

Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title: *Traffic Management and 'net neutrality'*

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Name *Xavier Mooyaart*

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Traffic Management and 'net neutrality'

Response of Everything Everywhere to the Ofcom discussion document

Executive Summary

The UK market for Internet access is highly competitive. At a retail level the number of ISPs, connection speeds and broadband penetration have increased rapidly, in both fixed and mobile, while at a content/service level, more and more public and private companies serve consumers through the Internet, with high levels of innovation and take up. This is reflected by ever increasing numbers of broadband subscribers using the Internet for an increasing array of services¹.

With high levels of consumer take-up and competition among providers, the UK market for ISPs is focussed primarily on the price and speed of access. This requires that network operators both invest heavily in network capacity, and optimise network efficiency, particularly at peak times. This is because ISPs must serve the conflicting demands of high speeds and low costs: consumers demand high speeds (requiring network investment in capacity), at low cost (requiring the limitation of capital expenditure). With both speed and costs driven by the level of peak time capacity provided, networks must optimise the balance between peak time speeds and the impact on retail charges to arrive at a competitive position. The consequence is that, in the absence of an incentive on the companies generating Internet traffic to optimise this (i.e. some form of price signal), there must be some measure of network management in order to prevent peak time speeds and reliability suffering as a consequence of network congestion. Typically this entails the prioritisation of the traffic most valued by the majority of customers at peak times.

The important point is that, in the UK, network management measures are driven directly by the need to meet consumer demand for low cost, high speed access. This is demonstrated by the extremely low levels of profitability among ISPs.

It follows that not only is the UK the market competitive, but that the driver for network management (a key factor in the debate on net neutrality) is not corporate opportunism, but network efficiency to ensure a competitive balance between speed and price – and the maximisation of the consumer benefit for the majority. This may be contrasted with the position in the US where a number of significant ISPs have their own content and so there may be greater concerns for the need for regulation.

That is not to say that the debate on net neutrality in the UK excludes issues of dominance and discrimination. Rather it is that:

- some degree of traffic prioritisation (i.e. traffic discrimination) is necessary to ensure efficient network management and a competitive cost base
- such prioritisation must be lawful however. This means ensuring that:
 - there is no abuse of dominance
 - there is a high level of transparency i.e.
 - users are not prevented from accessing certain sites or services that are legitimate or have not otherwise been excluded with the agreement of the customer; and
 - consumers are provided with clear information of what traffic management measures its provider may take.

¹ For example, in the UK the BBC now serves 1.33m users per day via its online simulcast and catch-up service (the BBC iPlayer), with usage growing 77% YoY to 93 million streams in the year ending April 2010. The average user of the iPlayer service consumes nearly 70 minutes of TV and over 170 minutes of radio per week, with the usage of catch up TV services in the UK generally having grown by a third to include 31% of Internet users in Q1 2010
Sources: BBC iPlayer Monthly Performance Pack, May 2010; and
Ofcom. Communications Market Report August 2010.

There are considerable risks to expanding regulation and specifying rules around traffic management however. To date the Internet has flourished precisely because of the lack of regulation, and absent evidence of market failure or demonstrable consumer detriment it is unclear on what basis this should be imposed given the risk of constraining further innovation. There is a considerable danger that regulation to enact particular rights or freedoms in fact serves only to freeze the form of the Internet at a particular point in time. In the longer term this will act only to restrain new developments and to serve specific interests which benefit from the current approach to content distribution. Consequently there is a danger that new “rights” in fact become restrictions, limiting both consumers and suppliers by forcing particular forms of service / payment / engagement / relationship and preventing new forms of each.

Hence, it seems appropriate to allow users and providers to determine how the Internet develops. This does not mean that no regulation whatsoever is required, but that this need not necessarily be Internet specific. Rather, the question is to ensure transparency of the market to ensure that it remains competitive, innovative etc, and that market mechanisms are enabled to allow informed customers to determine what services/innovations flourish and fail. Accordingly, net freedoms are best served by ensuring that the market works by ensuring that consumers are able to make well informed choices and compare competing offerings.

However, in considering the transparency of quality of service provided to consumers, regulators must not overlook the role played by applications and content/service providers, as well as (in the case of mobile) device manufacturers. ISPs do not control the speed/reliability etc of content or service delivery alone. This is also significantly determined by the content and service providers themselves, who may or may not choose to host their content “near” the end user. For example, for high volume/low value services (e.g. video) Google chooses to route traffic via peering arrangements (with no guaranteed QoS) whereas for others it chooses to pay transit in order to guarantee the end user experience. Hence, they directly influence the QoS delivered to the end-user. More generally, the lack of any incentive on them to optimise the use of network capacity (most constrained among mobile networks) means that traffic management must in part be employed to make up for the lost opportunity to increase efficiency by content/service providers. Given the increasing volumes and imbalance of traffic there is a growing case for economic incentives for a more efficient use of network capacity to ensure the long-term sustainability of the open internet: commercial arrangements for the transport of IP traffic should better reflect the value of network capacity, encouraging a more efficient use of the network by the main sources of internet traffic, content and application providers.

Moreover, given the emphasis of dominance in the net neutrality debate, it is perhaps appropriate to consider the role of handset manufacturers, search and content providers and aggregators in this debate: while ISPs are a key element of the value chain, their role and influence is increasingly subsidiary to the global companies which drive the volume of traffic at issue, and which increasingly hold key consumer information, relationships and the content and services to which they seek access. Any net neutrality debate must therefore explicitly consider the roles of over the top (“OTT”) operators such as Google (YouTube, search/advertising, the Android operating system, etc) and Apple (iPhone, the Apple app Store, Apple TV etc).

It follows that:

- the speed/reliability etc of content/service delivery is a factor of two distinct but related markets, retail demand and content/service supply, where ISPs sit between two sets of potential customers with overlapping interests; and
- there are significant concentrations of market power elsewhere in the Internet supply chain which are relevant to the delivery and availability of competing services

As a consequence while in competitive markets net neutrality is primarily about transparency, in markets where regulators believe they may need to intervene they must look beyond the final layer of the internet at the point between ISPs and retail consumers and have regard to the market power that has developed elsewhere in the market. This is particularly the case in the event that any QoS remedies are considered. Not only do these have the potential to dampen competition (by removing competition on measured aspects of quality), but they may

not be sufficiently targeted, as the ISP cannot itself determine all elements of the supply chain. More generally, the regulator must look beyond the role of the ISP and to the growing importance of the major (and relatively few) companies that are behind the demand for and delivery of content and applications to consumers.

In summary, regulation of the Internet should not and cannot be driven through the ISP layer alone. Not only is this market competitive, but it is one of only a number of layers in the delivery of internet services. With the cost of capacity to the consumer determined by peak demand and the data intensity of particular services/applications, networks must balance network investment with costs in order to remain competitive. So long as ISPs are not uniformly blocking particular content/services across their range of tariffs etc then there is neither any need nor basis for intervention, which could significantly reduce efficiency, innovation and therefore consumer benefit.

Overview

1. The market is competitive

Access to broadband services is increasingly viewed as a fundamental right, a corollary of the fact that use of the internet is increasingly necessary in order to participate in society as more public and private services are provided online.

Access to the network of networks that forms the internet is provided by private companies, which invest in capacity and services in order to meet the demands of both content providers (who wish to ensure consumer access and satisfaction with their services) and retail customers, who want low cost, high quality, internet access.

In the UK there are a large number of competing ISPs and networks. Competition in the market to provide fixed internet services has rapidly increased over the last 10 years, with a number of ISPs providing internet access as part of a package of home utilities (satellite, cable and terrestrial TV, fixed and mobile telephony etc). Among mobile operators, all the MNOs and a large and increasing number of MVNOs offer data tariffs with a high level of competition on access and equipment charges, speed, availability and reliability. Indeed, many ISPs (both fixed and mobile) have provided internet access below cost, to leverage existing infrastructure or to create multi-play offerings in order to increase their competitiveness and customer loyalty. In parallel both fixed and mobile networks have invested heavily in providing increasing speeds of access at lower cost.

As a consequence the UK market for broadband access is characterised by the large number of competitors and a focus on the price and speed of access:

Figure 1: Price of mobile broadband

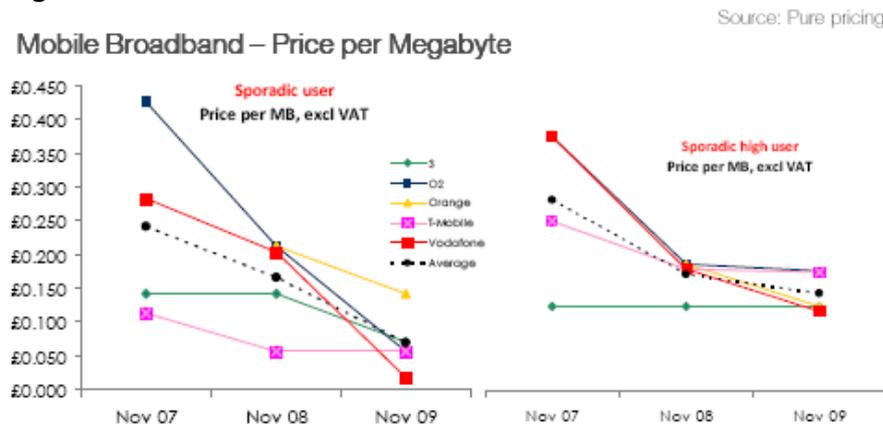


Figure 2: Headline broadband speeds

Figure 5.9 Non-corporate broadband connections, by headline speed



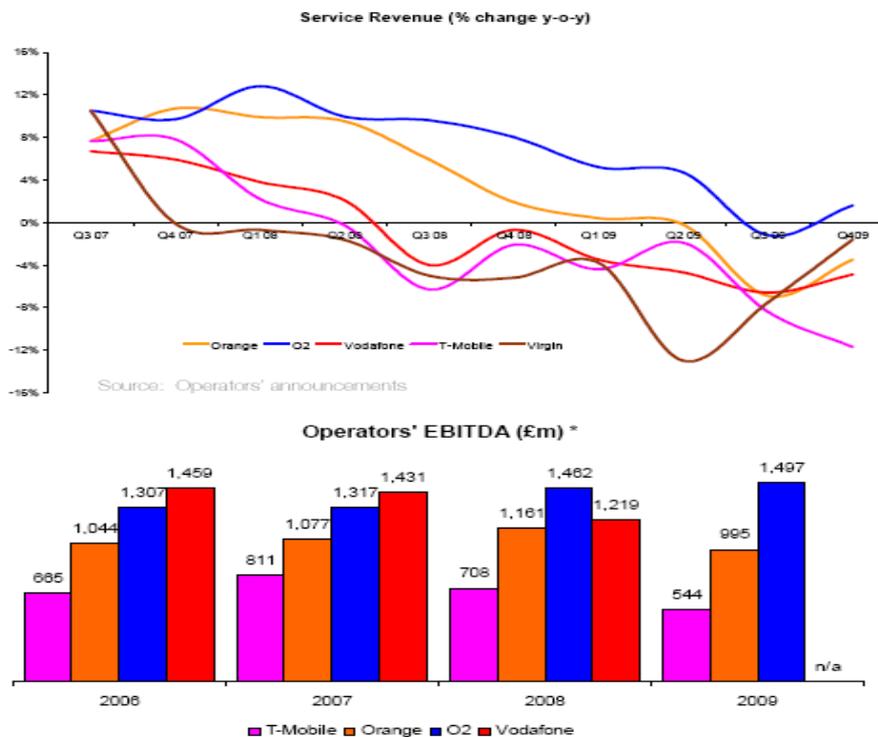
Source: Ofcom / operators
 Note: Includes estimates where Ofcom does not receive data from operators; excludes mobile broadband connections

As can be expected the consequence of this high intensity of competition is a high level of product and service innovation, decreasing costs, increasing availability and robust customer satisfaction (according to the Ofcom Communications Market Report 2010, 83 and 90% of customers are either satisfied or very satisfied with mobile and fixed broadband services respectively).

Among operators this is further corroborated by high levels of network investment and low profitability:

- High levels of investment: among fixed operators British Telecommunications has pledged to spend £1.5bn on a programme of bringing super-fast fibre broadband available to 40 per cent of the UK (c.10 million homes) by 2012, while Everything Everywhere and H3G recently signed a £400m contract with Nokia Siemens Networks for mobile broadband network enhancement and maintenance.
- Low profitability: the competition for market share has exercised considerable downward pressure on prices, as illustrated by figure 3 below.

Figure 3: profitability among mobile operators



Unlike the other top operators Vodafone does not report EBITDA to the end of calendar year but from April to March

It is notable that the profitability of UK mobile ISPs is the lowest in Europe.

2. The Internet is a two sided market

The market for content exhibits parallel characteristics. Like ISPs, content providers compete to ensure high quality service delivery. This in part relies on ISPs, but is also determined by the content providers themselves. A slow server linked to a low capacity link to the "other side" of the cloud will deliver lower quality service than a high speed located close to the "edge" (the consumer's ISP) by a high capacity link.

Content providers compete fiercely for customer traffic. One aspect of competition is the quality of the content, another its delivery. Increasingly content providers are not content to rely on peering and "best efforts" and are competing to invest in higher quality delivery. Google, for example, is well known to have partnered to install local CDN caches in about half of the large EU and US networks in order to ensure its services are competitive. Similarly, the

BBC is known to have partnered with Akamai and Level3 to cache its online digital TV content closer to the end user.

3. Consumer demand and network management

The number of consumers accessing the internet, and the amount of data consumed by them are each expanding rapidly. Ofcom research has found that total broadband take up has risen from 31% in 2005 to 71% today (see below).

Figure 4: UK Internet and web based content: key statistics

UK internet & web-based content market	2005	2006	2007	2008	2009	2010
PC / laptop take-up (%)	68	67	71	72	74	76
Internet take-up (%)	60	60	64	67	70	73
Total broadband take-up (%)	31	41	52	58	68	71
Fixed broadband take-up (%)	n/a	n/a	n/a	n/a	65	65
Mobile broadband take-up (%)	n/a	n/a	n/a	n/a	12	15
Social networking site take-up (%)	n/a	n/a	n/a	20	30	40
Use of mobile phone for web/data access (%)	n/a	n/a	n/a	20	20	23
Internet advertising expenditure	£1.4bn	£2.0bn	£2.8bn	£3.4bn	£3.5bn	n/a
Mobile advertising revenue	£0.02m	£0.12m	£0.38m	£1.04m	£1.03m	n/a

Source: Ofcom research / IABUK/PwC / Screen Digest.

This is inevitably reflected in the demand for data, which has increased both in parallel with the growth of the subscriber base, but also in line with increasing data consumption per subscriber.

The rate of this demand growth is very significant, with total demand increasing nearly five fold on mobile networks between 2008 and 2009 (see figure 5 below). In fixed networks demand growth is driven by both social networking sites and the use of IPTV (e.g. the BBC iPlayer catch-up service) and video sites (such as YouTube). These services are also accessed via mobile handsets, together with significantly increased general web browsing and internet service use driven by the growing penetration of smart phones.

Figure 5: Mobile data use and revenues



Source: Ofcom / operators

Note: Includes estimates where Ofcom does not receive data from operators; data revenue is likely to be understated as it excludes any data element included within standard pay-monthly tariffs.

In addition to illustrating the extent to which data consumption is growing, the figure above also underlines the central difficulty for ISPs: managing to provide a service that is competitive on speed/reliability etc, while remaining competitive on cost: with volumes increasing and revenues flat, there is no scope for inefficiency in the provision and allocation of network capacity.

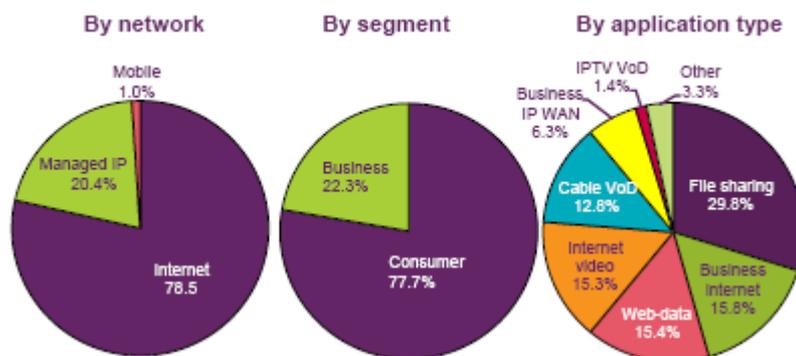
For ISPs network management is therefore key to the provision of a competitive service. With costs significantly determined by the cost of peak capacity, managing peak demand has become a critical element of competitive success. Other than by raising prices, it is simply not economic to provide all services on a best efforts only basis and for them all to function adequately: at peak times network congestion would mean that services requiring low latency etc would simply not function while other uses, such as general web browsing, may become unacceptably slow.

Ideally, network management is therefore a function of determining both

- what service(s) are used by the majority of customers; and
- what services are not contingent on high performance.

- ISPs are commercial enterprises that depend on customer satisfaction to remain profitable. Where a compromise is required in order to maintain performance, the key is to ensure that the greatest number of customers are satisfied at a given time. This therefore requires that general Internet use and video are prioritised at times of congestion. As illustrated by figure 6 below, a significant proportion of demand on network capacity is created by file-sharers, yet these constitute only a minority of users. If all demand were treated equally at times of congestion, this would effectively result in a minority interest taking priority, since equal treatment would result in significant degradation of video usability, for example.
- Different applications/services are more or less dependent on the speed and accuracy of packet delivery. Video must, for example, be prioritised over email, since the former relies on near real time delivery. Similarly, file sharing tends to be a background task once initiated and the actual duration of the download itself, while important, is not critical to the functioning of the service.

Figure 6: Overview of Internet traffic



Source: Cisco Visual Networking Index (VNI) Global IP Traffic Forecast, 2009-2014

Notes: The Cisco VNI forecast methodology rests on a foundation of analyst projections for internet users, broadband connections, video subscribers, mobile connections, and internet application adoption. Upon this foundation are layered Cisco's own estimates for application adoption, minutes of use, and kilobytes per minute based on Cisco VNI usage data (quantitative insights into current activity on service provider networks and qualitative samples of consumers' online behaviour) and other sources.

Other includes online gaming, mobile data and Internet-video-to-TV

Only if network capacity was infinite would there not need to be any network management. However, not only would the provision of such levels of capacity be inherently inefficient, but it would have a direct impact on price, which would in turn inevitably impact negatively on customers. In effect, the ideal of net neutrality is inherently conflicted: while the principle of a

“free Internet” is ideal, it would in fact result in more expensive Internet. Alternatively, absent a price rise, it would result in network congestion and a “net freedom” to enjoy a congested service. Furthermore, the provision of additional capacity will not curtail congestion alone: Internet protocols are designed to automatically increase traffic generation until congestion is reached. Internet traffic is like a perfect gas: it occupies all the capacity which is provided. Increasing capacity alone cannot prevent congestion.

Similarly, depending on how any net neutrality was imposed, the relevant net freedom of preventing [x] will similarly penalise those that in fact wish to try/innovate around [x], such that the net freedom in fact limited their right to a freely entered in to alternative. For example:

- low income consumers may in fact be happy to exclude or limit certain services/applications/QoS in return for a lower subscription cost (e.g. pay less for SD video and exclude HD video); and
- a business customer may wish to exclude file sharing, but contract for guaranteed QoS on particular other parameters.

We will return to these themes later, but regardless of the conclusion on the appropriateness or form of any future Internet specific regulation, at present the reality is that network capacity is not unlimited but that customers (rightly) nevertheless demand both high speed and low cost service. In the UK, traffic management is therefore driven by the market, which dictates what traffic there is demand for, and the price of additional capacity. While the actual level of network management may vary across operators, across regions and across times of day, a degree of this is necessary².

Moreover, traffic management may be inevitable where capacity is unavoidably constrained. This is particularly the case for mobile networks where spectrum scarcity, cell tower planning constraints (and installation cost) and the availability of economic high capacity backhaul mean that cell congestion cannot easily be avoided through capacity expansion. Although there are various potential remedies to increase total available capacity, these are neither short term in implementation, nor long term in solution: capacity expansion is expensive and time consuming and (given demand growth) can only postpone congestion rather than avoid it, since traffic will always expand to consume available capacity (see above). Hence, active management of demand for capacity is required. As noted above, in time this may require some form of economic incentive for efficiency at a “wholesale” level also if the long-term sustainability of the open internet is to be ensured.

4. The supply chain

While it is the ISP that sells Internet access to the consumer, the ISP itself is not wholly in control of the service it offers. As is common knowledge, the Internet is a network of networks on which content and services are stored and served. The reliability or speed (for example) at which a particular item of content is delivered is therefore contingent on, but not entirely determined by the ISP: delivery of any content or service is determined by the “weakest link”.

The nature of the “weakest link” may be various: it could be the CPU speed of the server on which the content is held, the bandwidth of its connection to the Internet, whether the content owner has paid for a particular quality of service etc. Hence, performance can be varied in various ways at various points in the supply chain. Most significantly it will be heavily influenced by the level of investment made by:

- the content/service owner in delivery and distribution: i.e.
 - the extent to which they have distributed their content/service to local servers, or whether it is hosted only in their local ISP

² Network capacity investment is inherently “lumpy”. There may therefore be points in the investment cycle where there is in fact excess capacity, or significantly greater capacity, such that no/less traffic management is necessary. However, over the long term efficient asset management requires that peak time demand is managed in order to ensure efficient investment.

- whether they/their ISP rely on peering for delivery (i.e. best efforts) or are paying for transit (and therefore a particular QoS)³
- the underlying network
 - ISPs are contingent on the underlying network installed by their wholesale supplier. For example, in the UK many ISPs rely on the network supplied by BT Wholesale. The level of investment and service installed and supplied by the underlying national fixed telephony network(s) will determine what service or services an ISP can deliver. Similarly, the cost of capacity on the wholesale network will determine the speed and structure of retail tariffs, and in turn whether traffic management is required in order to avoid raising costs.

It follows that any examination of net neutrality must examine the wider web ecology, since any narrower examination will inevitably:

- lead to incomplete and partial conclusions, and proposals by focussing only on one level of the supply chain.
 - As noted above, not only do content/applications providers etc significantly influence the nature and performance of the Internet, but they have a significant place in determining the efficient use of the networks and efficient investments in networks. As the volume of traffic generated increases the need for efficiency increases. Investing in capacity alone will not “solve” congestion (even with network management solutions) since any new capacity is automatically consumed by additional traffic. Consequently, the current business model of peering and free but growing imbalanced traffic will have to evolve.
- distort the market
 - this is particularly significant in the case where many ISPs provide parallel services which may compete with those provided by other companies over the Internet. For example, an ISP subject to strict restrictions on the use of data may not be able to compete equally with an over the top operator (“OTT”) subject to a wholly different regime.

Similarly, the principles of net neutrality can be equally influenced not only by ISPs but by the content, application providers, international carriers and underlying network providers themselves, which are equally well placed to drive efficiency and otherwise control the distribution of traffic/content/services etc. For example, many previously free services provided on the Internet are now subject to subscription (e.g. the newspaper The Times), or may not be available outside particular jurisdictions (e.g. the BBC restricts the distribution of its free online content to particular territories and resells this in others).

However, the point here is not necessarily that these other actors should be regulated, but that regulation is inherently dangerous in a market which is developing as rapidly as the Internet. Absent any evidence of consumer harm the market should be enabled to develop those services, structures and assets as will best serve the consumer.

The core issues

Given the above, the critical issue is that of transparency: it is neither necessary nor in the interests of consumers to constrain the development of the market for Internet services (since this is a highly dynamic and competitive market). Any issues regarding the market (i.e. the availability or quality of service) can be resolved by making these more transparent in order to ensure that consumers can make informed choices, so driving competition in areas in which

³ The clearest single example of the above is inevitably Google, which:

- has invested heavily in localised hosting of content/services
- makes additional investment in QoS for particular services over others
 - as noted above, Google pays transit in some countries in order to guarantee the QoS for its most profitable services, while relying on peering for others
- intends to spend up to \$1.6bn on the installation of fibre networks in trial cities providing speeds of up to 1GBps (http://www.businessweek.com/technology/content/feb2010/tc20100211_381119.htm)

the regulator may perceive issues without having the legal basis for direct regulatory intervention.

Accordingly, consumers should be able to compare ISPs on a range of factors in order for them to determine which provides the service which meets their own particular demands. These factors may include:

- the range of price points at which services are sold
- the speed of access provided (such as a minimum guaranteed speed, maximum available speed etc)
- the services which are included/excluded/limited, i.e.
 - online storage
 - virus protection
 - content control (e.g. blocking of adult material)
 - download limits
 - limits on the use of particular protocols or services (e.g. P2P or VoIP, or HD video etc)
 - either absolutely, or by time of day (for example).

In this way, a market in which providers compete for custom on the basis of demand for particular services can be driven further by creating a deeper field of competitive parameters.

1. Transparency - Is such an approach adequate or appropriate?

Although there are actors in the market that may submit that such an approach is too liberal, or otherwise fails to address the concerns they have, it does not appear to Everything Everywhere that there is a basis for greater intervention. Regulatory forbearance appears appropriate to Everything Everywhere because:

- the broadband retail market is highly competitive
- no content or services are uniformly blocked (other than illegal content)⁴. Consumers can choose between a range of ISPs and other services in order to access applications and services online.
- there is no basis to distinguish the Internet from the generally applicable rules of competition law and to alter market dynamics
- the broadband retail market, and internet generally, are highly dynamic and continue to demonstrate a high level of rapid innovation. Such markets are particularly unsuited to direct regulatory intervention, which risks distorting the market and leading to unintended outcomes
- significant investment continues to be required in network infrastructure – telecommunication operators (including ISPs) must have a stable regulatory environment which permits them to direct investment where it is necessary and to ensure that this investment is managed efficiently. This is not only of significance in the context of the need to ensure efficient investment per se, but also because the rollout of high speed network infrastructure is of wider significance to the health of the economy and society generally. Regulatory intervention that restricts efficient investment will necessarily reduce the total amount of incremental benefit created. For example, a requirement to provide 80% of consumers with [x]Mbps broadband may divert funds for more marginal services, such as the provision of enhanced rural broadband coverage/speeds.

More generally, in a competitive market, regulation risks harming the rights of users and the rights of companies providing services/content.

⁴ In the case of EE, the Orange Home (fixed broadband) and T-Mobile (mobile) brands each allow VoIP on some/all tariffs, for example. The tariffs of the Orange mobile brand are more restrictive on the consumption of mobile broadband generally, but are being reviewed.

1.1 Rights of users

As noted above, users should have the freedom to make informed choices between different levels of service. Inappropriate regulatory interpretation of “net neutrality” would be fundamentally at odds with this however, and suggests that a one size fits all approach is appropriate. While equality is a laudable goal, its implementation should not prevent individual choice.

Instead, while everyone should have access to the same Internet (i.e. all content/services at a meaningful level of QoS), it is not appropriate to prevent individual users from choosing not to purchase “all of the Internet”, or from paying more, or less, for particular aspects of it, or its delivery by a certain means.

For example, as illustrated at figure 6 above, a significant proportion of total capacity demand is driven by file sharing, driving significant cost etc. Clearly it is necessary to ensure that consumers can access file sharing services (since not all such activity is illegal), but it does not appear justified to require that individuals that do not wish to enjoy such services must purchase it on the same basis as those that do. In effect, net neutrality requires the absolute cross subsidisation of all services by all users, such that there can be no targeting of resources by companies, and no specification of demand by customers. In effect, all customers must pay for the same service (regardless of their own demand) and all companies must provide the same service (regardless of their customers).

New restrictive net neutrality obligations would therefore prevent the development of tariffs or services which, for example,

- allowed a low income customer desiring only basic internet services (email/web browsing etc) to choose a tariff which was discounted on the basis that it excluded file sharing (since this drives additional overhead)
- guaranteed high levels of QoS on relevant parameters to ensure high quality HD video
- enabled a business customer to block or degrade all social networking and user generated content traffic in order to control their use at work.

Everything Everywhere does not believe that there is any justification for a “one size fits all” approach, so long as:

- all services are available at a basic level on a given tariff
- that those tariffs are clear and explicit about what they include/exclude/moderate etc.

Accordingly, in the same way that users should not be required/constrained to purchase a 2Mbps service, but able to choose from a range of speeds/download limits etc, so users should not be forced to pay for VoIP (for example), but to be able to choose between no VoIP / basic VoIP / VoIP at guaranteed QoS / VoIP that does not count towards your download limit etc etc, whether provided by a single operator, or across a range of competitors.

1.2 Rights of service/content providers

Similarly, operators should not be prevented from developing particular services or targeting particular aspects of the market.

The situation in the UK and Europe presents a much lower the danger of discriminatory abuse of dominance by vertically integrated ISP/content companies than is the case in markets such as the US. This is both because of different regulatory regimes on network competition and the relevant market participants. The danger of discrimination by ISPs between their own content and that of third parties is therefore much lower. Furthermore, with powerful national and European level regulatory oversight the ability of any dominant operator to abuse this position is significantly curtailed and would rapidly be identified.

Network competition and regulation in the UK market ensure that an ISP favouring its own content cannot have the same consequences as are often touted in the US debate.

The more significant issue is therefore one of whether content/service providers should be free to enter in to contracts with ISPs for particular services. Everything Everywhere does not believe there is a basis for excluding this opportunity. For example, any general prohibition on agreeing exclusive content (for example) may significantly reduce opportunities for innovation and investment, since exclusivity is typically an important guarantee to both parties to ensure that the risk and investment that they commit to is not undermined – and may often be determinative of whether a new product is brought to market (subject of course to competition laws on foreclosure etc). While there are few relevant examples in the context of the Internet it is not difficult to imagine potential scenarios. For example:

- High definition online gaming.

HD online gaming requires expensive hardware that is rapidly out of date as technology and games evolve. Even where a user invests in this, their investment will lie idle for the majority of the time. Were a company to provide HD gaming via the Internet it could reduce the cost of hardware to users, since they would not need to meet the initial investment cost and would be able to access processing power the cost of which could be recouped 24/24hrs, therefore making it a significantly more efficient proposition.

However, HD online gaming where the core processing power is provided by a third party still requires that the output (namely the graphics) is communicated back to the user via the Internet, which requires high speed broadband and a significant level of guaranteed QoS: “best efforts” would simply not deliver a reliably usable service. It would therefore be attractive to an HD gaming company to be able to enter in to an agreement with an ISP for guaranteed QoS and market this to end users.

- Smart meters

Power utilities generate and distribute electricity in a gamble to predict where and in what quantities it will be consumed. The lack of any intelligence or communication in the distribution network prevents any interaction with users and appliances. A smart grid where consumption could be actively managed could enable far more efficient use of generation and distribution capacity (the cost of which is similarly driven by peak demand⁵) and create the possibility of a variety of differentiated tariffs for consumers⁶.

A smart grid will rely on communication between power generators and consumers, via smart meters and appliances. However, the amount of data required to be transmitted between utilities and smart meters/appliances is very small, since it only need communicate a small number of basic figures/commands. Consequently, high bandwidth is not a prerequisite.

It would therefore be inappropriate to prevent ISPs/utilities agreeing to the provision of services that have a set of QoS parameters that vary significantly from that which would ordinarily be required by a typical consumer/commercial customer. Minimum QoS requirements imposed under the auspices of net neutrality would therefore be to impose higher minimum costs on the roll out of smart networks.

⁵ A 2006 study in the US found that a 5 percent drop in peak demand would enable the 625 infrequently used “peaking power plants” and associated power delivery infrastructure to be shut down. Since peak power plants (which are run only at peak times to meet short term demand spikes) have high variable costs and generate only a small proportion of their total potential output, such a reduction would yield an annual savings of \$3 billion, or a present value of \$35 billion over next two decades: Source – The Brattle Group: <http://sites.energetics.com/MADRI/pdfs/ArticleReport2441.pdf>

⁶ A smart grid could determine at what time particular appliances were used, according to demand levels/the prevailing price. Potential tariff structures include those where users obtain low prices in return for interruptible supply to high consumption appliances or applications (e.g. washer/dryers, car recharging)

3. Danger of QoS requirements

As should be clear from the above, imposing a set of QoS requirements is, in the opinion of Everything Everywhere, both inappropriate and dangerous. Not only is there no basis for imposing QoS (given the absence of dominance in the retail broadband market, evidenced consumer harm and the inherent difficulty of imposing QoS on a network of networks), but this would in fact result in a net detriment to consumer benefit, since it would reduce the potential for innovation and harm competition.

The former point (innovation, through the development of differentiated tariffs/services etc) has already been explored above. However, it is important not to overlook the potential harm to competition of imposing QoS requirements. Not only would it entirely prevent certain points of competition (e.g. markets for innovative products outside the precise minimum criteria required), but it would significantly reduce it on those parameters that were regulated. By in effect dictating a particular set of services, competitors would be drawn to compete only on these parameters, since these would inevitably be elevated in terms of their significance. Moreover, there is a significant danger that the particular tariff structure that evolved around the deemed set of QoS requirements would stagnate, evolving only with changes in the regulated QoS parameters around which they were framed.

Furthermore, there would be significant difficulty in policing compliance in any event. This is because the actual level of service provided over a given connection depends on a wide range of factors. As noted above the ISP with which a consumer/business contracts is only the final stage in the connection to the services/content to which that customer seeks access. The level of service provided via the ISP is contingent on the service provided by the ISP, but is not determined by it. For example, an ISP could have an entirely uncongested fibre network providing almost unconstrained speeds of access up to 1GBps, but nevertheless be unable to deliver HD video where the content provider's servers to which the customer is seeking access are themselves congested or faulty. Accordingly, any QoS requirement would be of only very limited relevance unless this was guaranteed on an end to end basis by all the actors in the supply chain.

2. Transparency - how should this be managed?

In the light of the above it is appropriate to focus on transparency and to refrain from imposing QoS requirements or otherwise mandating particular forms of or requirements for Internet services. Rather, care should be taken to ensure that, while no services/content are uniformly blocked, ISPs and other actors in the Internet supply chain are required to be transparent about what they are providing in a particular tariff/package, in order that consumers/businesses can ensure that they purchase the appropriate service for their requirements and in turn communicate demand to and competitive pressure on providers.

Everything Everywhere therefore believes that net neutrality regulation, if any, should focus on ensuring that there is transparency in the market. Nevertheless care should be taken in the definition of any such transparency measures, since they may come to define competition, and in doing so constrain it by precluding and/or devaluing innovation in services that do not fit the defined metrics.

For example, it may be superficially attractive to require all ISPs to provide a clear indication in their tariffing literature around a set of core metrics, by displaying these in any easy to understand table:

Price	£10
Maximum speed	10 Mbps
Download limit	10 GB
Traffic management	
Throttling P2P	Yes
Video prioritisation	Yes
VoIP	Yes

If such information was standardised and required as a minimum it would enable consumers to make quick informed decisions on the appropriateness of a given tariff, and to compare between different ISPs.

However, such high level standardisation would also present dangers. Most importantly, it would prevent ISPs competing on more nuanced offers that could not be pigeon-holed according to the defined transparency criteria.

For example, the above format would limit/preclude an ISP from the following aspects of differentiation

- Price: £10 for the first 50GBs of use per month, 50p per GB thereafter
- Video prioritisation: first 10GB prioritised, best efforts thereafter
- Video prioritisation: only on fixed broadband line, not on bundled mobile proposition
- Video prioritisation: guaranteed QoS for all [iTunes/Media Player/iPlayer] content between 5-10pm
- Throttling P2P: only between 5 and 10pm
- Throttling P2P: not for the first 10,000 customers
- VoIP: first 100 minutes do not count towards download limit

...and so on.

While none of the above may in fact be commercially viable etc, their purpose is to illustrate that there are potential variations around the standard parameters which may be attractive to certain consumers but which may be precluded by transparency criteria that effectively prevent their proper marketing. It is sufficient to look at the wide range of mobile tariffs offered to appreciate that consumers pursue a very wide range of services and combination of services/products and that limitations on the market in the form of transparency criteria which effectively limit the range of potential aspects of differentiation will reduce consumer choice, and therefore benefit.

Everything Everywhere therefore believes that any transparency requirements imposed should be carefully consulted on. It may be appropriate to require providers to publish clear information on x, y and z parameters but not dictate the form of the information provided for instance. This would ensure that consumers were provided with the relevant information, but would not preclude operators developing more nuanced tariffs that did not provide a binary choice on particular aspects of service.

Summary conclusion

As will be clear from the above, Everything Everywhere believes that the market has served, and continues to serve, consumers (both individual and corporate) well and that there is no basis in the UK, or the EU generally, for the concerns highlighted within the US debate on net neutrality.

Everything Everywhere does not consider that there is any evidence of consumer harm in respect of Internet services and that regulation of the Internet has the potential to significantly undermine the investment and innovation that is already propelling a digital revolution at the core of changes in society and the economy. Regulation of a market/markets which exhibit no evidence of harm or malfunction, and which are evolving rapidly and competitively is not only unnecessary, but creates a significant risk of unintended consequences and the creation of consumer harm, rather than its avoidance.

In particular, network management is a necessary and pro-consumer activity, which lowers costs and enables the delivery of services at a better price and level of service than would otherwise be achievable. Requiring a ban on traffic/tariff differentiation etc would in effect be to require all cars to drive at 30mph with no traffic lights at junctions. The result would be to (a) prevent the faster delivery of more valuable/important goods; and (b) total gridlock at all junctions, resulting in significant tailbacks on all routes leading to them as capacity is not unlimited.

It is also the case that not all customers have the same demands. Requiring all customers to pay for and access the same service (on each side of the market) both prevents consumer choice and ignores the reality of today's existing internet structure, where content/service providers already invest in their own networks and enter in to specific commercial agreements in order to ensure and enhance levels of service.

This is not to dismiss all calls for net regulation, or regulation per se however. Everything Everywhere recognises that consumers should not be precluded from accessing particular services/content and that the nature of the service which they purchase should be clear. Consequently operators should both (i) ensure that all non-illegal content/services are available (where within their control)/be very clear where this is not the case; and (ii) be able to offer tariffs on which they are not, or are provided at particular levels of service (e.g. enhanced/limited video etc).

Key to this is therefore the question of transparency. To ensure that the market continues to serve consumers it must continue, and improve, signals regarding what price/service etc is sought/valued etc. However, this is already being delivered by the market and will evolve as the extent and nature of traffic management increases and itself becomes a point of differentiation and competition. Ensuring that customers are sold the correct service, and can choose between a wide variety of services is key to ensuring that they are served properly and overall consumer benefit is maximised. However, any regulation of transparency around particular parameters of services (and beyond that any direct regulation of those parameters) raises the potential for a restriction of choice and competition. If ever it were thought necessary to introduce specific additional regulation, and we see no current need for it, careful consultation ahead of any such regulation is therefore necessary to ensure that regulation does not in fact defeat, rather than serve the interest of consumers.

More generally, in the long term it must be accepted that more efficient use of capacity will be required to ensure the continued development of the market and the avoidance of congestion. This will have to be tackled in a variety of means, both at a retail and wholesale level (to create price signals) and through technical developments, both in terms of traffic management and its generation. The rapidly growing significance of OTT operators, both in terms of their responsibility for the generation of traffic and in their market power, means their role in the generation, availability and distribution of internet content/services/application cannot be ignored.

Questions

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

Whether congestion can be relieved depends on a number of factors:

- the extent to which capacity can be expanded;
- the cost of additional capacity;
- the extent to which additional costs can be recovered, either through the retail market or through the wholesale market between ISPs and content/service or application providers; and.
- the extent of traffic growth.

In each case, there is a potential difference between the impact of these factors and the extent to which they can be addressed as between fixed and mobile networks.

Capacity expansion

The ability of ISPs to increase capacity is markedly different in the case of fixed and mobile networks.

In the case of the latter there are particularly significant constraints. Spectrum scarcity and the cost and difficulty of cell site installation mean that increasing the density and capacity of the radio access layer is problematic. Although individual sites can be augmented through (for example) additional sectorisation (dividing the cell in to further sections with additional antennae) this can only bring incremental improvements. Moreover, the cost and availability of additional backhaul capacity is a growing constraint. The pricing of high capacity backhaul is in many cases prohibitive (Openreach charges the same for second and subsequent Ethernet connections regardless of the incremental cost to itself) and even on those sites where this expense is unavoidable / can be recouped, the time taken for installation by the supplier is a significant hindrance. Additional regulation and or competition in backhaul will be determinative of the extent to which this particular bottleneck can be alleviated.

In fixed networks there are physical limitations to the amount of data that can be carried over an xDSL line. Although most consumers do not yet demand / have access to services that reach this threshold, the continued rate of growth makes this inevitable in the medium term, particularly given the growing consumption of television via the Internet. Hence, while in fixed networks congestion is less problematic, this will become an increasing factor.

This is particularly the case at the wholesale level however, where there are concerns around the BTW IP-Stream networks and their ability to increase capacity. With a current price of £122 per Mbps the cost of capacity is too high to ensure economic delivery over this infrastructure. Hence, even where ISPs and the home do not yet affront capacity constraints at present, this will become the case in the medium term, if only in the wholesale market.

Finally, at an upstream level it is unclear that peering will continue to provide a viable basis for traffic exchange. Few such links are in fact in balance and the growth of traffic means that this imbalance is growing among many peered partners. While it presently provides for a low cost means of traffic communication, these links are increasingly congested and there is little transparency downstream as to the extent of congestion or the QoS that can be expected by ISPs themselves. Capacity use could be significantly influenced through the incentivisation of greater efficiency at this level, although how/whether this can be developed will only become clear over time. The ability or otherwise of network operators to share the cost of capacity with OTT operators will therefore be a significant factor.

Cost of additional capacity

As will be clear from the above, the cost of expansion of capacity is different as between fixed and mobile ISPs, notably at the access layer.

However, both types of ISP rely on underlying fixed network infrastructure for backbone transmission. The continued high cost of backhaul/high capacity links means that capacity expansion at this level is increasingly expensive. This inevitably creates pressure to manage peak demand in order to control costs.

The extent to which additional costs can be recovered in the retail market

The market for both fixed and mobile internet access is highly competitive. Price is a significant parameter of consumer choice and accordingly ISPs are under continued competitive pressure to reduce costs. With a healthy number of competitors each attempting to expand market share there is continued competitive threat to any operator that attempts to increase prices.

The situation is inevitably slightly different as between fixed and mobile networks however, since the latter are increasingly congested already. Increasingly, mobile networks are introducing lower and more carefully supervised fair use thresholds, albeit at this stage, such policies are aimed only at constraining the most intense users of capacity. The thresholds introduced to date typically do not impact on the average customer for a given tariff and therefore serve only to significantly improve overall service by controlling capacity consumption by a minority of customers that use disproportionately high amounts of capacity.

The extent of traffic growth

Even with continued capacity expansion, traffic growth outstrips the ability of both fixed and mobile networks to maintain a lead on growing demand. Although the level of the bottleneck within networks differs, it is expected that all networks will become congested at peak times at some point over the development cycle (network expansion is inherently "lumpy").

The extent of traffic growth is particularly notable in the case of mobile networks, where the rapidly growing use of "smart phones" is driving increasing demand for capacity. While it may be expected that networks will introduce more stringent pricing and fair use policies, the ability to expand mobile network capacity is particularly constrained. The extent of traffic growth on mobile networks will therefore require mobile network operators to be particularly careful in their approach to traffic and demand management.

More generally, the fact that traffic will tend to grow to fill the available capacity must be borne in mind: traffic levels will inevitably continue to increase until there is congestion.

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

There are no incentives for unfair discrimination that are particular to the Internet. Competitors will continue to compete vigorously, with those that fail attributing a measure of blame to the market, its regulation and their competitors.

Everything Everywhere is however somewhat perplexed by the reference to "unfair" discrimination. In a sense, all discrimination is "unfair", in so far as it may lead to similar products/services etc, being treated differently. Companies will inherently favour the promotion and sale of their products/services over that of their competitors, which is of course "unfair" in so far as it is discriminatory.

However, the question of fairness is not relevant per se. So long as the market is competitive, and there is transparency to consumers about what services are enabled/prioritised etc, discrimination between companies is an inherent part of the competitive process. The right to protect investments and to innovate around different tariff structures etc ensures continued investment and innovation, enabling competitors to continue to develop new products and services. A measure of discrimination is therefore inherently pro-competitive and pro-consumer. For example, discrimination underlies exclusivity, which is the basis for many new (pro-competitive) product launches.

The point at which discrimination becomes a negative is where an efficient competitor is unable to replicate the offer of its peers owing to their abuse (discrimination) of a dominant position. However, Ofcom does not identify any market in which any ISP is engaging in a discriminatory abuse of dominance. This is unsurprising, although it may be that market power could be identified elsewhere in the market where the wider “supply chain” is considered.

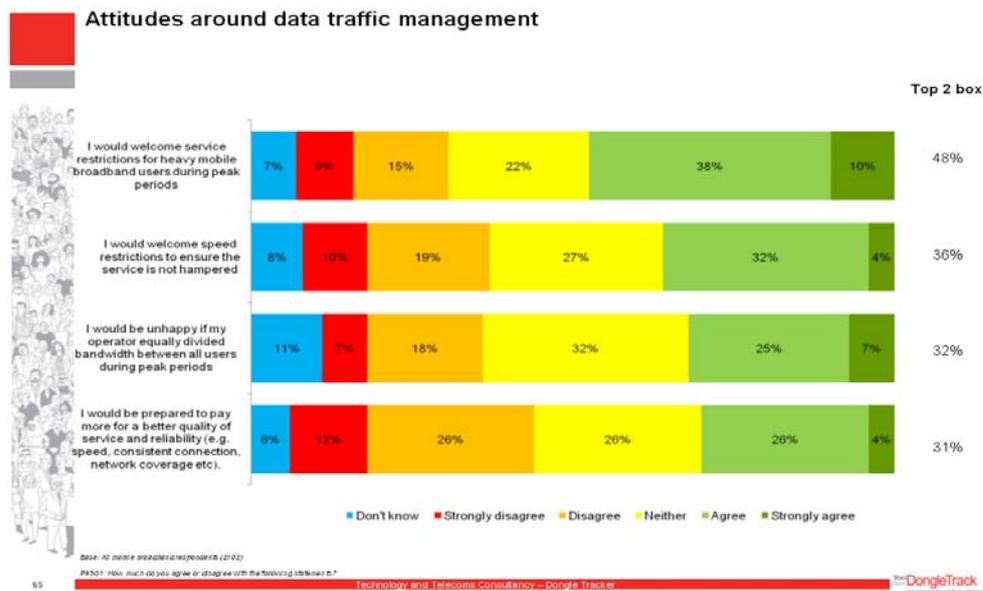
iii) Can you provide any evidence of economic and or consumer value generated by traffic management?

Everything Everywhere does not have any evidence specifically related to the above, but would point out the following:

- it is well established that the use and availability of broadband is a key driver of economic and social well-being in the digital age;
- different types of internet use require different QoS (i.e. video requires higher QoS than email);
- network capacity has a cost, and networks must be dimensioned to deal with peak demand;
- networks (mobile in particular) are increasingly facing congestion at particular bottlenecks;
 - this is particularly the case in mobile where an increasing number of urban cell sites regularly reach congestion at the air interface. The high cost of high capacity backhaul is a growing problem also (e.g. the BT GigE product).
- traffic management is therefore required in order to ensure that a small minority of heavy users / non-time dependant services, do not prevent/unnecessary degrade performance for the majority;
- traffic management therefore enables more efficient network utilisation through;
 - reducing the total network capacity required where traffic management can reduce peak demand – enabling networks to offer lower prices by reducing their network capacity requirements;
 - maximising the capacity available for the majority; and
 - enabling the provision of a wide range of services to all customers, which may not be possible where all services had to be provided with limited resources: i.e. HD video may not work / be commercially viable at peak times where there is no traffic management.

Much of the above is summarised by the findings in the latest YouGov survey on mobile broadband (next page):

Figure 7: consumer attitudes to traffic management



i.e. consumers would much rather accept traffic management than higher prices.

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.

Everything Everywhere refers to its response to question (iii) above: traffic management is pro-consumer/citizen because it enables higher quality, low cost, internet services. Moreover, any “abuse” of traffic management to the detriment of consumers would automatically be sanctioned thanks to the fierce retail competition.

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

There will be specific instances where certain services/applications may be impacted negatively (albeit potentially only at certain times of day/within certain parts of the network) by traffic management. For example, there may be applications for P2P file sharing that do not evolve/evolve less quickly because P2P traffic is more frequently subject to traffic management at peak times (owing to the disproportionate use of capacity for a relatively small number of users).

However, overall, traffic management drives innovation, for two reasons:

First, as set out above, there is a capacity driven need for some network management in order to ensure that networks can physically deliver the service demanded by the majority. In congested areas consumers would be prevented from using HD video (for example) where heavy P2P traffic is unrestrained. There is far greater consumer demand for and innovation in new Internet delivered video content services (e.g. the BBC iPlayer) than in the delivery of existing content directly between users (e.g. P2P).

Second, traffic management may be necessary to ensure that networks can deliver a business case to evolve new services and tariffs. For example, as set out above absent guaranteed QoS it may not be possible for HD online gaming to be delivered (since a “best efforts” service will not drive sufficient customer satisfaction to enable a business case reliant on continued subscriber revenues).

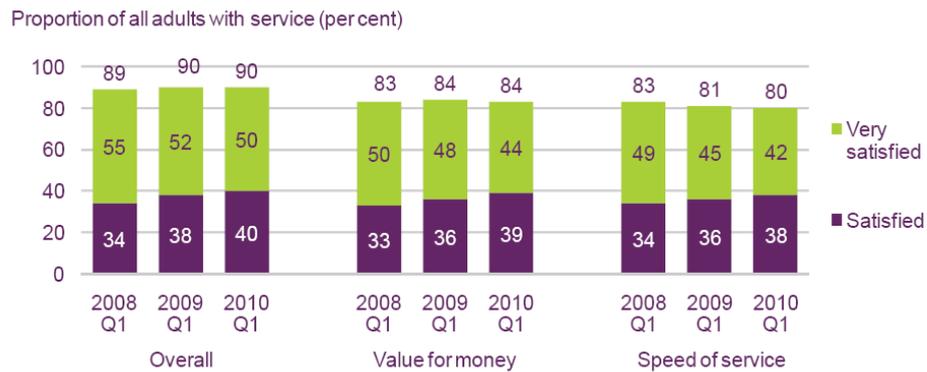
Finally, it should also be noted that some specific services require specific traffic management such as e-health or e-mobility services or machine to machine communications.

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?

Everything Everywhere is unaware of any evidence that contradict this view. Rather, there are many sources that support Ofcom's preliminary view.

- Consumers are happy – see figures 8 and 9 below:

Figure 8 – Consumer satisfaction with fixed broadband



Source: Ofcom research

Base: All adults aged 15+ with a fixed broadband connection

Note: Includes only those who expressed an opinion

Figure 9 – Consumer satisfaction with mobile broadband



Source: Ofcom research

Base: All adults aged 15+ with a mobile broadband connection

Note: Includes only those who expressed an opinion

- Net neutrality does not appear to be a concern among those concerned by the Internet

Figure 10 – Concerns about the Internet among users and non-users



IN30 – Can you tell me if you have any concerns about what is on the internet? (Spontaneous responses, multi-coded).

Base: Adults aged 16+ who use the internet at home or elsewhere (1282)/ who do not use the internet at home or elsewhere (542). Significance testing shows any differences between internet users and non-users.

Source: Ofcom research, fieldwork carried out by Saville Rossiter-Base in April to May and September to October 2009

See also Figure 7 above.

- The market is competitive: e.g. Ofcom’s findings in the Mostly Mobile series of consultations provide ample evidence that the mobile market is competitive.

Absent a finding that the market is not working in the interests of consumers or is otherwise not competitive, Everything Everywhere does not believe that there is a basis for imposing QoS obligations. Indeed, as set out further above, particular caution should be exercised in regulating a fast moving market in which there is high levels of innovation, investment and consumer satisfaction. It is therefore appropriate to either not regulate in this manner, or to try a number of less intrusive alternatives first.

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?

As set out in response to question (vi) above, Everything Everywhere does not believe that there is a basis for additional regulation as there is no current market failure. Regardless however, transparency on QoS etc is a significant and increasing feature of the market since it enables

- consumers to choose between (and therefore demonstrate demand) different services; and
- competitors to differentiate themselves and their offers – fostering innovation and further investment.

Everything Everywhere is therefore keen to ensure that the market continues to function in the interest of consumers and competitors and to reinforce transparency consistent with being able to offer differentiated services.

Everything Everywhere believes that this will be sufficient to address any potential concerns. In particular, transparency will enable consumers to demonstrate what services or tariffs there is demand for: for example, if consumers demand mobile VoIP then transparency that this is available on [x] tariff and not [y] will enable competitors to provide, and consumers to choose,

tariffs including VoIP⁷. Similarly, if consumers decide that they are willing to pay more for completely unlimited/unmanaged Internet access then they will opt for those tariffs that make clear that P2P traffic is not throttled etc.

Nevertheless, it is not clear that additional regulation on transparency in respect of Internet services is required. While an adequate remedy, Everything Everywhere does not believe that there is a market failure as regards transparency etc that requires remedy. As set out above, Everything Everywhere considers that there are significant potential dangers in any mandated form of transparency and that this is best left to the market until such time as there is a clear case for regulatory intervention. More importantly however, there are significant incentives on competitors to increase transparency in order to create differentiated tariffs, enable more evolved traffic management, and differentiate themselves from each other. Hence, the combined factors of a competitive market and the need for traffic management will themselves drive transparency.

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?

Everything Everywhere does not believe that there is particular awareness of "traffic management" per se among consumers, but that this is understood in terms of particular parameters of service i.e. 10GB download limit, throttling of P2P traffic etc.

Furthermore, to date there has not been significant competition around parameters of service outside speed or price. Hence, while very simplistic, the speed of service has in many respects been adopted as the yardstick of, and short hand for, traffic management (an operator cannot offer a 50Mbps service if capacity/demand dictate that it must impose QoS management to throttle it to 10Mbps). As such, customers are well used to acting upon the relative performance and offer of competing ISPs, with high levels competition on price, speed, download capacity etc.

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?

As set out above, it is clearly possible to present summary information on price/download limits/prioritisation/throttling etc. The difficulty is in doing this in way that does not lead to a reduction in competition (by harmonising the points of competition) or innovation (by preventing the presentation of tariffs that do not conform to the parameters of an agreed presentation).

Everything Everywhere therefore believes that Ofcom should refrain from setting particular parameters which must be disclosed against, and/or the nature of this disclosure (i.e. its form or level of detail). While it may become necessary to do so in time, moving straight to such a form of regulation is dangerous for the reasons set out above. Any move in this direction must instead be incremental and fully consulted on (Ofcom must also demonstrate convincing evidence for any additional regulation).

As regards Ofcom's specific proposals on means by which transparency could be provided, Everything Everywhere would make the following observations:

- Tiered information on ISPs website

Everything Everywhere believes that this may be an appropriate means by which to ensure that consumers can access the information they require, as it allows consumers to choose the level of information that is of interest/relevance to them. Indeed, such a tiered approach will likely lead to greater transparency overall since the provision of (only) detailed information will often lead to "information overload" such that consumers do not in fact absorb any relevant

⁷ As set out further above, there may be other parameters to such competition, such as guaranteed QoS, or "inclusive minutes" (e.g. VoIP not counting towards download limits etc).

information. Too much information can lead to 'information fatigue' and operators are well placed to gauge how much information is necessary, pertinent and relevant for a particular tariff: providing more and more information does not make for more informed consumers; providing useful and meaningful information does⁸

By staging the amount of information provided not only is it ensured that customers are provided with helpful information but it allows competitors to evolve different retail strategies without being constrained to a particular set of parameters. Furthermore, imposing information requirements on ISPs must also recognise the role of other providers in the value chain.

- *One stop shop as an intermediary to provide information / Price comparison websites*

Everything Everywhere believes that online information aggregators can provide a useful means for comparison between competitors and that they can in effect amplify the competitive process between market participants. The same is true of Ofcom's proposal of price comparison websites.

However, we do not believe that it is appropriate for the regulator to directly intervene in the market to specify the creation or form of such mechanisms. As is clear from other markets, the launch and development of such sites has been a success independent of regulatory pressure and is expanding quickly into a wide range of sectors, including telecommunications. Importantly, the market is much better placed to establish what parameters of service etc are of relevance and to evolve and develop these in sync with changes in consumer demand.

- *Real time information*

As already perceived by Ofcom, the provision of real time information is problematic. Not only would it be of considerable cost to ISPs develop software to provide information across a range of handsets, platforms etc, but it is already available from third parties and would in any event be limited relevance to the consumer

- it can only tell them the speed/performance etc of their link with the ISP and necessarily could not comment on performance bottlenecks/traffic management elsewhere; and
- having already made their purchasing decision the information would, to some extent, be redundant: the key relevance of such information is in the consumers' comparison of competing offers and their choice as to which of these fulfils their particular needs. Transparency is most useful upfront.

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

Should it become necessary for transparency obligations to be imposed, then the nature of any compliance testing will depend on the nature of the obligations against which operators are measured. As such, it is difficult to propose a particular basis for verification absent proposals on what obligations may be proposed.

Nevertheless, Everything Everywhere believes that (a) any tests etc should be conducted by an expert independent third party, (b) should verify compliance over a meaningful period, and (c) must show a material level of breach. For example, Ofcom is known to have previously pressured operators regarding transparency on the basis of its own calls to customer services. While not entirely worthless, representations as to the accuracy of information provided determined through a single/handful of calls are unlikely to reflect the performance of a company generally. Furthermore, they are likely not to be of statistical relevance. Compliance with any transparency obligations must in future be based on a meaningful sample demonstrating material non-compliance.

⁸ See further, for example, <http://www.berr.gov.uk/files/file44367.pdf> – Better Regulation Executive/ National Consumer Council research

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

As set out above, Everything Everywhere believes (consistent with Ofcom's findings) that the market is competitive and that there is no basis for additional regulation. To the extent that there is a concern regarding traffic management by networks, this should be seen as a positive rather than as a consumer harm: traffic management enables higher quality of service to the majority at lower cost.

Furthermore, imposing particular QoS creates its own danger of consumer harm, since it will (as set out above) harmonise points of competition and reduce the scope for innovation. Everything Everywhere believes that minimum QoS therefore represent a potentially significant consumer harm in themselves, both generally (by limiting traffic management / requiring higher retail prices to permit additional capacity investment) and in respect of particular services (e.g. smart meters, which may specifically only require low bandwidth connections).

Consequently, Ofcom should consider imposing minimum QoS only if it is established that there is considerable consumer harm being caused by low minimum QoS. Given the current (and rapid) inflation of QoS, this would likely be analogous to a finding that the market is not competitive. Even in these circumstances, given the need to ensure a proportionate approach it should also be demonstrable that there is no less distorting or interventionist approach that could address the issue in the circumstances.