

AWS EFS



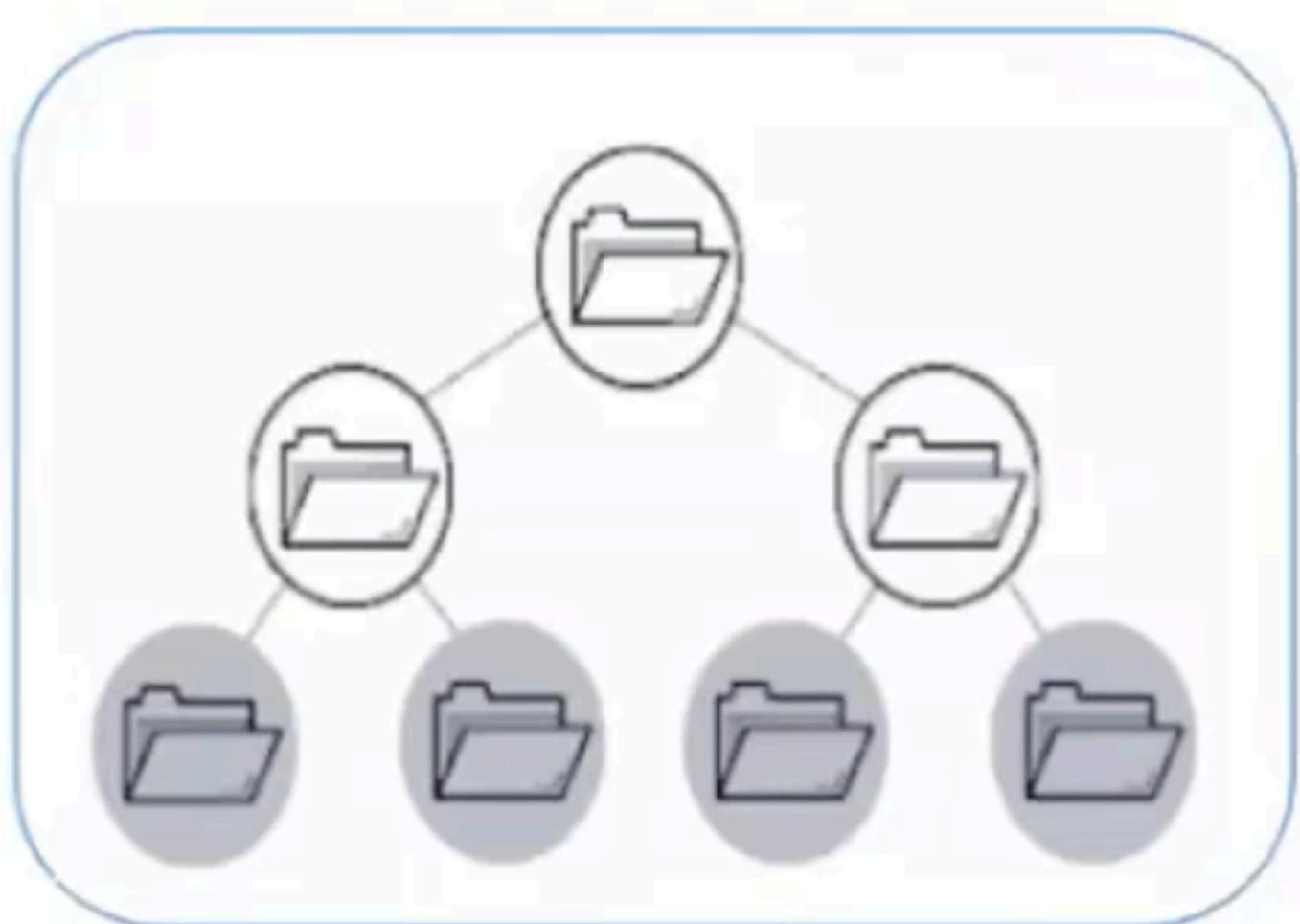
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Introduction to EFS

Recap Storage Options

File Storage

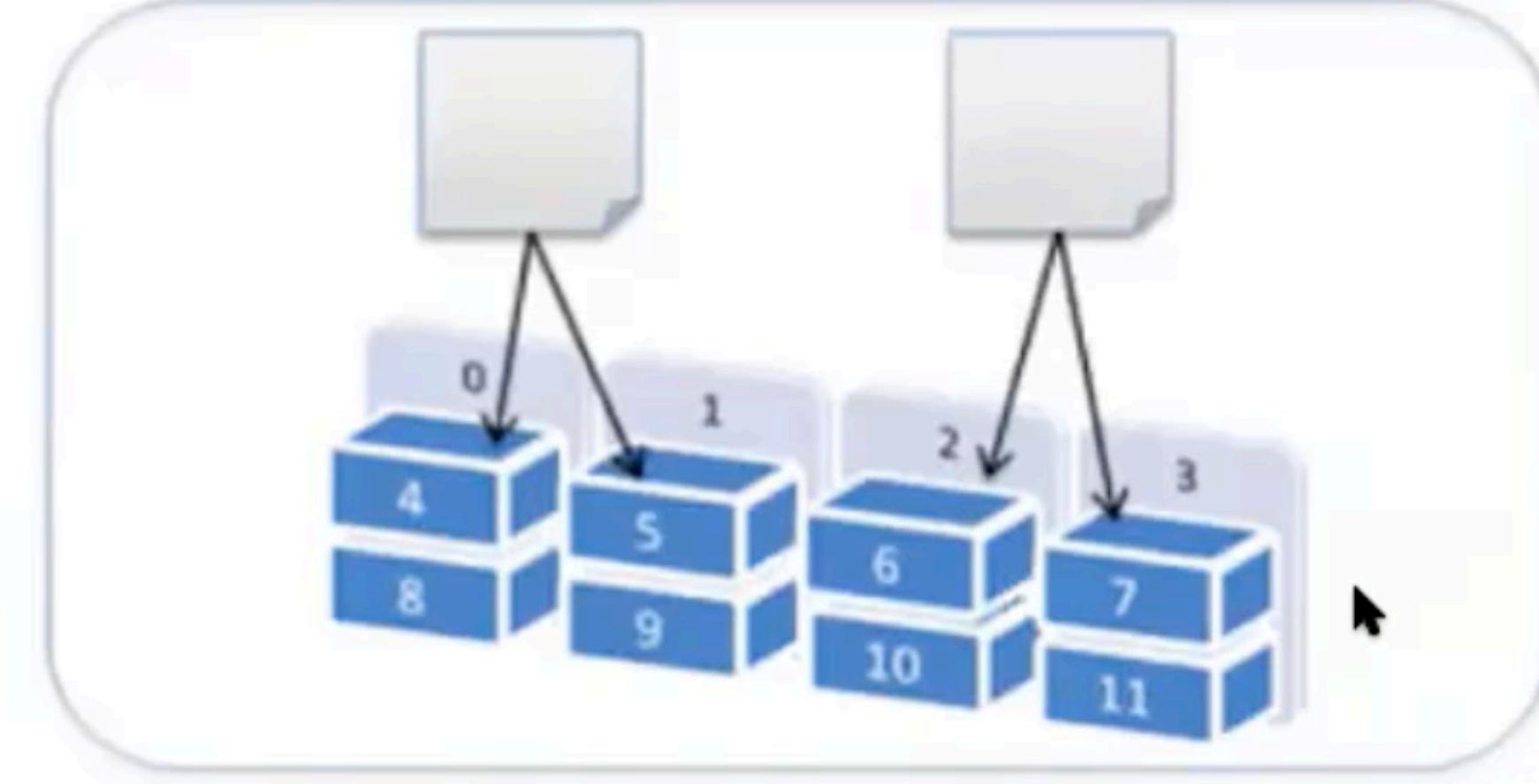


HTTP(S) Interface

Object Storage



Block Storage



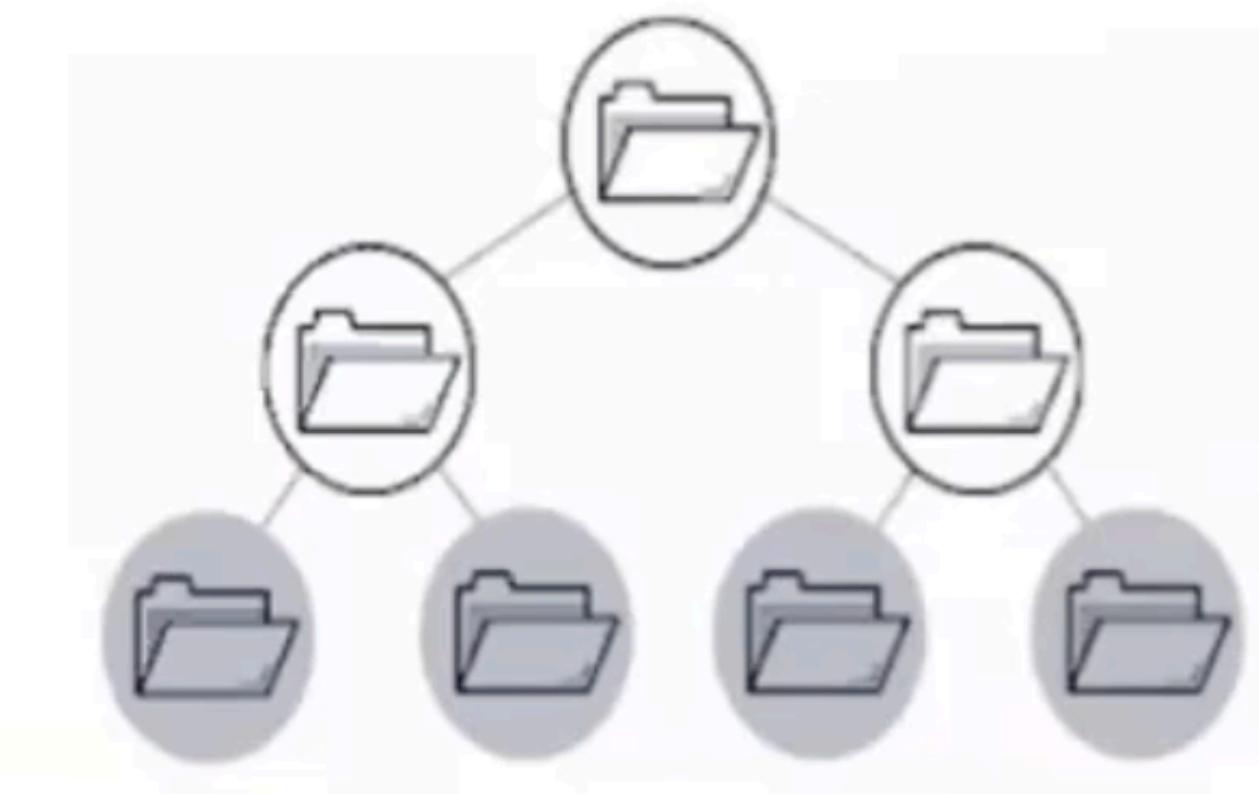
- Store virtually unlimited files.
- Maintain file revisions.
- HTTP(S) based interface.
- Files are distributed in different physical nodes.

Object=
-File
-Unique ID
-Metadata

- File is split and stored in fixed sized blocks.
- Capacity can be increased by adding more nodes.
- Suitable for applications which require high IOPS, database, transactional data.

Introduction to EFS

What is EFS?



- Amazon Elastic File System (Amazon EFS) is service that provides a simple, scalable, fully managed **elastic NFS file system**.
- It offers a traditional **file storage** paradigm, with data organized into **directories and subdirectories**.

► Features of EFS

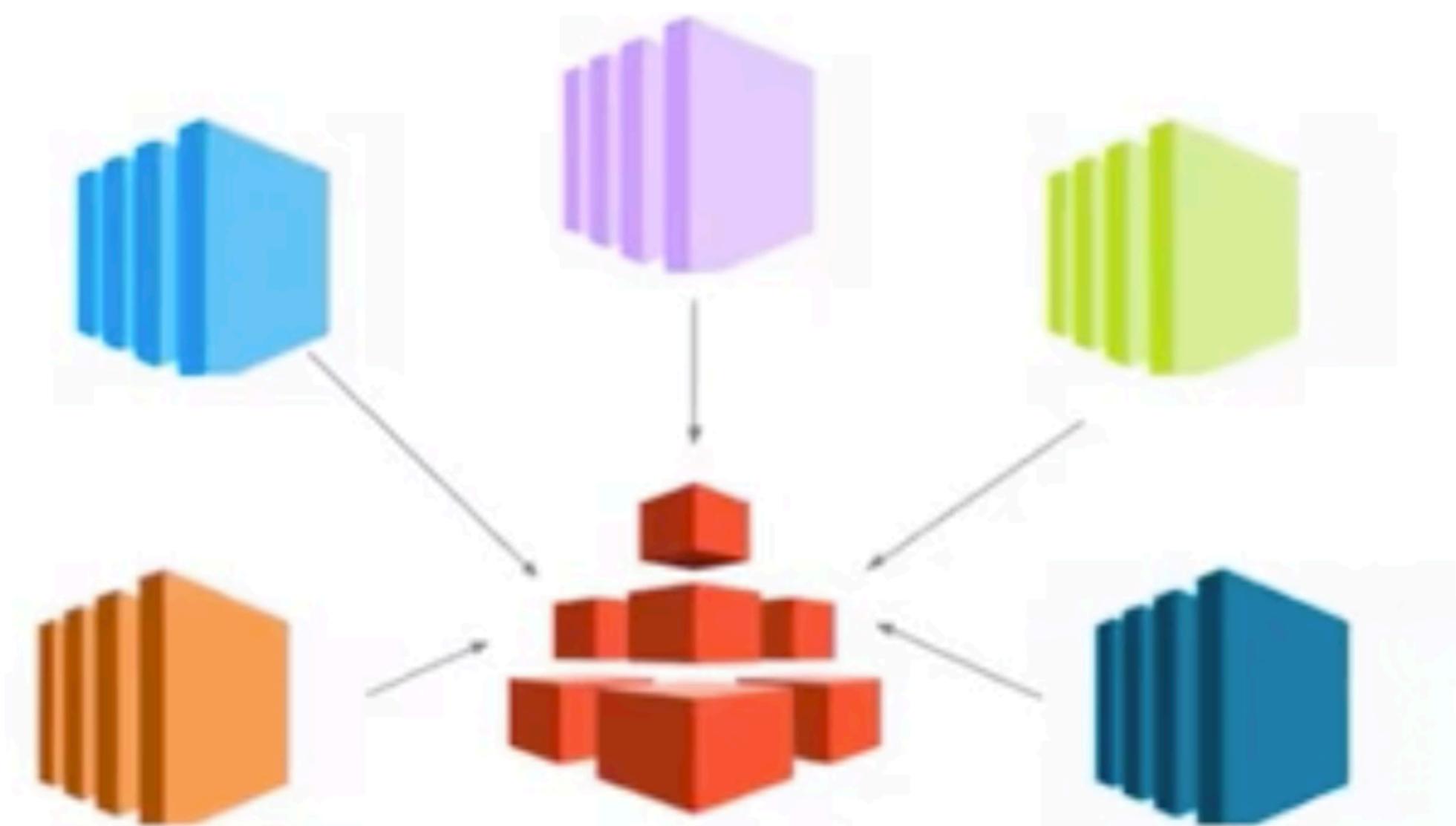
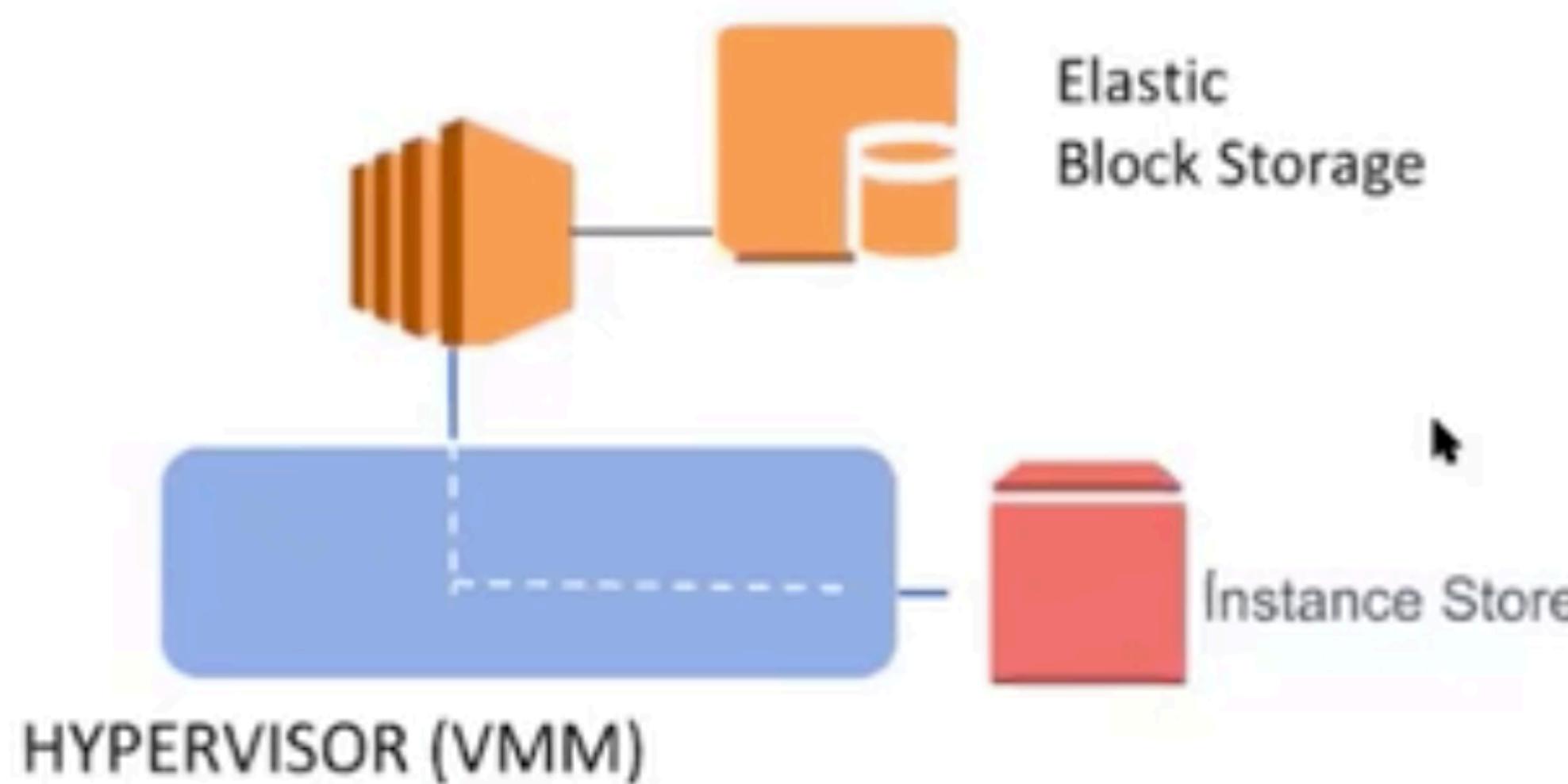
Scalability-Cost



- Since EFS is scalable, it increases and decreases the storage capacity automatically as you add and delete files,
- With Amazon EFS, you pay only for the storage used by your file system and there is no minimum fee or setup cost.

Features of EFS

Attaching



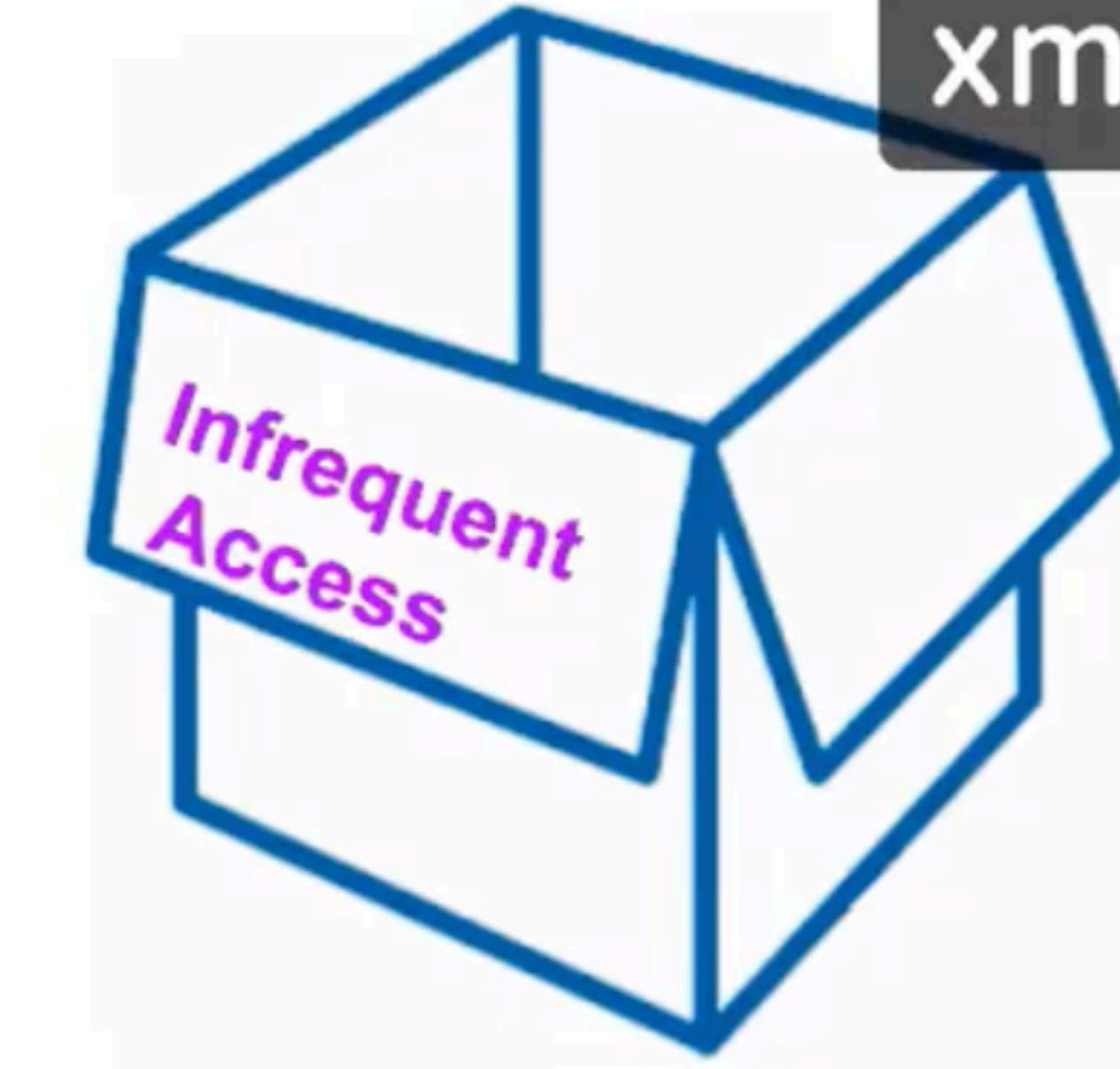
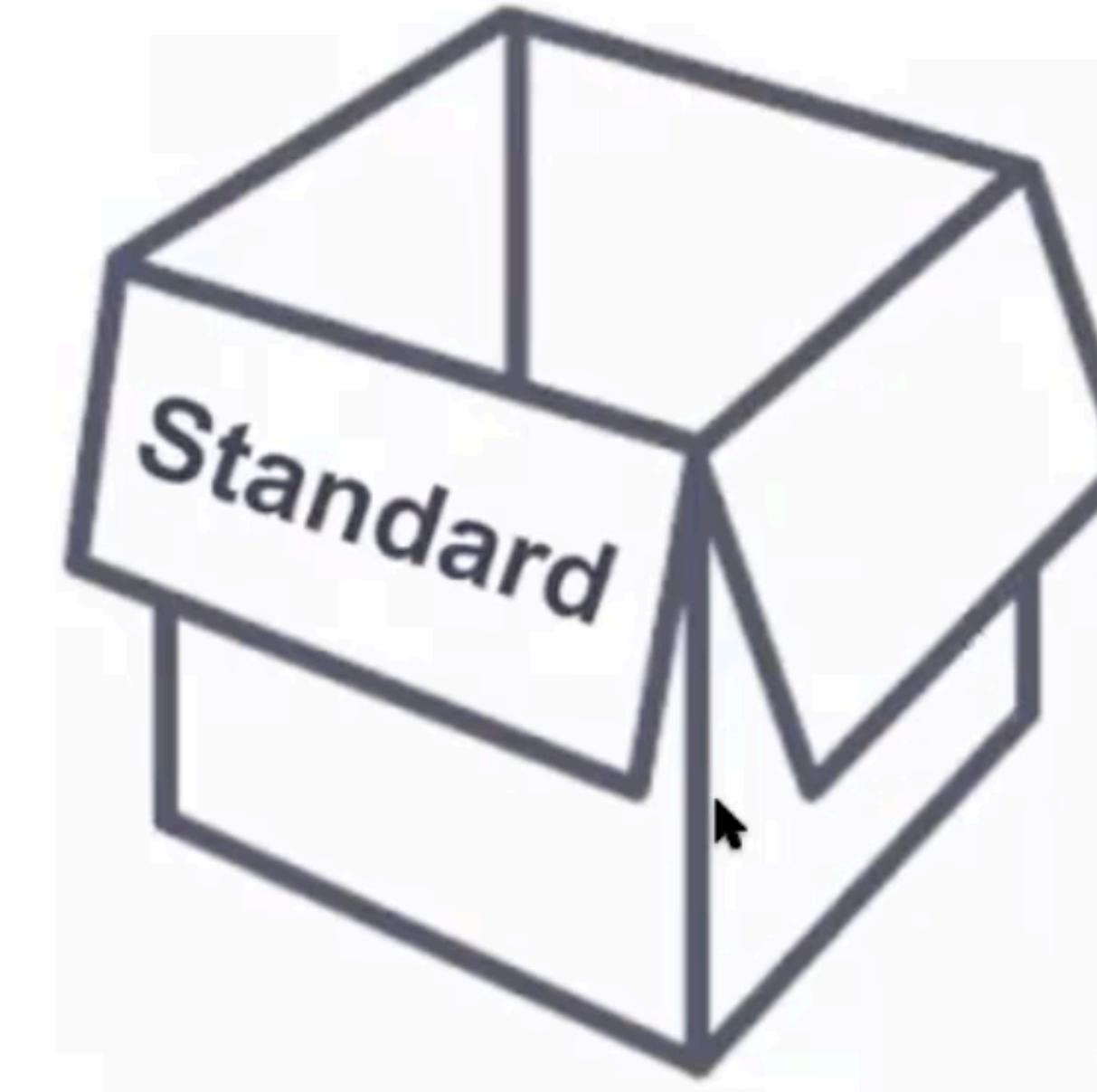
- Unlike *EBS, multiple Amazon EC2 instances in all type can be attached Amazon EFS file system at the same time.

*Except Nitro-based instances in the same Availability Zone.

Screenshot

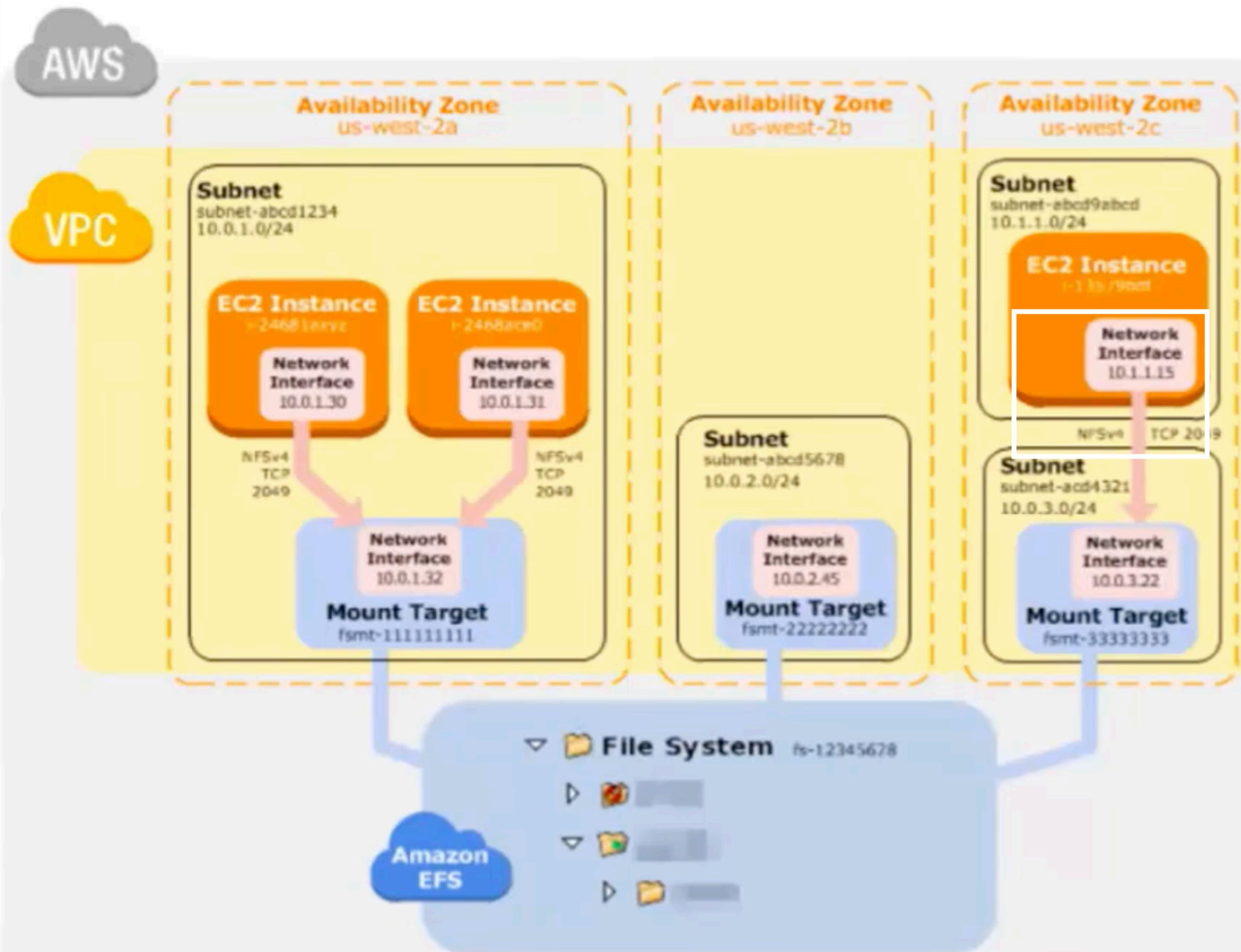
Features of EFS

Storage Classes



- Amazon EFS offers two storage classes, **Standard** and **Infrequent Access**.
- The Standard storage class is used to store **frequently** accessed files.
- The Infrequent Access (IA) storage class is a lower-cost storage class that's designed for storing long-lived, **infrequently accessed** files cost-effectively.

Mount Target

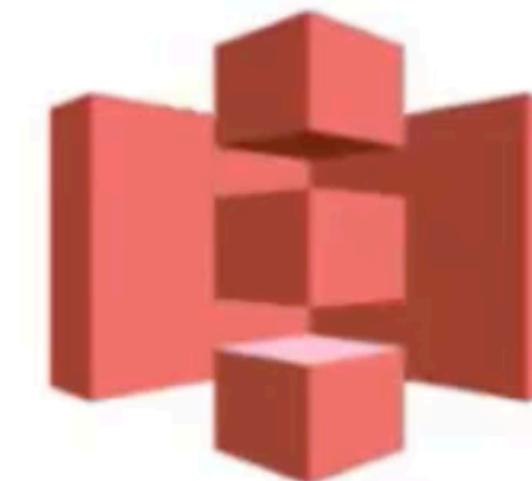


- To access your Amazon EFS file system in a VPC, you create one or more mount targets in the VPC.
- You can create one mount target in each **Availability Zone** in an AWS Region. If there are **multiple subnets** in an Availability Zone in your VPC, you create a mount target **in one of the subnets**. Then all EC2 instances in that Availability Zone share that mount target

Comparison of Storage Systems



Amazon EFS



S3



EBS

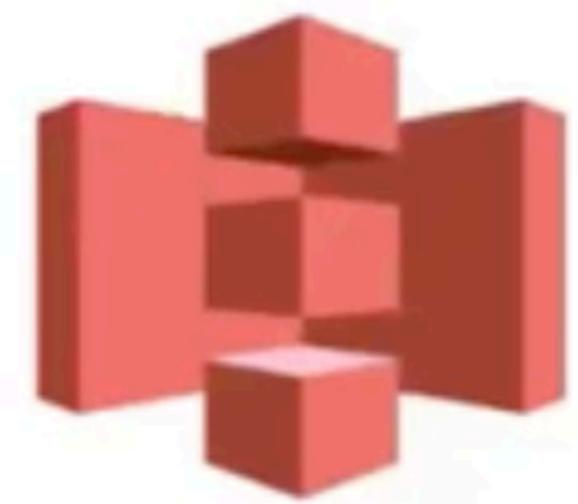
- Amazon **S3** is **cheapest** for data storage alone and EBS is cheaper than EFS
- **EBS** and **EFS** are both **faster** than Amazon S3, with high IOPS and lower latency.
- Amazon **S3** can not be attached **EC2**. AWS EBS is only available for **single*** instance.
You can mount EFS onto several EC2 instances at the same time.
- **S3** and **EFS** have unlimited storage size. Single EBS has 16 TB max. storage size.

Comparison of Storage Systems



Amazon EFS

- EFS is best used for **large quantities of data**, such as large analytic workloads.
- Also, it is suitable for **global content management** systems and media processing workflows.



S3

- Useful for hosting **website images and videos**, **data analytics** of mobile/web applications.
- Data which is need to be **access from anywhere**.



EBS

- Suitable for applications which **require high IOPS**, **business continuity**, and **database management**.

	Performance	Availability and Accessibility	Access Control	Cost
Amazon S3	<ul style="list-style-type: none"> - Supports 3500 PUT / LIST / DELETE requests per second - Scalable to 5500 GET requests per second 	<ul style="list-style-type: none"> - Usually 99.9% available - If lower, returns 10-100% of cost as service credits - Accessible via Internet using APIs 	<ul style="list-style-type: none"> - Access is based on IAM - Uses bucket policies and user policies - Public access via Block Public Access 	<ul style="list-style-type: none"> - Free tier: 5GB - First 50 TB/month: \$0.023 per GB - Next 450 TB/month: \$0.022 per GB - Over 500 TB/month: \$0.021 per GB
AWS EBS	<ul style="list-style-type: none"> - HDD volumes: 250-500 IOPS/volume depending on volume type - SSD volumes: 16-64K IOPS/volume 	<ul style="list-style-type: none"> - 99.99% available - Accessible via single EC2 instance 	<ul style="list-style-type: none"> - Security groups - User-based authentication (IAM) 	<ul style="list-style-type: none"> - Free tier: 30GB - General Purpose: \$0.045 per GB/month - Provisioned SSD: \$0.125 per GB/month, \$0.065 per IOPS/month
AWS EFS	<ul style="list-style-type: none"> - 3GB/s baseline performance - Up to 10GB/s - Up to 7K IOPS 	<ul style="list-style-type: none"> - No publicly available SLA - Up to 1,000 concurrent EC2 instances - Accessible from any AZ or region 	<ul style="list-style-type: none"> - IAM user-based authentication - Security groups 	<ul style="list-style-type: none"> - Standard storage: \$0.30-\$0.39 per GB-month depending on region - Infrequent storage: \$0.025-\$0.03 per GB-month - Provisioned throughput: \$6 per MB/s-month