

## TYPES OF CLOUD STORAGE

	Direct Attached	File Storage	Block Storage	Object Storage
<b>Features</b>	<ul style="list-style-type: none"> <li>○ It is attached directly to a computer without network usage.</li> <li>○ In SSD or HDD</li> </ul>	<ul style="list-style-type: none"> <li>○ Data is stored in files with extensions according to the type of the file.</li> <li>○ Hierarchical structure</li> <li>○ Accessible with file name and path</li> </ul>	<ul style="list-style-type: none"> <li>○ Data is divided into blocks with unique identifiers.</li> <li>○ Blocks can be stored in different OSs.</li> </ul>	<ul style="list-style-type: none"> <li>○ Objects with the identifier, data, and metadata</li> <li>○ API is used to access objects</li> </ul>
<b>+</b>	<ul style="list-style-type: none"> <li>• Fastest</li> <li>• Easy setup (plug &amp; play)</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to access if the file system is relatively small.</li> <li>• Familiar to users</li> <li>• Simple interface</li> <li>• Easy to set access rights</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to modify unlike object storage</li> <li>• Faster than file and object storage</li> </ul>	<ul style="list-style-type: none"> <li>• Easy to retrieve data using metadata</li> <li>• Purchase only for the storage you need unlike the file storage</li> <li>• Good for unstructured data</li> </ul>
<b>-</b>	<ul style="list-style-type: none"> <li>○ Only one person at a time can use the data.</li> <li>○ Data is not sharable.</li> </ul>	<ul style="list-style-type: none"> <li>○ Challenging to manage when the number of files is large</li> <li>○ Expensive (extra hardware is needed for storage)</li> </ul>	<ul style="list-style-type: none"> <li>○ Hard to search if the blocks have large volumes</li> <li>○ No metadata</li> </ul>	<ul style="list-style-type: none"> <li>○ No locks unlike file and block storage</li> <li>○ Slowest among the storage types</li> <li>○ You cannot change the object after it is created</li> </ul>
<b>Use Cases</b>		<ul style="list-style-type: none"> <li>• Archiving</li> <li>• Storage requiring data protection</li> </ul>	<ul style="list-style-type: none"> <li>• Databases</li> <li>• Business applications for being reliable and fast</li> </ul>	<ul style="list-style-type: none"> <li>• Storing video recordings</li> <li>• Backup &amp; recovery (slowness does not matter here)</li> </ul>

Reference

<https://www.ibm.com/cloud/blog/object-vs-file-vs-block-storage>

<https://www.backblaze.com/blog/object-file-block-storage-guide/>

Lecture 2 Slides