RIP 实验报告

代码设计思路（四个node.c文档思路相同）

1. rtinit*()

- 初始化：根据图的权重，将 dt*.costs 填满
  - 若无直接相连，定义为 999（INF）
  - 定义自己到自己距离为 1
  - 由 dt*.costs 定义，本次更新只会更新对角线上元素
- 传送信息：将自己节点信息传送到邻居节点
  - 只传送自己到达每个节点最小值

2. rtupdate*(struct rtpkt *rcvdpkt)

- 接收到包，只更新 dt*.costs 对应列，直接计算新距离并覆盖
- 计算方法：接收到的距离 + 当前节点到信息节点距离
- 如果更新这一列，到达每个节点最小值前后没有变化，就不用将自己节点信息传送到邻居节点，反之就要传送一遍

3. linkhandler*(int linkid, int newcost)

- 接收到包，只更新 dt*.costs 对应列，直接计算新距离并覆盖
- 计算方法：接收到的距离 + 当前节点 (linkid) 到信息节点距离 (newcost) - 当前节点 (linkid) 之前到信息节点距离
- 如果更新这一列，到达每个节点最小值前后没有变化，就不用将自己节点信息传送到邻居节点，反之就要传送一遍

Sample Output (直接输出 #define LINKCHANGES 1 时候)

```
1  $ gcc .\node0.c .\node1.c .\node2.c .\node3.c .\prog3.c -o RIP
2  $ .\RIP.exe
3  Enter TRACE:2
4  MAIN: rcv event, t=0.094, at 1 src: 0, dest: 1, contents:   0   1   3   7
5  MAIN: rcv event, t=0.427, at 1 src: 2, dest: 1, contents:   3   1   0   2
6  MAIN: rcv event, t=0.998, at 0 src: 1, dest: 0, contents:   1   0   1 999
7  MAIN: rcv event, t=1.244, at 3 src: 0, dest: 3, contents:   0   1   3   7
8  MAIN: rcv event, t=1.514, at 2 src: 0, dest: 2, contents:   0   1   3   7
9  MAIN: rcv event, t=1.685, at 0 src: 2, dest: 0, contents:   3   1   0   2
10 MAIN: rcv event, t=2.171, at 3 src: 2, dest: 3, contents:   3   1   0   2
11 MAIN: rcv event, t=2.399, at 0 src: 3, dest: 0, contents:   7 999   2   0
12 MAIN: rcv event, t=2.489, at 0 src: 1, dest: 0, contents:   1   0   1   8
13 MAIN: rcv event, t=2.667, at 2 src: 1, dest: 2, contents:   1   0   1 999
14 MAIN: rcv event, t=2.823, at 1 src: 0, dest: 1, contents:   0   1   2   7
15 MAIN: rcv event, t=3.361, at 0 src: 1, dest: 0, contents:   1   0   1   3
16 MAIN: rcv event, t=3.780, at 3 src: 0, dest: 3, contents:   0   1   2   7
```

```
17  MAIN: rcv event, t=3.798, at 2 src: 3, dest: 2, contents:   7 999   2   0
18  MAIN: rcv event, t=3.915, at 0 src: 3, dest: 0, contents:   7   8   2   0
19  MAIN: rcv event, t=4.098, at 1 src: 0, dest: 1, contents:   0   1   2   5
20  MAIN: rcv event, t=4.650, at 1 src: 2, dest: 1, contents:   2   1   0   2
21  MAIN: rcv event, t=4.774, at 2 src: 1, dest: 2, contents:   1   0   1   8
22  MAIN: rcv event, t=5.464, at 3 src: 0, dest: 3, contents:   0   1   2   5
23  MAIN: rcv event, t=5.640, at 0 src: 3, dest: 0, contents:   5   3   2   0
24  MAIN: rcv event, t=5.760, at 2 src: 1, dest: 2, contents:   1   0   1   3
25  MAIN: rcv event, t=6.212, at 1 src: 0, dest: 1, contents:   0   1   2   4
26  MAIN: rcv event, t=6.315, at 3 src: 2, dest: 3, contents:   2   1   0   2
27  MAIN: rcv event, t=6.435, at 0 src: 2, dest: 0, contents:   2   1   0   2
28  MAIN: rcv event, t=6.771, at 2 src: 0, dest: 2, contents:   0   1   2   7
29  MAIN: rcv event, t=7.003, at 3 src: 0, dest: 3, contents:   0   1   2   4
30  MAIN: rcv event, t=7.406, at 0 src: 3, dest: 0, contents:   4   3   2   0
31  MAIN: rcv event, t=7.650, at 2 src: 3, dest: 2, contents:   7   8   2   0
32  MAIN: rcv event, t=8.069, at 2 src: 0, dest: 2, contents:   0   1   2   5
33  MAIN: rcv event, t=9.377, at 2 src: 3, dest: 2, contents:   5   3   2   0
34  MAIN: rcv event, t=10.016, at 2 src: 0, dest: 2, contents:   0   1   2   4
35  MAIN: rcv event, t=11.030, at 2 src: 3, dest: 2, contents:   4   3   2   0
36  MAIN: rcv event, t=10000.000, at -1MAIN: rcv event, t=10000.013, at 2 src: 0, dest: 2,
    contents:   0   4   3   5
37  MAIN: rcv event, t=10000.666, at 1 src: 0, dest: 1, contents:   0   4   3   5
38  MAIN: rcv event, t=10001.100, at 0 src: 1, dest: 0, contents:   3   0   1   3
39  MAIN: rcv event, t=10001.130, at 3 src: 0, dest: 3, contents:   0   4   3   5
40  MAIN: rcv event, t=10001.865, at 2 src: 1, dest: 2, contents:   3   0   1   3
41  MAIN: rcv event, t=10002.132, at 1 src: 2, dest: 1, contents:   3   1   0   2
42  MAIN: rcv event, t=10002.603, at 0 src: 2, dest: 0, contents:   3   1   0   2
43  MAIN: rcv event, t=10002.604, at 0 src: 1, dest: 0, contents:   4   0   1   3
44  MAIN: rcv event, t=10003.143, at 3 src: 2, dest: 3, contents:   3   1   0   2
45  MAIN: rcv event, t=10003.938, at 0 src: 3, dest: 0, contents:   5   3   2   0
46  MAIN: rcv event, t=10004.054, at 2 src: 1, dest: 2, contents:   4   0   1   3
47  MAIN: rcv event, t=10004.582, at 2 src: 3, dest: 2, contents:   5   3   2   0
48  MAIN: rcv event, t=20000.000, at 7930192MAIN: rcv event, t=20000.117, at 0 src: 1,
    dest: 0, contents:   1   0   1   3
49  MAIN: rcv event, t=20000.484, at 1 src: 0, dest: 1, contents:   0   1   2   4
50  MAIN: rcv event, t=20001.498, at 2 src: 0, dest: 2, contents:   0   1   2   4
51  MAIN: rcv event, t=20001.773, at 3 src: 0, dest: 3, contents:   0   1   2   4
52  MAIN: rcv event, t=20002.717, at 2 src: 1, dest: 2, contents:   1   0   1   3
53  MAIN: rcv event, t=20002.922, at 1 src: 2, dest: 1, contents:   2   1   0   2
54  MAIN: rcv event, t=20004.307, at 0 src: 2, dest: 0, contents:   2   1   0   2
55  MAIN: rcv event, t=20004.629, at 3 src: 2, dest: 3, contents:   2   1   0   2
56  MAIN: rcv event, t=20005.580, at 0 src: 3, dest: 0, contents:   4   3   2   0
57  MAIN: rcv event, t=20006.547, at 2 src: 3, dest: 2, contents:   4   3   2   0
58
59  Simulator terminated at t=20006.546875, no packets in medium
```