Net Neutrality

Annual Monitoring Report
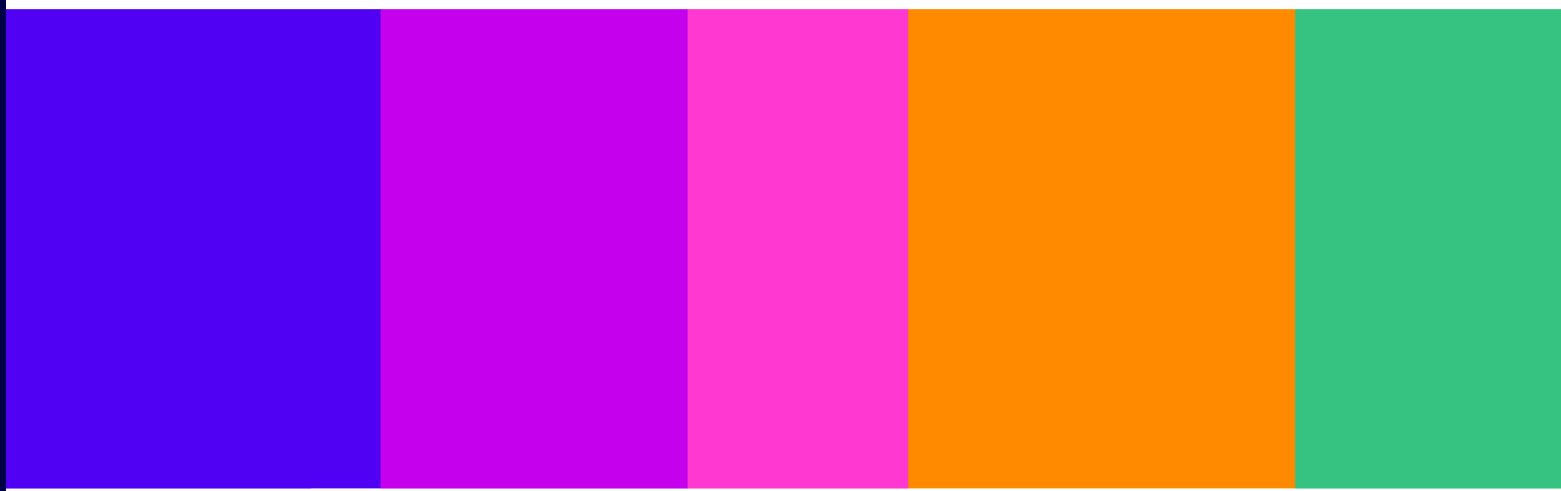
Contents

1. Introduction

1.1 Net neutrality, also known as the 'open internet', is the principle that users of the internet (both consumers and those making and distributing content) should be in control of what they see and do online, rather than the broadband or mobile providers (otherwise referred to as 'Internet Service Providers' or 'ISPs') that connect them.

1.2 Rules aimed at protecting net neutrality are set out in the Open Internet Access Regulations ("the Regulation" or "the net neutrality rules"), which came into force in April 2016.[1] These rules were agreed by the European Union (EU) in 2015 when the UK was still a member. Following the UK's exit from the EU and the transition period which lasted until 31 December 2020, the EU rules on net neutrality became part of UK law, with minor amendments.[2]

1.3 The net neutrality rules aim to *"safeguard equal and non-discriminatory treatment of traffic in the provision of internet access services and related end-users'[3] rights"* and to *"guarantee the continued functioning of the internet ecosystem as an engine of innovation"*. The rules protect internet users' rights to access and distribute information and content, use and provide applications and services of their choosing and use the terminal equipment[4] of their choice.

1.4 Ofcom is responsible for monitoring and ensuring compliance with the rules in the UK. We are also required by the Regulation to promote the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology, and we must publish annual reports with findings from our monitoring. This document constitutes our eighth annual report. It provides an update on our monitoring work since the last report, published in January 2024.[5]

1.5 In October 2023, we published a statement on our review of net neutrality in the UK.[6] We concluded that, in general, net neutrality has worked well and supported consumer choice as well as enabling content providers to deliver their content and services to consumers. However, there were specific areas where we felt more clarity was needed in our guidance to enable ISPs to innovate and manage their networks more efficiently, to improve

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[1] *Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC and Regulation (EU) No 531/2012*, https://eur-lex.europa.eu/eli/reg/2015/2120/oj [accessed 22 January 2025].
[2] By virtue of section 5 of The Retained EU Law (Revocation and Reform) Act 2023, the net neutrality rules have now become assimilated law.
[3] In this context an end-user is: (i) a person who, otherwise than as a communications provider, is a customer of the provider of that service; (ii) a person who makes use of the service otherwise than as a communications provider; or (iii) a person who may be authorised, by a person falling within (i), so to make use of the service.
[4] Terminal equipment is either: (i) equipment directly or indirectly connected to the interface of a publicly available electronic communications network to send, process or receive information, with the direct or indirect connection being made by a wire or optical fibre or electromagnetically; or (ii) equipment which is capable of being used for the transmission or reception, or both, of radio communication signals by means of satellites or other space-based system.
[5] Our previous annual monitoring reports can be found on our website here.
[6] Ofcom, 2023. Statement: Net Neutrality Review.

consumer outcomes. We therefore provided revised guidance on how we expect ISPs to comply with the Regulation and our approach to assessing compliance.[7]

1.6   As part of the review, we considered how we could improve our approach to monitoring net neutrality, including how we report on this work through our annual monitoring reports. In the statement, we said that going forward we would gather data from ISPs on an annual basis on general network performance, traffic management policies and the services they offer. We also noted that we may request data from ISPs on a case-by-case basis; for example, where we have concerns about compliance with the Regulation.

1.7   In line with the approach outlined in our statement, in September last year we used our information gathering powers under the Regulation[8] to request data ('the information request') from some of the larger ISPs in the UK: BT Group (including EE), Sky, TalkTalk Business, TalkTalk Consumer, Platform X Communications ('Platform X'), Three, Virgin Media O2 ('VMED O2') and Vodafone.[9] We requested data on general network performance and on the ISPs' approaches to traffic management and terminal equipment as well as the retail offers, zero-rating packages and optimised services (also known as 'specialised services') they provide. This data covered the period of 1 January 2023 to 1 September 2024 ('the relevant period'). Along with other Ofcom publications, this data informs our assessment in this report.

1.8   In summary, we have found that, so far, ISPs have not made major changes to their approaches to net neutrality based on the additional clarity and flexibility provided in our guidance. They have made only limited use of traffic management during the relevant period. Mobile ISPs have continued to offer zero-rating. Some have offered commercial zero-rating packages, including open offers that zero-rate a particular class of content, and all have provided zero-rated access to some socially beneficial content to all their customers. All the ISPs have continued to differentiate their retail offers based on speeds and data allowance. There has been some development of specialised services, with some mobile ISPs using 5G network slicing. In terms of the quality of fixed and mobile internet access services in the UK, these services continue to improve in line with advances in technology, with coverage of gigabit-capable broadband and 5G expanding and take up of packages with higher speeds increasing.

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[7] Ofcom, 2023. Annexes: Net Neutrality Review.
[8] Our information gathering powers are set out in Regulation 17 of the Open Internet Access (EU Regulation) Regulations 2016 and Article 5 of the retained EU Open Internet Access Regulation 2015/2120.
[9] We recognise that there are many other ISPs in the UK beyond those we requested information from for this report. Going forwards, we will consider how to broaden the scope of the ISPs that we engage with.

2. The quality of internet access services

2.1   Article 5 of the Regulation places a duty on Ofcom to "*promote the continued availability of non-discriminatory internet access services at levels of quality that reflect advances in technology*".

2.2   This section examines the quality of mobile and broadband internet access services in the UK, to consider whether the levels of quality continue to reflect advances in technology. We report on coverage, speeds and consumer experience for fixed and mobile internet access services, using findings from other Ofcom reports, such as Connected Nations and Mobile Matters. Additionally, we report on data we have gathered from ISPs on general network performance and capacity expansion, including on measures of network utilisation and congestion as well as approaches to expanding capacity.

2.3   Overall, the quality of internet access services available in the UK is improving to reflect the latest technologies. For fixed broadband, gigabit-capable services now reach 83% of residential premises, with coverage expected to continue to grow. The maximum average download speed of fixed broadband services increased by 31% from last year to 223 Mbit/s. We also continue to see improvements in coverage of mobile services, with 5G services from at least one Mobile Network Operator ('MNO') now covering at least 90% of areas outside premises.

Coverage, speeds and consumer experience

2.4   In our 2024 Connected Nations report, we present the latest data on coverage and speeds of fixed and mobile broadband networks within the UK.[10] Our 2024 Mobile Matters report used crowdsourced data gathered from October 2023 to March 2024 to report on people's experience using mobile data services in the UK.[11] Below, we draw on key findings from these reports to show the quality of fixed and mobile internet access services.

Fixed internet access services

Coverage

2.5   Coverage of gigabit-capable broadband continues to expand. As of July 2024, 83% of residential premises or 25 million households had access to gigabit-capable broadband, which is an increase of 5% or 1.8 million from September 2023.[12] This is driven largely by an increase in coverage of full-fibre broadband, with the number of residential premises that had access to full-fibre broadband being 20.7 million (67%) – an increase of 3.6 million premises or 12%. Gigabit-capable broadband covered 67% of small and medium sized

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[10] Ofcom, 2024. Connected Nations.
[11] Ofcom, 2024. Mobile Matters. Unlike last year's Mobile Matters, this year's report does not set out data on tests run on Apple IOS devices and those where the device operating system was not identified. In consequence, this year's findings are not comparable to last year's.
[12] Gigabit-capable broadband covers technologies capable of providing a broadband service with a download speed of at least 1Gbit/s. This includes full-fibre broadband networks and hybrid fibre coaxial cable networks.

enterprises (SMEs) and full-fibre broadband covered 63% of SMEs. This is an increase of 12% and 5%, respectively.[13]

2.6   Superfast broadband is available to most residential premises in the UK.[14] As of July 2024, 98% (29.4 million) of residential premises were covered by superfast broadband, which is up by 1% from September 2023. This includes the 83% of households that had access to gigabit-capable broadband, as mentioned above.[15]

2.7   The vast majority of premises (residential and commercial) have access to decent broadband, although it is still not available for some.[16] We estimate that, as of July 2024, decent broadband was available to 99.8% of premises in the UK, either through a fixed-line or fixed-wireless access (FWA) connection. This means that around 0.2% were without a decent broadband service, which equates to 58,000 premises, down from 61,000 as reported last year.[17]

2.8   Low-Earth Orbit (LEO) satellite broadband is available to consumers in the UK, which can provide connectivity for hard-to-reach areas, but take-up of such services remains low by comparison. While such services usually do not provide a guaranteed speed, Starlink (the only provider in the UK at present) told Ofcom that average download speeds for its LEO broadband was over 160 Mbit/s for 2024. As of June 2024, about 87,000 consumers made use of this service, an increase from around 42,000 from last year.[18]

2.9   We anticipate that coverage of full-fibre and gigabit-capable broadband will continue to grow over the coming years. Using the stated development plans from fixed network providers in the UK, we estimate that 96% (29 million) of households will have access to full-fibre broadband by 2027. In addition, we estimate that 97% of residential premises will be covered by gigabit-capable services in 2027. However, according to our estimates, around 26,000 households will continue to not have access to decent broadband, either from fixed line or FWA, by 2027.[19]

Speeds

2.10   The download speeds of broadband services continue to improve. The average maximum download speed of premises (residential and commercial) in the UK was 223 Mbit/s, as of July 2024, which has increased from 170 Mbit/s (a 31% increase) from last year. This is being driven by the increasing take-up of gigabit-capable and full-fibre broadband, driven by improvements in coverage as set out previously. 35% (7.5 million) of premises that had access to full-fibre took up this service, which is up from 28% from last year.[20]

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[13] Ofcom, 2024. Connected Nations.
[14] Superfast broadband is defined as a broadband connection that can provide download speeds of at least 30 Mbit/s.
[15] Ofcom, 2024. Connected Nations.
[16] Decent broadband is defined as a broadband connection that can provide download speeds of at least 10Mbit/s and an upload speed of at least 1Mbit/s.
[17] Ofcom, 2024. Connected Nations.
[18] Ofcom, 2024. Connected Nations.
[19] Ofcom, 2024. Connected Nations.
[20] Ofcom, 2024. Connected Nations.

Mobile internet access services

Coverage

2.11   The availability of 5G continues to expand steadily. In 2024, 5G was available outside premises from at least one MNO for 95% to 90% of premises (high confidence to very high confidence).[21] This is up from 93% to 85% in 2023.[22]

2.12   However, 5G availability varies depending on the MNO. Based on MNOs' predictions, in 2024, BT/EE's 5G outdoor coverage extended to the greatest proportion of premises – 79% of premises at the high confidence level and 76% at very high confidence. On the other hand, Vodafone's 5G availability ranged from 61% to 48% at high and very high confidence levels, respectively.[23]

2.13   Currently, 5G mobile services are predominantly delivered by 5G non-standalone, which is a mix of 5G radio equipment and 4G core network. 5G standalone (where services are delivered via 5G radio equipment and 5G core network) deployment is also increasing. In 2024, 3,330 5G standalone sites were deployed, compared to 2,000 for the previous year. 14% of total 5G traffic in the UK was carried over 5G standalone last year (3% of total mobile traffic).[24]

2.14   The availability of 4G is very high, and this continues to be the main technology used by mobile users. As of last year, 4G coverage extended to outside 99% of premises in the UK. 78% of total monthly mobile data traffic in the UK was delivered over 4G.[25]

Speeds

2.15   Our 2024 Mobile Matters report measured the download speeds which consumers experienced on different cellular technologies (i.e. 5G, 4G and 3G). This analysis shows that consumers are more likely to experience faster download speeds on 5G technology, compared to 4G and 3G. 47% of download speed measurements on 5G were over 100 Mbit/s, which is significantly higher than the proportions for 4G and 3G, with 11% and 4%, respectively. A significantly lower proportion of download speed measurements on 5G (8%) were under 10 Mbit/s, compared to 4G (28%) and 3G (73%).[26]

2.16   Similarly, this report shows that consumers experience faster upload speeds on 5G than the other cellular technologies. On 5G a higher proportion of upload speed measurements (29%) were above 20 Mbit/s than on 4G (15%) and 3G (3%). 11% of 5G upload speed measurements were below 1 Mbit/s, compared to 20% on 4G and 44% on 3G.[27]

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[21] When reporting on 5G mobile availability predications, Connected Nations refers to confidence ranges, reflecting the likelihood of on the ground coverage for consumers as: i) high confidence associated with a signal strength (-110 dBm), to equate to at least an 80% confidence level; and ii) very high confidence associated with a higher signal strength (-100 dBm), to equate to a circa 95% confidence level.
[22] Ofcom, 2024. Connected Nations.
[23] Ofcom, 2024. Connected Nations.
[24] Ofcom, 2024. Connected Nations.
[25] Ofcom, 2024. Connected Nations.
[26] Ofcom, 2024. Mobile Matters.
[27] Ofcom, 2024. Mobile Matters.

Consumer experience

2.17   In addition to faster speeds, the latest Mobile Matters report also indicates that consumers get an overall improved performance on 5G over other technologies, with 3G being significantly worse:

- **The connection success rate is better on 5G**: The connection success rate gives an indication of the frequency with which consumers can access data services when using their phones in areas that had coverage from at least one of the cellular technologies. Our analysis found that, on average, 98.4% of attempts to access data services were successful in areas covered by 5G, compared to 97.2% in 4G areas and 85% for 3G. This shows that customers are more likely to successfully access data services on 5G than on 4G or 3G technologies.[28]

- **File downloads are quicker on 5G**: The average time to download files of a particular size shows the quality of service that consumers can expect to experience when doing certain activities on their mobile. Our analysis found that it takes much longer to download a 2MB file over 3G, compared to 4G and 5G.[29] It took, on average, 4.3 seconds to download a 2MB file over 3G, while it took 0.8s on 4G and 0.3s on 5G. Similarly, 5MB files take much more time to download on 4G than 5G.[30] On average, it took 65% more time to download a 5MB file on 4G compared to 5G.[31]

- **Latency is lower on 5G**: Our analysis found that the average response time was 18.9ms on 5G and 21.9ms on 4G, while the 3G average response time was 42.3ms. This is significant as slower response times can affect the performance of everyday mobile activities, such as video calling, voice chat and streaming, among others.[32]

2.18   The above data on consumer experience and speeds is significant because the majority of customers do not connect to 5G. Our analysis shows that 78% of connections made between October 2023 and March 2024 were to 4G networks, while 19.6% of connections were to 5G and 2.3% to 3G.[33]

Network performance and capacity expansion

2.19   We requested data from the main ISPs on reports presented at executive or board level during the relevant period that were used to monitor network performance and utilisation. We also asked the ISPs to explain how they used this reporting to forecast and plan for capacity expansion on their networks.

2.20   The information we received varied significantly between ISPs, reflecting the different approaches used by them to monitor their networks. In consequence, we were unable to

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[28] Ofcom, 2024. Mobile Matters.
[29] Downloading a 2MB file is representative of many everyday activities undertaken on mobile devices, such as downloading photos or short low-resolution video clips.
[30] A 5MB file download can be representative of opening a photo in an email, opening a longer lower resolution video or downloading a short audio file.
[31] Ofcom, 2024. Mobile Matters.
[32] Ofcom, 2024. Mobile Matters.
[33] Ofcom, 2024. Mobile Matters.

do a comparative analysis of the data to assess network performance. However, our review of the information indicates that: [34]

- Similar to our assessment in our review, networks are generally scaled to handle the peak traffic offered to them so that congestion in fixed access, backhaul and core networks is generally limited, except for exceptional cases. We have compared the network performance data we have gathered with the data gathered for our review for each ISP. While there is some variation between ISPs, this shows that in general network performance has remained largely consistent with congestion being relatively limited. This is despite traffic volumes growing, indicating that ISPs have invested in increasing their network capacity to meet greater demand. Congestion on mobile networks has increased slightly in some cases where network investment has been focused on 5G rollout, though it may be expected that this will be alleviated as consumers migrate to the newer technology.

- Mobile cell sites may experience high utilisation, with more congestion currently likely on 4G than on 5G (given the relatively low take-up of 5G in the relevant period), although different MNOs use a range of metrics to monitor utilisation and congestion.[35]

- As reported in our review, certain exceptional events may lead to temporary congestion or high utilisation. In particular, these include live-streamed football matches (e.g. the Premier League) and large downloads of popular video games (such as Call of Duty).

2.21   The data shows that these ISPs have regular reporting in place on the performance and utilisation of their networks. They also reported having processes in place, using this and other data, to manage capacity expansion and implement investment programmes to address congestion where it arises, albeit noting that there may be challenges in some cases in upgrading specific network elements in a timely fashion (in particular for mobile networks in specific areas/cell sites).

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[34] Ofcom analysis based on: BT Group response to information requested under the Regulation 17 of the Open Internet Access (EU) Regulations 2016 and Article 5 of the retained EU Open Internet Access Regulation ('the information request') dated 10 September 2024; Sky response to the information request dated 10 September 2024; TalkTalk Business response to the information request dated 10 September 2024; TalkTalk Consumer response to the information request dated 10 September 2024; Platform X response to the information request dated 10 September 2024; Three response to the information request dated 10 September 2024; VMEDO2 response to the information request dated 10 September 2024; and Vodafone response to the information request dated 10 September 2024.
[35] 5G is the latest generation of mobile technology, which, among other advantages, offers greater capacity than previous technologies. However, having access to 5G connectivity is expected to allow end-users to make use of services with higher bandwidths. As such, while 5G deployments are likely to have plentiful capacity now, utilisation is expected to increase significantly as take-up and new services develop.

3. Safeguarding open internet access

3.1   Article 3 of the Regulation sets out the rights of end-users (consumers and content providers) to access and distribute content of their choosing and to use the device of their choice. It also requires ISPs to treat all traffic equally when providing internet access services, subject to certain exceptions and conditions. Article 4 of the Regulation sets out the transparency obligations placed on ISPs.

3.2   In this section, we report on the findings from our monitoring of ISPs' compliance with Article 3 and 4 of the Regulation. We draw primarily on the data we have gathered from ISPs on their use of terminal equipment, zero-rating, specialised services and traffic management. We also use insights from publicly available information and our engagement with ISPs.

Monitoring compliance with Article 3

Traffic management

3.3   The Regulation provides for traffic management of internet access services in certain circumstances. The rules specify that ISPs can use:

a)   'reasonable traffic management' to contribute to efficient use of networks; and
b)   'exceptional traffic management' to prevent congestion or imminent congestion, to preserve the security of the network or to comply with national legislation.

3.4   In using reasonable traffic management measures, ISPs may only treat particular categories of traffic differently according to their technical quality of service requirements, and all traffic within a certain category should be treated equally. To achieve this, ISPs need to be able to accurately identify the traffic on their network.[36] ISPs are permitted to go beyond reasonable traffic management only in instances where such measures would not be sufficient to address congestion or imminent congestion.

3.5   We set out in our updated guidance how we will assess ISPs' traffic management practices compliance with the Regulation, including our interpretations of reasonable and exceptional traffic management.[37]

3.6   We have gathered data from some key ISPs to understand their approaches to managing traffic on their networks and whether they implemented reasonable or exceptional traffic management during the relevant period.[38]

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[36] In our updated guidance, we clarified that ISPs do not need to identify 100% of the traffic on their networks when using reasonable traffic management. We said that ISPs may implement reasonable traffic management using traffic identification techniques where the vast majority of traffic is identified and non-identification of traffic is very limited and can be reasonably justified.

[37] Ofcom, 2023. Annexes: Net Neutrality Review.

[38] As set out in paragraph 1.7, the relevant period is 1 January 2023 to 1 September 2024.

3.7   We note that ISPs use of traffic management over the relevant period was only limited. Most ISPs told us that they block access to certain traffic in order to comply with legal requirements and preserve the security and integrity of their networks. This includes, for example, restricting access to illegal content, sanctioned websites and scams/phishing content as well as redirecting malicious attacks. Some ISPs also block adult content for consumers that have not been verified as over 18 or when parental control filters have been switched on. Other than this, the ISPs generally treated all traffic equally and did not implement reasonable or exceptional traffic management on their networks.[39]

3.8   However, one ISP [(✂)] undertook trials over the relevant period which rate limited traffic of certain categories of content delivered over particular routes to its network.[40] The categories of traffic managed under these trials were short form video and live TV, with traffic identification based on identifying specific Internet Protocol (IP) address ranges sending this traffic over the routes in question. The management actions were imposed semi-permanently in the network during these short trials but only impacted traffic under certain circumstances (where congestion was occurring in part of the network or appeared to be imminent). These trials were targeted and of short duration, and the information provided does not indicate these measures have been implemented on an ongoing basis.[41]

3.9   Where ISPs look to implement exceptional traffic management, it is important that effective traffic identification is in place so that equivalent traffic is treated equally to comply with the net neutrality rules. In particular, ISPs should ensure the approach used to identify traffic correctly treats equivalent categories of traffic from all content providers equally. Where traffic is identified on a subset of characteristics, such as the IP address ranges which correspond to a particular content provider, the ISP must ensure that traffic delivered from that content provider is not treated differently to equivalent traffic from other providers in the part of the network where the traffic management is applied (i.e. in relation to specific routes over which traffic is delivered to the ISP). This applies to any categories of traffic delivered from those identified IP address ranges. ISPs should also ensure exceptional traffic management is only applied in circumstances where there is actual congestion on the network or congestion is imminent.

Zero-rating

3.10   Zero-rating is a commercial practice whereby an ISP does not subtract data usage associated with particular content or a class of content from a customer's data allowance. This allows customers to access certain content without it counting towards their general data allowance. Given that fixed broadband packages are predominately unlimited, zero-rating tends to only be offered by mobile ISPs on their packages that have data limits.

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[39] Ofcom analysis based on: BT Group response to the information request dated 10 September 2024; Sky response to the information request dated 10 September 2024; TalkTalk Business response to the information request dated 10 September 2024; TalkTalk Consumer response to the information request dated 10 September 2024; Platform X response to the information request dated 10 September 2024; Three response to the information request dated 10 September 2024; VMEDO2 response to the information request dated 10 September 2024; and Vodafone response to the information request dated 10 September 2024.
[40] Rate limiting refers to the process of restricting the maximum capacity available to a particular traffic stream (either each individual stream or the total available to a particular type of traffic).
[41] Ofcom analysis based on: [✂] response to the information request dated 10 September 2024.

3.11   The Regulation does not specifically mention zero-rating. However, it prohibits agreements and commercial practices which lead to end-user choice being materially reduced.

3.12   In our updated guidance, we said that we are only likely to have concerns about zero-rating offers in limited circumstances. We define three types of zero-rating offers, based on the likelihood that we may have concerns:

i)   **Type One offers** – those where ISPs zero-rate access to information and services from public sector bodies (e.g. Government, NHS), charities or non-governmental organisations (NGOs) that provide social benefit to the public and are not in competition with other suppliers. This type of offer typically has no prospect of harming consumer choice and gives end-users favourable access to socially beneficial information and services. Therefore, once we are satisfied that an offer is a Type One zero-rating offer, we are unlikely to consider it any further.

ii)   **Type Two offers** – offers that are genuinely open to all content providers of a particular class. They are unlikely to reduce the choice of content providers available to end-users, as any equivalent content providers will be able to join should they so wish. Therefore, once we are satisfied that an offer is a Type Two zero-rating offer, we are unlikely to consider it any further.

iii)   **Type Three offers** – all other offers that do not meet the Type One or Type Two criteria. We will continue to monitor and review such offers, where appropriate, on a case-by-case basis, taking into account a range of factors to determine if they are likely to materially reduce consumer choice in practice and thus raise concerns to warrant opening a formal investigation.[42]

3.13   Our information requests to ISPs asked them to outline the websites, content and applications they zero-rated for all their customers during the relevant period. We also asked the ISPs to list the specific zero-rating packages they offered over the relevant period.

3.14   From this information, we note that all the mobile ISPs provided zero-rated access to some non-commercial content, such as public sector websites and content provided by charitable organisations, to all their customers. However, the extent of this practice varies between ISPs. The mobile ISPs also zero-rated emergency services for all their customers, to allow them to access such services free of charge. Some of the mobile ISPs provided zero-rated access to their own website.[43]

3.15   We have not assessed these zero-rating practices any further. We consider that these practices provide clear benefits for consumers, including giving free access to socially beneficial content and enabling consumers to top-up their data allowance free of charge, and are unlikely to restrict consumer choice in any way. Moreover, in the case of zero-rating emergency services, this is likely to be required to meet obligations under the General Conditions of Entitlement (GCs).[44]

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[42] Ofcom, 2023. Annexes: Net Neutrality Review.
[43] Ofcom analysis based on: BT Group response to the information request dated 10 September 2024; Sky response to the information request dated 10 September 2024; Three response to the information request dated 10 September 2024; VMEDO2 response to the information request dated 10 September 2024; and Vodafone response to the information request dated 10 September 2024.
[44] Ofcom, 2024. A3.4 of the General Conditions of Entitlement. The General Conditions of Entitlement are the regulatory conditions that all providers of electronic communications networks and services must comply with if they want to provide services in the UK.

3.16   In addition to the content zero-rated for all customers, some mobile ISPs provided zero-rating offers relating to commercial content which consumers could purchase as part of their mobile package.

- EE (part of BT Group) offered Music, Video, Gaming and Entertainment Passes, which provided zero-rated access to a number of applications within the specific category of content.

- EE also gave customers that purchased Apple Music zero-rated access to this application for the first six months of their subscription.

- Voxi, a sub-brand of Vodafone, provided zero-rating packages for social media, music and video, where a number of applications within each specific category were zero-rated.

- Sky Mobile offered all its customers zero-rated use of Sky apps, including Sky Go and Sky Sports, through the Sky Watch offer.[45]

3.17   Voxi's zero-rating packages appear to meet the Type Two criteria. The offers are open for content providers that fit within the relevant category of content to join, subject to meeting certain legal and technical requirements. The process for joining is also clearly set out on Voxi's website.[46] We therefore consider that these offers are unlikely to reduce consumer choice of content providers because relevant content providers can join should they want to.

3.18   EE's Music, Video, Gaming and Entertainment Passes all seem to be open offers, which content providers can join by filling out a form. The only requirements to join appear to be technical and do not seem unreasonable. We note, however, that information on how content providers can join the offer is currently not publicly available, and thus we cannot classify these offers as Type Two.[47] Regardless, given that most of the Type Two criteria appear to be met, we are of the view that it is unlikely that these Passes restrict end-user choice of content providers and services.

3.19   EE's Apple Music offer is a closed offer. Closed offers may be a concern where they undermine the ability of content providers not included in the offer to compete effectively in the market and in turn materially reduce consumer choice. However, Apple Music's share of the music streaming market is not particularly large, so it is unlikely to be able to use the offer to stifle competition and undermine smaller content providers' ability to compete.[48] Further, this offer is only available for 6 months, meaning that it is unlikely to have long term impacts on competition. For these reasons, we consider that EE's Apple Music Pass is unlikely to materially reduce consumer choice in practice.

3.20   The Sky Watch proposition is also a closed offer. In addition, it is vertically integrated, meaning that Sky is both an ISP and content provider, and it is zero-rating its own content,

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[45] Ofcom analysis based on: BT Group response to the information request dated 10 September 2024; Sky response to the information request dated 10 September 2024; and Vodafone response to the information request dated 10 September 2024.

[46] https://www.voxi.co.uk/partners [accessed 22 January 2025].

[47] That said, EE has plans to publish information on its website on how providers can join its Music, Video, Gaming and Entertainment Passes.

[48] According to figures from the Competition and Market Authority's (CMA) Music and streaming market study: final report, Apple's share of the music streaming market was between 10% to 20% as of November 2022.

including video on demand content and live streaming of sport. As such, Sky could theoretically use the offer to distort competition by discriminating between its own content and that of other providers. The content that is zero-rated includes live-stream and video-on-demand content, which is data intensive.[49] We previously considered this offer in some depth in 2020, where we noted these concerns but ultimately decided not to take any formal action. This was because of Sky Mobile's very small share of the UK's mobile market and that information provided by Sky suggested that the offer had not had a material impact on the usage of Sky applications.[50] We have not seen any evidence to suggest that we should re-examine this offer, particularly given the fact that Sky's share of the mobile market continues to be small, and so we have not taken any further action at this time.[51]

Retail offers

3.21   The Regulation allows ISPs to enter into commercial agreements with end-users as to the characteristics of internet access services. This is on the condition that these agreements do not infringe end-users' rights to access and distribute the information of their choosing using the terminal equipment of their choice. When providing internet access services, ISPs must also adhere to the traffic management requirements, as explained previously.

3.22   In our guidance, we note that ISPs can provide various retail packages to end-users with internet access services at different levels of quality. This includes offering retail packages with different data allowances and speeds, but also different levels of other technical metrics such as latency, jitter and packet loss. These offers may:

a)   apply the same levels of quality to all traffic for a given end-user; or
b)   provide multiple levels of quality within a single package, where this is decided by the end-user rather than the ISP (e.g. where an end-user can subscribe to a temporary boost to the quality of their internet access service).[52]

3.23   We also said that ISPs can manage various retail packages differently in order to deliver the contracted levels of quality of the packages, as long as this is in line with the traffic management rules.

3.24   In response to our information requests, the ISPs told us that over the relevant period they only offered retail packages differentiated on data allowance and speeds.[53] Such packages are well-established in the fixed broadband and mobile markets, and do not give rise to any potential concerns for us. We have not seen any new offers which provide differentiation on other technical characteristics, such as latency, jitter or packet loss.[54]

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[49] We also note that Sky has a strong position in the TV market, so its content may be particularly attractive.
[50] Ofcom, 2020. Monitoring compliance with the EU Open Internet Regulation: A report to the European Commission and BEREC.
[51] According to the CMA, Sky Mobile's share of the mobile market was between 0% to 5%, as of December 2024. CMA, 2024. Anticipated joint venture between Vodafone Group PLC and CK Hutchinson Holdings Limited concerning Vodafone Limited and Hutchison 3G UK Limited, p.110.
[52] Ofcom, 2023. Annexes: Net Neutrality Review.
[53] Just after the relevant period, EE introduced a refresh to its mobile SIM packages, which included a network boost characteristic, providing priority coverage in busy areas, for its 'All Rounder' and 'Full Works' packages.
[54] Ofcom analysis based on: BT Group response to the information request dated 10 September 2024; Sky response to the information request dated 10 September 2024; TalkTalk Business response to the information request dated 10 September 2024; TalkTalk Consumer response to the information request dated 10 September 2024; Platform X response to the information request dated 10 September 2024; Three response

Specialised services

3.25   The net neutrality rules recognise that some content and applications may have quality requirements that are not supported by internet access services. Accordingly, the rules permit ISPs to offer services other than internet access services which optimise traffic to support quality of service requirements, otherwise known as 'specialised services.' Such services can only be offered where optimisation is necessary to meet the quality requirements of the content and the general quality of internet access services is not adversely affected. Our guidance provides further clarity on the conditions for specialised services.[55]

3.26   ISPs' responses to our information requests show that they made only limited use of specialised services during the relevant period. Some ISPs told us that they prioritise voice services over their networks as specialised services. In addition, [✕] offered a drone service, which gives priority to drones connected to its network. [✕] delivers live TV to its [✕] set-top boxes using multicast, which is prioritised on customers' lines, with only voice services given a higher scheduling weight.[56]

3.27   Vodafone used 5G network slicing to provide services in two specific cases. First, it used a specialised service to support broadcast TV events related to the coronation of King Charles III.[57] This involved dedicating a discrete part of its network to live feeds from broadcast locations back to TV studios, in order to ensure the quality of the broadcast. Second, it used 5G network slicing in a trial to ensure connectivity for payment services at several bars at the Glastonbury festival.[58]

3.28   While we have not carried out formal evaluations of these services, we are currently of the view that they are unlikely to cause us concern, for the following reasons:

- In our Net Neutrality Review statement, we indicated that voice and linear IPTV services using multicast were examples where specialised services may be justified.[59]

- In our guidance, we suggested that specialised services may be justified in providing a more consistent or reliable level of performance, a higher level of service security or assurance or a service designed to suit specific device characteristics.[60] We also indicated in our statement how 5G network slicing might be used to support specialised services in addition to more general internet access services, and we support operators trialling the use of 5G network slicing to provide innovative new services where specific treatment of the content is justified.[61]

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to the information request dated 10 September 2024; VMEDO2 response to the information request dated 10 September 2024; and Vodafone response to the information request dated 10 September 2024.

[55] Ofcom, 2023. Annexes: Net Neutrality Review.

[56] Ofcom analysis based on: BT Group response to the information request dated 10 September 2024; Sky response to the information request dated 10 September 2024; TalkTalk Business response to the information request dated 10 September 2024; TalkTalk Consumer response to the information request dated 10 September 2024; Platform X response to the information request dated 10 September 2024; Three response to the information request dated 10 September 2024; VMEDO2 response to the information request dated 10 September 2024; and Vodafone response to the information request dated 10 September 2024.

[57] Coronation 1953 v 2023: How broadcasting tech is going mobile [accessed 22 January 2025].

[58] 5G SA network slicing helps serve Glastonbury drinkers quickly [accessed 22 January 2025].

[59] Ofcom 2023, Statement: Net Neutrality Review, paragraph 10.14.

[60] Ofcom, 2023. Annexes: Net Neutrality Review.

[61] Ofcom 2023, Statement: Net Neutrality Review, pp. 142-143.

Terminal equipment

3.29 The net neutrality rules specify that end-users have the right to use the terminal equipment of their choice when accessing the internet. They also state that commercial agreements between ISPs and end-users must not limit this right. The Regulation also requires ISPs to treat all traffic equally regardless of the terminal equipment used.

3.30 In our guidance, we clarified that ISPs should not include any commercial terms or impose any technical limitations, including fair usage policies, which restrict the use of terminal equipment with internet access services. We also clarified that ISPs may take actions to address end-users that use networks at a high intensity and are contributing to congestion, as long as this is communicated clearly to consumers.[62]

3.31 In our information requests, we asked the ISPs to explain if they treat internet access services differently based on the terminal equipment used and whether they had made any changes to their fair usage policies within the relevant period.

3.32 Generally speaking, the ISPs told us that they do not treat internet access services differently based on the terminal equipment used and they had not updated their fair usage policies over the relevant period.[63]

3.33 The one exception to this was [✂], who told us that it had configured its network to give priority to mobile data services over fixed-wireless services in times of congestion or imminent congestion. This aims to make sure that network resources are balanced fairly to provide a good quality of service for all end-users. Importantly, these measures are agnostic to any content accessed and all traffic within the individual internet access services is treated the same, and therefore we are of the view that we do not need to consider this practice further.[64]

3.34 Some providers include fair usage policies within their general terms and conditions.[65] Our guidance sets out our approach to fair usage policies. Where providers include terms within a fair usage policy related to restricting specific traffic or the use of tethering, this may not be compliant with the net neutrality rules. As set out in our guidance, we are likely to consider restrictions on the practice of tethering as a breach of Article 3(3) of the Regulation.[66]

Monitoring compliance with Article 4

3.35 Transparency refers to the information that ISPs provide to end-users to help them understand their services. The Regulation requires that ISPs provide clear, accessible and

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[62] Ofcom, 2023. Annexes: Net Neutrality Review.
[63] Ofcom analysis based on: BT Group response to the information request dated 10 September 2024; Sky response to the information request dated 10 September 2024; TalkTalk Business response to the information request dated 10 September 2024; TalkTalk Consumer response to the information request dated 10 September 2024; Platform X response to the information request dated 10 September 2024; Three response to the information request dated 10 September 2024; VMEDO2 response to the information request dated 10 September 2024; and Vodafone response to the information request dated 10 September 2024.
[64] Ofcom analysis based on: [✂] response to the information request dated 10 September 2024.
[65] For example, EE, 2023. EE Pay Monthly Plan Terms and Price Guide.
[66] Ofcom, 2023. Annexes: Net Neutrality Review.

comprehensive information on factors that could impact the quality of internet access services or potentially infringe on end-users' rights.

3.36   As part of the implementation of the end-user rights protections in the European Electronic Communications Code, we have set out a requirement in our GCs for ISPs to include this information in consumer contracts. We have published guidance on how we expect the information to be provided to customers in order to comply with these rules.[67]

3.37   In our information requests, we asked providers how the characteristics of their internet access services are communicated to end-users. We have also continued to monitor the information included in consumer contracts by ISPs. For the relevant period, we have not identified any concerns with ISPs' transparency relating to the net neutrality rules.

Complaints and remedies

3.38   The Regulation requires ISPs to have procedures to manage complaints about end-users' rights under the rules.

3.39   In line with this requirement, our complaints handling GCs require ISPs to have procedures in place to handle all complaints from residential and small business consumers. This includes the requirement for ISPs to ensure all complaints from these consumers are either resolved to the complainant's satisfaction or referred to Alternative Dispute Resolution (ADR).[68]

3.40   Article 4(4) of the net neutrality rules allow end-users to invoke remedies through national law (e.g. consumer or contract law) if there are significant continuous or regularly recurring problems with ISPs' performance concerning speed or other quality of service parameters. Moreover, our Broadband Speeds Codes of Practice gives customers of ISP signatories the right to cancel their contract without penalty if their speeds fall below the minimum guaranteed level for a significant period.

3.41   We continue to monitor the implementation of our programmes in these areas and will review their effectiveness as appropriate.

Next Steps

3.42   This is our eighth annual monitoring report on net neutrality and the first which implements our revised approached to monitoring as set out in the 2023 review. We will continue to monitor the implementation of net neutrality in the UK, including whether we need to update our approach to reporting; for example, in relation to the data we obtain and ISPs we gather it from.

3.43   We will engage with ISPs where we have concerns about their approach to net neutrality and may consider formal action where we are concerned there may be non-compliance with the rules.

3.44   We also recognise the importance of continuing to work closely with Government to ensure that the UK's net neutrality framework continues to support innovation, investment and growth, while ensuring that end-users are in control of what they see and do online.

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[67] Ofcom, 2024. C1 of the General Conditions of Entitlement.
[68] Ofcom, 2024. C4 of the General Conditions of Entitlement.