Annual Net Neutrality Report 2022

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1   Introduction

The openness of the internet, or net neutrality, is guaranteed by EU Regulation (EU) 2015/2120 (Open Internet Regulation)[1]. In Finland, compliance with the Regulation is monitored by the Finnish Transport and Communications Agency (Traficom). The Regulation aims to safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and to ensure users' right to open internet access. For a more detailed definition of net neutrality, please refer to chapter 2.

Based on Traficom's findings, the status of net neutrality in Finland has remained healthy, as in previous years, and internet access service providers (ISPs, operators) comply with the Regulation. For a more detailed description of Traficom's actions and observations, please refer to chapters 3 and 4. Traficom has maintained an active dialogue on net neutrality with the industry. An indication of successful collaboration is that Traficom did not have to issue any binding supervision decisions during the monitoring period. Like in previous years, all issues that were raised have mainly been resolved or progress has been made in negotiations with operators and other stakeholders.

Topical matters have included first and foremost the rulings of the Court of Justice of the European Union in the autumn of 2021 and the resulting changes to the BEREC Guidelines on the Implementation of the Open Internet Regulation. The updates to the Guidelines were published after the actual monitoring period on 15 June 2022. Traficom has also provided guidance on the EU sanctions concerning the broadcasting and distribution of content by Russian media outlets and on the national Digirail project.

Some of Traficom's activities were related to measures initiated in previous years. These concerned, for example, the effect of the coronavirus pandemic on communications networks and the provision of public IPv4 addresses.

The Open Internet Regulation requires national regulatory authorities to publish an annual report regarding net neutrality-related monitoring activities and findings. This report must be provided to the European Commission and the Body of European Regulators for Electronic Communications (BEREC).

Under the Regulation, Traficom must in its supervisory activities take utmost account of BEREC guidelines regarding the application of net neutrality rules[2]. In line with the guidelines, this report covers the time period from 1 May 2021 to 30 April 2022. As instructed in the guidelines, the report contains an overall description of net neutrality, Traficom's monitoring activities and their main results, complaints submitted to Traficom, reported infringements, and the availability and quality development of non-discriminatory internet access services.

Traficom has not carried out any technical net neutrality measurements or imposed new technical service requirements or minimum quality requirements based on the Regulation.

This report comprises the following chapters:

- Chapter 2: Net neutrality in a nutshell

- Chapter 3: Equal treatment of traffic

- Chapter 4: User's rights

[1] The Official Journal of the European Union L 310
[2] BEREC Guidelines on the Implementation of the Open Internet Regulation

- Chapter 5: Bittimittari.fi measurement tool

- Chapter 6: Trends in internet access services

- Chapter 7: Stakeholder cooperation and other activities

2 Net neutrality in a nutshell

Under the EU Open Internet Regulation, users of internet access services have the right to access and distribute information and content, and to use and provide applications and services of their choice. Users have this right irrespective of the origin or destination of the information. This principle is also called net neutrality.

End users and ISPs are still free to agree on the features of internet access services, such as speed, included data volumes or price. However, such agreements may not limit users' rights to open internet access.

Net neutrality also means that users have the freedom to use the terminal equipment (such as a phone or modem) of their choice. However, the terminal equipment must meet the technical requirements imposed by the operators.

2.1 Equal treatment of traffic as a starting point

The principle of net neutrality requires operators to treat all internet traffic equally. For instance, operators may not usually restrict traffic to certain internet addresses, impose restrictions on certain types of traffic or apply different pricing plans to the use of different applications. Operators may, however, offer subscriptions with different levels of quality as well as application-agnostic connections, such as low-latency connections for online gamers.

As an exception, operators may restrict internet traffic as necessary in order to

a) comply with legislation, or orders by courts or public authorities

b) preserve the security of the network and terminal equipment

c) prevent network congestion and mitigate the effects of exceptional or temporary congestion.

Operators may take reasonable traffic management measures designed to promote the efficient use of network resources and optimise the quality of internet services. In order to be deemed reasonable, such measures must be transparent, non-discriminatory and proportionate, and they must not be based on commercial considerations but on objectively different technical quality of service requirements of specific categories of traffic.

Furthermore, operators are free to offer services in their network that are optimised for specific content, applications or services requiring a higher level of connection quality than provided by ordinary internet access services. Services requiring optimisation may include telephone services in the mobile network (e.g. VoLTE), television services provided by operators over broadband (IPTV), M2M services, or access to the critical systems of industry or, for example, airports.

However, all subscribers to internet access services must be treated equally, without discrimination. This means that operators may not, for example, prioritise corporate subscriptions over those of other customers. Operators may offer optimised services only if it does not impair the general quality of internet access services.

2.2   Terms of contract and net neutrality

Net neutrality also means that operators must provide clear and comprehensible information about the characteristics of different subscriptions in their contracts and on their websites. Customers must be informed of, for example, the following:

- the speed of the internet access service as required by the Open Internet Regulation

- how data quotas, speed or other quality factors may in practice affect the internet access service and the use of different contents, applications and services, in particular

- how traffic management measures applied by the operator may affect the quality of the internet connection

- how ordered services that require optimisation (such as the above-mentioned IPTV) affect the internet access service, including its speed.

3   Equal treatment of traffic

3.1   Sanctions on Russian media outlets

In March 2022, Traficom received numerous queries about the sanctions that the EU imposed against the broadcasting and distribution of content by Russian media outlets[3]. Those who contacted Traficom wanted guidance on the websites ISPs are required to block and the types of traffic the Open Internet Regulation allows them to block. Traficom does not have the competence to monitor compliance with the sanctions but because Traficom does supervise compliance with the Open Internet Regulation, it had to assess which kinds of blocks ISPs can implement under the Regulation imposing the sanctions (the 'Sanctions Regulation').

Traficom considered it important to reach a common understanding of the matter at EU level and participated in the discussion by BEREC, the body of European telecommunications regulators, to reach a common view. This was difficult because of differences between the language versions of the Sanctions Regulation and the fact that it was unclear which content associated with the TV channels should be blocked on the internet.

Traficom made its first observations available to the operators already on 3 March 2022 noting that the sanctions also apply to the websites of the media outlets listed in Annex XV to the Council Regulation and that the Open Internet Regulation includes grounds for restrictions justifying the blocks. At that point, Traficom also provided operators with information on the types of blocks already implemented in certain other member states. Traficom also offered ISPs the opportunity to discuss the blocks individually. Traficom began to monitor the implementation of the blocks.

Traficom continued its discussions with different ISPs and provided them all with further information on the matter on 15 March 2022. In its message, Traficom noted that the Open Internet Regulation does not prevent the implementation of the sanctions and that the agency is of the view that the Sanctions Regulation also requires operators to block websites that distribute content by the entities listed in Annex XV to the Regulation. Therefore, operators can block domains related to the entities (e.g. rt.com), including all of their subdomains (*.rt.com, such as de.rt.com and mundo.sputniknews.com).

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[3] [Council Regulation (EU) 2022/350 amending Regulation (EU) No 833/2014 concerning re-strictive measures in view of Russia's actions destabilising the situation in Ukraine](#)

Traficom also constituted that the entities listed in Annex XV to the Sanctions Regulation are not legal persons but channels and that in Traficom's view any blocking measures may be targeted at least at those websites that the legal persons behind the entities use to distribute content covered by the sanctions.

Traficom provided ISPs with a list of domains and subdomains that they should at least be allowed to block under the Sanctions Regulation.

The list included the following domains:

- rt.com (*.rt.com)

- sputniknews.com (*.sputniknews.com)

- sputniknews.ru (*.sputniknews.ru)

- sputniknewslv.com

- sputniknews.gr

- sputniknews.lt

- sputniknews.cn

- sputniknews.kz

- snanews.de

- ria.ru (*.ria.ru)

Traficom also shared BEREC's news article[4] on the matter with ISPs.

Based on the information collected by Traficom, ISPs have mainly implemented the blocks based on domains. Only one ISP has implemented blocks based on IP addresses corresponding to the domains.

3.2 Traficom monitored the need to update its recommendation on filtering traffic and examined port filters affecting email traffic

There was no need to amend the Traficom Regulation 312 A/2020 S on filtering traffic to certain communication ports for information security reasons, which was updated in 2020. The Recommendation describes the previous and current filtering recommendations.[5] Traficom regularly examined the recommendations both within the agency and in collaboration with external stakeholders.

Each operator makes decisions concerning the application of the Recommendation independently, and is individually responsible for meeting its information security obligations. If necessary, operators may also be required to implement additional filters to those referred to in the Recommendation. Lifting a recommendation does not prevent an operator from continuing to filter the relevant traffic if it still considers it to be necessary and lawful.

In Traficom's view, operators have complied well with the basic principles of the Recommendation, and as a result, there has so far been no reason to amend them. It has also been considered unnecessary to lay down provisions on the matters covered by the Recommendation in the binding form of a regulation.

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[4] BEREC supports ISPs in implementing the EU sanctions to block RT and Sputnik
[5] The Recommendation is available on Traficom's website ("Filtering traffic in telecommunications operators' networks to certain communications ports for information security reasons").

During the period covered by the present report, Traficom initiated a supervisory procedure regarding a telecommunications operator's practice where the operator, in addition to consumer subscriptions, also filters traffic from certain corporate subscriptions to a communications port intended for email traffic. The process was incomplete at the end of the reporting period and continued during the following period.

3.3   Impact of the COVID-19 pandemic on information networks

Against the backdrop of the restrictions implemented to combat the global coronavirus pandemic, the Finnish Government issued in the spring of 2020 a recommendation regarding remote work. Restrictions were also placed on classroom teaching, with only a few exceptions. The dramatic increase in remote work and distance learning and the upward trend in the use of various streaming services caused concern regarding the capacity of communications networks, also raising the question of whether the exception concerning measures designed to mitigate the effects of network congestion specified in Article 3 of the Open Internet Regulation would be applicable.

Based on the responses Traficom received from operators, however, the fears of network congestion proved unfounded. Despite the increased traffic, networks proved capable of withstanding the additional strain. Operators have not reported any notable anomalies or the need to take action going beyond reasonable traffic management measures during the pandemic. In practice, the changes in workers' and students' conditions simply resulted in a usage peak in the morning in addition to the usual peak hours in the evening.

Traficom continued to participate in monitoring the situation at the European level via the reporting tool created by BEREC and the European Commission, contributing to the BEREC report on lessons learned[6].

3.4   Optimised services

In connection with the Digirail project[7], Traficom was requested to provide its view on whether it would be possible to prioritise mobile connections used to control railway traffic over other traffic so that they would have access to a limited guaranteed bit rate (GBR).

In its response, Traficom stated that railway traffic control requires an uninterrupted connection, which cannot be guaranteed throughout the railway network based on commercial subscriptions. This function is critical to the safety of railway traffic, and in this respect, it meets the requirement of necessity set for 'optimised services' in the Open Internet Regulation (Article 3(5)). Because the number of prioritised subscriptions and the need for guaranteed bit rate (50 kbps) are limited, it can be considered ensured that the network capacity is sufficient to provide optimised service in addition to any internet access services provided without the optimised service being to the detriment of the availability or general quality of internet access services.

In March 2022, Traficom also engaged in a first set of discussions with an operator about a service for the optimisation of video conferencing software. These discussions are still underway and will continue during the next monitoring period.

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[6] BEREC Report on COVID-19 crisis - lessons learned regarding communication networks and services for a resilient society

[7] Digiratahanke.fi

4   User's rights

4.1   Amending consumer contracts to comply with new provisions

From March to October 2021, the Consumer Ombudsman and Traficom examined compliance with the new provisions concerning consumer contracts by requesting information from telecommunications operators and analysing the responses received. The exercise was carried out because of the new provisions included in the Directive establishing the European Electronic Communications Code[8] and thereby also in national legislation, requiring the use of a contract summary when concluding contracts on communications services with consumers. When the contract concerns internet access services, the contract summary must include the information required pursuant to Article 4 of the Open Internet Regulation.

No actual supervisory measures were taken as result of the analysis, but operators were informed about any shortcomings identified. Based on the responses received, it seems that telecommunications operators have mainly taken the new provisions into account in their operations and comply with the requirements.

4.2   User's right to a public IPv4 address

As mentioned in earlier reports, Traficom has updated its checklist helping operators take into account the requirements of the Open Internet Regulation[9] in 2018 and 2022. In the updates, Traficom has addressed users' right to a public IPv4 address when network address translation (NAT) is used. Traficom has taken the view that NAT in practice restricts the end-user's right to provide services under Article 3(1) of the Open Internet Regulation; thus, operators cannot refuse to remove such an unlawful block at the user's request or charge a fee for the operation.

During the monitoring period covered by the present report, Traficom continued to discuss the matter with operators regarding, for example, possible implementation models and followed the matter in its general supervision activities. During the period, Traficom also contacted an operator based on a customer complaint. The operator in question was not complying with the Traficom guideline, but Traficom also had not discussed the matter with the operator before. The operator, on its own initiative, remedied the issues that Traficom had brought to its attention and there was no need for Traficom to issue an administrative decision on the matter.

5   Bittimittari.fi measurement tool

Traficom continued to develop a tool for measuring the speed and quality of internet connections. During the monitoring period, the main focus was on designing application appearance and features. The future service was presented at stakeholder events and workshops, and Traficom received valuable views and ideas to further improve the service.

During the monitoring period, Traficom also presented the Bittimittari.fi development project and its phases in a BEREC working group. The project has

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[8] Directive (EU) 2018/1972 of the European Parliament and of the Council establishing the European Electronic Communications Code

[9] The Checklist for Compliance with the Open Internet Regulation is available on the Traficom website.

attracted interest in the working group, and Traficom has received plenty of useful feedback for its work.

Over the course of the project, the target date for the release has been re-examined. Before the final launch, Traficom will organise a closed beta test of the Bittimittari.fi mobile applications and a public beta test of the entire service. Therefore, the launch and the certification of the tool are likely to take place towards the end of 2022.

6   Trends in internet access services

Under the Open Internet Regulation, Traficom must promote the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology. Non-discrimination is at a high level in Finland, as can be seen in chapters 3 and 4.

6.1   Mobile network

Mobile broadband subscriptions started to rapidly gain in popularity in Finland during 2007. After considerable growth over the course of the decade that followed, this trend has since stabilised. In late 2021, Finland counted 1.6 subscriptions with mobile data service per person. Limits on the use of mobile data have seen a steady decrease. In late 2021, 87 per cent of all subscriptions used to transfer mobile data had no limits on domestic data use, while the share of unlimited domestic data plans among mobile subscriptions purchased by household customers was nearly 90 per cent. There were 1.4 unlimited data plans per person in total, up 3 per cent on the previous year.
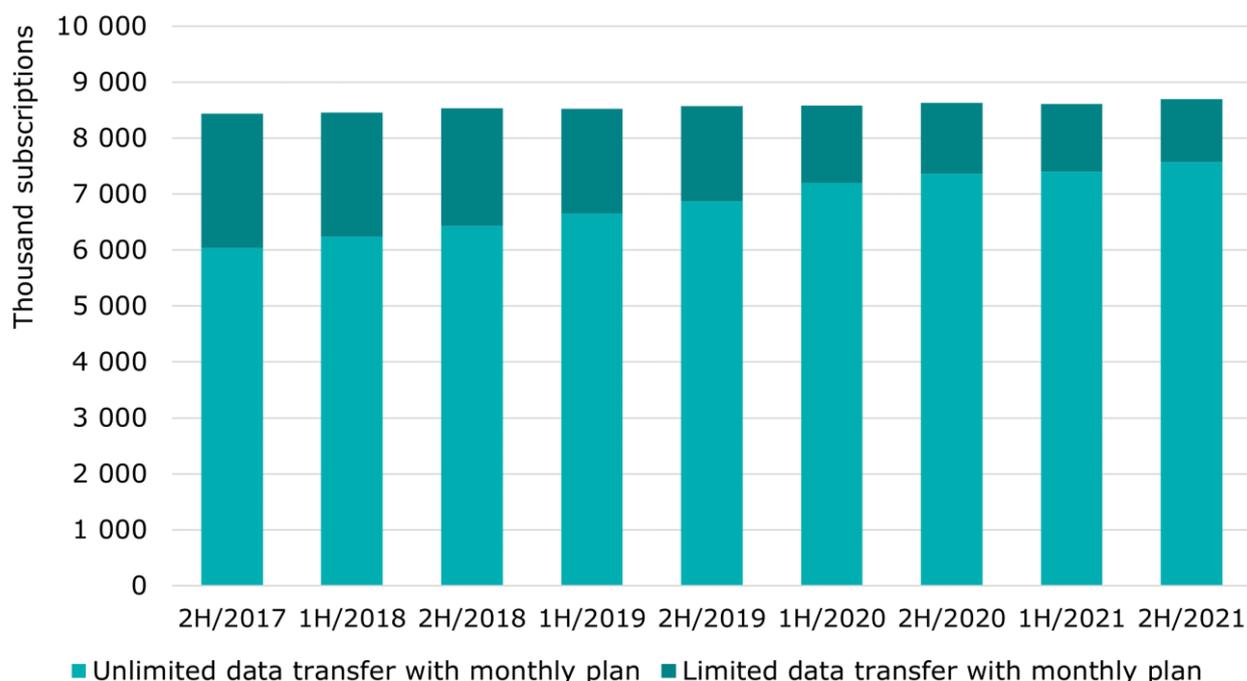

Figure 2. Mobile data transfer subscriptions

In the second half of 2021, an average of 58 GB of mobile data was transferred per person in Finland each month. Data-only subscribers (mobile broadband subscriptions) transferred an average of 90 GB of data per month. Subscribers with call and data plans transferred 20 GB of data in the same period. However, the use of mobile data is not evenly distributed among users – a small share of users account for the majority of the mobile data transferred. The median data transfer

volume of call and data subscriptions was 5 GB per month and the median volume of mobile broadband subscriptions was 28 GB per month.

These high data transfer volumes can be explained partly by the availability and use of unlimited data plans and partly by the fact that in almost a half of all Finnish households mobile broadband is the only form of internet access. In this case, access to the internet is implemented in the form of a mobile broadband via a modem or by sharing the connection of a mobile device to other users in the household.

Because of the lack of data limitations, zero rating does not exist in Finland.
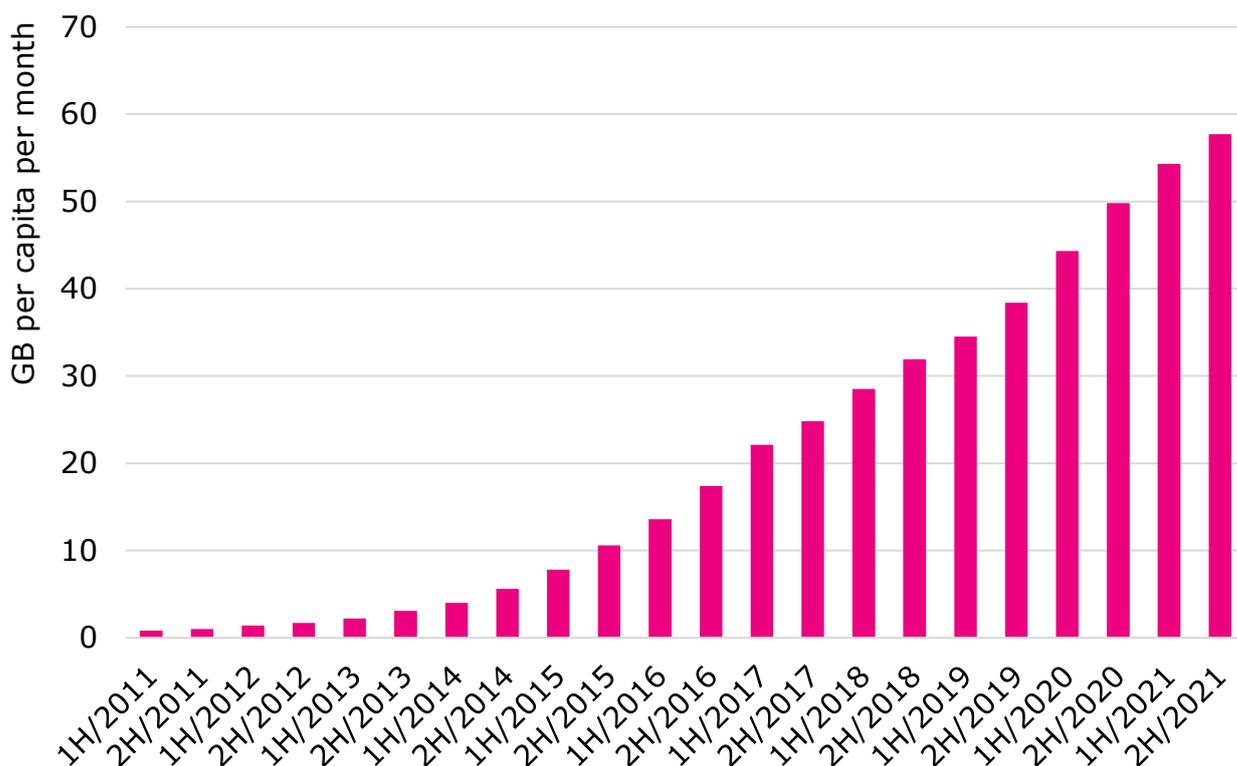

Figure 3. Volume of data transferred in mobile networks per person in Finland

6.2 Fixed network

The total number of fixed-line subscriptions has seen rather moderate development, but download speeds in particular have increased consistently. At the end of 2021, 49 per cent of fixed broadband subscriptions offered a download speed of 100 Mbps or more, while 98 per cent had a minimum download speed of 10 Mbps.
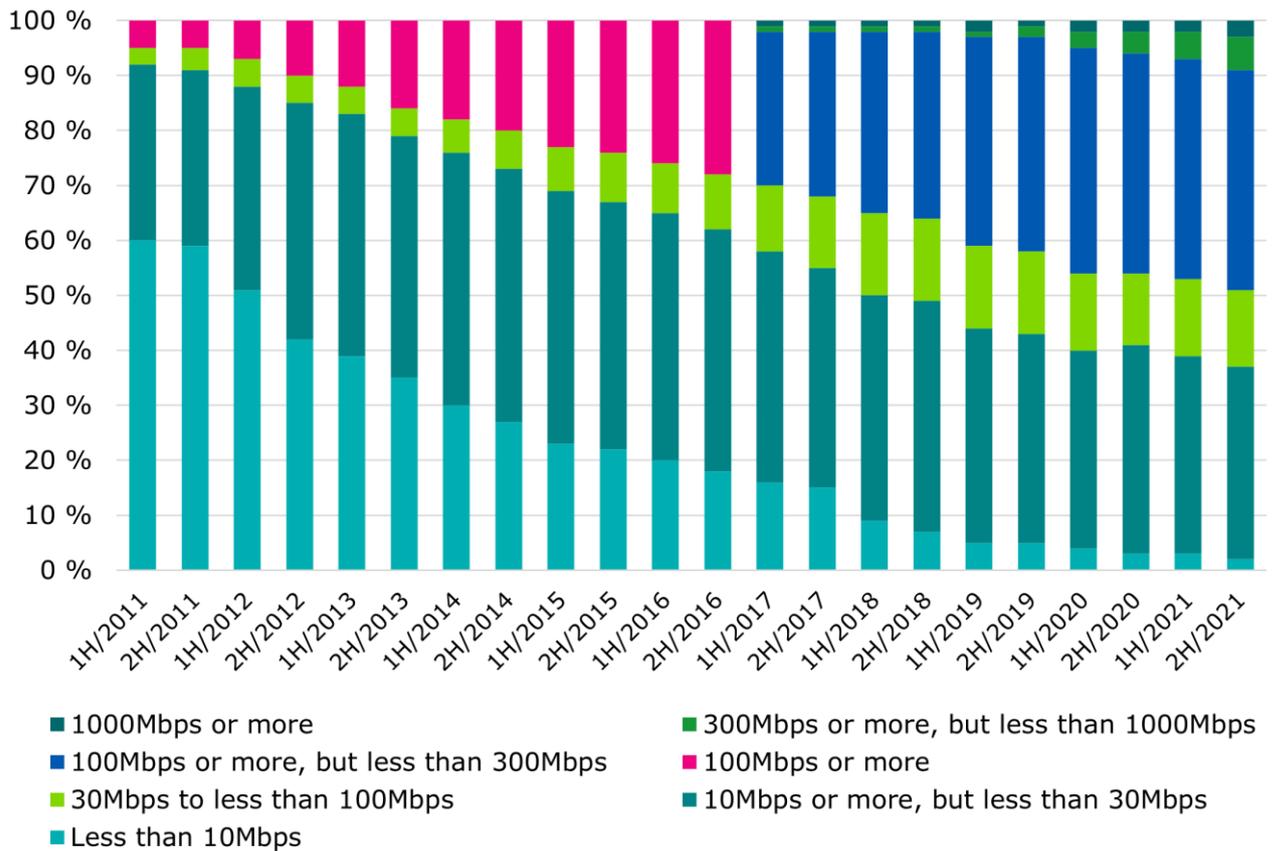
Figure 4. Fixed-line broadband subscriptions by connection speed

At the end of 2021, more than 2.1 million households in Finland had access to fixed broadband with a download speed of 30 Mbps or higher[10]. This represented 78 per cent of all Finnish households.

At the end of 2021, some 2 million or roughly 71 per cent of Finnish households had access to 100 Mbps fixed broadband. 60 per cent of households were covered by a 1 Gbps network.

The availability of fast fixed access is thus growing steadily with increasing demand, and the subscriptions on offer do not include pre-set data volume limitations.

Please note that the above figures represent download speeds and the corresponding upload speeds are somewhat lower. However, nearly all of the subscriptions available with a download speed of 100 Mbps also had an upload speed of at least 100 Mbps. Upload speeds will become more significant as cloud services and bidirectional streaming gain in popularity.

Data transfer volumes were slightly higher in the fixed network than in mobile networks. During the second half of 2021, 61 GB of data was transferred per person in the fixed network. The data transfer volume per subscription was 182 GB per month. The major difference in comparison to the volume of mobile data transferred per subscription can most likely be partly explained by the use of corporate subscriptions: also in the fixed network, some users account for a larger share of the data transfer volume than average users. No median figures are available on data transfer volumes in the fixed network.

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[10] All the presented availability statistics have been retrospectively corrected, and can thus not be compared as such with the figures provided in earlier reports.

7   Stakeholder cooperation and other activities

During the monitoring period, Traficom has met with several industry actors, including operators, universities, device manufacturers and service providers. Traficom has also organised stakeholder events, for example, on the updated BEREC Open Internet Guidelines. The application of net neutrality legislation to the use of optimised services, in particular, prompted discussion during the year.

Traficom has taken active part in the work of the BEREC Open Internet working group, including in the context of updating the guidelines on interpreting the Open Internet Regulation. In the autumn of 2021, the European Court of Justice delivered three judgments in which it considered that, as a rule, zero-rating offers that are not application-agnostic are contrary to Article 3 of the Open Internet Regulation. The rulings did not require supervisory measures in Finland because zero-rating is not available on the Finnish market. Traficom examined the rulings in internal discussions and engaged in related dialogue with stakeholders. Traficom was also invited as a guest to a lecture in a series of lectures organised by the University of Helsinki to discuss the rulings with the students taking the course. Traficom also informed its stakeholders in March 2022 about the new guideline drafts and the opportunity to comment on them.

During the monitoring period, Traficom was interviewed by the Free Software Foundation Europe (FSFE) for an article[11] presenting Traficom's views on end-users' freedom to use the terminal equipment of their choice (router freedom). Traficom also gave an interview to the French telecommunications regulator ARCEP on monitoring the impacts of the COVID-19 pandemic for the 2021 issue of the report *The state of the internet in France*[12] and on the Bittimittari.fi tool for the 2022 report. In addition to the above, Traficom has continued its advisory work both by responding to direct enquiries from citizens as well as actively engaging in discussions on social media and other forums.

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[11] [How Finland implemented Router Freedom: the regulator's perspective](#)
[12] [The state of the internet in France - 2021 Report](#)