

Rashmi Paliwal ReadMe

Scala Gossip Project ReadMe and Report File

Team Member: Rashmi Paliwal (Individual)

What is working:

1. Topology

- A. Line
- B. Full
- C. 3D
- D. improper3D

2. Algorithm

- A. Gossip
- B. Pushsum

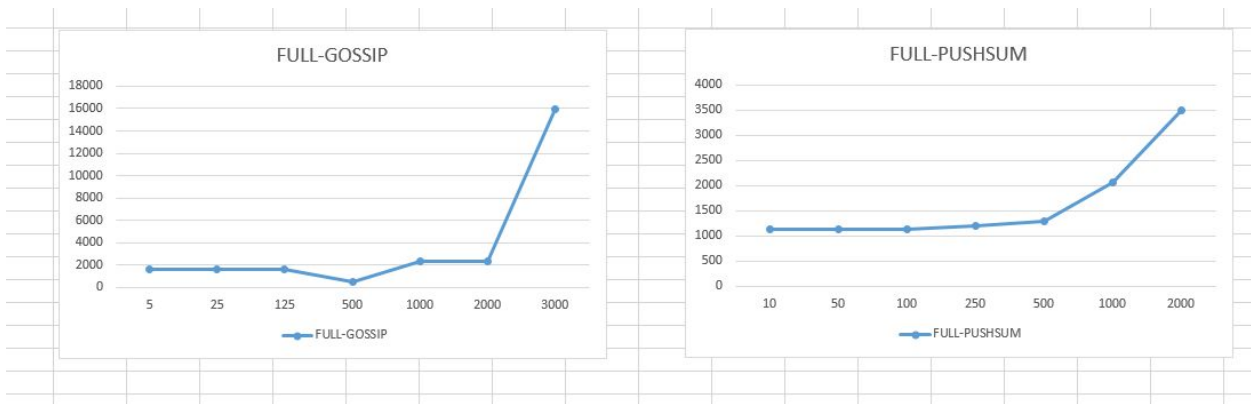
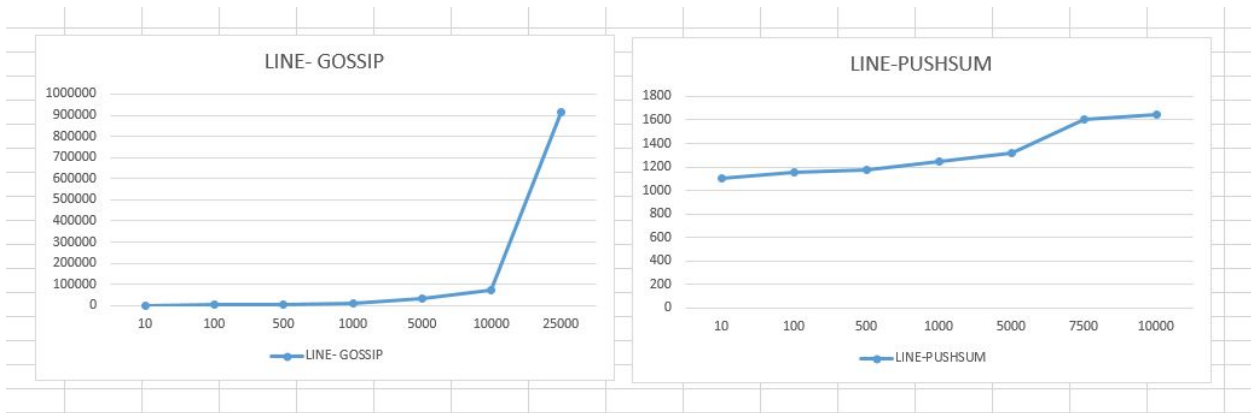
Maximum No of nodes converged:

Topology	Algorithm	Nodes Converged
Line	Gossip	25000
Line	Push-Sum	25 for 10000 nodes
Full	Gossip	943 for 1000 nodes
Full	Push-Sum	897 for 1000 nodes
3D	Gossip	46656 for 46656 nodes
3D	Push-Sum	41466 for 46656 nodes
improper3D	Gossip	24389 for 25000 nodes
improper3D	Push-Sum	20682 for 25000 nodes

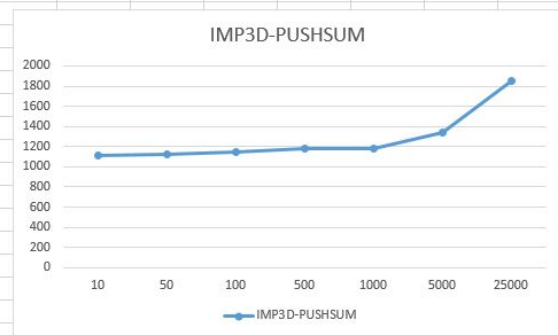
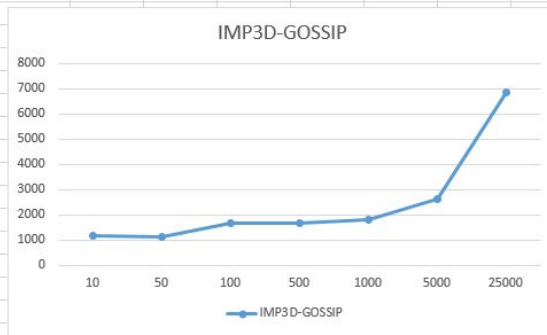
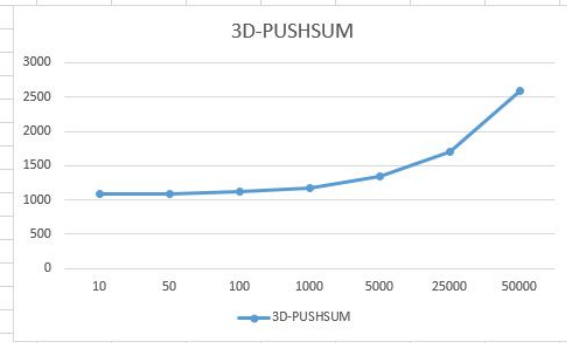
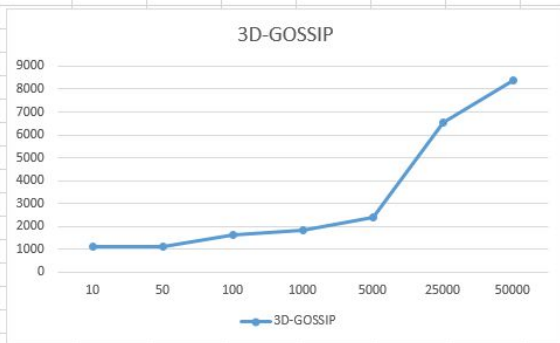
Assumptions:

I have provided a delay of 500ms to scheduler which sends periodic messages to master actor. If this delay is reduced to 50ms average time taken to converge decreases for all topologies for small no of nodes.

Line and Full



	10	100	500	1000	5000	10000	25000
LINE- GOSSIP	1120	2195	4270	7637	31851	69706	916217
NODES CONVERGED	10	100	500	1000	5000	10000	25000
	10	100	500	1000	5000	7500	10000
LINE-PUSHSUM	1106	1150	1174	1242	1320	1607	1546
NODES CONVERGED	9	16	21	25	16	23	21
	5	25	125	500	1000	2000	4000
FULL-GOSSIP	1621	1623	1637	500	2345	2374	15934
NODES CONVERGED	5	25	116	1642	992	1820	3656
	10	50	100	250	500	1000	2000
FULL-PUSHSUM	1140	1132	1123	1189	1287	2064	3497
NODES CONVERGED	9	46	86	219	438	889	1678



	10	50	100	1000	5000	25000	50000
3D-GOSSIP	1108	1126	1630	1823	2387	6539	8372
ACTUAL NO OF NODES	8	27	64	1000	4913	24389	46656
NODES CONVERGED	8	27	64	1000	4913	24389	46656
	10	50	100	1000	5000	25000	50000
3D-PUSHSUM	1090	1094	1130	1180	1352	1700	2587
ACTUAL NO OF NODES	8	27	64	1000	4913	24389	46656
NODES CONVERGED	6	27	54	865	4375	21609	41466
	10	50	100	500	1000	5000	25000
IMP3D-GOSSIP	1162	1140	1656	1668	1808	2628	6877
ACTUAL NO OF NODES	8	27	64	343	1000	4913	24389
NODES CONVERGED	6	27	54	343	1000	4913	24389
	10	50	100	500	1000	5000	25000
IMP3D-PUSHSUM	1110	1123	1144	1177	1180	1340	1847
ACTUAL NO OF NODES	8	27	64	343	1000	4913	24389
NODES CONVERGED	6	23	55	284	828	4617	20682

Reference: I developed entire program myself. Took a friend's help in generating 3D topology.