

Week Report 2

The basic of virtualization

- Virtualization is basically recreate hardware in a virtual environment.
- Different types of virtualization: Server-side virtualization and client virtualization.

Server-side virtualization

Virtual Desktop Infrastructure (VDI).

- Thick client or fat client
- Thin client
- Zero client

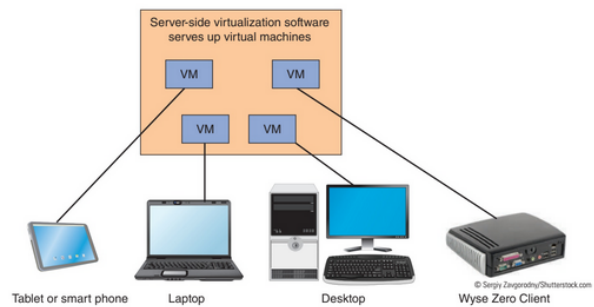


Figure 20-1 Server-side virtualization provides a virtual desktop to each user



Client-side virtualization

- Software installed on a computer to manage virtual machines
- Each VM has its own operating system installed
- For client-side virtualization, the computer needs:
 - A hypervisor (Software that allows the management of virtual machines)
 - Hardware support
 - capable CPU
 - Enough RAM
 - Enough storage



Benefits of virtualization:

- Allow running multiple machines on it.
- Reduce cost by reducing the physical hardware.
- Offers the capability of test without risk of malware or viruses.

Installing ubuntu in virtual box

You can name your vm however you want but it is good practice to name it something that indicates what OS is being installed or the purpose of the vm.

Name and operating system

Please choose a descriptive name and destination folder for the new virtual machine and select the type of operating system you intend to install on it. The name you choose will be used throughout VirtualBox to identify this machine.

Name: CIS-106-ubuntu-18.04

Machine Folder: /home/adrian/VirtualBox VMs

Type: Linux

Version: Ubuntu (64-bit)

This indicates where the virtual machine is located in your host machine.

This indicates the type of operating systems and the versions available. If you do not see a 64 bit version of the OS available is probably because virtualization is not enabled in your computer

3

Memory size

Select the amount of memory (RAM) in megabytes to be allocated to the virtual machine.

The recommended memory size is 1024 MB.

4 MB 49152 MB

2048 MB

Ubuntu Desktop requires at least 2GB of RAM but if you have more than 8GB of RAM you can increase the amount of RAM you give the virtual machine without diminishing your host OS performance significantly.

Here is a tip.

- If you plan to run only 1 virtual machine at a time and you have 8GB of RAM. You can give your vm 4GB of RAM and your PC will still be fast.
- If you have 4GB of RAM. Do not give your VM more than 2GB of RAM.

4

This options allows you to create the vm without a disk.

Virtualbox has some preset disk sizes depending on the operating system. This is a recommendation that we will not be following.

This option allows us to create a virtual hard disk with any size that we specify

If you already have a hard disk created, you can choose it with this option.

Hard disk

If you wish you can add a virtual hard disk to the new machine. You can either create a new hard disk file or select one from the list or from another location using the folder icon.

If you need a more complex storage set-up you can skip this step and make the changes to the machine settings once the machine is created.

The recommended size of the hard disk is **10.00 GB.**

☐ Do not add a virtual hard disk

☒ Create a virtual hard disk now

☐ Use an existing virtual hard disk file

windows 7.vdi (Normal, 100.00 GB)

< Back Create Cancel

5

Depending on the guest OS type, a new VM includes the following storage devices:

- **IDE controller.** A virtual CD/DVD drive is attached to the secondary master port of the IDE controller.
- **SATA controller.** This is a modern type of storage controller for higher hard disk data throughput, to which the virtual hard disks are attached.

Add new storage controller

Remove selected storage controller

Add new storage attachment

Remove storage attachment

Storage

Storage Devices

- Controller: SATA
- windows 10.vdi
- VBoxGuestAdditions.iso

Attributes

Name: SATA

Type: AHCI

Port Count: 2

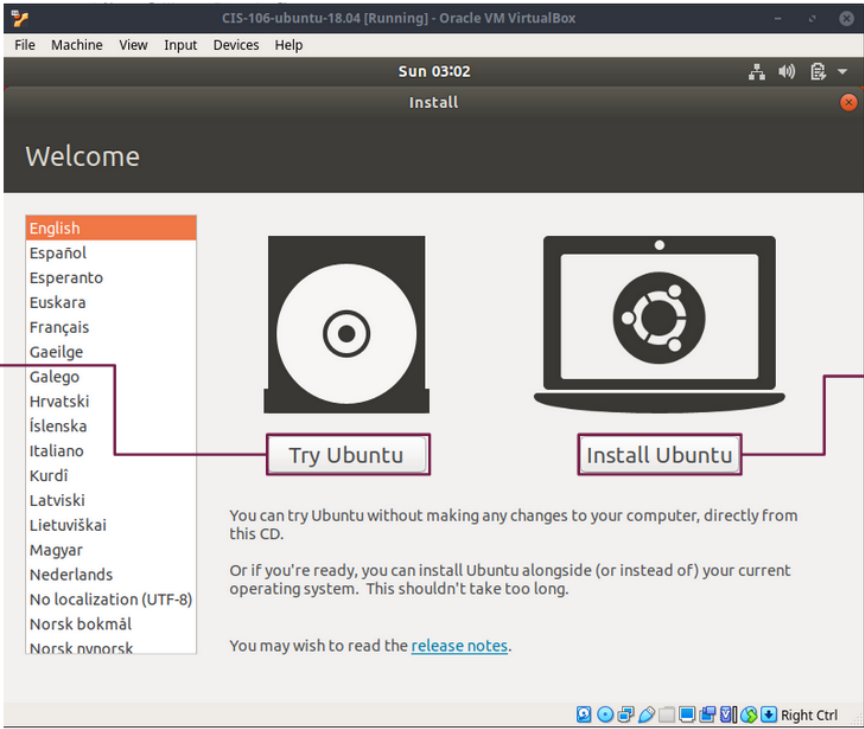
☐ Use Host I/O Cache

Invalid settings detected

Cancel OK

1
4

Try Ubuntu:
Starts Ubuntu live environment. You can launch the installer from the live environment.




Install Ubuntu:
Starts Ubuntu installer. Ubuntu installer is called *Ubiquity*

1
9

What is raspberry pi

- A super tiny computer with the potential of do anything you can imagine.
- Raspberry pi can be use for education of adult and child's of computer science.

Specs of PI 4:

 **Raspberry Pi**

For Industry

Hardware

Software

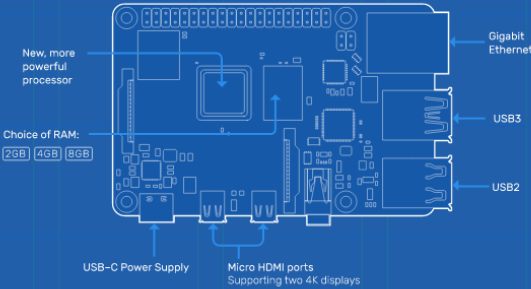
Documentation

News

Forums

Foundation

Raspberry Pi 4 Tech Specs



New, more powerful processor

Choice of RAM: 2GB 4GB 8GB

USB-C Power Supply

Micro HDMI ports Supporting two 4K displays

Gigabit Ethernet

USB3

USB2

← Overview

Buy now

Specifications

Broadcom BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
2GB, 4GB or 8GB LPDDR4-3200 SDRAM (depending on model)
2.4 GHz and 5.0 GHz IEEE 802.11ac wireless, Bluetooth 5.0, BLE
Gigabit Ethernet
2 USB 3.0 ports; 2 USB 2.0 ports.
Raspberry Pi standard 40 pin GPIO header (fully backwards compatible with previous boards)
2 × micro-HDMI ports (up to 4k60 supported)
2-lane MIPI DSI display port
2-lane MIPI CSI camera port
4-pole stereo audio and composite video port
H.265 (4k60 decode), H264 (1080p60 decode, 1080p30 encode)
OpenGL ES 3.1, Vulkan 1.0
Micro-SD card slot for loading operating system and data storage
5V DC via USB-C connector (minimum 3A*)
5V DC via GPIO header (minimum 3A*)
Power over Ethernet (PoE) enabled (requires separate PoE HAT)
Operating temperature: 0 – 50 degrees C ambient

* A good quality 2.5A power supply can be used if downstream USB peripherals consume less than 500mA in total.

MODELS OF RASPBERRY PI:

- Raspberry Pi Zero
- Raspberry Pi Zero WH
- Raspberry Pi Zero W
- Raspberry Pi 3 B+
- Raspberry Pi 4B(2GB)
- Raspberry Pi 4B(4GB)
- Raspberry Pi 4B(8GB)

5 Projects you can do with raspberry PI:

- 1. Replace Your Desktop PC With a Raspberry Pi
- 2. Cut the Cord With Kodi: A Raspberry Pi Media Center.
- 3. Build a Minecraft Game Server
- 4. Build a Stop Motion Camera
- 5. A Home Automation System With Arduino