Team Member

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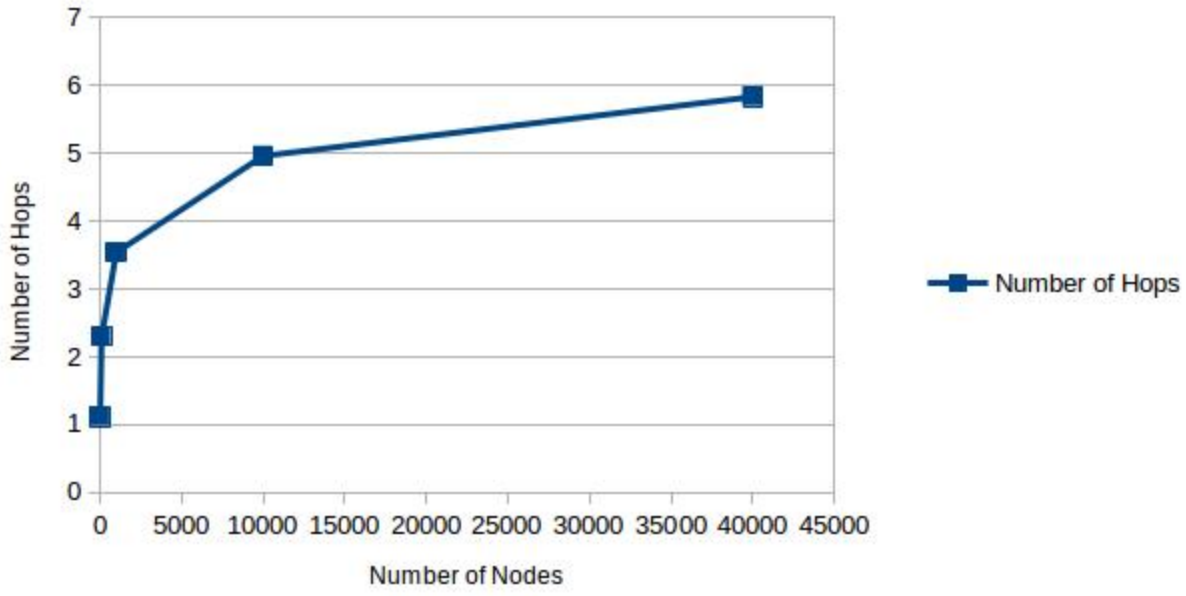
How To Run -

1) cd Project3
   sbt ' run numNodes NumRequest'

Similarly for Bonus Part

2) cd Project3Bonus
   sbt 'run numNodes NumRequest Numfailure'

Graph Between Number of Nodes and Number of Hops



Largest Network

We have tried it for maximum 1,000,00 nodes

Failure Handling -

Number of failed nodes can be specified as a parameter of the command line. All failures will be c generated after the join of the whole network. All other functions works as before.
Dead node can be either in leafset or Routing table

To update the LEAFSETs, the nodes in the LEAFSETs of every dead node will filter out the dead nodes' ID after detection of the failures. Then we need to replace the LEAFSETs with new alive node To do this, the node that needs to replace its LEAFSET will ask the farthest node that lies in the side of the dead node (either larger LEAFSET or less LEAFSET).

To update the ROUTING TABLES, the nodes that have the dead IDs already stored in their ROUTING TABLEs will first filter out the dead ID. Then they will ask the nodes with IDs that are CLOSE to the IDs of the dead nodes. These CLOSE nodes typically lie in the positions that are near the dead nodes.

In this system with failures will have some hops increased. But the reaching destination is guaranteed.