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॥ विद्यया समाजोत्कर्षः ॥

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-----PRACTICAL 02-----

❖ vSphere Networking and Security.

» TASK :

How to add, configure, and work with vSphere Standard and Distributed Switches for most types of in and out network traffic of the ESXi host through vCenter, as well as the advanced networking features it provides.

1. Login to vSphere Client and add networking to the given VM :

The screenshot displays the vSphere Client web interface. On the left, a sidebar menu shows the navigation tree with 'esx-02a.corp.vmbeans.com' selected. The main pane shows the 'Capacity and Usage' section for a VMware ESXi host, listing CPU (257 MHz used, 3.99 GHz allocated), Memory (3.99 GB used, 8 GB allocated), and Storage (20.62 GB used, 90.53 GB allocated). Overlaid on this is a 'SELECT HOSTS AND CLUSTERS' dialog box. The dialog lists the following hierarchy: vcsa-01a.corp.vmbeans.com > RegionA01 > RegionA01-COMP01 > esx-01a.corp.vmbeans.com, esx-02a.corp.vmbeans.com, app-serv01, TinyLinux, TinyLinux2, web-serv01, and Windows10. The 'esx-02a.corp.vmbeans.com' host is highlighted. A red box and a circled '1' indicate the selection point. A note at the bottom of the dialog states: '1. If you are not directed to "Hosts and Clusters", click the icon for it.'

2. Configure new network switch with the given configurations :

The screenshot shows the VMware vSphere Client interface. The main window displays the 'Host Details' for the host 'esx-02a.corp.vmbeans.com'. The details include:

- Host Details:**
 - Hypervisor: VMware ESX/ESXi, 6.0.0, 2053097
 - Model: VMWare37
 - Processor Type: Intel(R) Xeon(R) Gold 6330 CPU @ 2.00GHz
 - Logical Processors: 2
 - NICs: 4
 - Virtual Machines: 2
 - State: Connected
 - Uptime: 8 hours
- Capacity and Usage:**
 - CPU: 257 MHz used, 3.99 GHz allocated
 - Memory: 3.99 GB used, 8 GB allocated
 - Storage: 20.62 GB used, 90.53 GB allocated

On the right side, a 'COMPLETE THE WIZARD' dialog box is open, showing a 'Ready to complete' screen. It lists the following configuration steps:

- Select target device: vSwitch0
- Create a Standard Switch: vSwitch0
- Assigned adapters: vmnic3
- Connection settings: VM Network 2 (Name ID)

The dialog box includes a 'Click to enlarge' button and a '1. Review the port group settings in Ready to complete and click Finish.' instruction.

3. Now add an adaptor to the standard switch vSwitch0, (here vmnic 3) :

The screenshot shows the VMware vSphere Client interface. The main window displays the 'Add Networking' wizard. The steps are:

- Select connection type
- Select target device
- Add physical network adapter
- Ready to complete

The 'Ready to complete' step shows the following configuration:

- Select target device: Standard switch vSwitch0
- Add physical network adapter: Assigned adapters vmnic3

On the right side, a 'READY TO COMPLETE' dialog box is open, showing a 'Ready to complete' screen. It lists the following configuration steps:

- Select target device: vSwitch0
- Add physical network adapter: vmnic3

The dialog box includes a 'Click to enlarge' button and a '1. Click Finish to add vmnic3 to vSwitch0.' instruction.

4. Now Explore the settings (via clicking the menu button) of physical adapter (vmnic3), added to the standard switch :

The screenshot shows the VMware vSphere Client interface. The 'Physical Adapters' window is open, displaying a table with columns 'Name', 'Host', and 'Assigned To'. The table lists 'vmnic2' and 'vmnic3', both assigned to 'vSwitch0'. A sidebar on the right contains a 'NEW VMNIC ADDED' guide with steps: 1. In the Physical Adapters section, vmnic3 has been added to the switch. 2. Click on the drop-down menu for the VM Network port group. 3. Select Edit Settings.

5. Explore properties, security, traffic settings and teaming and failover settings, but it is recommended not to change these settings manually unless required :

The screenshot shows the VMware vSphere Client interface. The 'VM Network - Edit Settings' dialog box is open, displaying the 'Teaming and failover' tab. The 'Active adapters' section lists 'vmnic3' and 'vmnic2'. A sidebar on the right contains a 'TRAFFIC SHAPING' guide with text: 'Just like in the Security settings, you can override the default policy set at the switch level to apply to just this port group. A traffic shaping policy is defined by average bandwidth, peak bandwidth, and burst size. You can establish a traffic shaping policy for each port group. ESXi shapes outbound network traffic on standard switches. Traffic shaping restricts the network bandwidth available to each port group.'

6. Remove the physical adapter via moving it up in the unclaimed adapters section:

Virtualization 101 (HOL-2410-01) | Welcome, Tushar Panchal | HELP | PRIVACY | MY PROFILE | LOG OUT | ENGLISH

Lab: Virtualization 101 (HOL-2410-01-SDC) | TIME REMAINING: 00:49:43 | EXTEND | END

SEND TEXT | CTRL+ALT+DEL | NOTES | POWER DOWN | POWER RESET

Activities | Firefox Web Browser | Sep 18 8:32 PM

esx-02a.corp.vmbeans.com | ACTIONS

Summary | Monitor | Configure | Permissions | VMs | Datastores | Networks | Updates

Storage | Virtual switches | VMkernel adapters | Physical adapters | TCP/IP configuration

Virtual switches | Distributed Switch: RegionA01-VDS-COMP | ADD NETWORKING... | REFRESH

Physical adapters | Physical Adapters | (Physical Adapters)

REMOVE VMNIC3

1. Click on **vmnic3**.
2. Click on **Move Up** until the adapter is under **Unclaimed adapters**.
3. Click **OK**.

Virtualization 101 (HOL-2410-01) | Welcome, Tushar Panchal | HELP | PRIVACY | MY PROFILE | LOG OUT | ENGLISH

Lab: Virtualization 101 (HOL-2410-01-SDC) | TIME REMAINING: 00:26:07 | EXTEND | END

SEND TEXT | CTRL+ALT+DEL | NOTES | POWER DOWN | POWER RESET

Activities | Firefox Web Browser | Sep 18 9:01 PM

esx-02a.corp.vmbeans.com | ACTIONS

Summary | Monitor | Configure | Permissions | VMs

Storage | Virtual switches | VMkernel adapters | Physical adapters

Virtual switches | Distributed Switch: Reg | ESX0-RegionA01 | VLAN ID: -- | VMkernel Ports (1) | Virtual Machines (0)

Virtual switches | Virtual switches | (Virtual switches)

Manage Physical Network Adapters | vSwitch0

Select unclaimed (free) adapters on the host and move them to the Active/Standby/Unused adapters of the switch.

MOVE UP | MOVE DOWN

Unclaimed adapters | vmnic3

Active adapters | vmnic2

Standby adapters

Unused adapters

Properties

Adapter | VMware Inc. vmxnet3 Virtual Ethernet Controller

Name | vmnic3

Location | PCI 0000:04:00.0

Driver | vmxnet3

Status

Status | Connected

Actual speed, Duplex | 10 Gb/s, Full Duplex

Configured speed, Duplex | 10 Gb/s, Full Duplex

Networks | 0 0 0 1-255-255-255

Network I/O Control

Status | Allowed

CANCEL | OK

VIRTUAL SWITCHES

esx-02a.corp.vmbeans.com | ACTIONS

Summary | Monitor | Configure | Permissions | VMs

Storage | Virtual switches | VMkernel adapters | Physical adapters

Virtual switches | Distributed Switch: Reg | ESX0-RegionA01 | VLAN ID: -- | VMkernel Ports (1) | Virtual Machines (0)

Virtual switches | Virtual switches | (Virtual switches)

In preparation for the next lesson, we will delete the Standard Switch we created on esx-02a.corp.vmbeans.com

1. Click the **Configure** tab.
2. Select **Virtual switches** in the Networking section.

7. Remove the standard switch similarly from the menu options. Thus, standard switches are observed, added, configured and removed in ESXi via vSphere Client in this experiment. Physical adapters can also be added to a standard switch whenever required.

» **Conclusion :** this practical exercise provided hands-on experience with essential networking tasks in a virtualized environment using VMware vSphere. Understanding how to add, configure, and remove network components is crucial for ensuring that VMs run smoothly and can communicate effectively. Additionally, it highlighted the importance of careful consideration and caution when making changes to network settings to avoid disruptions in the virtualized environment.