

1. Group members

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2. How to run the code

Steps:

1. Enter root folder (project2_bonus).
2. using commend: **mix escript.build**
3. type commend as: **escript project2 num_node topology algorithm num_failNode**

3. Way to perform failure model

When a node dies, a connection will die permanently.

Gossip: if one node is failed, it can receive rumor from its neighbor but cannot send rumor out. Notice that if the first node is failed, the program will shut down immediately. So I make the first node never be selected as a fail node.

Push_sum: if one node is failed, it will neither receive nor send s and w anymore.

4. Experiment

Gossip:

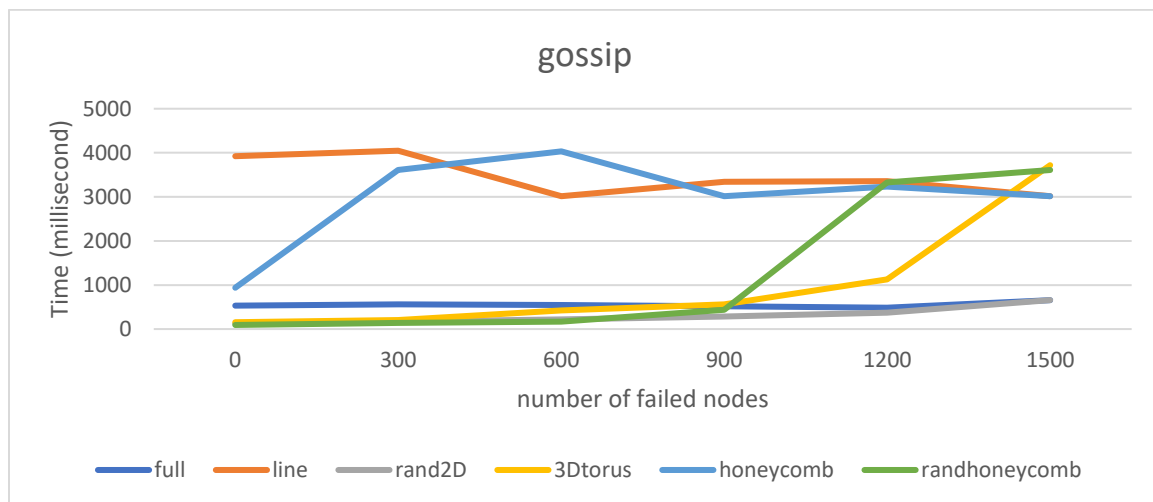
node number: 2000

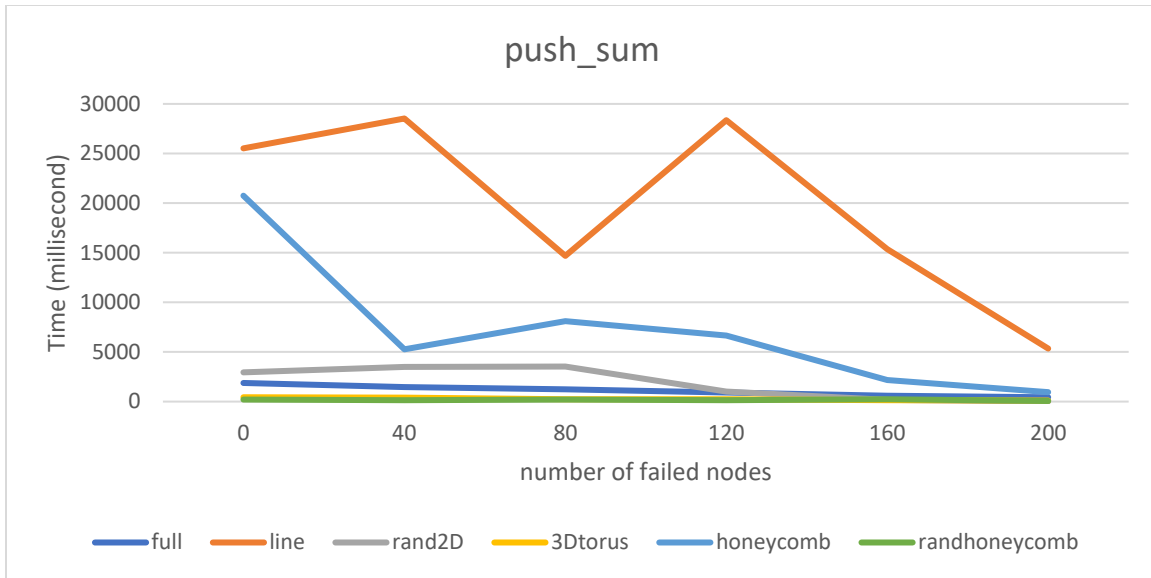
fail node numbers: 0, 300,600,900,1200,1500

Push_sum:

node number: 300

fail node numbers: 0, 40,80,120,160,200





5. Observation

Gossip:

Number of failed nodes will have little impact on full, line and rand2D topologies. Have great impact to honeycomb. For randhoneycomb and 3Dtorus, number of failed nodes will have little impact when number of fail node is small. Then time cost increase rapidly when unreachable node appears (number of fail node grow bigger)

Push_sum:

Failure model will decrease the time cost of push_sum algorithm to converge. Number of failed nodes will have great impact on line and honeycomb topologies