What is EFS ?

EFS stands for Elastic File System .

Amazon EFS provides scalable, elastic, NFS-based file storage that can be used with AWS services and on-premise resources.

Why use Amazon EFS ?

Amazon EFS is ideal when you need shared, scalable, and reliable file storage in the cloud.

Reasons to USE EFS

1. Shared file system across instances

2. Elastic Scalability

3. Fully Managed

4. Reliable and Highly Available

5. Standard file System Interface (NFS)

6. Secure

7. Use with Containers

Key Features

. Elastic & Scalable: Automatically scales storage up/down based on demand.

. NFS Protocol: Accessible via the network file system (NFSv4) protocol.

. Shared Access: Multiple Amazon EC2 instances (even across Availability Zones) can mount and access the file system simultaneously.

. Managed: AWS handles provisioning, patching, and backups.

Common Use Cases:

. Web serving and content management

. Application development environments Container storage (e.g. with Amazone ECS or EKS)

. Media Processing workflows

. Backups disaster recovery

Security:

. Support encryption at rest and in transit

. IAM permission, security, groups, and VPCs to control access

Disadvantages

1. Linux–only support

2. Higher Cost Compared to Alternatives

3. latency Can be Higher

4. Not IDEAL for small or Single-Instance Workloads

5. Limited Customization

6. Regional &VPC Boundaries

7. IA Mode Access Costs

8. Access Control Complexity

Steps to use EFS in AWS

1. Create an EFS file system

1. Go to AWS Console-> EFS.

2. Click” Create file system”.

3. Set:

Name: e.g., my-efs

VPC: Choose your VPC

It auto-created mount target in each AZ subnet.

4. Click Next, review setting, and create.

2. Configure Security Groups

. Make sure the EC2 security group allows NFS(port 2049).

.Add inbound rule:

.TYPE: NFS

.Port:2049

.Source: The EC2’s security group

3. Launch an EC2 Instance

. Use Amazon Linux 2

.In the same VPC and subnet as EFS

.Attach the security group that allows NFS

4. Mount EFS on EC2

A. Install NFS client (only once)

sudo yum install -y amazon-efs-utils

B. Mount EFS

sudo mkdir /mnt/efs

sudo mount -t efs fs-xxxxxx:/ /mnt/efs

5. Use EFS Storage

Now you can read/write files under/mnt/efs, and all EC2’s mounting it will share the same files in real-time.

**Basic Question for Interview**

**What is Amazon EFS, and how does it differ from Amazon EBS and S3?**

**What are the key use cases for Amazon EFS?**

**How does Amazon EFS achieve high availability and durability?**

**What are the performance modes in EFS and how do you choose between them?**

**Explain the throughput modes of Amazon EFS?**

**How is security handled in Amazon EFS?**

**How would mount an EFS file system to an EC2 instance?**

**What is the limitation or disadvantages of using Amazon EFS?**

**How does Amazon EFS integrate with container services like ECS or EKS?**