



1. What is Amazon EFS and how is it different from EBS and S3?

Amazon EFS = Elastic File System

Think of EFS like a shared Google Drive folder.

- Multiple people (EC2 instances) can open, edit, and save files at the same time.
- It grows or shrinks automatically based on how much data you keep.

EFS vs EBS vs S3 – Real-world Analogy

Service	Analogy	Access	Best Use
EBS	A personal external hard drive	One EC2 only	Databases, OS disk
EFS	A shared Google Drive folder	Many EC2s at once	App logs, shared configs
S3	A locker room with labeled boxes	Not mountable	Backups, static files

2. What is shared file storage and how does EFS support it?

Imagine a team working on a single Excel file stored in a shared drive.

- Everyone (EC2s) accesses the same version of the file.
- EFS enables this using NFS (Network File System).
- Any EC2 (even in different AZs) can mount and read/write files like it's on their local machine.
- Shared file storage = multiple servers access same data concurrently.
- EFS supports this via **NFS protocol** (NFSv4.1/4.2).
- EC2s across **AZs** can mount and read/write same files.

3. What are EFS performance modes (General Purpose vs Max I/O)?

- **General Purpose:** Default, low latency, best for web apps.
- **Max I/O:** Higher throughput, more latency; good for big data, analytics.
- Choose based on app performance needs.

4. What are EFS throughput modes (Bursting vs Provisioned)?

- **Bursting:** Default, scales with usage; earns burst credits.
 - **Provisioned:** Set fixed throughput, independent of storage size.
 - Use Provisioned for high, predictable workloads.
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5. How does EFS ensure high availability and durability?

- Data is stored across **multiple AZs** automatically.
- EFS is designed for **99.999999999% (11 9s)** durability.
- Fully managed, redundant, and scalable.

6. What is an EFS Mount Target and why is it needed?

- Mount Target = entry point to access EFS in a VPC subnet.
- Each AZ must have its own mount target for high availability.
- EC2 mounts EFS via mount target using NFS.

7. What are the main use cases of EFS in a DevOps environment?

- Shared config files or logs across EC2s.
- Persistent storage for containers (e.g., EKS, ECS).
- CI/CD pipelines storing build artifacts.
- Central repo for scripts, binaries, tools.

How do you create NFS on AWS ?

◆ 1. Create a VPC (if not already available)

- Go to **VPC Dashboard** → Create a VPC with public/private subnets.
- Ensure **subnets are in different AZs** for high availability.

◆ 2. Create a Security Group for EFS

- In **EC2 > Security Groups**, create a new security group.
- Allow **inbound NFS traffic**:
 - Protocol: TCP
 - Port: **2049**
 - Source: IP/CIDR or Security Group of your EC2 instances.

◆ 3. Create Amazon EFS

- Go to **EFS Console** → Click **“Create file system”**.
- Select:
 - VPC
 - Availability Zones and subnets (recommended: all AZs for HA)
 - Attach the security group created earlier.
- Choose **Throughput mode** and **Performance mode** (General Purpose or Max I/O).
- Click **Create**.

◆ 4. Create Mount Targets

- While creating EFS, AWS automatically creates mount targets in each subnet.
- Ensure they are created in **all required AZs**.

◆ 5. Launch an EC2 Instance

- Launch an **Amazon Linux 2 EC2 instance** in the same VPC.
 - Attach the **security group** that allows NFS (TCP port 2049).
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◆ 6. Mount EFS on EC2 using NFS

SSH into your EC2 instance, then:

```
# Install NFS client
```

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

```
# Create a directory
```

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

```
# Mount EFS (replace fs-xxxx with your EFS ID)
```

```
sudo mount -t efs fs-xxxxxxx:/ /mnt/efs
```

1. What is the main benefit of using Amazon EFS?

- A. It can only be attached to one EC2 instance
- B. It is an object storage service
- C. It allows multiple EC2 instances to share the same file system
- D. It stores data in local SSD and very fast

✓ Answer: C

2. Which protocol does Amazon EFS use for file access?

- A. HTTP
- B. NFS (Network File System)
- C. FTP
- D. SMB

✓ Answer: B

3. How is Amazon EFS different from Amazon EBS?

- A. EFS is cheaper
- B. EFS is only used for backups
- C. EFS supports multiple EC2 instances accessing the same data
- D. EBS is object storage

✓ Answer: C
