Study of VPN with Implementations
CMPT 434 Computer Networks Project Proposal

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Overview

Implement of a VPN client and VPN sever that able to circumvent Internet censorship. The government of some countries in this world are trying to manipulate what information their people can access from the Internet. For example, China create The Great Firewall. This firewall blocks the people who use Internet in the mainland China to access websites like: Google, YouTube, Facebook, etc, because these websites contains content that the Chinese government believes is not good for itself.

As someone who goes back to China to visit family every year (did not go back last year because of the pandemic), and also believe that mainland softwares are not competitive with those I often use outside the wall. I need to use VPN every time I goes back to China. However, the Chinese government's censorship system on VPN's is getting stricter every year. Some people were charged just because of using VPN to visit websites outside of the wall last year. That is the first I realized that VPN is not actually private. Nonetheless, VPN is not completely illegal, rather a grey area.

The goal of this project is to understand how VPN works from implementation and security perspective, and try to implement a VPN client and VPN server that are able to use in mainland China to access website outside of the wall.

Methodology

First by understand how does VPN works and then start the implementation. Choose the VPNs software existing on the market and open source project as reference for the implementation. Note that there are plenty platforms allow user to host their own VPN. This project will not using any of those, rather start from scratch. The project will most likely to use Linux, of course Docker is also possible. Other technologies such as languages will be determined once the research part done.

Milestone

All the researches need to be done by the end of the February. The first three weeks of March will be the implementation part and the last week will start the evaluation and final report. The research part may be shortened to provide more time for the implementation part.

Evaluation

User in mainland China will able to circumvent Internet censorship with my implementation. If this goal not feasible based on the difficult of the test. It also advisable that other machines can obtain my host, like how the Tuxworld works.