DOS Project 2 Report

Group Members

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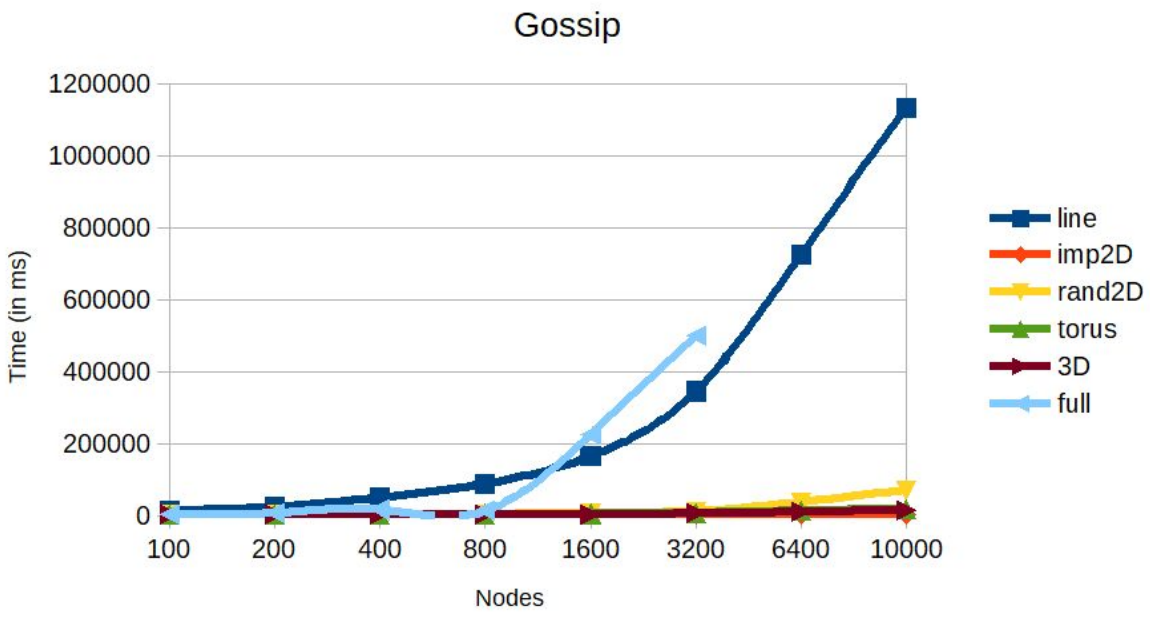
Gossip Algorithm

We have set the interval at which each actor randomly sends a message to its neighbor as 100ms.



Analysis:

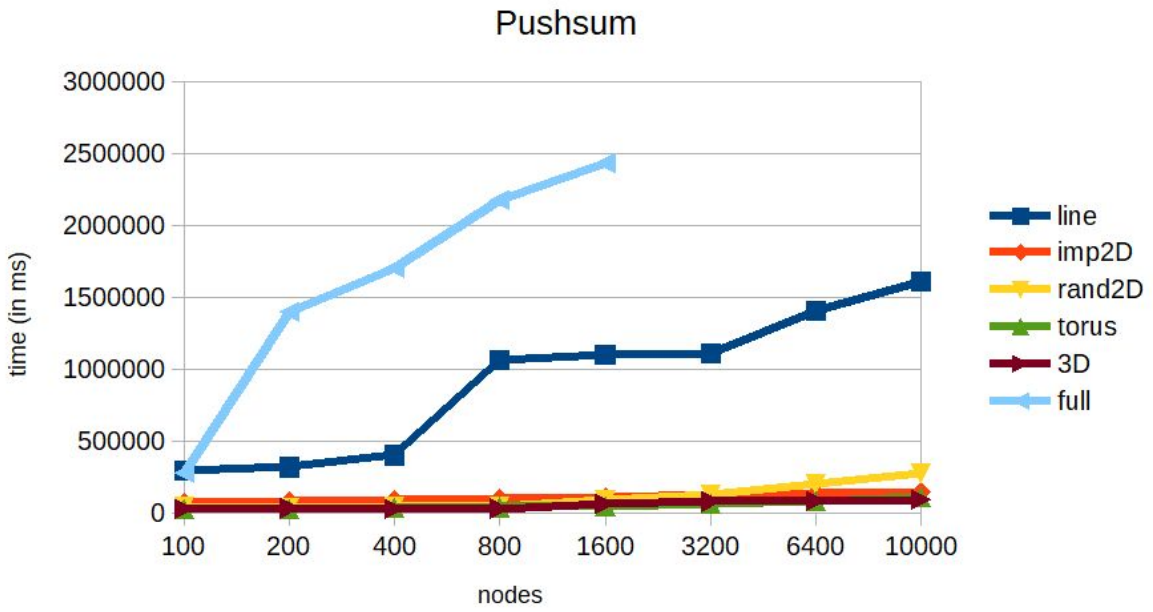
- From the above convergence graph, we can see the following relation between different network: line<full<imp2D<rand2D<tours<3D
- Convergence time of the line and fully connected network increases exponentially.
- The fully connected network does not work above 1600 nodes, due to the increased memory utilization to store address of all the nodes.

Interesting Point of Observation:

- There is an improvement in convergence time from line to imp2D. This is because of adding random connections in a simple line network.
- Also, the convergence time of the fully connected network increases exponentially as the no. of nodes rises. This is because of the increased memory utilization by each node to store the address of all the other nodes.

PushSum Algorithm

We have set the interval at which each actor randomly sends a message to its neighbor as 1000ms.



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Conclusion: From the above graphs we conclude that push sum and Gossip are reliable algorithms for distributed systems. The covergenve of the algorithm greatly depends on the type of network. The running time of both the protocols is high for Line network as well as Fully connected network.