Lab 1.1.2a Environment Setup - VMware

Introduction

A network lab environment can be used to test upgrades/patches, evaluate new features, or as a training environment for hands-on experience.

Objectives

In this lab the student will:

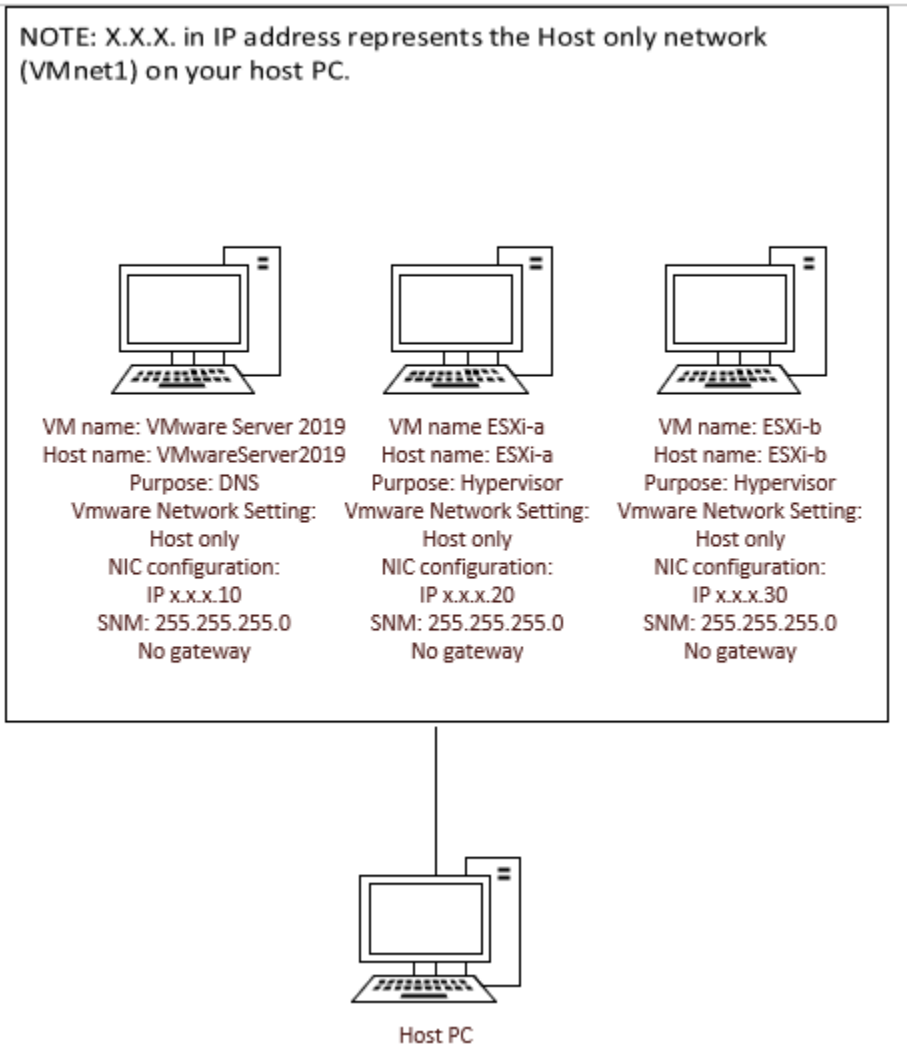
- Install, configure and manage virtual networking and storage [WECM]

Equipment/Supplies Needed

- Host Computer with VMware Workstation Pro
- Windows Server 2019 Installer disk image file (ISO)
- ESXi 6.7 Installer disk Image file (ISO)
- Reference: VMware ESXi Installation and Setup Guide [17 APR 2018]

Assignment

Students will configure a VmWare Lab environment, as shown in figure below, for use in subsequent labs. Key activities include creation of the following:
(1) Windows Server 2019 Virtual Machine (VM)
(2) Two VMware Esxi 6.7 Hypervisors



Procedure

1. Create Windows Server 2019 VM. This Server VM will service all VMware VM's in this course. There will be a separate Windows Server VM created for Microsoft Hyper-V.
    a. On the host PC running VMware Workstation Pro install a Windows Server 2019 VM. This will provide DNS for the VMware labs network environment.
    b. In VMware Workstation Pro select the Home tab, click on 'Create a New Virtual Machine'.
    c. Use the Typical (recommended) configuration.
    d. Select the 'I will install the OS later' radio button.
    e. Ensure the Guest OS is set to Microsoft Windows, and Windows Server 2019 is selected as the Version.
    f. If your instructor wants you to use a specific username and password you will be told. Otherwise, feel free to use your own. It is suggested that you use the same password for all VMs in this course. That way you'll never forget what password you set for a VM.
    g. Name the VM as per lab diagram above, and change the Location of the VM if you don't want to use the default. The default location is fine for most people.
    h. Store virtual disk as a single file.
    i. Before clicking on 'Finish', click on 'Customize Hardware' button.
        i. Set Memory to 4GB.
        ii. Set Processors to 1 with 2 cores.
        iii. Set Network Adapter to VMnet1, the default Host-only network.

iv. Click on CD/DVD, then select the "Use ISO image file:" radio button. Browse to the location of your Server 2019 ISO and select it as the ISO for this VM.

j. Click OK, Finish, then start VM.

k. Be sure to click in the black area of the loading VM so you can "Press any key to boot from the CD" when prompted. Not doing this does not select the ISO for installing the OS.

l. After a couple steps you will see a window that says to "Select the OS you want to install".

m. Use either Standard or DataCenter edition, but be sure to select one that mentions "Desktop Experience". This means you're installing an OS with GUI.

n. After the OS is installed, set the static IP as per the diagram above.

o. Ensure VMware Tools is installed.

p. For grading, **take a screenshot of the VM settings for Server 2019,** showing all the required configuration.

2. Create ESXi Hypervisor VM.

a. Verify that the host computer meets the minimum hardware requirements for installing the ESXi6.7 hypervisor. Review the **VMware ESXi Installation and Setup Guide** to complete the Hardware Requirements Table provided below. Record the Host configuration parameters and confirm the requirement is met. **Take a screenshot of the completed Hardware Table below for grading**.

HARDWARE REQUIREMENTS TABLE	
Host Configuration	**Hardware Requirement**
Processor:	☑ 64-bit x86 processor
Number of CPU Cores:	☐ Minimum _____ CPU cores
RAM:	☐ Minimum 4 GB RAM ☐ _____ GB RAM recommended
VT Technology:	☐ Hardware virtualization Enabled (_____ or _____) on x64 CPUs

b. On the host machine running VMware Workstation Pro, create a new Virtual Machine following the same procedures you followed in steps 1 above with the following changes.

i. Set the Guest OS is set to VMware ESX, and the Version is VMware ESXi 7.

ii. Be sure the VM and host name for each of your ESXi VMs matches the name shown in the diagram above.

iii. Set Memory to 4GB.

iv. Select VMware ESXi as the OS.

v. Set Hard Disk as 10GB.

vi. Do not set the static IP now, but set the NIC to use VMnet1, which is the default Host-only network for VMware Workstation. Let it use DHCP for now. You'll set the static IP later.

vii. Power on the VM and follow the prompts to install ESXi.

viii. After ESXi is installed, shut it down by pressing F12, type in the password.

ix. Press space bar to select 'Forcefully terminate running VMs', then press F2.

x. In VM settings add a second Hard Disk: type SCSI (Recommended).

1. Second hard drive size is 150GB, stored as a single file.

2. Do NOT tick the check box 'Allocate all disk space now'.
3. Specify virtual disk file location as per instructor's directions.

xi. Set Processor as 2 processors with 1 core each.
xii. Add a second Network Adapter.
xiii. In the VMware Workstation Pro menu click on 'Edit', 'Virtual Network Editor' to create a new network for the second NIC.
xiv. Click on 'Change Settings' in the lower right corner of the window.
xv. Add VMnet2 (or any other available VMnet if 2 is already being used) as a new network and define the following configuration.
    1. Assign to Host-only network.
    2. Subnet IP: 192.168.200.0. SNM: 255.255.255.0.
    3. Click on DHCP settings and change the range to 192.168.200.201 – 192.168.200.254. Use default lease time settings.
    4. Put NIC2 in VMnet2.
    5. **Take a screenshot of the Virtual Network Editor showing configurations for the Vmnets created/configured for this lab.**

Take a screenshot of the VM settings for ESXi-a, showing all the required configurations to this point.

xvi. Power ESXi-a back on
xvii. Log into VM ESXi-a by pressing F2 to 'Customize System'.
xviii. Tab down to 'Configure Management Network'
xix. With vmnic0 selected, set Ipv4 static IP address in VMnet1 per diagram above. Set the correct IPv4 Default Gateway. We'll set vmnic1 later.
xx. Disable Ipv6.
xxi. In 'System Customization' enter 'Troubleshooting Options' and enable 'ESXi Shell' and 'SSH'. Apply changes and reboot.
xxii. **Log back into ESXi-a. For grading, take a screenshot of all required configuration changes made above. This will likely require more than one screenshot. One of the screenshots must be of the ESXi home screen as shown in the file "Lab 1.1.2a VMware Sample Explanation With Screenshots".**

c. Install a 2nd ESXi VM with the same configuration as ESXi-a and name the new ESXi VM "ESXi-b". You need to recreate all of step b above in creating ESXi-b.

Take a screenshot of the VM settings for ESXi-b, showing all the required configurations to this point.

i. Log into VM ESXi-b by pressing F2 to 'Customize System'.
ii. Tab down to 'Configure Management Network'
iii. With vmnic0 selected, set Ipv4 static IP address in VMnet1 per diagram above. Set the correct IPv4 Default Gateway. We'll set vmnic1 later.
iv. Disable Ipv6.
v. In 'System Customization' enter 'Troubleshooting Options' and enable 'ESXi Shell' and 'SSH'. Apply changes and reboot.
vi. **For grading, take a screenshot of all required configurations for ESXi-b. Every screenshot captured for ESXi-a should also be captured for ESXi-b. This will likely require more than one screenshot, just as it did for ESXi-a.**

3. **Create snapshots of each VM and take a screenshot of each one for grading.**

4. **Place all screenshots in a Word or PDF document and upload that document for grading. Submit the following items for grading as evidence of successful lab completion.**

Concerns Working Towards Proficiency	Criteria Standards for This Competency	Accomplished Evidence of Mastering Competency
	Hardware Requirements Table (10 pt)	4 correct answers; 2.5 pt each
	3 guest snapshot screenshots – ESXi-a, ESXi-b, Server 2019 (10 pt)	3 screenshots representing proper functionality; 3.33 pt each
	Screenshot of VM settings for each VM created (15 pt)	1 screenshot showing proper configurations
	Screenshot of Virtual Network Editor – (25 pts)	1 screenshot showing proper configurations
	Installation of 2 ESXi Hypervisors – 20 points	Multiple screenshots showing proper installation; 20 pts total
	Installation of Windows Server 2019 VM – 20 points	1 screenshot showing proper installation