



COMPUTER SYSTEM SERVICING G10
QUARTER 3–WEEK 3: VIRTUALIZATION SOFTWARE

Name of Learner:
Grade & Section:

Date:
Teacher:

MOST ESSENTIAL LEARNING COMPETENCY (MELC): 4.2 Carry out variation to application software in accordance to customer/ client requirements.
TLE_IACSS9-12ICCS-IIIa-e-31

Objectives:

- 1. Identify the features and functions of software virtualization.
2. Learn how to perform basic virtualization methods.
3. Develop the student’s decision-making skills by challenging the student’s thinking skills on why and when to perform virtualization using their PC



TEACH ME

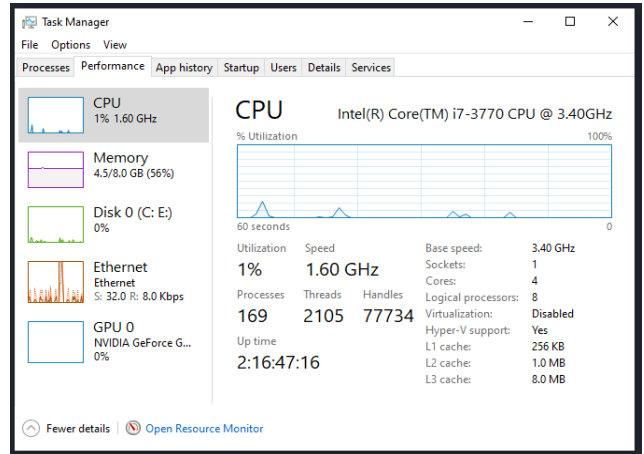
Learning Task 1:

One of the most powerful features of Windows such as Windows 10 is the support for virtualization. And this is possible with the use of Hyper-V or hypervisor platforms present in your OS. By using this, the virtual machine looks separate from your main system which makes you go silly and crazy with it online or offline.

Let us explore the world of virtualization using our own computer at home.

The hardware virtualization system requirements should be:

- Windows 10 pro or enterprise
-64-bit processor
-4GB system RAM at minimum
-BIOS-level hardware virtualization support



Exercise your eyes through observation. Based on the image, answer the following underlying questions.

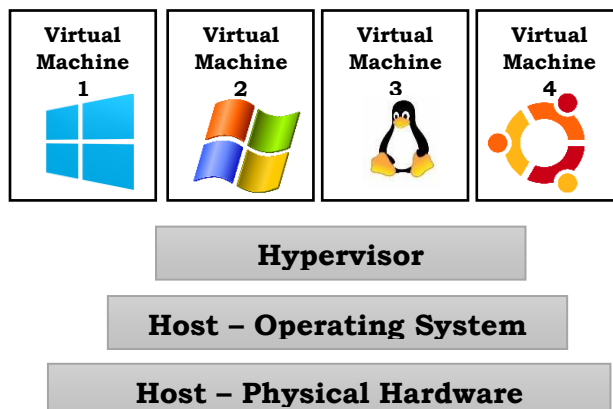
- 1. Is this PC supported by Hyper-V?
2. Is the memory volume capable of performing virtualization based on the system requirements?
3. Does virtualization method already enable this PC?

Learning Task 2:

Virtualization is generating simulated or virtual versions (rather than actual) of computer hardware, storage devices and computer network resources. It is mostly used by mainframe computers/ servers to logically divide the system resources based on the task that it will perform. This practice allows experts to operate multiple virtual systems on a single server or computer. It acts like a real computer with an operating system.

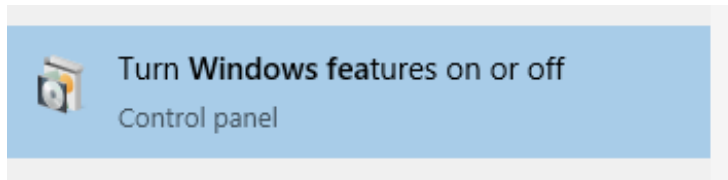
For example, if you have a computer running Windows 10 and you create another virtual computer using virtualization method and it seems to appear on a different computer in a network which makes it look like two devices. Same as with the use of other operating systems like Ubuntu Linux, or certain versions of MAC OS.

In virtualization, there are host machines and guest machines. The host machine is the software that runs on the physical machine which is used for virtualization while the guest machine is the virtual machine. OS virtualization allows a piece of hardware to run multiple OS images at the same time.

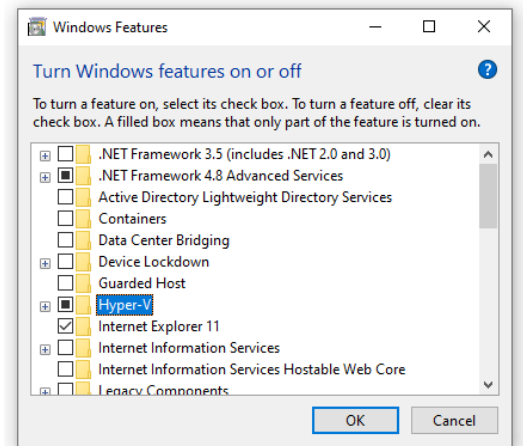


A key to virtualization technology is called a *hypervisor* that emulates the underlying hardware. It takes physical resources and separates them so they can be utilized by a virtual environment.

You can check the and allow hypervisor to your PC by searching to the start button the word “windows features” then select the turn windows features on or off.



After selecting this, a window applet will show and enable Hyper-V. Hit OK and it will apply the changes in your PC. You will be prompted to restart your PC and you can now modify the hypervisor or virtualization through your computer. It is best to seek assistance to a technician if you wish to change most of the settings through your hypervisor. You can start the virtualization process through BIOS or through certain applications present in the market.



Virtualization software available on the market includes:

1. VMware
2. Citrix
3. Microsoft
4. Oracle
5. Amazon
6. Red hat

There are two types of hypervisors:

1. Type 1 or “bare-metal” hypervisors – replaces the traditional OS altogether which commonly appear in virtual server scenarios.
2. Type 2 hypervisors – run as an application on an existing OS.

Below are the six areas of IT virtualization.

1. Network virtualization – method of combining resources in a network the splitting up the bandwidth onto channels.
2. Storage virtualization – sharing of physical storage from multiple network storage devices.
3. Server virtualization – concealing of server resources including processors and operating systems.
4. Data virtualization – abstracting the technical details of data management commonly used in business needs.
5. Desktop virtualization – allows the user to access desktop remotely.
6. Application virtualization – abstracting the application later away from the operating system. This allows Windows applications to run on Linux and vice versa.

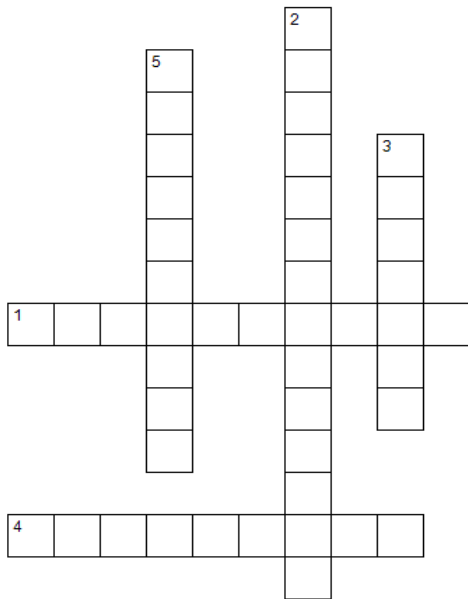
Advantages of Virtualization

- Lower costs – reduces the amount of hardware servers necessary with a company and data center.
- Easier disaster recovery – regular snapshots provide up-to-date data allowing virtual machines to be feasibly backed up and recovered.
- Easier Testing – If the large mistake is made, the test does not need to stop and go back to the beginning.
- Quicker backups – automatic snapshots are taken throughout the day to guarantee that all data is up to date.



Learning Task 3:

Direction: Fill-up the crossword puzzle with appropriate words.



Across:

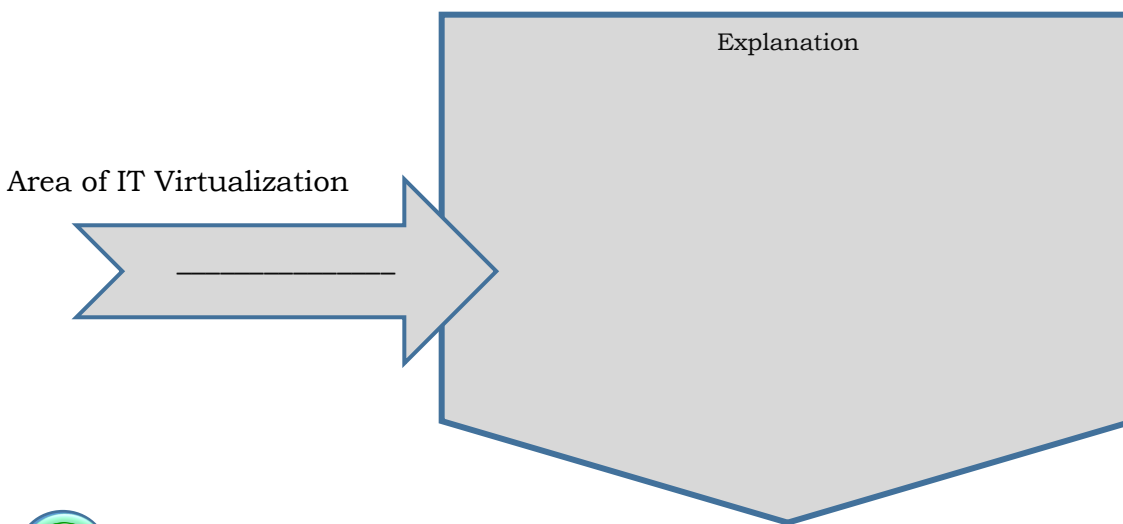
1. virtualization technology in your PC
4. company founded by Bill Gates

Down:

2. simulated version of PC hardware
3. OS developed by Microsoft
5. also called type 1 hypervisor

Learning Task 4:

Direction: Select one area of IT virtualization method and discuss when and for what purpose you are going to use it. Elaborate your answer based on your understanding.



EVALUATE NOW

SUMMATIVE ASSESSMENT:

A. WRITTEN TASK

Direction: Read each question and their corresponding answers carefully and completely. Choose the answer that best fits the statement.

- _____ 1. One of six area of virtualization which shares the physical storage from multiple network storage device.
 - a. network virtualization
 - b. storage virtualization
 - c. desktop virtualization
 - d. application virtualization
- _____ 2. What is the method of combining resources in a network the splitting up the bandwidth onto channels?
 - a. server virtualization
 - b. storage virtualization
 - c. desktop virtualization
 - d. network virtualization
- _____ 3. What is the abstraction of the application layer away from the operating system? This allows Windows applications to run on Linux and vice versa.
 - a. network virtualization
 - b. storage virtualization
 - c. desktop virtualization
 - d. application virtualization
- _____ 4. What is a type of hypervisor which replaces the traditional OS altogether which commonly appear in virtual server scenarios?

| | |
|-----------|-----------|
| a. type 1 | c. type 3 |
| b. type 2 | d. type 4 |
- _____ 5. What is the processor architecture requirement of hypervisor?

| | |
|-----------|-----------|
| a. 32-bit | c. 64 bit |
| b. 4GB | d. 8GB |

II. Write **TRUE** if the statement is correct and **FALSE** if otherwise.

- _____ 1. Type 2 hypervisors are also called bare-metal hypervisors.
- _____ 2. Windows 95 supports OS virtualization.
- _____ 3. Virtualization reduces the cost and improves productivity.
- _____ 4. Virtualization can serve multiple virtual machines with different OS.
- _____ 5. Data virtualization is one of the areas of IT virtualization.

B. PERFORMANCE TASK

Directions: Watch the video and keep notes of the important things that were presented.

<https://www.youtube.com/watch?v=iBI31dmqSX0>

For those students who lack ICT resources, make an insight of how the virtualization is used and its value/ advantages in computer usage.

| Criteria | 5 points | 3 points | 1 point |
|-----------------|------------------------------------|---|--|
| Quality of work | Very clear, complete, and concise. | Clear, mostly complete, and concise | Unclear, incomplete, and not concise |
| Creativity | You used your own words and ideas | You used your own words and ideas most of the time. | You did not use your own words and ideas at all. |
| Effort | You took your time and worked hard | You worked hard for most of the time | You rushed through and did not work hard |

References:

<https://searchservirtualization.techtarget.com/definition/virtualization>

<https://en.wikipedia.org/wiki/Virtualization>

<https://www.ibm.com/cloud/learn/virtualization-a-complete-guide>

<https://www.webopedia.com/definitions/virtualization>

