The Emergence of Wireless Broadband in Australia

Peter Millett looks at wireless broadband in Australia and its regulation.

Wireless broadband has become a major player in the telecommunications market, offering consumers and businesses new options for internet connectivity. But what are the regulatory challenges faced in this rapidly evolving sector? In this article, Peter Millett explores the landscape of wireless broadband in Australia, examining the regulatory framework and potential hurdles that operators and consumers may face.

Millett begins by outlining the current state of wireless broadband in Australia, highlighting the growth in demand and the various technologies being deployed. He then delves into the regulatory landscape, discussing the role of government and the potential implications of different regulatory approaches.

Millett's analysis covers issues such as spectrum allocation, data privacy, and the impact of technological advancements on the market. He also considers the role of competition and the need for continued investment in infrastructure.

Throughout the article, Millett provides insights into the challenges and opportunities presented by wireless broadband in Australia, offering a comprehensive overview of this dynamic sector.
The Rise of the Wireless Broadband

Wireless broadband is simply a broadband internet service provided via a wireless connection. It can be provided from a number of bands of the radio frequency spectrum and using various wireless technologies. Examples include the 2.4GHz, 5.2GHz and 5.8GHz licensed bands for wireless fidelity (or WiFi) services, 3G telephony systems which use wideband digital radio technology and Telstra’s Mobile Broadband service which uses EV-DO (evolution-data optimized) technology from Nortel.

Some of the benefits of wireless broadband for the provider are the relatively low cost of establishing a network (compared with rolling out a new cable network) and the speed with which it can be deployed. For the customer, the service is simple to set up and in many cases allows the customer to change locations without having to reconnect. It has the potential to provide higher data rates over greater distances than DSL or cable technologies.

Wireless systems are a viable alternative to Telstra’s copper pairs for last mile access to the internet. They are attractive to city-based consumers who cannot access DSL or cable broadband and professionals who spend a lot of time on the road or work outside of business hours. They have great potential for rural and regional areas where the cost of deploying a fixed line service is prohibitive.

Technologies and Standards

A number of different technologies and standards have emerged for the delivery of wireless broadband services. They include WiFi and WiMAX (Worldwide Interoperability for Microwave Access). WiFi is a local area service while WiMAX is a wide area service.

The Institute of Electrical and Electronic Engineers (IEEE) is the US standards-making body responsible for the development of standards for WiFi and WiMAX. WiFi generally refers to the IEEE 802.11 series of standards covering wireless short-range communications equipment. WiMAX refers to the IEEE 802.16 series of standards currently being finalised by the IEEE. WiMAX will offer wireless broadband services over greater distances than DSL or cable technologies.

Wireless systems are a viable alternative to Telstra’s copper pairs for last mile access to the internet. They are attractive to city-based consumers who cannot access DSL or cable broadband and professionals who spend a lot of time on the road or work outside of business hours. They have great potential for rural and regional areas where the cost of deploying a fixed line service is prohibitive.

The 802.11 standards support the transmission of information by radio signals from a laptop computer (using a network access card or embedded chip) to a nearby access point. This enables users to access the internet within a dwelling, a wireless local area network (WLAN) of a business or a WiFi "hotspot". Network coverage of up to 100 metres from a base station is often available.

WiFi hotspots have been installed in locations such as cafés, airport lounges, restaurants, shopping centres and university campuses. Some hotspots provide free access to the internet while others charge a time-based fee. Examples of wireless services include SkypeNetGlobal’s wireless hotspots service, BigAir’s wireless broadband service, the Telstra Wireless Hotspots service and the Optus Wireless Connect service.

When released, the 802.16e version of WiMAX will be a significant improvement upon WiFi. It will extend coverage over longer distances and at higher speeds, enabling subscribers to access the internet up to about 50 kilometres from a base station. With a range such as 802.11a in the 5.2GHz and 5.8GHz bands and 802.11b & g in the 2.4GHz band.

The 802.11 standards support the transmission of information by radio signals from a laptop computer (using a network access card or embedded chip) to a nearby access point. This enables users to access the internet within a dwelling, a wireless local area network (WLAN) of a business or a WiFi "hotspot". Network coverage of up to 100 metres from a base station is often available.

WiFi hotspots have been installed in locations such as cafés, airport lounges, restaurants, shopping centres and university campuses. Some hotspots provide free access to the internet while others charge a time-based fee. Examples of wireless services include SkypeNetGlobal’s wireless hotspots service, BigAir’s wireless broadband service, the Telstra Wireless Hotspots service and the Optus Wireless Connect service.

The 802.16 series of standards cover wireless short-range communications equipment. WiMAX refers to the IEEE 802.16 series of standards currently being finalised by the IEEE. WiMAX will offer wireless broadband services over greater distances than DSL or cable technologies.

Wireless systems are a viable alternative to Telstra’s copper pairs for last mile access to the internet. They are attractive to city-based consumers who cannot access DSL or cable broadband and professionals who spend a lot of time on the road or work outside of business hours. They have great potential for rural and regional areas where the cost of deploying a fixed line service is prohibitive.

The 802.11 standards support the transmission of information by radio signals from a laptop computer (using a network access card or embedded chip) to a nearby access point. This enables users to access the internet within a dwelling, a wireless local area network (WLAN) of a business or a WiFi "hotspot". Network coverage of up to 100 metres from a base station is often available.

WiFi hotspots have been installed in locations such as cafés, airport lounges, restaurants, shopping centres and university campuses. Some hotspots provide free access to the internet while others charge a time-based fee. Examples of wireless services include SkypeNetGlobal’s wireless hotspots service, BigAir’s wireless broadband service, the Telstra Wireless Hotspots service and the Optus Wireless Connect service.

When released, the 802.16e version of WiMAX will be a significant improvement upon WiFi. It will extend coverage over longer distances and at higher speeds, enabling subscribers to access the internet up to about 50 kilometres from a base station. With a range such as 802.11a in the 5.2GHz and 5.8GHz bands and 802.11b & g in the 2.4GHz band.
Not SO hot spot

Coffee Cold

Nothing

Out the door

Communications Law Reform Act 2002

...
The State of Play in Games Regulation

Simone Brandon identifies some of the problems with Australia’s multi-level approach to regulating games on mobile phones and elsewhere and outlines Hutchison’s position

Instructons

When the Greek government intro

duced a law banning any form of elec

tric, electro-mechanical gambling

game devices many people wondered

what the regulatory world was coming
to. The Greek government passed thelaw because it said it was incapable of
distinguishing innocuous video games

from illegal gambling machines and so
it was best to ban all games1. Whilst
the law was subsequently held to be
 unconstitutional2 it begs the ques

stion - what is the best way to regulate
games? In the Australian context the
issue is broader than distinguishing
games from gambling. The key ques

tion is how to achieve regula

tory consistency across game content
regardless of the means of delivery.

“The key question is how to achieve regulatory consistency across game content regardless of the means of delivery”

Games are available to purchase and play using a variety of technologies. Platforms include PC, console (eg Xbox, PS2), handheld (eg GameBoy Advance), mobile proprietary handsets (eg N-Gage) and miscellaneous applications (eg toys such as Tamagochis and PDAs). In the mobile telecommunications arena games are offered via SMS, WAP and Java applications. Many mobile phones offer sophisticated games for users - the advent of 3G technology even allows for interactive multiplayer gaming experiences to occur between users who do not know each other and may be in different locations within Australi

a. Apart from the range of games and the quality of game experience the main difference to the user is how the game is accessed. PC, console and handheld games are purchased on physi

cal media where as mobile telecommunica
tion games are obtained directly from
the mobile or are requested online
and sent to the mobile phone.

The variety of games and technological
platforms creates the need for a consis

tent regulatory approach. However
this is not currently the case; games regula

tion is found in a number of regulatory
frameworks.

Level 1

The first regulatory stage is the Com

monwealth Classification (Publica

tions, Films and Computer Games) Act

1995. A “computer game” is defined
as a computer program and associated
data capable of generating a display on
a computer monitor, television screen,

liquid crystal display or similar medium
that allows the playing of an interactive
game. To be advertised, sold or hired
computer games must be classified by
the Office of Film and Literature Classi

fication (OFLC) under the Guidelines
for the Classification of Films and Com
puter Games 2003 (OFLC Guidelines)
and must carry the appropriate classifi

cation on packaging.

The OFLC has indicated that it only
classifies games which can be physically
purchased, for example on a cartridge
or memory stick. It does not classify
games which may be delivered wire

lessly to mobile devices or via the inter

et unless requested to classify a game
by the Australian Broadcasting Author

ity (ABA).

Level 2

The second regulatory framework is
found within Schedule 5 of the Broad

casting Services Act 1992 (Online Pro

visions). These provisions regulate the

provision of “Internet Content” - defined
somewhat circuitously as stored infor

mation provided by means of a listed
carriage service that enables end-users
to access the internet.

Under the Online Provisions, a person
may complain to the ABA about “pro

hibited content” or “potential prohibi

ted content” on the internet, and the
ABA must investigate the complaint.
“Prohibited content” is content that has
been classified Restricted Classification or
X by the OFLC, or as R where access to
the content is not subject to a restricted
access system. As there is no R rating
for games, any game available on the internet that has been refused classifi

cation would be prohibited content.
A game will be potential prohibited
content if it has not been classified by
the OFLC, but if it were to be classified,
there is a substantial likelihood that the
content would be prohibited content.
If the ABA is satisfied that the game
contains potential prohibited content,
the ABA must request the OFLC to clas

sify the content.

The Online Provisions clearly apply to
the provision of games by Australian provid

ers in Australia on the world wide web.
Whether the Online Provisions extend
to the provision of games (or content in
general) delivered by a mobile carrier
to a mobile phone is likely to be a topic
of debate between regulators and mobile
 carriers and is a topic that goes beyond
the scope of this article.

The Department of Communications,
Information Technology and the Arts
(Department) has completed a review of
the regulation of content delivered
over mobile telecommunications devic

es. This review seeks to capture informa

tion about the range of convergent
mobile devices, the breadth of content
available, report on the extent to which
existing regulatory frameworks give rise
to new services and consider what addi

tional regulation may be necessary.

Members

The ABA is restricted to a maximum of
7 members, who are appointed once for
a total appointment period of 10 years. In the ABA, the members can only be dis

missed on very limited grounds, such as
dishbehaviour. The ACA has capacity for up
to 5 members3, who may be dismissed on
a number of grounds, including unsat

isfactory performance for a significant
period of time.

ACMA will be able to have up to 9
members, with an unlimited number of
associate members. There is no limit on
the number of all other members. ABA
members can be reappointed, although
there is still a total appointment time
of 10 years (which includes any time
as a member of the ABA or ACA). The
members will also be subject to provi

sions relating to disclosure of interests
(both a standing obligation to disclose
and an obligation to disclose before
deciding a particular matter) and, like
the ACA, the termination provisions are
broader than those currently in opera

tion. ABA members will not be termi

nated for, among other things, unsatisfactory performance for a signifi

cant period of time, physical or mental incapacity, or misbehaviour.

Divisions

The ACMA allows for the creation of
Divisions of the Authority4. The
Authority chooses which members are
to comprise the Division, although the
Chair of ACMA may nominate to be part
of any Division. A Division’s powers and
functions are to be dealt with by each
Division, and must make a determina

tion with regard to the type of matters
that a Division may deal with5. There
is no restriction on the matters which may
be delegated to a Division, provided
that the matters delegated accord with
the kinds of matters the Division can
deal with6. Although neither the ABA
nor ACA have the ability to create Divi

sions work presently undertaken by
specialised committees in these agen

cies (involving their Authority members)
represents an informal divisional struc

ture in many instances. It is possible
that formal ACMA Divisions will under

take much of the work of these exist

ing Committees of the ABA (such as the
Planning & Licensing Committee) and
the ACA (such as the Radiocommu
nications Steering Committee), although
any decision to create and delegate to
the new Divisions will ultimately be a
matter for the ACMA members.

Corporate Structure

Currently the ABA and ACA are govern

ment agencies prescribed under the
Commonwealth Authorities & Compan
ies Act 1997 (CAC Act). ACMA is to be
prescribed under the Financial Services
& Consumer Credit Practice Standards
& Accountability Act 1997 (FMA Act).
What does this mean in practice? Essent
ially, ACMA will be subject to a direct
slight more rigorous set of financial regula

tions concerning such issues as procure

ment, expend

iture, and budgeting, and it will also be
subject to the Commonwealth Legal
Services Directions in its entirety.
The Chair, who will also be the Chief Exec

utive of ACMA, will have ultimate legal
and financial responsibilities for the
management of the agency. Under the CAC
Act, the ABA and ACA members bear
collective responsibility for the strategic
management of the agency. Each agency
will not be the case in ACMA. In ACMA,
the role of Authority members will be

The merger will assist in dealing with present challenges facing the ACA and ABA in regulating new and emerging technologies”

1

The decision as to what changes may be imposed for services or expenses incurred will be a matter for the ACMA members.

2

What Will Stay the Same?

The creation of ACMA is intended to be a minimal change model in terms of the impact it will have on the consumers, agencies and industries concerned. Detailed below are some of the key features of ACMA which will continue existing ACA or ABA arrangements.

Regulatory Regime

There will be no significant change to the current regulatory regimes2, so the current legislation and rules will still apply. One of the major recommenda

tions of the ECITA Committee was that the ACMA Act be amended to require a major review of ACA’s operations and the entire regulatory policy for commu

nications within 18 months of its estab

lishment. This recommendation was reflect

ed in the Senate amendment made to the
ACMA Act in the Senate, however it was
not accepted by the House of Represen

tatives and did not ultimately become

part of the legislation. In its submission
to the Committee, DCITA indicated that
changes to the regulatory frameworks will be addressed as and when they are needed4.

Because there are not going to be any significant changes to the Acts that the ACMA will administer, ACA and ABA staff skills and knowledge will remain relevant, ensuring that the new Agency commences with of the necessary corporate and historical knowledge concerning the operation, interpreta

tion and application of the regulatory regimes.

Location and Staff Arrangements

In the first instance, ACMA will have three offices located in Sydney, Canberra and Melbourne, with regional offices in Coffs Harbour, Newcastle, Bris

bane, Cairns, Townsville, Darwin, Rock

hampton, Adelaide, Hobart, Wodonga,
Introducing Your New Regulator: ACMA

and what will stay the same 2000 and revised regulation, what will change?

First paragraph:

In May 2004, the new ACMA (Australian Communications Media Authority) was established. ACMA is the successor to the recent merger of the Australian Broadcasting Authority (ABA) and Australian Communications Authority (ACA). ACMA now has the responsibility for the implementation and enforcement of the Telecommunications Act 1997 and the Broadcasting Act 1992.

Second paragraph:

The Telecommunications Act 1997 and the Broadcasting Act 1992 are the main legislative frameworks under which ACMA operates. The Telecommunications Act 1997 provides for the regulation of the telecommunications sector, including the provision of telephone, internet, and other communications services. The Broadcasting Act 1992 governs the regulation of the broadcasting sector, including television, radio, and other broadcasting services.

Third paragraph:

ACMA's role is to ensure that the telecommunications and broadcasting sectors operate in the public interest. ACMA is responsible for promoting competition and innovation in the sector, protecting consumers, and ensuring that the sector operates in a way that is fair, transparent, and accountable.

Fourth paragraph:

ACMA's regulatory powers are broad and include a wide range of functions, such as the regulation of the provision of telecommunications and broadcasting services, the management of spectrum, and the enforcement of consumer protection laws. ACMA is also responsible for issuing licenses and permits, and imposing penalties for breach of regulations.

Fifth paragraph:

ACMA's powers are derived from the Telecommunications Act 1997 and the Broadcasting Act 1992, and are subject to the oversight of the Australian Parliament. ACMA is accountable to Parliament and is subject to the scrutiny of the Australian Government.
to the three potential regulatory framework for games, there is an inconsistent approach to providing access to games. The result is that games that fall within the MA15+ category are:

- restricted to purchases over the age of 15 when provided on a computer;
- restricted to users over the age of 15 when provided on a mobile phone;
- not restricted when provided on the world wide web.

Again, Hutchison and other industry players have been actively involved in providing input to the ACA to assist in developing the proposed service provider determination, expected to be issued by the ACA in June 2005.

There are four key elements for the effective regulation of content services, including games:

- **Age verification**
  Providers of age restricted content should verify age and ask for identification unless access to such content is made by the account holder for the relevant service and that the account holder is 18 years or over.

- **Pre-assessment of content type**
  An “assessment” process is the most viable solution. A recognised expert industry association could undertake the administration of the content assessment scheme and assess standards could be overseen by ACMA. The association could maintain a register of accredited assessors and ensure accreditation standards for assessors are maintained in consultation with ACMA.

- **Complaint handling and issues resolution**
  Where there is a complaint about game content ACMA (currently the ACA) could be notified and receive escalated complaints and take down notices as is the case for Internet content. Similarly, content classification matters could be referred to the OFLC.

### Table 1 - Comparison of personal computer and DVD player

<table>
<thead>
<tr>
<th>Feature</th>
<th>DVD Player</th>
<th>Personal Computer</th>
</tr>
</thead>
<tbody>
<tr>
<td>User programmable</td>
<td>Non-user programmable</td>
<td></td>
</tr>
<tr>
<td>Software-based operating system</td>
<td>Hardware-based operating system</td>
<td></td>
</tr>
<tr>
<td>Less tamper resistant</td>
<td>More tamper resistant</td>
<td></td>
</tr>
<tr>
<td>Few licensing obligations</td>
<td>Many licensing obligations</td>
<td></td>
</tr>
</tbody>
</table>

### Game Over

**Simone Brandon is Corporate Counsel at Hutchison Telecos**

[Endnotes]

1. [Detail of note 1]
2. [Detail of note 2]
3. [Detail of note 3]
4. [Detail of note 4]
5. [Detail of note 5]
6. [Detail of note 6]
7. [Detail of note 7]

The flexibilty to maintain a balanced approach to regulating converged markets. Regulatory consistency is key for consumers, providers and regulators alike. Whilst Australian regulators have not adopted the single bomb approach of the Greeks in attempting to turn off all games, their scattergun approach is also creating problems. There is a need to take a step back and review the entire playing field before moving to the next level.

### The Analog Hole

The issues raised above also indicate that there is an “analog” hole. That is, that digital content is like a genie out of the bottle as soon as it is in the analog world. After all, digital rights management is digital and not analog. Although such devices are visible bugs and invisible watermarks can be used to deter analog copying, these have limited application to personal devices.

In practice, relatively simple devices have worked with the vast majority of consumers. Attempts to make a VHS to VHS recording of a tape hired from a video store are thwarted by the simple operation of “Macro Vision” which is a deterrent used to prevent such copying. On the other hand, electronic hobbyists have used the fact that the prohibition of anti-circumvention devices in the analog domain has not been addressed by Australian copyright law, there are not large numbers of infringers.

### Broadcast Flags

The “broadcast flag”, which has caused so much controversy in the United States and is still the subject of appeal there, is simply a piece of service information which is broadcast with a digital television signal that says to devices which choose to look for it, that this signal was originally broadcast.

Broadly then, if content is delivered to a personal computer it is delivered to an open box and the content is not longer subject to any longer protected and is available for redistribution. Once again, this contrasts to delivery to a closed box, such as a DVD player and leads to the logical conclusion that, from a broadcaster’s perspective, both set-top boxes and personal video recorders should be “closed” if the contractual obligations to rights holders such as the studios are going to be able to be implemented.

**Rob Nicolles is a professional engineer and works as a consultant in the Sydney office of Gilbert + Tobin**
Movement at the Station: Digital

Radio Update

The Federal Government is on its way to developing a policy and regulation framework for digital radio. Cabinet discussion notes and draft legislation have been finalised in preparation for government’s consideration next month. An announcement is expected in the near future.

Recent progress:
- Development of a policy and regulation framework for digital radio
- Cabinet discussion notes finalised
- Draft legislation prepared
- Expecting government consideration next month

Details:
- The framework aims to regulate digital radio services
- It will include provisions for licensing and spectrum allocation
- Stakeholder engagement is ongoing to ensure the framework is comprehensive
- Public consultation will be held before finalisation

Implications:
- Changes to existing radio services
- Opportunities for new digital radio services
- Potential for increased listener reach

Next steps:
- Final approval from the cabinet
- Implementation of the policy and regulations
- Launch of digital radio services

Conclusion:
- The development of a digital radio framework is a significant step towards modernising the radio industry
- It will provide a foundation for future growth and innovation in the sector
- Stakeholders are encouraged to provide feedback to ensure the framework meets the needs of all parties.
Digital Rights Management in Television

Rob Nicholls focuses on digital rights management from an Australian broadcaster’s perspective

This article addresses some of the issues associated with digital rights management that face commercial and subscription television broadcasters, having regard to their particular business needs and constraints. In so doing, it looks at differences between the digital rights management issues faced by broadcasters and those concerned with the treatment of content on personal computers, including issues raised by Internet-boxes, broadcast flags and the problem of the analog hole.

It concludes by looking at some of the practical issues raised by keeping personal video recorders and set-top boxes connected to the television rather than the internet and addressing the balance between the needs of viewers (who are important to both commercial and subscription television broadcasters) and those of the rights holders.

Digital Rights Management in Broadcasting

Digital rights management is simply a set of technologies that enables content owners to specify precisely how they want to give consumers and the conditions under which it is given. The use of the content is determined by the rights holder and in a television environment could include entitlement to:
- watch once as the content goes to air;
- time delay and watch once;
- time delay and watch many times;
- copy once to an external medium;
- copy many times to specified external media, and/or;
- watch, but only on the condition that the viewer has watched some other content (such as an advertisement).

This is an indicative rather than exhaustive list.

Digital rights management includes four core elements:
- Persistent Protection - technology for protecting files via encryption and allowing access to them only after the entity desiring access has had its identity authenticated and its rights to that specific type of access verified;
- Business rights - the capability of associating business rights with content by contract;
- Access tracking - the capability of tracking access to and operations on content; and
- Rights licensing - the capability of defining specific rights to content and making them available by contract.

Commercial Television Broadcasting

The business of commercial television is the sale of advertising. There is an exchange of value whereby consumers watch advertisements in return for enjoyable programming. That is, programming that is designed to entertain, inform or educate in addition to advertising (which is other than this).

Although commercial broadcasters in Australia make television programming, they also buy programming. In particular, commercial broadcasters acquire programs, particularly movies, from the major studios. Popular dramas such as “Lost”, “ER” and even “The Simpsons” are acquired from a small number of organizations (mainly the studios) which have their headquarters in the United States. The importance of the United States in this regard is that the expecta-