Checkpoint-1
Implementing and Configuring Virtualization in Ubuntu server
CIT501 Hardware Administration

Learning Outcomes

On completion of this exercise, you will be able to:

- **LO1:** Manage hardware using technical support practices in order to meet organisational requirements.

- **LO3:** Apply professional and ethical practices to hardware maintenance projects in order to enhance awareness of social responsibility as an emerging IT professional

- **LO5:** Apply problem-solving and decision-making techniques to complete a hardware project in order to support an innovative undertaking. (2 Credits)
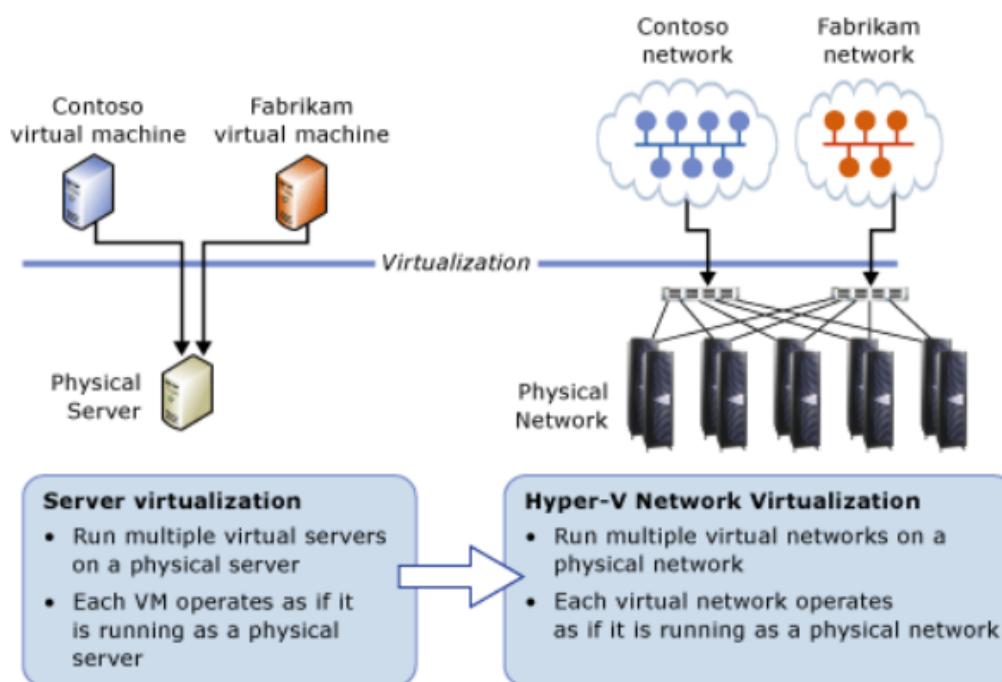
Introduction

Figure 1: Server virtualization versus network virtualization
https://learn.microsoft.com/en-us/windows-server/networking/sdn/technologies/
hyper-v-network-virtualization/

Here, we will build on what we learned about Virtual Machines, Virtualization, Switches, and Network adapters.

In the Virtualization lecture, we learned about different types of hypervisors. For example, we said Type-1 or bare-metal hypervisors run directly on the host's hardware to control the hardware and manage guest operating systems. Some examples of Type 1 hypervisors are Citrix/Xen Server, VMware ESXi, and Microsoft Hyper-V.

1 Creating a virtual machine in the Management Console of Microsoft Hyper-V Manager

In this exercise, we will walk through the process of creating and configuring virtual machines (VMs) using Hyper-V Manager. Our tasks will involve creating a Hyper-V virtual switch, setting up a virtual hard disk, and finally, creating a virtual machine

1.1 Task 1: Download Ubuntu 18.04 ISO

Prior to creating a virtual machine, you must place the ISO file in any network folder that can be accessed by the server with the hypervisor. If you open the Microsoft Hyper-V Manager console on the same server on which the hypervisor is installed, you can place the ISO file on a local hard drive.

- Open a web browser and navigate to the official Ubuntu website (`https://ubuntu.com/download`).
- Download the Ubuntu Server ISO image suitable for your system architecture (e.g., 64-bit).
- Save the ISO file to a convenient location on your local machine.

1.2 Task 2: Prepare Hyper-V Host

- Ensure that you have administrative access to the Hyper-V host machine.
- Open Hyper-V Manager.
- In the left part of the window, select the hypervisor on which you want to deploy the virtual machine image.
- In the context menu, select New → Virtual Machine. The Virtual Machine Creation Wizard opens.
- Follow the steps of the Wizard:
    - Select the virtual machine name and path.
    - Select the virtual machine generation.
    - Allocate memory for the virtual machine.
    - Configure the network connection.
    - Connect a virtual hard drive.
    - Select the drive for deploying the virtual machine image.
    - Confirm creation of the virtual machine.
- A virtual machine with the defined settings will be created. Make sure that it is displayed in the Virtual Machines list on the selected hypervisor.
- The virtual machine is created with the default number of processors. You must change this setting in the properties of the virtual machine after it is created.

1.3 Task 3: Create a New Virtual Machine

- In Hyper-V Manager, click on "New" in the Actions pane, then select "Virtual Machine".
- In the New Virtual Machine Wizard, click "Next" on the Before You Begin page.
- Enter a name for the virtual machine (e.g., UbuntuServer) and choose a location to store its files.
- Select "Generation 2" for the virtual machine generation and click "Next".
- Allocate memory to the virtual machine. For Ubuntu Server, a minimum of 1 GB RAM is recommended.
- Configure networking by selecting an appropriate virtual switch or creating a new one. Ensure that the virtual switch has external network connectivity.
- Create a virtual hard disk for the virtual machine. Specify the size (e.g., 20 GB) and choose a location to store the VHD file.
- Click "Finish" to create the virtual machine.

1.4 Task 4: Install Ubuntu Server

- Right-click on the newly created virtual machine and select "Connect" to open the Virtual Machine Connection window.

- Start the virtual machine by clicking the "Start" button in Hyper-V Manager.

- In the Virtual Machine Connection window, select "Action" ¿ "Start" to power on the virtual machine.

- When prompted, select the Ubuntu Server ISO file downloaded earlier as the installation media.

- Follow the on-screen prompts to install Ubuntu Server. Choose the desired language, keyboard layout, and other settings as required.

- Proceed with the installation, including partitioning the disk, configuring network settings, and creating a user account.

- Once the installation is complete, remove the installation media (ISO) from the virtual DVD drive.

- Reboot the virtual machine to complete the installation process.

1.5 Task 5: Configure Ubuntu Server

- Login to the Ubuntu Server using the credentials created during the installation process.

- Update the system and install any necessary software packages using the package manager (e.g., apt).

- Configure network settings, firewall rules, and any other desired configurations according to your requirements.

- Optionally, install and configure Hyper-V Integration Services to improve VM performance and functionality.

2 Documentation

For additional information and reference, consult the Nagios documentation available at:

- `https://support.kaspersky.com/KWTS/6.1/en-US/184251.htm`

- `https://mslabs.cloudguides.com/guides/AZ-800%20Lab%20Simulation%20-%20Implementing%20and%20configuring%20virtualization%20in%20Windows%20Server`