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TEKELEC's COMMENTS

**ON THE PUBLIC CONSULTATION OF THE FRENCH ELECTRONIC
COMMUNICATIONS AND POSTAL REGULATORY AUTHORITY ON INTERNET AND
ELECTRONIC COMMUNICATIONS NETWORK NEUTRALITY**

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These comments were prepared by Tekelec in response to the “Discussion Points and Initial Policy Directions on Internet and Network Neutrality” (“Consultation”) issued by the French Electronic Communications and Postal Regulatory Authority (“ARCEP”) on May 20, 2010. Specifically, these comments focus on the proposals set forth in Section II of the Consultation, “Neutrality of Internet Access Networks.”

I. TEKELEC

Tekelec is a public, highly-specialized global telecommunications equipment manufacturer based in the United States with research and development centers in North Carolina, France, India, the Czech Republic, and China. Although not a name generally recognized by consumers of telecommunications services, Tekelec’s customers include most of the major telecommunications carriers in the world, and Tekelec sells products in over 100 countries globally. Our company specializes in complex equipment used in the core of carrier networks, certain of which plays a critical role in connection with many of the topics addressed in the Consultation. Tekelec is providing these comments on the basis of this expertise, and its visibility into current and future capabilities and services enabled by its products and informed by interactions with carriers around the world.

II. INTRODUCTION

As further set forth herein, Tekelec believes that the ARCEP should be cautious with respect to proposing a regulatory framework aimed at fostering network neutrality so as to ensure that the dramatic public interest benefits that will be gained from the near-term evolution of the Internet are not inhibited by such rules. Whether rules and policies aimed at ensuring network neutrality are characterized as enforcing net neutrality, prohibiting differentiation among data streams, or otherwise regulating traffic management, we believe that, if promulgated too broadly, they have the potential to stunt the further development of the Internet and thereby prevent the public from realizing the full benefit of recent advances in, and commercial deployment of, traffic management technologies.

In recent years, use of the Internet by the public has rapidly expanded beyond its roots in email, instant messaging, and the World Wide Web to include voice telephony, streaming video, real-time applications, location-based mobile services, and machine-to-machine communications. Although “best efforts” routing of Internet traffic was previously sufficient to support most of the Internet-based information society services (“ISS”) accessed by end users, this is no longer the case. The dramatic expansion of Internet-based ISS that is currently underway often requires, among other things, higher, or simply different, quality of service (“QoS”) and charging practices. We provide herein examples of such ISS use cases and Tekelec’s unique perspective regarding the differentiated traffic management that is essential to ensure a positive end-user experience with respect to future, advanced ISS.

III. Highly Beneficial Aspects of the Internet's Continued Evolution Depend on Internet Service Providers ("ISP") Retaining Flexibility With Respect to Traffic Management

Among other products, Tekelec manufactures the most technically advanced stand-alone policy engine in the industry. A policy engine—known under certain industry standards as a Policy Charging and Rules Function—is a software-based platform that operators can use to control how broadband network resources are allocated and charged among end users, information society service vendors ("ISVs"), and ISS traffic traversing the Internet. These policy engines allocate network resources based on business rules, which can take into account parameters such as end-user usage, tier of service, network conditions (*e.g.*, whether a network is congested or not), the QoS needs of an ISS application, device type, roaming status, and billing status. Policy engines can segment these criteria on an individualized basis with respect to specific end users and ISVs, and with respect to each data session initiated by an end user or ISV.

In contrast to legacy data environments, in which carriers used provisioning systems to configure static end-user profiles when end users first initiated data sessions, Tekelec's policy management solutions apply business rules on a dynamic basis, at the beginning and throughout end-user data sessions. Business rules, such as a particular QoS levels, are implemented for *each* data session. End-user devices, such as mobile phones, are increasingly capable of initiating multiple types of concurrent data sessions, such as a web browsing session along with a voice over IP ("VoIP") call or video on demand session, each of which may require distinctly different QoS levels.

Operators use the heightened traffic management capabilities provided by policy engines to ensure a certain quality of experience with respect to ISS delivered over both fixed and mobile broadband Internet architectures. Although the Internet probably is currently best known for facilitating innovation at the "edge" of networks, the traffic management capabilities that increasingly are being deployed within the Internet architecture will be far more important to future ISS innovation and will drive future expansion in the capabilities of the Internet. In fact, traffic management functionality enabled by policy engines has already been deployed by numerous ISPs worldwide and end users have for many years benefited from these deployments. For example, end users accessing high-quality VoIP services and high-resolution and quality IP-based video already rely on these network investments by ISPs. Further, without the use of such technologies, end users' experiences when accessing ISS are more likely to be degraded by network congestion as bandwidth-intensive ISS becomes more commonplace. Specifically, a majority of network resources may be allocated to a small minority of end users accessing bandwidth-intensive ISS, which may cause the majority of end users to receive subpar Internet access and unacceptable ISS performance. Thus, the increasing ability of ISPs to provide differentiated QoS levels due to new traffic management technologies will be a fundamental factor driving the quality of end users' experience accessing ISS for years to come and will be essential to the development of the next generation of ISS.

A. ISPs are demanding the capabilities offered by, and are deploying an increasingly sophisticated array of, policy controls designed to benefit end users and compete with rivals

Recognizing that “discrimination” (*i.e.*, advanced traffic management capabilities) may have an increasing role in the operation of the Internet, the ARCEP has appropriately requested comment on how and where to draw the line between “discriminatory practices” that can harm end users and/or ISV and those traffic management practices that may benefit them. Our experiences to date with ISPs designing and implementing policy management functions belie the notion that ISPs are intent on nefarious practices based on the exercise of market power over the market for broadband Internet access or the editorial control of ISS. Although our and other manufacturers’ equipment can theoretically be used for such purposes, our work with ISPs has focused on maximizing the efficient use of, and return on, their investments in bandwidth resources. We assist ISPs to use traffic management tools to create differentiated service offerings that attract both end users and ISVs, advance the purposes for which the Internet can be used as a communications platform, and enhance network security to protect against harm to end users and network operation.

Our experience and development efforts also reveal that the market for advanced ISS remains in its infancy, and the potential is great for exciting new Internet-based services *requiring* beneficial service differentiation via advanced traffic management. Tekelec is at the forefront of equipping ISPs to provide end users and ISVs with the ability to implement next generation ISS, including business models not present in today’s marketplace, and we have commissioned surveys of end users that reveal strong interest in new ISS that might be precluded by overly inclusive rules restricting traffic differentiation.¹ We see an exciting future and are developing products that will enable ISPs to realize it. Were the ARCEP to implement broad traffic management proscriptions and preclude ISPs from charging ISVs for differentiated and enhanced transmission services, a great many beneficial ISVs and new ISS business models may be artificially eliminated. For example:

- An ISV wishes to run a promotion whereby surfing the ISV’s website will for a time not count against the bandwidth allocation purchased by an end user from its ISP;
- An ISV operating a sports-oriented website wishes to offer latency-sensitive, real-time video streaming of World Cup games by purchasing higher QoS sessions from ISPs for its end users;
- An airline wishes to offer business and first class passengers free roaming minutes/megabytes at the national and international destination of each passenger during their visit to the destination;

¹ A November 2009 survey of broadband data end users in Europe by Heavy Reading revealed strong interest (>42%) by end users in add-on charges for unlimited use of selected ISS applications (such as Facebook or Youtube) and even greater interest (>72%) in reduced charges for agreeing *not* to use selected applications (such as peer-to-peer services).

- An online backup provider wishes to pay for a high-bandwidth upstream data channel for end users in order to differentiate its service;
- A car manufacturer wishes to offer customers the addition of their new car-based wireless data account to their existing ISP plan at no cost to the customer in order to receive constant maintenance and operational status information from the customer's vehicle;
- An ISP wishes to offer a web services company the ability to offer end users a fail-safe privacy service whereby the end user can establish privacy parameters—such as not allowing Facebook or Twitter to receive location or presence information from the network—regardless of whether the end user correctly sets those parameters on social networking sites; and
- A shipping carrier wishes to offer a service whereby the temperature and other status sensors incorporated into wireless-enabled shipping containers are provided to its shipping customers with varying levels of latency.

Tekelec believes that it is too early in the development of this exciting and nascent IP-based marketplace to determine whether broad *ex ante* rules are likely to result in net benefits to end users or instead will deprive them of a full realization of the Internet's potential. Based on its experience as a leading provider of the equipment that is currently enabling ISPs to greatly enhance the benefits of broadband Internet access services to end users and ISVs, Tekelec urges the ARCEP to be very cautious when considering rules that may eliminate a wide array of beneficial ISS that can only be enabled by permitting ISPs to intelligently control network resources.

B. The ARCEP should not adopt regulations that would inhibit the ability of ISPs to offer the sophisticated traffic management that their end users and ISV customers desire

In the near future, as the variety of ISS accessed and delivered via the Internet explodes in volume and complexity, the use of sophisticated traffic management by ISPs is likely to become commonplace in the market for Internet access. End users and advanced ISVs are likely to require ISPs to offer such differentiated QoS. Accordingly, irrespective of the nature of the regulatory framework ultimately adopted by the ARCEP, we believe that it is crucial that the ARCEP refrain from adopting regulations that foreclose this evolution of the Internet.

In the Consultation, the ARCEP proposes to develop a granular definition of the term "Internet access" that includes a minimum set of performance criteria to be provided by ISPs to end users ("Internet Access"). The ARCEP also proposes to prohibit ISPs that are providing Internet Access from differentiating between individual data streams received by, or sent to, end users subscribing to such Internet access. Under the ARCEP's proposal, differentiation among data streams would not be permitted based on the type of "application/service/content" involved or based on a data stream's transmission or reception address. The only exception proposed by the ARCEP to this sweeping traffic

management proscription would be for the management of network congestion. Specifically, limited capacity management would be permitted to cause available capacity to be fairly and efficiently shared among end users, provided that such capacity management is not used as a substitute for the deployment of additional transmission capacity.² By contrast, “managed services” appear to be defined by the ARCEP as all other IP-based services provided by ISPs to end users or ISVs (“Managed Services”). Accordingly, Managed Services would include dedicated, specialized services, such as VoIP and IP-based video services, but also would include all unfettered access to the Internet in which the ISP differentiates among data streams using traffic management, such as that enabled by policy engines. For example, the provision of Internet access as a Managed Service would enable the use cases specified in Section III(A) of these comments. By contrast, such use cases most likely would not be available to end users purchasing Internet Access as proposed to be defined by the ARCEP due to the traffic management restrictions that the ARCEP proposes to apply to the provision of Internet Access.

Such a distinction—between generic, highly regulated broadband Internet Access not involving significant traffic management and Managed Services, which may involve QoS differentiation between data streams—may appear to be a useful bright-line regulatory tool today. However, we believe that over time it is likely that the market will demand that most or all access to the Internet be provided by ISPs as a Managed Service rather than as Internet Access due to the traffic management flexibility that the ARCEP proposes to provide to ISPs offering Managed Services. As a result, the ARCEP’s proposed rule strictly limiting differentiation among data streams by ISPs offering Internet Access is likely to be effectively swallowed by the Managed Services exception to this rule. As further set forth above, ISPs and their ISV customers already rely on particularized traffic management techniques to ensure end users the best possible experience when accessing advanced or bandwidth-intensive ISS via the Internet. Moreover, the deployment and use of sophisticated traffic management capabilities by ISPs is likely to dramatically increase over the next several years. Therefore, most access to the Internet provided by ISPs in the future necessarily will be offered as a Managed Service to enable such traffic management and thereby enable the use cases set forth above to be realized as the Internet further evolves. Similarly, demand is likely initially to be weak for Internet Access not involving such traffic management capabilities and demand for such Internet Access is likely to further decrease over time.

Accordingly, if the ARCEP ultimately determines to implement its proposal to create an Internet Access regulatory category, we believe that is crucial that the ARCEP also freely permit ISPs to offer Internet as a Managed Services. By doing so, the ARCEP will enable ISPs to offer their end users and ISV customers a full host of traffic management capabilities, which will be required both to enable

² As noted in the Consultation, the broadband market in France is highly competitive. In such a competitive market, it is appropriate to permit market forces to guide substantial capital expenditures, such as those that may be required to increase network capacity. Accordingly, it seems inappropriate, and most likely economically inefficient, to limit the use of traffic management techniques to reduce network congestion if such techniques might also reduce new capacity deployment. Ultimately, the optimal means of allocating financial resources to provide the highest quality Internet experience to the highest number of end users may not always involve the construction of new fiber paths. Instead, it may result from advanced traffic management techniques at existing capacity levels, which may enable ISPs to allocate scarce capital to accomplish other network and service improvements.

development by ISVs of innovative new ISS and to ensure that end users are able to fully realize the benefits of such advanced ISS.

C. Wireless networks present acute problems of bandwidth scarcity and other challenges, resulting in the need to beneficially differentiate among end users and various types of ISS

The implementation of policy controls in 3G and 4G wireless networks reflect myriad complex requirements of device attachment and dynamic bandwidth management as end users migrate within, and roam among, carrier transmission facilities. These complexities require mobile carriers to be armed with sophisticated means to differentiate data sessions on the basis of QoS, bandwidth allocation, application types, and other criteria in order to offer end users and ISVs the services they are currently demanding, and those that will be commonplace in the near future. As a result, any attempt to define minimum Internet Access standards applicable to mobile services or to prohibit sophisticated traffic management techniques with respect to mobile access to the Internet may hamper the ability of mobile carriers to provide adequate ISS performance to mobile end users.

For example, the technical standards and solutions for seamlessly providing continuity of QoS, bandwidth, and other policy control rules among home and roaming networks or technologically disparate home networks (such as 4G to Wifi handoffs) are still being addressed in the industry. Moreover, in the scarce resource context of the wireless broadband market, robust traffic management capabilities—particularly those that differentiate on the basis of Internet traffic characteristics—are critical to ensuring the efficient use of such licensed public resources. The more efficient the use of such resources, the greater the return on their investment and the greater the incentive for carriers to invest further in additional facilities to the benefit of consumers.

Therefore, the importance of permitting Internet access to be offered as a Managed Service involving complex differentiation among data streams is at its zenith with respect to wireless networks. Given the complexity and nascent state of the wireless data ecosystem, any strict limitations on traffic management tools will substantially hinder the ability of wireless carriers to benefit from the rapid technological changes and innovation that currently define the wireless market. As a result, such regulation may result in artificial effects on network deployments, the inefficient use of scarce resources, and the hindrance of the development of next generation wireless services for end users.

IV. CONCLUSION

Given our vantage point from developing equipment for the core of ISP networks, we believe the ARCEP's laudable goal of protecting and promoting the growth of broadband Internet services, next generation ISS, and the myriad of related industries may be best served by permitting ISPs to freely implement sophisticated traffic management practices. Therefore, if the ARCEP implements an Internet Access regulatory classification subject to strict traffic management prohibitions, the ARCEP also should permit Internet access to be provided as a Managed Service free from restrictions on differentiation among data streams. To the extent that the ARCEP imposes any traffic management restrictions on

such Managed Services, they should be narrowly tailored so as only to address patently objectionable data stream discrimination. Any broader restrictions on traffic management imposed on Managed Services could have unforeseen and unintended negative effects on the advanced ISS market and the many technical and business models that are likely to emerge over the next few years, particularly with respect to next generation wireless networks. If innovation in these markets is unintentionally stifled, French competitiveness will suffer, as will, ultimately, end users.
