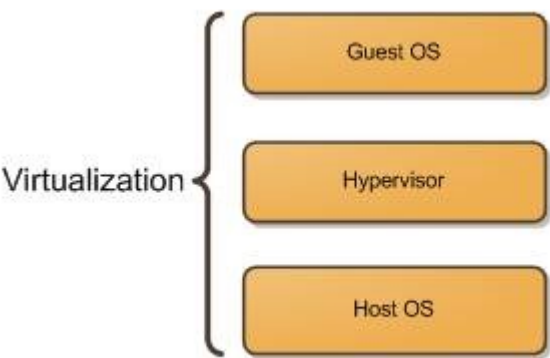# What is Virtualization

Counterpart of hardware to imitate a virtual machine within a physical machine.Virtualization uses software to generate an synopsis layer on computer hardware that make a single computers hardware component processors and more to be sever into multiple virtual machine.

Types of virtualization

server-side virtualization

Server side virtualization software serves up virtual machines.

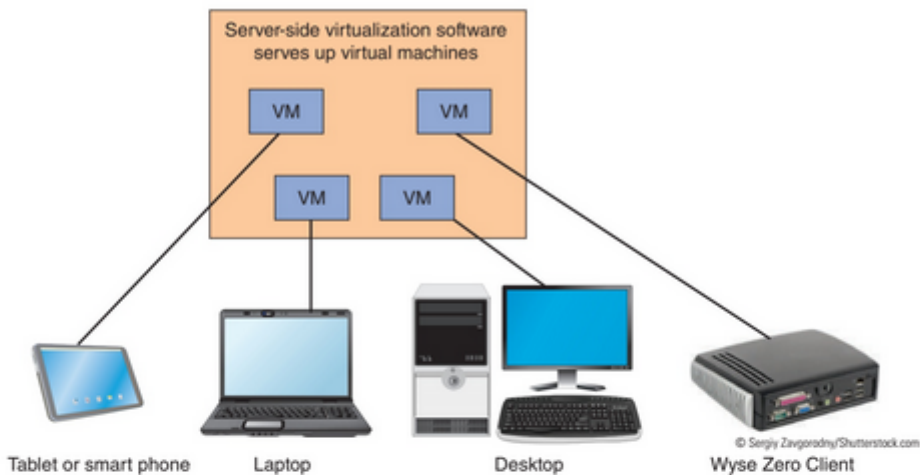
Figure 20-1   Server-side virtualization provides a virtual desktop to each user
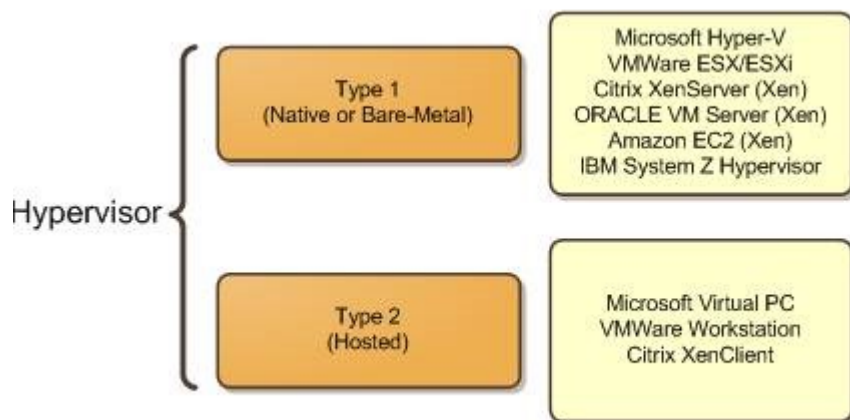

client-side virtualization

- software installed on a computer to manage virtual machine.
- Each VM has its own operating system installed.

Hypervisor:

- A hypervisor that allows the management of virtual machines.
- Hardware support
- capable CPU
- Enough storage

Two types of hypervisors

Virtualbox

- Is a powerful type 2 virtualization product for enterprise as wellas home
- Open source software under GPL verion 2

- Runs on windows,Linux,Macintosh,solaris

How to install virtualbox in windows 10

1. Download installer from virtualbox.org.
2. Start installer
3. once installer is done,install extention pack
4. select the amount of ram
5. create virtual hard drive
6. select ISO
7. finish installing
8. turn on the start menu
9.

Installing Ubuntu server

ubuntu 20.04

Updating Ubuntu

- using ubuntu software update
-

Installing software

- Installation command examples
- Searching for software
- Deleting software
    - `sudo apt remove + package name`
    - Example:
    - `sudo apt remove vlc`will remove the vlc package. searching
- install option installs the specified package formula sudo + apt + install + package name some useful program
- install several single command
- remove several programs in a single command
- install and remove programs in a single command
- remove programs and all remaining traces
- search for all programs that matches the text quotes
- search aal programs about given a package

- search package only

Install several programs in a single command

```
sudo apt install firefox flameshot caffeine -y
```

Remove several programs in a single command

```
sudo apt remove firefox flameshot caffeine -y
```

Install and remove programs in a single command

```
sudo apt install firefox+ flameshot- caffeine- vlc+
```

Remove programs and all remaining traces

```
sudo apt purge firefox+ flameshot- caffeine- vlc+
```

Search for all programs that matches the text in quotes

```
apt search "web browser"
```

Search for information about a given package including dependencies.

```
apt-cache search firefox
```

Search a package name only.

```
apt search -n firefox
```

- Apt works using the list of repositories in the **/etc/apt/sources.list**
- You can add more repositories (or remove them) using the command **sudo apt edit-sources**
- **Edit-sources** opens the **sources.list** file using your default text editor. If more than one CLI text editor is available, edit-sources allows you to choose.

Basic linux commands

- ★ **The pwd command** – used for displaying the current working directory
- ★ **The cd command** – used for changing the current working directory. When no directory is given, cd changes the current working directory to the home directory of the current user.
- ★ **The ls command** – used for displaying all the files inside a given directory. When no directory is specified, ls displays the files in the current working directory
  - ★ **dir, tree,** and **exa** are commands similar to ls.

mkdir

- Description:uded for created directories
- Usage: `mkdir + option + new directory path`
- Examples:
  - create a directory in the present working directory
  - `mkdir Wallpaper/'`
- Create a parent directory and child directory
  - `mkdir Wallpaper/cars/new`

Managing files and directories

Creating directories

The mkdir command

- `mkdir` is used for creating a single directory or multiple directories.
- To create a directory with `mkdir` type: `mkdir` + `the name of the directory.`
- To create multiple directories, separate each directory name with a space.
- You can create directories in the present working directory or in a different directory by using an absolute path or relative path.
- You can create a directory with a space in its name using the escape character (\) or by surrounding the name in quotation marks (' ' or " ").
- If you try to create a directory that already exists, you will get an error notifying you that the file already exists.

Examples of the `mkdir` command

- Create a directory in the present working directory
  - `mkdir wallpapers`
- Create a directory in a different directory using relative path
  - `mkdir wallpapers/ocean`
- Create a directory in a different directory using absolute path
  - `mkdir ~/wallpapers/forest`
- Create a directory with a space in the name
  - `mkdir wallpapers/new\ cars`
  - `mkdir wallpapers/'cities usa'`
- Create a directory with a single quote in the name
  - `mkdir wallpapers/"majora's mask"`
- Create multiple directories
  - `mkdir wallpapers/cars wallpapers/cities wallpapers/forest`
- Create a directory with a parent directory at the same time.
  - `mkdir -p wallpapers_others/movies`