## Hypervisor definition

A hypervisor is a process that separates a computer’s operating system and applications from the underlying physical hardware. Usually done as software although embedded hypervisors can be created for things like mobile devices.

The hypervisor drives the concept of virtualization by allowing the physical host machine to operate multiple virtual machines as guests to help maximize the effective use of computing resources such as memory, network bandwidth and CPU cycles.

## Benefits of hypervisors

Even though VMs can run on the same physical hardware, they are still logically separated from each other. This means that if one VM experiences an error, crash or a malware attack, it doesn’t extend to other VMs on the same machine, or even other machines.

VMs are also very mobile – because they are independent of the underlying hardware, they can be moved or migrated between local or remote virtualized servers a whole lot easier than traditional applications that are tied to physical hardware.

There are two types of hypervisors, creatively named Type 1 or Type 2. Type 1 hypervisors, sometimes called “native” or “bare metal” hypervisors, run directly on the host’s hardware to control the hardware and manage the guest VMs. Modern hypervisors include Xen, Oracle VM Server for SPARC, Oracle VM Server for x86, Microsoft Hyper-V and VMware’s ESX/ESXi.

Type 2 hypervisors, sometimes called “hosted hypervisors,” run on a conventional OS, just like other applications on the system. In this case, a guest OS runs as a process on the host, while the hypervisors separate the guest OS from the host OS. Examples of Type 2 hypervisors include VMware Workstation, VMware Player, VirtualBox and Parallels Desktop for Mac.

In the enterprise data center space, consolidation has resulted in three major vendors on the hypervisor front: VMware, Microsoft and Citrix Systems.

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