

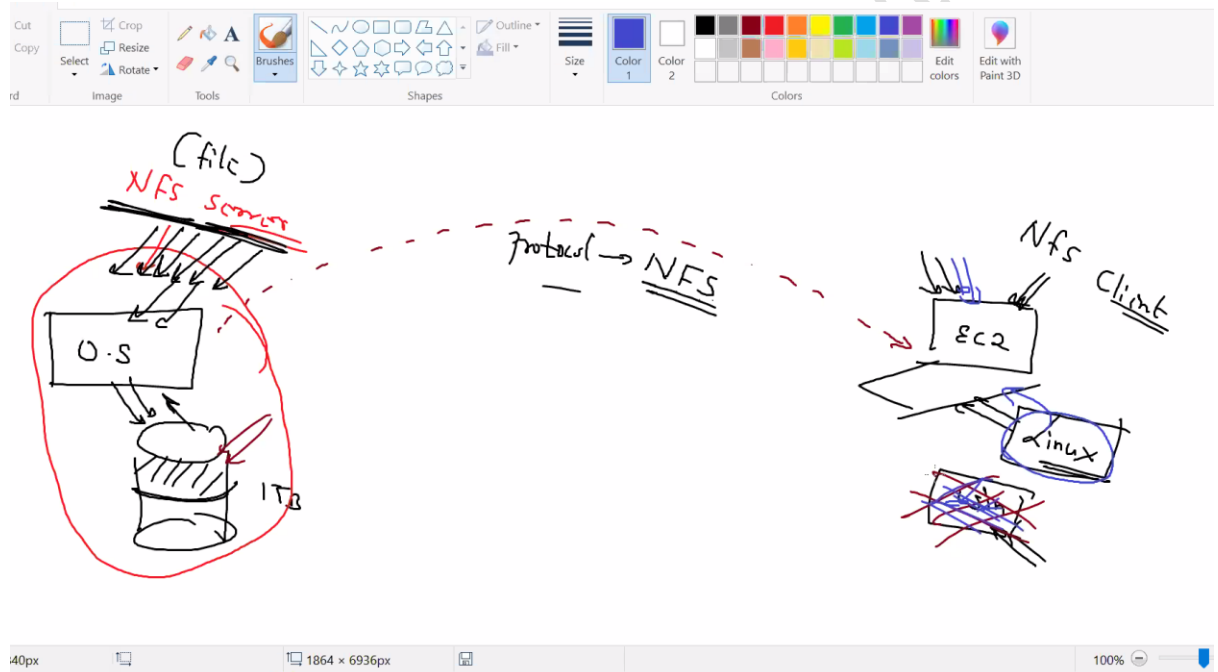


AWS Session

Summary - 21-3-2023, 22-3-2023

- Some of the challenges with EBS are Size, maintenance, pre planning and hard disk can be only attached to one single instance only.
- Backup in instance is called **Snapshot**. Backup we do on certain time, certain frequency, for Backup we have different Hard disk we can recover till that given time, as soon as new data come no backup will there.
- **Replication** is the exact copy or mirror image of Hard disk. It is also called **mirroring**.
- Replication is not backup, due to any reason if file delete and if we want to retrieve, we can get in backup.
- EBS gives the facility of snapshot, but replication is not there in EBS. If we want to do replication with EBS, we can do with 3rd party, but it also has limitation of disaster recovery. Whenever we have data to be copied and we have a plan for disaster recovery then EBS do not support. Multi AZ we cannot do with EBS.
- We have backup option in EBS but it doesn't give multi-AZ replication but Replication gives this facility that if two AZ goes down then third have the entire data. Replication gives us capability that application does not fail.
- Storage types
 1. Block Storage - EBS
 2. File storage - EFS (comes under serverless, fully elastic service)
 3. Object Storage - S3
- Internally 1 OS is running which is having a HD of some size and AWS attached HD already, created partition, formatted and performance tuning is already given by AWS. So, sharing the HD so that we can use. They share this File system (storage) over network by using one protocol called **NFS – Network file system**.
- AWS gives everything, it gives serverless, NFS services only we have to connect to the instance.
- If storage is shared by NFS server called file storage then the client should be either windows or linux.

- Challenge with EBS is that if EBS is running in 1 data centre and if we want to connect the storage to our own data centre or own premises then it won't work. So EBS do not have this capability to connect outside the world.
- If services running under EFS they give us a way to connect the storage to on premises or EC2 instance in any of the region. EFS gives service to connect to outside network or public internet. We can share AWS storage to public network so anybody can connect and use it. One of the usecase for this is **Multicloud Setup**.
- Any storage that is giving storage over network and is mostly shared by NFS then that is called **NAS – Network attached storage(preformatted file system, protocol used is NFS)**.



- In SAN (Storage area network), protocol used is iscsi and in S3 we use http/https protocol.
- If multiple systems have web servers set up for a single website, the content of that website must be copied into each system.
- In the case that the website is changed in the future, all systems must be updated. If we copied website content into certain systems, some systems would still remain in place.
- Hence, as users, we sometimes see both new and old content. Because we have different storage in each system.

- We require some shared, central storage to address this issue across all AZs. And AWS provides an “EFS” service for solving the above kind of problems.

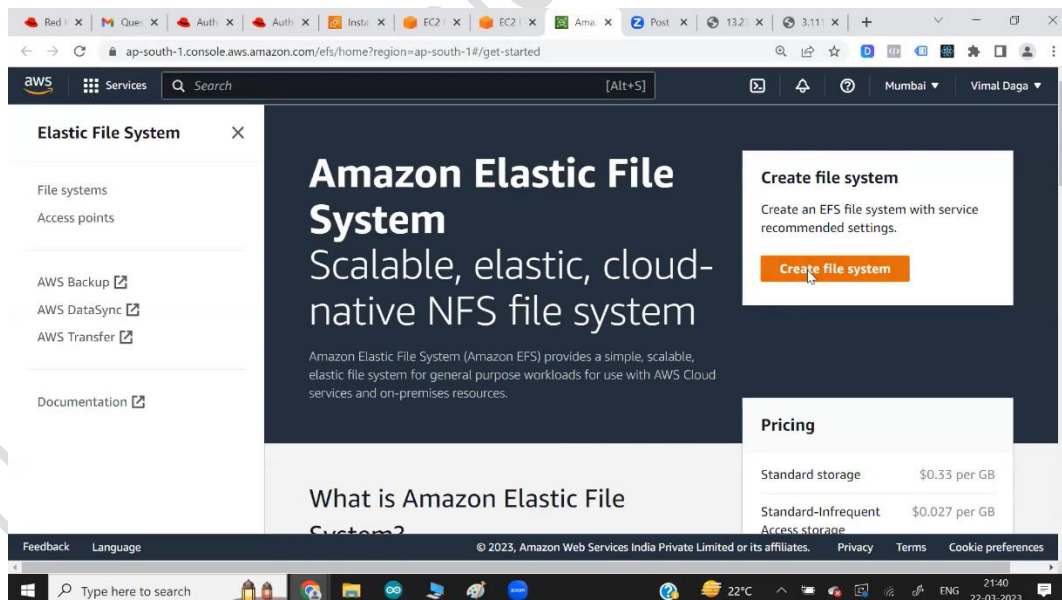
- **Storage class of EFS:**

- 1) **Standard:** EFS Standard storage classes are regional storage classes that are designed to provide continuous availability to data, even when one or more Availability Zones in an AWS Region are unavailable.
- 2) **One Zone:** EFS One Zone storage classes are designed to provide continuous availability to data within a single Availability Zone.

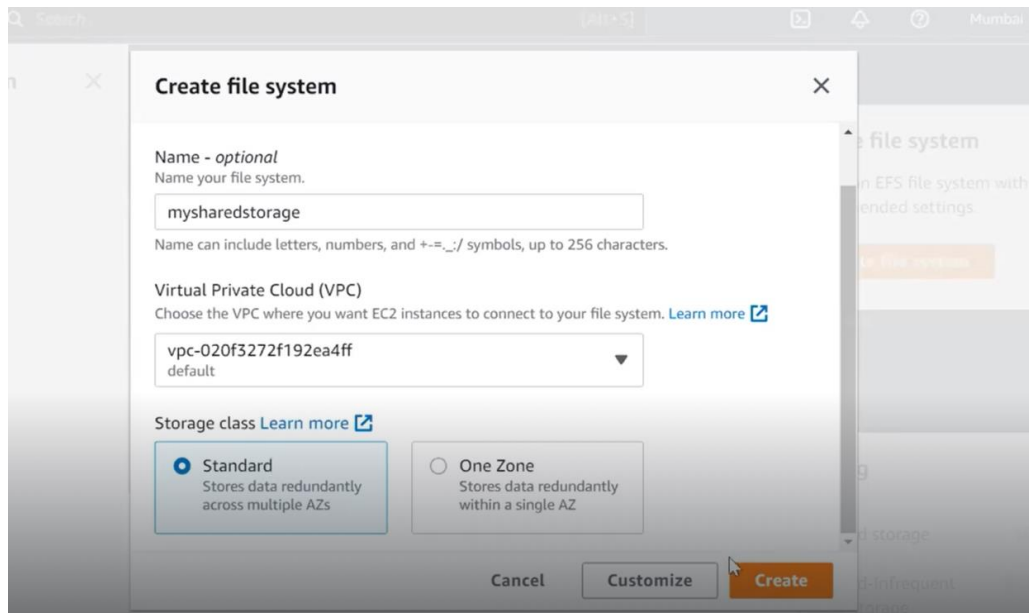
- **Create an EFS file system using Amazon EFS:**

You can create an EFS file system and mount it to your instance.

Step 1: Go to EFS service then click on “Create file system”.



Step 2: Enter the name of the file system and choose the standard storage class.

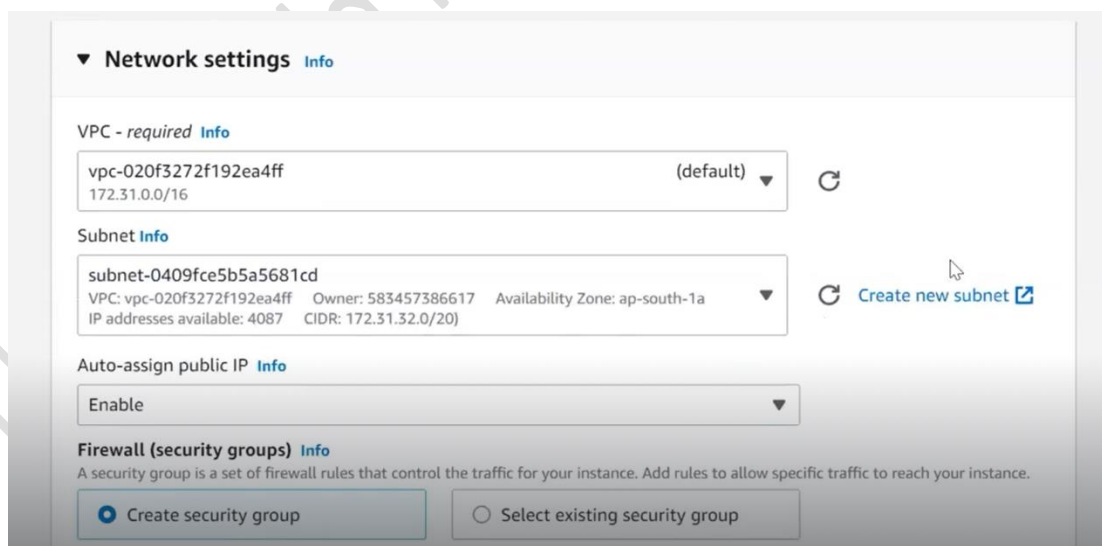


Make all other options as they are.

Step 3: Now choose Launch instance.

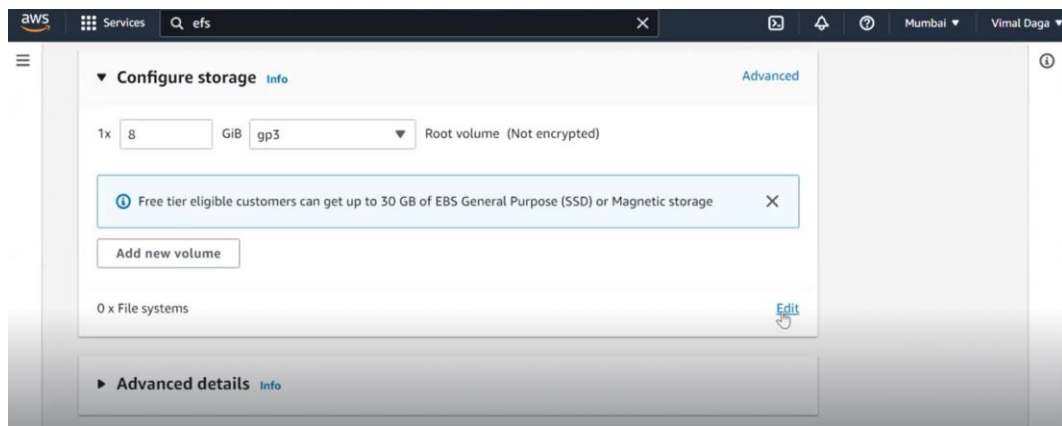
Step 4: Under Network settings, choose Edit, and then for Subnet, select a subnet.

(You must select a subnet before you can add an EFS file system.)

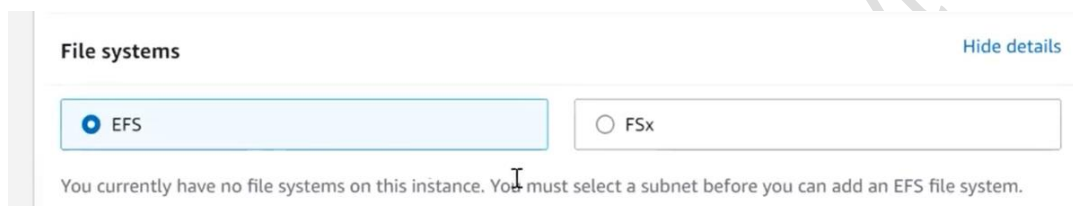


Step 5: Under Configure storage, choose Edit.

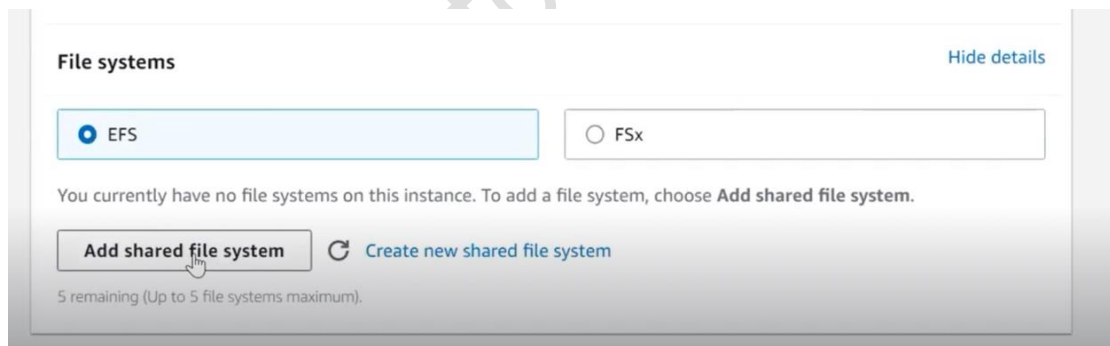
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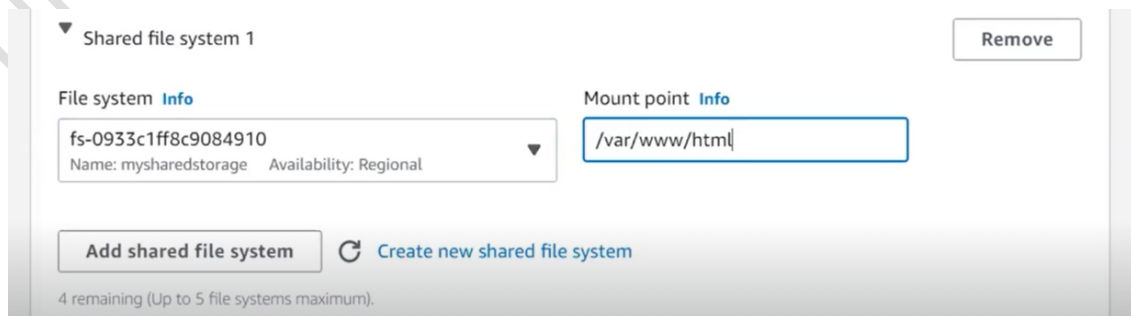
Make sure that EFS is selected.



Step 6: Choose Add shared file system.



Step 7: For the Mount point, specify a mount point.



Finally, Launch the instance.

Step 8: Test the EFS file system.

```
[root@ip-172-31-46-163 ~]# df -hT
```

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
devtmpfs	devtmpfs	4.0M	0	4.0M	0%	/dev
tmpfs	tmpfs	482M	0	482M	0%	/dev/shm
tmpfs	tmpfs	193M	2.9M	190M	2%	/run
/dev/xvda1	xfs	8.0G	1.5G	6.5G	19%	/
tmpfs	tmpfs	482M	0	482M	0%	/tmp
127.0.0.1:/	nfs4	8.0E	0	8.0E	0%	/var/www/html
tmpfs	tmpfs	97M	0	97M	0%	/run/user/1000