

CONSULTATION RESPONSE



Consultation On The Open Internet and Net Neutrality in Europe

A response from Alcatel-Lucent to the European Commission

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Introduction

The debate surrounding Net Neutrality started in the USA and is spreading to every part of the world. The subject is complex with several inter-dependant dimensions, and it may pose major challenges for the future development of the information society, if not handled properly.

In Europe, consumers benefit from a competitive market for broadband Internet access. The most recent Telecom Package highlighted consumer protection, and took the view that, backed up by transparent consumer protection safeguards, this competitive market remains the best way of resolving the issues of underinvestment, poor network management, without compromising the fundamental principle of an open Internet. Alcatel-Lucent shares this vision, and actively promotes the accurate transposition of these directives into the legislation of individual member states.

In the USA, an interesting initiative called BITAG (the Broadband Internet Technical Advisory Group) was launched this summer to bring all university and manufacturer stakeholders together with the aim of arriving at an agreed definition of what Internet access and reasonable network management practices actually constitute. Alcatel-Lucent is contributing to this initiative. Given the goals envisaged, it may be both desirable and interesting if Europe were to be inspired by this movement and take a similar approach.

1 The open internet and the end-to-end principle (questions 1, 2 &3)

Alcatel-Lucent, like most probably the entire industry is committed to an open internet where consumers and business customers are able to access the content, the applications and services of their choice in line with their individual preferences.

Nevertheless the debate on Internet openness should not be limited to the network layer players, and should be more apprehended through a notion of “**Internet experience neutrality**”. Thus principles such as competition, QoS and

transparency rules should apply symmetrically and equally across the players in the internet value chain.

Finally, Alcatel-Lucent is not aware of any difficulties related to network management practices. The vast majority of concerns raised in the context of net neutrality are purely theoretical and have not manifested themselves in the marketplace. And industry information suggests markets are sufficiently competitive to deter any harmful conduct.

2 Traffic management/discrimination (questions 4, 5, 6, 7, 8 & 9)

The current consultation takes place at a time where we witness an Internet traffic explosion; this is even more notably for the Mobile Internet. We often refer to the prediction that Traffic is expected to grow 5-folds by 2013, whose 90% is video traffic.

Active network management is imperative in networking operations in order to provide the right service for the right customer enhanced experience.

Despite all the investment needed to increase capacity, coping with network congestion is going to be a long-term preoccupation. This will not go away with a merely access over-provisioning and will require the operator to manage his network in order to guarantee the end user Quality of Experience.

The nature of traffic management

Such management is essential at the Internet access level, and must be applied:

- to mitigate congestion which may occur; including
 1. enabling operators to optimise (peer-to-peer) applications
 2. enabling modification of network parameters to combat chatty applications, and thereby improve service quality for the benefit of all users
- to ensure QoS delivery of the service levels expected by users in terms of bandwidth, jitter, delay, availability, security and reliability;

- to provide network security, including improving protection against malicious services and applications (spam, malware, etc.)
- to meet the Quality of Experience (QoE) expectations that the end-user wants to get for the applications he chooses.

These traffic management functions cannot be replaced by investment in network overcapacity.

Furthermore, new network technologies, such as Cloud Computing, will probably raise question marks concerning the relatively static principles of traffic management. It is important to look forward to an environment in which the processing of each data packet, including its routing, will be potentially different and therefore differentiated, despite the fact that the packets concerned may have similar addresses or relate to similar types of application.

Congestion

So, first of the objectives of Traffic Management is to mitigate the congestion. Alcatel-Lucent considers congestion will be an on-going characteristic of networks event if the network is transforming towards a one converged, optimized, scalable, multi-access IP network allowing dynamic service creation and delivery.

The location of congestion, the periods of congestion and the consumers impacted by congestion will vary over time with technical innovations, as investments in capacity are made in networks and as users demands evolve. But by the temporary and unpredictable nature of some congestion, and costs of increasing bandwidth means that it is impractical to address congestion solely by investing in more capacity.

In wireline networks, the development of NGA, fiber access, should lighten the pressure of congestion. But this one will shift from the access to the aggregation and later to the Core. If we are looking at numbers, every small increase in video consumption by end-user will translate into several Gbps in the aggregation of the network at peak time.

Several complex tools are used different ways to plan anticipate and mitigate congestion, including: adapting data flow rates (traffic/signalling), traffic prioritisation, policing and shaping, buffering , caching, traffic redirection, transmission mode selection (unicast, multicast or anycast), scheduler, applications assurance, bearer reservation, admission control, network isolation, service/user isolation, capacity sharing, network sizing and network topology. All

these objectives are important to mitigate congestion, whether in an Internet environment or a managed services environment.

In wireless networks, managing capacity is a particularly complex issue. Capacity is much more constrained. New spectrum allocation, spectrum efficiency optimisation, evolution towards LTE will all contribute to improve capacity at the access.

But, mobile operators are managing uncertainty more than capacity. There are two reasons behind. First, planning in advance who is entering the perimeter of a cell and when, are simply unpredictable. Second, the available capacity can change of several orders of magnitude depending on dynamic parameters.

As a result, networks require complete freedom of traffic management in order to strike the best compromise between the service quality perceived by the subscriber, and the capacity of the network, as planned by the operator.

Quality of Service

The second objective of Traffic Management is to deliver quality of service traffic flows.

Aside Best Effort access service, there are a lot of IP services, which require some delay, jitter or security guarantees. Those services -IPTV, VoIP- have been essential for the take up of Broadband and are not in contradiction with Internet best effort economy.

They require differentiated treatment all the time. They will be used to respond to the ever increasing reliability expectations of the end-user or of other actors like governments and businesses that are developing more and more critical on line services & applications.

Quality of Experience

The last objective of Traffic Management is to increase Quality of Experience perceived by the end-user. Innovation in Traffic Management will allow the end-user to choose the right level of experience he wants to get from the services he wants: for example, to speed up traffic or secure the traffic. There is great room for innovation in this space.

Our internal research department Bell Labs has made a study¹, which leads to the conclusion that socially and economically speaking, specialized services linked to a premium fee, alongside Best Effort Internet have a positive impact on the overall capacity of the Internet.

Conditions of a reasonable traffic management

This technical management of the network is, however, subject to several conditions:

- Firstly, it must not open the way for anti-competitive practices - operators have a duty to offer comparable services under comparable conditions to their affiliates and third-party operators.
- Secondly, there should be a balance between investment and traffic management. Competition and the EU Ex-ante regulatory regime are good solutions to provide this balance.
- Thirdly, the quality of service and management actually delivered must become more transparent for the consumer.

3 Market structure (question 10)

From the industry point of view, the economic reality of the discussion lies in the fair distribution of value. Investment in new infrastructures will depend upon network operators' freedom to innovate and develop new business models.

The challenges and the future development of the Internet should be taken into account. There is an evolution of the internet interconnection models taking place and we will also see the emergence of new business models for the quality of service broadband Internet.

- On the IP level, Alcatel-Lucent believes the internet interconnect market today is competitive and functions well based on commercial negotiations. Nevertheless, we believe that regulators should continue to monitor closely the

¹ See annex

evolution of the complex eco-system. But they should be careful not to intervene to favour one particular set of actors in what should be a commercial legitimate negotiation, unless there is an identifiable market failure or abuse of dominant position.

- More generally, the single-sided, “subscriber pays a flat rate” model might have reached its limits, new types of models are being tested which can reduce the cost to consumers, increase consumption of communication service and benefit all parties. The internet of today and of tomorrow will continue to see the emergence of multiple actors that requires apprehending it as a two sided (or multi-sided) market.

4 Consumers- Transparency (questions 11, 12, 13, 14)

Transparency

Alcatel-Lucent favours the general principle of transparency as applied to network management and the level of services delivered to end users. In accordance with Article 21 of the Universal Service Directive, operators must:

- inform subscribers of any change to conditions limiting access to and/or use of services and applications, where such conditions are permitted under national law in accordance with Community law;
- provide information on any procedures put in place by the provider to measure and shape traffic so as to avoid filling or overfilling a network link, and on how those procedures could impact on service quality;

Competition will provide the best guarantee that consumers will have an extensive choice of services and will receive the quality of service they expect. For competition to do its job, consumers must be able to understand and compare the products and services offered by different ISPs. Transparency is therefore vital, even in a market as competitive as Internet access.

It will be the responsibility of the NRA to specify the level of transparency required by striking the right balance between excessively-detailed information that would be hard for consumers to understand, and too general a level of information which would not satisfy consumer expectations.

Consumer information must be presented clearly and in an easily-accessible way. It may well become necessary to define a standard information presentation format designed to enable consumers easily to understand the differences between services in terms of traffic management and access limitations. There can be no doubt that the NRA has a role to play in defining the type of information that should be published, and the way in which it is published.