Censored Planet

TSPU: Russia's Decentralized Censorship System

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ABSTRACT

Russia's Sovereign RuNet was designed to build a Russian national firewall. Previous anecdotes and isolated events in the past two years reflected centrally coordinated censorship behaviors across multiple ISPs, suggesting the deployment of "special equipment" in networks, colloquially known as "TSPU". Despite the TSPU comprising a critical part of the technical stack of RuNet, very little is known about its design, its capabilities, or the extent of its deployment.

In this paper, we develop novel techniques and run in-country and remote measurements to discover the *how, what,* and *where* of TSPU's interference with users' Internet traffic. We identify different types of blocking mechanisms triggered by SNI, IP, and QUIC, and we find the TSPU to be in-path and stateful, and possesses unique state-management characteristics. Using fragmentation be-

1 INTRODUCTION

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Throttling Twitter: An Emerging Censorship Technique in Russia

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ABSTRACT

In March 2021, the Russian government started to throttle Twitter on a national level, marking the first ever use of large-scale, targeted throttling for censorship purposes. The slowdown was intended to pressure Twitter to comply with content removal requests from the Russian government.

In this paper, we take a first look at this emerging censorship technique. We work with local activists in Russia to detect and measure the throttling and reverse engineer the throttler from in-country vantage points. We find that the throttling is triggered by Twitter domains in the TLS SNI extension, and the throttling limits both upstream and downstream traffic to a value between 130 kbps and 150 kbps by dropping packets that exceed this rate. We also find that the throttling devices appear to be located close to end-users, and that the throttling behaviors are consistent across different ISPs suggesting that they are centrally coordinated. Notably, this deployment marks a departure from Russia's previously

1 INTRODUCTION

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Network Responses to Russia's Invasion of Ukraine in 2022: A Cautionary Tale for Internet Freedom

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Abstract

Russia's invasion of Ukraine in February 2022 was followed by sanctions and restrictions: by Russia against its citizens, by Russia against the world, and by foreign actors against Russia. Reports suggested a torrent of increased censorship, geoblocking, and network events affecting Internet freedom.

This paper is an investigation into the network changes that occurred in the weeks following this escalation of hostili-

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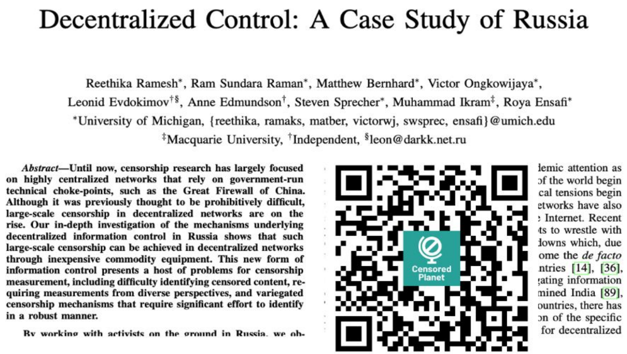

Decentralized Control: A Case Study of Russia

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***Abstract*—Until now, censorship research has largely focused on highly centralized networks that rely on government-run technical choke-points, such as the Great Firewall of China. Although it was previously thought to be prohibitively difficult, large-scale censorship in decentralized networks are on the rise. Our in-depth investigation of the mechanisms underlying decentralized information control in Russia shows that such large-scale censorship can be achieved in decentralized networks through inexpensive commodity equipment. This new form of information control presents a host of problems for censorship measurement, including difficulty identifying censored content, requiring measurements from diverse perspectives, and variegated censorship mechanisms that require significant effort to identify in a robust manner.**

By working with activists on the ground in Russia, we ob-

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