AWS Storage Services

As we know these days many organisations are moving and migrating to the cloud for their infrastructure. Cloud brings many benefits such as scalability, agility, performance efficiency, cost optimization, reliability etc.

AWS provide so many storage options, so that organisations can choose them according to their use cases.

AWS offers storage services for backup, archiving, and disaster recovery use case.

Lets learn about important AWS Storage services.

🎯Amazon S3(Simple Storage Service):

Amazon S3 provides highly scalable and durable object level storage. You can store and retrieve any amount of data, anytime from anywhere from the web with S3 console. S3 can store virtually unlimited data. The

size of object is 5TB. It is designed for 11 9s of durability and it stores data for millions of application for companies around the world.

Amazon S3 offers a range of object-level storage classes that are designed for different use cases:

👉 Amazon S3 Standard- For frequently accessed data

👉 Amazon S3 Intelligent-Tiering- For data with unknown and changing access pattern.

👉 Amazon S3 Standard-Infrequent Access (Amazon S3 Standard-IA)- For less frequently accessed data

👉 Amazon S3 One Zone-Infrequent Access (Amazon S3 One Zone-IA)- For less frequently accessed data

👉 Amazon S3 Glacier Instant Retrieval- for archive data that needs immediate access

👉Amazon S3 Flexible Retrieval(S3 Glacier) — for rarely accessed long-term data that does not require immediate access

👉Amazon S3 Glacier Deep Archive -for long-term archive and digital preservation with retrieval in hours at the lowest cost storage in the cloud

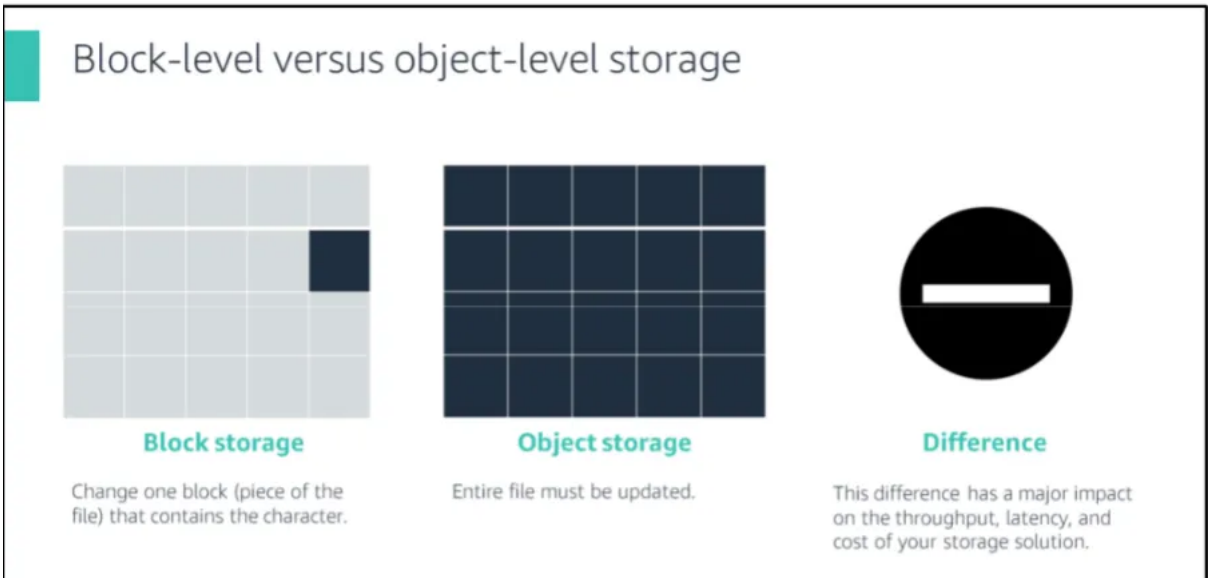
Amazon S3 doesn't suit all storage situations. The following table presents some storage needs for which you should consider other AWS storage options.

Storage Need	Solution	AWS Services
File system	Amazon S3 uses a flat namespace and isn't meant to serve as a standalone, POSIX-compliant file system. Instead, consider using Amazon EFS as a file system.	Amazon EFS
Structured data with query	Amazon S3 doesn't offer query capabilities to retrieve specific objects. When you use Amazon S3 you need to know the exact bucket name and key for the files you want to retrieve from the service. Amazon S3 can't be used as a database or search engine by itself. Instead, you can pair Amazon S3 with Amazon DynamoDB, Amazon CloudSearch, or Amazon Relational Database Service (Amazon RDS) to index and query metadata about Amazon S3 buckets and objects.	Amazon DynamoDB Amazon RDS Amazon CloudSearch
Rapidly changing data	Data that must be updated very frequently might be better served by storage solutions that take into account read and write latencies, such as Amazon EBS volumes, Amazon RDS, Amazon DynamoDB, Amazon EFS, or relational databases running on Amazon EC2.	Amazon EBS Amazon EFS Amazon DynamoDB Amazon RDS
Archival data	Data that requires encrypted archival storage with infrequent read access with a long recovery time objective (RTO) can be stored in Amazon Glacier more cost-effectively.	Amazon Glacier
Dynamic website hosting	Although Amazon S3 is ideal for static content websites, dynamic websites that depend on database interaction or use server-side scripting should be hosted on Amazon EC2 or Amazon EFS.	Amazon EC2 Amazon EFS

🎯Amazon Elastic Block Store(EBS):

Amazon EBS is persistent, mountable storage. An EBS volume can be mounted as a device to an EC2 instance, but only if they are both in the

same Availability Zone. Similar to Amazon EBS, Amazon S3 is persistent storage. However, it can be accessed from anywhere.



Each EBS volume is automatically replicated within its availability zone. A persistent storage is a storage device that retains data after power to that device is switched off. EBS can be backed up automatically in S3.

Uses include:

• Boot volumes and storage for EC2 instances

• Data storage with a file system

• Database hosts

• Enterprise applications

To provide an even higher level of data durability, you can use Amazon EBS

to create point-in-time snapshots of your volumes. You can also

re-create a

new volume from a snapshot at any time. Share snapshots or even copy snapshots to different AWS Regions for even greater disaster recovery (DR)
protection.

🎯Amazon Elastic File System:

It provides a simple, scalable, elastic file system for Linux-based workloads for use with AWS Cloud services and on-premises resources. It is built to scale on demand to petabytes without disrupting applications, growing and shrinking automatically as you add and remove files, so your applications have the storage they need — when they need it.

Amazon EFS supports the Network File System version 4 (NFSv4.1 and NFSv4.0) protocol, so the applications and tools that you use today work seamlessly with Amazon EFS. Multiple compute instances, including Amazon EC2, Amazon ECS, and AWS Lambda, can access an Amazon EFS file system at the same time.

🎯Amazon FSx for Lustre:

Amazon FSx for Lustre is a fully managed file system that is optimized for compute-intensive workloads, such as high performance computing, machine learning, and media data processing workflows. Many of these applications require the high-performance and low latencies of scale-out, parallel file systems. Operating these file systems typically requires specialized expertise and administrative overhead, requiring you to provision storage servers and tune complex performance parameters. With Amazon FSx, you can launch and run a Lustre file system that can process massive data sets at up to hundreds of gigabytes per second of throughput, millions of IOPS, and sub-millisecond latencies.

🎯Amazon FSx for Windows File Server:

Amazon FSx for Windows File Server provides a fully managed native Microsoft Windows file system so you can easily move your Windows-based applications that require file storage to AWS. Built on Windows Server, Amazon FSx provides shared file storage with the compatibility and features that your Windows-based applications rely on, including full support for the SMB protocol and Windows NTFS, Active Directory (AD) integration, and Distributed File System (DFS). Amazon FSx uses SSD storage to provide the fast performance your

Windows applications and users expect, with high levels of throughput and IOPS, and consistent sub-millisecond latencies.

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