



Containerization and Virtualization

.NET

Containerization is the packaging of software along with the libraries and dependencies required to run the code. The lightweight executable, a container, runs consistently on any infrastructure.

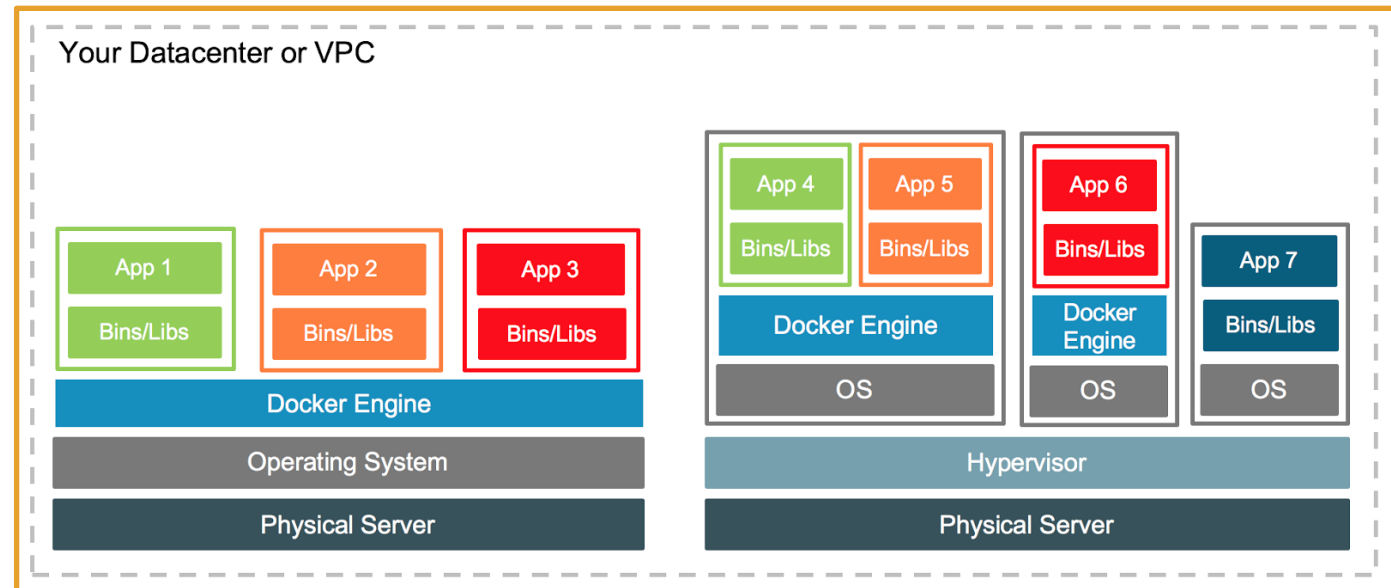
[HTTPS://WWW.IBM.COM/CLOUD/LEARN/CONTAINERIZATION](https://www.ibm.com/cloud/learn/containerization)

What is Virtualization?

https://en.wikipedia.org/wiki/Virtualization#Hardware_virtualization
<https://www.docker.com/blog/containers-and-vms-together/>

Hardware or platform *virtualization* refers to the creation of a Virtual Machine. A virtual machine is an application that simulates a computer within an existing operating system.

Software executed on a Virtual Machine is isolated from the underlying hardware resources.



What is Containerization?

<https://hackernoon.com/what-is-containerization-83ae53a709a6>

<https://www.ibm.com/cloud/learn/containerization>

Containerization means bundling together everything an application needs to run in a single file. When all the configuration files, libraries, and dependencies required for an application to run efficiently and bug-free are included, the application can be run in any computing environment.

Containers are more portable and resource-efficient than virtual machines (VMs). Containers have become the de facto compute units of modern cloud-native applications.

The most popular **containerization** ecosystems are **Docker** and **Kubernetes**.



Virtualization Software Examples

<https://en.wikipedia.org/wiki/Virtualization>

| V · T · E | | Virtualization software | | [hide] |
|--|--|--|--|--------|
| Comparison of platform virtualization software | | | | |
| Hardware virtualization (hypervisors) | Native | Adeos · CP/CMS · Hyper-V · KVM (Red Hat Enterprise Virtualization) · LDomS / Oracle VM Server for SPARC · Logical Partition (LPAR) · LynxSecure · PikeOS · Proxmox VE · SIMMON · VMware ESXi (VMware vSphere · vCloud) · VMware Infrastructure · Xen (Oracle VM Server for x86 · XenServer) · XtratuM · z/VM | | |
| | Hosted | Specialized | Basilisk II · bhyve · Bochs · Cooperative Linux · DOSBox · DOSEMU · PCem · PikeOS · SheepShaver · SIMH · Windows on Windows (Virtual DOS machine) · Win4Lin | |
| | | Independent | Microsoft Virtual Server · Parallels Workstation · Parallels Desktop for Mac · Parallels Server for Mac · PearPC · QEMU · VirtualBox · Virtual Iron · VMware Fusion · VMware Server · VMware Workstation (Player) · Windows Virtual PC | |
| | | Tools | Ganeti · oVirt · System Center Virtual Machine Manager · Virtual Machine Manager | |
| OS-level virtualization | OS containers | FreeBSD jail · iCore Virtual Accounts · Linux-VServer · LXC · OpenVZ · Solaris Containers · Virtuozzo · Workload Partitions | | |
| | Application containers | Docker · Imctfy · rkt | | |
| | Virtual kernel architectures | User-mode Linux · vkernel | | |
| | Related kernel features | BrandZ · cgroups · chroot · namespaces · seccomp | | |
| | Orchestration | Amazon ECS · Kubernetes · OpenShift | | |
| Desktop virtualization | Citrix XenApp · Citrix XenDesktop · Remote Desktop Services · VMware Horizon View · Uteo Open Virtual Desktop | | | |
| Application virtualization | Ceedo · Citrix XenApp · Dalvik · InstallFree · Microsoft App-V · Remote Desktop Services · Symantec Workspace Virtualization · Turbo · VMware ThinApp · ZeroVM | | | |
| Network virtualization | Distributed Overlay Virtual Ethernet (DOVE) · Ethernet VPN (EVPN) · NVGRE · Open vSwitch · Virtual security switch · Virtual Extensible LAN (VXLAN) | | | |
| See also: List of emulators | | | | |