GFW: Protection or censorship?
A brief overview on China's Great Firewall system

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1 Introduction

The Internet has come a long way today. As a bridge for the flow of information, it carries the thoughts, ideas, opinions and needs of all people. However, because of the value attributes of information, the flow of information may inadvertently touch the interests of certain people or groups. This may lead to theft by criminals, or it may be a threat to national security, but in any case, the network firewall has been built as a result. In China, there also exists such a wall, which is not only able to defend against cyber-attacks from outside the country, but at the same time, and most importantly, prevents the flow of network traffic from within the country to outside the country. This is the subject of this article - The Great Firewall.

2 Background

Great Firewall (hereinafter referred to as GFW) is a traffic censorship and attack defense system based on Cisco's intrusion detection system [3]. This defense system combines active and passive detection capabilities to censor China's Internet traffic [1]. As far as we know from our testing, the system is running on IPV4, but we have no way of knowing if the system is compatible with IPV6 as well. The main reason for this is that IPV6 is not very popular in China, and even if we could ask the carriers to enable it, they would not be very willing to do so for security reasons, and it would require a series of very complicated procedures to complete. What's worse, the GFW is still a black box system for outsiders and researchers, and the existence of the system is not recognized at the national level, and there is no official documentation about the system. All research into the system is currently in the "poke around and see what happend" phase, so most of the results and findings below come from community organizations and web forum members. We would like to thank the members and contributors of the gfw.repot [2] website for providing a wealth of documentation and experimental data without which we would not have been able to gain such a deep understanding of GFW.

3 How it works?

References

[1] Anonymous, et al. *"How China Detects and Blocks Shadowsocks."* GFW Report, 29 Dec. 2019, gfw. report/blog/gfw_shadowsocks. Accessed 11 Jan. 2024.

[2] Great Firewall Report. *"Great Firewall Report."* Great Firewall Repor, Dec. 2019, gfw.report. Accessed 11 Jan. 2024.

[3] Schaack, Beth Van. *"China's Golden Shield: Is Cisco Systems Complicit?"* Center for Internet and Society, 24 Mar. 2015, cyberlaw.stanford.edu/blog/2015/03/china%E2%80%99s-golden-shield-cisco-systems-complicit. Accessed 11 Jan. 2024.