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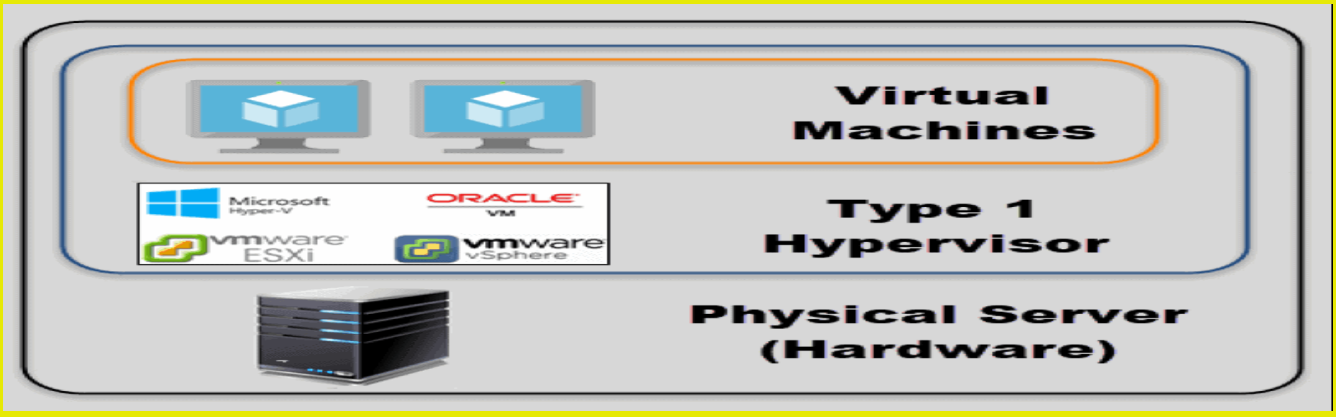
This document is created for answering questions which will be asked during Born2beroot project evaluation in Ecole 42 School.

Born2beroot

How Does a Virtual Machine Work?

Virtual machines create software based hardware. The hardware created are as it is called virtual. In order to virtualize CPU, RAM, storage and etc, we need hypervisors. Hypervisors are software which enables to share machine's hardware. Hypervisor term comes from the supervisor of supervisors. All OS's have kernel and kernel's job is supervising the machines hardware components. Since hypervisors controls guest OSes they hypervise the supervisors. There are 2 types of hypervising method. The most used and better performing one called type-1 or bare metal hypervisors. These hypervisors do not need an operating system to create virtual machines. They are called bare-metal because they are directly installed on the machine. This kind of hypervisor is mostly used in big enterprizes and servers.

Picture: Type-1 or Bare-metal hypervisor working scheme.



Type 2 hypervisors or hosted hypervisors are installed on a host OS. They are easier to use but since they work on the host operating system every process also goes through the host operating system layer to reach the real machine so it works slower.

To sum up virtual machines uses hypervisor software. They create virtual machines and they can act as a real machine. Examples of type-1 hypervisors are: Microsoft Hyper-V, Oracle VM, Vmware ESXI and so on. Hosted hypervisor are: Oracle VM Virtual Box, Vmware workstation Pro/ Vmware Fusion, Paralels Desktop, etc.

My Choice of Operating System

Since we are given 2 options either installing CentOS or Debian on a hosted Virtual Machine, I have chosen Debian operating system with no graphical user interface. The reason is I have used Debian before and I am more comfortable with simple setup. CentOS needs more configuration.