Deploying a Static Website in EC2 instance

Static Website:

-> displays the same fixed content for every users, as it has fixed HTML & Css.

Steps:

1. Launch an Instance
2. Clone the Amazon repo in the instance.
3. Install a web server (nginx)
   - sudo apt update
   - sudo apt install nginx -y
4. Copy the content of the webpage & send it to the location - /var/www/html.
   - sudo cp -rf ./Amazon-clone/* /var/www/html
5. Host the website by copying the public IP of the instance & paste it in the browser.

# ELASTIC BLOCK STORE

- Elastic: expandable/flexible
- Block : How data is stored in a fixed sized-block.
- Store: a durable & persistent data storage.

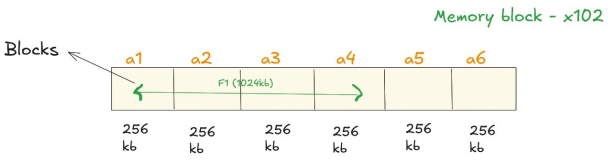
Types of Data Storage:

1. Block Storage:

-> divides the data into small chunks & stores it into the chunks called as 'blocks'.

-> Each block can be accessed directly by the system, making it very fast in accessing data which is perfect for databases.

-> eg: EBS

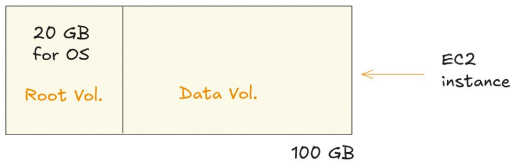



-> Each block is of a fixed - size.

file->F1 (1024kb)

## -> Elastic Block Storage:

>> It is used to provide the storage to the EC2 instances.




>> In any storage device:

- 1 partition of the storage will be provided for the OS.
- 1 partition of the storage will be provided for the application, files & folders.

## -> Types of EBS:

1. Root Volume:

-> Whenever we create an Instance, we will get a default attahced storage with the Instance, called a 'Root Volume'.

-> It is the main storage volume from where EC2 instances boots from.

-> It contain the OS & boot files and by default it is an EBS volume. (C drive)

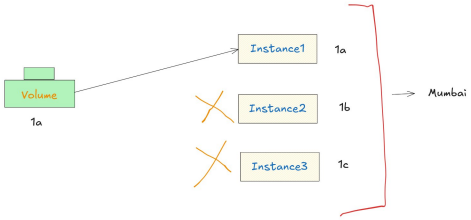
2. Data volume:

-> A data volume in an EBS volume attached to EC2 in addition of the root volume.

-> It is the additional storage given to the instance for storing applications, files & folders. (D drive)

** Points to Remember for EBS volume:

1. Scope of EBS: it can be used in the same AZ.




>> If the Instance & the volume, both are present in the same AZ, then only they can be connected.

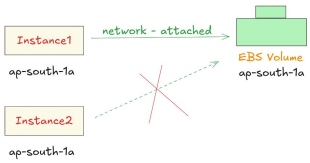
>> It Volume is now connected to 1b, instead of 1a:

--> each read/write operation would travel across the AZs and then it will reach to 1b.
--> then there will be latency & thus slower performance.

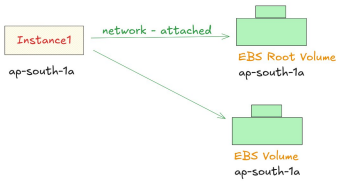

>> EBS is a network - attached storage. It lives outside the physical machine & connects to an EC2 instance over the network.

>> Every read/write is going over the network to the storage.

2. When one volume is already connected to one instance, then we cannot connect the same volume to the other instances, even if they are present in the same AZ.




3. One instance can have multiple volumes attached to it.




4. IOPS (Input/Output Operations per second)

>> measures the number of read/write operation that a storage device can perform in one second.

>> IOPS tells us the speed & performance of a storage device.

>> eg: 20000 IOPS -> means it can perform 20000 read/write operation every second.

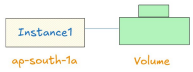
5. ThroughPut

>> Measures the amount of data that can be transferred between the storage devices and the instance, and is measured inn seconds.

>> Quantifies the speed at which the data can be read/write to the storage device in bulk.

>> Transfer rate will be measured in MB/sec.

Instance store:




>> Instance store is a temporary block storage the comes physically attached to the EC2 host machine.

>> It is also called an 'ephemeral storage' because:
Data is lost when the instance is stopped.

>> Usage: For caching servers.

1. R&D on caching servers.
2. R&D on types of volumes.

Create a volume:

1. Go to Elastic Block Storage
2. Click on 'Volumes' then click on 'Create Volumes'.
3. Select the Volume Type as 'General Purpose SSD'.
4. Configure the 'Size' (under free tier, only 30 GB is free).
5. Select the IOPSvalue.
6. Select the Throughput Value.
7. Select the AZ (select the AZ where the instance is present)
8. Click on 'Create Volumes'.

## Attaching EBS volume:

1. Select the volume which we want to attach.
2. Click on 'Actions'.
3. Click on 'Attach Volume'.
4. Select the instance in the same AZ.
5. Select the device name (sdf/sdg).

## TASK

1. Launch an EC2 with Ubuntu 22.4 version.
2. Create a root volume.
3. Create 2 EBS volumes of 10 GB each.
4. Attach them into the instance.
5. Connect the instance via SSH.
6. Go inside the EC2 and verify the volumes from there.