**ASSIGNMENT NO:3**

**VIRTUALIZATION & CLOUD COMPUTING**

Tanzeela Safder (13676)

## Q) Comparison of various storage services of AWS

**COMPARISON OF AMAZON EBS ,EFS AND STORAGE GATEWAY:**

1. EBS low-cost storage is a requirement that’s why Amazon EBS has maximum storage size of 16 TB however EFS has no limitation on the size of the file system

1. Amazon EBS has no limitation on file size in EBS disk but in Amazon EFS has single files of maximum size of 47.9TiB

1. EBS is cheaper than EFS, you can use it for database backups and other low-latency interactive applications while  In Amazon Storage Gateway use the service for backup and archiving, disaster recovery, cloud data processing, storage tiering, and migration.
2. Amazon EFS is a regional service storing data within and across multiple Availability Zones for high availability and durability. while Amazon EFS highly durable (No public SLA) . However Gateway service enables you to securely store data in the AWS Cloud for scalable and cost-effective storage
3. EBS encryption enables data-at-rest and data-in-motion security while IAM help you provide security in controlling access to AWS Storage Gateway and EFS.
4. AWS EBS provides persistent block-level data storage.While Amazon EFS delivers a simple, scalable, elastic, highly available, and highly durable network file system as a service to EC2 instances .However The [AWS Storage Gateway](https://aws.amazon.com/storagegateway/) is a hybrid storage service that enables your on-premises applications to seamlessly use AWS cloud storage
5. The amazon gateway connects to AWS storage services, such as Amazon S3, S3 Glacier, and Amazon EBS, providing storage for files, volumes, and virtual tapes in AWS.
6. [EBS](https://dzone.com/articles/using-ebs-and-efs-as-persistent-volume-in-kubernet) and EFS are both faster than Amazon S3, with high IOPS and lower latency.

**COMPARISON OF AMAZON S3 AND GLACIER:**

1. **Amazon S3**provides simple object storage, useful for hosting website images ,videos and both mobile and web applications. Both s3 and glacier are designed for durability of 99.99% of object across multiple avability zone.
2. S3 can be be used to host a static website’s contents while glacier can not.
3. S3 used as a backup service by some AWS services to store snapshots, or database backups While glacier has long-term archival of enterprise backups
4. S3 create buckets but in glacier user create archive and vaults.
5. S3 is a popular choice for storing log files which includes Log files from native AWS services like CloudTrail, Lambda or CloudWatch and Log files from application and third-party tools While glacier has Long-term archival of log files

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1. Storage in Glacier is extremely cheap, but it also means retrieving the data from Glacier into S3 can take a long time.

**COMPARISON OF AMAZON** **FSX FOR LUSTER AND WINDOW FILE SERVER:**

1. Amazon FSx for Lustre makes it easy and cost effective to launch and run the world’s most popular high-performance file system.while [Amazon FSx for Windows File Server](https://aws.amazon.com/fsx/windows) provides a fully managed native Microsoft Windows file system so you can easily move your Windows-based applications that require file storage to AWS.
2. Amazon FSx for Lustre 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..While Amazon FSx, you can launch highly durable and available Windows file systems that can be accessed from up to thousands of compute instances using the industry-standard SMB protocol.
3. It provides cheap and performance non-replicated storage for processing data, with your long-term data stored durably in Amazon S3 or other low-cost data stores while 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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1. Amazon FSx you pay for only the resources you use. There are no minimum commitments, upfront hardware or software costs, or additional fees while Amazon FSx for Windows File Server you pay for only the resources used, with no upfront costs, minimum commitments, or additional fees.