README / Documentation
https://github.com/ThatOneGuyISuppose/star_of_stars_network

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How to Run

Use

```
make
```

to run the default test with 3 CAS that have 2, 6, and 4 nodes, respectively. It also makes 3 node files, node1_2.txt, node2_1.txt, and node3_3.txt.

Use

```
make clean
```

to remove all output node files.

Use

```
make clean_nodes
```

to remove all input node files.

In order to run arbitrary initialization, use

```
python3 SoSs.py <CAS 1 Num Nodes> <CAS 2 Num Nodes> ...
```

Example: `python3 SoSs.py 2 6 4`

This example creates 3 CAS that have 2, 6, and 4 nodes, respectively, with ids 1-3.

Name of Files and Descriptions

SoS.py contains the classes for Frame, CCS, CAS, and Node. The nodes forward to CAS, which in turn forwards through CCS if it is global and there are no firewall restrictions.

firewall.txt contains the firewall rules.

Frame format:

```
Frame structure [SRC][DST][CRC][SIZE/ ACK][ACK type][data]
```

Feature Checklist

Feature	Status/Description
Project Compiles and Builds without warnings or errors	Complete
Switch class	Complete
Switch has a frame buffer, and reads/writes appropriately	Complete

CAS, CCS Switches allows multiple connections	Complete
CAS, CCS Switches flood frames when it doesn't know the destination	Complete
CAS, CCS Switches learn destinations, and doesn't forward packets to any port except the one required	Complete
CAS connects to CCS	Complete
CAS receives local firewall rules	Complete
CAS forwards traffic and ACKs properly	
CCS switch opens the firewall file and gets the rules	Complete
CCS passes global traffic	Complete
CCS does the global firewalls	Complete
CCS Shadow switches run and test properly	Incomplete - Not Implemented
Node class	Complete
Nodes instantiate, and open connection to the switch	Complete
Nodes open their input files, and send data to switch.	Complete
Nodes open their output files, and save data that they received	Complete
Node will sometimes drop acknowledgment	Complete
Node will sometimes create erroneous frame	Complete
Node will sometimes reject traffic	Complete