

CS4226 Project

Student Info

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Setup

1. Put the `mininetTopo.py` in a separate directory
 - a. Put the `topology.in` in this directory
2. Put the `controller.py` in a folder with `pox.py`
 - a. Put the `policy.in` in this directory

Design decisions

Task 1

⇒ modified `mininetTopo.py`

Here, I only modified `mininetTopo.py`

I created arrays to store hosts, switches and links

I then used `addSwitch`, `addHost` and `addLink` to add to generate the topology

Task 2

⇒ modified `controller.py`

Save packets to dictionary

I chose to use dictionary to have fast retrieval, compared to $O(n)$ for a python array list

Task 3

⇒ modified `controller.py`

For this task, I simply stored TTL in another dictionary alongside the previous one which stored packet info
For each time that a packet comes in, I first update entries in both dictionaries

In this section, I chose to only update the entries in the tables first only, without checking TTL yet
I did this because any entry that came in would update the table anyway, and override the entries in the dictionaries, so there would be no point in deleting the entries at that point.

At the end of processing I then check TTL. Packets who existed beyond TTL would be removed from both dictionaries.

This way, the information would only affect the next packet's navigation in the topo map.

Task 4

⇒ modified `controller.py`

No major design designs made here, just a lot of trial and error...

Task 5

⇒ modified `mininetTopo.py` + `controller.py`

To decide which connection should be considered "premium", I could have chosen from the following

1. From premium **source** ⇒ premium
2. To premium **destination** ⇒ premium
3. **Both** source and destination premium ⇒ premium
4. Either source **OR** destination premium ⇒ premium

I chose to do #4, where so long as either of source or destination are premium, the connection would be premium

I did this because when a customer pays for premium service, they expect premium service regardless of whoever they are communicating with.

There could be a potential free-rider problem with the other non-paying for premium party, but the priority is to give premium-paying customers what they expect