Qualcomm Europe Inc.

Ofcom consultation on Traffic Management and 'net neutrality'

Qualcomm response

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Six Policy Pillars for Net Neutrality Guidelines in Europe:

Transparency, Consumers' choice, Investments, Quality of services, Innovation, and Bandwidth Conservation

Internet is going mobile

Qualcomm welcomes the opportunity offered by Ofcom to share its views on the Traffic Management and 'net neutrality' discussion document.

Today, there are more than 1 billion 3G subscribers globally. They are expected to reach 2.8 billions in 2014. They enjoy personalized and permanent access to internet applications through an increased diversity of connected, intelligent and contextually aware devices. Internet is going mobile and we are witnessing an exponential increase in mobile data traffic. By end 2011, mobile broadband subscribers are forecasted to surpass those of fixed broadband globally and will account, by end 2012, for more than 70% of all broadband subscribers. Data traffic has already surpassed voice traffic on 3G networks and is predicted to double every year through 2013, increasing 39 times between 2009 and 2013. Mobile Broadband will be one of the major vectors of economic growth, universal broadband connectivity and societal welfare.

Mobile broadband is highly dependent on the optimized access to a finite resource, the radio spectrum. Qualcomm therefore believes that this intrinsic specificity of mobile broadband has to be taken into account when developing the implementation measures of Net Neutrality policy guidelines in Europe.

Qualcomm views on Net Neutrality in Europe: *six Policy Pillars*

Qualcomm considers that Net Neutrality policy in Europe has to factor in the peculiarity of the European telecom markets taking into account the level of access competition, the legacy of broadband infrastructure and the new European Regulatory Framework adopted by the European Parliament and Council last November. The debate on Net Neutrality in Europe is thus closely interconnected with other key European policy initiatives and objectives, in particular i) the Radio Spectrum Policy Program aiming to allocate new spectrum to ensure ubiquitous high-speed mobile broadband development[1] and increased competition ii) a minimum quality of service[2] for broadband access iii) the significant investments required to support mobile internet growth and achieve universal broadband coverage[3] and iv) an effective competition across the internet value chain.

In this context, Qualcomm believes that six complementary policy principles should form the pillars of Net Neutrality policy guidelines in the UK and in Europe:

1. **Transparency:** A healthy and successful growth of mobile broadband in Europe requires transparency[4] with end users with regards to the services quality, network management practices and more generally the terms and conditions of the services to which they are subscribing. Consumers should have access to the information in a simple and comprehensive form.

2. **Consumers' choice and freedom of expression:** As internet goes mobile, the development of the mobile broadband market in Europe should enable mobile users to have access to the legal content and use the applications and services of their choice[5].

3. **Investments and spectrum allocation:** New and sustainable investments are crucial for the enhancements of mobile broadband networks capabilities in Europe. The evolution of mobile broadband networks towards HSPA+, LTE and LTE-Advanced and the implementation of advanced network topologies will be required to appropriately support the exponential growth in mobile data traffic. The allocation of new harmonized spectrum to mobile in a timely manner will be important to accompany the long term evolution of mobile internet, increase competition and ensure the development of innovative services. To this end, new approaches to release and license spectrum to mobile use in Europe, through intelligent sharing mechanisms and associated regulatory regimes will be key.

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[1] RSPG Opinion on the Radio Spectrum Policy Programme
[2] Universal Service Directive, Article 22.3
[3] The European Digital Agenda sets the following objectives 1) Broadband for 100% of EU citizens by 2013, 2) Fast broadband (30 Mbps or more) for 100% of EU citizens by 2020 and 3) Ultra-fast broadband (above 100Mbps) for 50% of EU citizens by 2020
[4] Universal Service Directive, Articles 20 and 21
[5] Framework Directive, Article 8

4. **Quality of Service and network management:** Advanced traffic management techniques and radio access optimization are indispensable to avoid mobile networks congestion, ensure quality of services, increase network security and to offer mobile broadband services at various quality of service levels as demanded by users. This would enable greater flexibility and diversity in pricing and data plans such as per usage, application, device and/or per guarantees demanded (e.g. priority bandwidth at congested times, latency, data security level, etc.). This flexibility is valuable to consumers in order to appropriately cope with their increasingly personalized, diverse and dynamic behavior.

5. **Innovation and new business models:** Effective competition across the internet value chain and the emergence of new business models, as already initiated in mobile broadband with "sponsored connectivity" or "payment per-transaction"[6] are important to generate new revenue streams among the various stakeholders and positively contribute to the mobile internet economics. The emergence of new business models and the innovation in technologies and services should neither be constrained nor limited.

6. **Bandwidth Conservation:** Mobile broadband networks bandwidth is finite and limited. The development of 'bandwidth efficient' applications and (browsing) services will therefore be important for the mobile internet sustainable growth. As highlighted in Table 1 of the Annex, mobile apps can have today largely different bandwidth consumption patterns, despite offering similar services. The information regarding the average and instantaneous bandwidth consumption of applications is currently neither comprehensively available nor transparent to consumers. This information will be of particular relevance to users taking into account that operators are now moving towards tiered mobile broadband offerings and data plans, as depicted in Tables 2, 3 and 4 of the Annex. The *bandwidth conservation* policy concept would be equivalent to current 'energy conservation' programs based on 'energy-efficiency labels', applicable to electrical products. Similarly, empowering mobile broadband consumers through transparent and comprehensive information on '*application bandwidth efficiency*', based on labeling and/or bandwidth metering, would create a virtuous circle leading to the development of increasingly efficient applications in terms of mobile broadband bandwidth consumption, a key requirement for the successful long term growth of mobile internet in Europe.

[6] "Kindle model" whereby Amazon pays the mobile operator for connectivity and the users pay directly to Amazon for the content (books) which get downloaded over the operator network. Other examples include connected Personal Navigation Services ("TomTom Live Services"), connected Digital Photo Frame ("Pandigital Photo Mail") and child/family tracker ("LittleBuddy")

ANNEX

Table 1: Applications Data rates and bandwidth consumption

	Mobile		Fixed
Type of service	Data rate (ranges) in kbps[1]	Comments	Data rate (ranges) in kbps
Voice in circuit mode	6-13[2]		64[3]
VoIP	6-80[4]	Depending on the codec used	6-80[5]
Audio	32, 64, 128, 192 (HD), up to 1.6 Mbps		128 kbps up to 1.6 Mbps
Video streaming	64, 128 (SD), 256 (HD), up to 1.5 Mbps		400-1500
Mobile TV	128 (SD), 256 (HD)	Here, HD is not a "label"	TV: from 2 Mbps (SD) to 6-10 Mbps (HD) (even up to 16 Mbps for 3D). Depending on compression rate and the operator.
Video download	Variable data rate		Variable data rate
Video telephony	64-256 (mobile HD) – 384		256 - 1500
Multimedia messaging	8-64		Variable data rate
email	Variable data rate		Variable data rate

Source : IDATE

[1] : Data rates indicated here are « net » data rates or encoding bit rates. The overheads data added by the mobile network for protocols needs and signalling purposes are in the 10-30 kbps range.
[2] : 28 kbps with overheads for 2G
[3] : 80 kbps with overheads
[4] : Mobile VoIP provided by the mobile operator can be compressed at a lower rate compared to Internet mVoIP (provided by an application provider such as Skype). The mobile operator is able to reduce the overheads
[5] : HD voice (Orange): 320 kbps

Table 2: Smartphones data packages

Country	Operator	Monthly cost	Data cap	Out of bundle charge
France	SFR	€ 32.9 (bundled with unlimited SMS & 1 hour of voice) € 43.9 (bundled with unlimited SMS & 1 hour of voice)	500 MB 1 GB	Throttling Throttling
Sweden	Telia	SEK 29	1 GB	Throttling at 120 kbps
UK	3	£ 15 (bundled with 3000 SMS & 300 mn of voice) £ 25 (bundled with 3000 SMS & 300 mn of voice)	1 GB 5 GB	£ 0.10 per MB £ 0.10 per MB

Source: IDATE

Table 3: Dongles data packages

Country	Operator	Monthly cost	Data cap	Out of bundle charge
France	SFR	€ 29.9 € 49.9	1 GB 3 GB	Throttling Throttling
Sweden	Telia	SEK 99	5 GB	SEK 80 for additional 2GB SEK 119 for additional 5GB
UK	3	£ 7.5 £ 15 £ 25	1 GB 5 GB 15 GB	£ 0.10 per MB £ 0.10 per MB £ 0.10 per MB

Source: IDATE

Table 4: iPAD data packages

Country	Operator	Monthly cost	Data cap	Out of bundle charge
France	SFR	€ 29.9	250 MB	Not possible to exceed the cap
	Orange	€ 10 € 39	200 MB 2 GB	€ 10 for additional 300 MB € 10 for additional 300 MB
UK	3	£ 7.5 £ 15	1 GB 10 GB	£ 0.10 per MB £ 0.10 per MB

Source: IDATE