

COMP9331 report

My assignment is finished by python language and edition is python 3.7.2

1. Correct parsing of configuration files and parameters
2. Broadcast mechanism. Broadcasting link-state packet to neighbors every UPDATE_INTERVAL
3. Forward mechanism. Node will forward the message included in its neighbors' broadcast packet. This means that node will specially note that this message is a forward message.
4. All packet used UDP for sending.
5. Global view network topology. The node generates the latest network topology map based on the received broadcast packets, forwarding packets, and update packets.
6. Least-cost path. Every ROUTER_UPDATE_INTERVAL print the least-cost path calculated by Dijkstra's algorithm.
7. Restricting link-state broadcast. Detail see above (Restricting link-state broadcast).
8. Detecting neighbors join back again and add it to network topology.

Part 1

The solution about how to reduce the repeated sending of packets as below:

For a packet sent by a broadcast, it contains a route list, which records which

nodes have been routed by the current packet, and these nodes no longer send the packet

Part 2

First open a new thread for send_heartbeat

In addition, heartbeat_record is used to record when the adjacent node was sent from the last time.

In addition, another thread is opened for check_heartbeat, which is to detect the current time of each adjacent node of the heartbeat_record record. If it is greater than $3 * \text{UPDATE_INTERVAL} * 0.8$, it means that the node has failed, and you need to remove it.

At the same time check_heartbeat this thread checks heartbeat_record every $\text{UPDATE_INTERVAL} * 0.8$ seconds