

Paper:- Virtual Ring Routing: Network Routing Inspired by DHTs

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Critique

1. The paper proposes virtual paths to route a packet from a node to another. However, virtual paths may not always be the shortest paths in the network. The simulation results presented in this paper emphasize that length of virtual paths is the same as the length of real shortest paths if the number of hops between any two nodes in the network is less than four. However, in real applications this is a very small number and scalability of the proposed solution is questionable, for e.g. if used in the internet.
2. The paper proposes using existing virtual paths to route control messages in setting up additional virtual paths when new nodes join. Hence, it is not clear how the initial setup should take place when there are no existing virtual paths in the network. A possible solution would be to deploy the sensor nodes with some minimum number of pre-configured virtual paths.
3. The tests carried out to determine the performance of VRR as compared to other routing protocols is done in a building, which seems to be the most ideal case. It is likely that the observed results could be different in noisy or unpredictable environments.
4. The routing algorithm may not perform well in case the location of the nodes changes rapidly since the routing table may grow in size and maintaining the routing tables will cause significant overheads.
5. The paper does not discuss any metrics to determine the value of 'r', which is the size of virtual set. The performance of the network depends highly on this parameter and its optimal value cannot always be determined from experiments. There needs to be a defined mathematical method to derive this value.
6. The paper proposes a routing protocol that does not use flooding and still ensures that packets are routed correctly. Moreover as suggested if one or few nodes fail fault detection & repair can be done locally in many cases which can be very effective in case of node failures.