CS550 Performance results Document (PA#3)

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Transfer rate

I have tried to send a file of 400 Mo over WiFi to another peer.

The transfer rate is approximately 3 Mo/s between two peers.
The transfer rate between two peers on the same computer is approximately 100 Mo/s.

Invalid query results

PUSH approach

In the push approach and on local machine, the average time that a file remains invalid (without taking into account the downloading time) is **less than 2ms.**

There is no need to draw a graph, as in this approach, when a file is invalidate it is almost immediately re-downloaded by all peers. Of course, during the download time the file is not valid but we can't draw conclusions based on this because the download time depends on too many criteria (file size, response times, bandwidths, …).

We can conclude than in the push approach the percentage of invalid files tends to 0%.

PULL approach

In the pull approach we have tested 4 clients on a local machine. 1 peer do modifications at a particular rate. We have compute the percentage of invalid requests with different parameters and draw the following chart :

Invalid queries
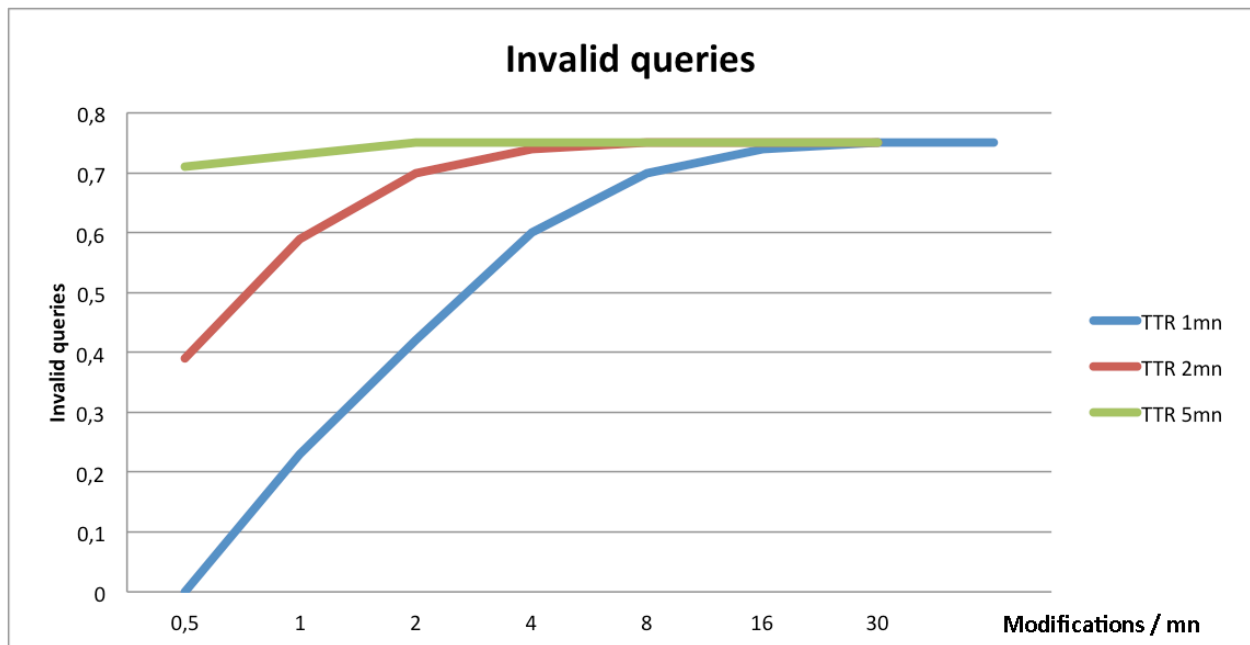
We can see that in this approach the number of invalid files on the network is very high. However the number of invalid requests on the network is really smaller than in the PUSH approach and the bandwidth "consumed" too.

Comparison of PUSH and PULL approaches

The push approach is more consistent than the pull one. A file that becomes invalid is "immediately recovered" whereas in the pull approach it takes time for a peer to get the new version of a file.

The pull approach is more efficient in term of bandwidth consumption than the push one for several reasons. First of all because if a file is invalidated multiple times in a row, depending on the ttr of course, peers will re-download this file only when the file becomes expired and not every time the file is invalidated as in the push approach. Moreover, in the pull approach the peer contacts directly the owner of the file and

obtains the "answer" after one request, whereas in the push approach when a file is invalidated the invalidate message is broadcasted to all neighbors even if they don't own the file.

We can conclude that for a large network which must be fast, the pull approach is more appropriate whereas for a network that requires files to be always up-to-date the push one is more suitable.