

What is Block Storage?

Block storage is the oldest and simplest form of data storage. Here, data is stored in fixed-sized chunks called — you guessed it — “blocks.” By itself, a block typically only houses a portion of the data. The application makes SCSI calls to find the correct address of the blocks, then organizes them to form the complete file.

Because the data is piecemeal, the address is the only identifying part of a block — there is no metadata associated with blocks. This structure leads to faster performance when the application and storage are local, but can lead to more latency the further apart they are.

The granular control that block storage offers makes it an ideal fit for applications that require high performance, such as transactional or database applications.

The Difference Between Object and Block Storage

Compared to block storage, object storage is much newer. With object storage, data is bundled with customizable metadata tags and a unique identifier to form objects. Objects are stored in a flat address space and there is no limit to the number of objects stored, making it much easier to scale out.

The metadata tags are a key advantage with object storage — they allow for much better identification and classification of data. You can think of objects as being self-describing: They have descriptive labels assigned by the user or application that writes the object. Using a search application you can easily search for a specific object, even if the data itself is not easily searched (such as an image, or media clip, or data set).

Search capabilities and unlimited scale make object storage ideal for unstructured data, a classification that is currently expected to hit 44 zettabytes by 2020. Object storage is the only option that can effectively store this data at scale.

	OBJECT STORAGE	BLOCK STORAGE
PERFORMANCE	Performs best for big content and high stream throughput	Strong performance with database and transactional data
GEOGRAPHY	Data can be stored across multiple regions	The further the distance between storage and application, the higher the latency
SCALABILITY	Can scale infinitely to petabytes and beyond	Addressing requirements limit scalability
ANALYTICS	Customizable metadata allows data to be easily organized and retrieved	No metadata

The table above provides a side-by-side comparison.

This is a brief, high-level look at the differences between object storage and block storage. Block storage has many uses within enterprises, but object storage is best equipped to handle the explosive growth of unstructured data.

Object Storage vs File Storage

Object storage has only been around since the mid-90s. At the relatively new kid to the storage block, there can be some confusion as to how it differs from more traditional storage systems, such as block or file storage.

A Primer on File Storage

This system works hand in glove with when you're pushing smaller files, but does experience some issues when entering large amounts of data. However, once you get going, it becomes much easier to find information, especially if there isn't a standard file-naming convention that everybody adheres to. At the same time, because the files have unique addresses, there is a finite number of files you can store.

When it comes to sharing files on a file storage system, users typically turn to network-attached storage (NAS). This is great for sharing locally, but may result in issues when trying to share files over a wide area network (WAN).

So What is Object Storage?

Object storage essentially bundles the data itself along with metadata tags and a unique identifier. The metadata is customizable, which means you can track a lot more identifying information for each piece of data. These objects are stored in a flat address space, which makes it easier to locate and retrieve your data across regions.

This flat address space also helps with scalability. By storing objects in additional nodes, you can scale to petabytes and beyond.

You can learn more about object storage by watching the video below:

The Difference Between Object and File Storage

Now that you have the basics of both object and file storage, let's look at some of the key differences separating the two.

To start, object storage overcomes many of the limitations that file storage has. Think of file storage as a warehouse. When you find a box of files in there, it seems like you have plenty of blocks. But as your data needs grow, you'll fill up the warehouse to capacity before you know it. Object storage, on the other hand, is like the warehouse except with no roof. You can keep adding data indefinitely — this is the best.

If you're primarily retrieving smaller or individual files, though, then file storage shines with performance, especially with regularly sized amounts of data. Once you start scaling, though, you may start wondering, "How am I going to find the file I need?"

In this case, you can think of object storage as using parking when file storage is more like car-pooling. Sure, another strategy, but bear with me. When you call your car into a small lot, you know exactly where your car is. However, things that fit into a "Parking Garage" — it's better to find your car, right?

Because object storage has customizable metadata and all the objects live in a flat address space, it's similar to handing your keys over to a valet. Your car can

Object Storage vs File Storage

Find out how object storage differs from file storage.

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