

DEVOPS ASSIGNMENT- 2

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1) Comparison between hypervisor and docker

Docker is an open-source platform that enables developers to build, deploy, run, update and manage containers—standardized, executable components that combine application source code with the operating system (OS) libraries and dependencies required to run that code in any environment.

A hypervisor is a form of virtualization software used in Cloud hosting to divide and allocate the resources on various pieces of hardware. The program which provides partitioning, isolation, or abstraction is called a virtualization hypervisor. The hypervisor is a hardware virtualization technique that allows multiple guest operating systems (OS) to run on a single host system at the same time. A hypervisor is sometimes also called a virtual machine manager (VMM).

Comparison on different functionalities

Functioning Mechanism

Hypervisors are of two types – the bare metal works directly on the hardware while type two hypervisor works on top of the operating system.

Docker, on the other hand, works on the host kernel itself. Hence, it does not allow the user to create multiple instances of operating systems. Instead, they create containers that act as virtual application environments for the user to work on.

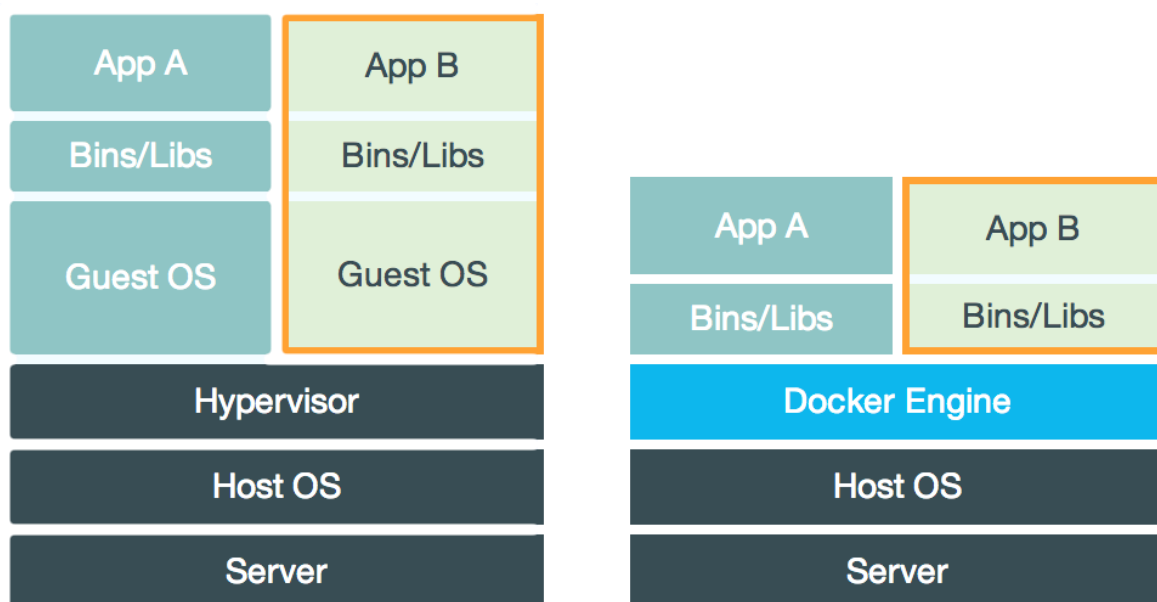
Number of Application Instances Supported

A hypervisor allows the users to generate multiple instances of complete operating systems. Dockers can run multiple applications or multiple instances of a single application. It does this with containers.

Memory Requirement :Hypervisors enable users to run multiple instances of complete operating systems. This makes them resource hungry. They need dedicated resources for any particular instance among the shared hardware which the hypervisor allocates during boot.

Dockers, however, do not have any such requirements. One can create as many containers as needed. Based on the application requirement and availability of processing power, the Docker provides it to the containers.

Boot time :As Dockers do not require such resource allocations for creating containers, they can be created quickly to get started. One of the primary reasons why the use of Dockers and containers is gaining traction is their capability to get started in seconds. A hypervisor might consume up to a minute to boot the OS and get up and running. Docker can create containers in seconds, and users can get started in no time.



2) Comparison between Containers and Virtual machines

- Containers and virtual machines are very similar resource virtualization technologies. Virtualization is the process in which a system singular resource like RAM, CPU, Disk, or Networking can be 'virtualized' and represented as multiple resources.

Containers	Virtual Machines (VM)
A container is a software that allows different functionalities of an application independently.	VM is piece of software that allows you to install other software inside of it so you basically control it virtually as opposed to installing the software directly on the computer.
Applications running in a container environment share a single OS.	Applications running on VM system can run different OS.
Containers virtualize the operating system only.	VM virtualizes the computer system.
Containers take a few seconds to run.	VM takes minutes to run, due to large size.
Containers are useful when we are required to maximise the running applications using minimal servers.	VM's are useful when we require all of OS resources to run various applications.
Size of container is very light, i.e. a few megabytes.	VM size is very large.
Examples of containers are: Rancher OS, Photon OS, Containers by Docker.	Examples of VM are: KVM, Xen, VMware.