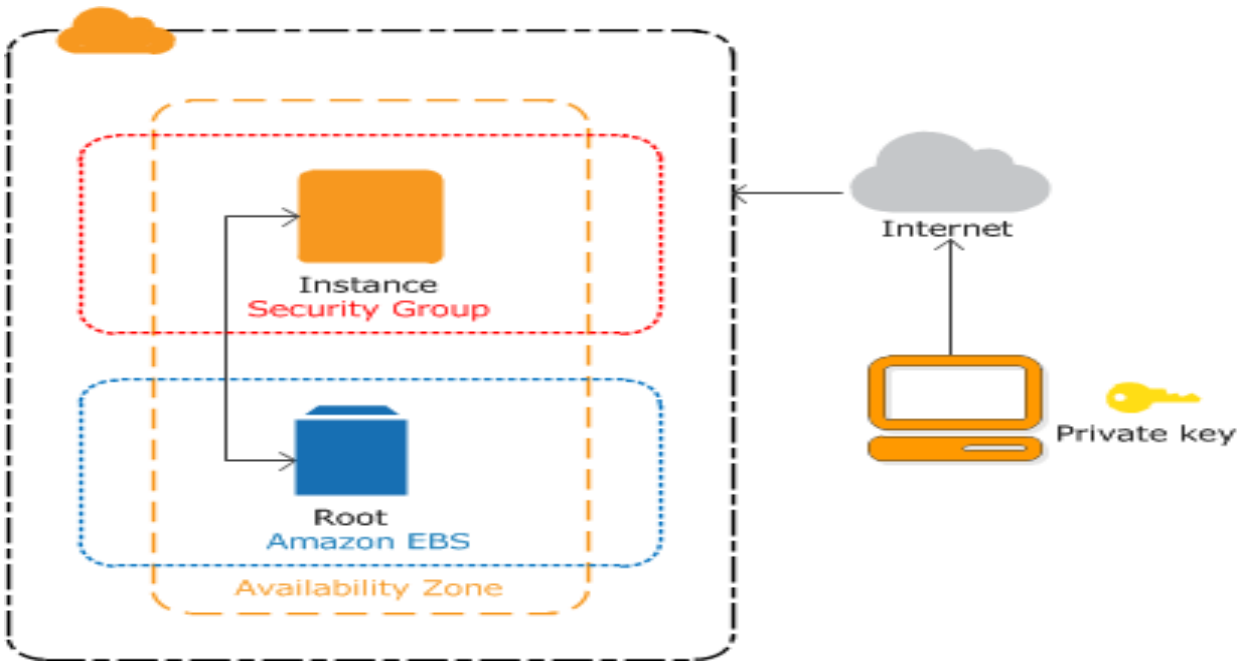
EC2 Instance

Amazon Elastic Compute Cloud (EC2) is a web service that provides resizable compute capacity in the cloud. A virtual server used for running applications on Amazon's EC2 is an instance. An instance can be understood as a small part of a large computer, having its own hard drive, network connection, OS, etc. It can have multiple small computers on a single physical machine, and all these small machines are called Instances. It is designed to make web-scale computing easier for developers. Amazon EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change. Amazon EC2 changes the economics of computing by allowing you to pay only for capacity that you actually use. Developers are now free to innovate knowing that no matter how successful their businesses become, it will be inexpensive and simple to ensure they have the compute capacity they need to meet their business requirements.



Steps to create an EC2 Instance:-

- Open the Amazon EC2 console.
- Choose Launch Instance.
- In Step 1: Choose an Amazon Machine Image (AMI), choose Select.
- In Step 2: Choose an Instance Type, choose Next: Configure Instance Details.
- Choose Next: Add Storage.
- Choose Next: Add Tags.
- Name the instance and choose Next: Configure Security Group.
- Configure Security Group, set Assign a security group to select an existing security group. Choose the default security group to make sure that it can access your EFS file system.
- Choose Review and Launch.
- Choose Launch.
- Select the check box for the key pair that created, and then choose **Launch Instances**.

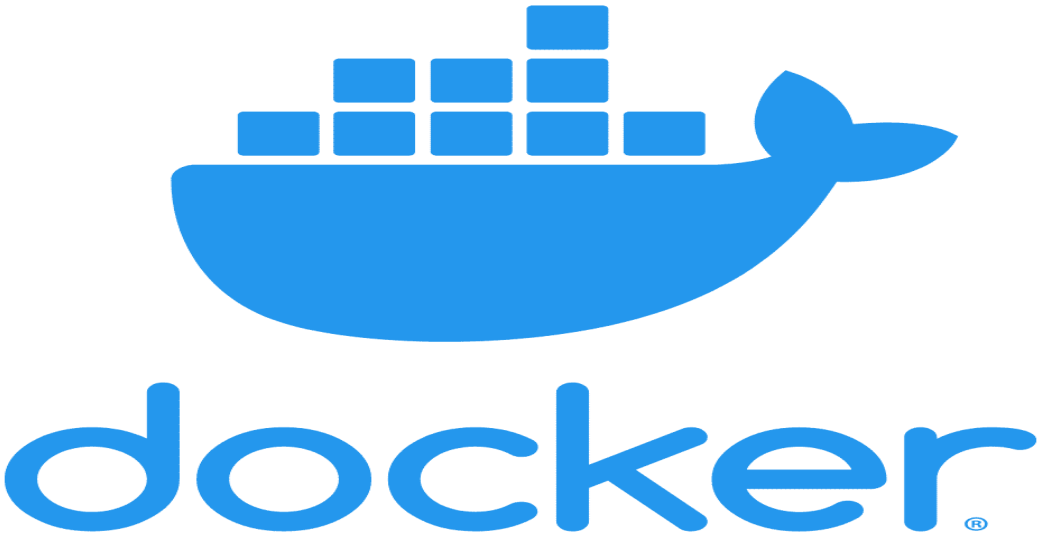
Benefits of EC2 Instance:-

1. Elastic web-scale computing
2. Flexible
3. Reliable
4. Security
5. Inexpensive
6. Easy to Implement

DOCKER

Docker is a software platform that allows to build, test and deploy applications quickly. Docker packages software into standardized units called containers that have everything the software needs to run including libraries, system tools, code, and runtime. It can quickly deploy and scale applications into any environment and know code

will run. Running Docker on AWS provides developers and admins a highly reliable, low-cost way to build, ship, and run distributed applications at any scale.



Working of Docker

Docker works by providing a standard way to run the code. Docker is an operating system for containers. Similar to how a virtual machine virtualizes server hardware, containers virtualize the operating system of a server. Docker is installed on each server and provides simple commands it can use to build, start, or stop containers.

Benefits of Docker:-

1. Lighter weight
2. Reuse
3. Portability
4. Increased Productivity
5. High Efficiency
6. Inbuilt Libraries

Docker Tools:-

1. Docker Hub
2. Docker File
3. Docker Images
4. Docker Daemon
5. Docker Containers
6. Docker Desktop

DOCKER vs VIRTUAL MACHINE

Docker:-

1. Boots in a few seconds.
2. Dockers make use of the execution engine.
3. No space is needed to virtualize, hence less memory.
4. Prone to adversities as no provisions for isolation systems.
5. Deploying is easy as only a single image, containerized can be used across all platforms.
6. Docker has a complex usage mechanism consisting of both third party and managed tools.
7. Docker container packages are self-contained and can run applications in any environment, and since they don’t need a guest OS, they can be easily ported across different platforms.

Virtual Machines (VMs):-

1. It takes a few minutes for VMs to boot.

2. VMs make use of the hypervisor.

3. Requires entire OS to be loaded before starting the surface, so less efficient.

4. Interference possibility is minimum because of the efficient isolation mechanism.

5. Deployment is comparatively lengthy as separate instances are responsible for execution.

6. Tools are easy to use and simpler to work with.

7. VMs are isolated from their OS, and so they are not ported across multiple platforms without incurring compatibility issues.