transmit. In this way, it can be better balanced.

Second. Although the single path from node 4 to node 0 makes the minimum delay, it's not the average delay minimum path of whole network.

If node A is responsible for the transmit of node 1, 2, 3, 4, when any one of them communicates with A, the others will be in holding state. If node 1, 2, 3, 4 send data to node 0 at the same time, the average delay should be as:

$$\overline{D_{A(1,2,3,4)}} = \frac{D_1 + D_2 + D_3 + D_4}{4} \quad (1)$$

D_x is the delay time from node X to node A. The total communicating time between 1, 2, 3, 4 to A is the sum of every single node to node A. Average time can be calculated when it divided by 4.

$$\overline{D_{B(5)}} = D_5 \quad (2)$$

During $\max(4 * \overline{D_{A(1,2,3,4)}}, \overline{D_{B(5)}})$, five nodes can finish the communication with former stage nodes, so the average delay is

$$\overline{D} = \frac{\max(4 * \overline{D_{A(1,2,3,4)}}, \overline{D_{B(5)}})}{4+1} = \frac{D_1 + D_2 + D_3 + D_4}{5} \quad (3)$$

If node 4 chooses node B as the transmit node , the average delay is

$$\overline{D'} = \frac{D_1 + D_2 + D_3}{5}. \quad (4)$$

So choosing node B as transmit node can optimize average delay than choosing node A for node 4.

As noted, the number of nodes around a node can affect the stability. J-AODV choose node B as transmit node. So the J-AODV is better than AODV.

5. Conclusion

In this paper, we describe a J-AODV standard which is based on AODV standard. And we choose the number of secondary nodes as a simple willing parameter to prove this method is feasible. Simulation analysis using NS2 platform shows J-AODV is useful to make the average delay, network throughput and consumptions optimized most in the engineering applications.

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