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**Distance Vector Routing -Lab4**

1. **how distance vector routing works**

A: Every node has two different tables, one is distance table (save source node through neighbors to other nodes shortest distance), one is routing table (save source node to other nodes shortest cost and next hop), update by its own distance table)

Work process:

All nodes initialize direct link distance table and routing table, then send routing table to its neighbors

When one node received its neighbor’s routing table use this table update its own distance table, calculate its routing table, if routing table changed, then send updated routing table to neighbors

This process will iterate until all nodes finished update, then current routing table is shortest cost to other nodes.

1. **how you tested the algorithms**

**A:** First test normal condition (no link cost change, no poisoned reverse), observe and record results and process time. Second change link cost, record the results and observe loops, then open poisoned reverse, observe the loops was resolved or not, record the results and time, check result correctness.

1. **some cases in which poisoned reverse may fail**

**A:** When node3 to 0 cost changed to infinity, the poisoned reverse may fail. Because the loop occurs in nodes 0 1 2, even use poisoned reverse, nodes can still obtain wrong route from another neighbor.

**Poisoned reverse fail case:**

**钟表的特写

AI 生成的内容可能不正确。**

**4. a solution to this problem.**

A: I think use Hold Down with Poisoned Reverse can resolve this case, when 0 to 3 cost change to infinity, node0 set hold down time, refuse to receive better route from other nodes. For example, when node1 receive old route to node3 from node2, node1 poisoned node2, node2 try to get route to node3 from node0, but node0 still said it can’t arrive to node3, so the problem can be solved.