COP5615- Distributed Operating Systems Project 3 Bonus Report – Pastry Protocol

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FAILURE MODEL

Our failure model implementation involves failure of random number of nodes to fail temporarily. The hops across these temporarily failed nodes are retransmitted 2 times before marking them permanently failed nodes.

The hops across permanently failed nodes are rerouted over the next best node.

Observation

We experimented with different sizes of networks by varying the number of nodes. We also varied maximum number of requests per node and observed that average hops only depend on size of the network and do not vary with varying number of requests per node.

Our observations indicate that the average number of hops do not change significantly on implementing the failure model.

Number of Nodes	Number of Requests	Average Hops (without Failure Model)	Average Hops (with Failure Model)
1000	5	2.4946	2.4972
1000	10	2.508	2.5169
1000	100	2.50298	2.50083
100	5	1.688	1.736
100	10	1.676	1.749

The largest network we managed to implement the failure model on had 1000 nodes with number of requests 5. The average hops for this network were 3.2802.