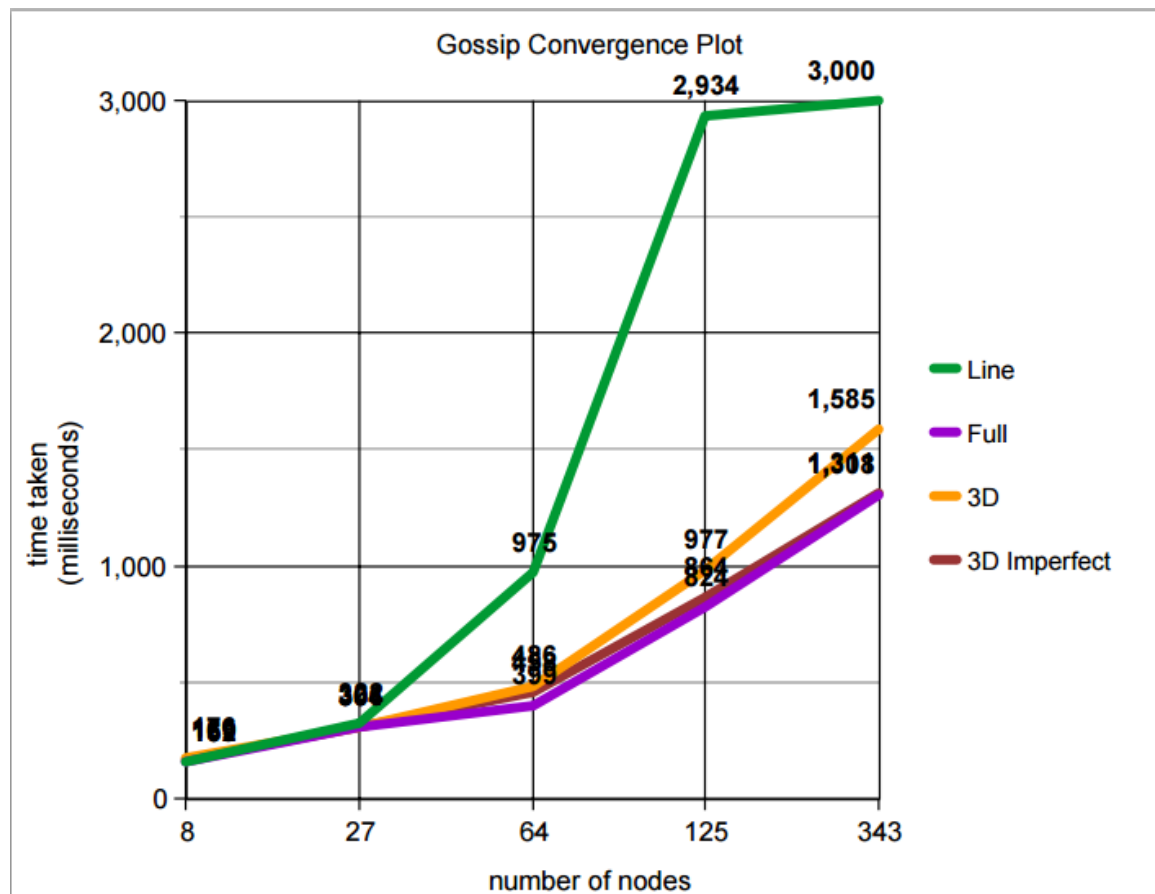# Gossip Protocol Implementation

1 GOSSIP PROTOCOL(RUMOUR)

Gossip protocol implementation was more scalable than pushsum because of the flexible constraints for the convergence i.e if the rumor is heard by an actor for more than 10 times it stops spreading rumors to its neighbors.

The gossip protocol converges most successfully for Full and 3-d imperfect topologies as can be seen in the graph.

The line protocol convergence is really tough to achieve owing to the less number of neighbors .Things become especially tricky when the nodes just before the end nodes converge before the end points converge.

The imperfect 3d topology behaves very much like Full topology for higher number of nodes when it comes to gossip. The 3-d imperfect structure though not as well connected as full topology certainly provides a more structured flooding of messages than full topology in which the messages sent may get timed out due to the high traffic in the real world scenario.

2 PUSH SUM PROTOCOL IMPLEMENTATION

Push sum belongs to the class of randomized algorithm problems. Its behavior very much explains the nature of gossip protocol.

Full topology is the most efficient for Push Sum protocol. As evident for the graph .Though total convergence is not as evident as it was for Gossip protocol. Here too 3D imperfect topology performs the second best even for higher numbers. As the processing overhead for this implementation is more than gossip protocol(rumor) less number of messages and hence Full topology wins over every other topology.