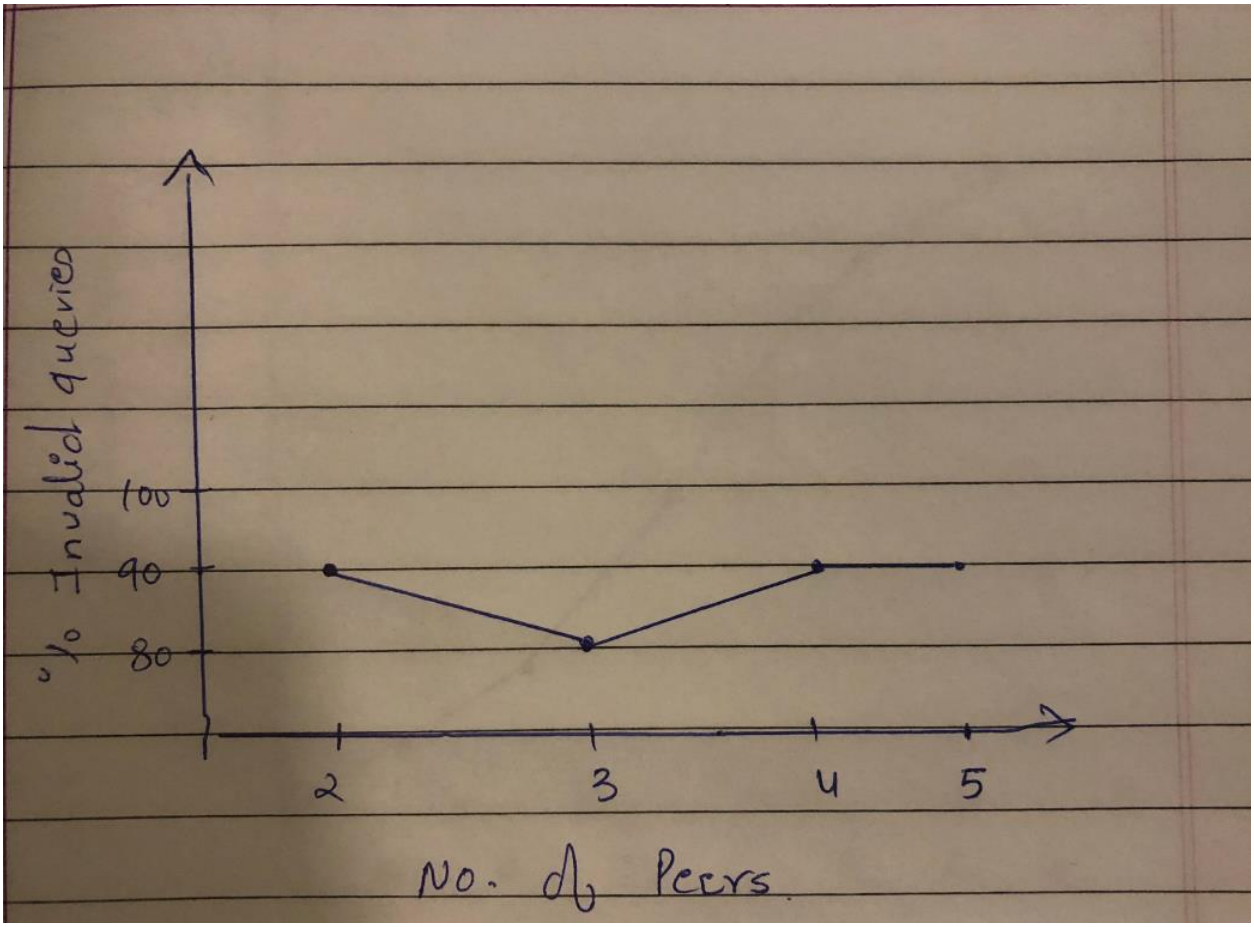
1. Push based approach:

As the push-based approach moves quickly and just propagates to all peers irrespective of where they have the file or not.

Below are its performance evaluation results:



2.In pull-based approach the more the time to refresh the % of invalid queries increase , as the file is already modified but not reflected in the corresponding peers.

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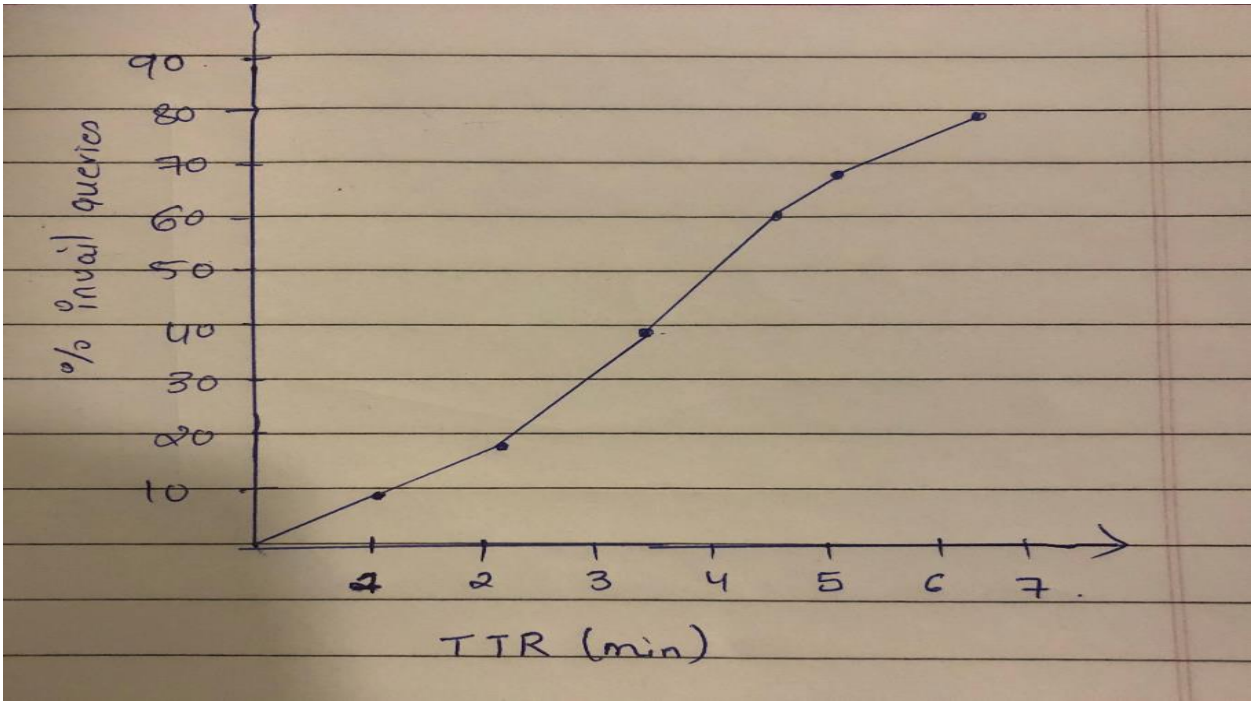

3.

Compare the PULL and PUSH approach. List their advantages, disadvantages, and applicability respectively.

Push :

Advantages

1. IT propagates faster as it does not check if the peer has the file or not thus ,just keep sending messages.
2. It does not wait for the peer to respond , thus making independent of the peer nodes.
3. It takes advantage of underlying technology like RMI.
4. Easy and simple and stateless.

Disadvantage

1. It will get stuck if have huge number of super-peer and peers, as many of the invalidate messages will be send even if the peer does not have the file.
2. If the network fails or if we have bandwidth issues this method is inefficient.

Applicability:

If we have a small network and defined no of files and the frequency of change in file is less.

Pull

Advantages

1. It uses the mechanism very efficiently where the file has fixed time in which I can be refreshed.
2. Quite efficient if we have huge no of peers and super-peers as message will send only if the file has expired.
3. Have a good consistency mechanism.

Disadvantage:

1. The efficiency really depends on how the file get updated, if the there is inaccuracy in the refresh time of files this mechanism will have huge overheads.
2. It isn't easy to implement.
3. Various factor dependent , if any one fails the entire thing crashes.

Applicability:

Can be used in huge systems , when we know how frequent the files are modified.