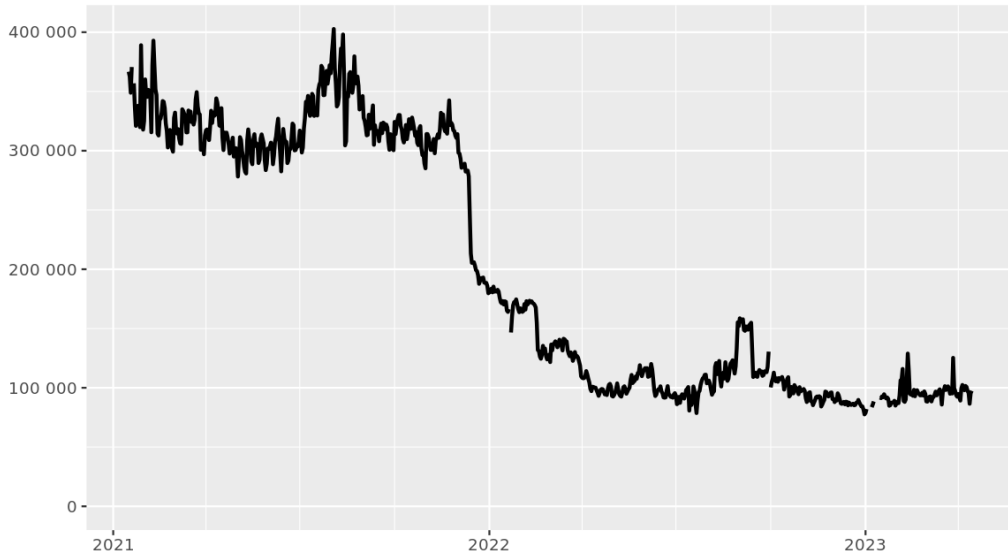
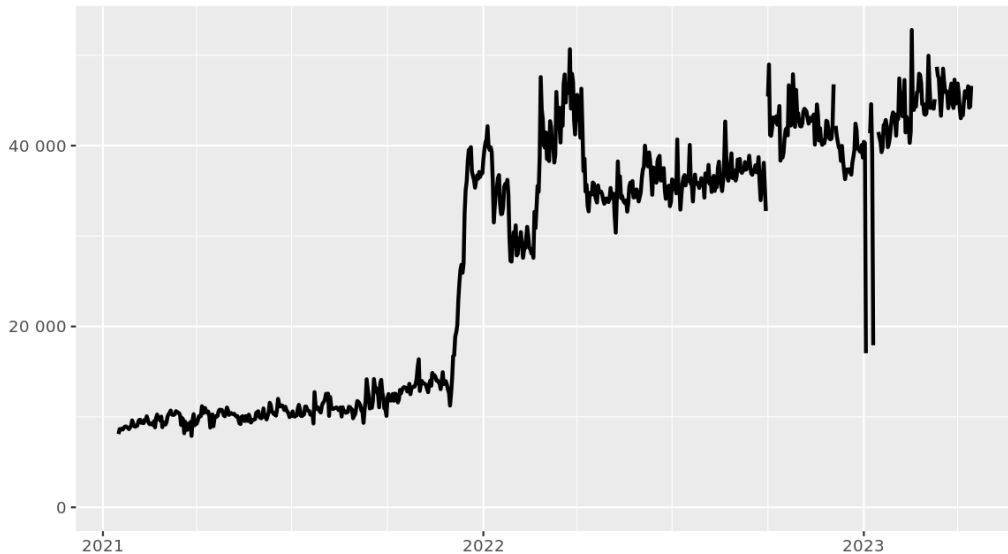


Directly connecting users from Russia

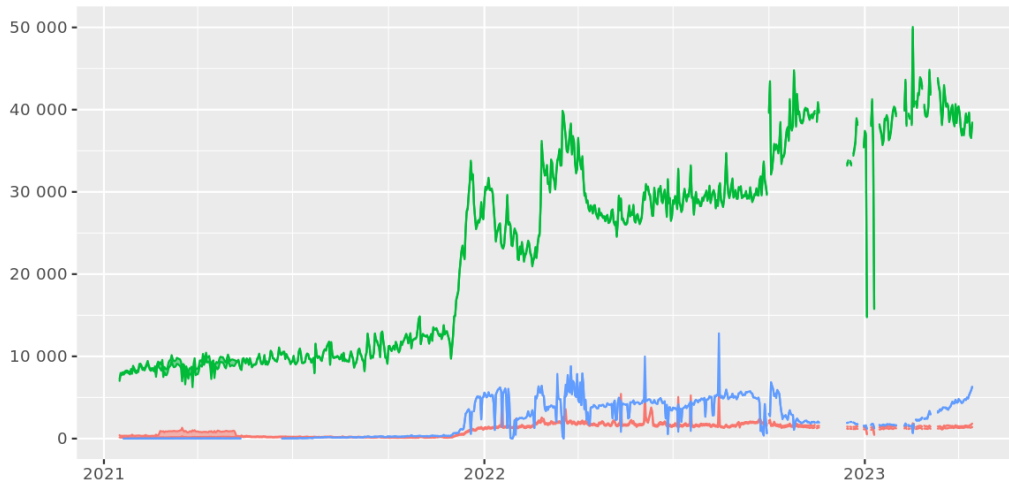


Bridge users from Russia



Bridge users by transport from Russia

Top-3 transports ■ <OR> ■ obfs4 ■ snowflake





The Tor Project

14 760 subscribers

This is the official Tor Project Telegram channel.

Message [@GetBridgesBot](#) for bridges,
[@GetTor_Bot](#) to download Tor Browser, and
[@TorProjectSupportBot](#) for help.

VIEW IN TELEGRAM

Preview channel

If you have **Telegram**, you can view and join
The Tor Project right away.

Challenging the censorship legally

Юридическая команда «Роскомсвободы» теперь [представляет](#) интересы организации **The Tor Project** в России. Наши юристы обжалуют блокировку инструмента на территории страны. [Подробнее об этом читайте на сайте кампании.](#)

«Роскомсвобода» от имени американской общественной организации The Tor Project Inc. обжалует блокировку сайта анонимного браузера в России. <https://t.co/GN8897ITpp>

— Коммерсантъ (@kommersant) [January 24, 2022](#)

Напомним, в декабре 2021 года в России [заблокировали](#) сайт [Tor Project](#), а также публичные прокси-серверы (узлы) и некоторые мосты (непубличные ретрансляторы в сеть Tor). Формальной причиной послужило [Решение саратовского районного суда](#) от 2017 года в соответствии со ст. 15.1 закона «Об информации». Данное решение не касается какого-то определённого контента, в его основании лежит проверка прокуратуры, которая установила, что на сайте проекта Tor есть возможность для «скачивания программы браузера-анонимайзера для последующего посещения сайтов, на которых размещены материалы, включённые в Федеральный список экстремистских материалов».

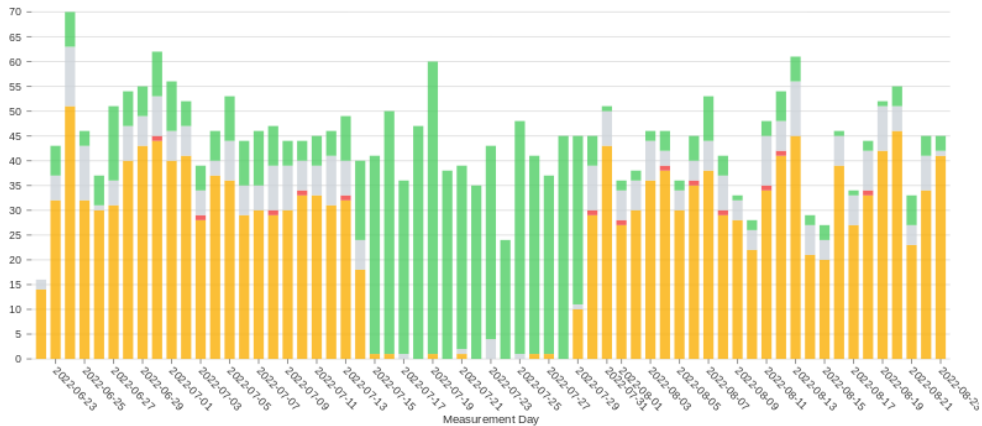
«Роскомсвобода» считает, что решение суда является незаконным и подлежащим отмене по следующим причинам:

1. решение нарушает конституционное право на свободное предоставление, получение и распространение информации и защиту тайны частной жизни;

Russia

Web Connectivity Test, www.torproject.org

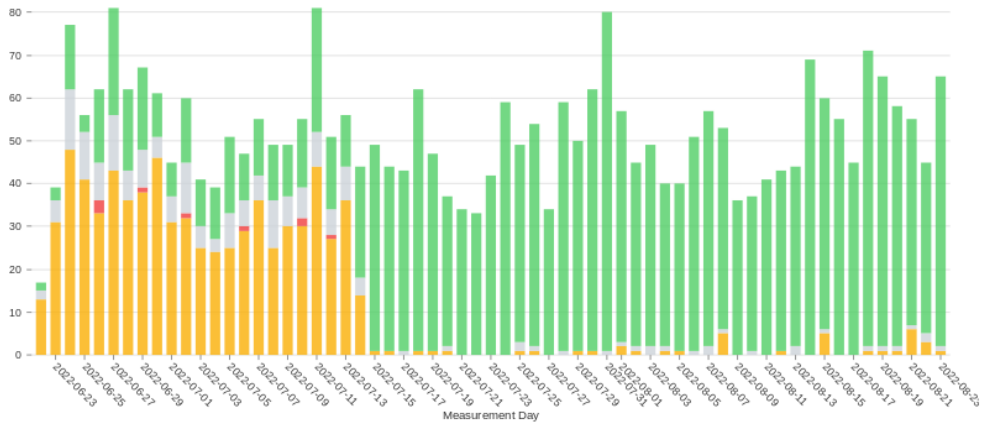
■ ok_count
 ■ confirmed_count
 ■ anomaly_count
 ■ failure_count



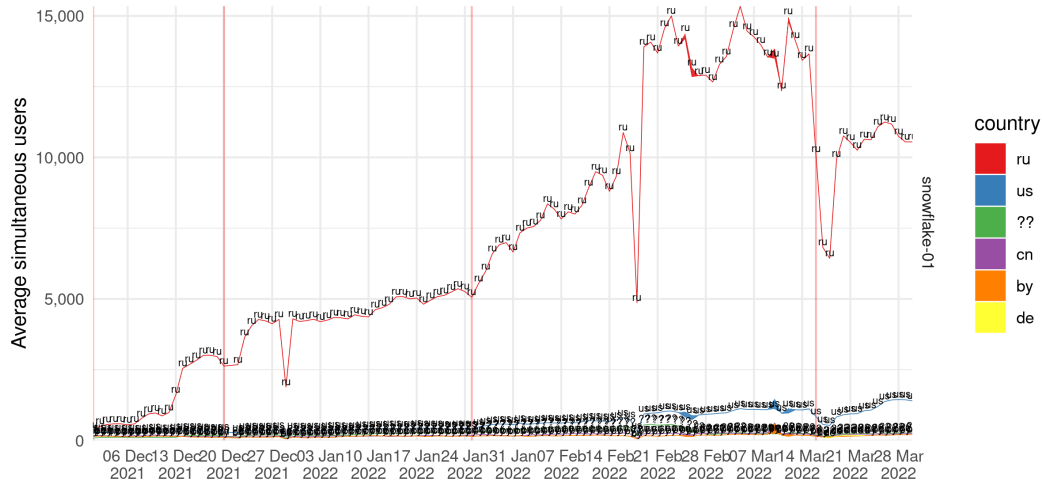
Russia

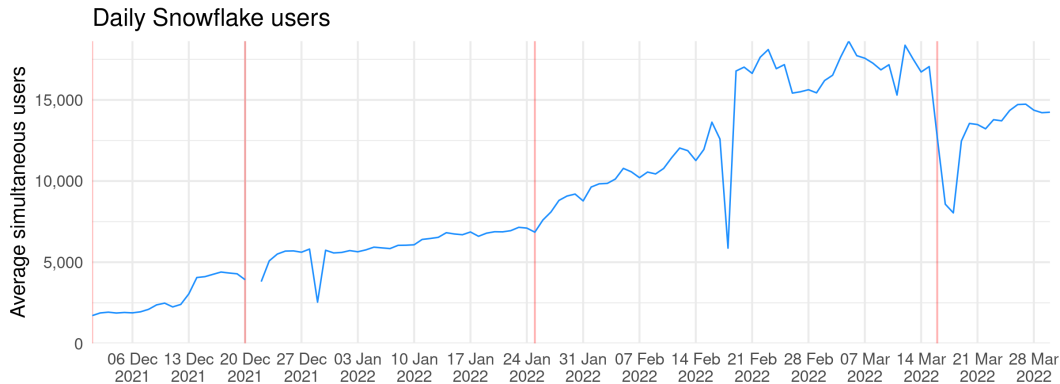
Web Connectivity Test, bridges.torproject.org

ok_count confirmed_count anomaly_count failure_count

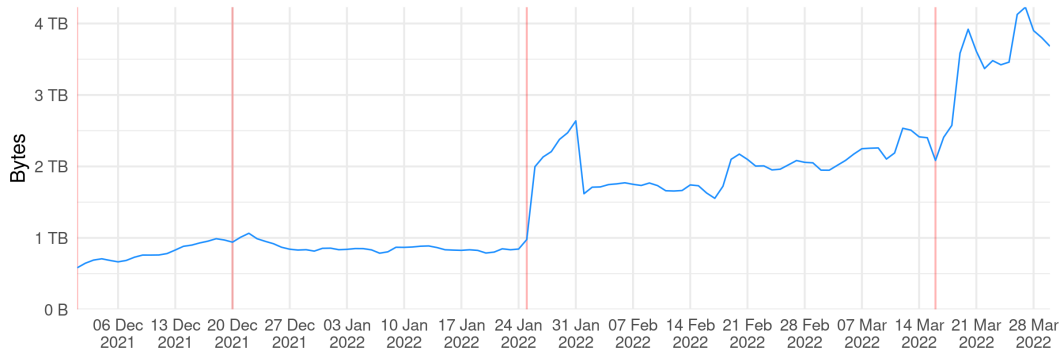


Top 5 countries with the most Snowflake users by day





Daily Snowflake bandwidth



Search GitLab

+

9

3

99+

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C

Open

IRC Tip about Signature used to block Snowflake in Russia, 2022-May-16

D

David Fifield @dcf · Apr 5, 2023, 10:50 AM

Owner

😊

💬

⋮

The "skip Hello Verify Request" change was merged into Tor Browser in [tpo/applications/tor-browser-build!637 \(merged\)](#) and released in [Tor Browser 12.0.3](#) on 2023-02-15. The change has so far only been in a beta releases of Orbot, starting with [17.0.0-BETA-2-tor.0.4.7.11](#) on 2023-03-15 ([here](#) is the commit that upgrades Snowflake to v2.5.1 in the IPtProxy dependency).

Since the release of Tor Browser 12.0.3 on 2023-02-15 there has been an increase in users from Russia on both bridges. The dip on 2023-02-16 is fake: it was caused by [an unrelated bridge restart](#). The chaoticness of the low-high range between 2023-02-15 and 2023-03-22 I cannot explain except that it correlates with a time when the bridges were [accidentally running with lower contrack limits](#).

Snowflake users in Russia

⏪

+

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2

No mi...

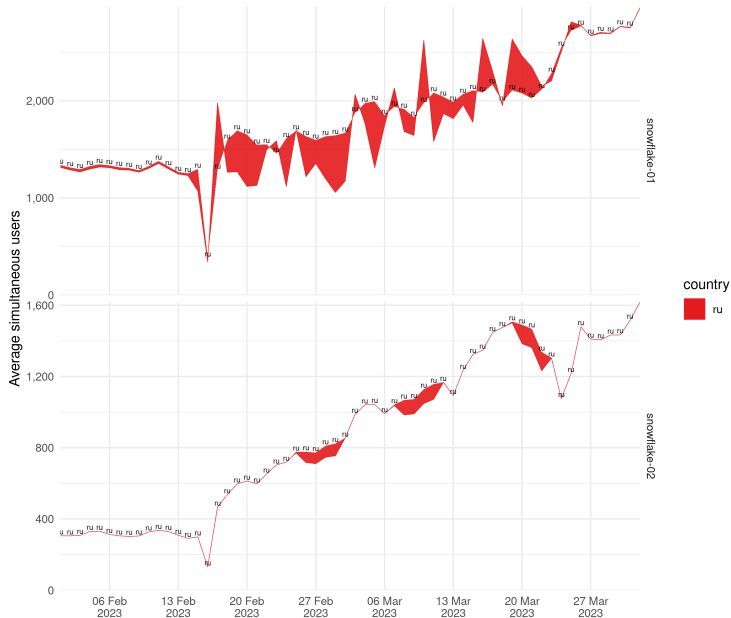
None

None

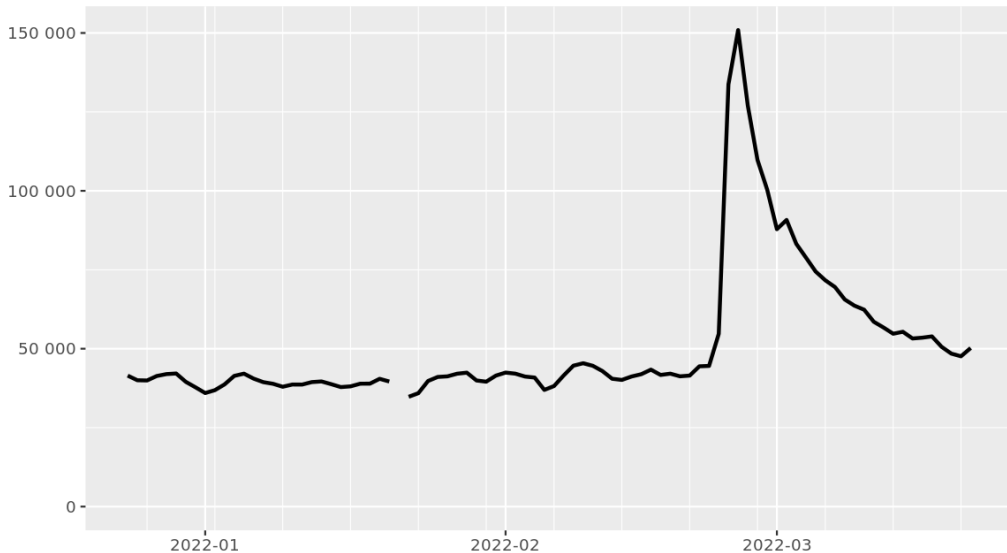
👁

11

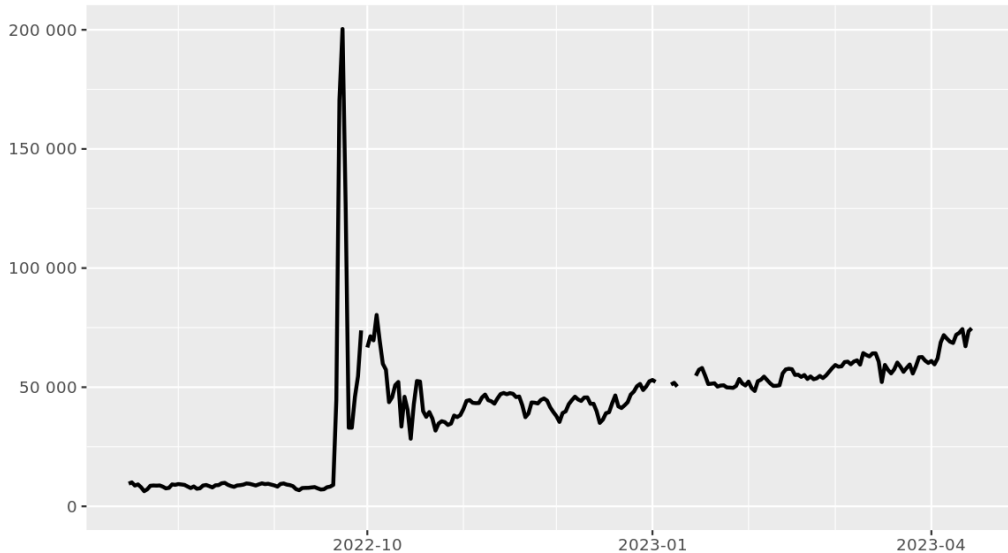
Snowflake users in Russia



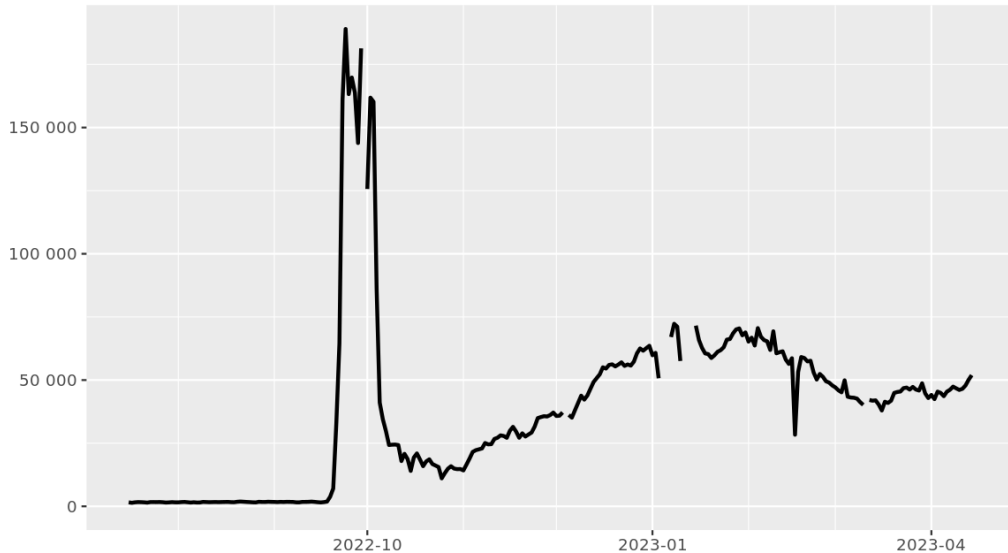
Directly connecting users from Ukraine



Directly connecting users from Iran

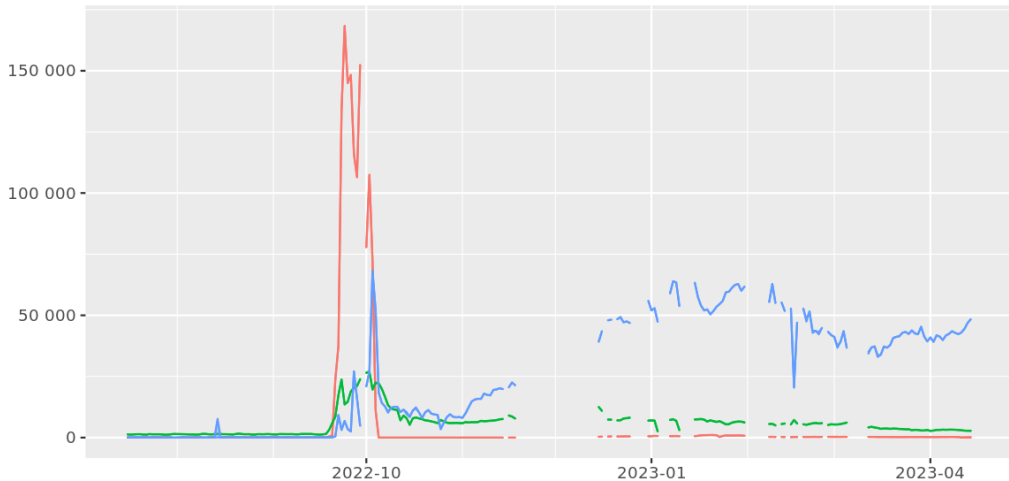


Bridge users from Iran



Bridge users by transport from Iran

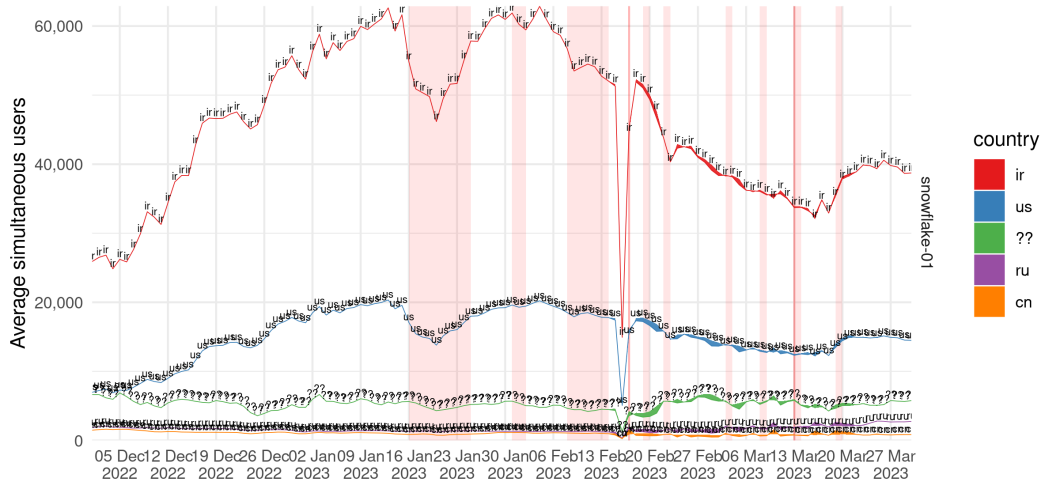
Top-3 transports ■ meek ■ obfs4 ■ snowflake

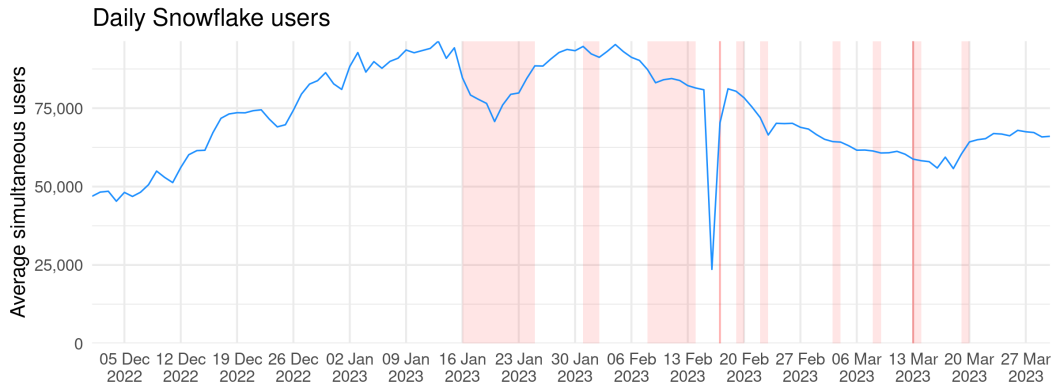


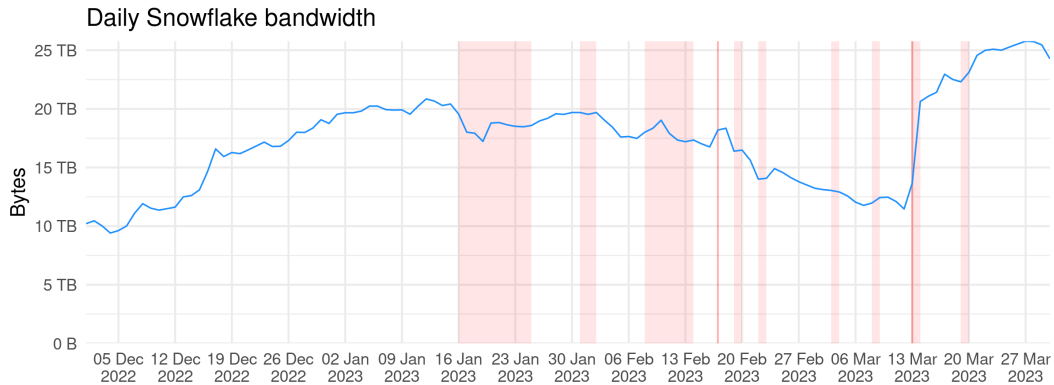
Daily Snowflake users in 2022



Top 5 countries with the most Snowflake users by day







T

🔒 Closed

Blocking of cdn.sstatic.net by SNI in Iran, 2023-01-16 to 2023-01-24 and sporadically thereafter

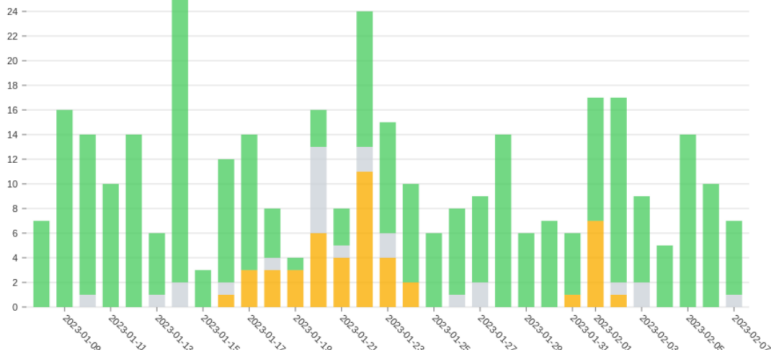
https://explorer.ooni.org/chart/mat?probe_cc=IR&test_name=web_connectivity&domain=cdn.sstatic.net&since=2023-01-08&until=2023-02-08&axis_x=measurement_start_day

Iran

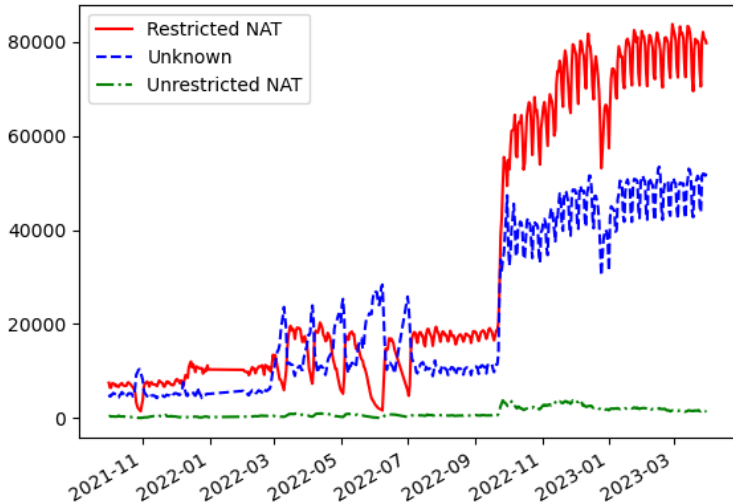


Web Connectivity Test, cdn.sstatic.net

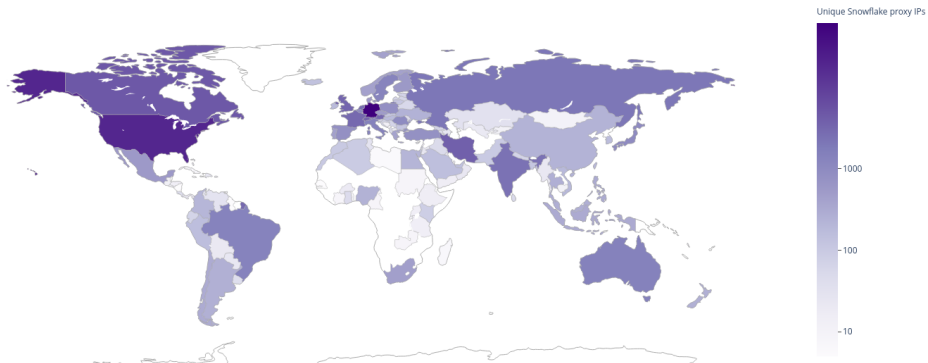
■ ok_count ■ confirmed_count ■ anomaly_count ■ failure_count



Snowflake volunteers by NAT type



Distribution of Snowflake proxies March 30 2023



Turkmenistan (1/2)

They block many cloud networks by IP address (!) so many circumvention components, including fastly and many cloud obfs4 bridges, are not reachable.

They filter most destination ports internet-wide, including default ports of Snowflake's STUN servers.

Turkmenistan (2/2)

We've been running a set of private port 8080 obfs4 bridges on residential addresses, reliably serving a community of human rights defenders.

We set up an experimental STUN server listening on port 8080 on a residential address, and users in-country could get farther on the Snowflake handshake.

Lox: reputation-based bridge distribution

“Lox: Protecting the Social Graph in Bridge Distribution” paper upcoming at PETS 2023

We've been collaborating with the Lox author to experiment with integrating Lox into Tor Browser

Leveraging the “building blocks for reputation-based bridge distribution” work from Defcon 2022 talk

Snowflake over the RACE years (1/2)

Started as a “good idea” prototype with ~ 0 users

Switched from Chrome’s libwebrtc to go-pion so we can have clients on Windows and Android

(and fixed some pion dtls distinguishers)

Developed NAT self-detection and NAT pairing algorithms

Built a broad community of volunteer snowflakes

Snowflake over the RACE years (2/2)

Modular design that fits on internet or on RACE testbed

End-to-end reliability layer from Turbotunnel, KCP

From one volunteer server to two dedicated 10gbit servers; changed protocol so the client can specify

AMP Cache on Orbot as alternative to domain fronting, for signaling

Public metrics data!

meek over the RACE years

Domain fronting was supposed to go away years ago.

Still kind of precarious? Both from service side and from censor side—and they're related.

meek helped us see the power of a signaling channel.

obfs4 over the RACE years

Continues to work pretty much everywhere—better than it ‘should’.

We found and fixed some theoretical distinguishers.

“Long tail” based traffic generation designs highlight the limitations of analysis in controlled testbeds.

We sure are excited about UPGen!