Iranian Internet Infrastructure
and Policy Report

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INTRODUCTION

Virtual Private Networks (VPNs) have emerged as the leading circumvention tools used by Iran's online population. Seeking to dodge the state's pervasive and comprehensive filtering system, millions of users have made use of the tools to connect to forbidden social media sites, dodge economic sanctions, and engage with Iranian diaspora community sites. This month's report evaluates the state's often-confused policy responses to the prevalence of VPN usage, as well as engaging in a survey of VPN users on the ground in Iran, to determine their patterns of use.

We also delve into the past month's most significant policy developments, taking in the divided reactions of different segments of the ICT establishment in the wake of the roll-out of massively-expanded 3G and 4G coverage across Iran. This comes in addition to the latest updates regarding the development of the 'National Internet' (SHOMA) project, and other major internet infrastructure development projects that have been ongoing in recent weeks, as well as the latest filtering rulings from the country's filtering committee.

VIRTUAL PRIVATE NETWORKS (VPN) ⬢
USAGE IN IRAN

Virtual Private Networks (VPNs) have been at the heart of a number of high-profile debates around internet censorship in Iran in recent months. Millions of users have made use of the networking tools to connect to proxy servers, allowing them to circumvent Iran's internet filtering programme - much to the frustration of the country's internet censors.

This activity has caused some major headaches for the Iranian establishment. According to Freedom House's April 2011 report, VPNs were the most popular circumvention tools used by Iranians, and this is borne out by the extensive array of VPN-related content on the Persian-language web: the number of Google search results for the Persian-language term 'buy VPN' (خرید وی پی ان) sits at around 2,000,000.

Additionally, a September 19 report by Iran's Ministry of Youth and Sports has found that 69.3% of Iranian youth are users of circumvention technologies such as proxies, or VPNs. These findings demonstrate the extent to which state censorship efforts are constantly undermined, and the effectiveness of circumvention tools as a means of challenging the country's system of internet filtering.

FINDING A SOLUTION

The Iranian government has previously attempted to enter the VPN market in an attempt to curtail the use of VPN technology for the evasion of filtering. The most high-profile effort was launched in March 2013, when the Supreme Council of Cyberspace (SCC) attempted to outlaw the sale of 'unrecognised' VPNs, and instead promote the sale of an 'official' Telecommunications Infrastructure Company (TIC)-developed alternative.

However, only 26 VPN companies applied to register with this 'official' TIC VPN, and the trade in unregistered VPNs carried on much as it did before. By June, the TIC conceded that the project had failed, and announced its cessation.

THE LEGALITY OF VPNS

According to Iran's Cyber Crime Law, it is illegal to distribute any kind of circumvention tool that helps users to bypass the filtering system, or to instruct people how to use such tools. Despite this legislation, however, it remains unclear whether or not the sale and use of VPNs is legal under Iranian law.

The ambiguity arises in the fact that VPNs are not, strictly speaking, circumvention tools. Their primary purpose is to assist private companies in securing their online communications networks. However, tech-savvy Iranians have increasingly made use of VPNs to bypass sophisticated government Internet filtering, by using them to connect to proxy servers.

This situation has prompted some conflicting statements about VPNs from Iranian authorities. In October 2011, Reza Taghipour, a member of the SCC and the former ICT Minister in Ahmadinejad's government, declared the use of VPNs illegal, prompting the Telecommunication Company of Iran (TCI) to impose blocks against their sale. Yet the MP (and long-time Ahmadinejad critic) Ali Motahari protested that the use of VPNs is indeed permissible under Iranian law, arguing that neither Taghipour's statement nor the action of the TCI had any legal basis. On 12 May 2014, Kamal Hadianfar, head of Iran's Cyber Police (FATA) announced that Iran's Parliament is currently reviewing the legal

status of VPNs in the country, stating that moves will likely be taken to prohibit their usage and sale pending the passage of new legislation.

Although the sale of VPNs has not been explicitly outlawed, FATA has nonetheless arrested a number of individuals for selling the tools:
- **10 April 2013:** A young man who sold VPNs and other circumvention tools was arrested by FATA (Qazvin Province). (Source)
- **5 July 2013:** A 35 year-old man who used another person's identity to sell VPNs was arrested by FATA (Tehran Province). (Source)
- **12 March 2014:** An individual who sold VPNs and provided support to users for more than 3 years was arrested by FATA (Razavi Province). (Source)
- **13 April 2014:** A blogger who sold VPNs and other circumvention tools was arrested by FATA (Kerman Province). **(**Source)

Iran appears to be struggling to determine a coherent policy to respond to the challenge posed by the popularity of VPNs and circumvention tools. Though it has attempted punitive crackdowns on sellers, as well as market regulation and co-optation, its efforts have so far failed to dissuade Iranians from using the tools to sidestep the country's filtering system.

THE VPN MARKET

While there are no official, or particularly reliable statistics about the state of the VPN market in Iran, commentators are in general agreement that the VPN trade is worth millions of dollars. However, precise estimates vary: Alef puts the value of the market at around 600 billion IRR (22.5 million USD), whereas the Iranian Students' News Agency (ISNA) believes the figure is closer to 110 billion IRR (over 4 million USD). Eghtesad Online (Online Economy) speculates that the VPN market had a turnover of 10,000 billion IRR (375 million USD) between 1389-1392 (2010-2013), with a net profit of 4,000 billion IRR (151 million USD) over the same period.

FATA has tried to restrict the online sale of VPNs, but Iranians can nevertheless buy them freely online, where they are frequently resold. The market is so open that sellers frequently make use of Iran's official online payment gateways in these transactions. According to Small Media's investigation, the top 3 payment gateways used by Iran's VPN sellers are:
1. Pardakht Net
2. Sharj Iran
3. Jahan Pay & Baz Pardakht

Unconfirmed reports in Iranian media outlets, such as ISNA, suggest that elements within the government and the Revolutionary Guard (IRGC) provide support to a number of VPN sellers. Reports hypothesise that this is a mutually-profitable arrangement; lining the pockets of officials at the same time as it allows VPN sellers to continue in their work without the threat of state interference.
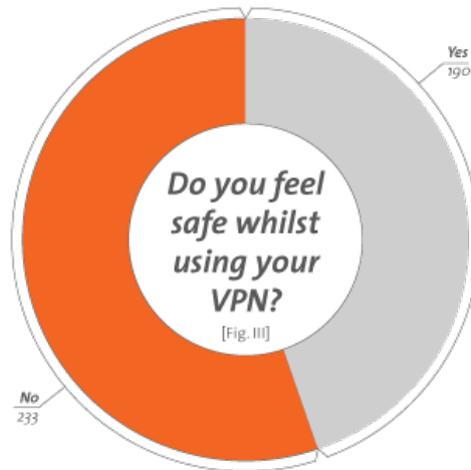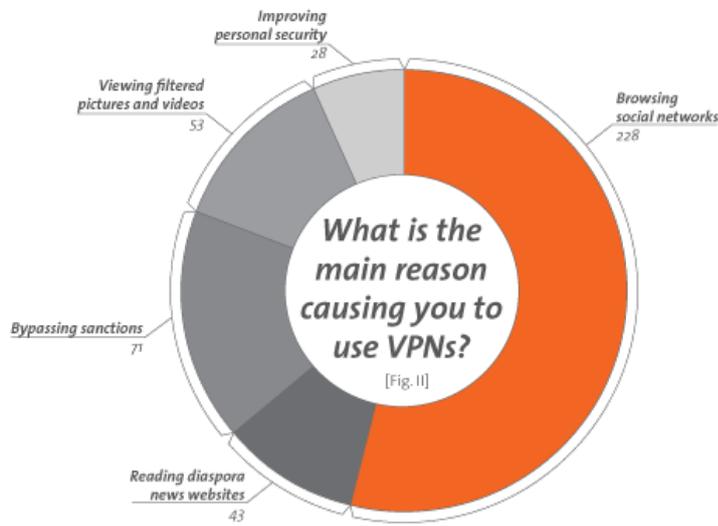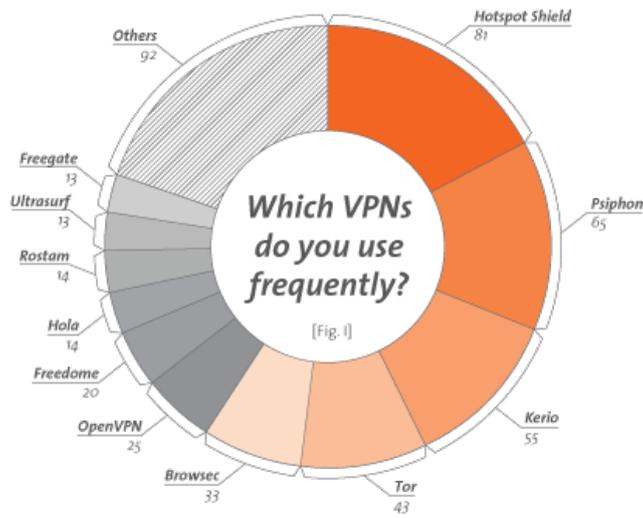
VPN SURVEY

From August 7 - August 21, Small Media conducted a survey of 423 Iranian VPN users. This survey helped us to develop a picture of the most popular VPNs used in the country, get an idea of why people were using them, and see how much VPN usage contributes to users' feelings of security.

The findings of the survey suggest that one of the main motivators behind a user's choice of VPN is price: the most widely-used three VPNs in our sample - Hotspot Shield, Psiphon, and Kerio - are freely available, and functional without monthly subscription charges. These VPNs are also usable on smartphones, allowing Iranian users to gain access to filtered websites on the move. [Fig. I]

The majority of Iranian users surveyed make use of VPNs primarily as a means of accessing blocked social networks such as Facebook and Twitter (53.9%), with comparatively few using the technology with the main aim of accessing blocked news content (10.2%), or images or videos (12.5%). More re-

spondents found VPNs most useful as a means of dodging Western sanctions (16.8%), but still nowhere near the number of users that are drawn primarily to social networks. Notably, only a small minority of respondents use the VPNs for their intended purpose: improving personal security (6.6%). [Fig. II]

A majority of users continue to feel insecure in their internet browsing whilst using VPNs - 55% of users expressed uncertainty about the safety of browsing the internet whilst using VPNs, against 45% who feel that VPNs facilitate a secure online experience. Even whilst using circumvention technology, many users appear to remain mindful of the possibility of state surveillance. [Fig. III]

Which VPNs do you use frequently?

[Fig. I]

- Hotspot Shield — 81
- Psiphon — 65
- Kerio — 55
- Tor — 43
- Browsec — 33
- OpenVPN — 25
- Freedome — 20
- Hola — 14
- Rostam — 14
- Ultrasurf — 13
- Freegate — 13
- Others — 92

What is the main reason causing you to use VPNs?

[Fig. II]

- Browsing social networks — 228
- Improving personal security — 28
- Viewing filtered pictures and videos — 53
- Bypassing sanctions — 71
- Reading diaspora news websites — 43

Do you feel safe whilst using your VPN?

[Fig. III]

- Yes — 190
- No — 233

423 respondents surveyed from 7-21 August 2014

CONTENT FILTERING AND BLOCKED SITES

• **August 4:** An order issued by judicial authorities mandated the blocking of Tabnak, a news website close to Mohsen Rezaee. According to Sadegh Arab, chief editor of Tabnak, the website was blocked due to a series of users' comments about FATA. Tabnak was unblocked again after a few hours. (Source)

• **August 7:** A series of blogs and news websites including Ghasr News, The Development Party of Kermanshah, Kermanshah Post, and Bi Sotoon were blocked after they published criticisms of the governor of Kermanshah. At the time of writing, The Development Party of Kermanshah website is still available, whilst Bi Sotoon has changed its URL. (Source I, Source II)

• **August 21:** An individual who shared 'personal images' of a family in Isfahan on WhatsApp was arrested by FATA (Isfahan Province). According to FATA, the culprit had been rebuffed after proposing marriage to a member of the family. (Source)

• **August 24:** FATA (Isfahan Province) arrested a 22 year-old who hacked into 1,500 ADSL lines in Isfahan to make use of their bandwidth free-of-charge. (Source)

• **August 25:** The official website of Ayatollah Seyyed Sadegh Hosseini Shirazi was blocked by the Commission to Determine the Instances of Criminal Content (CDICC) without any explanation. This incident happened after the Ministry of Intelligence and National Security of the Islamic Republic of Iran (MISIRI) announced that a series of anti-Sunni satellite channels, some of them owned by Ayatollah Shirazi, had been shut down. (Source)

STATEMENTS FROM MINISTRIES AND POLITICIANS

• **August 3:** Donya-e-Eqtesad published an interview with Hassan Karimi, Deputy of Operating and Management at the TIC. Highlights of the interview are listed below:
  • The TIC cannot announce the price it pays for Internet bandwidth, as this may lead ISPs to complain about the price at which that they have been purchasing it from the TIC.
  • Internet bandwidth enters in Iran from 9 paths.
  • The TIC has been buying Internet bandwidth from PCCW, Level 3, TeliaSonera, and Voda fone, among others.
  • The STM-1 (Synchronous Transport Module level-1) price for ADSL usage is 240,000,000 IRR (9,000 USD) and for non-ADSL usage it is 370,000,000 IRR (13,881 USD).
  • 30% of the total traffic aiming to connect to the internet uses local bandwidth, whilst 70% still uses international bandwidth. (Source)

• **August 4:** Mahmood Vaezi, the Minister of ICT, announced that internet bandwidth in Iran has reached 1,200 Gbps. He also laid out the Ministry's plans to host at least 50% of Iranian websites within the country. In addition, he said MTN Irancell is about to commence the pilot phase of a plan to offer 3G technology for mobile phones. (Source)

• **August 6:** Mohammad Reza Aghamiri, a member of CDICC, said the new filtering guidelines will be used in the filtering committee that will require a majority of members to vote on the blocking of websites. Previously, such decisions were made by a working group of 7 members (comprised of representatives from: the Ministry of Culture and Islamic Guidance, MISIRI, ICT, the Islamic Development Organisation (IDO), Iran's Police, Islamic Republic of Iran Broadcasting (IRIB) and Iran's Attorney General). However if the website/service is very important and/or popular, they would pass the final decision to the CDICC. (Source)

• **August 9:** An anonymous member of the National Cyberspace Center (NCC) said the ICT Ministry has yet to submit its timeline for the completion of the National Information Network (SHOMA). The deadline was 5 months ago. Previously, Mohammad Hassan Entezari, Secretary of the SCC, strongly criticised the ICT Ministry for failing to submit their timeline for SHOMA on schedule. (Source)

• Ahmad Salek, Head of the Cultural Committee in Parliament, said Iran must launch an 'Islamic Facebook' that would be a superior alternative to Facebook. According to Salek, some communication tools, including Facebook, are 'Zionist' and Iran must not 'play in their playground'. (Source)

• **August 10:** Hassan Madanipour, Director of Control and Coordination Network Management at the TIC, said Iran had engaged in eight defensive IT maneuvers in the last two years, and that the country remains ready for any kind of cyber attack or natural disaster. (Source)

• **August 11:** Vaezi announced that all telecommunication operators are permitted to offer 3G and 4G (LTE) to their customers, and that Iranians will be able to use these technologies, starting in Shahrivar 1393 (August/September 2014). Previously, Rightel was the only company in Iran with the exclusive rights to offer 3G. (Source)

• Vaezi had an interview with Payesh, a TV programme on IRIB1. The highlights are listed below:
- Iran's block of WeChat was not due to economic reasons. Other communication apps such as Viber remain available.
- The ICT Ministry encouraged Iranian developers to create mobile apps and promised support for developers.
- Iranians must not trust any social networks (Iranian or non-Iranian) and never share their personal information on them. (Source)

• **August 12:** Vaezi was interviewed by the newspaper **Iran**. The important details are listed below:
- The government will invest 100,000-120,000 billion IRR (3.75- 4.5 billion USD) in SHOMA.
- While he doesn't have a Facebook account himself, Vaezi does not believe using the social network to be wrong.
- Vaezi uses domestically-based social networks instead of global alternatives because he believes that Iranian authorities should support Iranian services and developers.
- Vaezi does not support the current filtering system, insisting that Iran must modify it. (Source)

• **August 16:** Vahid Sadoghi, Director of The Mobile Communication of Iran (MCI), announced that the company is testing 3G in some cities such as Tabriz, Bandar Abbas and Bushehr, and is in the last stage of negotiation with the ICT Ministry to receive an official license. According to Sadoghi, MCI will offer 3G to its customers in Shahrivar 1393 (August-September 2014). Rightel previously held exclusive rights to offer 3G in Iran, but it expired on 22 August 2014. (Source)

• Moheyedin Bahram Mohamadian, the Head of the Research and Educational Planning Department in the Education Ministry, announced that the Education Ministry will collaborate with the ICT Ministry to provide 'student email' to Iranian students.

• **August 17:** Ali Asghar Amidian, director of the Communications Regulatory Authority (CRA), said that there are no restrictions preventing Iranian telecommunication operators from offering 4G (LTE), or (purely hypothetically) 5G. (Source)

Vaezi said Iran has more than 5,000 km of fiber optic cables, which it plans to increase to 70,000km in the near future. (Source)

• **August 18:** Mohammad Reza Nozari, Director of Network Operations Engineering Data at the TIC, said that his company will add 40 Gbps to current Internet bandwidth by the end of the summer. According to Nozari, the current Internet bandwidth is 150 Gbps. (Source)

• **August 19:** The head of FATA (Hamedan Province), Akbar Amini, was interviewed by Mehr News Agency. The highlights of the interview are as follows:
- Iran has identified 72 types of cyber-crime, including fraud, defamation, and illegal transactions.
- Amini claimed that some social media platforms are part of a spy network run by Iran's enemies, and have been established to collect Iranians' data. (Source)

• Hassan Rezavani, deputy of CRA, said that 8,000 small villages around the country will soon be able to connect to the Internet via WiFi. The project will cost more than 400 billion IRR (150 million USD). (Source)

• Seyyed Morteza Mousavian was appointed as the new head of the Digital Media and Information Technology Center (SARAMAD) by Ali Jannati, Minister of Culture and Islamic Guidance. Mousavian

has a PhD in Strategic Management and was an advisor to the deputy of Research and Training in IRIB, as well as the Dean of the University of Applied Science and Technology in Media. (Source)

• **August 21:** Hamidreza Kafash, Cultural Deputy of the Education Minister, announced that the first section of a student social network will launch on 23 September 2014. According to Kafash, the first group to be granted access to this social network will be elite students who have won competitions relating to various topics, including blogging and Islamic theology. The name of this social network is not yet known. (Source)

• **August 22:** Alireza Delavaran, head of the Health Policy Secretariat (HPS), announced that a report on the health implications of satellite jamming has been sent to the Supreme National Security Council (SNSC), and recommended the installation of wave measurement instruments. Delavaran did not disclose the contents of the report, as many of its findings remain classified. (Source)

• **August 23:** Reza Bagheri, Deputy of eGovernment at the Information Technology Organisation of Iran (ITC), announced the creation of the Freedom of Information Commission (FOIC), which will be headed by the Minister of Culture and Islamic Guidance. According to Bagheri, all Iranians can access public information, unless prohibited by law. Also, all organisations such as IRGC that are under control of the Supreme Leader, Ayatollah Ali Khamenei, must receive his permission prior to publishing information. The FOIC will be made up of the following members:
  • Minister of Culture and Islamic Guidance
  • Head of the Cultural Committee in Parliament
  • Head of the Government Administrative Tribunal
  • Head of the Management and Planning Organization of Iran
  • Minister of ICT
  • MISIRI
  • Minister of Defense and Armed Forces Logistics (Source)

• The CRA passed Internet TV regulations which will allow Iranian companies and individuals to launch Internet TV services. However applicants must first receive permission from IRIB and the Ministry of Culture and Islamic Guidance. In February 2014, Soroush Resaneh announced that they cannot offer Internet TV due to the lack of regulation. (Source)

• Mahmood Khosravi, Director of the TIC and deputy ICT Minister, announced that 3 million more people have connected to the Internet via ADSL since 1392 (2013/12). (Source)

• Vaezi announced that the ICT Ministry signed a new contract with three universities and research centers to develop the 'Intelligent Filtering' system, which they intend to launch in the next 5 months. Also, the 'Video Call Appendix' sent to President Hassan Rouhani and the ICT Ministry is awaiting final approval. Iranians are still barred from making video calls on their mobile phones due to the regime's concern that this technology will bring about 'cultural damage'. (Source I, Source II)

• Vaezi said Rouhani's government never promised to unblock websites/services that had previously been blocked, whilst emphasizing the need for private companies and universities to develop a domestic social network for Iranians. He went on to point out that filtering is not the responsibility of his ministry; rather, it falls under the purview of the CDICC. (Source)

• **August 24:** Vaezi held a press conference in Sanandaj. The highlighted points are listed below:
  • Rouhani's government believes Iran must use social networks in the best way: to spread information around the world.
  • The government has no problem with Iranians using social networks, so long as they are free of immoral and pornographic content.

- The government believes that Iran should not block a social networks with millions of users. Rather, the authorities should aim to block pages that contravene the cultural, religious, and social values of Iran.
- The previous government frequently blocked social networks for purely economic reasons, which the current government has refrained from doing.
- There are many Iranian social networks that are popular amongst Iranian users. (Source)

- Mehdi Karimi, Deputy of Design and Development of New Technologies at the TIC said that Iran is subjected to 5-8 million suspicious cyber attacks each day. (Source)

- **August 25:** Nasser Hakimi, Director of the IT Department at Iran's Central Bank, said that there have been no security breaches at Iranian banks and that no attackers could access the banks' data. (Source)

- **August 26:** MP Bijan Nowbaveh insisted that Iran must not allow Western governments to replace local news agencies in Iran by offering cheap Internet access - something he proposes that they have been working towards. Nowbaveh also claimed that Viber and Tango have received financial support from Israel, to the tune of several billion dollars. (Source)

- MTN Irancell received 3G and 4G (LTE) licenses from the ICT Ministry and started offering 3G services in several provinces, as well as 15 regions of Tehran. (Source)

- Ayatollah Naser Makarem Shirazi said accessing high speed Internet on mobile phones, for example via 3G and 4G, was 'un-Islamic' because the regulations and tools necessary to prevent corruption are not yet available.

- In response to Ayatollah Shirazi, Vaezi said all operators offering 3G and 4G services cannot allow their users to make video calls or to send images. According to Vaezi, clerics' concerns will be addressed by the so-called 'Cultural Appendix' legislation that his ministry has prepared. Further details about this 'Cultural Appendix' have not yet been released. (Source)

- **August 27:** Taghipour claimed that the ICT Ministry did not ask for permission from the SCC to offer 3G licenses. Additionally, he proposed that there are two prerequisites for increasing national internet bandwidth, and insisted that it would be illegal for the government to act before they are both satisfied:
  - Passing Cultural Appendix legislation that addresses the moral concerns of families and clerics.
  - Launching some segments of SHOMA (Source)

This announcement caused quite a stir, prompting Ayatollah Makarem to complain that his statements about 3G and 4G had been distorted, and that he is not against the technology. He said he believes the government must 'clean up' 3G and before offering it to Iranians. (Source I, Source II)

- Vaezi said each telecommunications operator has invested 30,000- 50,000 billion IRR (1.12- 1.87 billion USD) in their infrastructure to support 3G and 4G technology. (Source)

- Salek complained that despite the need to address several pressing issues, such as the cultural damage 3G and 4G pose to society, no SCC meeting has been held for several months. According to the Cyberspace Research Institute (CSRI), the last meeting took place on 10 May 2014. (Source)

- **August 28:** MP Nasrollah Pejman Fard announced that if the ICT Minister fails to resolve a series of issues surrounding 3G and 4G, or if he increases the Internet speed without launching SHOMA, Parliament will push for his impeachment. In addition, Pejman Fard believes there is a 'mafia' working

to increase Internet bandwidth in Iran in order to advance their own commercial interests. (Source)

• **August 29:** The Ministry of Culture and Islamic Guidance submitted regulations to the NCC aiming to organise the market of mass commercial SMS messaging. According to the ministry, this regulation will protect recipients of commercial text messages and ensure transparency regarding the sources of these messages. (Source)

• Masoumeh Abad, local Tehrani councillor, said that over 90% of Tehran's 12,000 telecommunication towers in Tehran have received warnings from Tehran City Council due to health and safety concerns. In the last two months, two towers have collapsed, killing one individual. (Source)

• **August 30:** Alireza Shah Mirzaei, a member of the SCC, said that issuing 3G and 4G licences for telecommunication operators is 'absolutely illegal'. Some other highlights of Mr. Mirzaei's remarks are listed below:
> • 3G and 4G licenses are illegal as 'Cultural Appendix' legislation has not yet been written and passed to guarantee mental health and security of Iranians.
> • The ICT Minister submitted an incomplete plan for SHOMA that only covered the development of fiber optic cables.
> • Each operator paid the government 3,000 billion IRR (112 million USD) for 3G and 4G licenses. (Source)

• Jannati said that rather than thinking of social networks as a danger, they should be viewed as an opportunity for Iran to export its culture around the world. (Source)

• President Rouhani criticised Iran's glacial Internet speeds, joking that sometimes downloading an article takes so long that people fall asleep in front of their computers waiting for it to finish. (Source)

• **August 31:** Amidian said SHOMA will enter the executive phase in the next year (2015/2016). In March 2014, Small Media published a comprehensive report about SHOMA. (Source)

CIVIL SOCIETY, PROFESSIONAL ORGANIZATION STATEMENTS

• **August 3:** Mostafa Mohammadi, former Secretary of Iran's ISP Association, claimed the TIC buys Internet bandwidth for under 1000 USD and sells it to ISPs for around 11,300 USD. According to Mohammadi, this markup is the main reason the Internet is so expensive. (Source)

• **August 5:** Pars Athena Dej launched one of the first Persian domain names with Persian characters, ما.ن‌باز‌ار. Safe.Bazar is a site where users can buy Kaspersky products such as anti-virus software. (Source)

• **August 11:** Ahmad Nakhajvani, Director of Shatel, an Iranian ISP, announced that bandwidth usage for each ADSL port has increased two-fold since last year. He went on to note that half of Iran's 4,800,000 ADSL users are Iran Telecommunication Company (ITC) customers, while the other half rely on Private Access Providers (PAPs). Nakhjavan also pointed out that it is against the law for ISPs to sell Internet connections with more than 128 Kbps to domestic users. (Source)

• **August 23:** According to some media reports, Iran's Parliament has a Twitter profile under the handle @Majlis_ir. However, Iran's Parliament has not confirmed whether or not the account is genuine. (Source)

• **August 30:** Fars News Agency held a roundtable discussion about the pros and cons of Internet censorship in Iran. Three people participated in the conversation: Rasool Jalili (a member of the SCC), Reza Gholami (Head of Sadra Research Center for Islamic Humanities) and Mehdi Sarami (Director of the Islamic Revolution Cyber Activists Assembly or FARA). The highlights of this roundtable are as follows:
  • Jalili: 'The best solution for modifying the current filtering system is for all Internet users to be authenticated by the government, and then have unrestricted access to the Internet (except for children)'.
  • Gholami: 'The filtering system is weak in the face of circumvention tools. Also, the system currently has many flaws, forcing Iranians to use these circumvention tools.'
  • Sarami: 'The three main problem of the filtering system are:
    1. lack of 'intelligent filtering';
    2. technical glitches which cause the arbitrary blocking and unblocking of various websites;
    3. a tendency to ignore some CDICC decisions.' (Source)

• **August 31:** Islamic Azad University announced that the university's President, Hamid Mirzadeh, does not have a Facebook profile, and any page bearing his name is fake. (Source)