How Amazon S3 different from EBS and EFS ? When will you prefer this?

What is Amazon S3?

- **Amazon S3 (Simple Storage Service)** is an **object storage** service.
- You store data as **objects** inside **buckets**.
- It's designed for **high durability (99.999999999%)** and **scalability**.
- You access files using APIs (HTTP/S) — like uploading, downloading files over the internet.
- Think of it like a **Dropbox** or **Google Drive**, but for applications at massive scale.

🔷 How S3 is different from EBS and EFS?

Feature	Amazon S3	Amazon EBS	Amazon EFS
Type	Object Storage	Block Storage	File Storage
Access	API/HTTP based	Attached to EC2	Network File System (NFS)
Use Case	Web apps, backups, data lakes	Database storage, OS disks	Shared storage across servers
Pricing	Pay per storage used	Pay for provisioned volume	Pay for storage used
Scalability	Virtually unlimited	Limited to volume size	Virtually unlimited

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🔷 When and Why Prefer S3 over EBS or EFS?

Scenario	Why S3?
Static website hosting	S3 can serve static HTML, CSS, JS files directly.
Backup and Archive	S3 is cheaper and built for durability (also integrates with Glacier for very cheap long-term storage).

Scenario	Why S3?
Data lakes / Big data analytics	S3 easily handles petabytes of data, perfect for storing raw data.
Software distribution	Host installables, patches, assets that users/downloaders can access globally.
Content for Mobile/Web apps	App images, user uploads (photos, videos) stored efficiently and served fast.
Cross-region data sharing	Easily accessible across multiple AWS services and even external systems.
Temporary Storage (Upload/Download)	Great for staging data before processing.

🔷 Example Scenarios where S3 is better:

✅ Hosting your **React app frontend** (build files) → S3 + CloudFront
✅ Storing **user profile pictures** for your app → S3
✅ Keeping **logs** from multiple EC2 instances centrally → S3
✅ **Backup database snapshots** that are only needed if disaster happens → S3
✅ Storing **large video files** for on-demand playback → S3

🔷 When you wouldn't use S3?

- If you need **high-speed read/write** like a database → **Use EBS**
- If multiple EC2 instances need to **share a file system** → **Use EFS**

Amazon S3 (Simple Storage Object)

Best for:

- Static website hosting
- Data lakes and big data analytics
- Backup and disaster recovery archives
- Content distribution (images, videos, documents)
- Application assets and user uploads
- Long-term data retention with infrequent access

Key characteristics:

- Object storage (not file or block)
- Highly durable and scalable
- Accessed via HTTP/HTTPS
- No file system mounting
- Various storage classes for cost optimization

Amazon EFS (Elastic File System)

Best for:

- Shared file storage across multiple EC2 instances
- Content management systems
- Development environments
- Web serving applications
- Data processing workflows
- Container storage

Key characteristics:

- Network file system (NFS)
- Mountable as a standard file system
- Scales automatically
- Concurrent access from multiple instances
- Pay for what you use

Amazon EBS (Elastic Block Store)

Best for:

- Boot volumes for EC2 instances
- Database storage (e.g., MySQL, PostgreSQL)
- Enterprise applications requiring low-latency
- Development and test environments
- Individual instance storage needs

Key characteristics:

- Block-level storage volumes
- Attached to individual EC2 instances
- High performance and low latency
- Point-in-time snapshots
- Fixed capacity that needs to be provisioned

1. Which of the following AWS storage services is best suited for storing unstructured, static content like images, videos, and backups?

A) Amazon EBS
B) Amazon EFS
C) Amazon S3
D) Amazon EC2

Answer: C) Amazon S3

3. Which AWS storage service is designed for shared file storage across multiple EC2 instances?

A) Amazon EBS
B) Amazon S3
C) Amazon Glacier
D) Amazon EFS

Answer: D) Amazon EFS