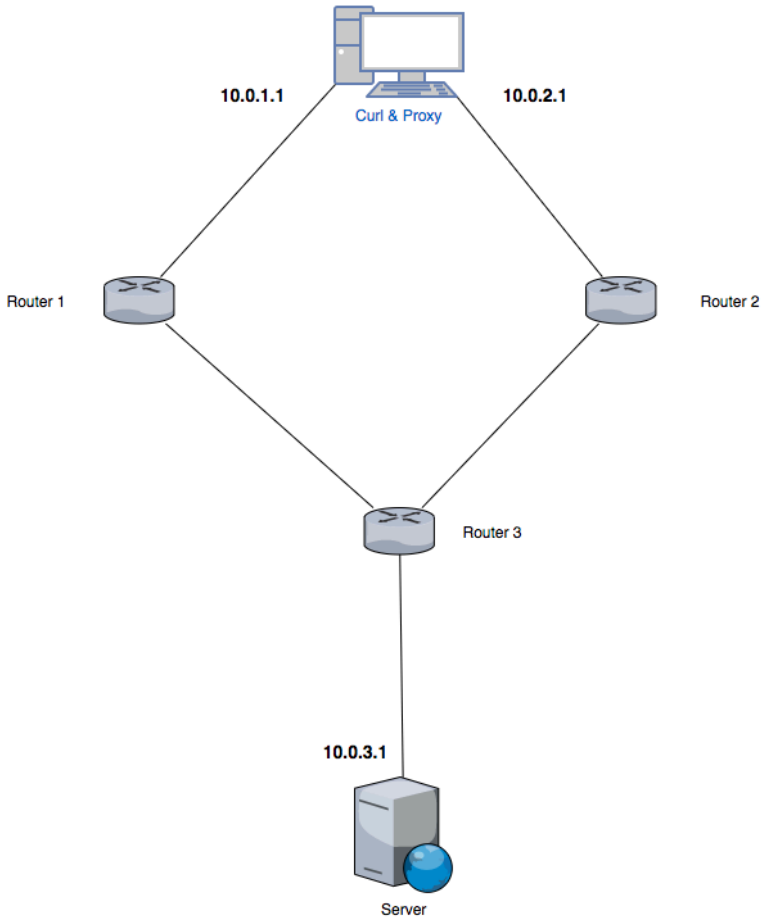
Sample Topology

Using the topology provided in ***sampleTopology2.py***, you can test your proxy in Mininet. Before running this topology, you need to modify the python code for your proxy:



1. Bind *self.target*(your first connection to the server) to 10.0.1.1
    a. Ex. ***self.target.bind(('10.0.1.1',0))***

2. Bind *self.target2* (your second connection to the server) to 10.0.2.1
    a. Ex. ***self.target2.bind(('10.0.2.1',0))***

3. It's <u>better</u> to hardcode the server's IP addresses.
    a. **self.target.connect(('10.0.3.1',8000))**
    b. **self.target2.connect(('10.0.3.1',8000))**

HTTP Server

Download the following http server from Github and put it on the virtual machine running the mininet: https://github.com/smgoller/rangehttpserver

Ping

Before testing the proxy try ping from the client to the server:

```
ping -I 10.0.1.1 10.0.3.1
ping -I 10.0.2.1 10.0.3.1
```

If the network is unreachable for either of them execute the following command in the client1's terminal:

```
sysctl -w net.ipv4.ip_forward=1
```

Testing the proxy

1. Creating the topology
    a. SSH to mininet (make sure you have X11 forwarding available: **ssh -X mininetAddress or ssh -Y mininetAddress**)
    b. Go to the folder containing **sampleTopology2.py**
    c. Run: **`sudo ./sampleTopology2.py`**
        i. If the file is not executable already, you need to make it executable by ***chmod***
        ii. If the file is not executable even after using chmod, try: **`sudo python sampleTopology2.py`**
    d. Now you are in mininet environment

2. Run the server
    a. In the mininet environment, type **`xterm server`**
    b. In the terminal opened, go to the folder containing the http server you've downloaded from Github.
    c. Run the server: **`python RangeHTTPServer.py`**
    d. Now the server is listening on port 8000

3. Run the proxy
    a. In the mininet environment, type **`xterm client1`**
    b. In the terminal opened, go to the folder containing your proxy file

c. Run the proxy: **`python your_proxy.py`**
d. Now the proxy is listening on port 8080

4. Test the proxy with *curl*
    a. One more time, In the mininet environment, type **`xterm client1`**
    b. Type: **curl -x localhost:8080 http://10.0.3.1/t.jpeg**
        i. ***T.jpeg*** is the file you are trying to download from the server. It could be any file with any type and any name.
        ii. Just make sure the file is in the same folder as **RangeHTTPServer.py**
        iii. You might encounter an error where your proxy is trying to get the address of the server (*socket.getaddrinfo*)
            1. You can solve this issue by:
                a. Commenting the line containing ***socket.getaddrinfo*** and
                b. hardcoding the IP address of the server as mentioned above. And
                c. Changing ***soc_family*** to ***socket.AF_INET*** everywhere