Lab 1 – A Basic Firewall

Overview

In this lab we will practice configuring a basic pfSense firewall so we can explore key concepts of secure network administration.
This lab must be completed online, with all work being done and written as it is done into Word 365 Online. Use the Lab Book Template and upload to your Word 365 Online and begin working there. You must also share an edit link from Word 365 Online in the comments of the assignment document submission (export a PDF and upload it to eConestoga). Not following these instructions and showing ongoing work through the change revisions tracked in the online Word mean a score of zero on the lab.

Preparation

- Familiarize yourself with class work done introducing the use of vSphere for virtual computing and the review on network concepts. Have a working environment you are familiar with and have tested as worked in your class work on the Conestoga vSphere environment

Part 1

- Install a pfSense firewall on your vSphere environment with the following specifications:
    - Name your pfSense firewall 8580-<id>-corpfw01, where ID is your initials plus last four numbers in student ID, for example – 8580-my1234-corpfw01
    - Have two network adapters
        - one on the _01 interface on vSphere
            - This is for connecting to your assigned network (see class resources for Level 1 CAS Student Networks) that is part of the 10.0.0.0/8 range of networks One network adapter bridged to your local network
            - set with a static IP for the last usable IP address in your assigned subnet
        - the second on your _02 interface \
            - This is for a local network that only your machines connect to that you put on _02 directly; the only connection out will be through your firewall
            - Assign a network and host address of your choosing that is a valid IP on the private IP range (as defined by RFC1918) that begins with “172.” (hint: it isn’t all of the 172.0.0.0/8 range, look up what that private IP range is if you are not familiar).
    - Configure your pfSense device to provide DHCP to devices on your LAN; ensure they get a correct IP address, default gateway, and use your pfSense device for DNS
    - Configure pfSense to run a DNS server on its WAN IP - DNS Forwarder to 8.8.8.8
- Deploy a Windows 10 Desktop to your LAN, name the machine “8580-<id>-desktop01”, for example, 8580-my1234-desktop. Use the course code plus your initial and the last 4 digits of your student ID as the <id>
    - Demonstrate it is working, prove the configuration that it is being used it as asked for, with the pfSense device as its default router and DNS server

Screenshots

- Appropriate screenshots that demonstrate the above was done and all is working

Reflection

1) Record any of your own observations, solutions, or comments about the work you did. What problems did you have, what was not clear, what did you take away that you value? Explain your configuration choices. This is mandatory. Refer to your detailed observations as needed in answering this.

2) How is NAT related to the function of your device as a firewall?