1. **The differences between object storage and other distributed storage:**

**Data structure :**

* Object storage uses a flat structure with unique identifiers .
* Other distributed storage (such as distributed file systems) uses a hierarchical folder structure .

**Data access :**

* Object storage allows direct access by identifier .
* Other distributed storage requires navigating through a folder hierarchy .

**Flexibility :**

* Object storage supports various file types and sizes .
* Traditional file systems are more restrictive .

**Scalability :**

* Object storage scales easily to huge amounts .
* Other systems may have limited scalability .

**Advantages of object storage :**

* High scalability ( petabytes and above) .
* High availability thanks to replication across multiple servers .
* Cost savings on standard and inexpensive hardware .
* Flexibility in data types (images, videos, etc.) .
* Direct access by identifier without hierarchy .

**Disadvantages of object storage :**

* Complexity in development and integration (needs logic to manage objects) .
* Lower performance compared to direct storage .
* dependency (REST, S3-compatible).
* Difficulty switching between vendors (vendor lock-in).
* Compatibility problems between formats and protocols .

**Advantages of distributed storage systems :**

* Easy scalability by adding or removing nodes .
* Fault tolerance (failure at a node does not affect the rest) .
* Improving performance through load balancing .
* Remote access via network .
* Relative savings in hardware costs .

**Disadvantages of distributed storage systems :**

* High operational complexity .
* Dependence on a reliable and fast communications infrastructure .
* Security challenges due to data distribution .
* Initial setup costs are high .
* Higher latency compared to central systems .

1. **What is S3 ?**

Amazon S3 (Simple Storage Service) is a cloud storage service from AWS.   
Stores files as objects in buckets , with access via a web interface and API.   
Uses: Backups, archiving, static file storage, and more .

1. **What is a bucket?**

* A bucket is a container for storing objects in S3.
* Used for logical organization, without internal hierarchy .
* The bucket name must be unique within the AWS region.
* Buckets are associated with a specific geographic area .
* Advanced access permissions can be set .

1. **Are there folders in S 3?**

* No, the system is flat .
* Each object is identified by a unique key that replaces the need for folders .
* This structure allows for high scalability and availability .

1. **Are there size limits? How do they compare to a classic file system?**   
   Yes, there are size limits.

In Object Storage (like S3 ):

A single object can be up to 5 TB , but the standard upload is limited to 5 GB (it is recommended to use multipart upload for large files).

In Classic Filesystem :

Limitations depend on the file system (e.g. NTFS supports files up to 256 TB , while FAT32 is limited to 4 GB per file).

Comparison:

Object storage is suitable for very large files (especially in the cloud), but is less convenient for quick access than in a classic file system .

1. **Common applications of S 3:**

* Backup and storage of information .
* Distribution of static content (websites, media) .
* Big data analysis and data storage .
* Hosting static websites .
* Cloud application development .
* Disaster recovery plans .
* Long-term archival storage ( including Amazon Glacier).
* File version management .