## **Types of S3 Storage Classes**

The different storage classes provided are:

* S3 Standard
* S3 Standard-IA
* S3 Intelligent-Tiering
* S3 One Zone-IA
* S3 Glacier
* S3 Glacier Deep Archive
* S3 Outposts

Let’s see the various storage classes in S3 and the key points of these classes.

### **S3 Standard**

S3 Standard is the default storage class if none of the storage class is specified during upload. It is ideal for frequently accessed data because it provides low latency and high availability. It has a wide range of use cases from cloud applications and web services, websites hosting, big data analytics, mobile gaming, and content distribution. It is the most expensive storage class among all others.

**Key Points:**

* High Availability and low latency
* Data is stored in multiple locations. So it is resilient against events that affect an entire **Availability Zone**
* The durability of 99.999999999% and availability of 99.99% availability over a given year
* Most expensive storage class among all others.

### **S3 Standard-IA**

S3 Standard-Infrequent Access is optimized for long-lived and less frequently accessed data but requires rapid access whenever required. Similar to S3 Standard, it also offers high durability, low latency, and high throughput but has a low per GB storage price and per GB retrieval fee. The S3 Standard-IA is ideal for backups, long-term storage, and as a data store for disaster recovery

**Key Points:**

* High Availability and Low Latency (Same as S3 Standard)
* Offers greater availability and resiliency than the OneZone-IA storage.
* The durability of 99.999999999% and availability of 99.99% availability over a given year
* Less expensive than S3 Standard storage but you will be charged a retrieval fee hence suitable for infrequently accessed data.

### **S3 Intelligent-Tiering**

S3 Intelligent-Tiering optimizes costs by automatically moving data to the most cost-effective access tier, without performance impact or operational overhead. It moves objects that have not been accessed for 30 consecutive days to the infrequent access tier. If the object is accessed then it is automatically moved back to the frequent access tier. No retrieval fees or additional tiering fees are using the S3 Intelligent-Tiering storage class. It is ideal for storing long-lived data where the access patterns are unknown.

**Key Points:**

* Low latency and high throughput performance
* Automatically moves the data between two access tiers. (Infrequent Access and Frequent Access)
* The durability of 99.999999999% and availability of 99.99% availability over a given year
* Small monthly monitoring and auto-tiering fee

### **S3 One Zone-IA**

S3 One Zone- Infrequent Access is for the data that is accessed less frequently but available for millisecond access. Since the other S3 storage class store data in a minimum of 3 Availability Zones (AZ), S3 One Zone-IA stores data in only one AZ which makes the costs 20% lesser than the S3 Standard-IA. It offers the same high durability, high throughput, and low latency. It can be considered as a good choice for storing secondary backup copies or easily re-creatable data if an AZ fails.

**Key Points:**

* Low Latency and High throughput performance
* The durability of 99.999999999% and availability of **99.5% availability** over a given year
* Data will be lost if the Availability Zone where the data is stored is destroyed.
* Suitable for larger objects greater than 128 KB kept for at least 30 days (charged minimum for 30 days)

### **S3 Glacier**

S3 Glacier is a low-cost storage class for data archiving where data access is infrequent. It provides a configurable retrieval time for the data from minutes to hours. This storage class uses a very low-cost Glacier storage service but the objects are still managed through S3.

**Key Points:**

* Low-cost design for long-term archiving
* Data will be available in case of entire Availability Zone destruction
* The durability of 99.999999999% and availability of 99.9% availability over a given year
* It has a minimum storage duration period of 90 days.

### **S3 Glacier Deep Archive**

The S3 Glacier Deep Archive provides the **lowest-cost storage** class and supports long-term retention and digital preservation for data that may be accessed only once or twice in a year. It is ideal for those industries which store data for 5-10 years or longer like healthcare, finance, etc. It can also be used for backup and disaster recovery.

**Key Points:**

* Lowest cost storage option in S3
* The durability of 99.999999999% and availability of 99.9% availability over a given year
* Retrieval costs can be reduced by using bulk retrieval
* It has a minimum storage duration period of 180 days

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### **S3 Outposts**

S3 on Outposts provides object storage to our on-premises AWS outposts environment. S3 on Outposts makes it easy to store, retrieve, secure, control access, tag, and report on the data. It is ideal for workloads with local data residency requirements, and to satisfy demanding performance needs by keeping data close to on-premises.

**Key Points:**

* S3 Object compatibility and bucket management is through S3 SDK
* For durable and redundant storage of data on Outposts
* S3 on Outposts will give users 48TB or 96TB of S3 storage capacity, with up 100 buckets on each Outpost.