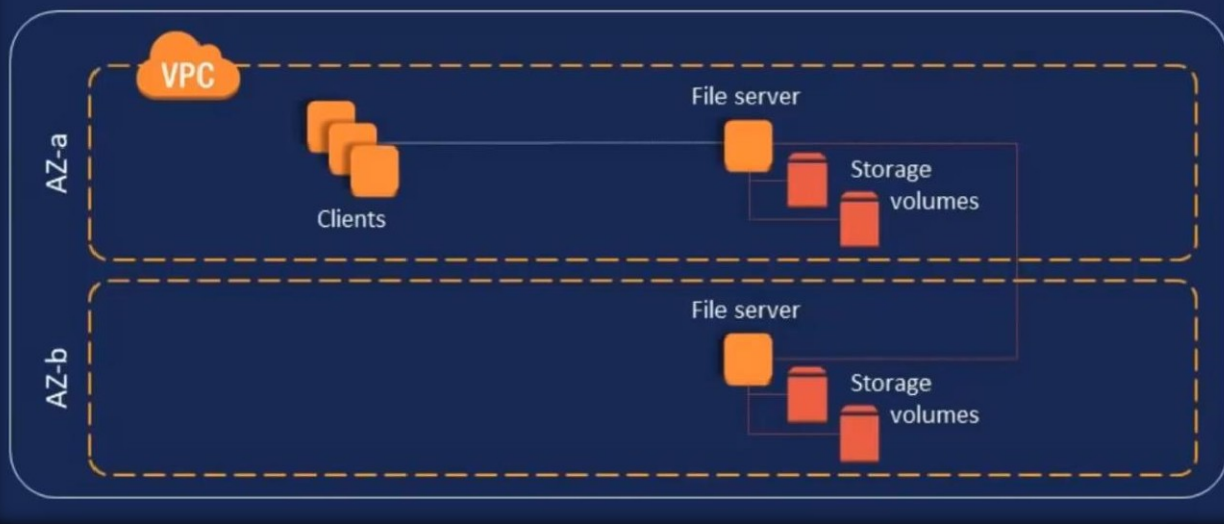
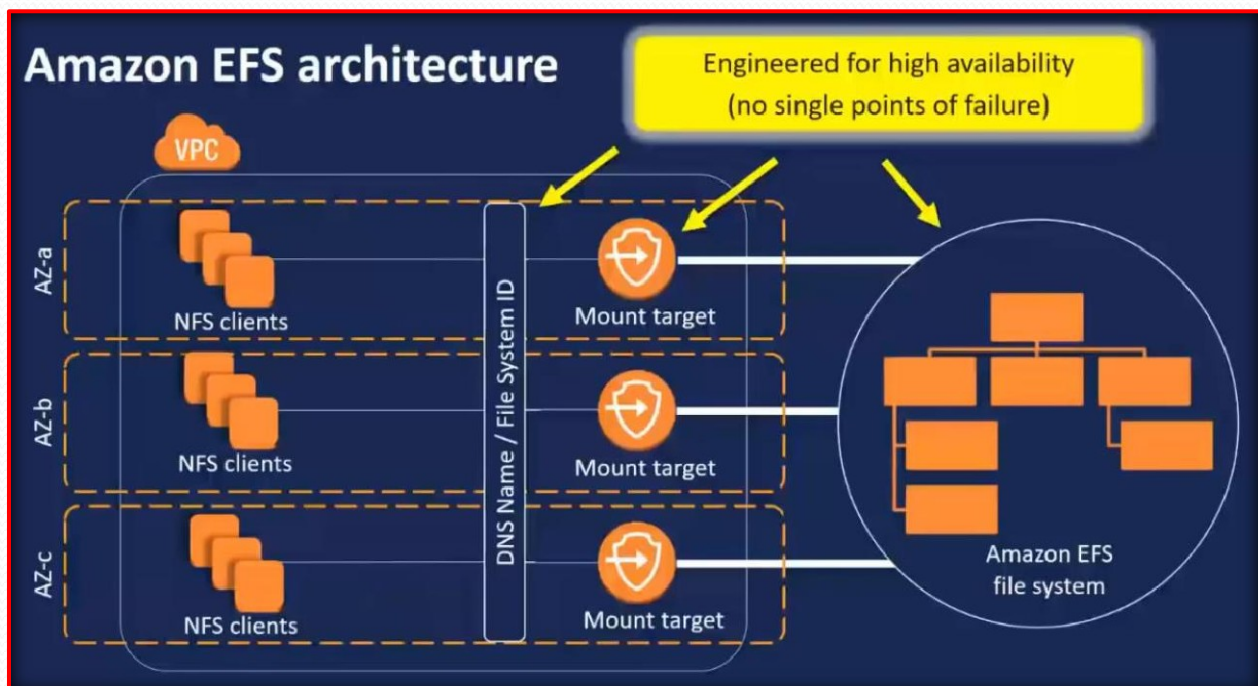


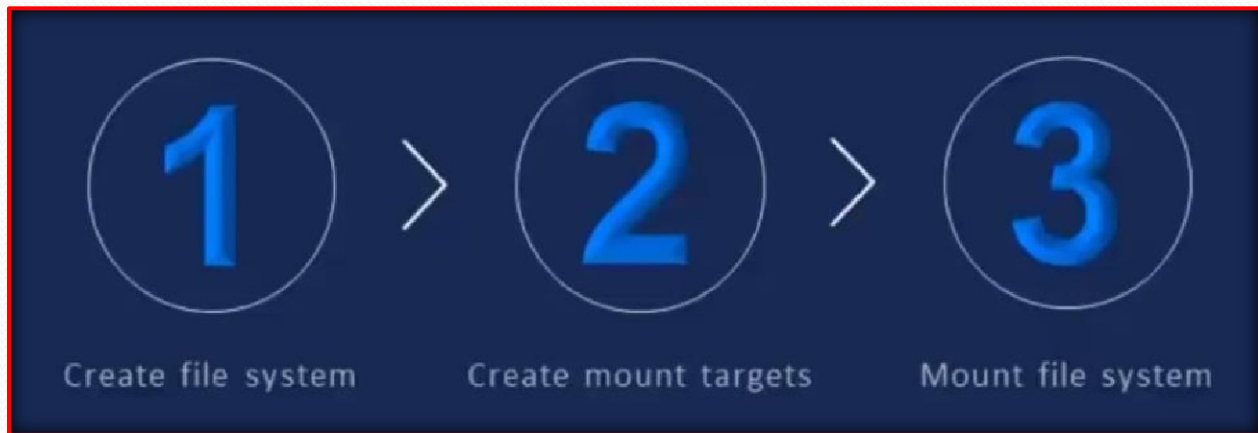
31. ELASTIC FILE SYSTEM

Before Amazon EFS... DIY file storage costs



Amazon EFS architecture





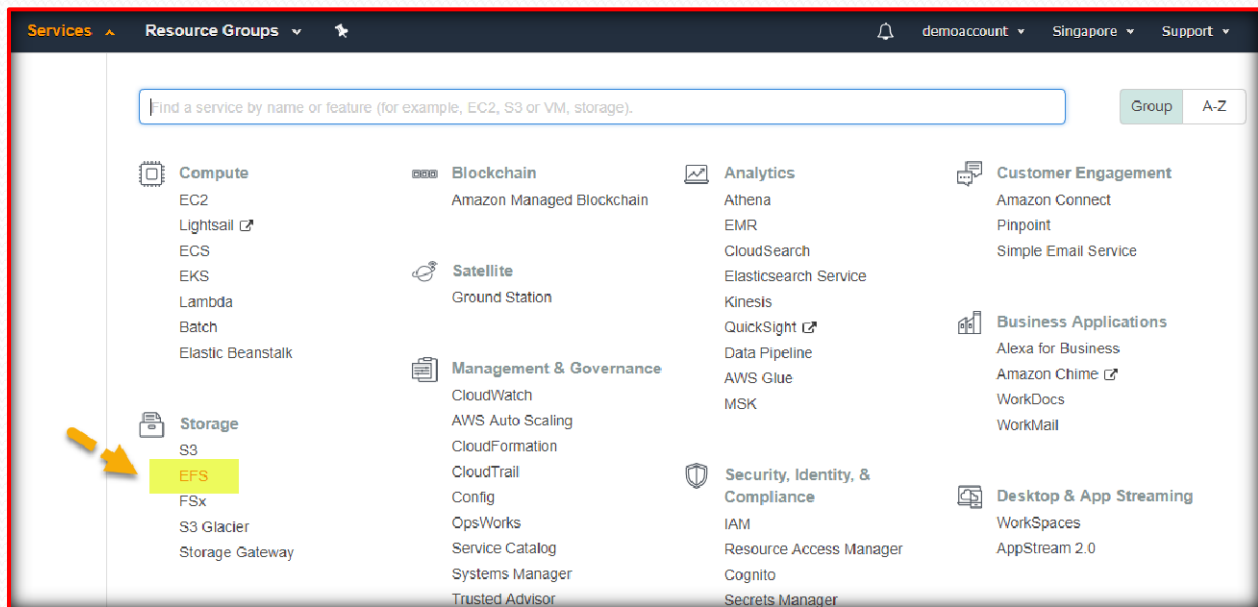
Create a security group which has NFS port open from all locations, named it as EFS security group.

The screenshot shows the 'Create Security Group' console interface. The 'Security group name' is 'EFS-Firewall' and the 'Description' is 'EFS Firewall'. The 'VPC' is 'vpc-0e22c58bf86f04c03 | DataMarshall-Network'. Under 'Security group rules:', the 'Inbound' tab is selected. A rule is added with the following details:

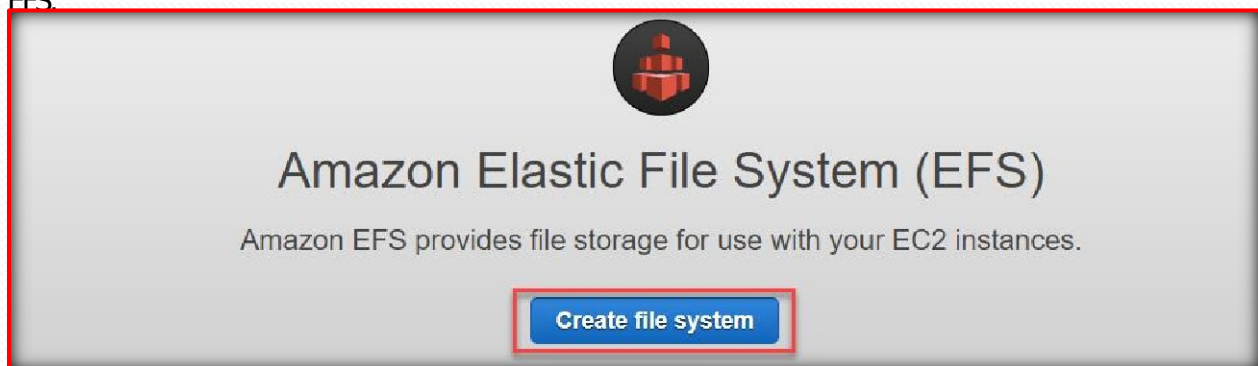
Type	Protocol	Port Range	Source	Description
NFS	TCP	2049	Anywhere	0.0.0.0/0, ::/0 e.g. SSH for Admin D

At the bottom right, there are 'Cancel' and 'Create' buttons.

Then go to EFS from Storage services.



Once you are in EFS, click on create file system to create EFS.



Select the created efs security group for all the mount targets.

Step 1: Configure file system access

Step 2: Configure optional settings

Step 3: Review and create

Configure file system access

An Amazon EFS file system is accessed by EC2 instances running inside one of your VPCs. Instances connect to a file system by using a network interface called a mount target. Each mount target has an IP address, which we assign automatically or you can specify.

VPC vpc-c75670a0 (default)

Create mount targets

Instances connect to a file system by using mount targets you create. We recommend creating a mount target in each of your VPC's Availability Zones so that EC2 instances across your VPC can access the file system.

	Availability Zone	Subnet	IP address	Security groups
<input checked="" type="checkbox"/>	ap-southeast-1a	subnet-04808b63 (default)	Automatic	<div><div></div><div><div>sg-0311ebb178e0dd211 - launch-wizard-1</div><div>sg-051ccb7ebd48f4fe6 - Linux-Firewall</div><div>sg-06ed294781c8cd7ea - EFS-Firewall</div><div>sg-0b37e34f7ac627414 -</div></div></div>
<input checked="" type="checkbox"/>	ap-southeast-1b	subnet-214d7668 (default)	Automatic	
<input checked="" type="checkbox"/>	ap-southeast-1c	subnet-e9f83eb0 (default)	Automatic	

Once changed, will be look like the below.

Create mount targets

Instances connect to a file system by using mount targets you create. We recommend creating a mount target in each of your VPC's Availability Zones so that EC2 instances across your VPC can access the file system.

	Availability Zone	Subnet	IP address	Security groups
<input checked="" type="checkbox"/>	ap-southeast-1a	subnet-04808b63 (default)	Automatic	<div>sg-06ed294781c8cd7ea - EFS-Firewall</div>
<input checked="" type="checkbox"/>	ap-southeast-1b	subnet-214d7668 (default)	Automatic	<div>sg-06ed294781c8cd7ea - EFS-Firewall</div>
<input checked="" type="checkbox"/>	ap-southeast-1c	subnet-e9f83eb0 (default)	Automatic	<div>sg-06ed294781c8cd7ea - EFS-Firewall</div>

Add a name tag like below.

Create file system

Step 1: [Configure file system access](#)


Step 2: Configure optional settings

Step 3: [Review and create](#)

Configure optional settings

Add tags

You can add tags to describe your file system. A tag consists of a case-sensitive key-value pair. (For example, you can define a tag with key-value pair with key = Corporate Department and value = Sales and Marketing.) At a minimum, we recommend a tag with key = Name.

Key	Value	Remove
Name	Demo-EFS	
<input type="text" value="Add New Key"/>	<input type="text"/>	

Select the performance options like below.

Choose performance mode

We recommend **General Purpose** performance mode for most file systems. **Max I/O** performance mode is optimized for applications where tens, hundreds, or thousands of EC2 instances are accessing the file system — it scales to higher levels of aggregate throughput and operations per second with a tradeoff of slightly higher latencies for file operations.

☒ **General Purpose**

☐ **Max I/O**

Choose throughput mode

We recommend **Bursting** throughput mode for most file systems. Use **Provisioned** throughput mode for applications that require more throughput than allowed by **Bursting** throughput. [Learn more](#)

☒ **Bursting**

☐ **Provisioned**

Specify the encryption and click on Next step.

Enable encryption

If you enable encryption for your file system, all data on your file system will be encrypted at rest. You can select a KMS key from your account to protect your file system, or you can provide the ARN of a key from a different account. Encryption of data at rest can only be enabled during file system creation. Encryption of data in transit is configured when mounting your file system. [Learn more](#)

☐ **Enable encryption of data at rest**

[Cancel](#) [Previous](#) [Next Step](#)

Finally click on Create file system to create it.

Step 1: Configure file system access
Step 2: Configure optional settings
Step 3: Review and create

Review and create

Review the configuration below before proceeding to create your file system.

File system access

VPC	Availability Zone	Subnet	IP address	Security groups
vpc-c75670a0 (default)	ap-southeast-1a	subnet-04808b63 (default)	Automatic	sg-06ed294781c8cd7ea - EFS-Firewall
	ap-southeast-1b	subnet-214d7668 (default)	Automatic	sg-06ed294781c8cd7ea - EFS-Firewall
	ap-southeast-1c	subnet-e9f83eb0 (default)	Automatic	sg-06ed294781c8cd7ea - EFS-Firewall

Optional settings

Tags

Performance mode General Purpose

Throughput mode Bursting

Encrypted No

[Cancel](#) [Previous](#) [Create File System](#)

Install nfs-utils package on RHEL based servers, run `apt-get install nfs-common` for Debian based systems.

```
[root@ip-172-31-27-89 ~]# yum install -y nfs-utils
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 2.4 kB 00:00:00
Package 1:nfs-utils-1.3.0-0.54.amzn2.0.2.x86_64 already installed and latest version
Nothing to do
```

Create a folder in the server to mount the EFS storage.

```
[root@ip-172-31-46-122 ~]#
[root@ip-172-31-46-122 ~]# mkdir /sathish-efs
[root@ip-172-31-46-122 ~]#
```

Then mount EFS storage file system using the below command.

```
mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport fs-
df73be9e.efs.ap-southeast-1.amazonaws.com:/ /sathish-efs
```

Run the same command and both the servers.

```
[root@ip-172-31-27-89 ~]# df -h
Filesystem                Size      Used Avail Use% Mounted on
devtmpfs                  476M          0  476M   0% /dev
tmpfs                     493M          0  493M   0% /dev/shm
tmpfs                     493M    420K  493M   1% /run
tmpfs                     493M          0  493M   0% /sys/fs/cgroup
/dev/xvda1                 8.0G    1.2G   6.9G  15% /
tmpfs                     99M          0   99M   0% /run/user/1000
fs-df73be9e.efs.ap-southeast-1.amazonaws.com:/ 8.0E          0  8.0E   0% /sathish-efs
```