December 2017

Filterwatch

Iranian Internet Infrastructure and Policy Report

A monthly *Small Media* report bringing you all the latest news on internet policy and online censorship direct from Iran.

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Welcome to Filterwatch

Filterwatch is a monthly briefing paper published by Small Media, a London-based non-for-profit organisation working to support freedom of information and freedom of expression in closed societies.

The Filterwatch series (formerly known as the Iranian Internet Infrastructure and Policy report – or IIIP) was first published in 2012 with the aim of documenting documenting the ever-expanding restrictions on freedom of information in Iran, but as the internet policy environment increases in its complexity, so too have our Filterwatch reports expanded to encompass wider issues relating to internet policy and infrastructure development in Iran.

Over the last few years we have documented the development of SHOMA (also known as the National Information Network), adaptations in filtering methods and policies, yearly ICT budget adjustments, and appraisals of Iran's emerging tech economy. We have also sought to highlight how Iranian citizens use the Internet in their daily life, whether engaging with political campaigns, or connecting with the global community.

Each edition of Filterwatch is comprised of two main components – in the first, we delve deep into a specific aspect of Iran's ICT environment, and explore questions around development, access to information, and freedom of expression online.

In the second component we offer documentation of the key items of ICT-related news from the last month, organised thematically. In documenting these ICT developments, we seek to present the news stories as reported by Iranian media sources. With a large number of contradictory and inaccurate reports being shared relating to Iran's ICT sector, we work to highlight inconsistencies and provide analysis of the latest ICT trends.

Our growing readership is made up of activists, campaigners, policymakers, journalists and academics whose work depends upon up-to-date and reliable information about the development of ICT policy in Iran. We always want to hear from you, and to get your advice on where Filterwatch should go next. We're often open to partnerships and collaborations, and so if you have ideas around topics to cover, or themes to explore, do get in touch at contact@smallmedia.org.uk.

Thanks!

The Small Media Team

// Executive Summary

The eruption of anger and frustration on the streets of Iran at the end of 2017 constituted the largest and most widespread demonstrations since the post-election unrest of 2009. Although the scale of the protests appeared to catch authorities by surprise, this was exactly the kind of phenomenon that Iran's ICT infrastructure has been designed to contain and manage over the past 8 years.

In this month's #Filterwatch report we document the course of events, and the role of communications technologies in the unrest. We also offer some analysis of where Iran's information control policies are at, two weeks on from the start of the protests.

Although the demonstrations appear to have subsided, Telegram remains filtered, some VPN tools are still unavailable, and Iran has demonstrated its capacity to throttle connections to the global internet while maintaining domestic services. Additionally, the blocking of Telegram has been accompanied by a drive to encourage citizens to use insecure domestically-hosted alternatives – a worrying trend if the filtering of Telegram is sustained.

That said, the recent wave of information controls has also caused major disruption to Iranian businesses (especially those heavily dependent upon Telegram), has struggled to fully contain local community-based dissent, and has pushed millions of Iranians towards secure circumvention services like Psiphon.

This edition of Filterwatch focuses exclusively on the events of the #IranProtests. This report will be amended at a later date to include full documentation of ICT news from December 2017.

// Information Controls and the #IranProtests

Iran has been no stranger to political unrest in recent memory. In 2009, the unrest in the aftermath of Mahmoud Ahmadinejad's disputed election victory captured the world's attention, just as ten years previously the 1999 Tehran student protests highlighted dissatisfaction of student movement in Iran with the state of freedom of expression.

But although they did not always grab the world's attention, there have been numerous incidences of economic unrest emerging over the past few years, as Iranian citizens vented their frustration at the sluggish and uneven pace of economic recovery under the Rouhani administration.

Nonetheless, many commentators – whether based in Tehran, London or New York – were taken aback by the rapid pace of events in December 2017 and early January 2018, when protests spread from the city of Mashhad to around 72 cities and 75 towns, and villages across Iran. This was a revolt of the forgotten Iran – the 'left behind' citizens who reside in towns and small cities that are unknown to many Iranians, let alone to international observers.

These protests have so far appeared to have been without leadership, spreading organically across the country as momentum continued to build behind the protestors. Given this dynamic, many baffled commentators began their appraisal of the movement by examining how Iran's digital media ecosystem has worked to shape the protests and the social movements around it.

Unlike the widespread protests in 2009, where the reform movement's political leadership was backed by leading reformist newspapers and their mainstream media outlets, in this cycle of unrest it quickly became clear that the protestors had no clear voice in the mainstream media landscape. Instead, attention turned to public Telegram channels, which had become

extraordinarily popular and influential media outlets in the absence of widespread content filtering on the platform.

The cover of the newspaper Ghanoon's humor section, depicting Jahromi fighting online apps and VPNs.

With around a million members, Amad News was soon singled out by some news outlets inside and outside Iran as playing a role in provoking protesters and inciting violence, and serving as the unofficial media outlet of the protests. Although it is impossible to clearly gauge the channel's role in inflaming and coordinating the course of events in Iran, it is without doubt that Telegram itself played a huge role in shaping the way protesters communicated with each other, shared information with the global press, and received frequent updates on the course of events. As we highlighted in detail earlier in 2017, Telegram has significantly reshaped Iran's digital media landscape and political culture, with more than 40 million users reported nationwide.

Discussing the effects of technology and means of communication should never overshadow the social and political contexts in which protest or social movements emerge. Numerous commentators have commented upon the economic roots of the recent unrest, while others such as Farzan Sabet have commented upon the overtly political, anti-establishment tone and substance of the protestors' slogans[1].

Although it offers us a valuable and information-rich entry point into the course of events during this period of unrest, Telegram should not be the only lens through which social movements in Iran are viewed. In this paper we merely seek to add to the ongoing discussion about the course of events in the past few weeks, and to cast some light on how Iran has deployed its information control mechanisms in an attempt to contain and manage the situation.

In this paper we present a factual timeline of the events which led to the filtering of Telegram on December 31, a discussion of the ramifications of this filtering, and a look ahead at what the future might hold for internet freedom in Iran in the light of these recent developments.

Temporary Measures? // The Filtering of Telegram

Soon after protests first started to sweep the country on December 30, and clashes between protesters and security forces intensified, Iranian ICT Minister Mohammad-Javad Azari Jahromi tweeted a direct appeal to Telegram CEO Pavel Durov imploring him to block Amad News, a public channel that allegedly instructed protestors to employ violent resistance against state security personnel.

[1] Farzan Sabet's analysis of 58 videos from 1-2 January showed that a clear majority of slogans were directed against the Islamic Republican system, suggesting that economic grievances had transmorphed into political dissent: https://twitter.com/IranWonk/status/947994836614991872

Telegram CEO Pavel Durov defended his decision to shut down the channel Amad News.

A prompt response from Telegram saw the channel deleted on the basis of Jahromi's allegations. Amad News website quickly started a second channel, named AmadNews1, though it was quickly deleted by Telegram on the basis that it was a mirror of the original channel. Finally, Amad News' admin rebranded the channel and opened a new channel under the name 'Sedaie Mardom', or 'People's Voice' (@sedaiemardom), which attracted hundreds of thousands of followers within days (its membership sitting at just under 1,300,000 as of January 11, 2018).

It appears that after providing reassurances to Durov that the channel admin responsible for posting the messages had been removed from the team, the channel was allowed to continue operating. Subsequently, it appears that this decision was used as the basis for Iran's National Security Council – a subcommittee of Supreme National Security Council – to ban Telegram in Iran.

Pavel Durov reported on his exchange with the administrators of the Amad News channel.

On 31 December 2017 many Iranian users started reporting problems with using Telegram and Instagram. However it took until January 1 for Iran’s ICT Minister to address the disruption of Telegram and Instagram, claiming in a tweet that the filtering of these services is only a temporary measure. Later in the day Jahromi also named the 'National Security Council' as the body responsible for issuing the order to block Telegram and Instagram. However, despite his claim that the filtering of these apps was not undertaken by the ICT Ministry, on January 5 the Tehran Friday prayer leader Seyyed Ahmad Khatami thanked Jahromi for his “management” of cyberspace during the protest.

Indeed, there are indications that the ICT Ministry is exercising control over the situation. Instagram was unfiltered on January 5, and on January 10 the Commission to Determine the Instances of Criminal Content (CDICC) Chairman Abdolsamad Khorramabadi criticised this move – ostensibly by Jahromi’s ICT Ministry – as contravening the guidance set out by the judiciary and the National Security Council. Khorramabadi stated:

“As a result of its involvement in terrorist activities, Instagram was blocked by the National Security Council. However, the ICT Ministry has unfortunately unfiltered it without considering security or the judiciary’s orders.”

If Jahromi can exercise such influence over the fate of Instagram, it seems probable that his Ministry holds the final decision over the fate of Telegram (unless higher powers such as the Supreme Leader's office are involved).

As well as filtering Telegram, Iranian users started reporting major disruptions in accessing servers hosted by the New York-headquartered hosting company DigitalOcean, disruptions which appear to have been implemented by ISPs inside Iran. DigitalOcean's services are used by some VPN providers, developers, and start-ups inside the country.

Supplementing these 'traditional' means of censorship by content filtering, we witnessed some evidence of the slowing down of international internet traffic at international gateways. Differentiating between domestic and international traffic has long been a demand of many backers of the National Internet (SHOMA) in Iran.

The network monitor BGPmon noted in a tweet that international traffic temporarily dropped by nearly 50% on January 1. Although the incident only lasted for 12 minutes, the timing of the event does suggest that traffic was being intentionally throttled, and that the state has the capacity to limit international traffic at will.

A New Player? // The Surprise Unblocking of WeChat

In a stark contrast to their filtering of Telegram and Instagram, ILNA News Agency reported that on January 4 the CDICC lifted the ban on the Chinese messaging and social networking app WeChat. WeChat was previously filtered by Iran's Filtering Committee in December 2013.

It appears that the move to unblock WeChat by CDICC was intended to provide a potential alternative to Telegram, which raises a question whether CDICC is planning for the permanent filtering of the service.

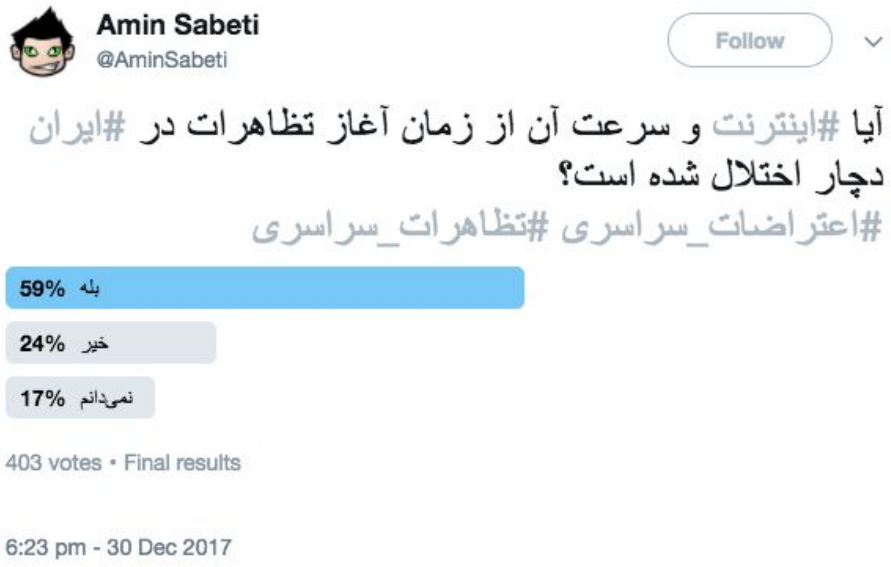
One of the possible reasons that Iran has unblocked WeChat could be connected to its close relationship with the Chinese

government, that has influence over WeChat servers. It is possible that the Iranian government has negotiated a deal with its Chinese counterparts and WeChat to allow Iran to remove and block any WeChat-based content.

Alternatively, the move could have been undertaken as an implicit threat to Telegram, to signal that if it failed to cooperate with the government then there are other service providers that could be brought into the market.

Disruption // VPN Availability

As noted above, Iranian internet users have had problems connecting to the international internet, and have been forced to use different circumvention tools and VPNs to gain access to information unimpeded. In a Twitter poll, digital security expert Amin Sabeti asked Iranian users "Have you had any issues regarding internet [connectivity] and speeds since the protests in Iran?". Of 403 users who responded to the poll, 59% stated that they had, whereas 24% said they had encountered no issues.



A Twitter poll conducted by digital security expert Amin Sabeti, gauging Iranian users' experiences amidst the disruption.

According to tests conducted by Small Media's in Iran on 11 January 2018 (Identified Vendor: AS51026), 7 circumvention

tools/VPNs were noted to be functional, whereas 9 are still unavailable. The results of our tests are available below.

Name	Availability
Alkasir	Blocked
Betternet	Available
CyberGhost	Blocked
F-Secure Freedom	Blocked
FreeGate	Available
Hotspot Shield	Blocked
Lantern	Available
Privatix	Blocked
Psiphon	Available
SecureVPN	Blocked
Tor Browser	Available
Tunnelbear	Blocked
UltraSurf	Available
VyprVPN	Blocked
Windscribe	Available
ZenMate	Blocked

// The Impact of Filtering Policies

Currently it is unclear how the government's information control policies affected the course of the protests in Iran. Although the momentum of events appears to have slowed, there seems to be no clear link to the government's filtering policies. Indeed, the limitations imposed on internet access was matched by a brutal and heavy-handed response to protestors on the streets.

To assume that internet disruptions led to the evaporation of street protests one must assume that either the protest originated online thanks to a widely disseminated campaign, or else it was coordinated by a core team using communication apps such as Telegram. Despite Amad News' (and later Sedaie Mardom's) role in reporting – and ostensibly cheerleading – the uprising, there is no evidence to suggest they, nor any other group actively ***coordinated*** the movement online.

Indeed, perhaps the most challenging aspect of the unrest for the government was its wide geographic distribution. Although the spark was lit in Mashhad at a large protest dominated by economic demands, unrest spread like wildfire to small towns and provincial cities across the country, where mass youth unemployment and rising poverty have fostered widespread public frustration with the status quo.

Our assessment is that this frustration erupted organically in late December, and that the slowing momentum of protests is indicative of their uncoordinated nature, lack of political leadership, and a heavy-handed response from state security forces.

On the issue of leadership, it is unclear where the protesters on the ground got most of their information from, but the fact that unrest had rapidly spread to smaller towns perhaps made social networks and digital communications tools less instrumental.

For example, the southern city of Izeh in Khuzestan Province has a population of around 100,000 people, and yet was the site of large protests on December 31, 2017. As Ali Reza Eshraghi notes, much

of the unrest was deeply connected to localised grievances – local mobilisation and local action were at the root of protests in places like Izeh. Protesters in smaller communities such as this might have benefited somewhat from using messaging and social networking platforms, but are less reliant than inhabitants of large cities with weaker local organisational networks.

Getting information out of Iran, although complicated by the government's information control policies, was not impossible. Nariman Gharib, social media specialist & cybersecurity analyst at the London-based broadcasting network Manoto TV said:

"The blocking of Telegram and the disruption of internet connections did not have a significant effect on our communication with citizen journalists and our viewers in Iran, as many used alternative messaging apps. We also provided alternative methods of contacting us."

Iran's throttling of internet access, disruption of circumvention services, and filtering of social media platforms constitute a serious violation of citizens' rights to freedom of expression and information, and should be roundly condemned.

Yet it remains unclear whether, despite their reach, the state's filtering policies have proven entirely effective at restricting information flows inside the country. Banned channels such as Sedaie Mardom quickly regained their user base once re-established, media content continued to be produced and shared, and (as we will demonstrate shortly) the use of circumvention tools continued to skyrocket.

The "Telegrampreneurs" // Economic Impacts of Filtering

Although government filtering policies had an ambiguous impact upon the course of the recent unrest, their effects were clearly felt by businesses. Disruption of access to secure hosting companies such as DigitalOcean crippled the operations of the tech developers and start-ups who are dependent upon them to run and maintain their businesses. Meanwhile, the filtering of Telegram

affected thousands of businesses that use the platform to advertise, sell, and distribute their products.

Keen to take a public stand against the filtering of Telegram, a number of Iranian entrepreneurs launched a Twitter account named 'Iranian Telegrampreneurs' (@telegrampreneur). The account claims that 1 million jobs could be affected by the disruption of the service, and published a list of 50,000 Telegram channels that are used by Iranian businesses.

As well as tweeting at Iran's ICT Minister Jahromi asking him to lift the filtering of Telegram, the account shared messages it received from business owners who have been affected by the disruption. Here are some of their stories:

Case #1 // January 1, 2018 –

Hello. I have a [Telegram-based] shopping channel and I had made a lot of sales [before the filtering] – about 200 people had transferred money to my account. Some of them have managed to connect [to Telegram] using anti-filtering tools, and have given me their addresses so I can send their goods, but a lot still remain who I'm unable to contact.

Just by myself I employ 15 admins who aren't in a good financial situation, and they can't get any other work.

Case #2 // January 3, 2018 –

"I swear on the Quran, people have given up. People only had this one pleasure, and now it's been taken from them. This is not the way [to act]. Instead of filtering [Telegram] they should take action to resolve people's problems. I sold 70% of my shop's goods through Telegram, [but] today I had to close my shop and go home... Thanks."

It appears that the grievances of business owners have been heard by the Iranian government. In their recent comments, both Rouhani and Jahromi have conceded that filtering policies have had negative impacts on businesses in recent days.

On January 3, Jahromi stated that:

"There is a lot of business and trade that takes place via Telegram, and so as a result we're following up on its reconnection. However, Telegram is not the only messaging app in the world, and other messaging apps exist as well."

On January 8, Rouhani took to Twitter to comment on the filtering of Telegram, stating:

"Any tool or technology can be misused by some people, but we cannot remain indifferent towards the livelihoods and businesses of people by limiting them permanently. #cyberspace"

It's difficult to know quite what to make of these statements. On the one hand, Rouhani's comment about the need to lift restrictions and support businesses seems like an unambiguous statement of his intent to roll back filtering policies in the immediate future.

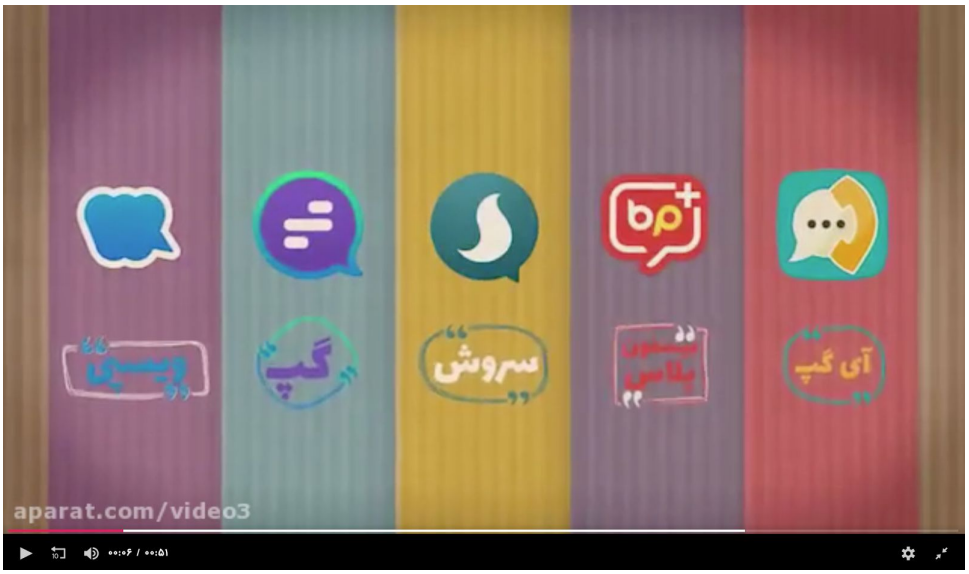
Jahromi's line is less clear, however. By suggesting that users and business owners might want to investigate alternative messaging apps, he implies that restrictions may not be removed fully from Telegram in the short term.

Behavioural Problems // Reshaping User Behaviours

Despite officials' insistence that the filtering of Telegram is a temporary measure, campaigns rapidly started promoting five leading domestic messaging apps as potential replacements for Telegram – Soroosh, Bale, Gap, iGap, and Bisphone. Reports also confirmed that these apps have seen sharp increases in downloads from the domestic app store CafeBazaar.

On January 3, the Iranian magazine Peivast tweeted that it had seen figures from CafeBazaar that confirms this increase. At the time of writing this report according to CafeBazaar's public website the those five messaging apps have the following numbers of "active installed" users:

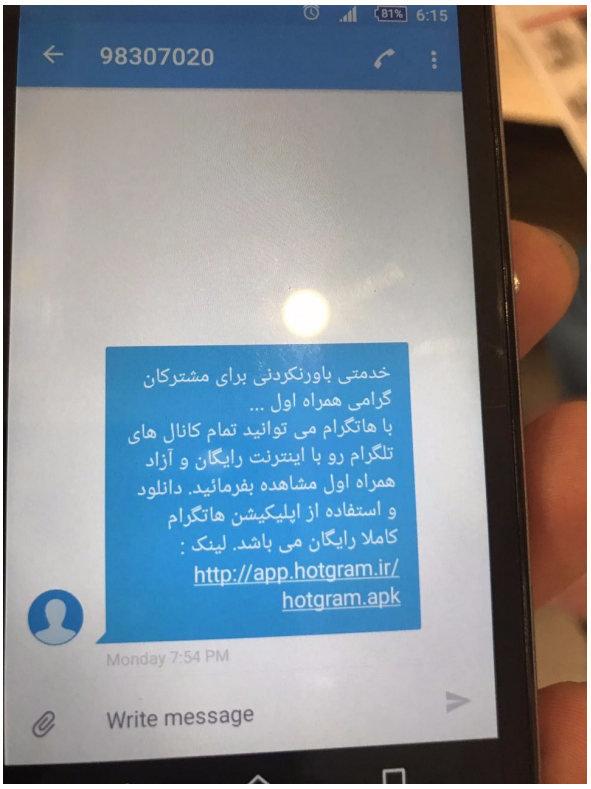
- Soroush // 1,000,000
- Bale // 200,000
- Gap // 100,000
- iGap // 50,000
- Bisphone // 20,000



A video clip on Aparat promoted five domestic messaging apps after the suspension of access to Telegram.

In a more worrying trend, a number of domestically designed, unofficial fork versions of Telegram such as Hotgram and Mobogram have been using this opportunity to advertise themselves as a solution to bypassing filtering. On numerous occasions, Iranian mobile users have received text messages claiming that usage of these domestic fork version is classified under their domestic tariff.[2]

[2] Iranian ISPs offer 50% discounts for Iranian data consumption when accessing domestically hosted sites or services, rather than services hosted internationally. For more information, see the May 2017 edition of #Filterwatch: https://smallmedia.org.uk/news/filterwatch-may-2017



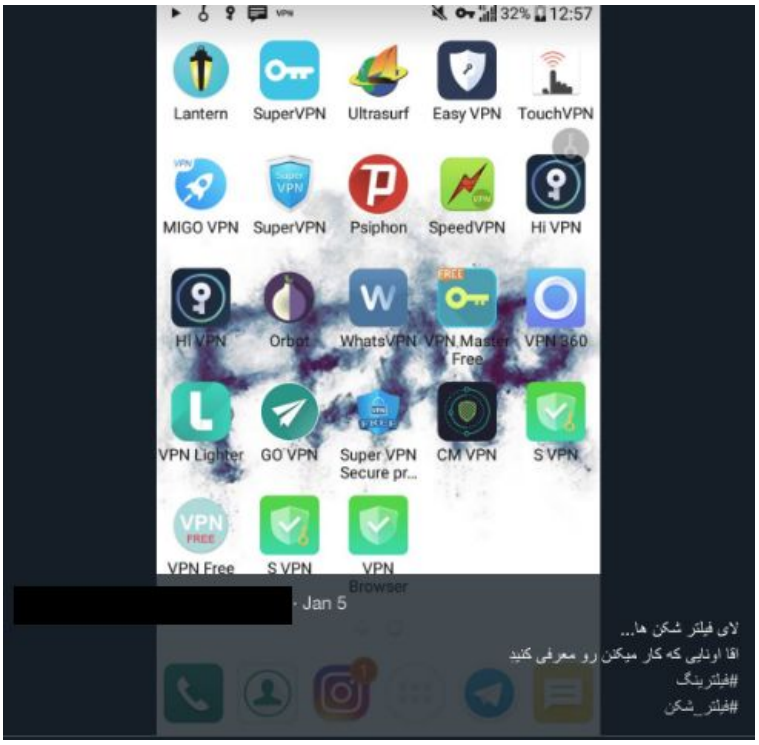
Iranians were sent SMS messages promoting unofficial Telegram forks. (Source)

These apps appear to be able to bypass the government's filtering of a majority of Telegram channels, apart from a list of blocked channels seemingly provided to them by Iranian authorities. In his analysis, Amir Rashidi noted that apart from blocking users' access to certain channels, these services also seriously compromise user privacy, as their traffic passes through domestic servers. Telegram CEO Pavel Durov has previously warned users about these unauthorised Telegram forks:

Telegram CEO Pavel Durov discouraged using unsecure Telegram forks such as Hotgram.

Filternet? What Filternet? // Circumvention Tool Usage

As soon as the internet service disruptions began, many Iranian users started looking for VPNs and circumvention tools that could help them to connect to filtered services. After nearly a decade of experience evading government filtering policies, Iranians are generally well-equipped with circumvention tools provided by global providers.



An Iranian user shows off their wide array of circumvention tools.

During the recent unrest, a number of international providers removed data restrictions to Iran in order to give Iranians unlimited, unfiltered internet access, including the popular service Lantern.

Lantern 蓝灯 Retweeted

Adam Fisk @adamfisk · Jan 2

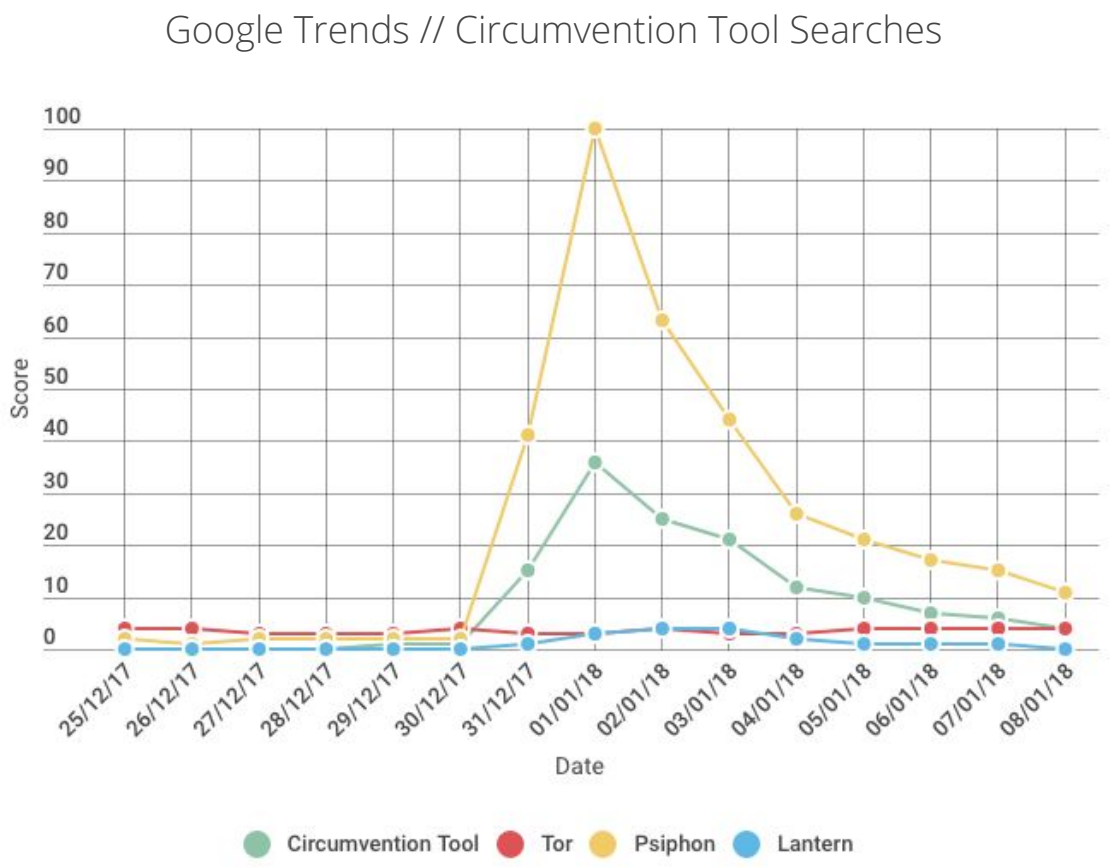
#IranProtests we removed all data caps from Lantern to give Iranians unlimited access to the open Internet for free. @NarimanGharib @aslnoozdah @getlantern

82 224 578

Ultimately, however, the most widely-used circumvention tool of the period appears to have been Psiphon. In an interview with Motherboard, Psiphon's Irv Simpson reported that downloads of the app skyrocketed from an average 35,000 - 40,000 per day to more than 700,000 between December 31 and January 3, accompanied by a ten-fold increase in Psiphon mobile usage from Iran over the same period. Simpson estimated that between 8-10 million Iranians were using Psiphon at its peak.

Indeed, a quick glance at Google Trends data from Iran suggests that Psiphon is far outstripping other circumvention tool providers

inside Iran. On January 1 nearly three times as many Iranians were searching the term 'Psiphon' (سایفون) as were searching the generic term 'circumvention tool' (فیلترشکن). Searches for Psiphon also exceeded searches for Lantern (لنترن) and Tor (تور) by a factor of twenty.

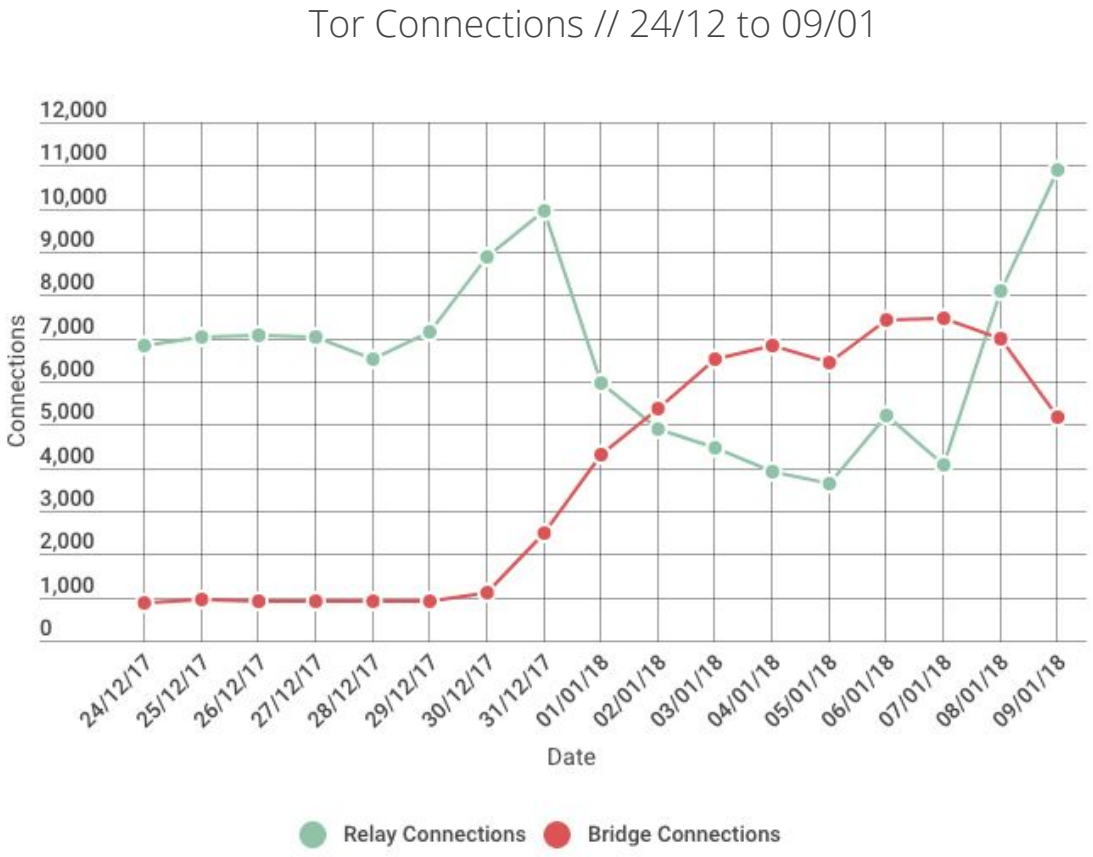


Data obtained from Google Trends demonstrates that searches for 'Psiphon' far outweighed those for other circumvention tool-related terms during this period, corroborating Psiphon's claims of a boom of activity over the New Year.

Data published by The Tor Project, meanwhile, suggested that limitations on international traffic imposed by the government were having a negative impact on the availability of the service via publicly available relays.

Consequently, there was sharp increase in the use of Tor's censorship-resistant 'bridges' from Iran, which continued to climb during the latest period of disruption. It should be noted, however,

that as of the time of writing, the number of combined direct and bridge-connected users is only a little over 10,000. Considering the estimated 8-10 million users of Psiphon, Tor's position in Iran's circumvention tool landscape appears to be at risk of becoming quite marginal.



Data published by The Tor Project showed the impact of Iranian information controls on regular relay connections. Censorship-resistant bridge connections increased as relay connections became unavailable.

Iranians are not only suffering from their own government's efforts to limit internet services, but they also endure the negative impact of sanctions imposed on US-based tech companies. Either through the direct effects of US sanctions or overcompliance, some US companies have long denied Iranian citizens access to their services, in some instances compromising their security in the process.