ALCATEL-LUCENT SUBMISSION

MED Telecommunications Service Obligatory Regulatory Framework Discussion Paper

AUTHORS:
STEFAN KELLER-TUBERG
RICHARD WADE

OCTOBER, 2007

About Alcatel-Lucent

Alcatel-Lucent provides solutions that enable service providers, enterprises and governments worldwide, to deliver voice, data and video communication services to end-users. As a leader in fixed, mobile and converged broadband networking, IP technologies, applications, and services, Alcatel-Lucent offers the end-to-end solutions that enable compelling communications services for people at home, at work and on the move.

Alcatel-Lucent and its predecessor companies have been developing access platforms and solutions and working with service providers for well longer than a century. Today, it is a leading supplier of Next Generation platforms in the world's leading markets.

With 79,000 employees and operations in more than 130 countries, Alcatel-Lucent is a local partner with global reach. The company has the most experienced global services team in the industry, and one of the largest research, technology and innovation organizations in the telecommunications industry.

Alcatel-Lucent achieved proforma combined revenues of Euro 18.6 billion in 2005[1], and is incorporated in France, with executive offices located in Paris. For more information, visit Alcatel-Lucent on the Internet: http://www.alcatel-lucent.com.

[1] All figures exclude impact of activities to be transferred to Thales.

Introduction

Alcatel-Lucent thanks the MED for this opportunity to provide comments on the paper "Telecommunications Service Obligation Regulatory Framework: Discussion Document" of August 2007. Alcatel-Lucent supports the government's initiative in reviewing the 2001 Telecommunications Service Obligation.

Governments, Regulators, Industry and Consumers in most developed markets are currently embarked upon the transition from traditional telecommunications platforms towards next generation platforms. Alcatel-Lucent's long standing experience with traditional networks and its leading position with Next Generation Networks in a broad variety of markets allows it to bring a unique and important perspective to discussions concerning the future direction for New Zealand telecommunications.

Alcatel-Lucent is pleased to participate in the process and to submit this contribution.

Don't rely upon preconceptions when thinking of the future

For many of us, no matter where in the world we live, our current perception of telecommunications services and networks is founded upon years of experience with traditional networks and services. Our experiences with traditional telecommunications have the potential to mislead us about the attributes and capabilities of Next Generation Networks.

As we embark upon a consideration of the future of telecommunications applications and services, it is important to try to understand the key differences which differentiate the Next Generation from the traditional.

The differences between Next Generation Networks and traditional networks suggest a need to, in a broader context, reconsider approaches towards regulating the service and content industries.

Traditional technology, service and industry relationships differ in a Next Generation world

Because of the characteristics of traditional networks, it has previously made sense to consider

- Telephony separately from broadband,
- wireless access separate from fixed access, and even
- telecommunications separate from other forms of media.

Looking towards the future, traditional regulation and legislation founded upon these distinctions will become increasingly challenged as we progressively make the transition towards a Next Generation world.

The key service differentiators between Next Generation Access and traditional broadband access are:

- *Substantially higher assured throughput for a larger proportion of the population* as access nodes and fibre technologies are deployed closer to the end users they serve.

  By contrast, today's traditional exchange based access architecture and wireless infrastructure delivers markedly different access performance to customers located within a few hundred metres when compared with customers located further than a few kilometres.

- With higher throughput to a larger proportion of the community, Next Generation Access supports *simultaneous and independent delivery of different applications.*

  For example, Internet access can be provided independently from Telephony, Pay TV, Security and other services all on the same broadband access connection and from potentially different and independent application providers. In contrast, today's broadband access is a single-service access in the sense that all applications are conveyed over the "Internet"; "Voice Over the Internet", "Video Over The Internet", "Corporate VPN access over the Internet" and so on. This means that for today's access, all applications are subject to the quality and limitations of the Internet.

- With application-independent connectivity, *Next Generation Access allows service differentiation*. Traffic from different applications can be prioritised to assure uniform and repeatable user experiences.

- With the ability to identify and differentiate broadband traffic, *service and application providers are able to offer guarantees in a Next Generation Access environment*. For example, Telephony quality or Pay TV quality can be confidently assured when the access and application networks are appropriately dimensioned, configured and managed. Next Generation subscribers can be confident in the reliability and performance of Next Generation applications.

- *The ability to support Multicast applications*, a capability not generally implemented in today's traditional broadband access services. Multicast applications include the delivery of live streaming media to many simultaneous customers, as used in IPTV services, for example.

Looking towards the future, it is interesting to speculate upon the opportunity Next Generation Networks may provide for improving the efficiency of content distribution.

In today's traditional world, independent infrastructure has been separately deployed for distributing broadcast TV, pay TV, newspapers and magazines, CDs and DVDs, mobile telephony, fixed telephony, broadband Internet access, business data, and so on. Some of this infrastructure is telecommunications based and other is retail based. The cost of the initial investment and its ongoing maintenance for the variety of 'alternate infrastructure' is ultimately passed on to and borne by consumers.

The further the world progresses towards Next Generation Networking, the greater will become the opportunity to distribute all of these forms of content electronically[2]. The incentive for the different content industries to converge towards a Next Generation form of distribution will ultimately be driven by consumers' desires for (a) the widest range of choice which electronic distribution enables, (b) maximum convenience of having instantaneous access to whatever content you desire, without having to physically shop around or wait for an order to be fulfilled (c) ongoing competitive pressure to reduce retail prices through increased distribution efficiency and reduction in the capital outlay of disparate/duplicated distribution infrastructure.

We consider the converged Next Generation form of distribution inevitable, however long it takes, because it is technically feasible and because it promises to be significantly more efficient than what we have today.

[2] The future of Next Generation Access is *both* wireless and fixed. Wireless access will continue to be required in order to support mobility. In comparison to wireless, fixed access is capable of sustaining many orders of magnitude greater throughput to a much larger number of subscribers than wireless, and will therefore be required in parallel.

Today, society and the various content industries aren't yet prepared to fully embrace such a Next Generation world. However the indications that we are taking the first steps are apparent. We don't wish to speculate upon how long the transition will ultimately take, but we are certain that the role of government in facilitating the transition will be central.

The manner and extent to which traditional regulations are reviewed and adapted will set the pace of this inevitable transformation.

Distinction between Next Gen Access and Applications

With a traditional telecommunications service, the "Access" component of a service is intrinsically linked and is often inseparable from the "Application" component. In a Next Generation world, the two are separable and should be considered separately.

Access

"Access" simply involves connectivity between an individual end user and one or more Application Providers. Access services are provided between distinct physical locations which could either be mobile or fixed.

Access Providers are unconcerned with the specific purposes for which connections are used. This is sometimes referred to as 'bitstream' access because the Access Provider's role is to convey the stream of bits between the two endpoints, not with the applications that transmit and receive the bits themselves.

Applications

Application Providers are concerned with purpose rather than an end user's location. Applications might include Internet Access, Telephony, Pay TV, Corporate VPN access, Home Security and Automation, Games, etc.

While an Access provider just connects the end user to Application Providers, the Application Providers' role is to source or process information and offer interconnectivity with other national and international Application Providers[3].

Independence

Although many subscribers may choose to bundle their Access and Applications with the same retail provider, the network and the technology upon which it is based allow a degree of independence between the provision of access and the offering of applications.

The "Access" and "Application" components of Next Generation services should be considered and treated independently from a legislative and regulatory perspective.

[3] An Application Provider might be concerned about the capabilities of the end user's terminal device rather than the end user's current location. For example, a provider of a mobile TV Application might be concerned the size of image to be displayed or the capacity of the connection rather than where the end user is currently located.

The difference between traditional and Next Generation implementation

The example of a basic Telephony service

In a traditional basic Telephony service, consumers deal with one Telephony service provider. More importantly, consumers can't perceive a practical distinction between the line rental component, the switching function provided by the local telephone exchange and the ability to make calls to other subscribers connected to the same switch. Often, even the abilities to interwork with and place calls to the mobile network, the long distance network, the international network, the intelligent network, operator assisted services and the "111" emergency service are perceived as intrinsic and inseparable components of a traditional basic telephony service.

These perceptions and concepts are no longer wholly valid in a Next Generation world. A Next Generation Access provider communicates data packets between an end user and an Application Provider without concerning itself with the question of whether individual packets are Telephony packets or from another Application[4]. The consumer has (potentially) separate relationships with the Access Provider and the Next Generation Telephony Application Provider. In contrast with the Access provider that communicates bits of information, the Application provider is responsible for examining dialled digits and making the appropriate connections with the other mentioned networks and services.

In the Next Generation world, other applications such as High Speed Internet Access, Pay Television and so on could come from alternate and independent Application Providers i.e. different than the supplier of the Telephony Application. End users may choose to purchase "Access Services" and each of the different "Application Services" from independent organisations.

The example of a basic Broadband service

As for traditional and Next Generation Telephony, it is possible to draw a distinction between traditional and Next Generation Broadband.

With a traditional broadband service, the various applications and services offered by the Internet Service Provider (ISP) include access to the global Internet, an Email mailbox, Domain and Web hosting, the Domain Name Service, filtering of malicious content etc. These ISP applications are difficult to separate from others such as Voice Over Internet, a video download subscription, corporate VPN access and other "Internet" applications. Traditional broadband applications necessarily transit the ISP's network even if provided by a third party and there is no mechanism to prioritise or assure performance standards for each individual application. Every application is treated 'equally'. This is commonly known as 'best efforts'.

In the Next Generation world, ISPs are free to continue to offer similar Internet access with similar best efforts characteristics and consumers are free to continue to choose such services. Alternately, Next Generation ISPs might offer Quality Of Service (QOS) in potentially different configurations which differentiate the handling of Telephony and Video data from Internet

[4] A Next Generation Access Provider may concern itself with the question of packet prioritisation and the assurance of a Quality Of Service in accordance with a traffic contract. However the Next Generation Access Provider will not be concerned with the question of whether a specific packet is from a Telephony, IPTV, Internet, Game, Corporate VPN etc session.

access data and so on. Independent Internet, Video and Voice providers might establish separate and individual connections to the end user in a Next Generation world, each with separate and independent QOS characteristics.

The transition to Next Generation Telecommunications requires Next Generation thought towards the TSO

Because Next Generation Networks change the way Access is provided and Applications are delivered, the current structure of the TSO and its obligations do not fit comfortably with new technologies, architectures and industry structure.

A brief overview (below) of some existing TSO requirements highlight their pending inadequacy as we move towards a Next Generation world.

With respect to 'services', the current TSO incorporates:

- A requirement for free local calling
- Capped line rental
- Averaged pricing for line rental
- The provision of Directory Services

With respect to performance, the current TSO specifications include:

- Minimum line quality (connect speed for Internet calls, 95% at 14.4kb/s, 99% at 9.6kb/s)
- Maximum unsuccessful call attempts (1% for non-Non Switch Based Concentrator, 2.5% for Non Switch Based Concentrator)
- Maximum line unavailability (50 minutes per year per line)
- Emergency call answer performance (85% of calls within 15 seconds)
- Maximum Emergency service unavailability (120 whole minutes per annum)
- Reporting requirements on Emergency Centre unavailability

It is evident that many of these items are parameters specific to the Telephony Application and fail to encompass the breadth of important non-telephony Next Generation Applications and Next Generation Access characteristics.

The multi-service and multi-application capabilities of Next Generation Access are a fundamental change away from the single-service capabilities of traditional Telephony, Pay TV or Broadband Access networks. This technological evolution and separation of 'services' from 'connectivity' carries important ramifications for government, the regulator, the access industry, the application industry and the community of telecommunications end users.

With the advent of Next Generation Access and Next Generation Applications, there is an increasing need for a Next Generation TSO.

The "Telecommunications Service Obligations (TSO) Deed for Local Residential Telephone Service" was conceived during an era when the single-service telephony network was critical. As we transition towards Next Generation Access and Applications, a broad and open process should be initiated to review the requirements of the TSO to maintain their relevance in a Next Generation Telecommunications environment.

Next Gen obligations and minimum standards should be appropriately directed

It is important that many of the parameters present in today's TSO are maintained in some form in the future Next Generation world. Alcatel-Lucent strongly supports the establishment of relevant minimum obligations and standards in the Next Generation world but recommends adoption of a different approach.

Amongst the several purposes and objectives of the current TSO deed (2001), obligations are imposed upon Telecom and a framework of standards is established within which consumers derive minimum expectations.

In the context of New Zealand's evolving telecommunications industry structure and the progress being made towards a new competition model, it will be important to distinguish clearly between ongoing obligations upon Telecom and the establishment of minimum industry standards directed to all players.

Consideration should be given as to whom each obligation should be directed and the purpose of so directing it.

To be effective and to deliver appropriate consumer benefit, some obligations should be directed towards the entire telecommunications industry rather than to a single player.

This might be achieved by shifting some obligations from within the Telecom focused TSO framework into a parallel and separate industry focused framework of standards or by another means.

In a Next Generation world, Access and Application providers have separate roles and responsibilities. *Next Generation obligations and standards need to be clearly expressed and directed towards either the Access or Application provider.*

Elimination of technology bias encourages appropriate investment

Many existing TSO parameters implicitly assume services are delivered via a twisted pair carrying a baseband PSTN telephone service.

As we transition away from the traditional PSTN or ISDN and away from traditional broadband access, Next Generation Access will start to be delivered using any of the many transformed forms of DSL and Fibre To The Node, from one of several forms of Fibre To The Home, using one of several forms of Wireless Terrestrial Access, Cable Access, or even Satellite Access and Broadband over PowerLine.

Access characteristics should be specified in a relevant and technology-neutral manner to reflect the capability of alternate Next Generation Access technologies to be deployed in different markets to deliver the same application set.

Access providers should be encouraged to deploy the most efficient and effective access technology for each area of New Zealand.

Technology specific TSO clauses or industry standards could impair this process by tilting the playing field in favour of one access technology at the exclusion of others. This may lead to inefficiency and inferior consumer outcomes.

Technology specific requirements and obligations may permit or even tacitly encourage the deployment of inadequate solutions in some areas of the community, opening the possibility for longer term blackspot and 'digital divide' concerns.

Appropriate benchmarks encourage investment and help consumers make informed choices

Alcatel-Lucent encourages discussion to identify key attributes and metrics of Next Generation Access and Applications. These could include upstream and downstream peak and assured throughput, QoS differentiation, packet loss performance, service availability, voice quality and so on. Following agreement on attributes, attention can be paid towards setting appropriate benchmarks or minimum standards.

Some, but not all, attributes may warrant the establishment of Next Generation obligations. Failure to set appropriate obligations for some attributes or inappropriately imposing specific obligations only upon a subset of providers risks tilting the playing field.

Alcatel-Lucent notes that Access investments are generally medium to long term investments and that there is a well established trend that the community's requirements for more capable broadband access grows year on year. In establishing minimum Access requirements, attention should be paid that they are set at an appropriate level to meet community needs during the expected life of the Access investment. Different types of Access technology have different investment lifecycles and any targets or objectives may need to be derived differently for different types of asset depending upon the investment lifecycle of each asset.

Access is only one half of the Next Generation equation. Application characteristics and parameters should also discussed and considered.

Appropriate industry-wide benchmarks will make it easier for consumers to understand, compare and choose between different Next Generation Service offerings.

Appropriate definitions for Access and Application Boundaries clarify responsibilities

In with today's traditional services, a Network Boundary is routinely defined at the point at which the network terminates at the subscriber premises. In a Next Generation context, Access and Applications may potentially be delivered by separate organisations. The concept of Network Boundary is therefore troublesome in a Next Generation context.

Next Generation *Access* will be delivered at an Access Boundary. The characteristics of that boundary will be somewhat different depending upon the access technology being used.

- For DSL or FTTN, the Access Boundary may be the first socket or the input port at the home's central DSL splitter. The interface is likely DSL in these cases.
- For FTTH, Broadband Over Powerline and HFC, the Access Boundary might be the sockets on the Access Termination device. The interface is likely Ethernet in these cases.
- For wireless and satellite Next Generation Access, the Access Boundary might be defined as the outer surface of the antenna. The interface is likely one of the numerous radio standards in these cases.

Because the nature of the Access Boundary interface differs depending upon which access technology is chosen, and because different consumers might choose different access alternatives to connect to the same Application Providers, there is a need to consider a separate Application Boundary.

Next Generation Applications are likely to require the definition of a separate reference point because Applications may sometimes be delivered from a physically separate device than that which terminates the Access.

In the case of Telephony, for example, if a derived Telephony service is implemented using a stand alone Analogue Telephony Adapter (ATA), a separate Telephony Application boundary would be appropriate at either the Ethernet port or the Telephony port on the ATA, depending (say) upon whether the ATA was customer or Application Provider equipment. Either way, it is clear that it would be problematic to define the Telephony boundary to be either the customer or network facing ports on the Access termination device.

The concept of line-powered telephony must be adapted

With a traditional Telephony service, ring current and battery voltage are provided by the local telephone exchange or access node. Questions arise in a Next Generation world.

When Next Generation Access is provided using wireless, network-fed powering is no longer possible. If access is provided via optical fibre, network-fed powering would only be feasible if copper cables were to be installed in parallel with the fibre but such a deployment would be atypical and undesirable from a business case perspective. If access is provided using an FTTN or HFC architecture, standard equipment doesn't support network-fed power for the modem or ATA.

Regardless of the access implementation, the Next Generation Telephony Application Provider connects to the end-user through a packet-data interface and is therefore unable to feed power, only packets.

If appropriately informed, some consumers might choose to install and maintain a local battery backed power supply. Others might accept loss of their fixed Telephony service in the event of a local power outage on the basis that they can fall back to using a mobile telephone. Some consumers may prefer that the Telephony Application provider continues to be responsible for providing reliable power, whether from a Telephony Application Provider-maintained battery or otherwise.

Alcatel-Lucent submits that alternatives to network-fed powering, specifically in the case of the Telephony application, are technically feasible, available and possible. In many cases, informed consumers will find the non-traditional alternatives more attractive and suited to their needs, especially if incentives are offered in conjunction with the alternate.

Alcatel-Lucent specifically recommends consideration and discussion of network-fed powering issues in a redrafting of the TSO or other industry obligation document. It would be helpful for the issues to be raised and resolved constructively so that the future options and alternatives for Telephony powering are unambiguous for consumers, for Access Providers and for Application Providers.

Government and regulatory leadership are required to assure good consumer outcomes

Recent determinations (Telecommunications (Operational Separation) Determination 2007), have created a regulatory and commercial framework which strongly supports the separate consideration of Next Generation Access and Next Generation Application services. Through structured examination and specification, it is possible to describe the performance, quality and cost characteristics which the industry believes will support investment and service transformation.

From the consumer's perspective, it is desirable that Next Generation Access and Application characteristics be defined in a manner where end-to-end performance expectations can be established.

As an example, the quality of an end to end Next Generation Telephony service will depend upon the independent performance of the Next Generation Access and the Next Generation Application Providers' networks. The equivalent of today's traditional Telephone service will not be feasible unless ***both*** Access and Application Provider implement QoS in a compatible manner and their respective networks are appropriately dimensioned and configured to assure the required performance.

Alcatel-Lucent believes the New Zealand government and regulator have important roles to play in facilitating a dialogue between industry players and the community to derive specifications and parameters for interworking and interconnectivity. These outcomes should be reflected in Next Generation TSO revisions or Next Generation industry obligations documents. Ultimately, consumers will be relying upon this ground-work having taken place in order that they can purchase Next Generation Access and Applications confidently knowing that the end to end services will meet their expectations.

In addition to considering QoS in a telephony context, discussion should be expanded to consider the implications of delivering other forms of Next Generation Application over independent Next Generation Access infrastructure.

Assuring workable competition by nominating clear Points of Interconnect and establishing clear and uniform standards

Independent Application Providers must interconnect with different Access Networks at Points of Interconnect. In the absence of designated locations and agreed uniform standards for interconnection, interconnection may be implemented inefficiently, ultimately impairing consumer outcomes because of (e.g.) higher consumer cost or reduced levels of competition.

By way of example, in countries such as Australia, individual property developers have for several years been deploying Next Generation Access in Greenfield developments. Often, incumbent telecommunications providers choose not to overbuild the developer's access investment because of the inefficient costs of access duplication. It is therefore important to define and mandate minimum standards for interconnection.

- Even though a Next Generation Access deployed a particular Greenfield community might offer superior capabilities to access generally available in older surrounding Brownfield communities, potential Application providers might face additional interconnection costs because the Greenfield's Point Of Interconnect (POI), serving a smaller addressable market, is not collocated with the Brownfield POI, serving a larger market. Additional backhaul would be required to connect from the Greenfield POI to the Brownfield POI.
- Additional operational and maintenance costs might be incurred if the interfacing standard or configuration for the Greenfield POI is different than the Brownfield's.
- An Application Provider may be technically unable to offer services to a particular Greenfield's consumers if QoS capabilities for the Greenfield are implemented in a different or incompatible manner compared with other communities.
- If regulation imposes a requirement for Application Providers to offer uniform retail pricing for Greenfield and Brownfield subscribers, and if interconnection to Greenfield subscribers is more expensive for an Application Provider, the situation will be a positive disincentive for Application Providers to interconnect. Alternately if differential pricing is permitted and there are additional Greenfield interconnection costs, Greenfield Application Providers might be expected to pass the additional costs on to the Greenfield subscribers.

- If fewer Application Providers are willing to interconnect for whatever reason and there is no alternate comparable Access infrastructure, a Greenfield's residents will have reduced choice.

In summary, if Application Providers cannot easily and inexpensively interconnect with new Greenfield communities in a similar manner that they interconnect with larger existing Brownfield communities, choice of services will be limited.

In order to ensure the new residents of these Greenfields gain full advantage from the benefits of Next Generation Access and competition for Next Generation Applications, it is important that Greenfield POIs are collocated with Brownfield POIs and that compatible uniform standards are established. Collocation and standardisation encourages efficient demand aggregation in a way that encourages as many Application Providers to interconnect and offer services as possible.

This suggests a need for consideration of options and outcomes during the process of establishing future obligations. In this sense, these particular Next Generation obligations should be directed towards the telecommunications industry as a whole and appropriately balance the interests of consumers, the Access industry and the Application industry. Alcatel-Lucent believes the new operational framework described in the Telecommunications (Operational Separation) Determination 2007 is a part of facilitating this outcome, but broader consideration is required.

Defining Next Generation Telecommunications Services

In order to define Next Generation Telecommunications services, it is important to understand that the economic and technical parameters associated with their provision are considerably different to those of traditional communications networks. This is due to NGN technologies enabling the service provider to separate and distribute a platform's functional components in a manner which is very different to current and traditional systems. Furthermore, as discussed earlier in this document, NGN technologies enable distinct separation of Network Access and Application infrastructure.

While a Next Generation Access network may require significant distribution of active components in order to deliver the required bandwidth and service coverage, this is not necessarily true for a Next Generation Application infrastructure. Given the componentised nature of NGN systems, there is a large degree of flexibility available to the service provider in choosing where to locate equipment and in how to optimally configure it. This directly impacts the service quality, resilience, and performance, and is balanced with the capital and operational cost to serve.

IP-based services, by their nature, have a wide range of network performance requirements. For example, a High Speed Internet service has dependencies on the access and aggregation network performance, but equal reliance on capacity and network quality in a Application Provider's national and international connectivity. Furthermore, aspects such as global Internet Transit and domestic and international Interconnect (Peering) agreements also significantly affect a consumer's service experience. The parameters associated with such services are generally the *reachability* of global Internet services, the performance (throughput [or '*speed*']), delay and packet loss[5]. Importantly, the *availability* of a working broadband service is increasingly perceived as an essential characteristic.

[5] We note that with today's traditional broadband deployments, constrained network dimensioning occasionally leads to congestion and in-turn to degradation of services during busy hours. Those of us that have used Internet Telephony services will likely be familiar with impaired or interrupted services during 'peak' times. Often, service

Conversely, an application such as VoIP or IPTV may place significant requirements on a Application Provider's network infrastructure in terms of capacity, Quality of Service support, and decentralised infrastructure to deliver the required performance, scale, and availability. Applications such as First Line Voice over IP and IPTV generally place more stringent requirements on the underlying broadband connectivity infrastructure than basic Internet applications. This is due to the significance of such services, the importance of reliable availability of emergency access, the necessity for homebound people to be able to use the telephone to communicate with the outside world and, not least, the importance of telephony as a commercial service that supports the underlying investment in telecommunications infrastructure.

A First Line Voice application should therefore be characterised differently to a basic Internet application. The parameters associated with a Voice service will generally be more detailed and prescriptive in terms of quality, features, performance, availability, and cost to the end user.

Conclusions

The current TSO was conceived at the height of the traditional telecommunications era. The industry has arguably commenced its transition towards a Next Generation world. It is now the right time to review and upgrade the TSO.

The emergence of Next Generation Technologies suggest an increasing need to define a Next Generation Telecommunications Service Obligation. In redefining the traditional TSO, consideration should be given towards directing some obligations towards the industry as a whole rather than towards a single provider.

Evolved obligations which do not accommodate the architectural possibilities enabled by Next Generation technologies and the evolving regulatory and commercial landscape, risk impeding transformation, encouraging inefficient and inappropriate investments and precipitating poor consumer outcomes. Revised obligations should recognise the important distinction between Access and Applications; they should enshrine technology independence by defining appropriate standards that can be implemented using a range of alternate technologies and be directed towards the entire industry if appropriate.

Alcatel-Lucent strongly supports the government's public consultation on this matter, and hopes that industry, government, the regulator and consumers can arrive at a common understanding of telecommunications services and obligations in a Next Generation context. Alcatel-Lucent is looking forward to actively contributing in such a consultation.

providers cite rising levels of peer-to-peer traffic from a small proportion of their customer base as the cause of service slow down and degradation for the remainder. Avoiding impairment for those who don't participate in network-congesting practices is an important benefit from an appropriately implemented QoS regime.

Media Enquiries

Angela Armstrong,

Alcatel-Lucent Australasia,

Phone: +61 3 9664 3768 (fixed), +61 448 916 864 (mobile)

Email: Angela.Armstrong@alcatel-lucent.com.au

Contacts

Ben Christian,

Alcatel-Lucent New Zealand,

Phone: +64 4 803 7433 (fixed), +64 27 500 4040 (mobile)

Email: Ben.Christian@alcatel-lucent.co.nz

Stefan Keller-Tuberg,

Alcatel-Lucent Australia,

Phone: +61 409 322 655 (mobile)

Email: Stefan.Keller-Tuberg@alcatel-lucent.com.au