

METHODS (ALGORITHMS)

Dynamic Search Algorithm:

The performance of a peer-to-peer (P2P) unstructured network is observed by applying the search algorithms which is critical considerably. As the entire nodes present in such kind of network do not have the overall information of the network topology and the queried resources location. So only the network depends on a search algorithm for the locating queried resource and then the routing of message to its target node can be performed. Therefore the search issue is divided into two types namely: Depth First Search Algorithm and Breadth First Search Algorithm.

Depth First Search Algorithm:

Based on this kind of algorithm the Random Walk (RW), efficient search algorithm is produced. In the RW algorithm, a single query message is sent by the query source to any one present in its neighbourhood. The query message indeed is referred to as a Walker. If the neighbour to which the Walker is sent does not have a query source on its own, then the message is moved to the other neighbour present in the neighbourhood for the further process to get continued. This kind of process performed reduces the cost as the message is not stopped anywhere in the middle which could be considered as an advantage. It also has a disadvantage is the search time taken in finding a target by this algorithm is much. The time taken is more as one hop is taken to visit a node making the count of hops increase linearly with it. And also the query success rate in RW is low due to it. The redundant path and degree of link limits the improvement of success rate and search time as the walker's number gets increased.

Breadth First Search Algorithm: Flooding is one of the BFS based algorithm which is a default search performed on the Gnutella network. The query message is sent to all of the neighbours present in the network by the queried source. As a node receives the message it first verifies itself whether it has a query source if it results in yes, then the query

source receives a response message indicating the query hit. If else the query message is sent to the all the other neighbours except to the one the message came from. The disadvantage that can be considered is query cost. Even though the source of query is scarce the production of query messages continues.