TYPES OF VIRTUALIZATION-TYPE -1 AND TYPE -2

In virtualization, the hypervisor (also called a virtual machine monitor) is the low-level program that allows multiple operating systems to run concurrently on a single host computer. Hypervisors use a thin layer of code in software or firmware to allocate resources in real-time. We can think of the hypervisor as the traffic cop that controls I/O and memory management.

There are two types of hypervisors: Type 1 and Type 2.

Type 1 hypervisors run directly on the system hardware. They are often referred to as a "native" or "bare metal" or "embedded" hypervisors.

Type 2 hypervisors run on a host operating system. When the virtualization movement first began to take off, Type 2 hypervisors weremost popular. Administrators could buy the software and install it on a server they already had.

Type 1 hypervisors are gaining popularity because building the hypervisor into the firmware is proving to be more efficient. According to IBM, Type 1 hypervisors provide higher performance, availability, and security than Type 2 hypervisors. (IBM recommends that Type 2 hypervisors be used mainly on client systems where efficiency is less critical or on systems where support for a broad range of I/O devices is important and can be provided by the host operating system.)

Experts predict that shipping hypervisors on bare metal will impact how organizations purchase servers in the future. Instead of selecting an OS, they will simply have to order a server with an embedded hypervisor and run whatever OS they want.

To keep their market-share, each of the major virtualization software vendors have announced plans to work with hardware manufacturers to embed their hypervisor into the manufacturer's firmware.

Comparison or Type 1 and Type 2

This virtualization hypervisor comparison takes a look at the Type 1 hypervisor, which enables hardware virtualization, and the Type 2 hypervisor, which runs atop existing OSes.

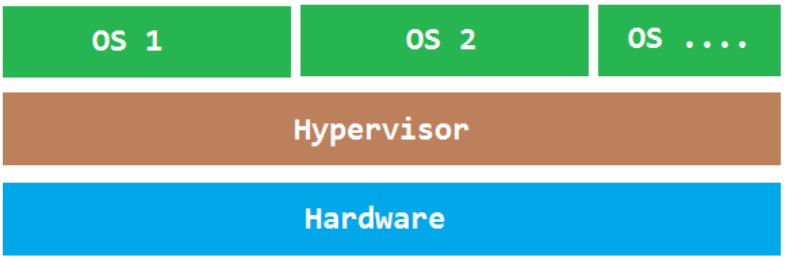
What is Hypervisor?

A Hypervisor also known as Virtual Machine Monitor (VMM) can be a piece of software, firmware or hardware that gives an impression to the guest machines (virtual machines) as if they were operating on a physical hardware. It allows multiple operating system to share a single host and its hardware. The hypervisor manages requests by virtual machines to access to the hardware resources (RAM, CPU, NIC etc) acting as an independent machine.

Let us try to understand about them in detail

Type 1 Hypervisor

- **This is also known as Bare Metal or Embedded or Native Hypervisor.**
- **It works directly on the hardware of the host and can monitor operating systems that run above the hypervisor.**
- **It is completely independent from the Operating System.**
- **The hypervisor is small as its main task is sharing and managing hardware resources between different operating systems.**
- **A major advantage is that any problems in one virtual machine or guest operating system do not affect the other guest operating systems running on the hypervisor.**

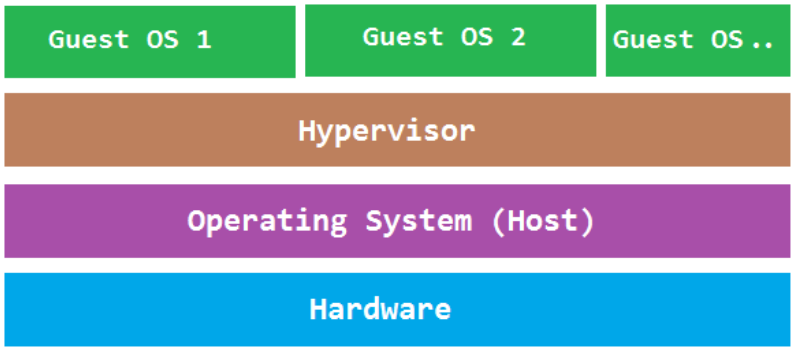


Examples:

VMware ESXi Server
Microsoft Hyper-V
Citrix Xen Server

Type 2 Hypervisor

- **This is also known as Hosted Hypervisor.**
- **In this case, the hypervisor is installed on an operating system and then supports other operating systems above it.**
- **It is completely dependent on host Operating System for its operations**
- **While having a base operating system allows better specification of policies, any problems in the base operating system a ffects the entire system as well even if the hypervisor running above the base OS is secure.**



Examples:
VMware Workstation
Microsoft Virtual PC
Oracle Virtual Box