Gossip Simulator

COP5615 – Distributed Operating Systems

Submitted By

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Failure Model

For this model, we capture the no: of failure nodes from the user and then build a network of nodes. While making the connection, we have picked a random node and started building the network from there. In the same way, we check if the randomly picked node is alive and if it isn't, we choose another node and proceed with building the topology.
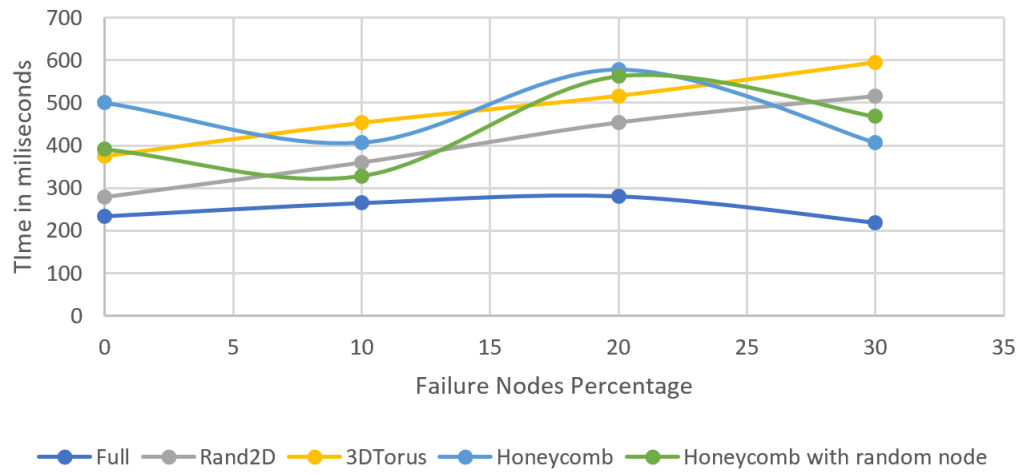
Observations

Line never converges irrespective of the number of nodes removed from the network. As per the topology, even if one node is removed, connection breaks and message never reaches the consecutive nodes and hence convergence is never achieved.

For all other topologies, convergence has been achieved. Time taken varies in each case and doesn't follow a constant pattern in rand2D and randhoneycomb as connections are made randomly and not the same nodes are killed every time, so it varies significantly.

Irrespective of the number of nodes removed, convergence has always been achieved for all the topologies except for line as there is at least some sort of connectivity among the nodes for the other topologies.

Pushsum takes more time to converge when compared to gossip algorithm as with the failure of nodes in between, it takes longer time to reach the convergence.

Results

Gossip

Push-Sum Algorithm