Step-by-Step Guide to Create an Amazon EFS and Attach it to 2 EC2 Instances

Prerequisites

1. An AWS account with the necessary permissions to create and manage EFS, EC2, and VPC resources.
2. Two EC2 instances running in the same VPC.
3. Ensure the EC2 instances have the necessary security group rules to allow NFS traffic (port 2049).

Step 1: Create an Amazon EFS File System

1. **Log in to the AWS Management Console** :
    - Go to the AWS Management Console .
    - Sign in with your credentials.
2. **Navigate to the EFS Dashboard**:
    - In the AWS Management Console, search for **EFS** in the search bar.
    - Click on **Elastic File System** to open the EFS dashboard.
3. **Create a New File System** :
    - Click the **Create file system** button.
    - On the **Create file system** page, select **Customize** to configure advanced settings.
4. **Configure File System Settings** :
    - **Name**: Provide a name for your file system (e.g., `MyEFS`).
    - **Storage Class**: Choose between **Standard** or **Infrequent Access** (IA) based on your use case.
    - **Performance Mode**:
        - **General Purpose**: Suitable for most workloads.
        - **Max I/O**: Optimized for high-throughput and highly parallel workloads.
    - **Throughput Mode**:
        - **Bursting**: Automatically scales throughput based on file system size.
        - **Provisioned**: Specify a fixed throughput in MiB/s.
    - **Lifecycle Management**:
        - Enable **Lifecycle Management** to automatically move files to IA storage class after a specified period (e.g., 30 days).
    - **Encryption**:
        - Enable **Encryption at rest** for enhanced security.
    - **Tags**: Add optional tags for better resource management.
    - Click **Next**.
5. **Configure Network Access**:
    - Select the **VPC** where your EC2 instances are located.
    - Choose the **subnets** and **availability zones** where the EFS mount targets will be created.
    - Configure the **security group** to allow inbound NFS traffic (port 2049) from the EC2 instances.
    - Click **Next**.
6. **Review and Create**:
    - Review all the settings.
    - Click **Create** to create the EFS file system.

Step 2: Install the EFS Mount Helper on EC2 Instances

1. **SSH into Each EC2 Instance**:
    - Use SSH to connect to your EC2 instances.
2. **Install the EFS Mount Helper**:
    - Run the following commands to install the EFS mount helper:

```
sudo yum update -y
sudo yum install -y amazon-efs-utils
```

Step 3: Mount the EFS File System on EC2 Instances

1. **Create a Mount Directory**:

- On each EC2 instance, create a directory where the EFS file system will be mounted:

```
sudo mkdir /mnt/efs
```

2. **Mount the EFS File System**:
   - Use the following command to mount the EFS file system:

```
sudo mount -t efs <File-System-ID>:/ /mnt/efs
```

   Replace `<File-System-ID>` with the actual ID of your EFS file system.

3. **Verify the Mount**:
   - Run the following command to verify the file system is mounted:

```
df -h
```

   - You should see the EFS file system mounted at `/mnt/efs`.

Step 4: Automate Mounting on Reboot

1. **Add the Mount to `/etc/fstab`**:
   - Open the `/etc/fstab` file on each EC2 instance:

```
sudo nano /etc/fstab
```

   - Add the following line to the file:

```
<File-System-ID>:/ /mnt/efs efs defaults,_netdev 0 0
```

   - Save and exit the file.

2. **Test the Configuration**:
   - Reboot the EC2 instance and verify that the EFS file system is automatically mounted:

```
sudo reboot
df -h
```

Step 5: Test File Sharing Between EC2 Instances

1. **Create a Test File**:
   - On the first EC2 instance, create a test file in the mounted EFS directory:

```
sudo touch /mnt/efs/testfile.txt
```

2. **Verify on the Second EC2 Instance**:
   - On the second EC2 instance, check if the test file is visible:

```
ls /mnt/efs
```

   - You should see `testfile.txt` listed.

Step 6: Clean Up (Optional)

1. **Unmount the EFS File System**:
   - If you no longer need the EFS file system, unmount it from the EC2 instances:

```
sudo umount /mnt/efs
```

2. **Delete the EFS File System**:

- Go to the EFS dashboard in the AWS Management Console.
- Select the file system and click **Delete**.
- Confirm the deletion.

Conclusion

You have successfully created an Amazon EFS file system with custom configurations and attached it to two EC2 instances. The file system can now be used to share files between the instances.