

# Bonus Project Report

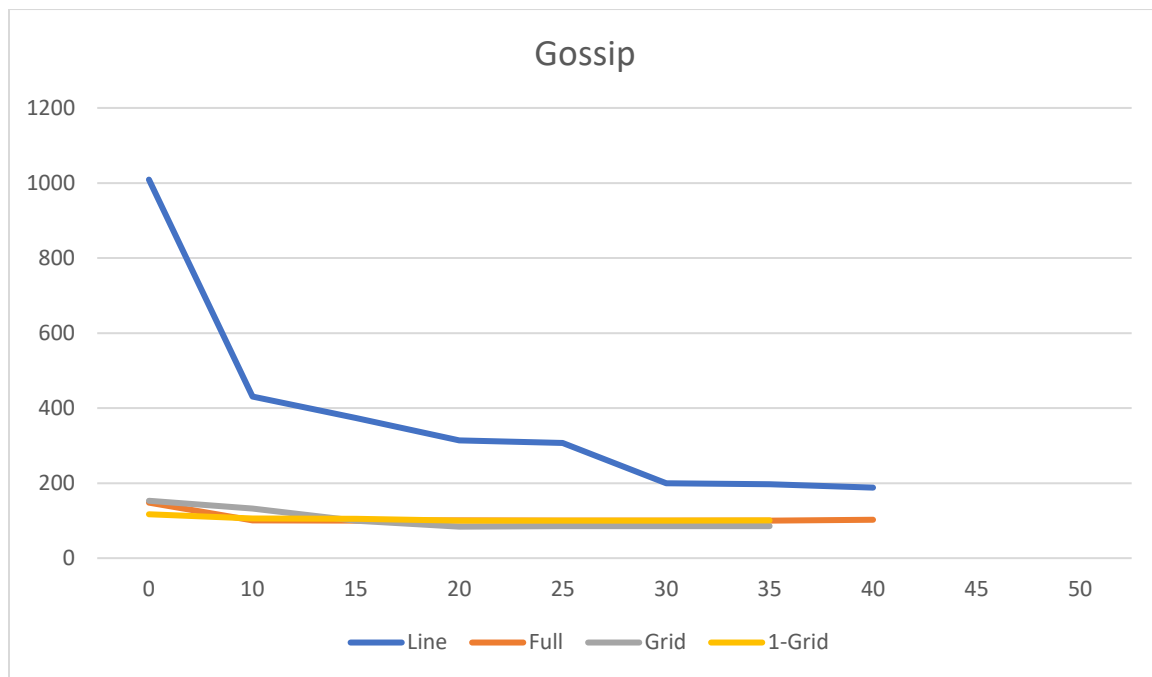
Name: Mohit Israni

Name: Amit Kshirsagar

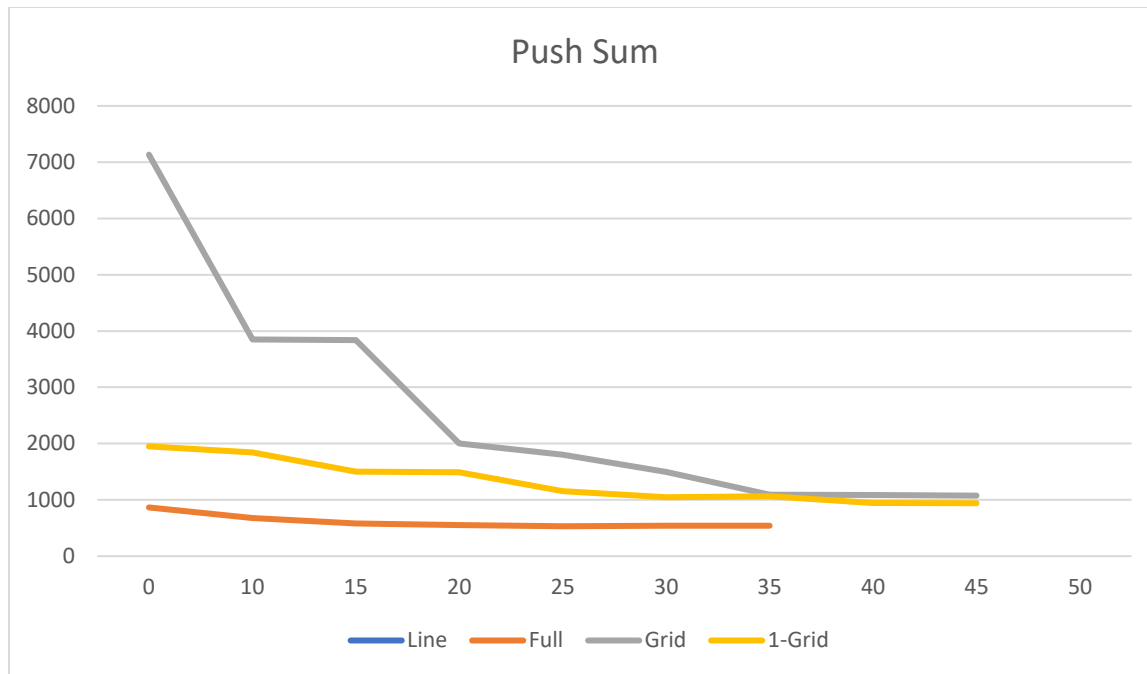
UFID: 43384979

UFID: 60032559

For failure findings we tested all the topologies with both the algorithms. We incrementally increased the percentage of failure nodes and tested the converge. We handled the failed node by preemptively checking whether the current node is active or failed. If the node is inactive then it again obtains a random neighbor to substitute the failed node. Below are the graphs for both algorithms and all topologies. The working of it can be found in readme file.



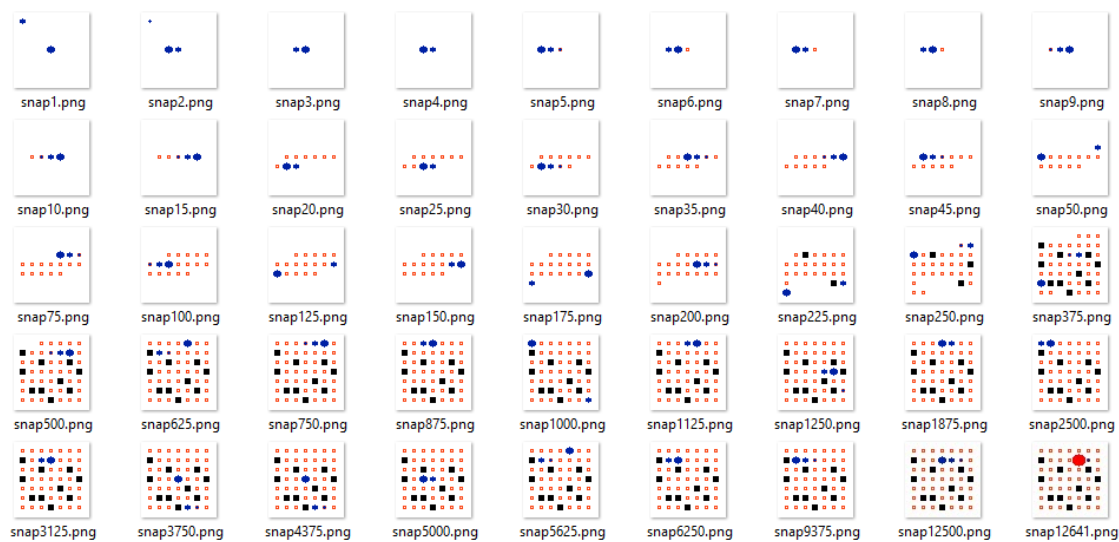
Gossip Protocol for Failed nodes with 100 Nodes



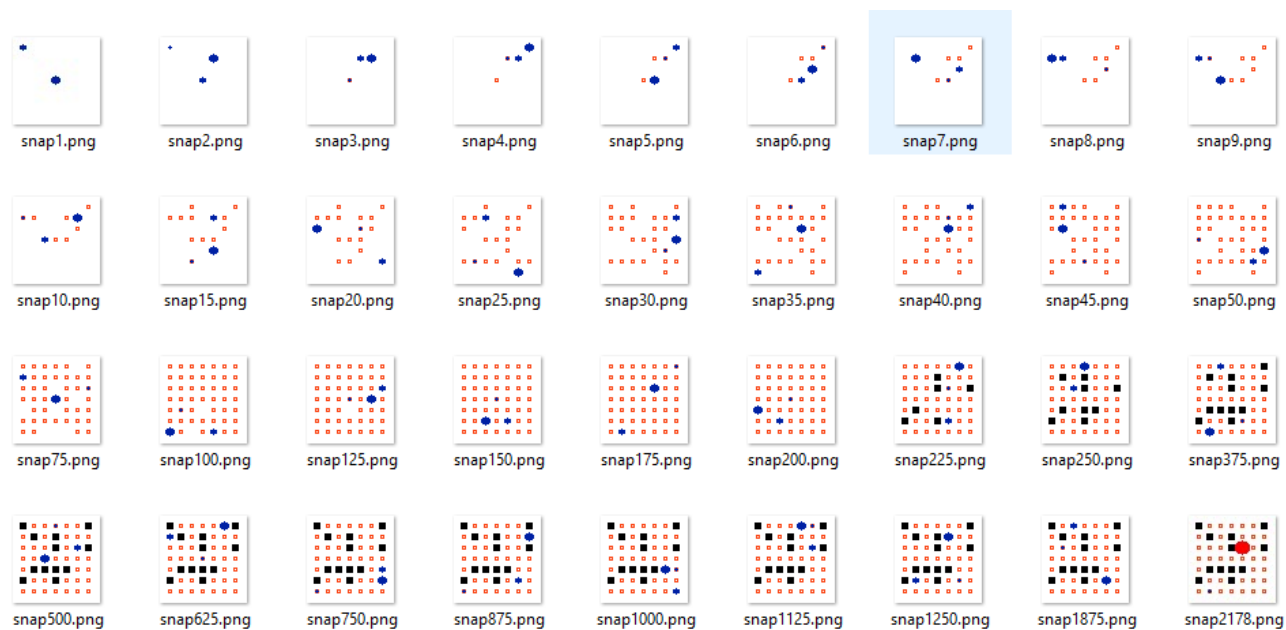
Push Sum protocol for failure nodes with number of nodes 100

X axis denotes the percentage of failed nodes while the y axis denotes the convergence time. We observe that as the failed nodes increases the converge time time becomes constant for that topology. That is as the failure percentage increases the time reaches a constant value.

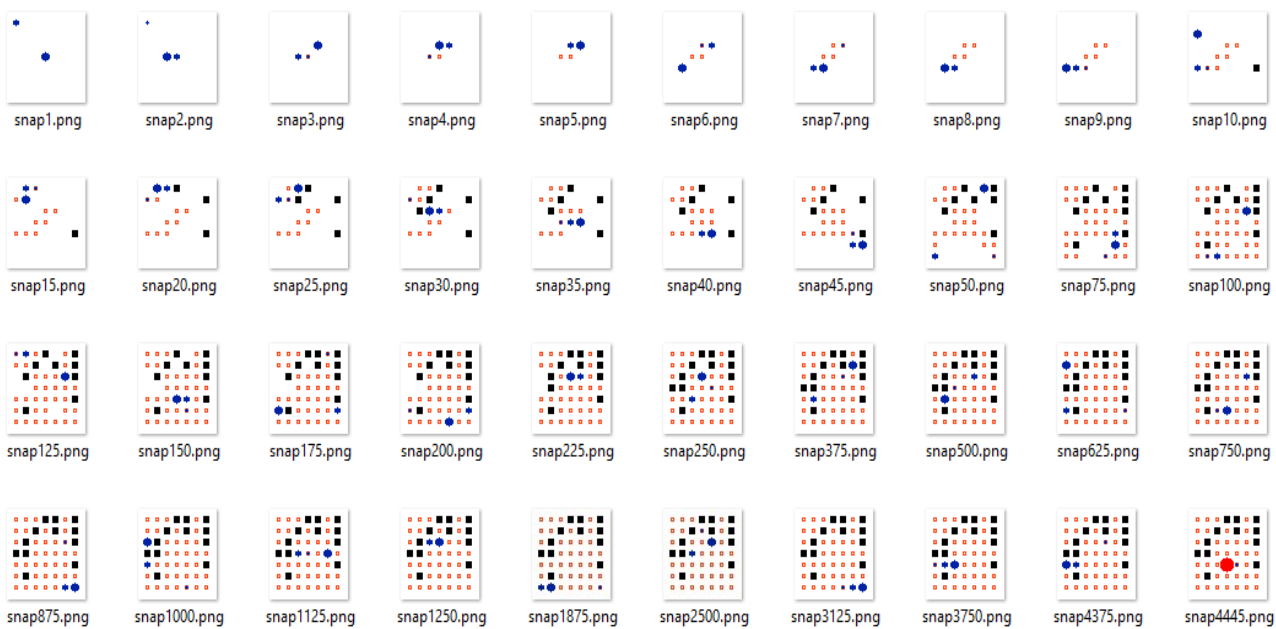
Below is the visualization for Failure node. Red dot indicates the convergence point while the black dots indicates the failed nodes and the blue dot indicates the message propogation direction.



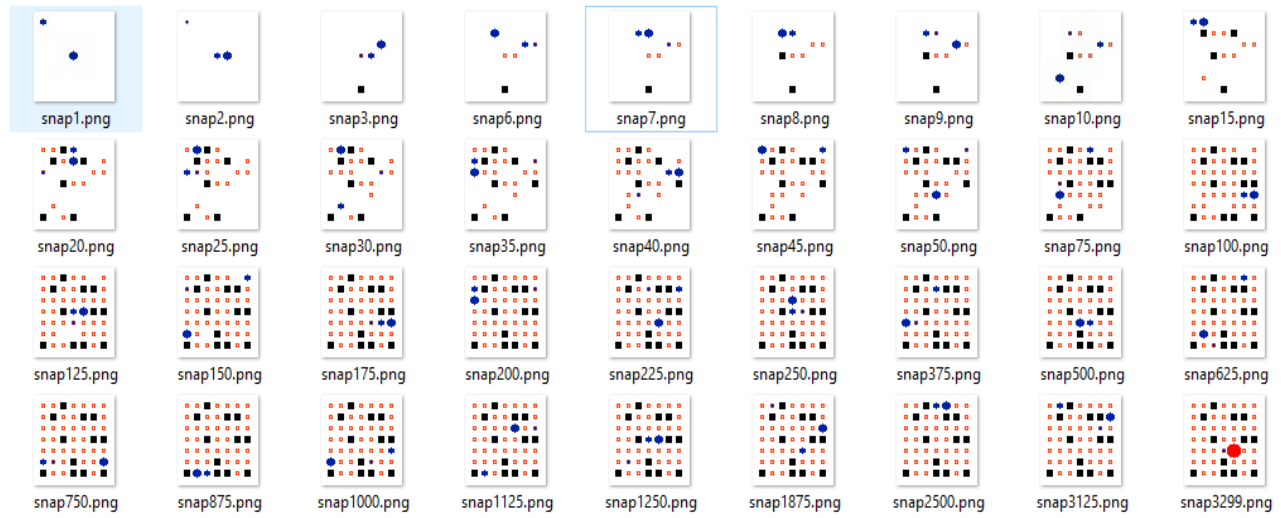
Line Topology



Full network



Grid Network



Imperfect Grid