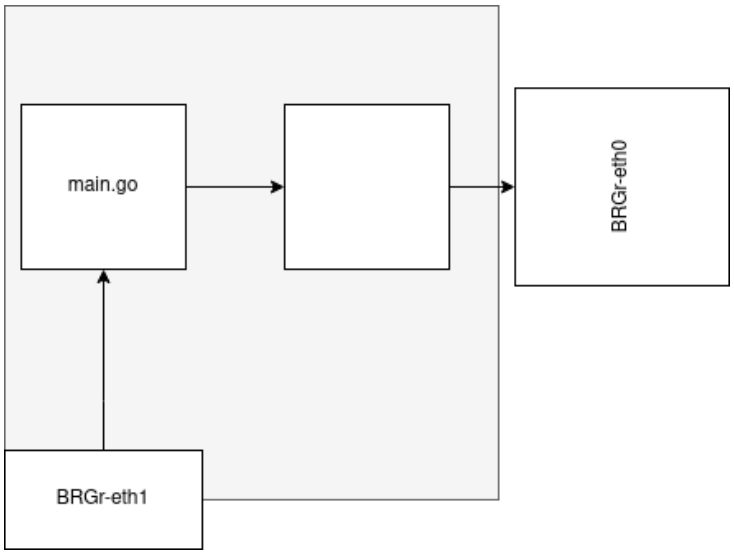
Network Systems Capstone Lab 4 Report

彭思安, 0616110

1. **Show the ping results to test reachability.**
    a. **H1 and h2 ping GWr**
2. **Show all interfaces of node BRGr after h1 and h2 can ping GWr.**
3. **Draw the interconnection diagram of interfaces and Linux bridge on BRGr. Explain your diagram with the screenshot of the interface list of BRGr.**



In our main file, we decapsulate the packet's outer Ethernet and IP layers. The inner Ethernet and IP packets are the ones that contain routing information for GWr. We then send the packet out of the appropriate interface.

4. **Explain how the Linux kernel of BRGr determines which gretap interface to forward packets from GWr to hosts (h1 or h2)?**
   At the beginning of the ping process, we do not know the MAC address of the device. When we broadcast the address, and the destination replies with its own MAC address, BRGr will add it to its own internal table. When the next packet comes along that has to be sent to that same host, BRGr can perform a lookup on its table and determine the MAC address. The first message in the process has to be a broadcast message on behalf of the host.
5. **Run tcpdump on h1 to capture packet and take screenshot to explain why or why not h1 is aware of GRE tunneling.**

H1 will not be aware of the tunneling; to h1 GWr is on the same internal network. Since the encapsulation happens in the bridges, the process for sending a packet does not change for h1. It receives the same types of packets it woul otherwise receive from messaging a local destination.