# 1. Evaluation and Measurement of 2nd Assignment

As described in the problem, 10 peers that has varying size of files were deployed for measuring.

1) A star topology

Testing condition: the 5th peer is the center of topology and every other peers has the only neighbor that is 5th peer (1st peer's neighbor is 5th peer, 2nd peer's neighbor is 5th peer, ... 10th peer's neighbor is 5th peer).
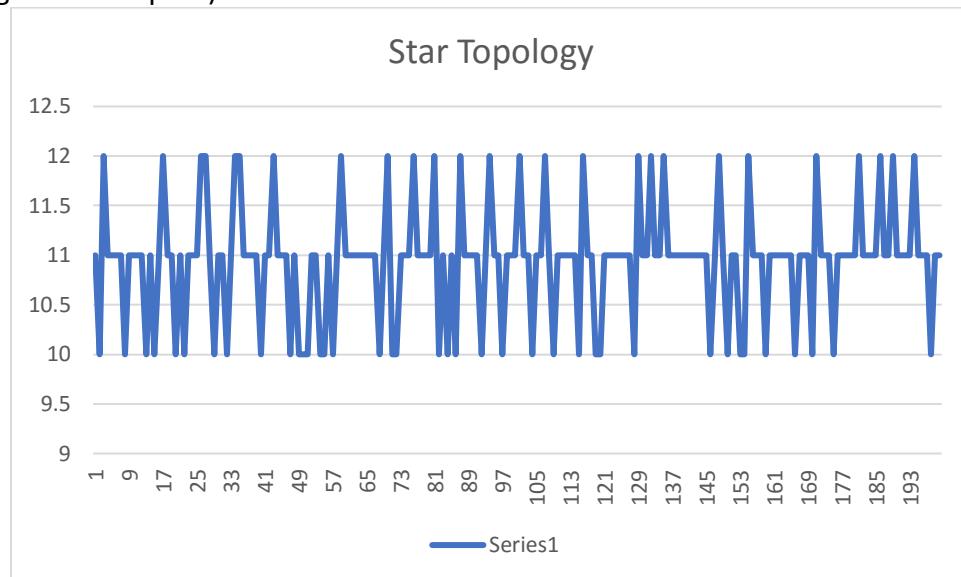

Test result: regardless of the sender peer or the peer that has the request file, it always makes consistent result. It is due to the fact that the TTL is fixed and broadcasting is processed until the TTL expires. Since purpose of distributing the task into multiple node is prevent the situation like this, the star topology is not proper for this kind of program.

2) A linear topology

Testing condition: in the linear topology, the peers are connected each other linearly.

$$(1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10)$$

So, the neighbor of 1 is 2, the neighbor of 2 is 1 and 3 and so on. And 1st peer invoke query to find the file that is located at 4th peer.

Linear Topology
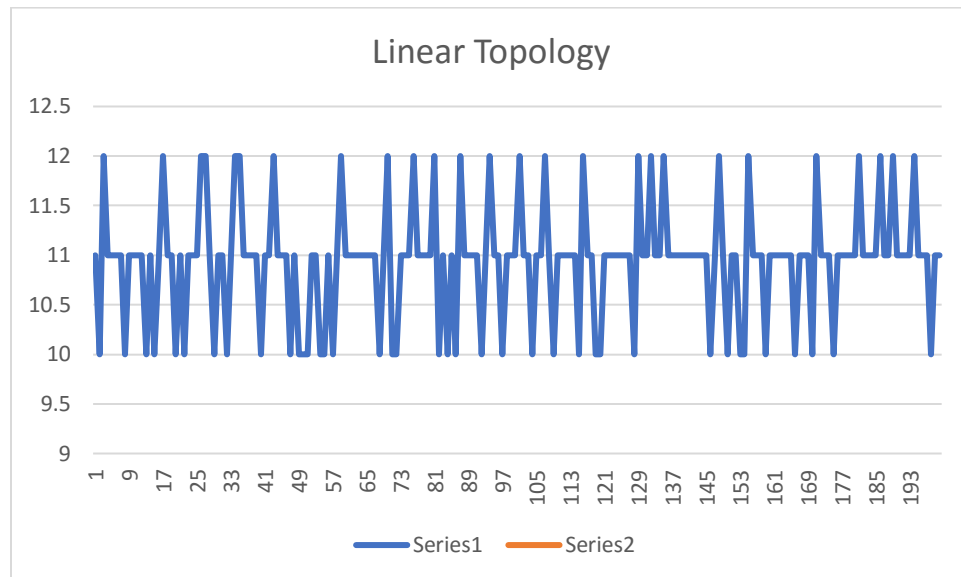
Blue line indicates that the time taken for searching a file located at 4th peer from 1st peer and Orange line indicates that the time taken for searching a file located at 3rd peer from 1st peer. As seen in the graph above, we can conclude that the distance is proportional to the time to get a result of invoking query.

2. Compare to 1st Assignment

From the 1st Assignment we could see that the more request to indexing server from client, the more time was taken for indexing server to response to the requests even though there were very little number of clients. In contrast, 2nd Assignment showed that the distributed work reduced the overloading of central indexing server and improved consistent performance.