

This is JANET(UK)'s response to Ofcom's discussion document [Traffic Management and "net neutrality"](#). JANET(UK) operates the UK's National Research and Education Network (NREN) that connects universities, colleges, research organisations and schools networks in the UK to each other, to peer NRENs in other countries and to the Internet. The JANET network is used both for a wide range of production services vital to connected organisations' operations (including e-mail, web, voice and video) and for research involving very large data flows, innovative applications and protocols. Traffic management is essential to ensure that these very different types of traffic can share the network without causing disruption. We are therefore concerned that any regulation of anti-competitive or otherwise harmful activities must not penalise the use of tools that may incidentally be used in such activities but that are also essential for the safe and reliable operation of diverse networks.

Since JANET is not a consumer network, our response covers only those questions (i-vi) that are relevant to network operations in general.

*i) How enduring do you think congestion problems are likely to be on different networks and for different players?*

Although network bandwidths continue to increase, more demanding applications develop in parallel to take advantage of the increased capacity. These may either be enhancements to existing applications (for example the addition of video to voice calls) or completely new applications that only become possible with increases in network performance (for example watching television programmes over the Internet). It therefore seems likely that network use will continue to grow to match or exceed the bandwidth available, making congestion somewhere in the network inevitable.

*ii) What do you think are possible incentives for potentially unfair discrimination?*

If a network provider offers to sell its customers an application service that competes with a third-party service accessed via the ISP's network then there is an obvious commercial incentive to favour traffic to the 'in-house' service over that to the external one. For example it has long been suspected that some ISPs offering telephony services were restricting access to the competing Skype Internet telephony service. It is also possible that service providers might pay more to ISPs to get better access than their competitors, however it is unclear when such discrimination would become unfair.

*iii) Can you provide any evidence of economic and/or consumer value generated by traffic management?*

As paragraph 2.7 of the discussion paper recognises, traffic management is often essential to allow services with different network characteristics to share the same IP network. For example voice and video traffic require low latency and jitter if the sound and picture are to be received satisfactorily. Where these share a network with high bandwidth or bursty traffic that is less sensitive to latency or jitter it may be essential to prioritise the voice and video protocols, or even to reserve bandwidth for them, to keep them usable.

Various types of traffic management, including temporary or permanent rate-limiting, re-directing or blocking of particular protocols or addresses are also essential to manage threats to networks and their users from, among others, worms, viruses and other malware, malicious websites and denial of service attacks. Content inspection and filtering is also necessary to

protect users from unwanted communications such as spam (both incoming and outgoing) and other inappropriate content.

Indeed current Government policies actively promote the use of traffic management tools to address problems of copyright infringement and illegal material.

*iv) Conversely, do you think that unconstrained traffic management has the potential for (or is already causing) consumer/citizen harm? Please include any relevant evidence.*

The same traffic management tools as are required to allow different services to share the same network and to protect networks, users and their computers from threats, could also be used to cause consumer or economic harm. Blocking and filtering technologies could be used for censorship; rate limiting and prioritisation could be used for unfair competition; content inspection could be used to build up profiles of users, for example to allow discriminatory pricing. Since all of these tools have both vital and harmful uses, we consider that it is essential that regulation, if any, targets behaviour that misuses tools rather than the tools themselves.

*v) Can you provide any evidence that allowing traffic management has a negative impact on innovation?*

A number of JANET sites that adopted policies restricting peer-to-peer protocols in order to protect either bandwidth or copyright have discovered that this prevents their users accessing innovative services such as Spotify and Skype. These policies have been reviewed to assess the new balance of benefit and risk.

More generally, any traffic management process involves taking a view of what network traffic “ought to” look like. Innovative uses of the network are, by definition, more likely to fall outside the normal pattern and to trigger whatever traffic management action has been configured. Whether this has a negative impact will depend on how effectively the network operator can detect and respond to any mis-classification. Reducing traffic management may increase the scope for innovation but will also increase the opportunities for harmful use of the network.

*vi) Ofcom’s preliminary view is that there is currently insufficient evidence to justify ex ante regulation to prohibit certain forms of traffic management. Are you aware of evidence that supports or contradicts this view?*

As above, we consider that it is unlikely ever to be appropriate to prohibit any traffic management tool, since all are likely to have beneficial, even essential, uses as well as harmful ones. Should it become necessary to regulate activities that harm consumers or competition we believe that existing laws on Data Protection, Interception and Competition should be used before creating new regulations.

The following questions relate to consumer networks so we do not consider it appropriate for JANET to answer them.

*vii) Ofcom's preliminary view is that more should be done to increase consumer transparency around traffic management. Do you think doing so would sufficiently address any potential concerns and why?*

*viii) Are you aware of any evidence that sheds light on peoples' ability to understand and act upon information they are given regarding traffic management?*

*ix) How can information on traffic management be presented so that it is accessible and meaningful to consumers, both in understanding any restrictions on their existing offering, and in choosing between rival offerings? Can you give examples of useful approaches to informing consumers about complex issues, including from other sectors?*

*x) How can compliance with transparency obligations best be verified?*

*xi) Under what circumstances do you think the imposition of a minimum quality of service would be appropriate and why?*