



**NMHH**

**Nemzeti Média- és Hírközlési Hatóság**

# **The State of the Open Internet in Hungary 2018**

Annual report on net neutrality for the period from 1 May 2017 to 30 April 2018

29 June 2018



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## 1 Hungarian regulations on net neutrality

Net neutrality regulation in Hungary is based on a number of components.

1. As Hungary is an EU Member State, *Regulation (EU) No. 2015/2120* (hereinafter: **EU Regulation**), amending *Directive 2002/22/EC on laying down measures concerning open internet access, universal service, and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union*, is directly effective and applicable.
2. NMHH Decree 2/2015. (III. 30.) on the Detailed Rules of Electronic Communications Subscriber Agreements (hereinafter: **Electronic Communications Decree**) has, since the entry into force of the EU Regulation last year and in the interest of ensuring transparency, already contained provisions on net neutrality.  
The provisions of the Electronic Communications Decree require operators supplying internet access services to provide access to their internet services for subscribers and users in the quality specified in their general terms and conditions and specific subscriber agreements. The Electronic Communications Decree also requires operators supplying internet access services to publish on their websites and continuously update standard service description tables on each internet access service plans.
3. An additional international legislation is *NMHH Decree 13/2011 (XII.27.) on the requirements for electronic communications service quality relating to the protection of subscribers and users, and on the authenticity of billing* (hereinafter: **Quality of Service Decree**) that requires all fixed and mobile internet access operators to specify in their subscriber agreements certain quality indicators guaranteed by the operator such as offered bandwidth, as well as guaranteed download and upload speeds<sup>1</sup>.

The purpose of the national regulation (transparency, protection of end-user rights) currently in force is similar to those incorporated in the Regulation, but it regulates not only internet service but also the quality of other electronic communications service.

**In the context of net neutrality, there has been no change in national legislation as compared to the 2017 annual report.**

## 2 Monitoring the implementation of the EU Regulation

Internet use and internet-based digital economy have become decisive factors in our lives. Therefore, the National Media and Infocommunications Authority (**NMHH**) monitors and controls net neutrality in Hungary as well as compliance with the relevant rules as a priority issue. NMHH performs its activities with regards to net neutrality as listed under the supervisory powers stipulated in Act C of 2003 on Electronic Communications (hereinafter: **Electronic Communications Act**).

NMHH controls compliance with net neutrality rules by operators during its annual planned and, in justified cases, its unplanned monitoring activities. In addition, the NMHH will also

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<sup>1</sup> guaranteed download and upload speeds: the lowest data rate that is specified in the subscriber agreement to be made available for uploading at the subscriber access point concerned.

proceed if subscribers of electronic communications services submit requests or reports or if operators submit reports.

The NMHH prepares an annual report in accordance with the provisions of EU Regulation, with the content outlined in the BEREC Guidelines<sup>2</sup>, on compliance with the provisions to provide an open internet and the Authority's related monitoring activities. The NMHH complies with its obligations under the EU Decree by preparing, and publishing the report and sending it to the Commission and the BEREC.

## **2.1 Monitoring of contractual and commercial terms**

The NMHH inspected the network neutrality aspects of contractual and commercial terms with regards to net neutrality primarily in terms of the zero tariff plans most favoured by mobile operators.

In the year following the entry into force of the EU Regulation, the NMHH launched proceedings against three mobile operators for offering tariff plans with unlimited online video streaming services, unlimited access to social media and messaging applications, and unlimited music streaming services.

The common feature of the plans was that the data traffic generated by the thematic services did not reduce the data quota for the mobile internet subscription, and after using the amount of data included in the quota, the themed services still remained available to subscribers under the original terms.

In all three cases, NMHH concluded that the commercial practices investigated also qualify as discriminatory traffic management measures and as such violate the rules for net neutrality.

Accordingly, NMHH banned such unlawful behaviour and ordered the operator to discontinue the unlawful differentiation between various types of internet traffic. The NMHH's decisions were challenged by the relevant operators at the national court.

**Over the course of the last year, the national court approved the NMHH's decision in the matter of tariff plans offering online video streaming service, and the operator complied with the NMHH obligation.**

**There are no court decisions yet in the other two cases in progress.**

Below is the summary of NMHH's current experience on monitoring contractual and commercial terms:

After the 2017 report was completed, operators introduced new types of thematic zero tariff plans on the market.

A common feature of these plans is the unlimited use of the thematic content and applications included in the package until the package quota runs out. Once the user exceeds the quota, the thematic content, like any other content or application not listed in the zero tariff, is slowed down or restricted.

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<sup>2</sup> BoR (16) 127

### 2.1.1 Vodafone Pass

The operator introduced new thematic zero tariff plans called “Social Pass” and “Connect Pass” (hereinafter collectively referred to as “**Vodafone Pass**”) to offer “free unlimited community experience”.

For those plans, even if there is a minimum quota, content and applications included in the packages can be used unlimited until the quota is exhausted. After that, the plans are limited by the operator to 0/0 Mbps.

With regards to operators’ service plans, the NMHH launched an investigation on the subject of compliance with net neutrality rules (Articles 3(3) and 3(2) of the EU Regulation) and other rules on electronic communications. The NMHH is also investigating the accuracy of the operator’s differentiation of the zero tariff traffic.

**Investigations are pending, no decision has been taken by NMHH yet.**

### 2.1.2 Telecom thematic option

The operator has provided new zero tariff mobile internet offering available to subscribers under the name “Korlátlan közösségi média és navigáció” (Unlimited Community Media and Navigation) (hereinafter referred to as “**SMN**”) and “Korlátlan chat (csevegés)” (Unlimited Chat) (hereinafter referred to as “**Chat**”).

In the case of the mentioned mobile internet tariff plans, when the quota included in the tariff plan is exhausted, the content or type of traffic “zeroed” by the unlimited thematic options is slowed down or stopped as specified for the subscriber’s data tariff plan.

The NMHH launched an investigation on the subject of compliance with net neutrality rules (Articles 3(3) and 3(2) of the EU Regulation) and other rules on electronic communications pertaining to service plans.

**Investigations are pending, no decision has been taken by NMHH yet.**

In addition to the abovementioned zero tariff plans, NMHH initiated proceedings in two additional cases. Those offers are different from the above in that they provide unlimited domestic quota, meaning that it is no longer significant that some applications and content are not included in quota of the tariff plan.

### 2.1.3 Vodafone Red Infinity

The operator offers “unlimited” mobile internet plan under the name Red Infinity.

By default, the service plan offers 480p video resolution when playing video content. This resolution delivers a quality “optimised” for mobile handsets; however, image quality may be inferior on devices with larger screens.

The operator offers the option to opt out of “optimization”.

The NMHH launched proceedings concerning the contractual terms relating to the plan<sup>3</sup> with respect to the assessment of compliance with the requirement of non-restriction and non-

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<sup>3</sup> “Retail General Terms and Conditions” (hereinafter: GTC), Retail Tariff Schedule 1, section “2.1.3. Vodafone Red Service Plan”

interference treatment in Article 3(3) of the EU Regulation.

**The investigation is pending, no decision has been taken by NMHH yet.**

#### **2.1.4 Telecom unlimited net plan**

The operator has made available a new “Korlátlan Net” (Unlimited Net) tariff plan to subscribers. In addition to unlimited internet use within Hungary, the plan also provides a 15 GB quota in the EU.

This Unlimited Net plan is only available for personal use, and the SIM card associated with the tariff plan may only be inserted in mobile phones. Pursuant to contractual terms, it is a breach of contract if the SIM card is used by the subscriber in a device that is not suitable for making mobile voice calls.

Additionally, for the purpose of maintaining network integrity and service security, the operator significantly reduces the mobile internet speed of certain types of traffic (P2P, VPN) and modes of use (Bittorrent) compared to speed offered by the tariff plan.

In connection with the plan, the NMHH launched a proceeding for compliance of net neutrality rules (Article 3(3) and Article 3(2) of the EU Regulation).

**The investigation is pending, no decision has been taken by NMHH yet.**

## **2.2 Monitoring restrictions on end-user rights**

NMHH monitors restrictions on end-user rights as a priority issue. Hungarian legislation, on the one hand, provides legislative guarantees (Electronic Communications Act) for end user rights and, on the other hand, the Electronic Communications Decree specifies the compulsory content elements of the subscriber agreements.

During the period under review, follow-up checks on compliance with the rules on end user rights pertaining to net neutrality focused on the terms and conditions in the operators' GTC, and the potential irregularities associated with net neutrality as outlined therein.

### **2.2.1 Restricting the use of subscriber's terminal equipment**

Within the context of the review of the GTCs, NMHH assessed internet access operators for their practices on subscriber's terminal equipment, with a special emphasis on the conditions of connecting subscriber's terminal equipment not provided by the ISP.

**In general, the audit did not reveal irregularities related to net neutrality, except for Telekom's Unlimited Net plan, which is currently being investigated. (See section 2.1.4)**

### **2.2.2 Prohibition of tethering**

**During the review of the GTCs in force since April 2018, the NMHH did not find any clause on the express ban on tethering.**

The GTCs of the operators only stipulate that the datalink and the amount of data downloaded may not jeopardize the proper functioning of their network and that operators may take preventive or recovery measures resulting in slower or restricted traffic to prevent network overloads or network crashes, or to provide other subscriber services.

The NMHH continues to monitor the implementation, scale and frequency of these measures.

### **2.3 Handling of complaints related to net neutrality**

End users can make complaints about net neutrality as per the general complaint management rules. Operators are required to have compliant and established complaint management procedures incorporated in the GTC, thus they are available to subscribers.

Under national legislation currently in force, the operator is required to respond on the merits of the written complaint within 30 days from the date the complaint is received.

The operator's practice and intervention relevant to net neutrality may be detected by end users also in the form of a network error or quality of service. Troubleshooting is governed by separate rules other than complaint handling. Thus, the operator is required to investigate the fault report within 48 hours. In addition, a confirmation message about the receipt of the fault report has to be sent to the subscriber and the issue must be registered. The period from reporting the fault to its correction shall not exceed 72 hours. Immediately but within 24 hours after resolving the fault, the Operator shall notify the subscriber about the fault resolution, and register the means and time of notification.

Thus, the subscriber can report the issue (including the complaint resulting from the error referenced above) to the operator, which then investigates the issue. If the subscriber does not agree with the response received or he believes the operator does not perform as per the subscriber agreement, the subscriber may submit his case to a court as per the dispute resolution procedure specified in the agreement, or, in the case of subscribers who qualify as consumers, can seek assistance from an arbitration board. Should the operator fail to investigate the complaint or violates the laws pertaining to subscriber legal relationship, the party filing the complaint may submit his case to NMHH.

#### **2.3.1 Complaints submitted to NMHH and their outcome in recent years**

During the period under review, the NMHH did not receive any complaints or application from end-users against fixed or mobile operators regarding violations of the net neutrality rules of the EU Regulation.

### **2.4 Performance of the internet access service**

For the purpose of studying the characteristics of internet access services provided by Internet operators, the NMHH has carried out its own measurements. This is how the Authority wished to clarify the question whether the actual bandwidth experienced by subscribers would confirm the speed values shown in the operators' public offers.

#### **2.4.1 Presentation and evaluation of NMHH's measurement results**

In 2012 NMHH launched its "SZÉP"<sup>4</sup> project to gain an accurate picture of the real quality parameters of domestic broadband services and thereby facilitate the performance of its regulatory tasks. The project objectives expanded over time to include, for instance, facilitating conscious selection of operators and services by customers.

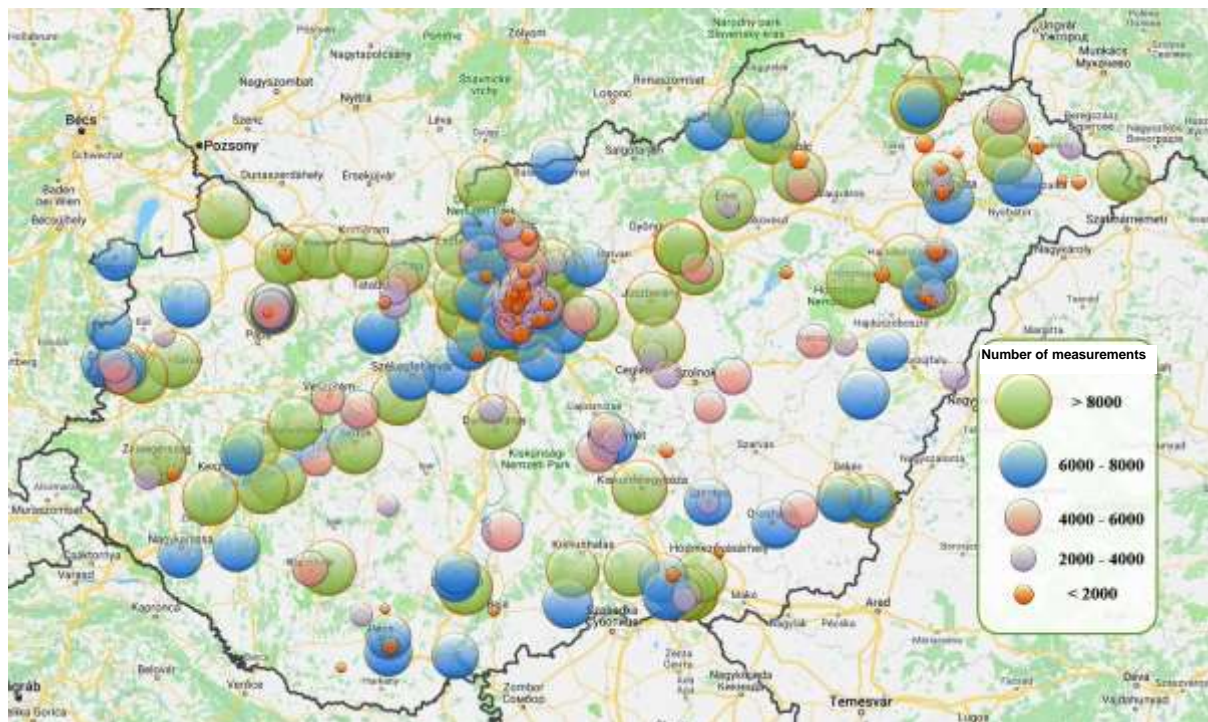
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<sup>4</sup> SZÉP = Szélessáv Projekt (Project Broadband)

In 2015, NMHH deployed, as part of the project, an interactive system publishing the measurement results of certain quality indicators of internet access services and net neutrality parameters at <http://szelessav.net>.

**With regards to net neutrality, NMHH mainly uses regular hardware measurements to investigate the actual quality of fixed-line internet access service using the automated measuring instruments installed at the fixed access points.**

Over the past year, the NMHH performed long-term measurements (for a number of months, at hourly intervals) using measuring instruments installed at 254 measurement points of fixed access points at the following geographical locations (see figure 1), where the size of the balls indicates the order of magnitude of the specific metering point.



**Figure 1: Spatial distribution of fixed measuring points and the number of measurements**

The Electronic Communications Decree requires all internet access operators to **specify in their subscriber agreements** the quality indicators listed in the regulation such as **the offered (advertised) bandwidth as well as guaranteed download and upload speeds**.

The measurements involved 128 service plans of 43 operators. During the long-term measurements, a total of 1,417,833 measurements on a total of 61,090 days at 254 measurement locations were made.

After analyzing the results of the **measurements**, it became apparent that operators specify have many types of offered and guaranteed speeds in their plans, often with significant differences between plans using the same technology. Based on the comparison of the number of operators, technologies and plans with the number and distribution of the measurement points, the measurement results can not be considered representative. Taking this into account, the NMHH arrived to the following general conclusions:



- Similar to last year's report, the NMHH, based on the results of the hardware measurements, this year also modelled how the actual download and upload speeds of fixed internet access services compare against some of the possible requirements for the "normally available speed" as specified in Article 4(1)(d) of the EU Regulation. These tests were conducted in the following categories: under 10 Mbps, between 10 and 30 Mbps, between 30 and 100 Mbps and over 100 Mbps. (Table 1)

**Based on the results, it can be established that some services would fail to meet quality of service requirements even if a more permissive interpretation of the concept of "normally available speed" is used; however, there is a marked improvement over the results in 2017.**

**From the results it can also be concluded that in the speed category above 100 Mbps the download speeds offered are met significantly less frequently than in the other speed categories; therefore, further investigation is needed to determine whether different (lower) requirements should be applied to this category.**

Offered (advertised) range of download speed	Of the offered download speed								
	90% at least in the following percentage of the measurements			80% at least in the following percentage of the measurements			70% at least in the following percentage of the measurements		
	90%	80%	70%	90%	80%	70%	90%	80%	70%
Up to 10 Mbps	56.6	64.2	66.0	60.4	67.9	71.7	73.6	79.3	81.1
10–30 Mbps	71.9	75.0	78.1	78.1	79.1	81.3	81.3	82.3	84.4
30–100 Mbps	45.3	53.3	61.3	65.3	72.0	77.3	78.7	85.3	85.3
over 100 Mbps	7.9	9.5	15.9	11.1	20.6	34.9	20.6	38.1	52.4
	<b>percentage of the number of monitoring locations.</b>								

**Table 1: Percentage of meeting the offered download speed**

- Although the performance drop in fixed services during peak periods (e.g. at night and at weekends) was lower than in 2017, average download speeds continue to fluctuate within the day. In addition, this fluctuation was even more significant on holidays (see figure 2).

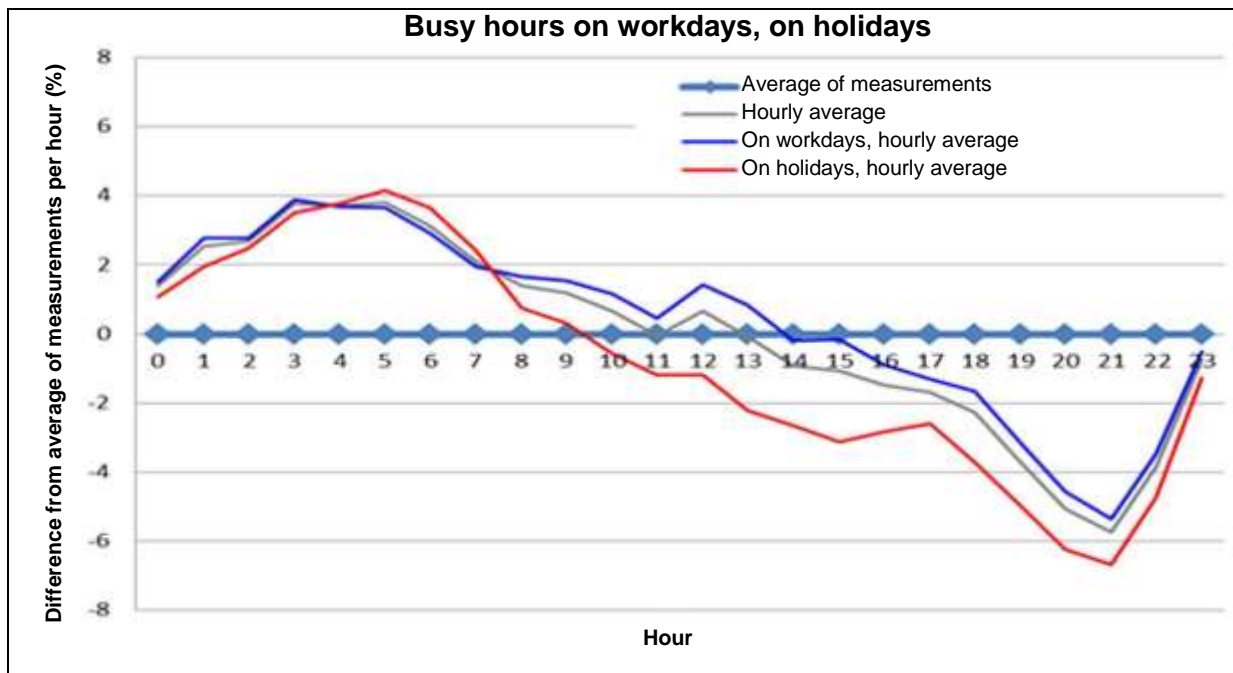
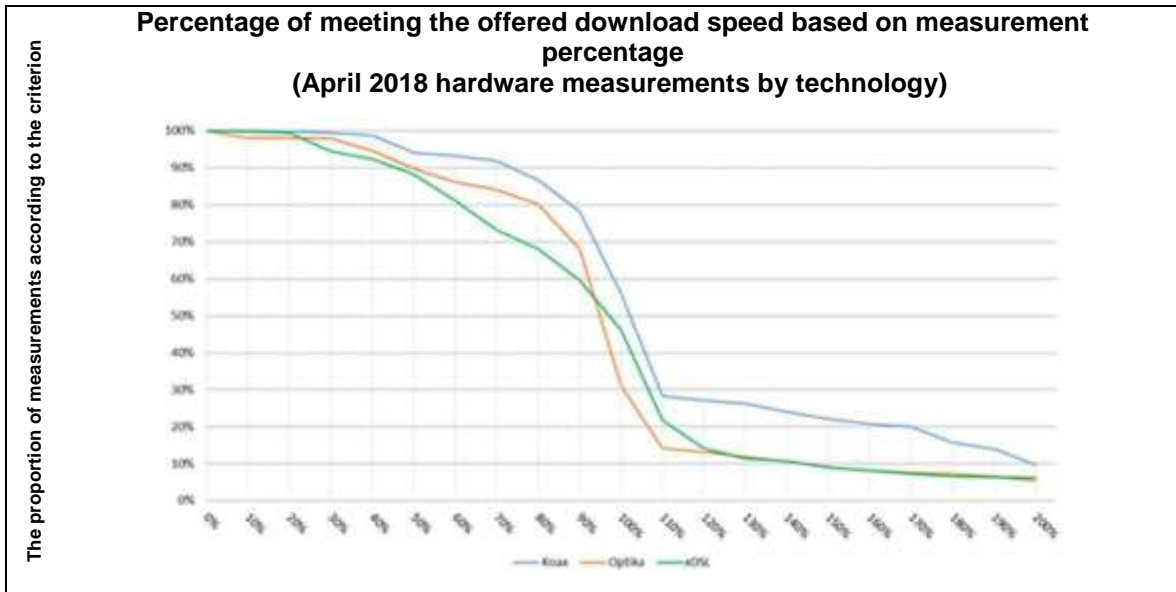


Figure 2: Daily breakdown of average download speed of fixed Internet access (based on April 2018 data)

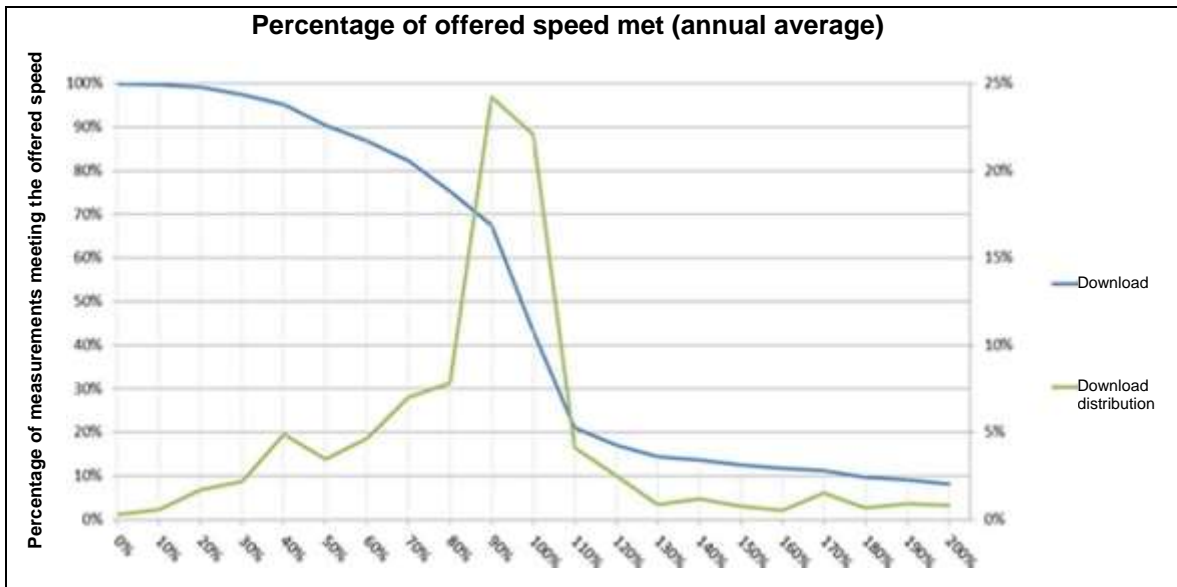
- Figure 3 details the fulfilment ratio of the measured download speeds to those offered in a breakdown by technologies.

**As seen in the figure, up to 50% of the speed offered, there appears to be no significant difference between the various technologies in terms of fulfilment of download speeds. Above 50%, the performance indicators of the various technologies begin to show a marked difference. As operators tend to offer uniform, technology-independent plans, there may be significant qualitative differences even within the same package, which may violate consumer interests.**



**Figure 3: Download speed met by technology (April 2018)**

- Figure 4 illustrates the yearly average of the fulfilment ratios of the measured download speeds to those offered for fixed location measurements as well as the distribution of measurements within the specific speed intervals. **Based on the figure, it can be established that 80% of the download speeds offered are actually fulfilled in 75% of the measurements.**



**Figure 4: The rate of full speed compared to the offered speed and download speed distribution for fixed measurements (May 2017 – April 2018)**

Based on the measurements, we can assume that in some plans operators artificially limit upload and download speeds, either as part of a campaign or permanently, mostly below the maximum speed value. Therefore, in this case the limitation is not due to network capacity but more likely to the application of some dynamic regulating tools resulting in significantly reduced fluctuations in measured speeds.

**Limiting package speed from above may have a net neutrality aspect, therefore the NMHH will hereinafter monitor these plans.**

**The NMHH currently uses the analyses of the above measurements of fixed services to perform monitoring of the availability of the service, information to subscribers as well the implementation of the requirements facilitating the enforcement of subscriber rights as stipulated in Article 4(1)(d)–(e) of the EU Regulation.**

## **2.5 Special services**

Of the special services, the NMHH continued monitoring, by reviewing mainly the contract terms and conditions of the operators and by conducting technical measurements, the conditions and practical implementation of IPTV<sup>5</sup> in the reporting period, which is also named in the guideline.

**During the reporting period, the NMHH found contractual terms that could raise the suspicion of abuse of net neutrality but, given the lack of such consumer complaints, deferred their detailed examination for a period following the planned revision of the national rules because the new regulation is expected to remedy the problems discovered.**

## **2.6 Assessment of how the transparency requirements governing ISPs have been implemented**

NMHH performs continuous assessment of the contract terms and conditions of internet access services. The purpose of this continuous assessment is to ensure that the agreements relevant to internet access services include all information relevant to subscribers in a non-ambiguous, understandable and comprehensive manner to facilitate subscribers' decision-making process.

The revision of the standardized service description tables set out in the National Legislation (Electronic Communications Decree) in 2015 aimed at increasing transparency is in progress in line with the provisions of the EU Regulation. Pursuant to the Electronic Communications Decree, operators are required to publish on their websites and continuously update the standard service description tables for each of their internet access service offers.

**Based on the experience and results of the reporting period, it appears that the operators' GTCs are incomplete and do not yet contain all the requirements set out in Article 4(1) of the EU Regulation.**

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<sup>5</sup> Internet Protocol Television

## 2.7 Other NMHH activities related to net neutrality

NMHH has also conducted some other activities related to net neutrality and not listed in the BEREC guidelines, which complements and makes more complete NMHH's monitoring activity.

NMHH collected the results of the annual market research on net neutrality conducted among subscribers and users, and also had a research conducted on the opinion of the general public on net neutrality.

### 2.7.1 Results of NMHH's earlier annual market research relevant to net neutrality

Each year NMHH prepares a large-sample survey of national representation on Hungarian internet use among internet users living in Hungary and aged 16 and older. The research uses an online form and involves 3,000 respondents.<sup>6</sup>

#### Results of the 2017 internet survey relevant to net neutrality:

- **The vast majority of Hungarian internet users believe that the internet should be free and without any restrictions, open to all by default and with equal opportunities.** Users also expect operators, companies and the state to fundamentally not regulate content shared over the internet or internet activities even if a user generates too much traffic on the network.
- When concluding an internet subscriber agreement, only a small fraction of subscribers are sufficiently patient or motivated to thoroughly review the individual subscriber contract and relevant parts of the GTC. **At the same time, one fourth of Internet subscribers have already tried to find information of interests to them in the GTC, and most of them found it, though in half of the cases it was difficult.** This suggests that further improvements in the transparency and clarity of contracts should be made by operators.
- Currently 14% of mobile Internet subscribers have quota tariff plan subscriptions that do not include the service of certain social media players or certain chat programs in the quota (zero tariff plans). Consumers, based on their responses, primarily consider the price when making subscriber decisions and do not think about or it is less important for them that their access to content is thereby significantly reduced.
- In 2017, 58% of fixed internet subscribers encountered some kind of problem with their subscriptions. The most common problem remains to be broken connectivity when you can not access the net at all, but the very slow connection speed at any activity or any web site is also among the top issues. Of all the problems

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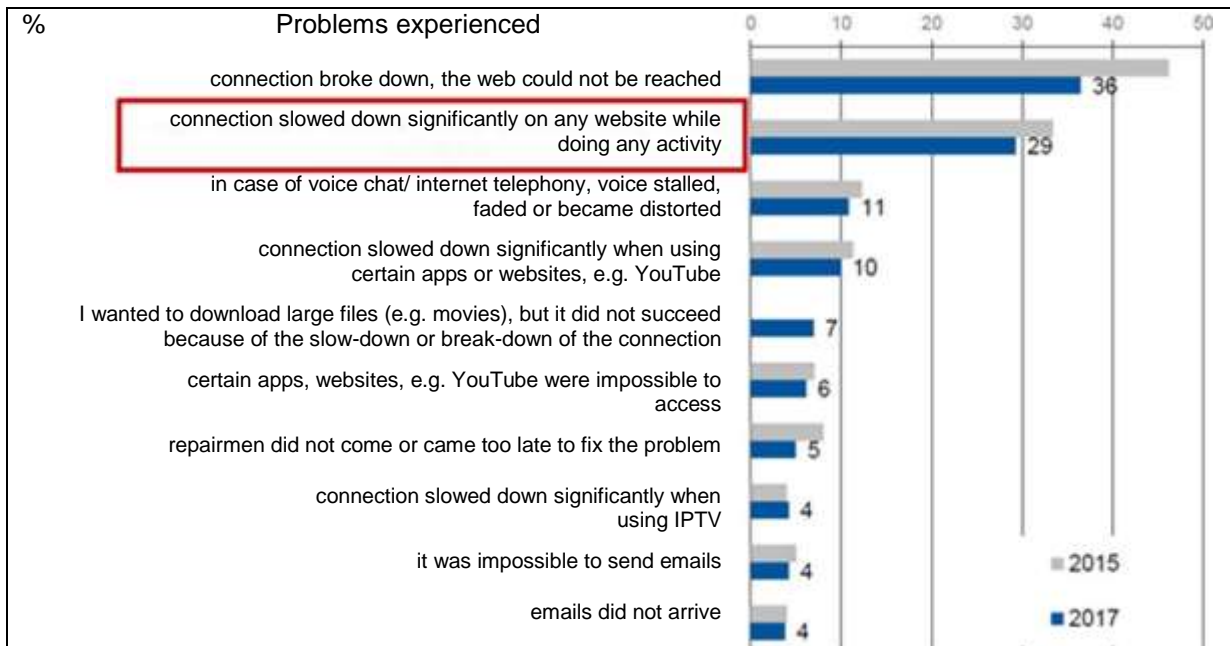
<sup>6</sup> NMHH research, Lakossági internethasználat, 2017.:

[http://nmhh.hu/dokumentum/195102/lakossagi\\_internethasznalat\\_2017.pdf](http://nmhh.hu/dokumentum/195102/lakossagi_internethasznalat_2017.pdf)

The English-language summary titled "Internet Usage by Individuals" is available at: [http://english.nmhh.hu/document/196211/citizens\\_internet\\_survey\\_2017.pdf](http://english.nmhh.hu/document/196211/citizens_internet_survey_2017.pdf)

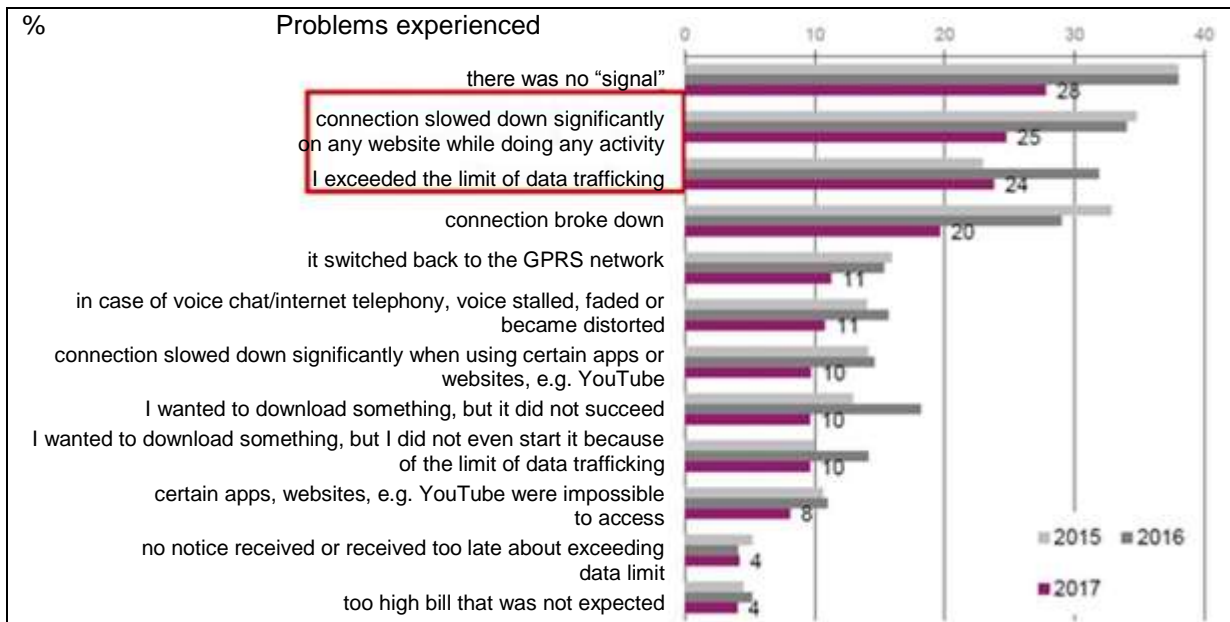
encountered, there was a total of 4% of cases when the connection was very slow when using the IPTV service also included in the subscription.

**Compared to the results of similar surveys in 2015, however, there is a tendency of improvement in almost every issue category.**



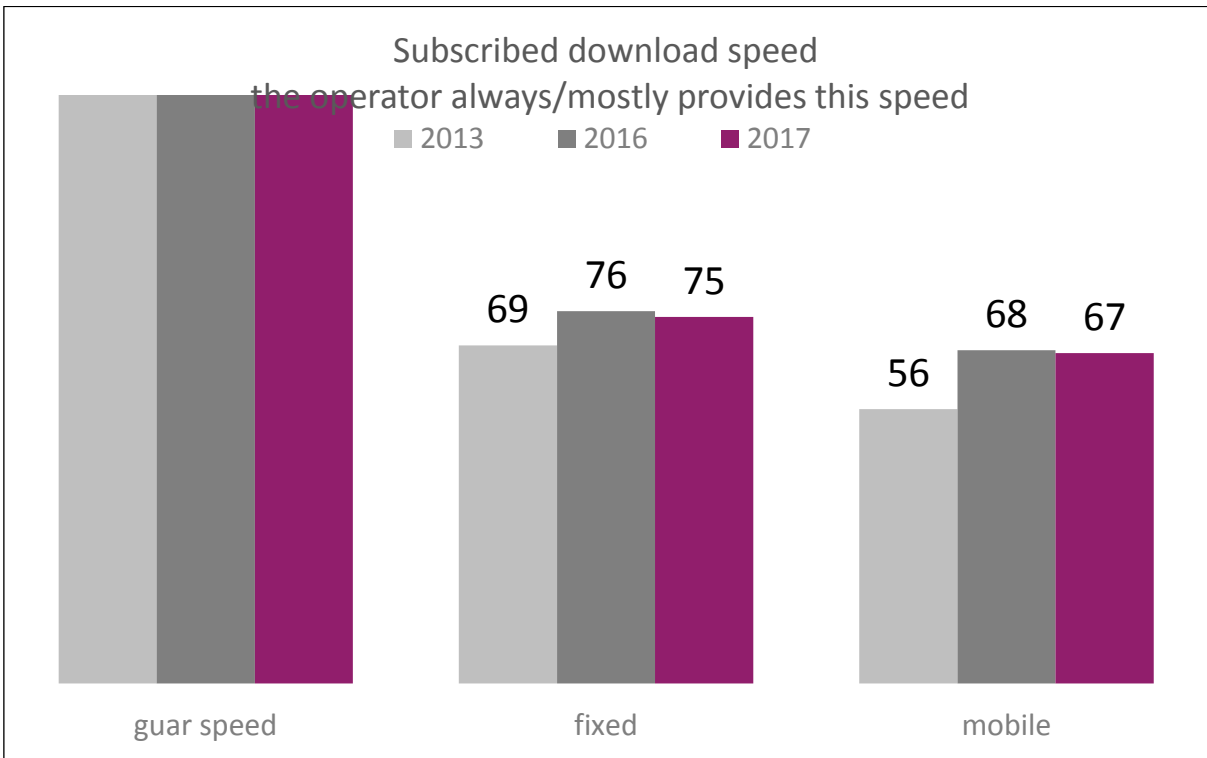
- In 2017, 68% of mobile Internet subscribers experienced some sort of problem with their subscriptions.

**Compared to previous years, the occurrence rate of all these faults has decreased, just like with fixed subscriptions.**

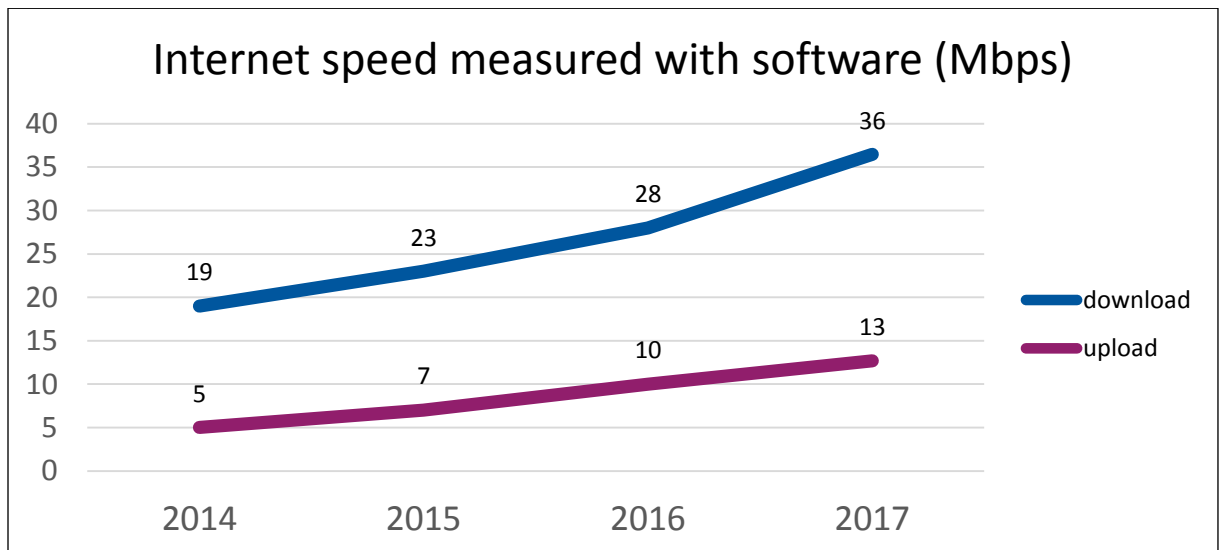


- Since our previous research, the proportion of those who have already measured the speed of their subscribed internet connection has not changed significantly. Compared to 2013, however, more people are measuring their mobile internet speed. **The rate of those satisfied with their speed of their subscription has not**

changed in one year either: three quarters of the fixed line subscribers and two thirds of mobile subscribers said that the operator always or mostly provided the promised download speed.



- In 2017, the typical download speed of the internet connection available in Hungary increased more than ever, partly due to the high-throughput fixed networks in large cities, and partly due to increased 4G mobile internet penetration.



Base: Mobile Internet subscribers aged 16+; n=2048, N=4 m

## 2.7.2 Results of the Social Listening<sup>7</sup> research

The NMHH continued its Social Listening research on net neutrality prepared for the previous reporting period, this time examining the period between 1 May 2017 and 30 April 2018. The main findings of the research are as follows:

- **The topic of net neutrality appeared on the Hungarian-language internet nearly 22% more frequently than in the 2017 reporting period;** however, in relation to other communications topics, its still among the lesser-known topics.
- **The rate of Hungarian mentions of this topic is not below the rate seen in English and German language areas in this period, either.** At the same time, in the majority of cases, the mentions were not related to the NMHH, but the FCC's<sup>8</sup> net neutrality activity.
- **According to the respondents, the NMHH's net neutrality activities were less negative than in the previous reporting period.** This may be explained by the fact that no bans of tariff plans were announced during the reporting period that would have a significant impact on some of the users.
- **The respondents continued to be heavily concerned with zero tariff plans, but the percentage of dominantly negative opinions experienced earlier also decreased.**
- **According to the recommendations prepared for the research, NMHH can further improve public opinion about net neutrality by more frequent appearances in social media, by expanding public knowledge about the topic, by demonstrating the positive effects of net neutrality and by keeping the issue alive.**

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<sup>7</sup> Social Listening is a procedure that identifies, collects, analyses and evaluates what has been published in the specific topic on the internet.

<sup>8</sup> Federal Communications Commission, the U.S. federal communications organization.



### **3 Evaluation of the uninterrupted availability of discrimination-free internet access services**

The internet has become one of the most important infrastructures of society and the economy and its key role is unquestionable in virtually all segments of our lives. **Most EU Member States consider it a priority issue to avoid exclusive control over content and services transferred over the network due to ownership over the network infrastructure because that would be in violation of the principle of free information flow and provision of services.**

At the beginning of managing net neutrality, Hungary, like many other Member States, believed that no separate legislation was needed because the opportunities offered by the framework directive were sufficient for NMHH to ensure compliance with the rules. At the same time, both the Electronic Communications Act and the Electronic Communications Decree included certain requirements for net neutrality to ensure transparency.

The entry into force of the EU Regulation proved to be a milestone because it not only resulted in a standard regulation but it also created a more predictable, and in many ways a more uniform, environment both to operators and users.

The uniform regulation also resulted in a significant change for the regulatory authorities of the Member States as the various interpretations of net neutrality often different in the Member States was replaced with a set a criteria to establish a uniform monitoring and assessment system.

During the reporting period, the NMHH continued its monitoring efforts to study the availability of non-discriminatory internet access services. **As a general experience, the investigations and the audits did not reveal any serious deficiencies, and the NMHH was not aware of any high-profile case. Based on our research on the internet (see section 2.7.1), the quality of service experience of subscribers has changed in a favorable direction compared to the results of recent years, as the number of errors dropped in nearly all of the defective categories and most consumers feel that operators mostly or always provided the speed originally undertaken. The positive results of the research are also supported by the fact that neither the NMHH nor the operators received a significant amount of complaints from consumers.**

#### **4 The NMHH's summary based on the experience of the evaluated period:**

- **The monitoring, measurement and legal tools of the NMHH are available and appropriate for examining and monitoring the deviations from the provisions of the EU Regulation, and in the event of any discrepancies detected, to take the necessary actions and eliminate the infringements.**
- **The general experience of the reporting period is that audits and monitoring activities have not revealed any serious shortcomings in net neutrality. Our experience is reinforced by the fact that neither the NMHH nor the operators have received a significant amount of complaints from consumers.**
- **In line with international experience regarding zero tariff plans, we have seen a restructuring process on the domestic market over the past year. Instead of previously clearly discriminating plans, operators have come up with new types of offerings. Net neutrality of the new plans is a new challenge for the NMHH.**
- **Another lesson learned about the realization of the open internet, which the measurements also underlined, is that operators can, in many cases, manage the available speeds to significantly influence the current quality of the service and thus consumer experience without using obviously prohibited traffic management tools.**
- **The social listening research has pointed out that consumer awareness of net neutrality has increased over the past year, but further information and clarification is needed in this area.**