

LESSON 1.1

98-366 Networking Fundamentals

Understand the Concepts of the Internet, Intranet, and Extranet

Lesson Overview

In this lesson, you will learn about:

- The Internet
- Intranets
- Extranets
- VPN
- Security Zones
- Firewalls

Anticipatory Set:

1. Discuss how the Internet was created by the US Department of Defense, when the project started, and the impact it has had on society
2. Discuss the uses of a virtual private network (VPN) and relate sample situations where it is used

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- In 1962 ARPA opened a computer research program and appointed an MIT scientist named John Licklider to lead it. He had just published his first memorandum on the "Galactic Network" concept ... a futuristic vision where computers would be networked together and would be accessible to everyone.
- In October 1969, Internet messaging programs (IMPs) were installed in computers at both UCLA and Stanford. UCLA students would 'login' to Stanford's computer, access its databases and try to send data.

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- The experiment was successful and the fledgling network had come into being
- By December 1969 ARPANET comprised four host computers with the addition of research centers in Santa Barbara and Utah
- This was the beginning of the Internet

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- Access to the Internet was now available and it was hypertext document servers and Mosaic, the graphical browser, that became the killer application that made the Internet popular and useful to the general public
- This worldwide computer network allows people to communicate and exchange information
- The Internet is not owned by any particular company or person

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Intranet

- A private network based on Internet protocols such as TCP/IP but designed for information management within a company or organization
- One of the key advantages of an intranet is the broad availability and use of software applications unique to the needs of a corporation
- It is also a computer network and includes some of the same technologies as the Internet

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- Intranet uses include providing access to software applications; document distribution; software distribution; access to databases; and training
- An intranet is so named because it looks like a World Wide Web site and is based on the same technologies, yet is strictly internal and confidential to the organization and is not connected to the Internet proper
- Some intranets also offer access to the Internet, but such connections are directed through a firewall that protects the internal network from the external Web

Extranet

- An extension of some combination of corporate, public, and private intranet using World Wide Web technology to facilitate communication with the corporation's suppliers, customers, and associates
- An extranet allows customers, suppliers, and business partners to gain limited access to a company's intranet in order to enhance the speed and efficiency of their business relationship

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VPN

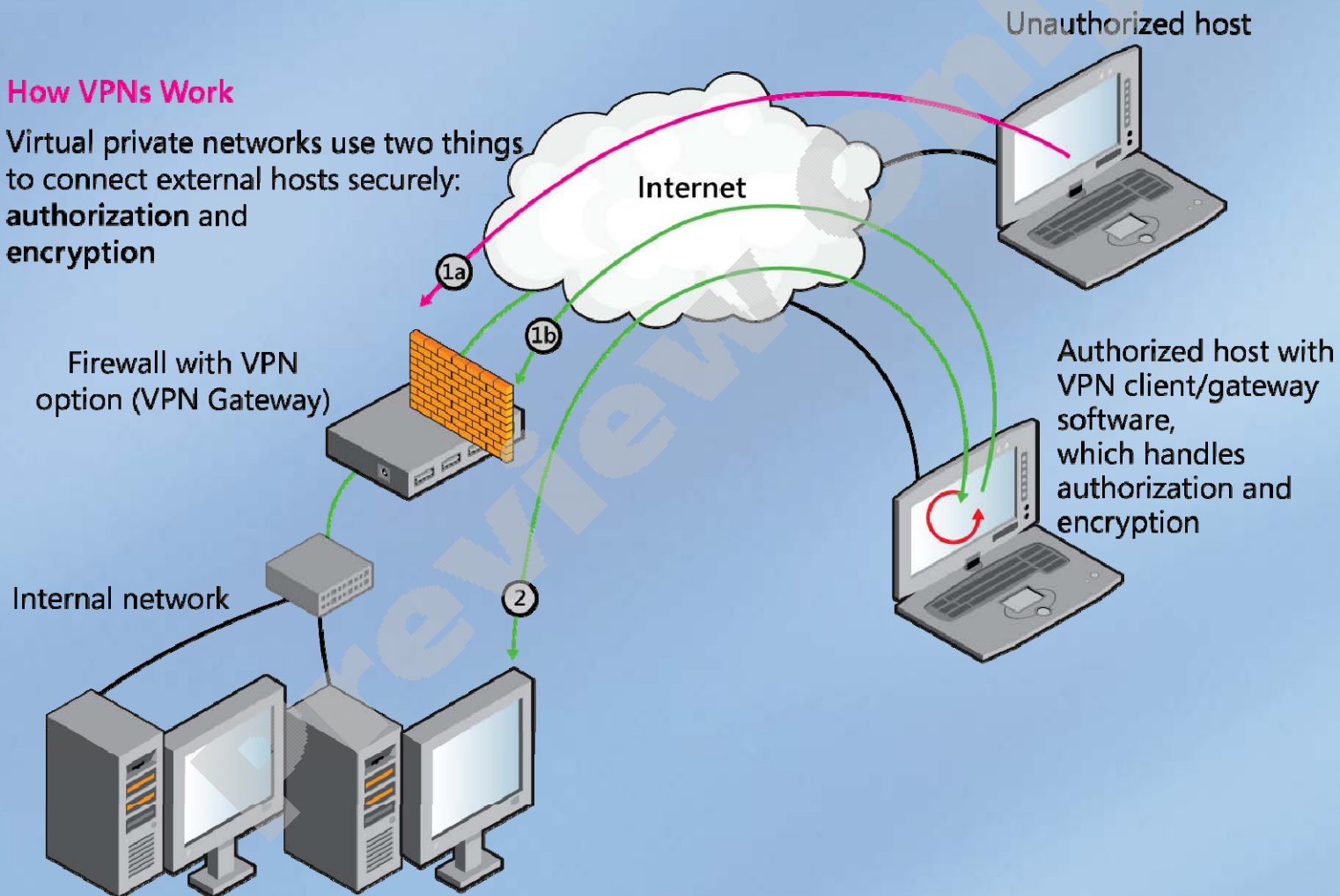
- Virtual private network are *nodes* (nodes are a connection point, either a redistribution point or a communication endpoint (some terminal equipment) on a public network
- They communicate among themselves using encryption so that their messages are safe from being intercepted by unauthorized users
- VPNs operate as if the nodes were connected by private lines. An example would be teachers at home needing limited access to the school district's intranet would be given VPN software for their personal laptop

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How VPNs Work

Virtual private networks use two things to connect external hosts securely: **authorization** and **encryption**



Security Zone

- Business/organization's need for physical and logical boundaries for accessing, controlling, and securing information throughout an organization's network
- The security zone contains hidden settings for how Microsoft Windows and Internet Explorer manage unsigned controls
- Security changes daily. A must to keep aware of the updates. Check the webcasts where leading security and privacy experts in field discuss the issues.
- Microsoft has webcasts covering Security Bulletins, Security Development Lifecycle, Security Intelligence Report, Security Tools, and more

Firewall

- A computer system or network firewall is designed to permit authorized communications while blocking unauthorized access
- The device is configured to permit or deny computer applications based upon a set of rules and other criteria
- Firewalls are technological barriers designed to prevent unauthorized or unwanted communications between computer networks or hosts

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Discuss how the business would achieve creating security zones through the use of firewalls and VPNs for their intranet and extranets.

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Class Activity

Student Activity 1.1: Comparing Internet, Intranet, Extranet

Discuss in groups of three how our subject applies:

1. As an example use the DMV (Department of Motor Vehicles):

- Us as customers (driver's license renewal & vehicle registration renewal)
 - Internet
- Highway Patrol as suppliers (vehicle ticket information) & as business partners (they request current vehicle registration information)
 - DMV extranet & their own intranet
- Smog check stations as suppliers (they provide smog certificates direct to DMV)
 - VPN to DMV extranet
- Auto dealers as business partners (new car registration)
 - VPN to DMV extranet & their own intranet

2. Think and list examples of businesses that would use the same technology

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Lesson Review

- Work in small groups (3-4 students) to complete the network design activity from Networking Fundamentals Student Activity **NetFund_SA_1.1_1** and Student Activity **NetFund_SA_1.1_2**
- If time permits, informally present group designs to the class. Discuss the different designs created.