Report – Gossip Simulator

Team members

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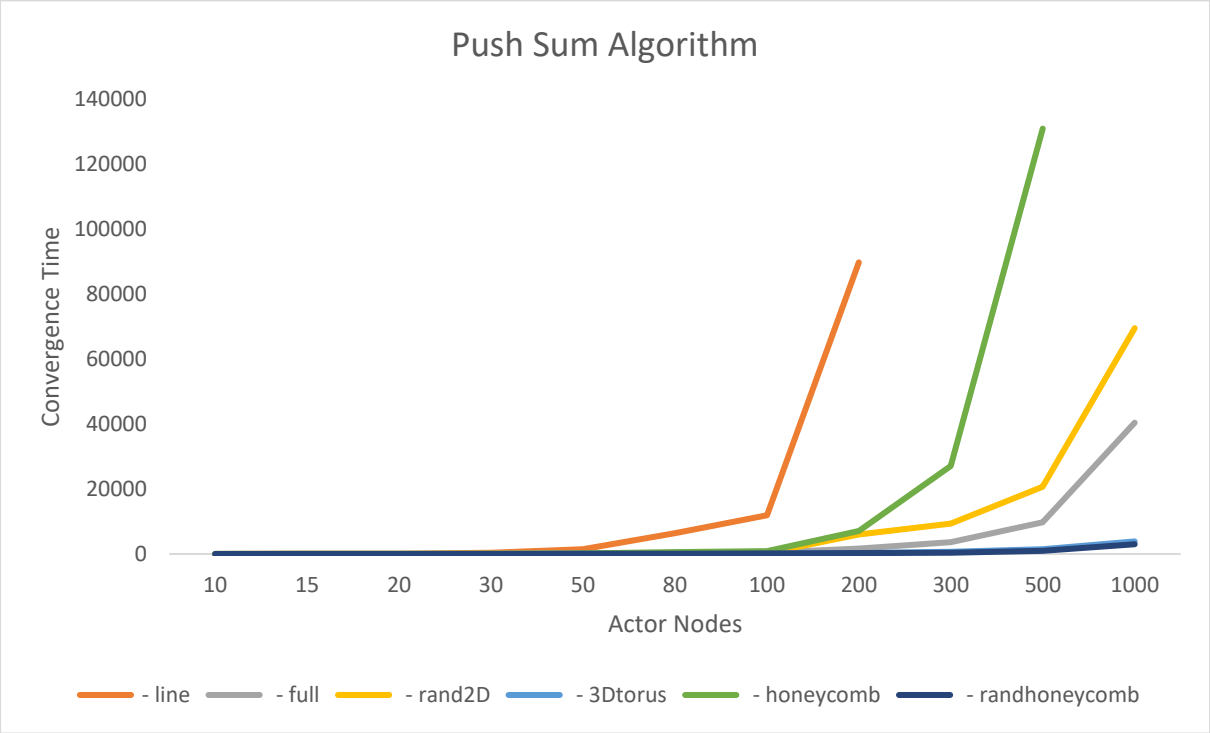
Objective – Building a gossip simulator for push-sum and gossip algorithms for the following topologies

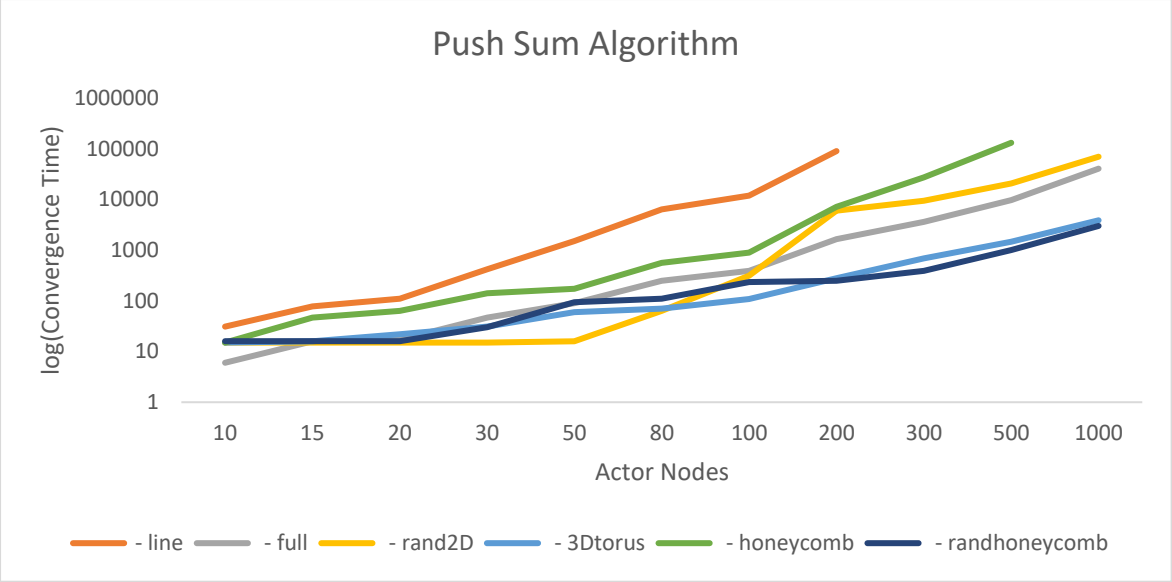
- line
- full
- rand2D
- 3Dtorus
- honeycomb
- randhoneycomb

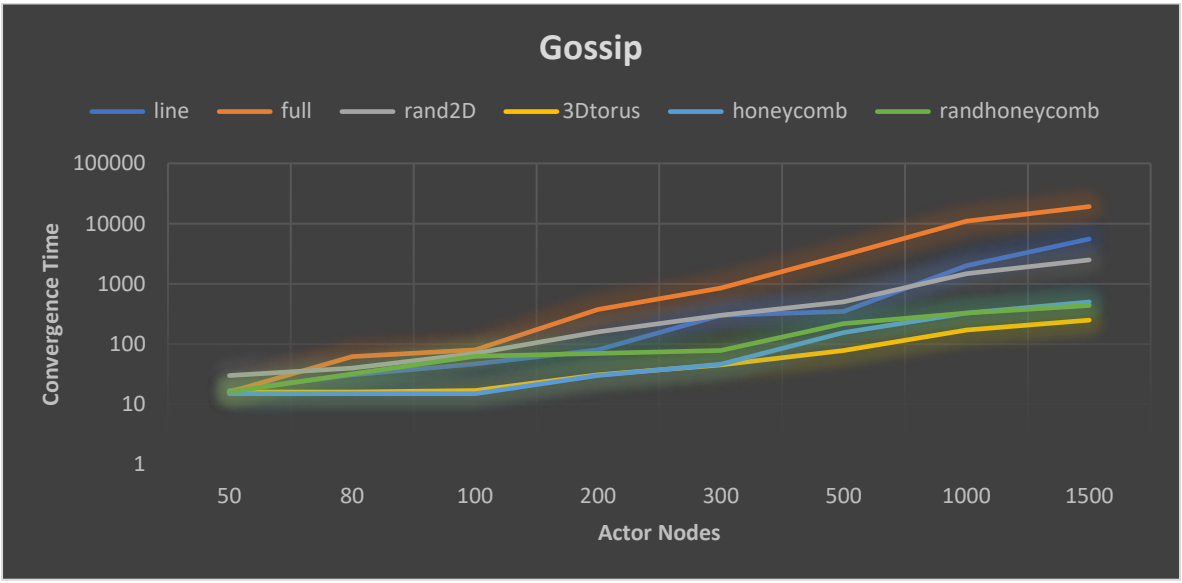
Convergence Criteria:

Messages are sent asynchronously between actors. The convergence criteria is reached when all of the actors get terminated. We observed that more the number of neighbours of an actor, the faster the convergence time. This is because the messages get propagated faster when there are more neighbours, and the termination condition (for either algorithm) is reached sooner.

Given below are a few graphs of the comparison of how the topologies affect the convergence time, for the algorithms that we implemented.







We note that randHoneyComb, 3Dtorus and honeycomb perform way better than the other topologies because they are very well connected to each other. The maximum number of nodes that can be handled depends on the system limit for the number of processes that can be created.