



## ***Traffic management and 'net neutrality': A discussion document***

### ***Comments from Yahoo! UK & Ireland***

#### **1. Introduction**

- 1.1 Yahoo! welcomes this consultation and the timely review of Ofcom's approach to traffic management in the light of both market developments and the forthcoming implementation of the new EU communications framework.
- 1.2 We note that this is the latest in a series of consultations and policy discussions relating to next generation access infrastructure. These include the *Digital Britain Review*, Ofcom's two consultations on superfast broadband and Ofcom's ongoing work on broadband speeds and switching. We welcome Ofcom's proposal that this consultation marks the beginning of a longer dialogue on the issue of traffic management. This provides a useful opportunity to consider existing policy recommendations alongside recent developments and to be clear about priorities going forward once this consultation concludes.
- 1.3 We outline our thoughts below on the key themes raised by this consultation. We also suggest areas where more analysis would be helpful to more robustly test the hypotheses made. We look forward to further discussion on these points.

#### **2. Net neutrality and wider political and public policy objectives**

- 2.1 The UK debate on traffic management has taken place largely independently of the broader political and public policy debate about *Digital Britain* and the building blocks needed to deliver it. But in this consultation, two important things are acknowledged. First, Ofcom expresses the view that the EU framework provides a "*strong presumption in favour of preserving the 'open and neutral character of the internet' to promote the right of consumers to access and distribute information*". Second, there is a recognition of wider political and public policy issues around broadband access and that traffic management has an impact on how citizens might experience the Internet, including their access to services which have social value and to public services online. These 'citizen' issues include the effect traffic management may have on free expression and the ability of consumers themselves to become future innovators through their use of the Internet.
- 2.2 These two statements provide a vitally important starting point for the policy discussion and strengthen the foundation of the debate by putting it in its broader context. This is very welcome. But while these broader issues are strictly speaking out of scope of this Ofcom consultation, it is important that Government and Ofcom find a way to reconcile how this policy discussion moves forward alongside, and in cooperation with, the Digital Britain goals, RaceOnline and other public policy objectives. It would be a concern if the development of Ofcom's policy of traffic management and that of wider Government policy on the digital economy were to continue in parallel and without the benefit of the other's context. The market needs greater certainty and confidence than the existing arrangement provides.

#### **3. Incentives for potentially unfair discrimination**

- 3.1 As noted in the consultation document, one of the strongest incentives for unfair discrimination is where network providers are vertically integrated and experience strong competition from substitutable Internet-based services. VoIP was an early example but, as consumers treat

broadband Internet access more and more like a commodity and the range and choice of Internet-based services grow, we can expect incentives to discriminate against individual rivals to increase in such cases. It may be too early to tell what impact access providers' newer investments in proprietary content services may have on the long term provision of open Internet access. There are particular incentives to discriminate where Internet access providers compete with global, content and services providers who benefit from greater economies of scale and/or a lower cost base, relative to the limited scale and reach of national broadband providers.

#### 4. Traffic management and two-sided business models

4.1 Content and services providers will cautiously welcome Ofcom's commitment to monitor developments in the sector and consider whether it would be appropriate to use its *ex ante* powers where traffic management results in consumer detriment. Reserving the right to intervene if an issue starts to be damaging to competition sends an important signal to the market. Failing to send this signal may create perverse incentives in the market which are not aligned with the long term policy goal of promoting investment in Internet access infrastructure.

4.2 Ofcom explores traffic management and two-sided business models together in this consultation. In doing so, the question of whether or not (and, if yes, what) traffic management should be permitted and the question of whether or not (and, if yes, under what circumstances) access providers could charge content providers for access to consumers or for particular services feel rather confused. These questions merit separate analysis, not least because traffic management that aims at optimise traffic flow to the benefit of the consumer (and is blind to the origin of the traffic) is very different from traffic management which intends to monetise the last mile infrastructure to the benefit of the access provider (and by definition discriminates between different sources of traffic).

4.3 Traffic management is described as a matter of fact, providing a range of benefits for consumers to overcome congestion on the network. The consultation document appears to imply that all providers are the same. There are in practice limitations to the degree of control individual Internet access providers have over congestion and what guarantees each may be able to offer their respective customers. Some providers, for example, will only control the last mile and therefore have no control over congestion in the backhaul or backbone. Providers with both access and backhaul network but no backbone will continue to rely on best efforts routing on the backbone. In other words, congestion could very well remain an issue regardless of traffic management and investment at the access level (or indeed at any level) because of the limited control Internet access providers have over end-to-end service quality.

4.4 The analysis of the two-sided business model is presented the other way around, the argument being that access providers *can* provide service guarantees and charge third parties (i.e.: content, service and applications providers) accordingly, thus overcoming the problems caused by network congestion. Again, it implies that all access providers are the same.

4.5 This analysis raises two questions:

- **When is traffic management a “business model”?** – As noted above, traffic management is not always a business model intended to monetise the last mile infrastructure. However, it could be and a “business model” implies a commercial proposition offering value to one or more parties, i.e.: the consumer and/or a content provider. The consultation document, on the other hand, leaves open the prospect of access providers charging for mere access to customers i.e.: where charging adds no value to either the consumer or the content provider. This would have the effect of introducing a data traffic termination charge unrelated to improvements in service and of reducing consumer choice. This seems inconsistent with broader policy goal enshrined in the EU communications framework of creating a competitive and open market. More importantly, it could also cause “hold up” (i.e.: it is neither two-sided nor business model). It would reward access providers who have a large number of customers and it may create incentives for consumers to switch to that provider, but it creates no obvious incentives for the access provider to invest this new revenue in additional capacity. It could also have serious consequences for the incentives of

content and services providers to invest and innovate. The consultation document notes that there are issues about how access to different parts of the network is priced and how to incentivise investment in them, but we do not believe that access termination charges are part of the solution. Some access providers have indicated that this is not an approach they plan to pursue, but others may. It would be helpful if Ofcom could confirm that this would constitute a data termination charge and that it would apply the regulatory framework accordingly.

- **When is a business model “two-sided”?** – The analysis paints a misleading picture of the Internet value chain and the commercial relationships in it. The internet is *not* a two-sided business model. There are in fact multiple relationships between content providers, the consumer and network providers (most often more than one, including access, backhaul and backbone) which together make up the end-to-end Internet service which a consumer experiences. The analysis oversimplifies this by suggesting that the access provider *alone* connects a user to the content. The arguments made about free-riders and the value of the two-sided business model depend on this assumption being true. In practice, relatively few access providers own and/or operate both backhaul and core network and can therefore offer *end-to-end* QoS guarantees for consumers and content providers. Most providers simply connect the user to the Internet and, at best, can minimise the impact of congestion in the network as a whole by managing traffic on the last mile (and perhaps backhaul). But this is not the same thing as QoS (as an end-to-end, guaranteed service) or a two-sided business model, and does not necessarily create economic incentives for network investment in order to relieve congestion in the longer-term. Where a content provider can deliver their content closer to the user (as many do via their own infrastructure or guaranteed commercial arrangements), access providers with additional network and hardware could also offer supplementary services for content providers such as local caching closer to the user (competing with companies like Akamai and Limelight) and guaranteeing QoS from there to the customer’s connection. This is a two-sided business model but only a small number of access providers are likely to be able to offer such services. Many access providers will continue to rely on third party networks and best efforts routing.
- 4.6 Ofcom’s preliminary view is that there is currently insufficient evidence to justify *ex ante* regulation to prohibit certain forms of traffic management. We agree but, as noted above, the analysis used to reach this conclusion raises some questions. The absence of real market examples of these business models makes it particularly difficult to reach very concrete conclusions and the analysis masks the differences between access providers which already exist in the market and how each type may develop differently in the future.
- 4.7 It is important to avoid wherever possible regulating in the abstract. Further analysis and engagement with access providers to map likely scenarios will help determine the value/harm of traffic management (and any business model) to consumers and other parties such as providers of online services. The absence of such deeper analysis is one of the reasons why views on traffic management remain so polarised.
- 4.8 It is also important to be mindful of the risk of constructing a policy framework to regulate symptoms rather than addressing the heart of the issue. The policy goal must be to incentivise investment in the access infrastructure rather than sanction Internet access providers to manage the consequences of under-investment by providing a diminished service to consumers. It would be a concern if the conclusion of this debate were to have the effect of deprioritising the long term goal of increasing investment. While it is reasonable to address short term congestion issues, the final policy should not have the effect creating perverse incentives to discriminate. We share some thoughts on incentives to invest in the final section of our response.
- 4.9 We believe that Ofcom must be vigilant to changes and that ongoing monitoring of the market will be critical. Changes could emerge quite quickly after the deployment of new infrastructure and hardware by Internet access providers. Reserving the right to fix a problem if it starts to become damaging to competition has its advantages and helps discipline the market. Government should also explore the implications of these scenarios for their wider political and public policy goals for the UK’s digital economy.

## 5. Traffic management and competition

- 5.1 Ofcom concludes that strong competition between access providers is the most effective way to minimise consumer harm and avoid unfair discrimination against content providers. We agree that competition offers the best prospect of moderating incentives to introduce unfair discriminatory practices which would distort competition. Exclusionary behaviour is most likely to occur where an access provider has market power and is vertically integrated such that the provider also competes with content and other providers online.
- 5.2 However, it is also possible for providers *without* market power to impact competition and this merits further consideration. For example, a provider that makes it difficult for a consumer to switch to another provider (either through lengthy contract terms and/or bundling, both of which may involve financial penalties) could have the same effect as market power by limiting consumer choice and their ability to exercise it. It is a concern that the consultation on switching will take place separately and at a later date, rather than as part of this consultation. Ofcom will need to reassure stakeholders of how it will ensure ease of switching, both within the current regulatory framework and as it considers how to implement obligations under the revised framework. This commitment must be more than aspirational and deliver real consumer benefits.
- 5.3 The impact on innovation is an important reason for exploring the impact of contractual tie-ins and bundling, in addition to transparency. An access provider that can lock in its customers will also be able to levy charges on content and other providers and/or unfairly discriminate against types of traffic or individual services. This situation will tend to favour large existing access providers, allowing them to lock themselves in the market but discouraging market entry by new providers. This in turn impacts innovation. This trend will also tend to concentrate content and services providers as a way of exerting countervailing market power. It would send an important signal to the market to explicitly link all these issues (transparency, switching – including bundling and tie-ins – and innovation) in Ofcom’s policy statement on traffic management, particularly as they underpin the conclusion that there is currently no case for *ex ante* rules where there is effective competition.
- 5.4 Traffic management raises a further competition issue insofar as the technique of deep packet inspection (DPI), often used as a traffic management tool, can give access providers valuable insights in to how consumers use Internet-based services. Where these services compete with an access provider’s own, knowledge acquired via DPI used in traffic management could incentivise and inform anti-competitive behaviour. This merits further consideration as part of this process.

## 6. Information transparency and competition

- 6.1 Transparency is a critical component of effective competition in Internet access. As noted above, it is one of several issues that will ensure consumers are equipped with a sufficient understanding about their options and the means to exercise choice in the market, and can bring about effective competition between access providers. We therefore agree with the view expressed by Commissioner Kroes that transparency is “*non-negotiable*” but also note that it is not in itself sufficient to deliver a competitive market for the reasons noted above or to protect consumers.
- 6.2 It is important to note that there is a *business* audience as well as a consumer audience for information transparency. Businesses rely on open broadband access so that potential customers can find and use their online service and businesses will make critical investment decisions based on their addressable audience. For example, a provider of a P2P-based service would not advertise to the customers of a broadband provider who does not allow P2P file sharing via their network. Information provided by Internet access providers must therefore be relevant to a business audience and delivered in a way that is also easy-to-find and accessible to them.
- 6.3 It is also important to understand what information is needed to achieve the policy goal of delivering a competitive market. If providers offer transparency of the wrong information, it may not help at all.

- 6.4 There is obvious scope for access providers to work collectively to agree common commitments about what information should be disclosed, in what level of detail and how. The starting point for these commitments is the presumption of the EU Framework in favour of preserving the open and neutral character of the Internet to promote the right of consumers to access and distribute information. Any traffic management practice relevant to this expectation should be disclosed in meaningful detail. This would include:
- What traffic management techniques are used by an access provider
  - Purpose(s) for which traffic management is used (including to prevent access to criminal content, enhance network security, manage congestion or optimise performance)
  - Which networks they apply to (i.e.: a proprietary service and/or the user's internet connection; fixed or mobile), how they are different and why
  - Whether traffic management applies differently depending on geography (e.g.: on mobile networks or in areas with different fixed network infrastructure)
  - Anticipated effect of traffic management on for the user's experience of the internet (e.g.: some service types are not available within the user's package or bandwidth may be limited at certain times of the day)
- 6.5 There can be no reason why a consumer is denied access to any lawful website or why Internet access providers should degrade traffic based on its source where it is legitimate. We would expect any disclosures on traffic management to put this beyond doubt. This will be important for online businesses. It is particularly important that this framework is more than a statement of intent and is specific about what it will deliver, when, where and how. Information should include positive statements/'promises' about what *is* available to users via their broadband connection, particularly about what is guaranteed as well as what may be restricted or 'managed'. Information should also include an idea of the real world experience a user could expect (e.g.: whether their package is suitable for intensive gaming or whether they may be better buying a different package). We see value in a single framework that covers both fixed and mobile access.
- 6.6 The challenge for providers is to find a way to make the invisible visible to their customers and doing so outside complex and broad terms and conditions documents. In this respect, providers are uniquely placed to develop innovative and user-friendly ways of doing this. In considering where Ofcom's role stops and providers' responsibilities start, it may be appropriate for Ofcom to forebear from drafting a code on the industry's behalf and instead describe desired outcomes and challenge providers to develop a framework which delivers them. The framework should be based on primary research of users' expectations and could involve a combination of the approaches outlined in the consultation document (i.e.: tiered approach, one stop shop and real time/contextual information), as well as providing information at different points in time (e.g.: at the point of sale and point of use).
- 6.7 The consultation document points out that some users will be more familiar than others with the concept of traffic management and what it means in practice. Our experience concurs with this and shows that technically-savvy, high-end users have an appetite for very detailed information (such as contention ratios and latency/packet loss figures) and will demand it of their providers. Our experience also shows that transparency and good practice can, over time, become a competitive differentiator and can incentivise providers to innovate how they present this information to users. The transparency framework should therefore be designed in a way that encourages innovation and competition between providers over time. This would be a realistic goal for Ofcom to set for traffic management.
- 6.8 Given that traffic management is expected to become more common, it is important that providers' commitment to transparency also extends to a longer term investment to educate consumers about the practice of traffic management *per se* as well as their particular policy. This would include familiarising consumers with the terminology and the technology as well as why traffic management is necessary in certain circumstances. There is plenty of good practice to draw on. In the privacy arena, for example, it is now common for privacy statements to be provided outside terms and conditions and in a 'layered' way which provides basic information for all users as well as more detailed supplementary information for those users with a higher level of understanding. There are

also examples of collective public education activity such as by the direct marketing industry or, more recently, by parties involved in behavioural advertising.

6.9 It would also make sense to explore how information on traffic management could be provided with other information that will inform consumers' switching decisions as part of the same exercise.

6.10 As noted in its conclusions to section 4, Ofcom should signal that it is prepared to use its *ex ante* powers where the market fails to provide information transparency that delivers the intended policy outcome.

## **7. Compliance and enforcement**

7.1 We believe that further work is needed to test the extent to which traditional compliance and complaints mechanisms are fit for purpose in this area and to identify barriers to effective enforcement.

7.2 The consultation document points out that it is difficult for consumers to understand and detect traffic management. This is an obvious barrier to Ofcom's ability to rely on consumer complaints as a means of discovering non-compliance. That said, high-end, technically-savvy consumers could play an important role here. In our experience, these heavy Internet users are the first to spot any disparity between the service they should be getting (as advertised by their provider) and what they actually experience. Similarly, these users are typically the first to detect any unfair throttling of traffic to a particular website. It will be important that Ofcom creates a channel for these users to report incidents for investigation.

7.3 With such a strong link between information transparency and effective enforcement, it is very important that the transparency obligations are sufficiently clear for consumers to discipline the market in this way. In combination with this, there is also a role for mystery shopping exercises and technical checks by third parties, for example by extending the scope of the *Sam Knows* study on broadband speeds.

7.4 Once unfair discrimination has been detected, determining who is responsible and whether the discrimination is intentional present further challenges. There are many reasons why a user may experience disruption to their broadband connection and some may be unrelated to the traffic management practices of the access provider. A great deal is likely to rely on the strength of the statements Internet access providers make as part of their information transparency commitments. The availability of evidence and the ability to investigate a claim of unfair discrimination quickly and effectively are therefore factors for Ofcom to consider. It is not clear from our experience that evidence of intent is readily available. In the absence of evidence, it would be very easy to blame another party for a fault and for that party not to be culpable. Factors such as these will determine the ability of Ofcom to rely on its traditional reporting and investigation procedures. Ofcom will also have to consider the implications of some unfair discrimination remaining unverified because traditional regulatory tools are not effective.

7.5 It is proposed to rely on existing competition rules in the first instance as a means of investigating and acting against claims of unfair discrimination. This option raises obvious concerns not least the time such cases take to investigate and the evidence thresholds required. In addition, Internet access providers are permitted up to 8 weeks address a consumer complaint before a consumer can refer it to Otelco or CISAS. Ofcom will need to consider how timely decisions can be reached on what may be complex complaints and in a way that gives adequate redress. Internet access providers must be incentivised to quickly rectify proven unfair discrimination or else a young online business could easily be ruined in the meantime.

## 8. Other issues

### *Quality of service*

- 8.1 The consultation asks under what circumstances the imposition of minimum QoS would be appropriate and why. As noted above, we believe that competition offers the best prospect of moderating incentives to introduce unfair discriminatory practices which would distort competition. This requires concerted action to prioritise this policy goal, including effective action on information transparency and the factors that affect switching behaviour (among them, contractual tie-ins and bundling). Where this fails, QoS guarantees become the regulatory backstop under the framework.
- 8.2 However, past experience of QoS standards (i.e.: for fixed and mobile voice services) shows that quality can be very hard to measure and a regulatory process with no market incentives for providers to innovate and compete rarely results in good outcomes for consumers. Competition would be a far better assurance of quality and creating a competitive market should therefore be the primary focus of Ofcom's regulatory activity. It would send an important signal to the market if this were made clear.

### *Behavioural economics*

- 8.3 A behavioural economics study could provide useful insights in to how consumers compare Internet access packages and how they make choices. It may also provide insights in to the trade-offs they make between different factors and show the extent to which the average consumer understands traffic management and the impact it has on their Internet experience. This will be important in determining whether consumers need further regulatory protection in addition to information transparency.
- 8.4 It will however be important to first validate any assumptions made about the market and how it might develop. As noted above, we believe the analysis in section 4 of the consultation document could be expanded to make it clearer that different access providers can and will behave differently and will have different incentives to treat consumers and content providers unfairly. These differences may influence consumer choices.

### *Incentives to invest*

- 8.5 It is a reasonable expectation that the regulatory framework should generate incentives to invest in network infrastructure. On the one hand, policy-makers are keen to support investment in infrastructure and this is costly. On the other, this policy must be balanced with the wider policy objective to promote investment in Internet-based content and services that make an important contribution to the digital economy and generate public value.
- 8.6 We agree with Ofcom's broad conclusion that there will be incentives to invest in new capacity in a competitive market because consumers will gravitate towards platforms which provide access to the greatest number of services, but the analysis on which it is based is incomplete and could be expanded to consider related issues which are also important.
- 8.7 It is important that Ofcom's policy focuses on where investment is needed or wanted. Based on existing policy, we assume that the goal remains to encourage investment at the point closest to the customer i.e.: in broadband Internet access.
- 8.8 Nevertheless, the consultation document speaks only generically about "*investment in new network capacity*" and is very unspecific about what network. This merits further examination as access, backhaul and backbone are different services with separate investment incentives and different policies will influence these incentives in different ways, if at all. Much of the discussion in the consultation document confuses these different parts of the network, as monies paid to reach end-users need not flow to investment in other parts of the network.

8.9 Customers are generally willing to pay something for better Internet access. The willingness of customers to pay for better service depends critically on what the access service buys them. A vibrant Internet content and services market is likely to increase willingness to pay, which in turn increases the incentive to invest by access providers.

8.10 Our view is that Ofcom's policy must therefore focus on creating a favourable environment for the provision and deployment of Internet-based content and services.

8.11 Crucially, this incentive to invest is dependent on the successful creation of a competitive market for Internet access which relies on informed consumers with an ability to make and exercise choice in the market. Successful implementation of policies which facilitate information transparency and ease of switching are key factors in creating this environment.

8.12 It is also worth noting some other points relating to investment incentives:

- The traffic management debate so far has focused heavily on the ability of access providers to secure a reasonable return on their investment in new access infrastructure and sources of new revenue for them. This seems to overlook a number of important issues. These include what steps could be taken to reduce the cost of rolling out new access infrastructure, for example by reducing the cost of civil engineering or promoting infrastructure sharing. These are dealt with by other public policy workstreams but are also worth noting here.
- The debate has also focused on the concept of 'free riding' which relies on the claim noted in the consultation document that content providers exploit new capacity and that this disincentivises investment in access networks. As much of the network carriage cost is not in the last mile but in the backbone and content providers cover this cost, this issue is independent of delivery to the end user via the access layer. Content providers are already incentivised to deliver their content efficiently as they pay on a capacity basis to deliver their content to the Internet either in private arrangements with network providers or via their own networks.
- Charging content providers for access to consumers via the last mile is unlikely to incentivise efficient transport decisions. Development of value added business models should not be ruled out but the issue of incentives to invest in access infrastructure is more transparently addressed via differentiated pricing of Internet access to consumers or exploring ways to reduce the roll out costs.

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