or all of the following types of exercises:

- Vocabulary matching exercises
- Concept question exercises
- Skill-building activities and scenarios
- Configuration scenarios
- Packet Tracer exercises
- Troubleshooting scenarios

The "Labs and Activities" sections include all the online course labs and Packet Tracer activity instructions. In some chapters, this section begins with a Command Reference that you will complete to show that you understand all the commands introduced in the chapter.

## Packet Tracer and Companion Website

This book includes the instructions for all the Packet Tracer activities in the online course. You need to be enrolled in the Introduction to Networks v7 course to access these Packet Tracer files.

Four Packet Tracer activities have been created exclusively for this book. You can access these unique Packet Tracer files at this book's companion website.

To get your copy of Packet Tracer software and the four unique files for this book, please go to the companion website for instructions. To access this companion website, follow these steps:

- Step 1.** Go to [www.ciscopress.com/register](http://www.ciscopress.com/register) and log in or create a new account.
- Step 2.** Enter the ISBN **9780136634454**.
- Step 3.** Answer the challenge question as proof of purchase.
- Step 4.** Click on the **Access Bonus Content** link in the Registered Products section of your account page to be taken to the page where your downloadable content is available.

## How This Book Is Organized

This book corresponds closely to the Cisco Networking Academy Introduction to Networks v7 course and is divided into 17 chapters:

- **Chapter 1, “Networking Today”:** This chapter introduces the concept of a network and provides an overview of the different types of networks encountered. It examines how networks impact the way we work, learn, and play. This chapter also examines recent trends in networks, such as video, cloud computing, and BYOD and how to help ensure robust, reliable, secure networks to support these trends.
- **Chapter 2, “Basic Switch and End Device Configuration”:** This chapter introduces the operating system used with most Cisco devices: Cisco IOS. The basic purpose and functions of IOS are described, as are methods to access IOS. The chapter also describes how to maneuver through the IOS command-line interface as well as basic IOS device configuration.
- **Chapter 3, “Protocols and Models”:** This chapter examines the importance of rules or protocols for network communication. It explores the OSI reference model and the TCP/IP communication suite and examines how these models provide the necessary protocols to allow communication to occur on a modern converged network.
- **Chapter 4, “Physical Layer”:** This chapter introduces the lowest layer of the OSI model: the physical layer. This chapter explains the transmission of bits over the physical medium.
- **Chapter 5, “Number Systems”:** This chapter explains how to convert between decimal, binary, and hexadecimal number systems. Understanding these number systems is essential to understanding IPv4, IPv6, and Ethernet MAC addressing.
- **Chapter 6, “Data Link Layer”:** This chapter discusses how the data link layer prepares network layer packets for transmission, controls access to the physical media, and transports data across various media. This chapter includes a description of the encapsulation protocols and processes that occur as data travels across the LAN and the WAN.
- **Chapter 7, “Ethernet Switching”:** This chapter examines the functionality of the Ethernet LAN protocols. It explores how Ethernet functions, including how devices use Ethernet MAC addresses to communicate in a multiaccess network. The chapter discusses how Ethernet switches build MAC address tables and forward Ethernet frames.



- **Chapter 8, “Network Layer”**: This chapter introduces the function of the network layer—routing—and the basic device that performs this function—the router. It presents important routing concepts related to addressing, path determination, and data packets for both IPv4 and IPv6. The chapter also introduces how routers perform packet forwarding, static and dynamic routing, and the IP routing table.
- **Chapter 9, “Address Resolution”**: This chapter discusses how host computers and other end devices determine the Ethernet MAC address for a known IPv4 or IPv6 address. This chapter examines the ARP protocol for IPv4 address resolution and the Neighbor Discovery Protocol for IPv6.
- **Chapter 10, “Basic Router Configuration”**: This chapter explains how to configure a Cisco router, including IPv4 and IPv6 addressing on an interface.
- **Chapter 11, “IPv4 Addressing”**: This chapter focuses on IPv4 network addressing, including the types of addresses and address assignment. It describes how to use subnet masks to determine the number of subnetworks and hosts in a network. It examines how to improve network performance by optimally dividing the IPv4 address space based on network requirements. It explores the calculation of valid host addresses and the determination of both subnet and broadcast addresses.
- **Chapter 12, “IPv6 Addressing”**: This chapter focuses on IPv6 network addressing, including IPv6 address representation, types of addresses, and the structure of different types of IPv6 address. The chapter introduces the different methods that an end device can receive an IPv6 address automatically.
- **Chapter 13, “ICMP”**: This chapter introduces Internet Control Message Protocol (ICMP) tools, such as ping and trace.
- **Chapter 14, “Transport Layer”**: This chapter introduces Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) and examines how each of these protocols transports information across the network. It explores how TCP uses segmentation, the three-way handshake, and expectational acknowledgments to ensure reliable delivery of data. It also examines the best-effort delivery mechanism provided by UDP and describes when its use would be preferred over the use of TCP.
- **Chapter 15, “Application Layer”**: This chapter introduces some protocols of the TCP/IP application layer, which also relates to the top three layers of the OSI model. The chapter focuses on the role of the application layer and how the applications, services, and protocols in the application layer make robust communication across data networks possible. This will be demonstrated by examining some key protocols and services, including HTTP, HTTPS, DNS, DHCP, SMTP/POP, and FTP.
- **Chapter 16, “Network Security Fundamentals”**: This chapter introduces network security threats and vulnerabilities. Various network attacks and mitigation techniques are discussed, along with how to secure network devices.
- **Chapter 17, “Build a Small Network”**: This chapter reexamines the various components in a small network and describes how they work together to allow network growth. It examines network configuration and troubleshooting issues, along with different troubleshooting methodologies.



# Networking Today

The “Study Guide” portion of this chapter uses a variety of exercises to test your knowledge of the advances in modern network technologies. The “Labs and Activities” portion of this chapter includes all the online curriculum research lab and Packet Tracer activity instructions.

As you work through this chapter, use Chapter 1 in *Introduction to Networks v7 Companion Guide* or use the corresponding Module 1 in the Introduction to Networks online curriculum for assistance.

## Study Guide

### Networks Affect Our Lives

In today's world, through the use of networks, we are connected like never before. People with ideas can communicate instantly with others to make those ideas reality. Advancements in networking technologies are perhaps the most significant changes in the world today. They are helping to create a world in which national borders, geographic distances, and physical limitations become less relevant, presenting ever-diminishing obstacles. The cloud lets us store documents and pictures and access them anywhere, anytime. So, whether we are on a train, in a park, or standing on top of a mountain, we can seamlessly access our data and applications on a variety of devices.

### Network Components

If you want to be a part of a global online community, your computer, tablet, or smartphone must first be connected to a network. That network must be connected to the internet. All computers that are connected to a network and participate directly in network communication are classified as hosts. Hosts can be called *end devices*. Some hosts are also called *clients*.

### End Devices, Intermediary Devices, and Media

Servers are computers with software that allow them to provide information, like email or web pages, to other end devices on the network. Each service requires separate server software.

Client and server software usually run on separate computers, but it is also possible for one computer to be used for both roles at the same time. In Table 1-1, list the advantages and disadvantages of peer-to-peer networking.

**Table 1-1 Advantages and Disadvantages of Peer-to-Peer Networking**

Advantages	Disadvantages

The network devices that people are most familiar with are **end devices**. An end device is either the source or destination of a message transmitted over the network. When an end device initiates communication, it uses the address of the destination end device to specify where to deliver the message.

**Intermediary devices** connect the individual end devices to the network. They can connect multiple individual networks to form an internetwork. Intermediary devices use the destination end device address and information about the network interconnections to determine the path that messages should take through the network.

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List three examples of intermediary network devices:

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List at least three of the main functions of intermediary devices:

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Communication transmits across a network on media. The media provides the channel over which the message travels from source to destination. List the three types of media used to interconnect devices:

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## Check Your Understanding: Network Components

Check your understanding of network components by choosing the BEST answer to each of the following questions.

1. Which of the following is the name for all computers connected to a network that participate directly in network communication?
  - a. servers
  - b. intermediary devices
  - c. hosts
  - d. media
2. When data is encoded as pulses of light, which media is being used to transmit the data?
  - a. wireless
  - b. fiber-optic cable
  - c. copper cable
3. Which two devices are intermediary devices? (Choose two.)
  - a. hosts
  - b. routers
  - c. servers
  - d. switches

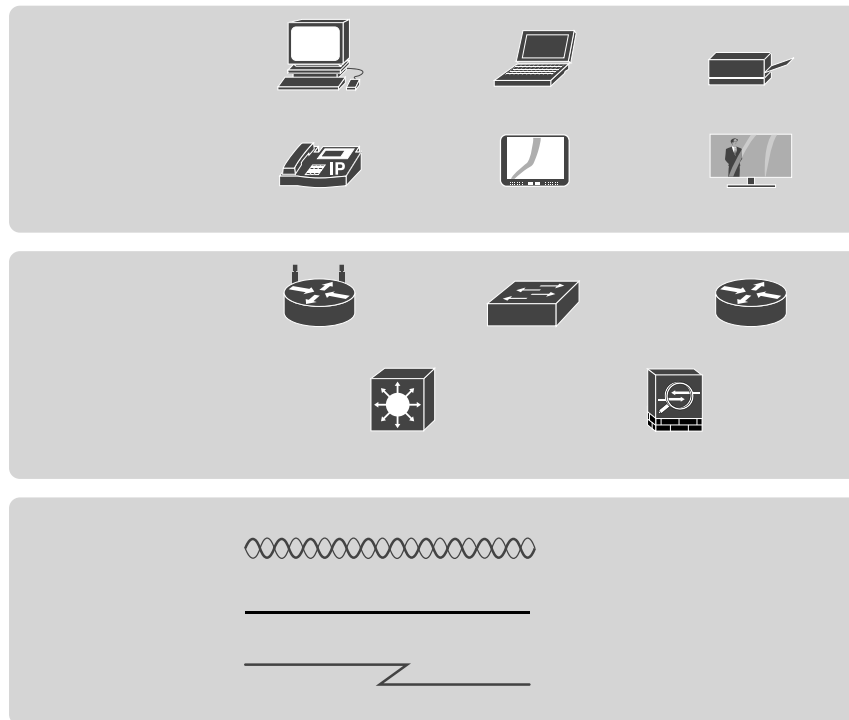
## Network Representations and Topologies

Diagrams of networks often use symbols to represent the different devices and connections that make up a network.

### Classify and Identify Network Components

In Figure 1-1, label the three major classifications of network components. Then, underneath each icon, label the network component.

**Figure 1-1 Common Network Component Icons**



### Topology Diagrams

There are two types of topology diagrams:

- A \_\_\_\_\_ diagram identifies the physical location of intermediary devices, configured ports, and cable installation.
- A \_\_\_\_\_ diagram identifies devices, ports, and IP addressing schemes.

### Check Your Understanding: Network Representations and Topologies

Check your understanding of network representations and topologies by choosing the BEST answer to each of the following questions.

1. Which connection physically connects an end device to the network?
  - a. port
  - b. NIC
  - c. interface

2. Which connections are specialized ports on a networking device that connect to individual networks?
  - a. ports
  - b. NICs
  - c. interfaces
3. Which type of network topology lets you see which end devices are connected to which intermediary devices and what media is being used?
  - a. physical topology
  - b. logical topology
4. Which type of network topology lets you see the actual locations of intermediary devices and cable installation?
  - a. physical topology
  - b. logical topology

## Common Types of Networks

Networks come in all sizes. They range from simple networks consisting of two computers to networks connecting millions of devices:

- Small home networks connect a few computers to each other and to the internet.
- A small office and home office (SOHO) network allows computers in a home office or a remote office to connect to a corporate network or access centralized shared resources.
- Medium to large networks, such as those used by corporations and schools, can have many locations with hundreds or thousands of interconnected hosts.
- The internet is a network of networks that connects hundreds of millions of computers worldwide.

## Compare LANs and WANs

In Table 1-2, indicate whether each feature is a LAN feature or a WAN feature by marking the appropriate column.

**Table 1-2 LAN and WAN Features**

LANs	WANs	LAN or WAN Feature
		Interconnect end devices in a limited area such as a home, a school, an office building, or a campus
		Typically provide slower-speed links between networks
		Provide high-speed bandwidth to internal end devices and intermediary devices
		Interconnect networks over wide geographic areas, such as between cities, states, provinces, countries, or continents
		Usually administered by multiple service providers
		Usually administered by a single organization or individual

## Check Your Understanding: Common Types of Networks

Check your understanding of common types of networks by choosing the BEST answer to each of the following questions.

1. Which network infrastructure provides access to users and end devices in a small geographic area and is typically a network in a department in an enterprise, a home, or a small business?
  - a. extranet
  - b. intranet
  - c. LAN
  - d. WAN
  
2. Which network infrastructure might an organization use to provide secure and safe access to individuals who work for a different organization but require access to the organization's data?
  - a. extranet
  - b. intranet
  - c. LAN
  - d. WAN
  
3. Which network infrastructure provides access to other networks over a large geographic area and is often owned and managed by a telecommunications service provider?
  - a. extranet
  - b. intranet
  - c. LAN
  - d. WAN

## Internet Connections

Home users, remote workers, and small offices typically require ISP connections to access the internet. Connection options vary greatly between ISPs and geographic locations. Popular choices include broadband cable, broadband digital subscriber line (DSL), wireless WANs, and mobile services.

## Vocabulary Exercise: Matching

Match each definition with the appropriate term. This exercise is a one-to-one matching: Each definition has exactly one matching term.

### Definitions

- a. Similar to a LAN but wirelessly interconnects users and endpoints in a small geographic area.
- b. Requires a clear line of sight, installation costs can be high, and connections tend to be slower and less reliable than its terrestrial competition.



- c. Also called a LAN adapter, it provides the physical connection to a network at the PC or other host device.
- d. Available from a provider to the customer premises over a dedicated copper or fiber connection providing bandwidth speeds of 10 Mbps to 10 Gbps.
- e. The availability of this type of internet access is a real benefit in areas that would otherwise have no internet connectivity at all or for those constantly on the go.
- f. Provide the interface between users and the underlying communication network.
- g. A network infrastructure that provides access to users and end devices in a small geographic area.
- h. Devices that interconnect end devices.
- i. Reserved circuits that connect geographically separated offices for private voice and/or data networking. In North America, circuits include T1 (1.54 Mbps) and T3 (44.7 Mbps); in other parts of the world, they are available in E1 (2 Mbps) and E3 (34 Mbps).
- j. A private connection of LANs and WANs that belongs to an organization—basically an internetwork that is usually only accessible from within the organization.
- k. An inexpensive, very low-bandwidth option to connect to an ISP that should be considered only as a backup to higher-speed connection options.
- l. Carries a data signal on the same coaxial media that delivers the television signal. It provides a high-bandwidth, always-on connection to the internet.
- m. Provides secure and safe access to individuals who work for different organizations but require access to the company's data.
- n. A network infrastructure that is larger than a LAN but smaller than a WAN and is usually operated by a single organization.
- o. Provides the channel over which a message travels from source to destination.
- p. A network infrastructure that provides access to other networks over a wide geographic area.
- q. Provides a high-bandwidth, always-on connection that runs over a telephone line, with the line split into three channels.
- r. A network infrastructure designed to support file servers and provide data storage, retrieval, and replication.

### Terms

_____ DSL	_____ intranet
_____ medium	_____ storage-area network (SAN)
_____ metropolitan-area network (MAN)	_____ cellular
_____ network interface card	_____ dial-up telephone
_____ Metro Ethernet	_____ cable
_____ wireless LAN (WLAN)	_____ local-area network (LAN)
_____ dedicated leased line	_____ end devices
_____ satellite	_____ intermediary devices
_____ wide-area network (WAN)	_____ extranet

## Reliable Networks

Networks support a wide range of applications and services and must operate over many different types of cables and devices that make up the physical infrastructure. As networks evolve, we are discovering that the underlying architectures need to address four basic characteristics to meet user expectations:

- Fault tolerance
- Scalability
- Quality of service (QoS)
- Security

## Classify the Requirements for a Reliable Network

In Table 1-3, select the appropriate column to classify each of the requirements for a reliable network.

**Table 1-3 Reliable Network Requirements**

Requirement	Characteristic			
	Fault Tolerance	Scalability	Quality of Service	Security
Preventing unauthorized access to the management software that resides on network devices.				
Common network standards allow hardware and software vendors to focus on product improvements and services.				
The fewest number of devices are impacted by a network outage.				
Networks can grow or expand with minimal impact on performance.				
Protecting the information contained in packets as they are transmitted over the network.				
Priority queues are implemented when demand for network bandwidth exceeds supply.				
Data can travel through more than one route for delivery from a remote source.				
The primary mechanism for managing congestion and ensuring reliable delivery of content.				
Includes the goals of confidentiality, integrity, and availability.				

## Check Your Understanding: Reliable Networks

Check your understanding of reliable networks by choosing the BEST answer to each of the following questions.

1. When designers follow accepted standards and protocols, which of the four basic characteristics of network architecture is achieved?
  - a. fault tolerance
  - b. scalability
  - c. QoS
  - d. security
2. Confidentiality, integrity, and availability are requirements of which of the four basic characteristics of network architecture?
  - a. fault tolerance
  - b. scalability
  - c. QoS
  - d. security
3. With which type of policy can a router manage the flow of data and voice traffic, giving priority to voice communications if the network experiences congestion?
  - a. fault tolerance
  - b. scalability
  - c. QoS
  - d. security
4. Having multiple paths to a destination is known as redundancy. This is an example of which characteristic of network architecture?
  - a. fault tolerance
  - b. scalability
  - c. QoS
  - d. security

## Network Trends

As new technologies and end-user devices come to market, businesses and consumers must continue to adjust to this ever-changing environment. Several networking trends affect organizations and consumers:

- **Bring your own device (BYOD):** Enables end users the freedom to use personal tools to access information and communicate across a business or campus network. BYOD means any device, with any ownership, used anywhere.
- **Online collaboration:** Includes network-enabled tools that give employees, students, teachers, customers, and partners a way to instantly connect, interact, and achieve their objectives. Collaboration is a critical and strategic priority that organizations are using to remain competitive and that students use to assist each other in learning.

- **Video communications:** Used for communications, collaboration, and entertainment. In addition to video calls made anywhere to anywhere, video conferencing has become an effective collaboration tool as organizations extend across geographic and cultural boundaries.
- **Cloud computing:** Allows us to store personal files and even back up an entire drive on servers over the internet. Applications such as word processing and photo editing can be accessed using the cloud.

## Identify the Cloud Type

In Table 1-4, fill in the cloud type for each description.

**Table 1-4 Cloud Types**

Cloud Type	Description
	Cloud-based applications and services offered in this cloud type are intended for a specific organization or entity, such as a government. This cloud type can be set up using the organization's private network, although this can be expensive to build and maintain. This cloud type can also be managed by an outside organization with strict access security.
	Cloud-based applications and services offered in this cloud type are made available to the general population. Services may be free or are offered on a pay-per-use model, such as paying for online storage. This cloud type uses the internet to provide services.
	This cloud type is made up of two or more clouds, where each part remains a distinct object but the parts are connected using a single architecture. Individuals using this cloud type would be able to have degrees of access to various services based on user access rights.
	This cloud type is created for exclusive use by specific entities or organizations. The differences between public clouds and this cloud type are the functional needs that have been customized for a group of users. For example, healthcare organizations must remain compliant with policies and laws (for example, HIPAA) that require special authentication and confidentiality. This cloud type would be used by multiple organizations that have similar needs and concerns.

## Check Your Understanding: Network Trends

Check your understanding of network trends by choosing the BEST answer to each of the following questions.

1. Which feature is a good conferencing tool to use with others who are located elsewhere in your city, in another city, or even in another country?
  - a. BYOD
  - b. video communications
  - c. cloud computing

2. Which feature describes using personal tools to access information and communicate across a business or campus network?
  - a. BYOD
  - b. video communications
  - c. cloud computing
3. Which of the following offers options such as public, private, custom, and hybrid?
  - a. BYOD
  - b. video communications
  - c. cloud computing
4. Which feature is being used when connecting a device to the network using an electrical outlet?
  - a. smart home technology
  - b. powerline
  - c. wireless broadband
5. Which feature uses the same cellular technology as a smartphone?
  - a. smart home technology
  - b. powerline
  - c. wireless broadband

## Network Security

Network security is an integral part of computer networking, regardless of whether the network is in a home with a single connection to the internet or is a corporation with thousands of users. Network security must consider the environment as well as the tools and requirements of the network. It must be able to secure data while still allowing for the quality of service that users expect of the network.

Securing a network involves protocols, technologies, devices, tools, and techniques in order to protect data and mitigate threats. Threat vectors may be external or internal. Many external network security threats today originate from the internet.

## Check Your Understanding: Network Security

Check your understanding of network security by choosing the BEST answer to each of the following questions.

1. Which attack slows down or crashes equipment and programs?
  - a. firewall
  - b. virus, worm, or Trojan horse
  - c. zero-day or zero-hour
  - d. virtual private network (VPN)
  - e. denial of service (DoS)

2. Which option creates a secure connection for remote workers?
  - a. firewall
  - b. virus, worm, or Trojan horse
  - c. zero-day or zero-hour
  - d. virtual private network (VPN)
  - e. denial of service (DoS)
3. Which option blocks unauthorized access to a network?
  - a. firewall
  - b. virus, worm, or Trojan horse
  - c. zero-day or zero-hour
  - d. virtual private network (VPN)
  - e. denial of service (DoS)
4. Which option describes a network attack that occurs on the first day that a vulnerability becomes known?
  - a. firewall
  - b. virus, worm, or Trojan horse
  - c. zero-day or zero-hour
  - d. virtual private network (VPN)
  - e. denial of service (DoS)
5. Which option describes malicious code running on user devices?
  - a. Firewall
  - b. virus, worm, or Trojan horse
  - c. zero-day or zero-hour
  - d. virtual private network (VPN)
  - e. denial of service (DoS)

## The IT Professional

The roles and skills of network engineers are evolving and are more vital than ever. The Cisco Certified Network Associate (CCNA) certification demonstrates that you have a knowledge of foundational technologies and ensures that you stay relevant with skill sets needed for the adoption of next-generation technologies. The new CCNA focuses on IP foundation and security topics along with wireless, virtualization, automation, and network programmability.

Your CCNA certification will prepare you for a variety of jobs in today's market. At [www.netacad.com](http://www.netacad.com), you can click the Careers menu and then select Employment Opportunities. You can also search for IT jobs using online search engines such as Indeed, Glassdoor, and Monster.