

What is a Virtual Machine?

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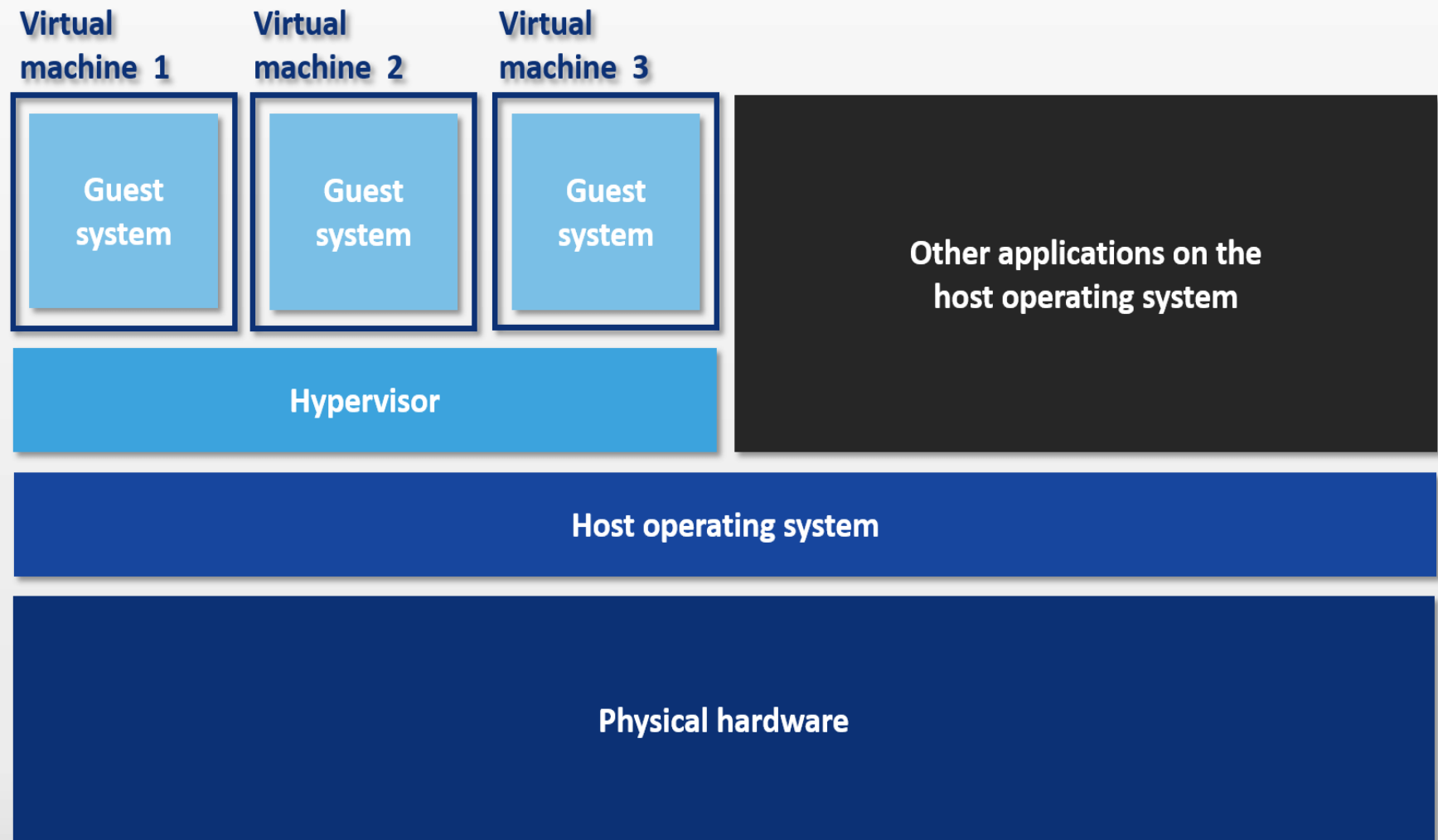
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What is a Computer?

- Electronic device that gets work (or fun) done:
 - desktop, laptop, cellphone, and even a fancy coffee maker...
- Built from hardware:
 - physical components, such as processor, memory, hard drive, network card...
- Runs OS software that control hardware:
 - Windows, Linux, MacOS, Android, iOS, etc

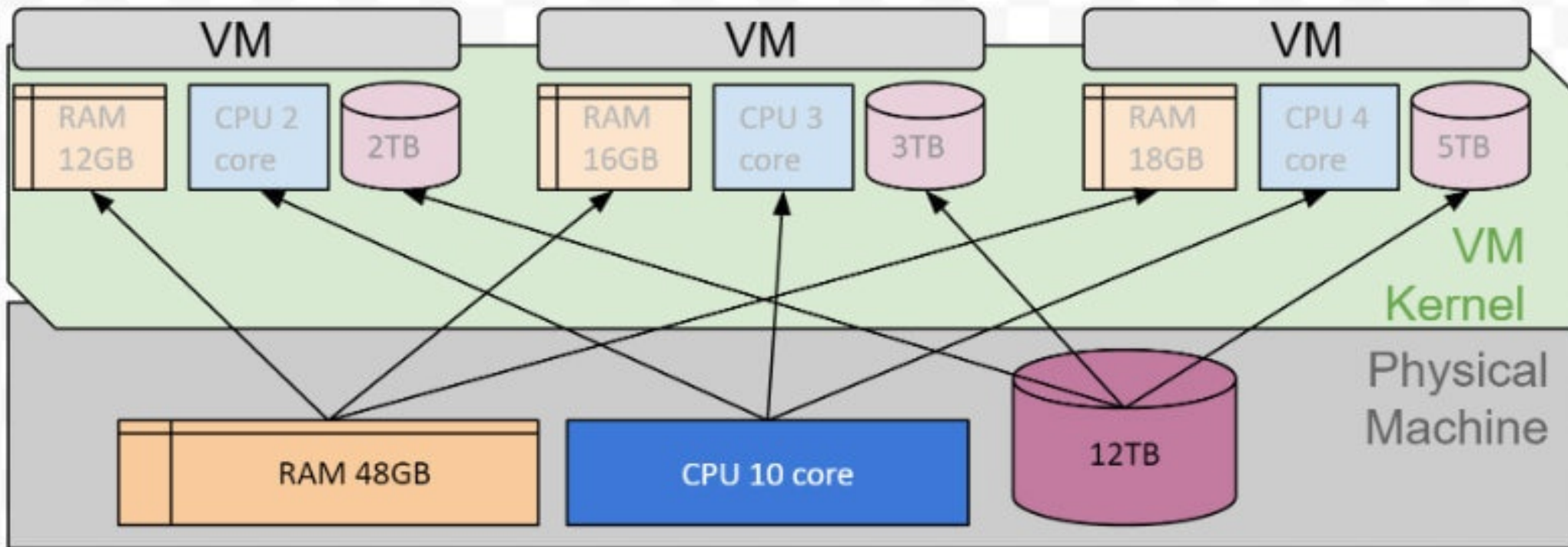
What is a Virtual Machine?

- Software that runs in *user space* in the existing OS (host OS) as an independent process
- Virtual environment that emulates a computer system with its own virtual (not physical) cpu, memory, network interface and storage.
- Can house many different OSs simultaneously (guest OSs)
- Virtual Machine Manager(VMM) is also called *hypervisor*.
 - Oracle VirtualBox and VMWare
- VMM creates and runs your VM by creating a virtual interface identical to the host machine



Use of Guest OS resources by VM?

- VMs use your physical computer resources



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Other Related Terms

- Type 2 VMM
 - Usually emulates VM and underlying hardware, runs on host OS
 - Oracle VirtualBox
 - VM Ware Workstation
- Type 1 VMM – “Bare metal”
 - Runs on hardware directly (on bare metal) without underlying OS
- Appliance – a VM setup, pre-configured and packaged in open virtualization format (.OVF) that can be imported or exported

Why use a VM?

- Try out a new OS without installing it.
- Run more than one OS at the same time.
- Try a new application.
- Test various applications, drivers, etc. in a safe environment.
- You can easily create clones of the guest OS.