ECE 50863 Computer Network System

Starter Project

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Ching Yang Wang: He built the makefile and main.c, which activates the controller. He also constructed the switch and parsed the topology from the text file. In switch, each of them is created as a process and each has a timer that sends KEEP_ALIVE message to each of their neighbors and TOPOLOGY_UPDATE to the controller for every 3 seconds. They send REGISTER_REQUEST to the controller and receive REGISTER_RESPONSE, which has information about their neighbors. If they discover their neighbors are not responding, they send TOPOLOGY_UPDATE immediately.

Cheng Ju Lee: He built the Dijkstra algorithm and computes the topology. He also constructed the controller. In the Dijkstra algorithm, the widest path is computed for every switch and it returns a topology table which indicates the next hop for reaching the destination. For the controller, it monitors on REGISTER_REQUEST, TOPOLOGY_UPDATE signals and sends REGISTER_RESPONSE, ROUTER_UPDATE to each switches. For every 6 seconds, a timer in the controller checks whether each active switch has sent a TOPOLOGY_UPDATE to determine their statuses.

Instruction:

Start a switch: switch <switchID> <controller hostname> <controller port> -s
Kill a switch: switch <switchID> <controller hostname> <controller port> -k

Disable a link: switch <switchID> <controller hostname> <controller port> -f <neighborID> -d
Enable a link: switch <switchID> <controller hostname> <controller port> -f <neighborID> -e