



TNGS Learning Solutions

AWS Solutions Architect

Online Course

Simple Storage Service

(S3)

Simple Storage Service (S3)

- Amazon S3 (Simple Storage Service) is an object storage service in AWS.
- It is designed to store and retrieve large amounts of unstructured data, such as documents, images, videos, backups, and log files, with high scalability, durability, and availability.
- Amazon S3 is one of the most widely used cloud storage services and offers a range of features and capabilities

Simple Storage Service (S3)

- **Object-Based Storage:** Amazon S3 stores data as objects, each consisting of the data itself, a unique key (usually a URL or file path), and metadata (e.g., content type, creation date). Objects can range in size from a few bytes to multiple terabytes.
- **Scalability:** S3 is highly scalable and can accommodate virtually unlimited data storage. You can increase or decrease your storage capacity as needed without upfront provisioning.

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- **Durability and Availability:** Data stored in Amazon S3 is designed for high durability and availability. It is automatically distributed across multiple data centers and Availability Zones (AZs) within an AWS region, ensuring redundancy and data resilience.
- **Data Protection:** Amazon S3 provides multiple levels of data protection, including server-side encryption (SSE) to protect data at rest, and SSL/TLS encryption for data in transit. You can also configure versioning to maintain multiple versions of an object, which helps protect against data deletion or accidental overwrites.

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- **Access Control:** S3 offers robust access control mechanisms, including access control lists (ACLs) and bucket policies, which allow you to define who can access your data and what actions they can perform.
- **Storage Classes:** S3 offers several storage classes optimized for different use cases, including Standard, Intelligent-Tiering, Standard-IA (Infrequent Access), One Zone-IA, Glacier, and Glacier Deep Archive. Each class is designed to provide the right balance of performance and cost efficiency for specific data access patterns.

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- **Data Lifecycle Management:** You can configure data lifecycle policies to automatically transition objects to different storage classes or delete them when they are no longer needed.
- **Static Website Hosting:** S3 can be used to host static websites by configuring a bucket for static website hosting. This is a cost-effective way to host websites that do not require server-side processing.
- **Data Analytics:** Amazon S3 serves as a foundation for building data lakes, enabling you to store and analyze large datasets using AWS services like Amazon Athena, AWS Glue, and Amazon Redshift Spectrum.

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- **Data Transfer Acceleration:** S3 Transfer Acceleration uses Amazon CloudFront's globally distributed edge locations to speed up data transfers to and from S3, particularly for large objects.
- **Cross-Region Replication:** You can configure cross-region replication to replicate objects from one S3 bucket to another in a different AWS region, providing disaster recovery and low-latency access to data.
- **Data Management:** Amazon S3 allows you to manage data through features such as folder creation, object tagging, and events that trigger actions based on changes to objects.

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- **Integration:** S3 seamlessly integrates with other AWS services and can be used as a data source or destination for services like AWS Lambda, Amazon EMR, and more.
- Amazon S3 is a versatile and foundational service for storing and managing data in the AWS cloud. It is widely used by organizations for backup and recovery, content distribution, big data analytics, data archiving, and as a cost-effective storage solution for a wide range of applications and workloads.