Virtualization - the basics

1. Replicates hardware to simulate inside another machine
2. Two general types:
    - server side
    - client side

Server-side virtualization

1. Provides a virtual desktop to each user in the server
    - Thick client or fat client
    - Thin client
    - Zero client

Client side virtualization

1. Software installed in the computer
2. Every VM has its own operating system
3. For this kind the computer need:
    - A hypervisor
    - Hardware support
        - capable CPU
        - Enough RAM
        - Enough storage

Type 1 VS Type 2 Hypervisor

Type 1

1. Runs on hardware
2. Examples are:
    1. VMware ESX and ESXi
    2. Citrix XenServer

Type 2

1. Runs on a Host Operating System
2. Examples are:
    1. VMware Workstation Player/Pro
    2. Oracle VirtualBox

Benefits of Virtualization

1. Can run multiples OSs on one computer
2. Allows apps to be tested before using them
3. Reduces cost by not needing to buy hardware for a network
4. Offers the chance to test unknown programs without the risk of malware

VirtualBox

1. Powerful type 2 VM product for home use
2. Open source
3. Runs on:
    1. Windows
    2. Linux
    3. Macintosh
    4. Solaris
4. Supports a large guest OS

VMWare Workstation Player

1. Free type 2 VM software
2. Free version of workstations with less features
3. Available for Linux and Windows
4. Supports a large number of OSs

Minimal Requirements

1. AMD V or INTEL V processor
2. Dual core x64 processor with 1.3 GHz or faster
3. 4GB of RAM
4. Enough free space for installing OSs

Using Virtual Box

1. Extension pack
    1. Base package: consists of all open source components
    2. Extension pack: extends teh functionality of the OVM base package
2. OVM extension packages have a .vbox-extpack file name

What is a Raspberry Pi?

1. Its a low cost, credit card sized mini computer
2. Capable of doing anything that a normal compute would
    1. The Raspberry Pi foundation is registered as an educational charity
    2. The goal of the foundation is to advance education of adults and children
3. Different types of Raspberry Pi
    1. Raspberry Pi 4
    2. Raspberry Pi 3
    3. Raspberry Pi Zero W
    4. Raspberry Pi 3 A+
    5. Raspberry Pi 400

What do i need?

1. Raspberry Pi
2. Case
3. Power supply
4. Micro SD card
5. HDMI Cable
6. everything else is optional
7. Plug and play

Different OSs for the Raspberry Pi

- Ubuntu
- Kali Linux
- Diet Pi
- Arch Linux
- Elementary OS
- Manjaro
- Windows 10
- Android

1. Very affordable and easy to find
2. You can build your own kit but its not recommended since its more expensive