Annual Net Neutrality Report 2023

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1   Introduction

The openness of the internet, or net neutrality, is guaranteed by the Open Internet Regulation ((EU) 2015/2120)[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 below.

Based on Traficom's findings, the status of net neutrality in Finland has remained healthy, as in previous years, and Finnish internet access service providers (ISPs, operators) comply with the Regulation. For a more detailed description of Traficom's actions and findings, please refer to chapters 3 and 4 below. Traficom maintained an active dialogue on net neutrality with the industry. During the period covered by this report, Traficom issued one binding supervision decision. Otherwise, like in previous years, all issues that were raised were mainly resolved or progress was made through negotiations with operators and other stakeholders.

Topical matters during the period covered by this report 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 (Body of European Regulators for Electronic Communications) Guidelines on the Implementation of the Open Internet Regulation. The updated Guidelines were published on 15 June 2022. Traficom also provided guidance on the EU sanctions concerning the broadcasting and distribution of content by Russian media outlets and engaged in discussions about the ways in which the speeds of FWA connections are reported, among other things.

Some of Traficom's activities during the period covered by this report were related to measures initiated in previous years. These included the development of the Bittimittari.fi service, the issuing of instructions concerning the national Digirail project and the user's right to a public IPv4 address.

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 2022 to 30 April 2023. 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 did not carry out any technical net neutrality measurements or impose new technical service requirements or minimum quality requirements based on the Regulation during the period covered by this report.

This report comprises the following chapters:

- Chapter 2: Net neutrality in a nutshell

- Chapter 3: Equal treatment of traffic

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[1] Regulation (EU) 2015/2120 of the European Parliament and of the Council
[2] BEREC Guidelines on the Implementation of the Open Internet Regulation

- Chapter 4: User's rights

- 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 e.g. airports.

However, all subscribers to internet access services must be treated equally, without discrimination. This means that operators may not e.g. 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 e.g. 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

Traficom continued to receive numerous queries about the sanctions that the EU has imposed against the broadcasting and distribution of content by Russian media outlets, which were updated three times during the period covered by this report:

- Council Regulation (EU) 2022/879[3]

- Council Regulation (EU) 2022/2474[4]

- Council Regulation (EU) 2023/427[5]

Those who contacted Traficom wanted guidance on the websites that 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 the EU level and participated in the discussion by BEREC, the Body of European Regulators for Electronic Communications, 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 what content associated with the TV channels should be blocked on the internet.

In Traficom's view, the Open Internet Regulation does not prevent the implementation of the sanctions, and the Sanctions Regulation also requires operators to

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[3] Council Regulation (EU) 2022/879 of 3 June 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine
[4] Council Regulation (EU) 2022/2474 of 16 December 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine
[5] Council Regulation (EU) 2023/427 of 25 February 2023 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine

block websites that distribute content by the entities listed in Annex XV to the Regulation. Therefore, operators can block domains related to these entities.

Traficom also stated 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 information on domains and subdomains that they should at least be allowed to block under the Sanctions Regulation. On 5 April 2023, Traficom published a more comprehensive memorandum on the implementation of media sanctions imposed due to the war in Ukraine in light of the Open Internet Regulation[6]. The memorandum includes a list of websites that Traficom has currently identified as ones that operators should at least be allowed to block under the Sanctions Regulation.

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 The fair share discussion and the European Commission's broad public consultation

In 2021 and 2022, ETNO (the European Telecommunications Network Operators' Association) reopened the discussion on the subject that Over-The-Top providers should contribute to the costs of deploying networks. In May 2022, ETNO also published a report[7] to support the message.

Commissioner Thierry Breton has also advocated for tech giants to pay their fair share of taxes and network deployment costs, and now the European Commission has started to look into the matter. One key change related to this has been the amendment of the Declaration on Digital Rights and Principles[8] to include a section saying that all market actors benefiting from the digital transformation should assume their social responsibilities and make a fair and proportionate contribution to the costs of public goods, services and infrastructures, for the benefit of all people living in the EU.

In summer 2022, BEREC launched a new workstream to assess public proposals and to help with fact-based decision-making related to the fair share discussion. In December 2022, BEREC published their preliminary assessment of the matter[9]. In February 2023, the European Commission kicked off a public consultation on the future of the electronic communications sector and its infrastructure[10], which was open until 19 May 2023, and BEREC also started to prepare their own response.

Traficom has participated actively in this BEREC work, during which Traficom has received over 70 different studies, advocacy papers and invitations to different events concerning the matter and met with various stakeholders. In Finland, Traficom has also supported the preparatory work of the Ministry of Transport and

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[6] Memorandum on the implementation of media sanctions imposed due to the war in Ukraine in light of the Open Internet Regulation (PDF)
[7] Axon Partners Group, "Europe's internet ecosystem: socio-economic benefits of a fairer balance between tech giants and telecom operators" (May 2022)
[8] European Declaration on Digital Rights and Principles
[9] BEREC preliminary assessment of the underlying assumptions of payments from large CAPs to ISPs (PDF)
[10] The future of the electronic communications sector and its infrastructure

Communications, informed stakeholders of progress on the matter and met with various actors.

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

There was no need to amend 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 both current and previous filtering recommendations.[11] 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.

Decision issued on a filtering measure affecting the provision of email services

During the period covered by this report, Traficom concluded a supervisory procedure regarding a telecommunications operator's practice where the operator, in addition to consumer subscriptions, also filtered traffic from certain corporate mobile network subscriptions to a communications port intended for email traffic. Traficom obliged the operator to lift the restriction for certain corporate mobile broadband subscriptions with fixed IP addresses. In this case, Traficom did not consider the restriction necessary and proportionate based on an overall assessment, in which the problems avoided with the filtering were weighed in relation to the fact that these types of subscriptions are typically used to provide various services.

3.4 Regarding a security service offered for mobile network subscriptions

During the period covered by this report, Traficom also engaged in dialogue with a telecommunications operator about a security service related to DNS blocking for mobile network subscriptions. Based on the discussions, it appeared that the service in question could be implemented within the framework of the BEREC guidelines.

3.5 Optimised services

In connection with the Digirail project[12], 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

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[11] The Recommendation is available on Traficom's website ("Filtering traffic in telecommunications operators' networks to certain communications ports for information security reasons").
[12] Digiratahanke.fi

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 January 2023, Traficom was also requested to provide a separate assessment on the matter. In response, Traficom reiterated its view that it does not consider the described use case to be problematic and that the implementation of optimised services does not require an advance permission or decision issued by Traficom. On this basis, Traficom concluded that there was no need to provide a separate assessment on the matter despite the request.

In autumn 2022, Traficom also continued discussions started during the period covered by the previous report with an operator about a service for the optimisation of video conferencing software. Based on the discussions, Traficom came to the conclusion that implementing such a service should be possible with the help of network slicing.

4 User's rights

4.1 User's right to a public IPv4 address

As mentioned in earlier reports, Traficom updated its checklist helping operators take into account the requirements of the Open Internet Regulation[13] in 2018 and 2020. 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 period covered by this report, Traficom continued to discuss the matter with operators in terms of possible implementation models, for example, and follow the matter in its general supervision activities. During the period covered by the previous report, Traficom 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. At the time, the operator promised to independently correct the shortcomings presented by Traficom, and there was no need to issue an administrative decision on the matter.

In December 2022, Traficom was again contacted by a customer, as a result of which it was revealed that the aforementioned operator was still not fully complying with Traficom's guideline, according to which the user has the right to receive a public IPv4 address free of charge. Traficom proceeded to discuss the matter with the operator between the period of December and February, during which time the operator was able to finish their productisation. As a result, the matter was considered to have been settled by the operator, and there was no need to issue a decision on the matter.

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

4.2 Regarding the reporting of the speeds of broadband connections offered in fixed locations via the mobile network

During the period covered by this report, Traficom also engaged in discussions with an operator about the speeds that the operator was reporting for their FWA (Fixed Wireless Access) connections. Traficom directed the operator's attention especially to the fact that according to the opinion regarding the speed of internet access services published by Traficom[14], the reported minimum and normally available speed of a connection should always be in reasonable proportion to the maximum speed of the connection. Based on the discussions, the operator reviewed their reported minimum and normally available speeds and proceeded to raise the quality level of the reported normally available speed to better correspond to Traficom's opinion. However, the matter has not yet been fully resolved, which is why its processing will be continued during the period covered by the next report as well.

5 Bittimittari.fi measurement tool

Traficom was able to primarily conclude the development of the Bittimittari.fi tool for measuring the speed and quality of internet connections. Related cooperation in BEREC working groups and with stakeholders was continued.

During the period covered by this report, development efforts focused especially on testing the application and audits. To ensure the information security and accessibility of the tool, Traficom commissioned an information security audit and an accessibility audit of the tool. The accessibility of the measurement tool was a particular focus area for Traficom and one of the reasons why the planned launch of the tool was delayed from late 2022 to spring 2023.

Traficom intends to validate the Bittimittari.fi service's quality survey as the kind of monitoring mechanism for establishing the quality of internet access services referred to in Article 4(4) of the Open Internet Regulation. This validation will be carried out based on an order that Traficom will issue during 2023.

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 above.

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. At the end of 2022, there were 1.6 subscriptions with mobile data service per person in Finland. Limits on the use of mobile data have seen a steady decrease. At the end of 2022, 88 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.

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[14] Opinion regarding the reasonable method of indicating the speed of internet access services (PDF)
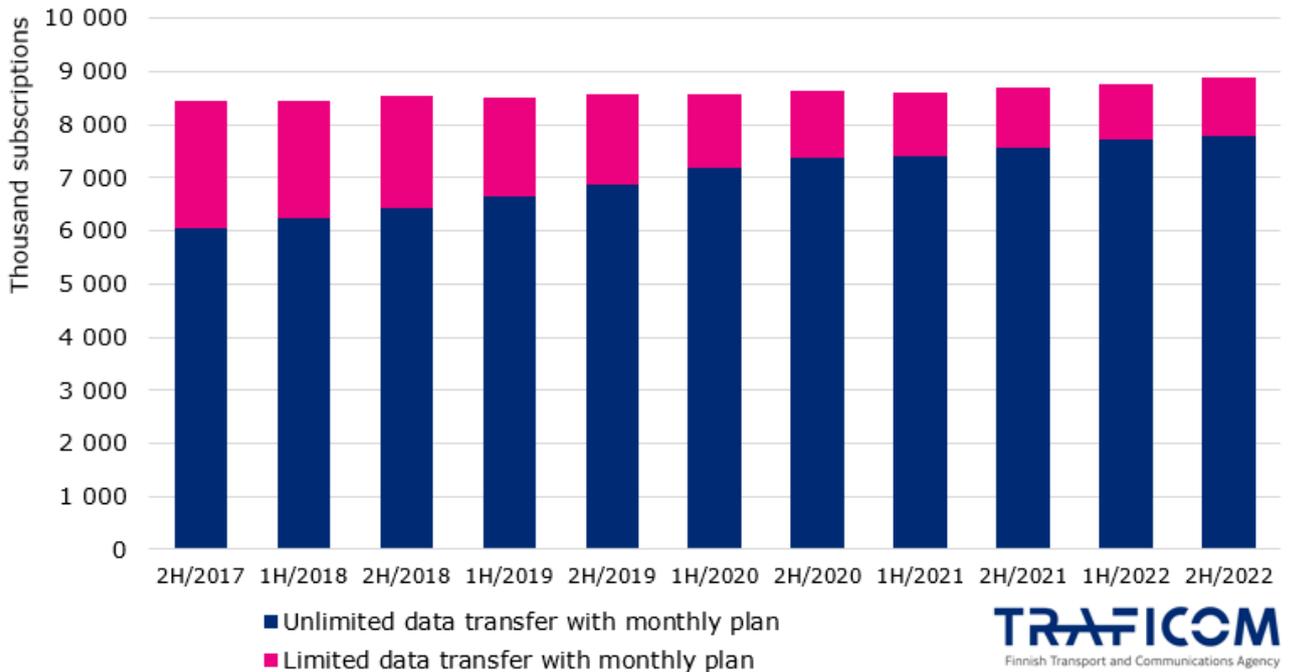
Figure 2. Mobile data transfer subscriptions

In the second half of 2022, an average of 66 GB of mobile data was transferred per person in Finland each month. Data-only subscribers (mobile broadband subscriptions) transferred an average of 100 GB of data per month. Subscribers with call and data plans transferred 22 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 6 GB per month and the median volume of mobile broadband subscriptions was 34 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 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.

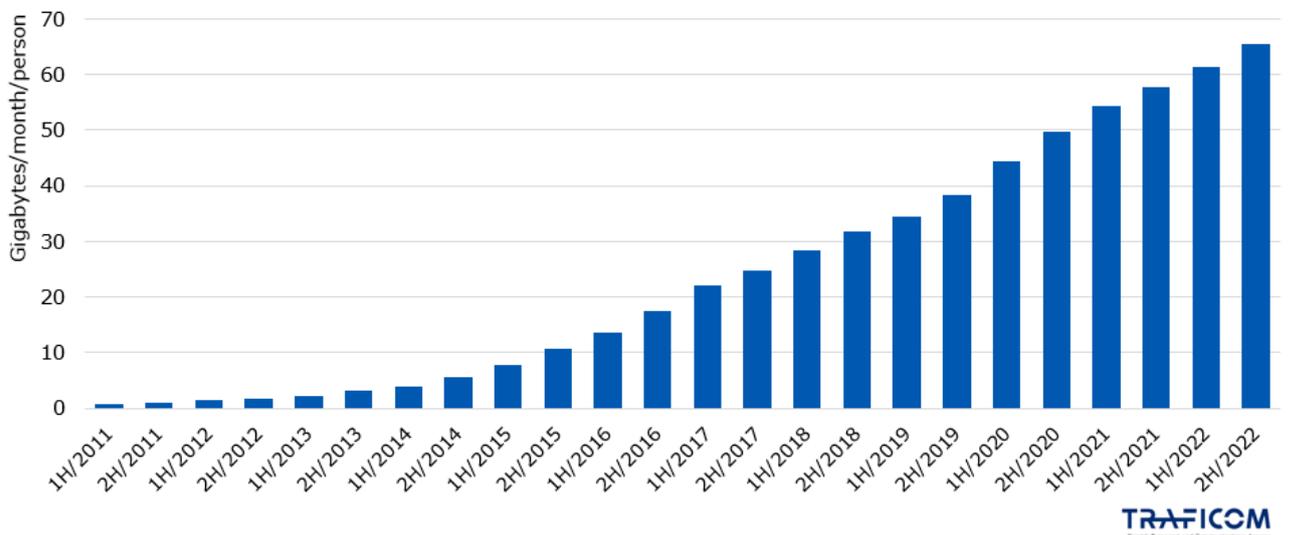Because of the lack of data limitations, zero rating does not exist in Finland.

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 2022, 51 per cent of fixed broadband subscriptions offered a download speed of 100 Mbps or higher, while 99 per cent had a download speed of at least 10 Mbps.
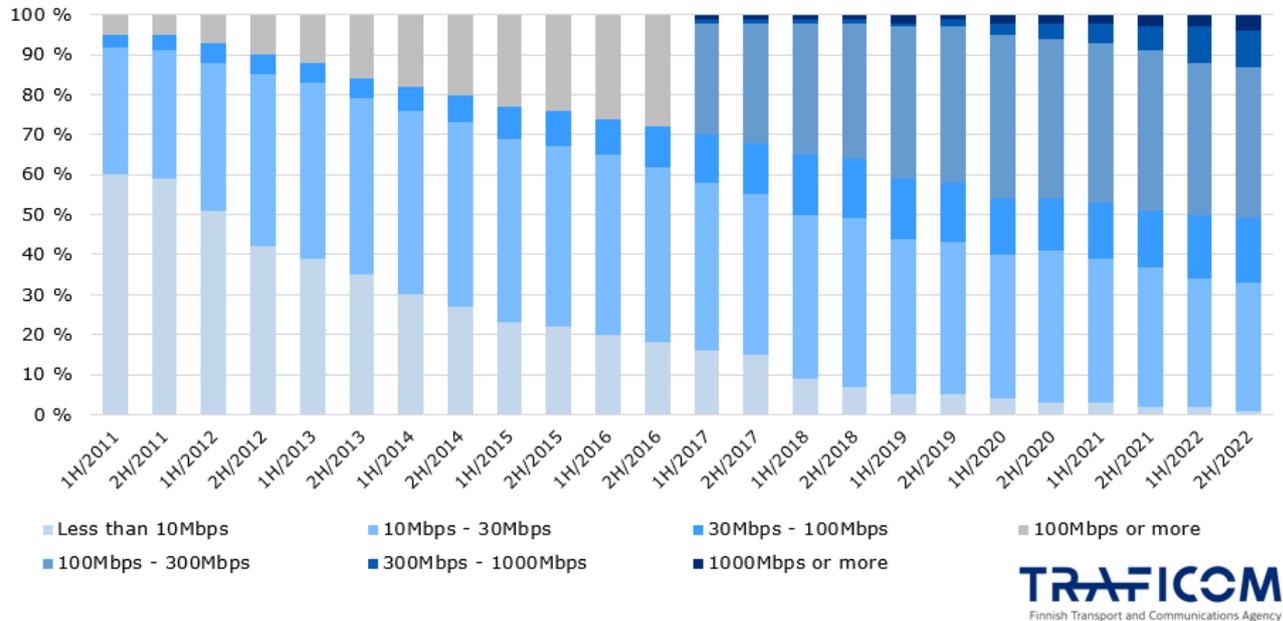

Figure 4. Fixed-line broadband subscriptions by connection speed

At the end of 2022, more than 2.1 million households in Finland had access to fixed broadband with a download speed of 30 Mbps or higher[15]. This represented 78 per cent of all Finnish households.

At the end of 2022, approximately 2 million or roughly 73 per cent of Finnish households had access to 100 Mbps fixed broadband, while 65 per cent of households had access to 1 Gbps fixed broadband.

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 that the corresponding upload speeds are somewhat lower. That being said, nearly all connections offering download speeds of 100 Mbps also offered upload speeds of at least 100 Mbps. Upload speeds will become more significant as cloud services and bidirectional streaming continue to gain in popularity.

Data transfer volumes were slightly higher in the fixed network than in mobile networks. During the second half of 2022, 68 GB of data was transferred per person in the fixed network. The data transfer volume per subscription was 198 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: even 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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[15] All the presented availability statistics have been retrospectively corrected, and can thus not be compared as such with the figures provided in previous reports.

7   Stakeholder cooperation and other activities

During the period covered by this report, Traficom met with several industry actors, including ministries, telecommunications operators and service providers. Traficom also organised stakeholder events on the updated BEREC Open Internet Guidelines, among other things. During the period covered by this report, topics that raised discussion in particular included interpretations of the sanctions that the EU has imposed against the broadcasting and distribution of content by Russian media outlets, the fair share issue and the European Commission's related broad public consultation (for more details, please see chapters 3.1 and 3.2 above). Traficom also responded to a survey by the European Commission on the need to amend the Open Internet Regulation. Traficom also informed its stakeholders about the survey and actively encouraged them to respond to it.

As in the period covered by the previous report, Traficom took 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 and contributing to the aforementioned discussions on sanctions and the fair share issue.

In addition to the above, Traficom continued to engage in cooperation with other authorities and stakeholders, including in the context of the Digirail project and mobile coverage on the rail network, and provide advisory services both by responding to direct enquiries from citizens and actively engaging in discussions on social media and other forums.