

About Docker

Group 6

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Agenda

Basic Concepts of Docker:

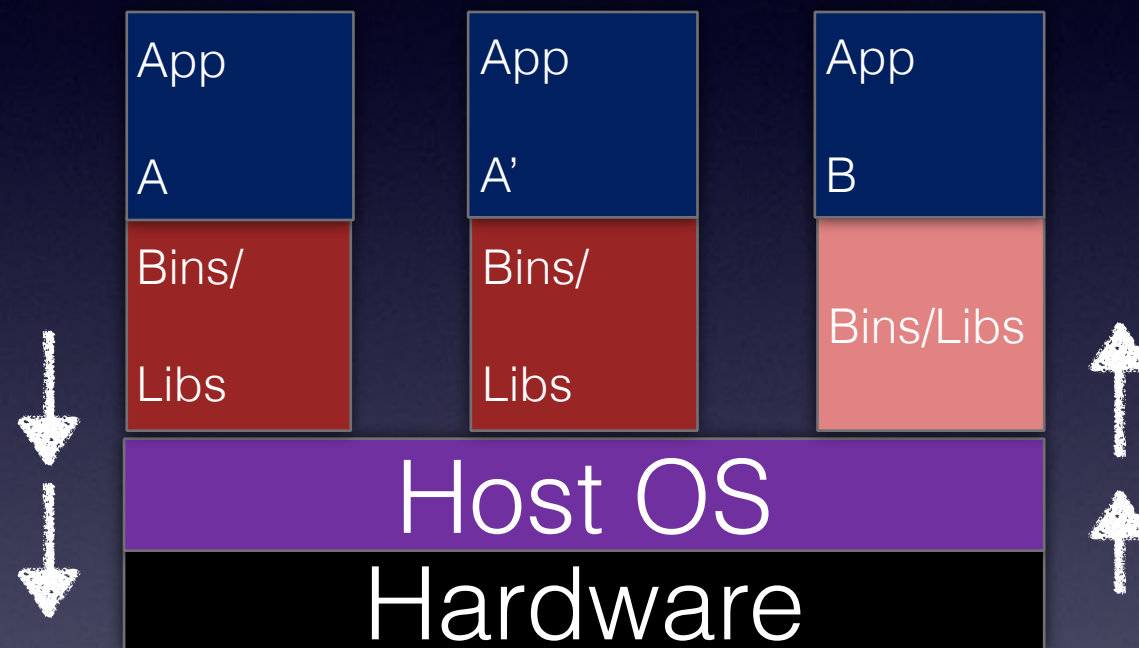
- Container, VM, Vagrant and VirtualEnv
- Image & Container (AMI)
- Docker Build, Ship, & Run

Technology Aspect of Docker:

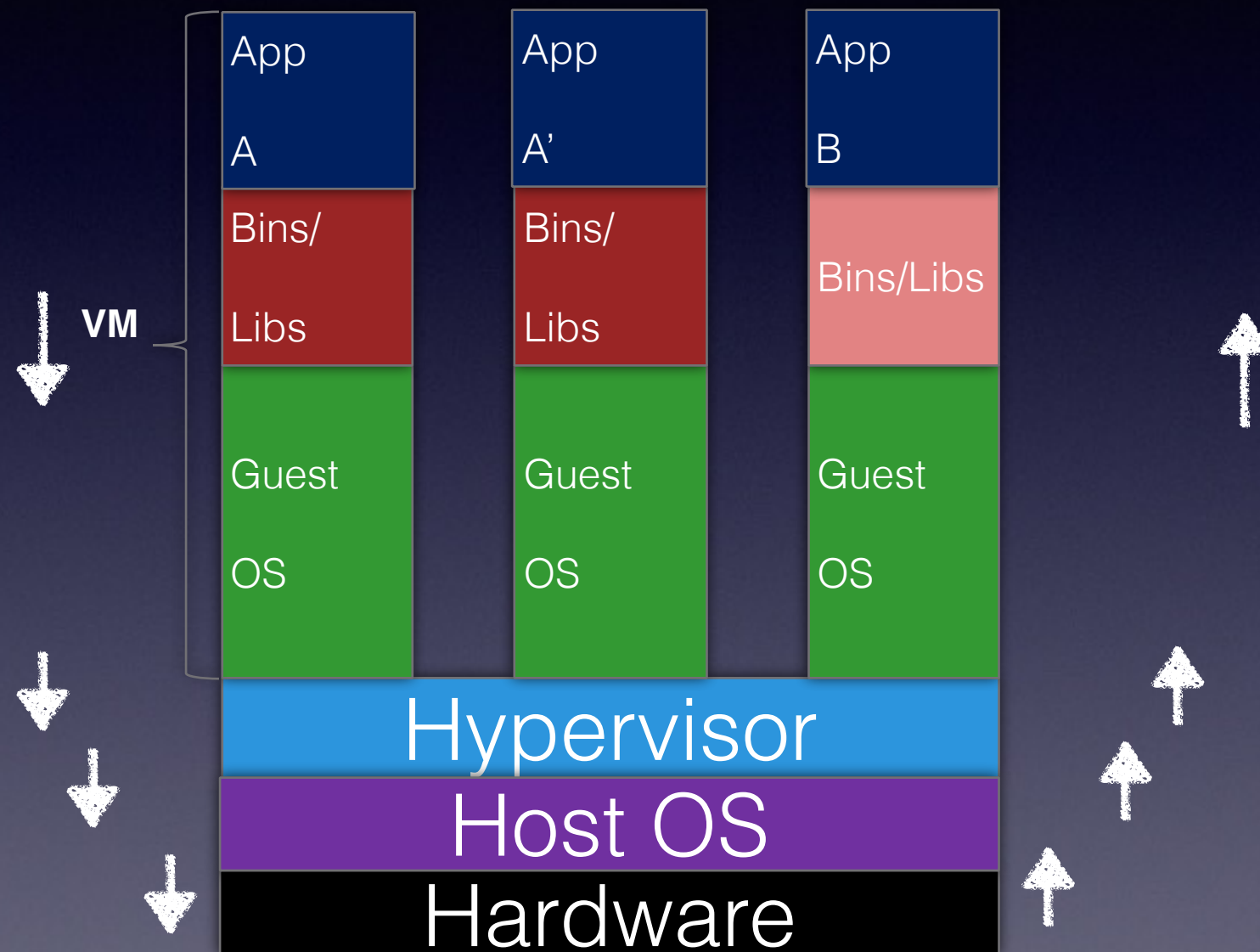
What is Docker?

Docker is an open-source engine that automates the deployment of any application as a lightweight, portable, self-sufficient container that will run virtually anywhere.

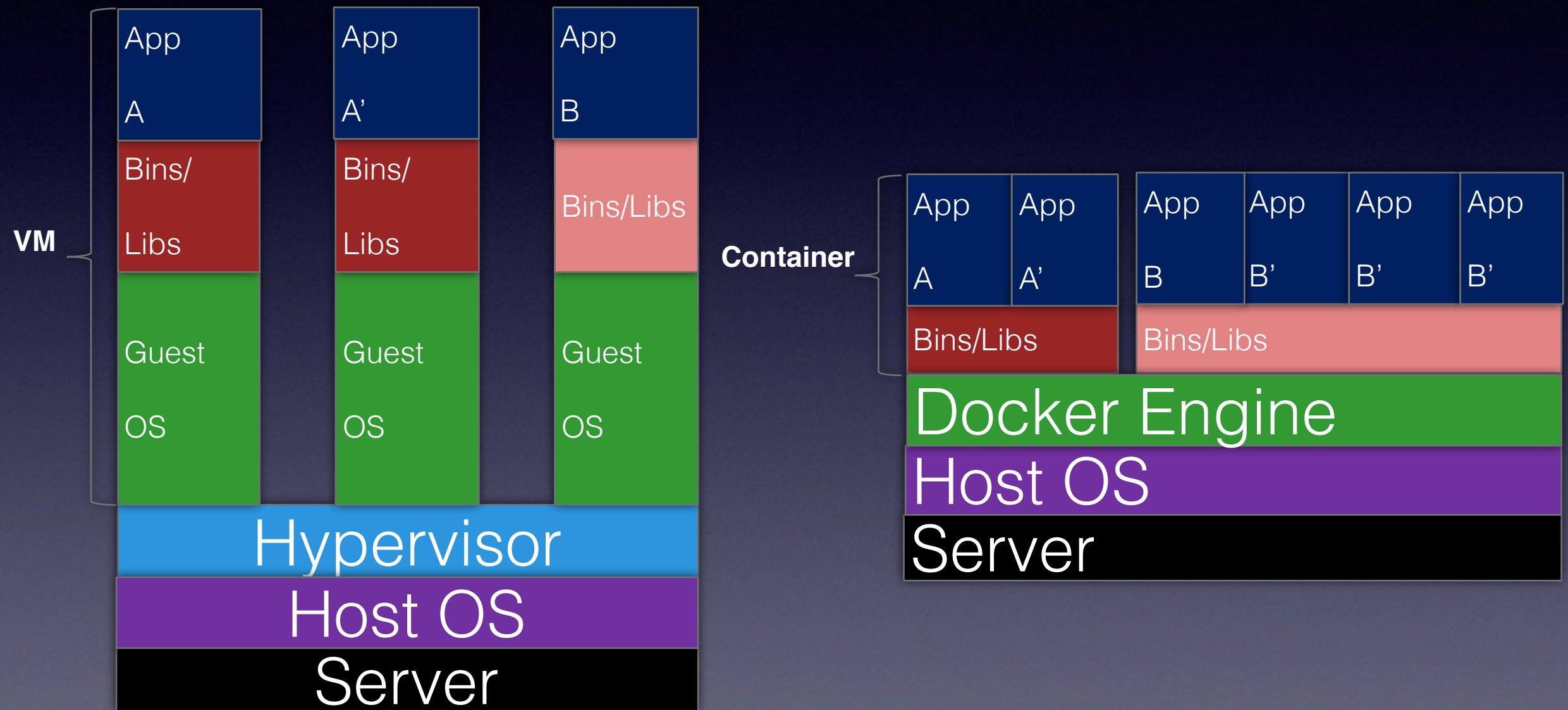
Traditional OS



Virtual Machine



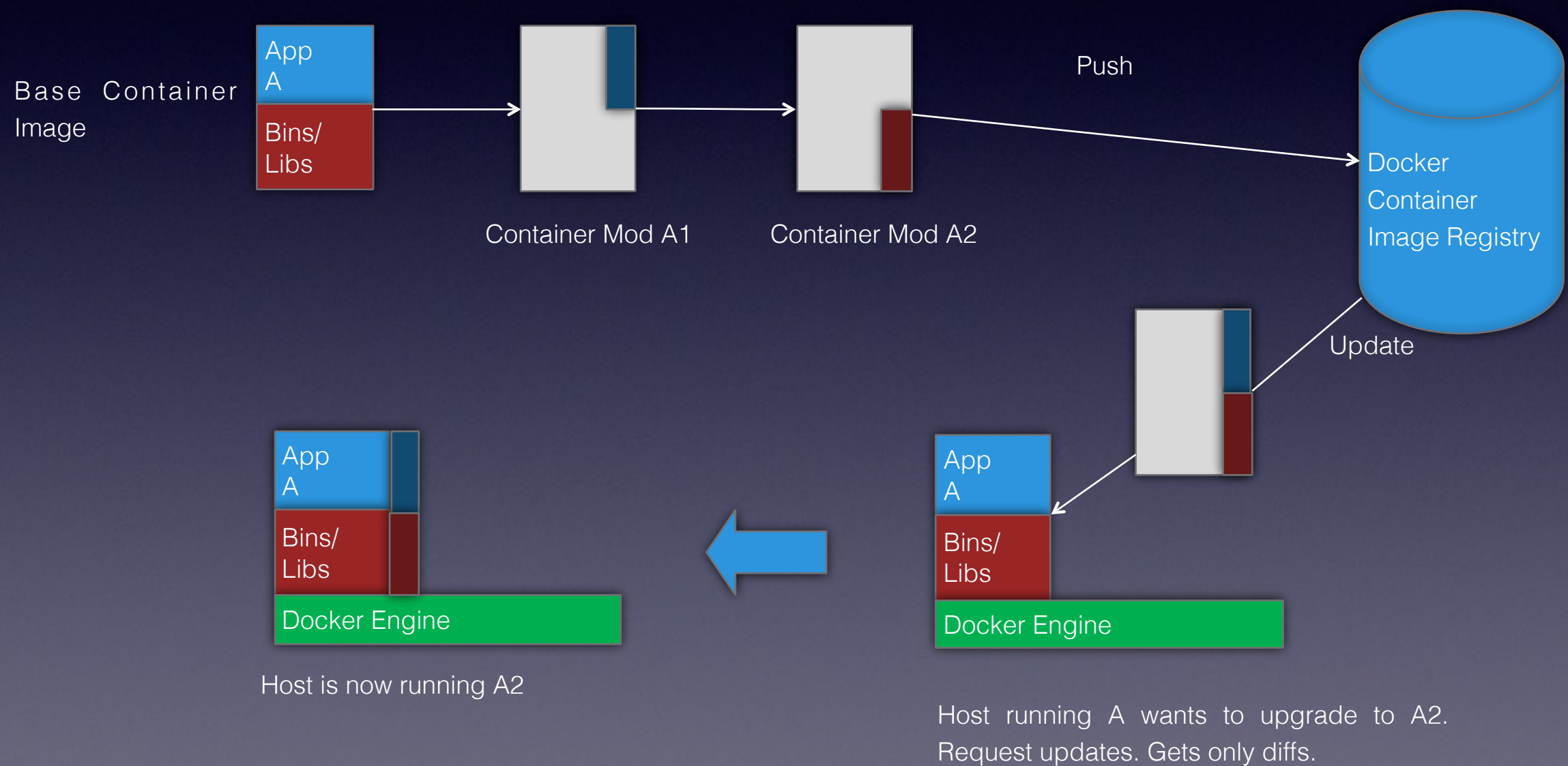
VM vs. Container



VM vs. Container

Docker containers wrap up a piece of software in a complete filesystem that contains everything it needs to run: code, runtime, system tools, system libraries – anything you can install on a server. This guarantees that it will always run the same, regardless of the environment it is running in.

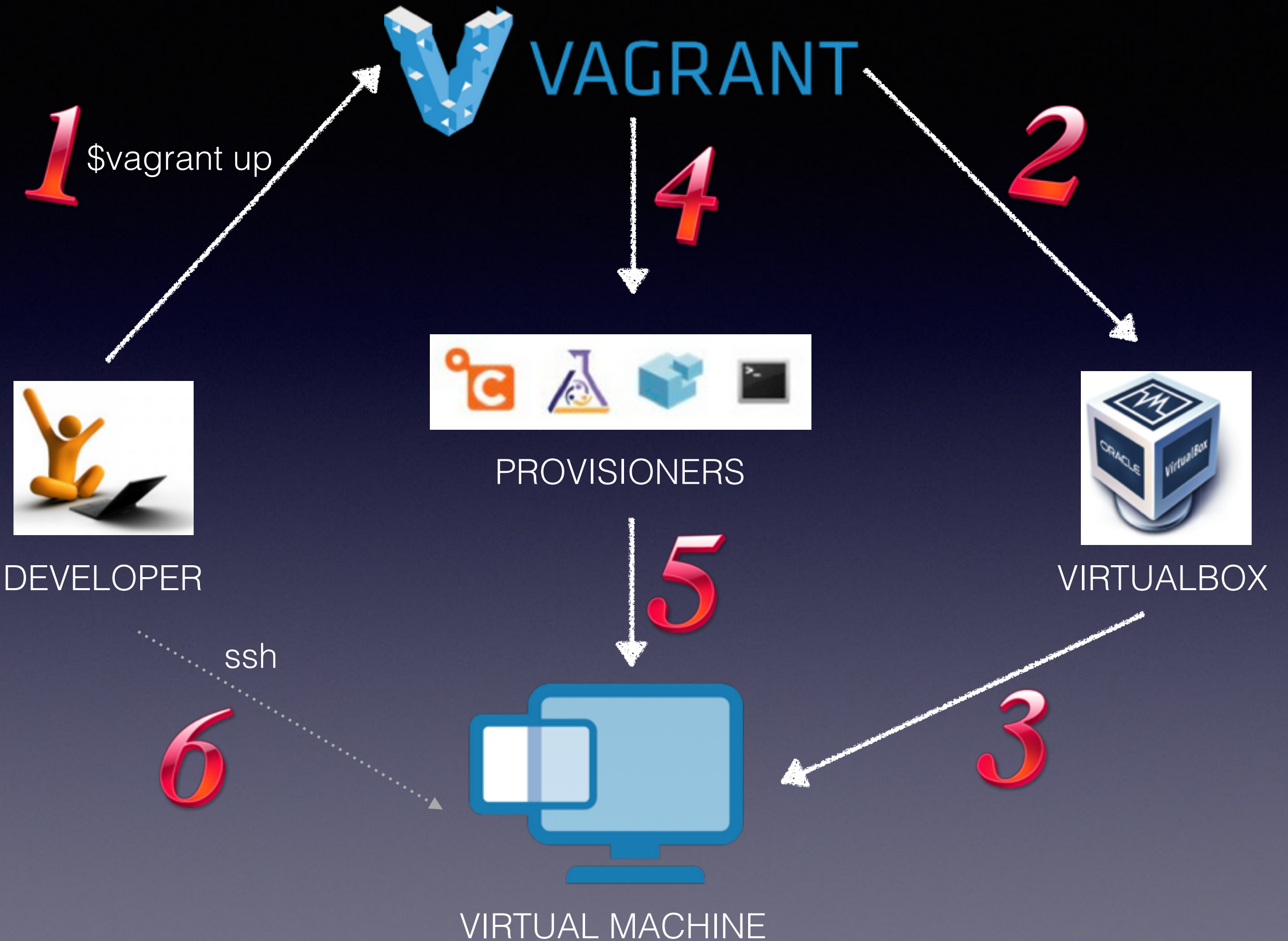
Sharing Changes and Updates



Vagrant vs. Container

Vagrant is an easy way to create and configure virtual development environments.

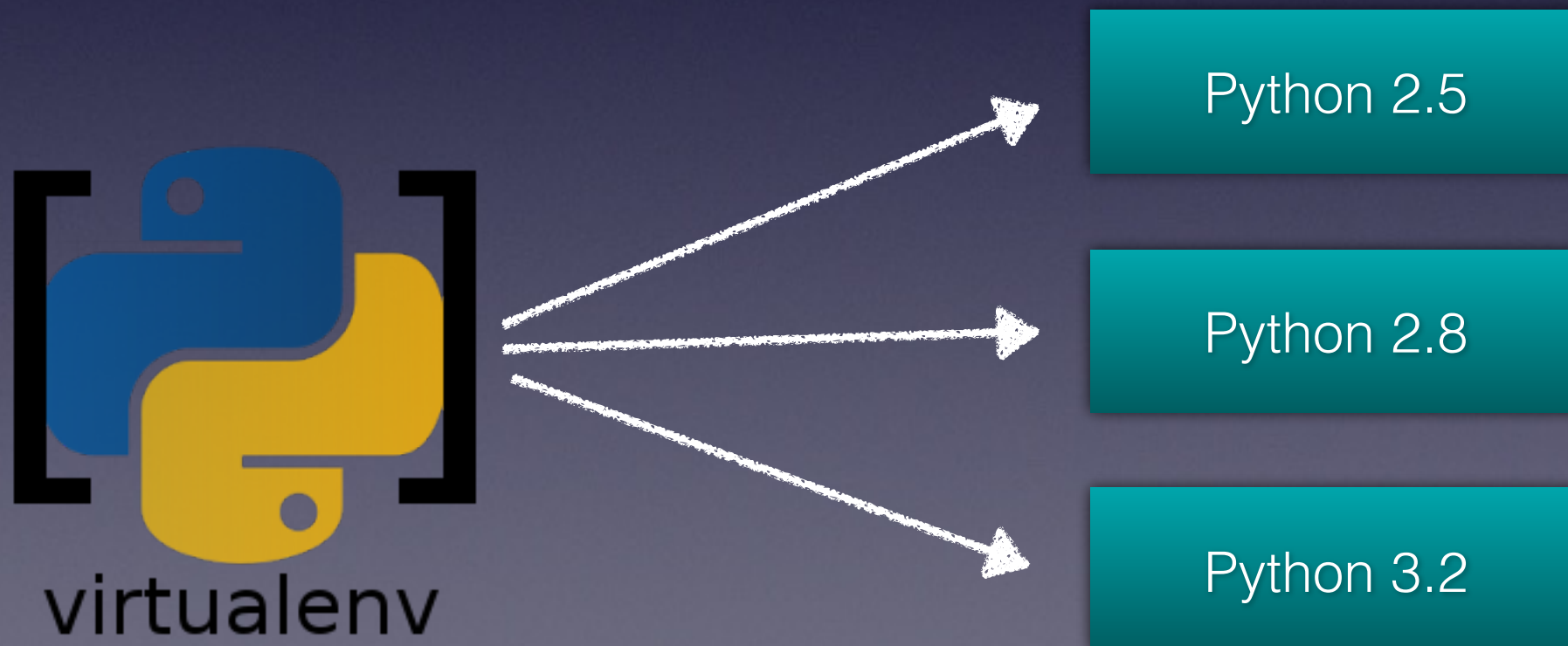
It can be seen as a higher-level wrapper around virtualization software such as VirtualBox, VMware, KVM and Linux Containers (LXC), and around configuration management software such as Ansible, Chef, Salt and Puppet.



Virtual Environments

virtualenv is a tool to create isolated Python environments.
virtualenv creates a folder which contains all the necessary executables to use the packages that a Python project would need.

Install virtualenv via pip:
\$ pip install virtualenv



Docker Architecture

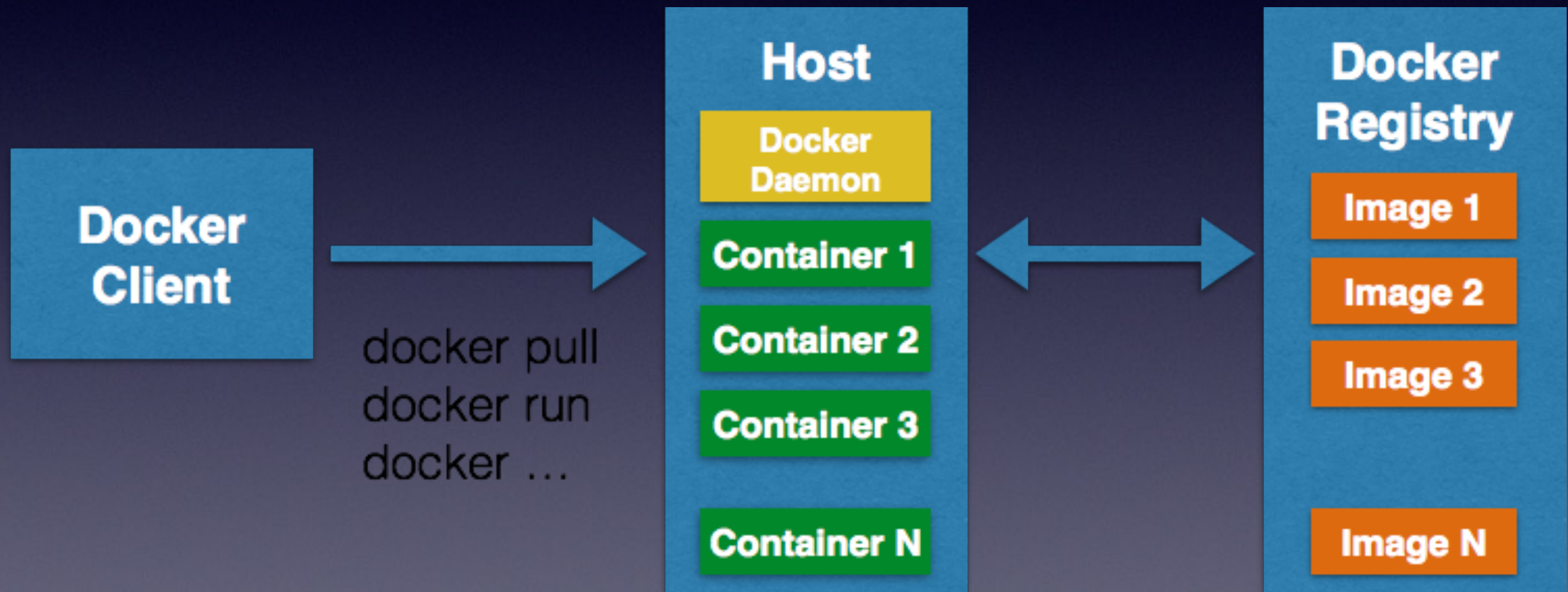


Image & Container

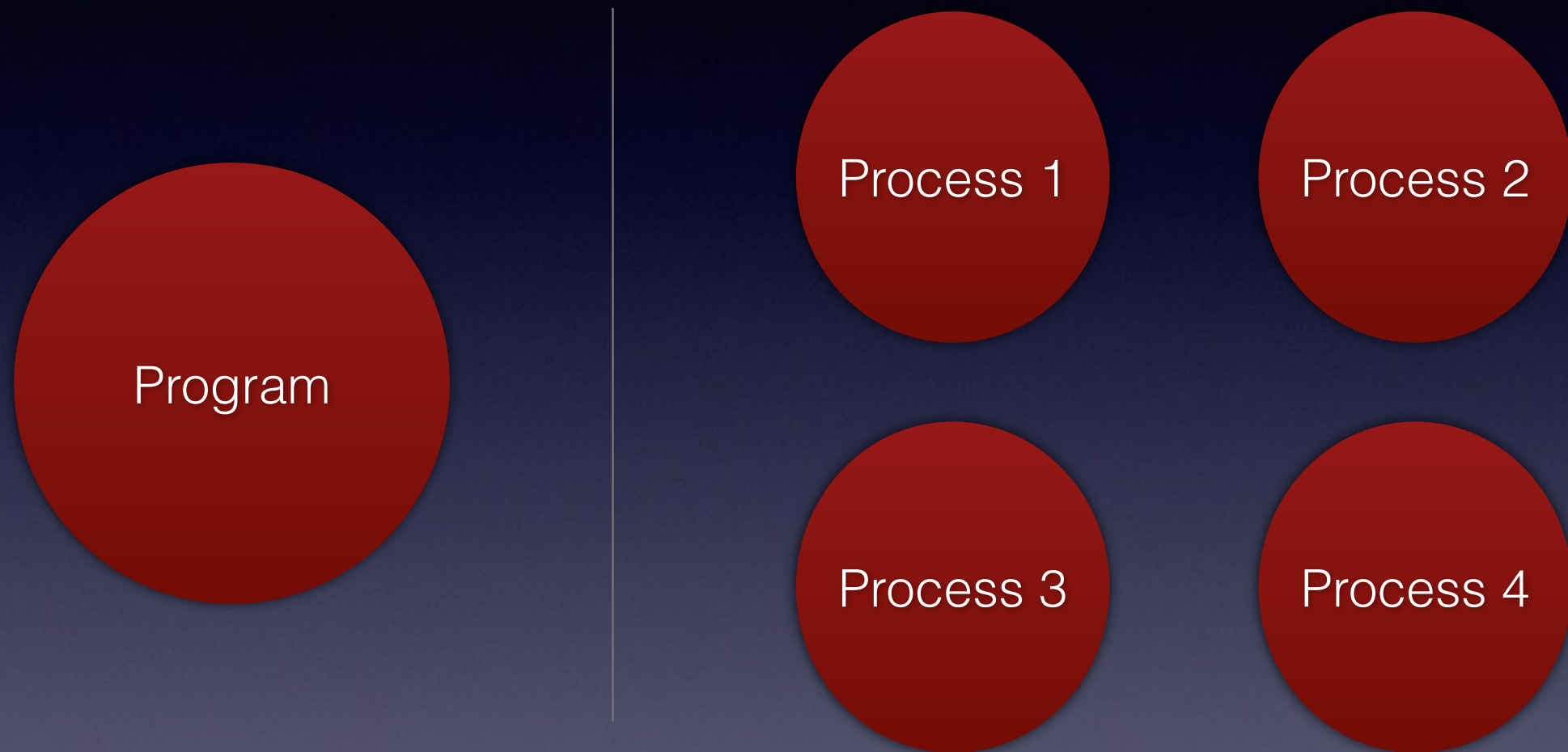


Image & Container

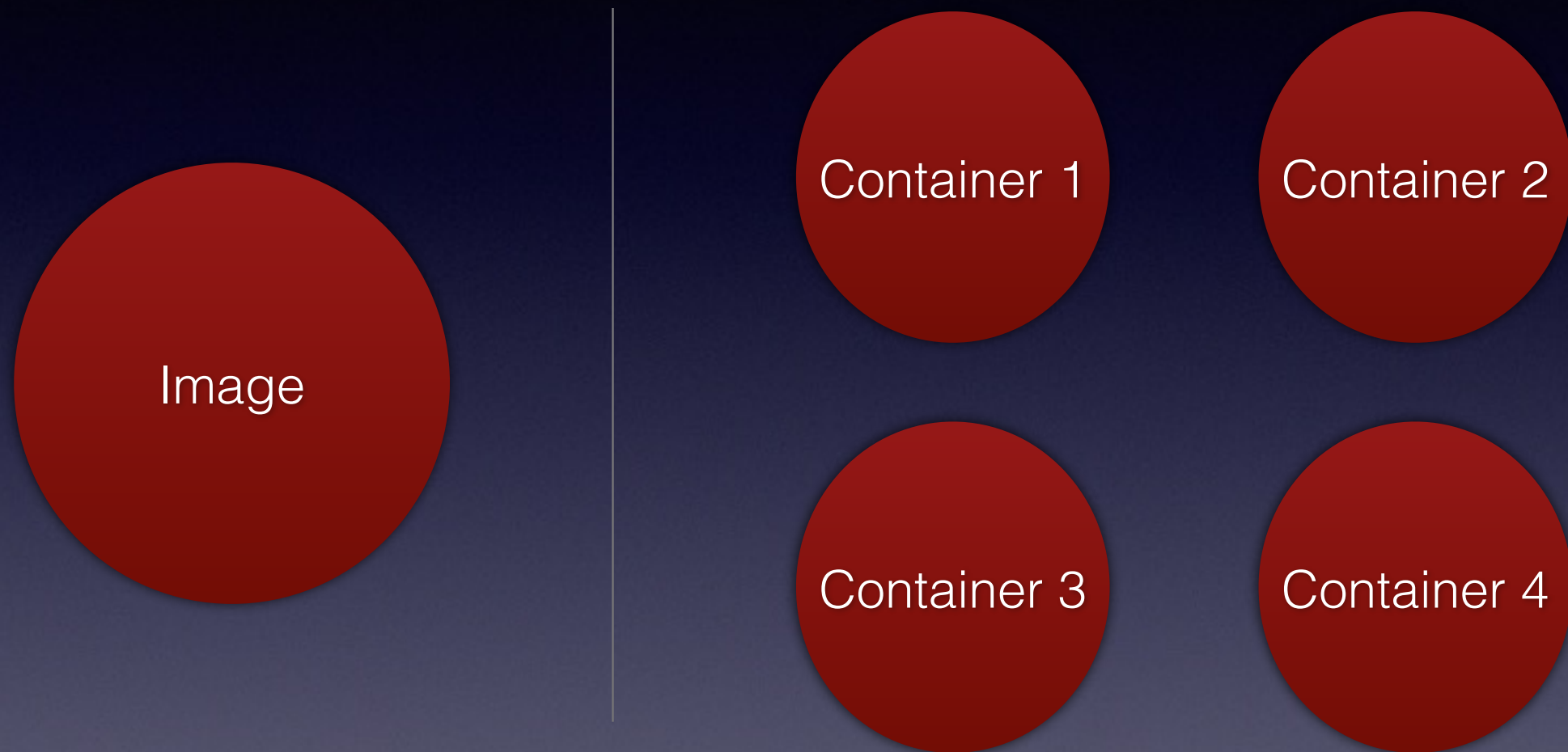


Image and Container

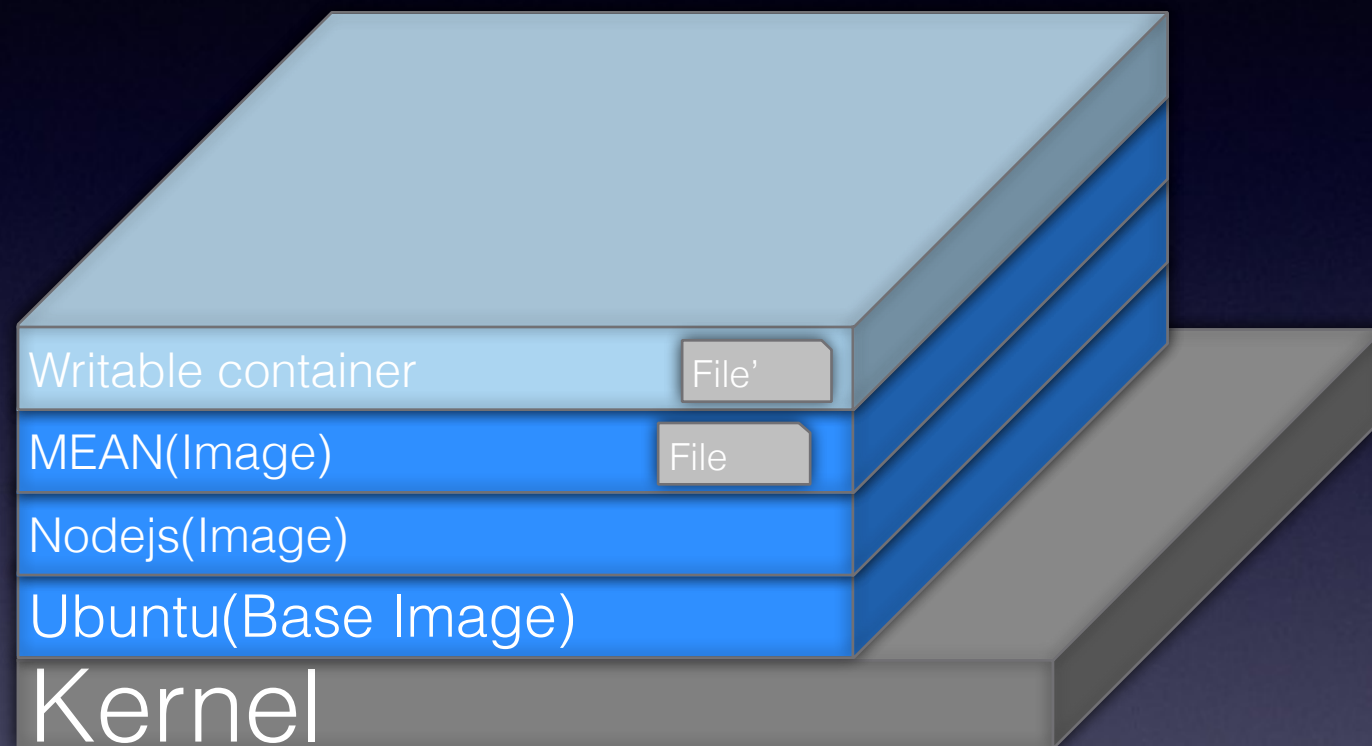
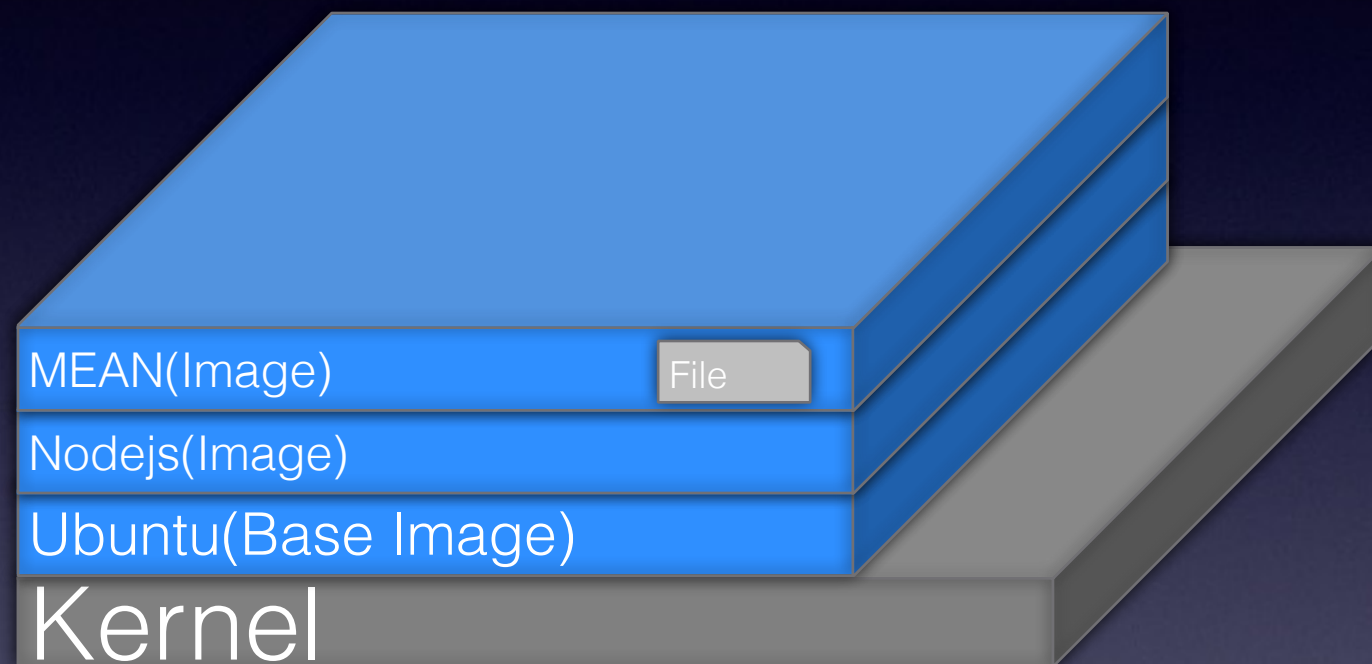


Image and Container



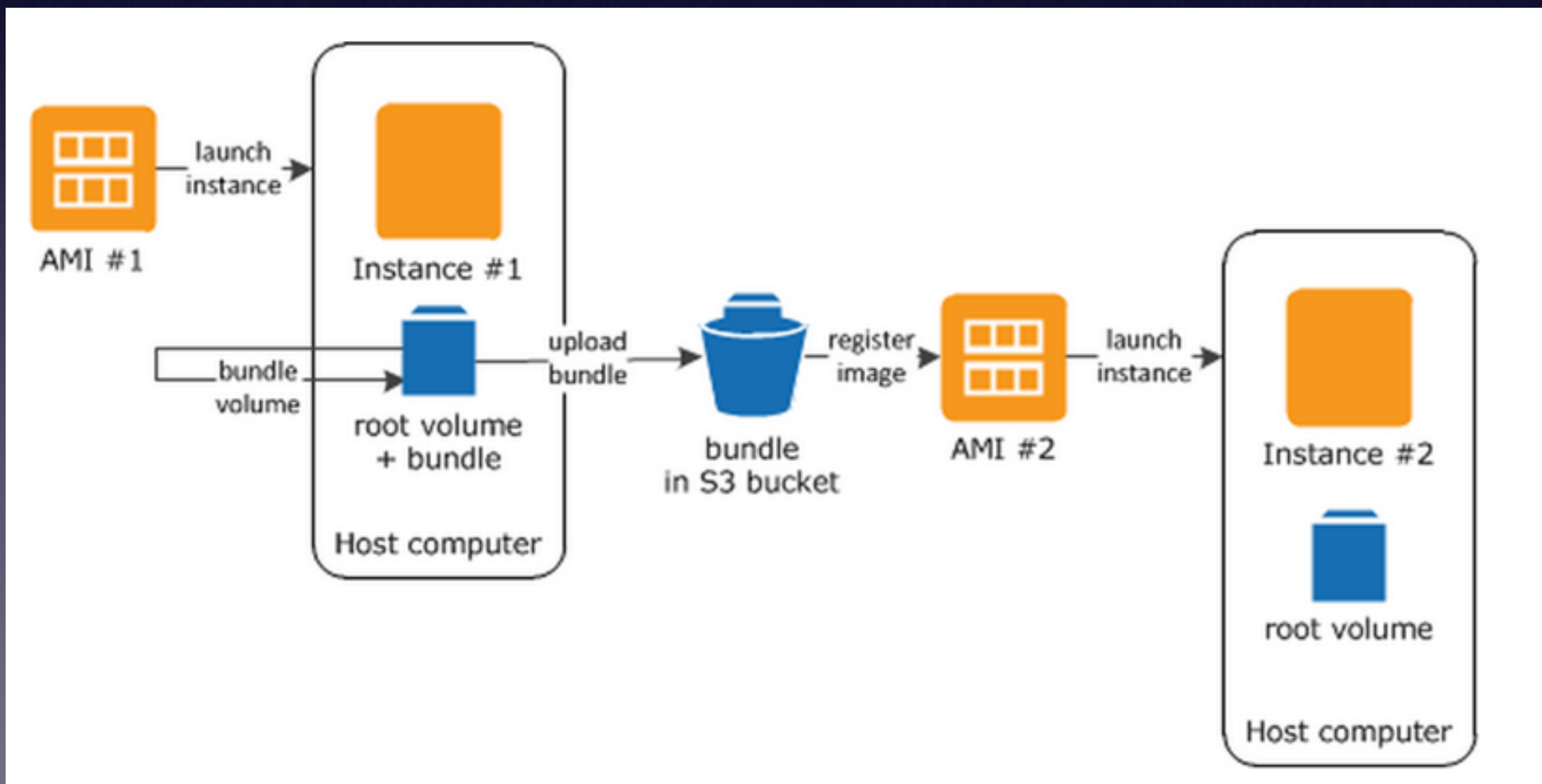
Amazon Machine Image (AMI)

An Amazon Machine Image (AMI) is a master image (read-only) for the creation of virtual servers (known as EC2 instances) in the Amazon Web Services (AWS) environment.

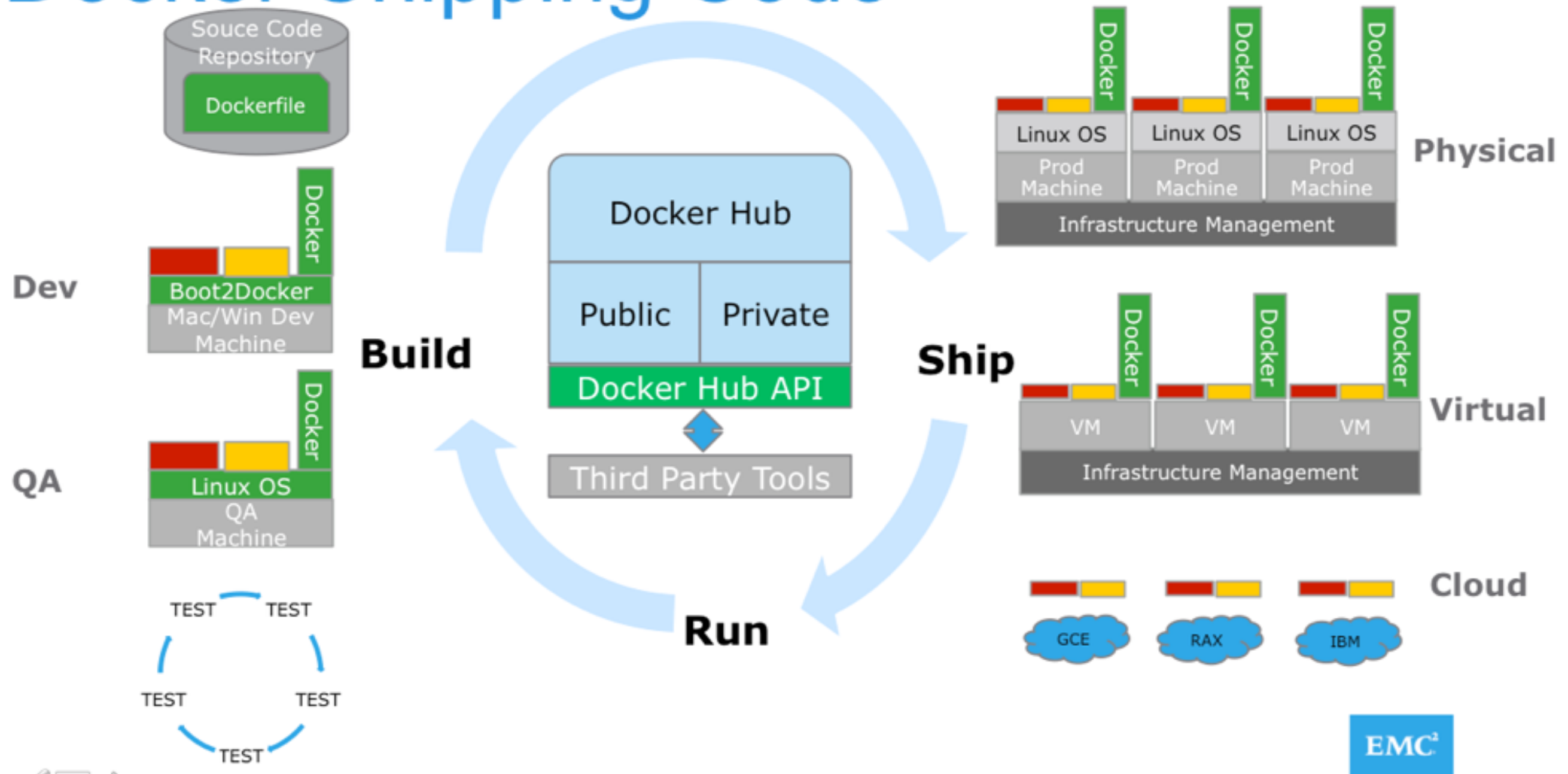
The AMI filesystem is compressed, encrypted, signed, split into a series of 10 MB chunks and uploaded into Amazon S3 for storage. An XML manifest file stores information about the AMI, including name, version, architecture, default kernel id, decryption key and digests for all of the filesystem chunks.

Amazon Machine Image (AMI)

An AMI is a template that contains a software configuration (operating system, application server, and applications) that you can run on Amazon's proven computing environment.



Docker Shipping Code



Demo