CMPUT 313 – Lab Assignment 1 REPORT
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Design Overview:

lab1.c is a protocol that identifies and prints out the information of a node, and the information of any neighbouring nodes it may have. This information includes the:

1. Node's name
2. Node's number
3. Node's address
4. Number of messages transmitted by the Node
5. Number of messages received by the Node
6. Neighbour(s) name
7. Neighbour(s) address
8. Neighbor(s) number of links
9. Neighbor(s) address

The `reboot_node` function is initially called, sets the required handles, and sends the first `EV_TIMER1` event. After this, the `send_EXPLORE` function is called, which uses the `CNET_write_physical` to send explore messages to all of its links.

The `physical_ready` function handles the read and write of physical layer messages. For frames of type `EXPLORE`, the function adds its information to the frame, and then changes its type to `EXPLORE_ACK`. For frames of type `EXPLORE_ACK` (a received message), the information is extracted, and added to a list of structs, containing the information of all neighbors.

Program Status:

The program displays the information when the `EV_DEBUG0` button (labelled "Node Info!") is pushed in the CNET GUI.

One small difficulty the user may encounter is that the table may initially display empty rows, with 0's for some values. This happens when the Node Info! button is pressed too quickly, and the nodes did not have enough time to exchange information. Some patience (pressing the button again after a few seconds) will solve this problem. This can also be solved by increasing the `EXPLORE` event frequency.

Testing and Results:

The program was tested using the LAB_T1 topology file. Once the programming was outputting the required information in the proper format, the LAB_T1 file could be modified, to further assert that the program was indeed printing the proper results.

Acknowledgments:

The following sources were consulted in the development of this program:

- cnet Documentation
- explore-W20.c file from eClass
- lab TAs Nawshad Farruque and Anmol Mahajan