Docker Task1

INTRODUCTION ON EC2:

EC2 stands for Elastic Compute Cloud. EC2 is on-demand computing service on the AWS cloud platform. Under computing, it includes all the services a computing device can offer to you along with the flexibility of a virtual environment. It also allows the user to configure their instances as per their requirements i.e. allocate the RAM, ROM, and storage according to the need of the current task. Even the user can dismantle the virtual device once its task is completed and it is no more required. For providing, all these scalable resources AWS charges some bill amount at the end of every month, bill amount is entirely dependent on your usage. EC2 provides you to rent virtual computers. The provision of servers on AWS Cloud is one of the easiest way in EC2 . EC2 has resizable capacity. EC2 offers security, reliability, high-performance and cost-effective infrastructure so as to meet the demanding business needs.

Features of Amazon EC2:
Functionality –

EC2 provides its users a true virtual computing platform, where they can use various operations and even launch another EC2 instance from this virtually created environment. This will increase the security of the virtual devices. Not only creating but also EC2 allows us to customize our environment as per our requirements, at any point of time during the life span of the virtual machine. Amazon EC2 itself comes with a set of default AMI(Amazon Machine Image) options supporting various operating systems along with some pre-configured resources like RAM, ROM, storage, etc. Besides these AMI options, we can also create an AMI curated with the combination of default and user-defined configurations. And for future purposes, we can store this user-defined AMI, so that next time, the user won't have to re-configure a new AMI from scratch. Rather than this whole process, the user can simply use the older reference while creating a new EC2 machine.

Operating Systems-

Amazon EC2 includes a wide range of operating systems to choose from while selecting your AMI. Not only these selected options, but users are also even given the privileges to upload their own operating systems and opt for that while selecting AMI during launching an EC2 instance. Currently, AWS has the following most preferred set of operating systems available on the EC2 console.
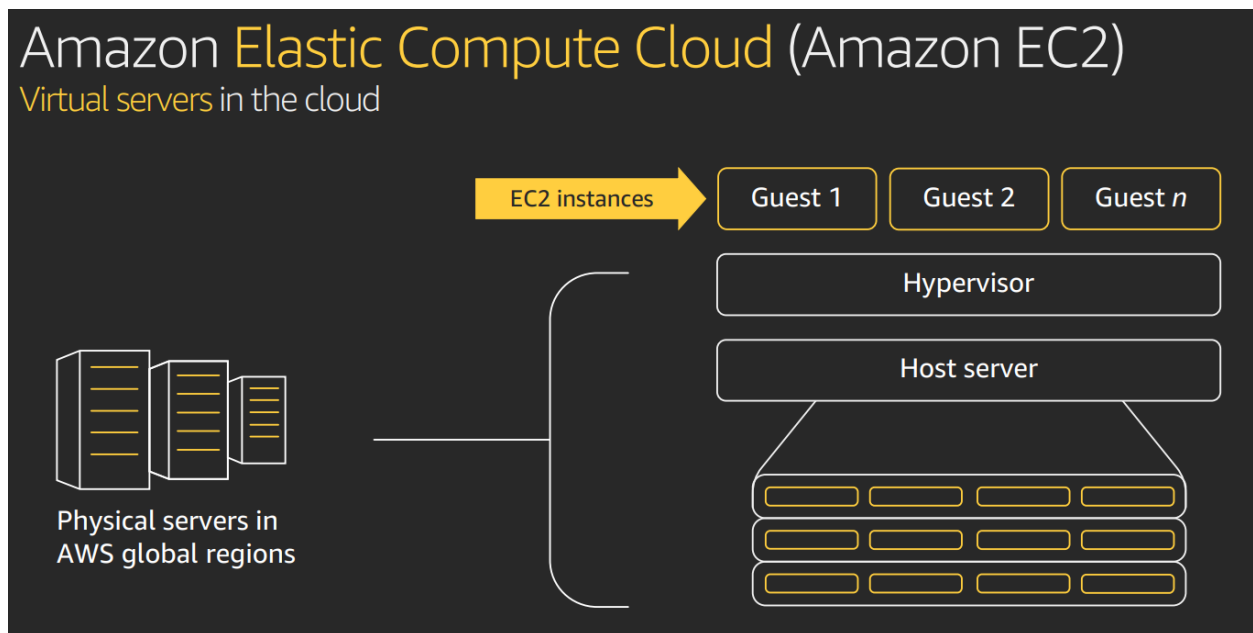
Docker Task1

Scalability and Reliability –

EC2 provides us the facility to scale up or scale down as per the needs. All dynamic scenarios can be easily tackled by EC2 with the help of this feature. And because of the flexibility of volumes and snapshots, it is highly reliable for its users. Due to the scalable nature of the machine, many organizations like Flipkart, Amazon rely on these days whenever humongous traffic occurs on their portals.

Amazone EC2 Virtual Servers in Cloud–

Amazone EC2 Families and Generations–

Docker Task1

Amazone EC2 Instance Types–

aws EC2 instance types

|	General Purpose		Compute Optimized	Memory Optimized		Accelerated Computing	Storage Optimized		
Type	t2	m5	c5	r4	x1e	p3	h1	i3	d2
Description	Burstable, good for changing workloads	Balanced, good for consistent workloads	High ratio of compute to memory	Good for in-memory databases	Good for full in-memory applications	Good for graphics processing and other GPU uses	HDD backed, balance of compute and memory	SDD backed, balance of compute and memory	Highest disk ratio
Mnemonic	t is for **tiny** or **turbo**	m is for **main** or happy **medium**	c is for **compute**	r is for **RAM**	x is for **xtreme**	p is for **pictures**	h is for **HDD**	i is for **IOPS**	d is for **dense**

Amazone EC2 Instance Cost-

Purchase options that fit your workloads

On-Demand

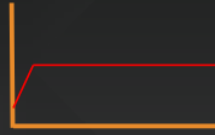Pay for compute capacity by the hour with no long-term commitments

For spiky workloads, or to define needs
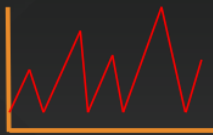
Reserved

Make an Amazon EC2 usage commitment and receive a significant discount

For committed utilization

Spot

Bid for unused capacity, charged at a Spot Price which fluctuates based on supply and demand

For time-insensitive or transient workloads

Docker Task1

## Difference Between Docker And Virtual Machine:

What is Docker?

Docker is a software development tool and a virtualization technology that makes it easy to develop, deploy, and manage applications by using containers. A container refers to a lightweight, stand-alone, executable package of a piece of software that contains all the libraries, configuration files, dependencies, and other necessary parts to operate the application.
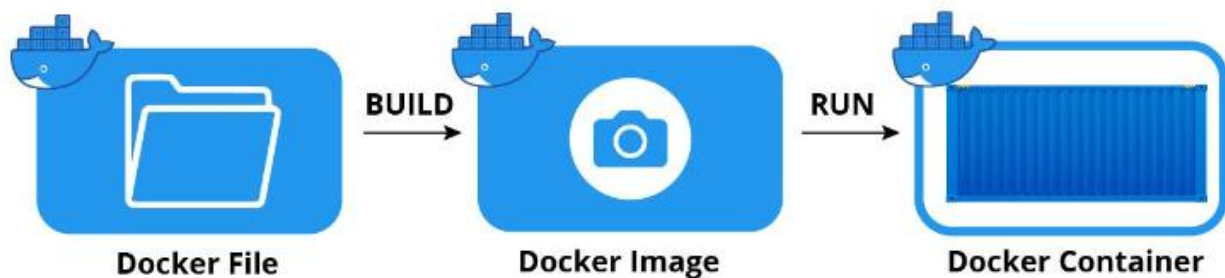

What is Virtual Machine?

A Virtual Machine (VM), on the other hand, is created to perform tasks that if otherwise performed directly on the host environment, may prove to be risky. VMs are isolated from the rest of the system; the software inside the virtual machine cannot tamper with the host computer. Therefore, implementing tasks such as accessing virus-infected data and testing of operating systems are done using virtual machines.
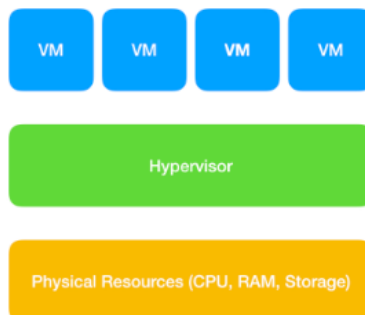
Docker Task1

Difference
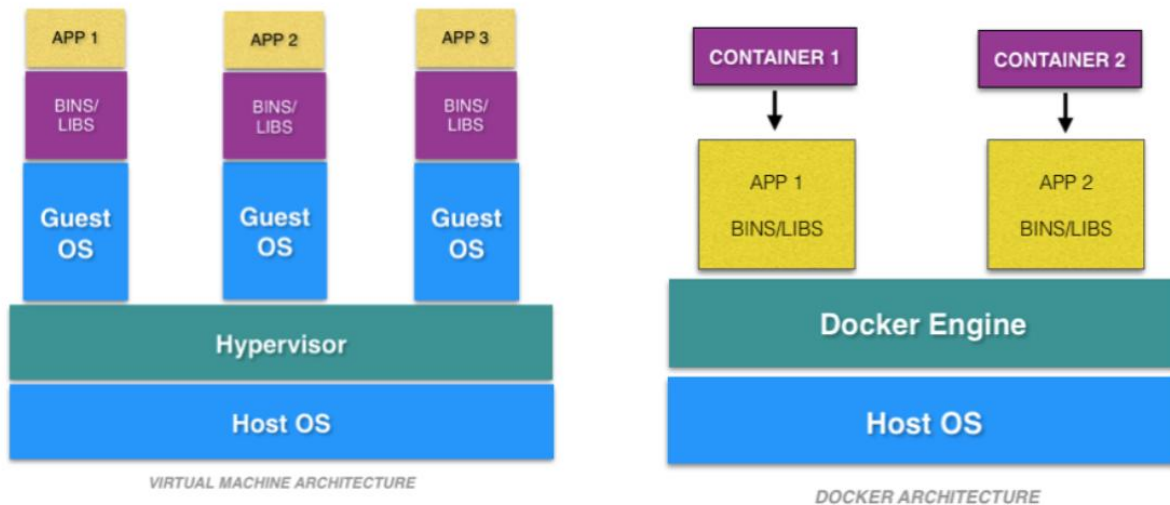
VMs have the host OS and guest OS inside each VM. A guest OS can be any OS, like Linux or Windows, irrespective of the host OS. In contrast, Docker containers host on a single physical server with a host OS, which shares among them. Sharing the host OS between containers makes them light and increases the boot time. Docker containers are considered suitable to run multiple applications over a single OS kernel; whereas, virtual machines are needed if the applications or services required to run on different OS.

Docker Task1

Virtual Machine	Docker Container
Hardware-level process isolation	OS level process isolation
Each VM has a separate OS	Each container can share OS
Boots in minutes	Boots in seconds
VMs are of few GBs	Containers are lightweight (KBs/MBs)
Ready-made VMs are difficult to find	Pre-built docker containers are easily available
VMs can move to new host easily	Containers are destroyed and re-created rather than moving
Creating VM takes a relatively longer time	Containers can be created in seconds
More resource usage	Less resource usage