**what is hypervisor.**

A hypervisor, also known as a virtual machine monitor (VMM), is a software layer that creates and manages virtual machines (VMs) on a physical host machine. A hypervisor allows multiple operating systems (OSes) to run independently on a single physical machine, sharing its resources such as CPU, memory, and storage, while isolating each VM from each other and from the host operating system.

There are two main types of hypervisors:

1. Type-1 or bare-metal hypervisor: A type-1 hypervisor runs directly on the host machine's hardware, providing a lightweight and efficient virtualization layer between the hardware and the guest operating systems. Examples of type-1 hypervisors include VMware ESXi, Microsoft Hyper-V, Citrix XenServer, and KVM.
2. Type-2 or hosted hypervisor: A type-2 hypervisor runs on top of a host operating system, using its resources to create and manage virtual machines. Examples of type-2 hypervisors include Oracle VirtualBox, VMware Workstation, and Parallels Desktop.

Hypervisors allow for greater flexibility, scalability, and efficiency in deploying and managing multiple virtual machines on a single physical machine. They are commonly used in data centers and cloud computing environments, as well as in desktop and development environments to create sandboxes for testing and experimentation.