In computing, a **virtual machine** (**VM**) is the [virtualization](#)/[emulation](#) of a [computer system](#). Virtual machines are based on [computer architectures](#) and provide functionality of a physical computer. Their implementations may involve specialized hardware, software, or a combination. Virtual machines differ and are organized by their function, shown here:

- *System virtual machines* (also termed [full virtualization](#) VMs) provide a substitute for a real machine. They provide functionality needed to execute entire [operating systems](#). A [hypervisor](#) uses [native execution](#) to share and manage hardware, allowing for multiple environments which are isolated from one another, yet exist on the same physical machine. Modern hypervisors use [hardware-assisted virtualization](#), virtualization-specific hardware, primarily from the host CPUs.
- **Process virtual machines** are designed to execute computer programs in a platform-independent environment.

Some virtual machine emulators, such as [QEMU](#) and [video game console emulators](#), are designed to also emulate (or "virtually imitate") different system architectures thus allowing execution of software applications and operating systems written for another [CPU](#) or architecture. [Operating-system-level virtualization](#) allows the resources of a computer to be partitioned via the [kernel](#). The terms are not universally interchangeable.