PA200 - Cloud Computing Concepts

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Virtualization

Why?

- Consolidation of resources
- Virtual vs Physical machine inspection
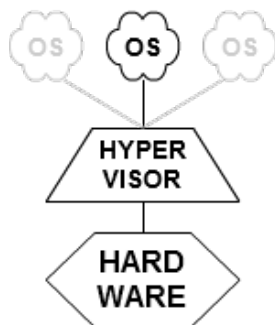- Easy provisioning
- Movable resource

Why?

- Recoverable
- Easier testing and evaluation
- Duplication of environments
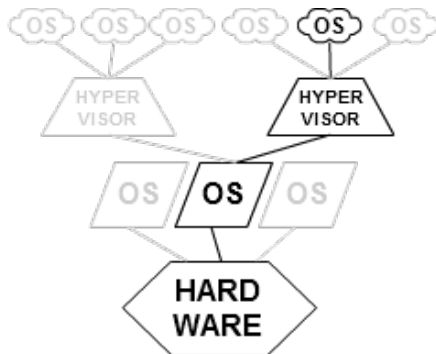- Isolation from host HW and OS

Hypervisors

- native
- hosted

Hypervisors

Examples of native hypervisors
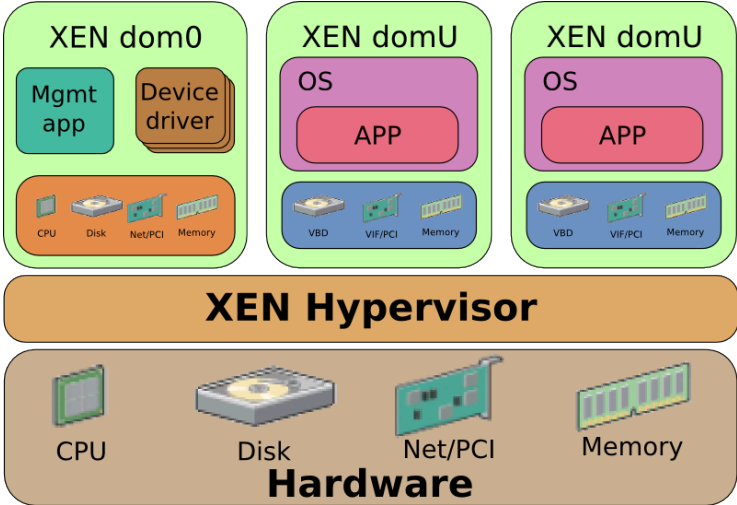
- XEN
- MS Hyper-V
- VMware ESXi

Examples of hosted hypervisors

- QEMU
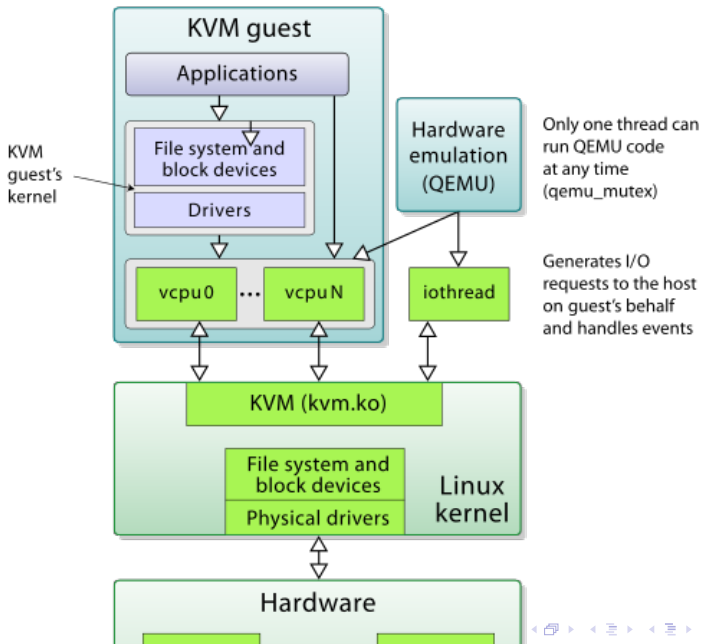- KVM
- VirtualBox
- VMware Workstation

XEN

- founded in 2003 by XenSource, bought in 2007 by Citrix
- 2013 under Linux Foundation as Xen Project
- native hypervisor

ZEN

KVM

- Modular kernel virtualization
- provides user space access to hw virtualization
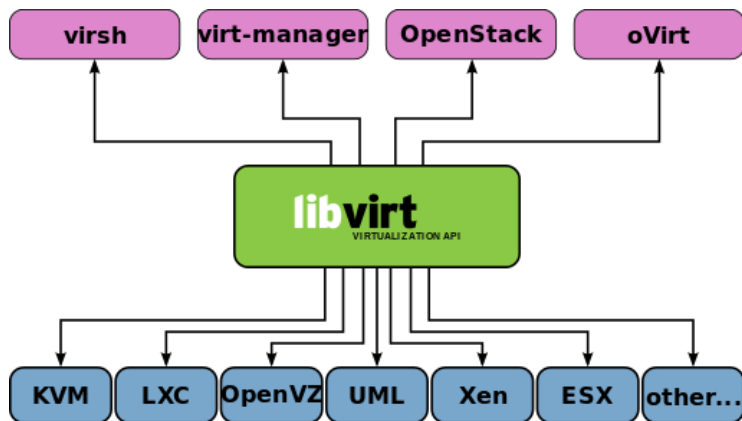- started by Qumranet
- 2007 merged into linux kernel

KVM

QEMU

- hosted hypervisor
- provides emulation of hw
- can be used with KVM for hw virtualization

Libvirt

- Common API for hypervisor type abstraction
- supports
- LXC
- KVM/QEMU, Xen, VirtualBox
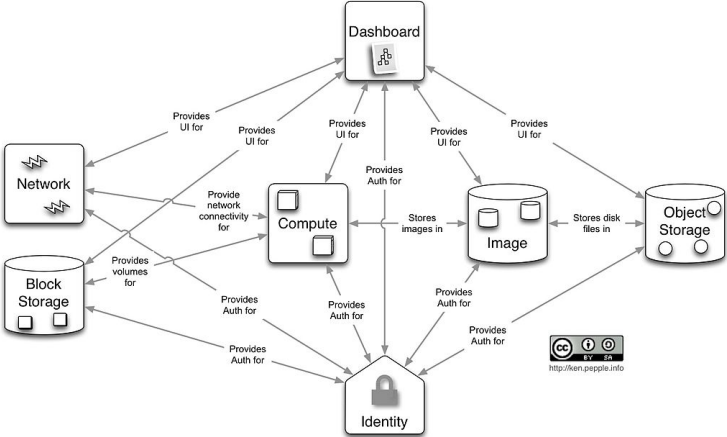- VMware ESXi and Workstation
- MS Hyper-V, IBM PowerVM

Libvirt

oVirt

- virtualization management platform
- on top of KVM
- upstream for RHV
- engine
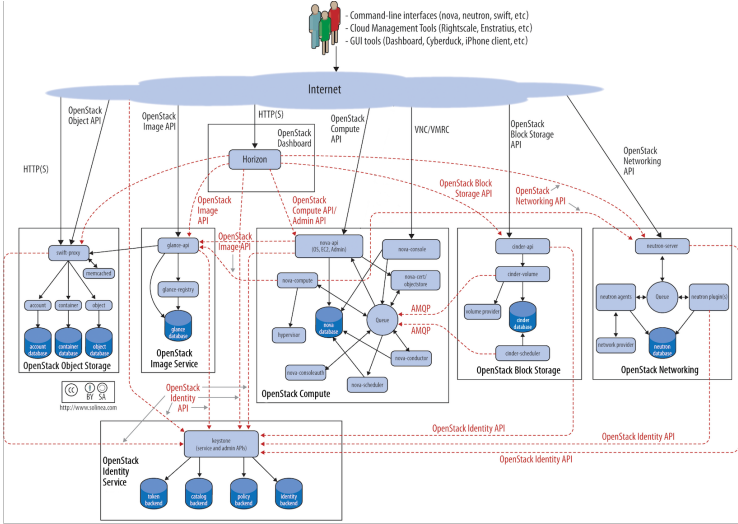- node
- VDSM - virtual desktop and server manager

OpenStack

- software platform for cloud computing
- started in 2010 by Rackspace and NASA
- in 2012 founded OpenStack Foundation

OpenStack

OpenStack

Containers

- Docker
- LXC
- OpenVZ
- chroot

Recap

- Why we should use virtualization?
- What types of hypervisors we know? Any examples?
- Name some projects that uses or build on top of hypervisor technologies.