THE RISE AND RISE OF CONTENT: CHALLENGES TO THE REGULATION OF VOICE AND CONTENT IN THE NEXT GENERATION

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Conceptual overview

Next generation networks ('**NGN**') are just around the corner.

NGNs will be capable of carrying all forms of communications – voice, data and all types of content – at very high speeds, at very high volumes and in diverse technical ways.

Whilst the current regulatory regime in Australia which governs such networks is very telecommunications-centric, such a narrow focus is likely to be challenged by emerging technological developments, for example convergence of mobile telephony with internet content, IPTV, subscription TV and internet-based conferencing.

The existing relevant regulatory provisions which govern these matters (principally under the *Telecommunications Act 1997* (Cth), the *Radiocommunications Act 1992* (Cth) and the *Broadcasting Services Act 1992* (Cth)) are deliberately broad and flexible in their application. However, they face imminent challenges. In an NGN environment, the separation of the transport and application service layers will strain the distinction between carriage and content and it is likely that policy makers will need to review the regulatory framework in this regard.

Moreover, the convergence of methods of content delivery will challenge content regulation – a matter which has recently focused the attention of the Australian Media and Communications Authority ('**ACMA**').[1]

This paper is divided into two Parts, each examining a quite distinct area of concern in the emerging NGN world: Part 1 considers a challenge to traditional voice telecommunications regulation; and Part 2 considers a variety of challenges to content regulation.

Part 1 – the standard telephone service in an NGN environment

As we move closer to an NGN environment, policy makers will need to consider the policy implications of basic communications services (such as the 'standard telephone service') being provided in a different manner and by someone other than a traditional carriage service provider. Against this backdrop, the first Part of this paper considers whether a 'voice application service' might be regarded as a content service and the regulatory ramifications thereof.

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1 See, e.g., ACMA, Top Six Trends in Communications and Media Technologies, Applications and Services – Possible Implications, March 2008; ACMA, IPTV and Internet Video Services, April 2008.

Part 2 – content regulation in an NGN environment

NGNs will be an enabler of true convergence of content. The second Part of the paper addresses challenges to content regulation in a converged communications environment.

In particular, new delivery mechanisms for various types of content – from 'YouTube' to 'Joost' and beyond, including the added dimension of video delivered over multiple devices – appear to be stretching existing content regulation.

Part 2 examines a number of policy implications of emerging types of content (both in terms of the content itself and the means by which it is delivered). Regulatory thinking in this area is fairly inchoate, yet there appears to be a very rapidly growing need to address the challenges of content regulation in an NGN environment:

> Dilemmas over the convergence issue reflect limitations in current policy initiatives. These initiatives often fail to realize that convergence is not merely a matter of perceptual irregularities that are unique to policymakers in an isolated case. Instead, limitations in progress towards convergence are endemic to and reflective of profound borders between the political actors, industries and political regimes in various regulatory communication environments. The problems in achieving convergence are also symptomatic of varying legal and judicial systems that have been socially and culturally shaped and constructed over time to treat individual media types discretely based on traditional norms.[2]

Part 1 – the standard telephone service in an NGN environment

Overview

NGNs raise specific regulatory and policy challenges. For example, what will be the nature and scope of existing social policy measures such as the standard telephone service ('**STS**') and universal service in an NGN environment; or will a broader basic communications service emerge? Moreover, are we moving from a *telecommunications*, to a *communications*, regulatory framework?

The Australian telecommunications regulatory framework is generally well positioned to manage and adapt to the transition towards the NGN environment. The regulatory framework is technologically neutral and generally permits the Minister and/or the ACMA to adjust the operational mechanics of the regulatory framework as new technologies and service-types emerge.

It is likely that NGNs will challenge the existing regulatory framework and at some point at broad ranging review will be necessary. However, it is envisioned that, until that point is reached, the existing regulatory regime may be applied in such a way as to move in step with technological developments, with little need for legislative amendment.

General telecommunications policy principles

NGNs pose interesting opportunities and challenges for the way in which regulators around the World will approach the future of communications.

Whilst regulation of telecommunications in Australia has historically been focussed on telephony services – with particular focus on a basic STS and universal service – the emergence of new modes of communication in the form of NGNs makes it timely to question

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[2] Menon, Siddhartha (2006) Policy Initiative Dilemmas Surrounding Media Convergence: A Cross National Perspective, Prometheus, 24:1, 59 at 76.

whether our existing regulatory framework is capable of managing and adapting to an NGN environment, whether there are any significant lacunae in the existing framework and whether there might be a need for changes to the fundamental structure and composition of the existing framework in order to continue to satisfy its policy objectives.

In an NGN environment, there will be a separation of what is known as the 'transport' layer (transmission) of communications from the 'application' or 'services' layer. In practical terms, this will mean that, whereas for certain services (such as basic telephony), the 'carriage' component and the 'voice' component of the service are currently integrated and therefore provided by a single provider, in an NGN environment it will be (in fact, it already is) possible to separate the carriage component from the voice component, so that those two components can be provided by separate providers. This separation will lend itself to all manner of applications, such as voice transmission, video, text and data-based applications.

At the same time, those providers who provide the functionality of particular services (applications providers) will be more likely to provide features (and different price/feature options), increasingly based on consumer demand, rather than on regulatory considerations. Accordingly, consumers are likely to have increasing choice as to service applications in an NGN environment. This will be underlined by competition at the application level, from both domestic and international retail providers.

The generally accepted approach to telecoms regulation – technological neutrality

The following excerpt from the ITU 2007 Global Symposium for Regulators highlights a general convergence of traditional approaches to telecommunications regulation and challenges posed by the NGN environment:

> Regulators are assessing the need to issue VoIP specific regulations and if this will facilitate the migration towards a NGN world, where IP-based applications, which include, but are not limited to voice, all coexist in the same decoupled applications layer of the network. In the last few years, voice has spearheaded the uptake of IP-based applications and services and is expected that this trend will continue at least for the foreseeable future. The erosion of traditional voice revenues of incumbent providers as a consequence of higher efficiency and lower costs of VoIP services has been one of the drivers of NGN migration plans and deployment by incumbent providers themselves around the world. VoIP is thus ceasing to be seen as a new disruptive technology in the marketplace as it penetrates the mainstream voice market. Moreover, whereas in certain countries VoIP services were generally exempt from most, if not all, regulatory obligations imposed on traditional voice providers (e.g., access to emergency service and universal service contributions), regulators are beginning to issue specific rules to accommodate VoIP's distinct functionalities (e.g., nomadicity of service).
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> …
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> In the United States, similar actions by an incumbent also prompted FCC action requiring it to cease blocking VoIP service over its network. However, the FCC has yet to classify VoIP service as a telecommunications service or information service or to adopt general regulations for VoIP. Nevertheless, the FCC has changed its deregulatory approach towards these services, imposing obligations to accommodate legal wiretaps, contribute to universal service funding and provide emergency calls on interconnected VoIP providers (i.e., those that allow calls to or from traditional telephone lines/numbers). In addition, the Commission recognized that in the transition to a broadband telecommunications market, it was duty-bound to preserve and promote the vibrant and open character of the Internet, fostering the creation, adoption and use of Internet broadband content, applications, services and attachments, and to ensure that consumers

> benefit from the innovation that comes from competition. As such, the FCC issued a set of network neutrality principles to guide its ongoing policymaking activities. In this sense, to encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet, consumers are entitled to:
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> - Access the lawful Internet content of their choice.
> - Run applications and use services of their choice, subject to the needs of law enforcement.
> - Connect their choice of legal devices that do not harm the network.
> - Competition [sic.] among network providers, application and service providers, and content providers.[3]

In the above paper, the ITU specifically endorses a technology-neutral telecommunications regulatory regime as a precursor to fostering an NGN environment. The important observation to take away from the above passage is that Australia's regulatory regime already satisfies this fundamental requirement; that is, Australia already has a generally technologically-neutral regulatory regime.

A process in transition

It is important to recognize that there is likely to be a substantial transitional period from the present (where telephony is predominantly managed by way of traditional, switch-based transmission), to the NGN (*i.e.* the true separation of transport and services over an ubiquitous IP platform).

Bearing this in mind, so-called legacy systems and services will need to be maintained and supported during the transition and will, over time, either be phased out or simply subsumed by newer technologies.

Equally, regulatory arrangements will need to support these parallel processes. So, for example, whilst one might hypothesize that 'the standard telephone service will no longer be relevant in an NGN environment', or 'universal service will entail very different regulatory and funding arrangements in an NGN environment', it is important to remember that the regulatory transition ought to continue to facilitate the policy objectives of these measures *for so long as they remain relevant and desirable*, whilst not hindering the progression to the NGN environment.

By the same token, the transition to the NGN environment will entail not only delay relating to market acceptance and regulatory adjustments, but naturally delay due to the development of new technologies and service applications. For example, nascent IP telephony offerings are sensitive to network latency, packet loss and jitter, as well as consumer acceptance of new features (such as instant messaging and presence). In other words, there will not be a definitive cut-over to the NGN environment; regulatory adjustments will be able to be planned and implemented generally in parallel with NGN and service application developments.

Voice telephony as a content service

Content service is defined in the Telecommunications Act as:

- a broadcasting service;[4] or

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[3] NGN Enabling Environment, International Telecommunications Union, Global Symposium for Regulators, February 2007, p.20.

- an on-line information service (for example, a dial-up information service); or
- an on-line entertainment service (for example, a video-on-demand service or an interactive computer game service); or
- any other on-line service (for example, an education service provided by a State or Territory government); or
- a service of a kind specified in a determination made by the Minister for the purposes of this paragraph.

A key question which arises in the context of the emergence of NGNs is whether a voice application service ought properly be regarded as a content service.

The Explanatory Memorandum to the *Telecommunications Bill 1996* (Cth) states:

> The incorporation of a new concept of 'content service providers' is not intended to be used to impose substantial regulation on these persons. The Bill will primarily enable those persons to benefit from access rights under the proposed amendments to the Trade Practices Act (see proposed Part XIC in Schedule 1 to the Trade Practices Amendment (Telecommunications) Bill 1996). The regulation of content remains a matter for the Broadcasting Services Act 1992.
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> …
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> An 'on-line service' is not given a detailed definition. On-line services are an emerging industry, with new types of services being developed on a daily basis. It is not proposed to specify a detailed definition which may have the unintended consequence of not applying to new services as they emerge. Instead, it is proposed to rely on the general concept of an 'on-line service' as it is understood within the telecommunications industry. Clause 15(1) specifically includes the examples of on-line information services and on-line entertainment services.

In other words, at the time of enacting the *Telecommunications Act*, the policy basis for defining a new category of 'service providers' (as opposed to carriers) was to foster competition in the telecommunications industry. It was envisaged that this would be achieved by creating a technologically-neutral legislative framework, supported by telecommunications-specific competition provisions in the TPA.

However, the new sub-category of service providers, being content service providers, was also a given broad ambit, so as to avoid the unintended consequence of not applying to new services as they emerge. It would seem fair to say that the notion of a separation of the transport and applications layers of communications services was probably not in the contemplation of the draftsman of the *Telecommunications Act*. However, on one view, a content service may include a voice communication service which, due to technological developments, is capable of being separated from carriage and may therefore be described as

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[4] broadcasting service is defined in the Broadcasting Services Act 1992 (Cth) as a service that delivers television programs or radio programs to persons having equipment appropriate for receiving that service, whether the delivery uses the radiofrequency spectrum, cable, optical fibre, satellite or any other means or a combination of those means, but does not include:

a service (including a teletext service) that provides no more than data, or no more than text (with or without associated still images); or

a service that makes programs available on demand on a point-to-point basis, including a dial-up service; or

a service, or a class of services, that the Minister determines, by notice in the Gazette, not to fall within this definition.

'any other online service'; that is, a 'content service' within the meaning of that term in the *Telecommunications Act*.

In support of this contention are the following further considerations:

- that content service providers are also subject to industry codes and standards pursuant to Part 6 of the *Telecommunications Act* (and therefore the detailed regulation of such services may be executed in a very adaptive and dynamic manner, as new services and technologies emerge); and
- that the ACMA may make a written determination setting out rules that apply to service providers in relation to specified content services,[5] which again allows for a highly adaptive and flexible regulation of such services.

However, the question remains as to the purpose and utility of regulating voice telephony services (and potentially other basic communications services) in this manner. Even if it is possible to regulate such services as content services, is there any point in doing so?

It would seem that it will probably not greatly matter in the short-term, as the emphasis will continue to be on traditional voice telephony as an integral component of a carriage service. However, as we move closer to an NGN environment, policy makers will need to consider whether a separate category of basic communications service provider is warranted, for instance, as an adjunct to the STS (or its future NGN equivalent).

The standard telephone service

The current legislative regime for regulating telecommunications maintains a strong focus on the STS.

Section 6 of the *Telecommunications (Consumer Protection and Service Standards) Act 1999* (Cth) (the '***CPSS Act***') sets out minimum functional and availability standards, as well as a 'connectivity test' for the STS. In simple terms, the STS is a carriage service for the purpose of voice (or voice equivalent) service, which enables the end-user to ordinarily communicate with each other end-user of that service for the same purpose, whether or not they are connected to the same network.

The current regulatory regime is adequately framed to cope with a diverse range of basic communications services (including but not limited to voice), including those which have recently come into existence (such as peer-to-peer voice over internet protocol ('**VoIP**')) and those which appear likely to emerge in an NGN environment. For example: the STS is defined in technologically-neutral terms; the Minister may cause a declaration to be made which extends the STS to additional purposes[6] (which may include, for example, the carriage of data, tone signalling,[7] messaging, text or video). Further, the Minister may cause a declaration to be made which specifies the characteristics of the STS,[8] including performance characteristics.[9] In short, the breadth and flexibility of the definition of the STS in the *CPSS Act* lends itself to maintaining the existing policy basis for the STS as we head towards an NGN environment.

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5 See Telecommunications Act 1997 (Cth), section 99.
6 See CPSS Act, paragraph 6(1)(c).
7 See CPSS Act, sub-section 6(3).
8 See CPSS Act, paragraphs 6(1)(e), (f) and (g).
9 See CPSS Act, sub-section 6(5).

Importantly, in making a recommendation to the Governor-General that the STS be extended to include additional purposes, the Minister must have regard to whether a carriage service for that purpose can be supplied using the same infrastructure as is, at that time, being used by universal service providers to supply a STS for voice telephony.[10] In other words, the STS is intended to be (and remain) an ubiquitous (or near-ubiquitous) service.

Voice communications services perform a fundamental and enduring social function. However, the STS as we know it today will be challenged by NGNs. The NGN allows for greater propagation of different types of voice services, such as VoIP, VoDSL, peer-to-peer communications, with correspondingly different technical standards, QoS, price and features. The general consensus seems to be that 'voice services' will become but one of many applications to be delivered over an ubiquitous transport platform (*i.e.* the NGN). As the ACMA acknowledges in its *Top Six Trends* Paper, this poses a significant challenge to the current 'voice-centric' telecommunications regulatory framework: 'The regulatory framework was designed in a circuit-switched network environment and the transition to IP-based networks has forced ACMA to consider how existing regulations translate to an IP environment.' (at p.11)

The STS and beyond…

There appears to be a common misconception that all voice services are, or must be, a STS.

The proper understanding of the STS is, at its simplest, that of a carriage service for the purpose of voice telephony (and if voice telephony is not practical for a particular user with a disability, then another form of communication that is equivalent to voice telephony), where the service passes a connectivity test such that the end-user is ordinarily able to communicate by means of the service, with each other end-user who is supplied with the same service for the same purpose, whether or not the end-users are connected to the same telecommunications network.[11]

It is instructive to quote the Explanatory Memorandum to the *Telecommunications Bill 1996* (Cth) at length in order to understand the policy basis for the STS:

> The standard telephone service is a fundamental concept in the Act. The concept plays a central role in the provisions relating to the universal service regime (Part 7), continued access to untimed local calls (Part 8), the Telecommunications Industry Ombudsman (Part 10), protection for residential customers against failure by a carriage service provider (Part 11), the provision of emergency call services (Part 12), pre-selection (Part 17), calling line identification (Part 18), operator services (Part 2 of Schedule 2), directory assistance (Part 3 of Schedule 2) and itemised billing (Part 5 of Schedule 2).
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> *The use of a uniform concept of the standard telephone service reflects the practical reality that there is a basic carriage service, based on voice telephony, that the community expects to be available (with this goal being achieved through the USO) and to which certain attributes (e.g. untimed local calls, directory assistance, etc) attach***.** [emphasis added]
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> In practical terms the concept of the standard telephone service has much in common with the standard telephone service concept in the 1991 Act. The definition has, however, been recast for a number of reasons: to focus attention on the functionality of the service, namely basic communications (by voice, or an equivalent service for end-users with a disability); to make the definition technologically neutral; to avoid uncertainty about the

[10] See CPSS Act, paragraph 6(4)(a).
[11] See CPSS Act, section 6.

meaning of 'public switched telephone service'; to accommodate non-voice users of 'voice services'; to support a consistent definition of the standard telephone service throughout the legislation; and to enable a better, more transparent approach to be taken to definition of the universal service obligation (USO).

… In practical terms, 'voice telephony' is intended to refer to communications by voice by telephone. The key idea behind the concept is the 'plain old telephone service' or simple, real time, two-way voice communication. By basing the standard telephone service on voice telephony (or its equivalent for people with a disability) the legislation sets a firm baseline below which the standard telephone service cannot fall.

… It is intended that in determining whether end-users supplied with the 'same service' are able to communicate, 'same service' should be interpreted broadly and with regard to the relevant purpose of the standard telephone service, rather than the underlying delivery technology. Thus a person should be able to use the standard telephone service to communicate by voice telephony with any other person supplied with a service to communicate by voice telephony, whether it be supplied, for example, by different types of line links or terrestrial or satellite radiocommunications. It is not assumed that where the standard telephone service is for more than one purpose that communications should be possible across those purposes (e.g. if the carriage of data was declared a purpose, it is not envisaged that a person using the service for voice telephony should be ordinarily able to communicate with a person using the service for data carriage).

… Subclause 17(4) requires the Minister, in making a recommendation to the Governor-General at a particular time about making regulations for the purposes of declaring a 'designated purpose' for the purposes of paragraph (1)(c), to have regard to:

- whether a carriage service for the purpose proposed to be declared by the regulations can be supplied using the same infrastructure as is, at the time, being used by universal service providers to supply a standard telephone service for the purpose in paragraph (1)(a); and
- such other matters (if any) as the Minister considers relevant.

The purpose of this provision is to ensure that the Minister considers whether the same infrastructure would be used to deliver the standard telephone service where that service is for a purpose declared in the regulations. This reflects the view that when consideration is being given to upgrading the standard telephone service, especially for USO purposes, consideration should be given to the implications of, and for, the delivery infrastructure. This will require the Minister to consider whether any upgraded standard telephone service could be delivered using existing infrastructure, and particularly the public switched telephone network. This requirement reflects the practical reality that the standard telephone service has historically been delivered using this network and an upgrade requiring the use (or building) of another network has significant implications that must be considered closely. In giving consideration to this matter, the Minister would consider whether the upgrade to the USO might be better achieved by prescribing a prescribed carriage service under clause 137.

… This provision makes it clear that designated characteristics may include performance characteristics. It is envisaged that particular data rates could be declared as performance characteristics if the carriage of data was declared under paragraph (1)(c). Other examples of performance characteristics which could be declared in regulations include loss limits, noise limits, distortion limits and call failure rates.

The following is a list of regulatory requirements which currently attach to the STS:

- the universal service obligation;[12]
- emergency call services;[13]
- disability standards;[14]
- untimed local calls;[15]
- operator services;[16]
- directory services;[17]
- itemized billing;[18]
- pre-selection;[19]
- calling line identification;[20]
- technical standards relating to interoperability of customer equipment[21];
- protection against failure to provide STS;[22]
- an independent review of telecommunications in regional, rural and remote parts of Australia;[23]
- standard forms of agreement between carriage service providers and end-users;[24]
- the national relay service for persons who are deaf or who have a hearing and/or speech impairment;[25]
- carriers' and carriage service providers' obligation to participate in the telecommunications ombudsman scheme.[26]

The challenge for policy makers in relation to the STS in an NGN environment will be not whether an STS (or similar service) ought to be mandated – it is assumed that the underlying policy basis for an STS (that is, that there be 'a basic carriage service, based on voice telephony, that the community expects to be available')[27] will not change – but rather:

- whether the STS ought to be expanded to include other services or purposes; and
- whether the current list of regulatory requirements which currently attach to the STS (see above) ought to be contracted (or expanded).

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12 See CPSS Act, paragraph 9(1)(a).
13 See CPSS Act, section 147.
14 See Telecommunications Act, section 380.
15 See CPSS Act, Part 4.
16 See Telecommunications Act, Schedule 2, Part 2.
17 See Telecommunications Act, Schedule 2, Part 3.
18 See Telecommunications Act, Schedule 2, Part 5.
19 See Telecommunications Act, Part 17.
20 See Telecommunications Act, Part 18.
21 See Telecommunications Act, para 376(2)(d).
22 See CPSS Act, Part 7.
23 See CPSS Act, Part 9B.
24 See Telecommunications Act, Part 23.
25 See CPSS Act, Part 3.
26 See CPSS Act, Part 6.
27 See Explanatory Memorandum to the Telecommunications Bill 1996 (Cth), above.

For example, it is conceivable (arguably likely) that the STS in an NGN environment will be expanded to include not just telephony, but a broader communications service, which is capable of supporting video, text and/or data transmissions. Clearly such a shift in direction would require extensive policy consideration.

The more challenging consideration for policy makers may be whether to include all of the above regulatory requirements in the NGN-style STS, as a number of those features are likely to become technologically less relevant, or even irrelevant, heading towards and NGN environment.

For example, features which depend upon distance-based means of communications and charging methods, such as untimed local calls, may become of decreasing relevance. Untimed local calls arose from Telstra's (historic) standard call zones (known as exchange service areas, or ESAs; conceptually, they are based on 'close communities').[28] However, these zones bear no relationship with IP network infrastructure; also, typically VoIP providers supply services based on end-user locations, not zones. Further, in the NGN environment, 'calls' will be routed and charged based on different considerations (such as network configuration, efficiencies and volume of data, QoS, applications used and type of information downloaded ('network neutrality')). So, the technological relevance of the untimed local call may wane over time.

Similarly, itemized billing may become less relevant or less important to end-users where methods of charging customers tend more towards the volume of data transmission, rather than the duration of calls.

Features which depend upon the current numbering methodology or having access to information about the end-user's location or equipment may need to be reviewed in due course. For example, the provision of directory services is likely to operate in a different manner with respect to nomadic services; however, there appears to be sufficient flexibility in the Numbering Plan and the regulatory arrangements applicable to the IPND in order to manage such changes in the transition to an NGN. Similarly, operator services (for dealing with faults and difficulties) may be provided in a different manner or by a different category of provider (such as a transport provider, rather than a carriage service provider) in an NGN environment; however, Schedule 2 of the Telecommunications Act already permits of providers to make contractual arrangements for the provision of such service by a third party contractor.

Features which are based upon current methods of network interconnection, such as pre-selection, are also likely to require review in the NGN context.

The ultimate answers to these questions are difficult to predict at this stage. However, three important considerations will shape outcomes: first, the fundamental social policy basis of an STS (or other, similar basic communications service) as 'a basic carriage service, based on voice telephony [but likely in the future to be expanded to include other modes of communication], that the community expects to be available', is likely to remain constant; secondly, end-user expectations (and consumer demand) at the services level are likely to become increasingly important in shaping the STS (or other, similar basic communications service) heading towards an NGN environment, as it appears likely that the range and functionality of applications will increase; and thirdly, any changes to the STS (or other,

[28] See CPSS Act, Part 4, section 108.

similar basic communications service) are likely to occur as a progressive process, rather than requiring sudden regulatory upheaval.

Part 2 – content regulation in an NGN environment

> … the literature that is relevant to the policy initiatives on convergence that different countries have pursued adopts two divergent approaches. On one hand, there is a strain of research that subscribes to technological determinism. This assumes that technology plays a strong direct role in influencing policy and other variables in the media landscape. On the other hand, social shaping theory offers a countervailing approach which rejects technological determinism and submits that a number of variables including policy initiatives can play a strong role in shaping how technology is framed and implemented in social contexts.[29]

Overview

Part 2 of this paper canvasses a number of challenges to content regulation in the context of a converged communications environment. This Part does not attempt to cover all likely issues, but rather identifies an assortment of some of the more important issues for consideration.

Media and communications are converging. Whilst we can observe directions in that convergence, things do take unexpected turns. The thesis of this paper is that the policy prescription ought to be to regulate in generalities for what is certain or likely to occur, allowing flexibility for what may occur, always underpinned by sound social and competition policy. This has largely been the approach to date. However, we are approaching a juncture which dictates that a bottom-up review of the communications regulatory regime is warranted.

In particular, the supply-side of content provision is changing; although the ACMA found that:

> The Australian IPTV and Internet video market is less developed than many other markets internationally. There is yet to be a fully-fledged IPTV deployment in Australia – fewer than five IPTV providers and 15 internet video service suppliers offered full-length professional content to consumers operating in the Australian market in 2007. Supply-side factors are seen as the main barriers to the development of these services. … Smaller ISPs have launched limited IPTV offerings. For example, TPG offers an IPTV over the Personal Computer service. Content providers, content aggregators, ISPs and telecoms providers are experimenting with Internet video websites, ranging from Reeltime's Video on Demand website to selected Channel Nine television shows available for download on the ninemsn website.[30]

Further, the ACMA identified TransACT as the only IPTV[31] provider to offer a 'subscription television-like approach', also noting:

> A common theme coming out of the interviews was that the interest shown in IPTV by telecoms operators and ISPs is due more to the effect of IPTV on customer acquisition

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[29] Menon, op cit., pp. 63–4.

[30] ACMA, IPTV and Internet Video Services, April 2008, p.6.

[31] The ITU-T Standardization Sector has developed the following working definition of IPTV: 'multimedia services such as television/video/audio/text/graphics/data delivered over IP-based networks managed to provide the required level of QoS/QoE, security, interactivity and reliability.' See ITU-T Focus Group on IPTV, 'IPTV vocabulary of terms', FG IPTV-DOC-0082, ITU-T Focus Group on IPTV, USA, 22–26 January 2007.

> and retention rates than to potential revenues. Telecoms and ISPs view IPTV and Internet video services as an avenue for differentiation.
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> However, for content providers, who generally do not have to invest in the infrastructure to deliver the service or sell a package directly to the consumer, the IPTV and Internet video offerings of telecoms operators and ISPs represent a new delivery mechanism and consequently a potential new review source.[32]

Impediments to IPTV and Internet video services identified by the ACMA were:

- the prevalence of capped plans with download limits;
- backhaul costs;
- bandwidth limitations (especially in the context of xDSL services);
- lack of experience by traditional telco/infrastructure players;
- content providers having different market experience and a different way of doing things;
- piracy and peer-to-peer networks (effectively acting as a competitor to legitimate IPTV and internet video offerings).

On the other hand, the ACMA reported that, overseas, PCCW's Now Broadband TV in Hong Kong, has achieved a customer base of 850,000 (equating to 35% of HK homes); France is the largest IPTV market and had more than 1.4 million subscribers in June 2007; and in the US, AT&T and Verizon have both rolled out major IPTV deployments.[33]

In summary, the ACMA found that the industry is in a nascent stage in Australia, with services such as Foxtel iQ, Seven's TiVo service, TPG IPTV, TransACT internet video, Channel Nine's ninemsn (catch-up TV) service and reported that the current estimate amongst industry is that IPTV and internet video will become more common in Australia over the next one to three years.[34]

However, by all accounts, leaps in technology are practically certain to occur in the relatively short-term. This will truly revolutionize communications and the user experience as we know it. For example, in a different report, the ACMA notes:

> … the goal of selling enormous, ultra-thin displays (or even wallpaper) televisions to all homes at affordable prices. Developments are also likely in the form of electronic newspapers, flexible screen, among others. Disposable screens on consumer products may also be feasible. …These developments will lead to a much greater range of display surfaces, with electronic content consequently permeating virtually every corner of people's lives.[35]

On the demand-side, content acquisition is also fundamentally changing: witness the revolution in social networking, peer-to-peer video and consumer-driven content.

The ACMA summarizes the effect of these supply and demand side tensions on the regulatory framework thus:

> Key regulatory elements are being conceptually stretched and pulled. Allowing for the accelerating pace of change, a sustainable regulatory framework would need to provide

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[32] ACMA, IPTV and Internet Video Services, April 2008, pp. 6–7.
[33] Ibid., p.18.
[34] Ibid., p.31.
[35] ACMA, Top Six Trends in Communications and Media Technologies, Applications and Services – Possible Implications, March 2008, pp. 17–18.

> for flexible approaches that are responsive to change and can accommodate new dynamics.[36]

Challenges to content regulation in an NGN environment

Current forms of regulation are insufficient to deal with these vast technological changes. Penfold notes, 'content control in the past has tended to focus on media type, content type and the particular industry involved, new media may make a mockery of this'.[37]

Penfold further argues that diverging laws which govern a particular media type are no longer appropriate given the vast overlap that now occurs between various types of media and that inconsistencies in media laws must be addressed to avoid serious consequences. She writes:

> regulation for traditional media has also assumed that the content is accessible only in a particular medium or in a fixed form, such as in a publication, a film, a radio broadcast, or a computer game. As such, laws regulating content in traditional media have often diverged from one another, but generally without creating serious inconsistencies. However, where they diverge from laws regulating Internet content serious inconsistencies may arise, as the same or equivalent content is often readily accessed both in traditional media and via the Internet.

Penfold takes issue with the Federal Government's insistence on regulating new media as it regulates traditional media and calls for a universal system of media laws. However, solving the conundrum may not be so easy, given the seeming myriad of policy challenges to be addressed. The following lists just some of the regulatory challenges on the horizon in this regard:

- re-visiting media diversity rules;
- jurisdictional challenges for intellectual property protection, social policy and security policy;
- uniform classification of content and the protection of minors;
- the need for flexibility to accommodate ongoing technological changes;
- managing the digitization of television and radio broadcasting;
- competition issues regarding content ownership and distribution (such as traditional broadcasting, versus IPTV, mobile TV and internet content distribution);
- the use of social networks for corporate branding, swaying consumer behaviour and community values and expectations (note also the use of social networking sites in recent Australian and US election campaigns);
- challenges to personal privacy, 'ownership' of personal information and cyber-stalking concerns.

The following sections set out a number of specific areas in which these types of issues are likely to arise (or, indeed, already have arisen).

Issue – swift changes in technology

Van Dijk describes convergence as involving an:

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[36] Ibid., p.1.

[37] Penfold, Carolyn (2004) Converging content: diverging law, Information & Communications Technology Law, 13:3, 273, at 274.

> integration of transmission lines, transmission capacity and transmission and reception techniques that amalgamate digitalized media signals by cable (twisted pair phone lines and cable television) and by air (radio and television broadcasting). Data on telecommunication lines and television receivers constitute a fundamental metric assessing the extent of integration.[38]

It is the confluence of digitization, high-speed and high-bandwidth networks, diversity in communications infrastructure and the social web, which are enabling innovations in technology and services and new modes of communication.

For example, digital radio broadcasting, which is scheduled to be rolled-out in 2009, will be capable of transmitting text, multimedia and downloadable music.

Specifically, users can now create, re-use, re-mix and share content on an one-to-one or one-to many basis. Users can now enjoy content in real-time, or at any time that suits their convenience using digital time-shifting techniques (e.g. PVRs, ABC iView; BitTorrent, etc. for TV time-shifting).

The ACCC recognises difficulties in its own role as watchdog, stating that whilst it is required to consider the competitive impact of mergers as far as two years into the future, this task is becoming increasingly difficult given the speed of technological change.[39]

Issue – interaction between different regulatory systems

Convergence of media forms means a convergence of different media policy, which creates difficulties in itself. For example, telecommunications providers are used to complex, prescriptive codes that define their rights in the legal landscape. They are also used to close scrutiny by a regulator. Whereas, internet providers are used to greater legal freedom and less constant scrutiny. The internet mantra, 'information enjoys being free', has largely been applied to internet regulation.

It remains to be seen which approach a comprehensive or universal system would adopt. And then there is the additional complication, being the difficulty in getting a further group of stakeholders, namely media proprietors, to conform to a different form of regulation.

Issue – globalized content

Verhulst points out, 'in addressing the new regulatory paradigm, governments do not have the comfort of being able to consider issues simply within the confines of their four territorial walls.'[40] 'Consequently, technological advances such as innovation-based converged services transcend traditionally defined political boundaries. Therefore industry and policymakers need to be cognizant of such boundary erosion in the development of their services and policy initiatives'.[41]

Menon contends that the US, India, South Africa and Japan have all taken different approaches to regulating for convergence and have all been vastly unsuccessful – his paper is based on a review of the regulatory frameworks in those countries.

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[38] Jan Van Dijk, The Network Society, Sage Publications, London, 1999.

[39] See, e.g. The Age, 'Competition Still Rules in Digital Age', 20 May 2006.

[40] S. G. Verhulst, About scarcities and intermediaries: the regulatory paradigm shift of digital content reviewed, in L. Lievrouw and S. Livingstone (eds), The Handbook of New Media, Sage Publications, London, 2002, pp. 432–47.

[41] Menon, op cit., p.60.

Herman and McChesney state, 'global convergence has created greater uncertainty in what had been relatively stable global oligopolistic media, computer, and telecommunications markets.'[42]

So, with user-produced content being created globally, governments can only effectively legislate for information that is locally produced (uploaded to internet in Australia). There is no effective way around this: Penfold notes that the Government would have full control if it banned or blocked all content that was not Australian in origin. But in reality this renders the benefits of convergence otiose and would isolate Australia technologically, socially and economically.[43]

In Britain, the *Electronic Communications Act* has already cleared the ground by providing for security and digital signatures.[44] But, Tambini contends that the laws and institutions that regulate broadcasting and communications remain fundamentally concerned with a world in which copper wires carried mainly voice phone calls and the airwaves carried the BBC plus (more recently) a few commercial players. They are simply not designed for a world in which global access to audiovisual content, shopping, wireless and other converged services becomes the norm. According to Tambini, communications reform could be a crucial enabler: providing the competitive environment to spur rollout, the open environment to bring new entrants into the market, and streamlined, predictable regulation for industry.

Issue – destruction of local content

O'Regan and Goldsmith see media (especially broadcasting) as a form of cultural production and question the impact of convergence (and policies relating to convergence) on this cultural role. They contend that 'audiovisual policy making has historically been part of both a broader cultural policy agenda and a broadcasting policy one.'[45] They go on to opine, 'the prospect of digital television, multichannel marketplaces, and varieties of platform for the delivery of audiovisual content promised to decisively change the economics of local production and challenged the adequacy of existing support and regulatory structures.'[46]

This issue was also addressed by European Union's High Level Group on Audiovisual Policy (1998):

> The European audiovisual market is already fragmented, due to linguistic and cultural diversity. The danger is that the channel proliferation brought about by digital technology will lead to further market fragmentation, making it even more difficult for European producers to compete with American imports.

Legislators may face a difficult challenge in finding a balance between convergence and promotion of local content. Whilst prescribed local content standards and prescribed advertising standards may apply to local broadcasting, it is impossible to apply such standards to the internet.

Notably, this issue prompted Nationals Senator Barnaby Joyce to threaten to cross the floor and vote against the (then) Howard Government's proposed media reforms in order to ensure protections for regional media diversity.[47]

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42 Edward Herman and Robert McChesney, The Global Media, Cassell, London, 1997.
43 Penfold, op cit., p.286.
44 See also the Electronic Transactions Act 1999 (Cth).
45 O'Regan and Goldsmith, Making Cultural Policy Meeting Cultural Objectives in a Digital Environment, Television & New Media, Vol. 7 No. 1, February 2006, p.69.
46 Ibid., p.82.
47 See, e.g. The Australian, 'Demand to protect diversity of media', 24 July 2006.

Issue – allowing convergence may restrict competition

Menon argues that the push towards convergence in developed markets such as US and Japan forces smaller competitors that rely on analogue systems and non-for-profit groups out of competition. He argues that convergence favours only a minority of organizations with the technology and income to provide a multitude of digital services. (Compare this argument with argument that technology allows for content creation by many – thus dispensing with problem of monopoly in the media.[48])

O'Regan and Goldsmith are also concerned about the potential for restricted competition, saying:

> blurring of the boundaries between media and telecommunications companies through mergers and takeovers that have created entertainment and telecommunications companies of unprecedented power and reach.[49]

Accordingly, it is suggested that a key policy concern is that any new regulatory measures must not allow for one entity to claim a dominant position over the burgeoning communications sector.

Issue – potential problems with copyright

Perlmutter contends that convergence creates problems with copyright, especially with users uploading links and pirated music to Facebook and MySpace sites. She says it is impossible for authorities to respond to every copyright infringement that occurs as a result of file sharing. With so much 'shared information', she contends copyright becomes 'meaningless because unenforceable'.

This issue was highlighted in a recent extended report in *The Age*:

> File-sharing is no longer just in the realm of frustrated Star Trek fans, with almost every television show that screens in the US or Britain available online within 24 hours at DVD quality or better. Movies are also often available before they even open in the cinemas. In Australia, Nine's real-life crime series Underbelly created an online frenzy after a court order banned its screening in Victoria. The entire series was available online before it even finished screening in the rest of the country, with Nine powerless to intervene.
>
> …
>
> For years Australia's copyright enforcers have privately admitted they have no intention of dragging local file-sharers through the courts US-style. The head of the Australian Federation Against Copyright Theft now publicly admits the group has no interest in prosecuting file-sharers. Executive director Adrianne Pecotic says AFACT has more interest in catching those releasing bootleg movies than those sitting on the couch downloading them for their private consumption.[50]

Conclusion

This paper does not attempt to resolve the many and varied issues regarding the regulation of content in an NGN environment; rather, it is seen as this stage as being important to embark on a process of identifying the key issues of concern.

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[48] See, e.g., The Australian, 'Media Mergers Still Clouded', 20 May 2006.
[49] O'Regan and Goldsmith, op cit. pp. 85–6.
[50] The Age, 'An epidemic in illegal downloading', 25 September 2008.

Clearly policy makers will need to identify where new regulation needs to be cast, having regard to existing policy – or even the need for an entire rethink on policy in specific areas. Certainly the approach which has been adopted to date is described by Menon as follows:

> …given the costs involved in policy transformation based on swiftly changing technologies, rather than aiming for an idealized grand reform, it might be more rational and cost effective to 'muddle through' the process of convergence at an incremental pace.[51]

[51] Menon, op cit. p.75.