

Directory Contents

Introduction

The top level directory chunk contains tests performed with the archiving system, while the directory normal contains tests that uploading the files one-to-one to the provider. The tests are again separated into directories with names indicating the specific implementation. These folder contain at least two images:

1. **upload_rates.pdf**: Displays the upload rate of CloudFusion with a resolution of about one minute. The upload rates are the raw upload of the specific data by CloudFusion without overhead, measured through the statistic file interface, comparing the amount of uploaded data each minute.
2. **internal_upload_rates.pdf**: Displays the average internal upload rate from the start of the CloudFusion instance. More precisely, the internal upload rate is the upload rate measured while at least one upload worker process is active.

Each image is a graph with lines through the measured points. Each line is described by a tuple with the name of the folder containing the measurements, and the size in KB of the files that were uploaded during this test.

chunk/slowdown_laptop:

Upload rate writing 1 MB files to Tonline webdav account. The upload rate fluctuates around an average upload rate of 2.1 MBps with a minimum of 0 up to a maximum of 4.9 MBps. Standard deviation is around 1.1 MBps.

normal/sugarsync:

On the more powerful computer, testing the sugarsync implementation by writing 10 KB files shows a similar upload rate trend as the test with webdav on the laptop. Though we suspect that this behaviour might be influenced by the specific implementation. During the test, several gigabytes of data were downloaded. For reference, the file ifstat_out shows the up and download rates per second. The cause of this misbehaviour still needs to be researched. Still, the similar upload rate trend is a first indication that the hardware is not the reason for this behaviour.

normal/local1:

To see how CloudFusion performs without network issues, the same tests are performed with a local webdav server at the laptop. The throughput does deteriorate over time.

normal/dropbox1 and normal/dropbox2

Again on the more powerful computer, the results show different file sizes (10, 100, 1000, 10000). An increase file size leads to higher throughput. Also, the deviation for small files seems to be higher. In case of the 10 KB files, the throughput seems stable, but after about 30 minutes, the deviation slowly increases. This might be due to the synchronization thread catching up with the thread writing files to the local file system.

normal/webdav2

To show the difference of using bigger files with another provider, 1 MB and 10 MB files are uploaded to T-Online on the fast computer.

normal/local2:

By adapting the amount of time the synchronization thread waits between cycles, so that it stays the same even though the cycle itself takes longer to complete, the upload rate is stabilized, as well.

normal/small_cache

In the meantime, another local test on the fast computer is performed, trying to decrease the amount of files in the data cache by reducing the initial waiting time before files are uploaded from four to one minute. This waiting time is determined by the cache expiration time. Also, the cache size is reduced from 200 MB to 1 MB, though this is only the soft cache limit which means that more data can still be written to the cache, but as soon as it is synchronized to the storage provider it will be deleted (after waiting for the complete cache expiration time again, to account for eventual consistency). The writer thread is stopped after 30 minutes to see the effect of a decreasing cache size, though unexpectedly, the upload rate only increases for a few minutes and then decreases again.