Lab 2.1.2 Part A Lab ESXi Configuration

Introduction

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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:

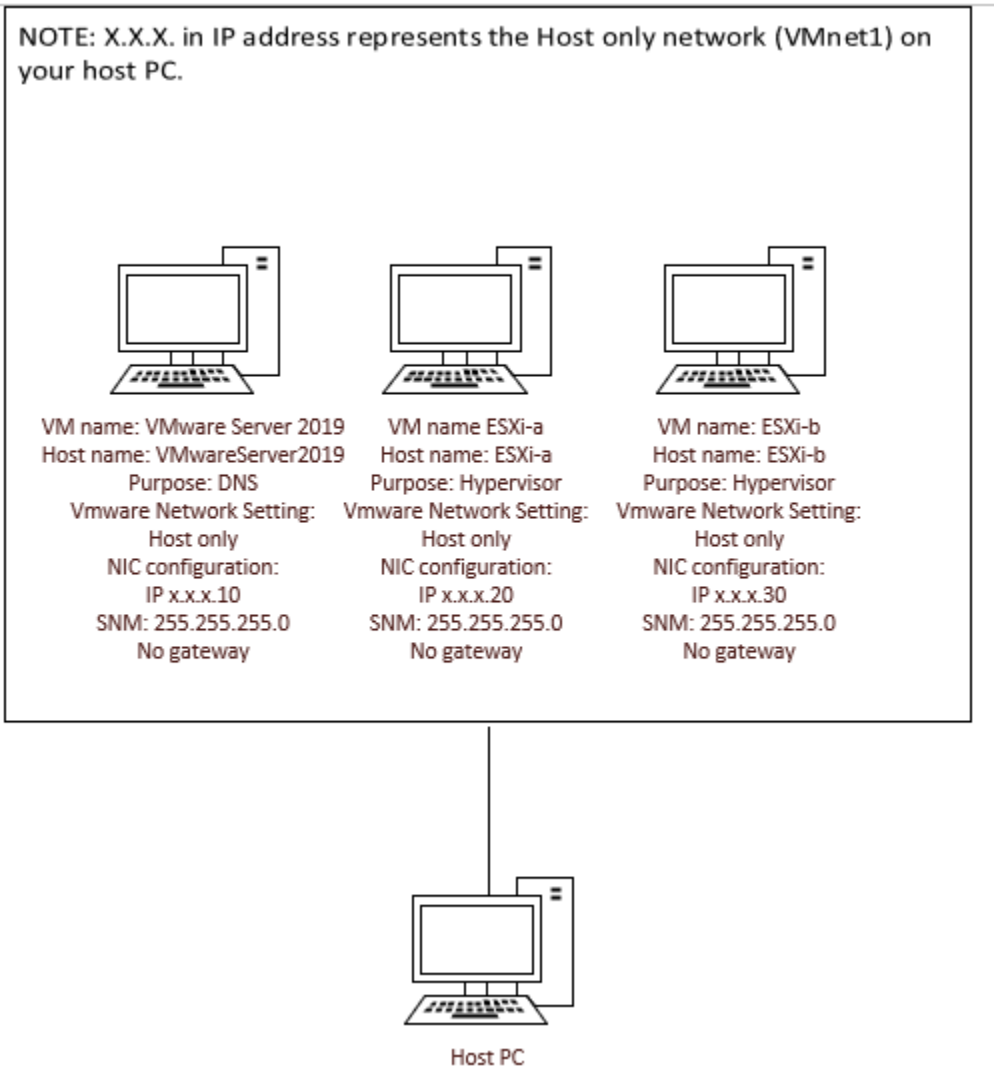
- Install, configure and manage virtual networking and storage [WECM]

Equipment/Supplies Needed

- Host Computer with VMware Workstation Pro
- Two ESXi Hypervisor Guest VM's

Assignment

Students will create and configure a new datastore, vSwitch, and VMkernel NIC in VmWare ESXi VM's.
Key activities include creation of the following:
(2) Two VMware Esxi Hypervisors



Procedure

1. On VMware Server 2019 VM, install the Active Directory role by clicking on 'Add roles and features' in Server Manager if not already added. Your Instructor will tell you if you should choose a specific Fully Qualified Domain Name and/or password for Active Directory. Promote the Server to a Domain Controller.
    a. Before adding DNS records you first need to ensure DNS is correctly configured. This means you must have a Reverse Lookup Zone as well as the Forward Lookup Zone. If all you see in DNS is a Forward Lookup Zone then create the Reverse Lookup Zone by right clicking the Reverse Lookup Zone in the left pane of DNS Manager. Accept all defaults until you get to the Zone Name. This is where you enter the Ipv4 network address of the network the AD server is in. After creating the Reverse Lookup Zone, when you add an A record the Reverse Lookup record should be automatically created at the same time. You should see a message saying something like the Reverse record has been created.
    b. Add a DNS 'A' record for each ESXi VM by opening DNS Manager in Server 2019 and clicking on the Domain name in the left pane.
    c. Right click the Domain name, click on 'New Host (A or AAAA)
    d. In the Name field, type the Host name of one of your ESXi VM's. In the IP address field, type the IP address of the ESXi VM you just typed. Click on 'Add Host'.
    e. Perform steps a, b, c, and d above for the other ESXi VM.

f. **For grading, take a screenshot showing ESXi-a and ESXi-b in both the primary and reverse DNS zones.**

2. On first ESXi VM press F2 to customize the system, then login.
   a. Arrow down to Configure Management Network and press enter. Arrow down to Ipv4 Configuration and press enter. Set Default Gateway to x.x.x.1, where x.x.x represents the default host only network (VMnet1) that your VM is in. Press enter to apply changes.
   b. Arrow down to DNS Configuration and press enter. Type in the IP address of your Server 2019. Be sure the Hostname matches what you entered in DNS in step 1 above. Press enter to apply changes.
   c. Arrow down to Test Management Network and ping the IP of Server 2019 to ensure connectivity. Troubleshoot and correct as necessary.
   d. **For grading, take a screenshot showing successful pings in step 2c.**
3. On Host PC open a Web Browser and enter *http://ip-address-of-esxi-a*.
   a. Confirm security exceptions and you will see the login page of the ESXi server. This is how you manage a single ESXi server from a management PC. Enter username/password specified during ESXi installation.
   b. Tick the check box to NOT participate in the VMware improvement program.
   c. Create a new datastore that will use the 2nd hard drive added to the ESXi server, by clicking on Storage in the left pane, click on 'New datastore' button.
      i. Ensure 'Create new VMFS datastore' is selected and click on Next.
      ii. Ensure the 150GB partition is selected under devices, and name the new datastore 'Datastore150', click Next.
      iii. Use full disk should be selected in the next window along with VMFS 6, click Next, then Finish. The new datastore is now created! This will be used as the partition for creating new VM's on the ESXi server.
      iv. For grading, take a screenshot showing successful completion of step 3 to this point.
   d. To configure the network, using the second ESXi VM NIC, you'll need to create a new vSwitch and VMKernel NIC. Ensure the 2nd NIC is in VMnet2 before proceeding.
      i. Click on Networking in the left pane of the ESXi server. You currently have the default first switch created during ESXi installation. Create a new vSwitch assigned to the ESXi server's 2nd NIC by clicking on the Virtual switches tab in the right pane.
      ii. Click on 'add standard virtual switch'. Name it vSwitch1 and ensure vmnic1 is the uplink interface.
      iii. Click on 'Link discovery' and select Cisco discovery protocol (CDP) as the protocol. Click on 'Security' and ensure that the three options are set to Reject. Click on Add.
      iv. For grading, take a screenshot showing successful completion of step 3d.
   e. Now you need to create a new VMkernel NIC to use with the new vSwitch created.
      i. In the left pane click on Networking.
      ii. In the right pane click on the Vmkernel NIC's tab. Notice the default VMkernel NIC is associated with the first NIC. Click on 'Add Vmkernel NIC'.
      iii. The name for the 'New port group' should be "Storage".
      iv. Assign vSwitch1 as the 'Virtual switch'. (vSwitch0 already has a Vmkernel NIC attached to it).
      v. Ipv4 configuration should be 'Static'. Assign IP address 192.168.200.100/24 as the IP and SNM. Leave the TCP/IP stack as 'Default TCP/IP stack'. NOTE: you'll need to click on Ipv4 Settings in the blue area after selecting STATIC to set your static IP.
      vi. To the right of Services in the blue area check the boxes for vMotion, Provisioning, Management, Replication. Click on Create.
      vii. For grading, take a screenshot showing successful completion of step 3e.

f. From your Host PC ping the IP address of the VMkernel NIC you just created (192.168.200.100). If you can't ping you have a problem that needs to be resolved before moving on.
g. **For grading, take a screenshot of a successful ping in step 3f.**
h. Perform these same steps on the other ESXi VM, except you must use a unique IP address for the VMkernel NIC. For the second ESXi VMkernel NIC use IP 192.168.200.200/24. After doing so, ensure you can ping the IP of the VMkernel NIC on the second ESXi VM. Resolve if you can't. **Take screenshots of the same steps for the other ESXi VM as you did for the first ESXi VM.**

5. **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
	Screenshot of proper DNS configuration (20 pt)	1 correct answers; 20 pt each
	1 screenshot of each ESXi VM showing correctly configured Management Network and DNS configurations (10 pt)	2 screenshots showing proper configurations; 5 pt each
	1 screenshot of each ESXi VM showing correctly created 2nd datastore (15 pt)	2 screenshots showing proper configurations; 7.5 pt each
	1 screenshot of each ESXi VM showing correctly created 2nd vSwitch (25 pts)	2 screenshots showing proper configurations; 12.5 pt each
	1 screenshot of each ESXi VM showing correctly created 2nd VMkernel NIC 20 points	2 screenshots showing proper configurations; 10 pt each
	1 screenshot of each successful ping to each newly added VMkernel NIC 10 points	2 screenshots showing successful ping; 5 pt each