INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION STANDARDIZATION SECTOR

STUDY PERIOD 2001-2004

ccTLD Doc 29 Rev.1

Original: English

Workshop on Member States' experiences with ccTLD

Geneva, 3-4 March 2003

DOCUMENT FOR ccTLD WORKSHOP

Source: Liz Williams

Title: Internet Governance in Australia: Modelling Self-Regulatory Structures in the Domain Name System

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Internet Governance in Australia: Modelling Self-Regulatory Structures in the Domain Name System

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Key words

Australian Internet governance, regulatory structures, private sector regulation, domain names

Abstract

This article sets out the development of Internet governance in Australia. It describes the history of the administration of the .au country code and the formation of a private sector not-for-profit regulatory organisation. It also gives some commentary on particular aspects of the establishment of

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[1] The initial ideas for this article were presented on 7 May 2002 at the *Domain Names Systems and Internet Governance* seminar hosted by the University of New South Wales Cyberspace Law and Policy Institute http://www.bakercyberlawcentre.org

[2] The author was a member of the .au Domain Administration's Competition Model Advisory Panel prior to her election to the Board of Directors for the .au Domain Administration during 2001-2002. She is the immediate past Deputy Chair of the Board. She is actively involved in the ICANN community and has worked on both corporate and not-for-profit projects in the field.

She is currently finalising her doctoral dissertation – *The Globalisation of Regulation and its Impact on the Domain Name System: Domain Names and the New Regulatory Economy* - at the Queensland University of Technology (QUT) in the Faculty of Information Technology. The views expressed here are not necessarily those of .auDA or the .auDA Board of Directors and are provided as part of broader doctoral research.

Brief biodata is provided at the end of the article. Research assistance was provided by Bruce Arnold.

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new models for managing the technical resources of the global Domain Name System[3] (DNS) in the context of national jurisdiction.

The article is part of a larger body of work for a doctoral dissertation on the globalisation of regulation and the development of a new regulatory economy. Key concepts for that work include discussion of legislation and regulation; sovereignty and stewardship; ownership and trusteeship; national and international jurisdiction; and commercial and non-commercial treatment of Internet architecture.

The individuals in these developments are important – especially where personalities, rather than processes, have governed many of the regulatory outcomes. Some time is spent examining the input of the classic Postel "apostle", the Federal Government Minister and his views, the contribution of active consumer representatives and technical experts. Regulatory volunteers – from both the corporate and public sector - are well in evidence. They have played a critical role in developing consensus-driven policy now implemented by a not-for-profit regulatory organisation in a highly competitive market place.

There are direct parallels to developments that have occurred at the international level. The Australian process has been more disciplined, more time-bound and more capable of managing distractions than the experience of ICANN.

Introduction

The work here is a case study of how complex and multifaceted domain name system governance has become in a national context. The .au domain name space provides an illustration of the evolution of geographic[4] top level DNS governance at a critical point, at an international level, in the development of ICANN. The process through which the .au domain name space has evolved is instructive when trying to understand the impact of hybridisation of regulation on a global scale.

This discussion is important because it demonstrates a considerable shift in thinking about a technical resource – the numbering system to find Internet resources – to a naming system which has a policy and political life outside of its technical function. In addition, whilst it is not discussed in detail here, the intellectual property protection lobby (both owners of IP and their lawyers) have done much to ensure that domain naming was included in the portfolio of IP protection. Domain names are another dimension of branding and trademarks, for which protection and preferential policy treatment have been hard fought. This fight has had substantial political and commercial implications beyond considerations of the technical capacity of the numbering system.

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[3] "The Domain Name System is an Internet service that translates *domain names* into IP addresses. Because domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses. Every time you use a domain name, therefore, a DNS service must translate the name into the corresponding IP address. For example, the domain name *www.example.com* might translate to *198.105.232.4*. The DNS system is, in fact, its own network. If one DNS server doesn't know how to translate a particular domain name, it asks another one, and so on, until the correct IP address is returned." http://www.webopedia.com/TERM/D/DNS.html

[4] Whilst I have used the common "country code" top level domain (ccTLD) throughout the text, the term "geographic" top level domain better defines the difference between those two letter characters which are used to identify countries and those which are used to identify generic top level domains (gTLDs) such as .com, .net and .org. The term "country code" is not particularly accurate when some country codes are used for territories, for example, in the case of .cx for Christmas Island, when some have been re-purposed for completely commercial use, for example, in the case of .tv or when the control of a country code has been ceded, for example, in the case of .nu, to entities with no real connection to the country. The IANA website holds the definitive list of geographic top level domains at http://www.iana.org

The historical context for consideration of the Australian approach to domain name system governance recognises that "Jon Postel used the ISO3166 code … based on a United Nations register o[f] … 243 'recognised territories' and asked individuals or academic institutions to overtake the responsibility for the management of the ccTLD … No governments have been involved in the definition of ccTLDs and the operations of the relevant registrars started without any legal foundations in the "territories".[5]

Until the formal re-delegation of the .au space to the .au Domain Administration (.auDA) in September 2001, University of Melbourne staff member Robert Elz[6] was the ICANN/IANA delegate. In 1996, the domain name management function for .com.au (which had outgrown Elz' capacity to manage as a volunteer) was transferred to MelbourneIT as part of an arrangement with the University of Melbourne.[7]

Others, in cooperation with Elz, managed closed (in that only those within the particular organisations could register names within the domain) domains such as .csiro[8] and .edu[9] and the open domain .id.au. Information on other closed 2LDs such as .asn.au, .gov.au and .org.au can be found on the .auDA website (http://www.auda.org.au/register/)[10]

The most immediate impact of the decision to re-delegate the responsibility for .au, after the earlier transfer to MelbourneIT, was to separate the registry function (performed by AusRegistry in the new competitive regime) and registrar functions (now performed by a variety of domain name registration businesses). This achieved two goals – the introduction of competition into the provision of registrar services[11] and the opportunity to conduct an open and competitive tender process[12] for the management of the registry.

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[5] Kleinwachter, Wolfgang. ICANN between technical mandate and political challenges. *Telecommunications Policy*, 2000; 24: 559.

[6] Elz's contribution to Internet governance in Australia is considerable. See http://www.networksorcery.com/enp/authors/ElzRobert.htm for his technical work. Recognition of Elz by ICANN is at http://www.cyber.law.harvard.edu/icann/montevideo/archive/res/elz.html. Some anecdotal information is at http://www.peterpoole.info/files/ping.html and more formal treatment is at http://www.lib.unimelb.edu.au/collections/media/internet.ppt.

[7] .net.au was managed by connect.com (http:www.connect.com.au). The *Age* article at http://www.theage.com.au/articles/2002/07/06/1025667076935.html highlights the transition to a competitive market place.

[8] The 2LD, managed by the Commonwealth Scientific & Industrial Research Organisation, which is used to identify its national network of laboratories and other entities. http://www.csiro.au

[9] Geoff Huston's considerable body of work can be found at http://www.potaroo.net/papers.html. Most interesting is the 1996 reference to the *Internet in Australia* and other work on the Request for Comment (RFC) series.

[10] Inactive 2LDs of historical interest include .telememo.au, otc.au and gw.au.

[11] The applications for accreditation as a .au registrar were assessed on a series of objective criteria such as technical capability and financial capacity. Registrars must abide by a series of contractual obligations and must comply with the mandatory Registrar's Code of Practice.

[12] The tender documentation is found at http://www.auda/prg/ai/about/news/2001102201.html. Five companies – from Australia and overseas – submitted bids to provide registry services. The AusRegistry tender and the subsequent contract to provide registry services have clearly articulated policies, rules and service quality standards. This has improved the integrity of the data in the registry, secured that data, increased technical reliability standards and, most importantly, underpins the legitimacy of the management of the .au space by .auDA.

The evolution of the domain name market, in parallel with a regulatory experiment of open DNS governance, remains a work in progress. However, it is now possible to identify a set of factors that have enabled an orderly transition from a monopoly provided service, limited by a highly restrictive name registration policy and, more fundamentally, by uncertainty about policy rules and mechanisms for representation of community views. In addition, there are now clear methods in place to resolve a wide range of potential disputes – for example, with respect to registrar conduct, to the activities of re-sellers, to anti-competitive conduct and the failure to meet suitable technical standards.

The domain name industry in Australia has become a test bed for the development of a hybrid regulatory model. This model includes industry, consumer groups, the broader public and more traditional regulatory agencies engaging in open governance. Active involvement from the Government and legal practitioners, an outspoken and technically savvy Internet community and an influential public have created an environment which recognises the way in which the DNS has, historically, been managed and which has moved the industry to a more predictable and objective regulatory footing.

Other country code administrators, such as those in the Pacific and members of the Asia Pacific Network Information Centre (APNIC) now look to Australia for guidance on sound practices to manage their domain name space.

The process through which the .au domain name space evolved is instructive in trying to understand the impact of the hybridisation of regulation on a global scale.

The broader research seeks to understand some thinking which frames the development of hybrid regulatory models – sovereignty versus stewardship; ownership versus trusteeship; national versus international; commercial versus non-commercial. Balancing these, in the context of DNS governance, remains a challenge to orderly and technically sound management of critical network resources, where the benefits of a globally connected network are only as good as the weakest link.

Internationally, pressure from ICANN to sign its first country code top level domain (ccTLD) contract and the process of re-delegation of the .au domain provided extra impetus to the domestic process. At the same time, ICANN was trying to sign agreements with new open gTLDs such as .biz, .info, .name and .pro and new closed gTLDs such as .coop, .museum and .aero. This "signing up" process was seen as a way to bolster ICANN's legitimacy and mandate to manage the DNS on an international basis.

This article includes some objective measures of success. These are policy development procedures that are inclusive, open and highly sophisticated methods of achieving consensus – or at least tolerant acceptance of reasonable market constraints. Licensing and tendering processes are open and, in terms of the number and quality of participants, highly competitive. The total number of active market players has increased dramatically and, perhaps the best measure of all, prices for domain names for end users have plummeted.[13]

Scope and Definitions

The National Office for the Information Economy (NOIE) defines, on their website, a domain name as "… a means of identifying and locating an organisation or other entity on the Internet. Domain names … are a scarce resource which need to be managed to ensure the efficient allocation of web

[13] An indication of competition as of February 2003 is provided in the price comparison at http://www.whatsinaname.com.au/, with registrations from some registrars priced at around 50% of those from their competitors.

addresses".[14] A domain name is hierarchical and often conveys information about the type of entity using the domain. Domain names at the same level of a particular hierarchy must be unique; for example there can only be one 'smiths.com.au' domain within the .com.au space.

The Australian domain name industry includes entities engaged in the provision of domain name registration services - registry operators, registrars and their resellers, and dispute resolution providers. The prohibition of a secondary resale market for .au domain names means that, in contrast to some other countries, the Australian industry does not feature domain name auction and domain name valuation businesses.

Understanding what domain names are and why they are important to individuals and businesses is critical to placing the discussion here in a realistic, usable context. Domain names are critical as navigation tools on the Internet, critical to brand identification and critical to the utility of Internet resources. As a product or service, the registration of domain names as a business in itself is attractive enough, in the Australian context alone, for eighteen companies[15] to offer registrar services. This does not include over 1,000, or more, resellers who act on behalf of registrars to sell domain name registrations.

It is also important to understand why domain names have an intrinsic "navigation" value. Without a domain name, finding resources on the Internet is highly problematic and relies upon remembering the base "IP" address as a number string rather than the more memorable name it matches.

Domain names have also become part of the lexicon and roadmap of everyday life. One increasingly hears reference to a website (the domain name) in addition to a phone number. The appearance of domain names on the sides of buses, in media advertisements and in correspondence is now so frequent as to be unremarkable. All major corporations have domain names and use their websites to provide information to the public, to sell goods and services or to advertise a physical presence. Increasingly, on-line and off-line businesses rely on a virtual presence to sell their goods and services – without a domain name, customers cannot find them on the Internet.

There is little in the academic literature about the development of domain name system governance in Australia. There have been press articles about the delegation of the .au country code and particularly about the transition from Elz[16] to .auDA. There is much about intellectual property disputes or who has the right to use a domain name; much about privacy, censorship and the use of on-line information; and much about network security but a paucity of scholarly writing about DNS policy and its implementation in Australia.

This article is a contribution to analysis of the .au regime from a policy and regulatory perspective. It examines the development of policy for the management of the Australian country code, the legislative basis for that management and the practical co-regulatory approach now in operation. It

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[14] National Office for the Information Economy at http://www.noie.gov.au. Arguments about the scarcity of domain names have served two purposes – the drive the price of domain names up and to invoke fear within the commercial community. It has been argued that a shift to Ipv6 will solve part of the problem. Further discussion of the purported scarcity of names is found at http://www.tbm.tudelft.nl/webstaf/henrikr/MaastrichtPaper.pdf.

[15] These are identified at http://www.auda.org.au/registrars.

[16] Interesting and quite emotional commentary can be found at http://www.auda.org.au/list/dns/archive/112001/0073.html. Other background material can be found at http://www.auda.org.au/list/dns/archive/112001/0031.html, http://www.auda.org.au/list/dns/archive/112001/0063.html and http://www.lib.unimelb.edu.au/collections/media/internet.ppt

briefly examines the way in which those three aspects parallel international practices for self-regulatory models in general and with ICANN[17] principles in particular.

The industry has, over the last five years, experienced immense change. Those changes include a technology boom and subsequent bust, a change in personalities and focus, a commoditisation of domain names[18], the normalisation of online demographics and a contraction of speculative online activity which soaked up enormous amounts of venture capital but delivered little profit. At the same time the need for new Internet addresses exploded as various common devices, including mobile phones, household appliances and motor vehicles were able to be connected to the Internet.

The Market Landscape

It is important to frame the market context of the Internet in Australia. Again, we focus here on the usage of the underlying technical resources that enable the broader Internet to function effectively. O'Donnell's[19] work on mapping money flows around the Internet is useful but his definition of the Internet is limited to the application and network providers such as internet service providers (ISPs) and backbone suppliers.

More useful here is an understanding of the money and influence flows around the domain name industry itself and the impact that the regulation of the network layer has on the way in which the industry operates commercially. Mapping influence flows and framing the demographics of the global cosmocracy is part of broader doctoral research.

Internationally, the market context for this academic work is framed by the domain name industry's rapid maturity through the 1990s and the broader dot com boom which drove share prices for on-line companies to stratospheric heights before a sustained crash in late 1999 and through 2000[20].

Domestically, there was a significant push towards making the .au space more commercial in its operation and more transparent in its regulatory management. During this time, the .au management was re-delegated to the Australian Government[21] endorsed self-regulatory body, the

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[17] It is worthwhile reading the early Memorandum of Understanding between the US Department of Commerce and the fledgling Internet Corporation for Assigned Names and Numbers (ICANN). It sets out the principles that guided the management of the technical resources on which Internet applications run. The MOU is available at http://www.ntia.doc.gov/ntiahome/domainname/icann-memorandum.htm.

The earlier White Paper is also useful for setting the context for the development of the MOU. Found at http://www.icann.org/general/white-paper-05jun98.htm.

[18] This trend is principally evident in a great reduction in the price of domain names and the widespread acquisition of .au names by businesses, noncommercial entities and individuals.

[19] O'Donnell, Shawn, *An Economic Map of the Internet*, September 2002.

[20] Comprehensive global data on the numbers of domain names at the top level domain (TLD) level, the number and ranking of registrars and the allocation of market share can be found at State of the Domain (http://www.sotd.info).

[21] The Department of Communications, Information Technology and the Arts (DCITA) has official policy responsibility for the oversight of electronic addressing in Australia. The policy is given effect through bodies such as the National Office for the Information Economy (NOIE) and Australian Communications Authority (ACA). The Commonwealth Government's view is expressed at http://www.dcita.gov.au/Article/0,,0_1-2_3-4_107024,00.html.

A perspective on ccTLD redelegation is provided by Hagen and von Arx, in their "Patriation of the .ca" article. Further work on the role of ccTLD managers and their interactions with governments is taking place within the framework of ICANN's proposed ccNSO (http://www.icann.org/general/support-orgs.htm) and within the ITU (http://www.itu.int/ITU-T/worksem/cctld/index.html).

.au Domain Administration[22]. The policy and political significance of the re-delegation of the .au country code is also discussed.

The most recent statistics for the .au registry are provided below. They give a snapshot of how many .au names are registered, in which parts of the domain. The auDA generic names auction is also a useful benchmark of both the popularity and utility of domain names in the .au space.[23] Quoting .auDA's 1 October 2002 press release on generic names, "1,612 generic names were allocated, either to a single eligible applicant or at auction. The highest price paid for a generic name as $153,000 for flowers.com.au. The median auction price was $2,900. Most names were allocated for the minimum reserve price of $100. The process raised approximately $2,611,000 in total …".

In very bald and unscientific terms, one could read these windfall figures as equating to approximately 10% of the total cost of current .au registrations. This assumes that there are approximately 300,000 names in the .au registry and that registrars charge approximately $100 for a two year registration.

Broader statistics on Internet usage and penetration can be found in a variety of sources.[24] Most notable is that the domain name registration industry is, in itself, developing rapidly and following the international trend where domain name registrations have become a very price sensitive, commodity item. The use of the Internet as an information resource, as a mechanism for making consumer purchases and as a branding tool has grown significantly in the last five years – in spite of the significant economic downturn. This means that the development of mechanisms to properly manage and regulate the underlying network resources moves from the realm of "nice to do when we get to it" to a critical infrastructure question which must be answered in a sophisticated and robust manner.

The Internet in Australia is approaching the ubiquity and importance of the telephone. Comparing the sophistication of telecoms regulation in Australia to that which governs Internet architecture illustrates we have some way to go.

Historic Australian Network Information Centre (AUNIC) data can be found at http://www.aunic.net/changes.html. However, some indicators for growth in the .au space are, for example, in 2001 there were approximately 257,000 names in the registry – 229,339 in .com.au, 17,383 in .org.au and 7,841 in .net.au. The most up to date figures for .au can now be found at

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"A domain name (or web address) is a means of identifying and locating an organisation or other entity on the Internet. Domain names, like telephone numbering, are a scarce resource which need to be managed to ensure the efficient allocation of web addresses. au Domain Administration Ltd (auDA) is responsible for the management and registration of domain names in Australia. The Australian Government, through the National Office for the Information Economy (NOIE), maintains a cooperative relationship with auDA, and has observer status on the auDA Board, however does not obstruct in auDA's function as a not-for-profit, industry self-regulatory body." More information can be found at http://www.noie.gov.au/projects/international/index.htm. A copy of the Minister's formal endorsement of .auDA can be found at http://www.auda.org.au/docs/Endorse_Letter_Final.html.

[22] The .au Domain Administration's website (www.auda.org) holds a comprehensive listing of policies, procedures, Board minutes and correspondence, regulatory codes and consumer information.

[23] http://www.auda.org.au/about/news/2002100102.html

[24] Figures on uptake of the Internet by Australian households and businesses (including basic connectivity, hosts per capita, frequency of online sessions and aggregate hours online) are available on the Australian Bureau of Statistics site at http://www.abs.gov.au. For international comparisons see the ITU 2001 ICT figures at http://www.itu.int/ITU-D/ict/statistics/at_glance/Internet01.pdf and the OECD 2002 *Measuring The Information Economy* study at http://www.oecd.org/EN/document/0,,EN-document-29-nodirectorate-no-1-35663-29,00.html.

http://www.ausregistry.com.au/reports/index.php. 2003 figures show that there 316,526 names in the registry – 283,574 in .com.au, 11,498 in .org.au and 16,508 in .net.au. [25]

Rafferty's Rules: Australia's Experience of Rough Consensus and Running Code[26]

The disarray and disappointment of previous attempts at self-regulation[27], restrictive domain name registration policies and the demand from the competition regulator that yet another monopoly be broken, have resulted in a structure which, it could be argued, is heading in the right direction.

Indicators of regulatory success include the garnering of the respect of those subject to regulation, that the industry participates actively in regulatory decision making and tolerates the outcomes. Elz made much of the necessity for support from the diverse Internet community (which was never properly defined) and, in the transition phase, argued that .auDA did not have the support of that group. The construction of effective measures to incorporate the views of the broader user/consumer community is a positive sign illustrated by the development and successful operation of a number of .auDA policy panels which are constituted from a wide range of interest groups. More broadly, compliance with legislative requirements such as the *Corporations Law* and the *Trade Practices Act* is now apparently accepted. Perhaps less well defined is a commitment to the principles of openness and transparency of decision making which have guided Internet governance at an international level and which are intrinsic to the way in which ICANN is supposed to operate. Whether those two principles actually make for better decisions, more efficient governance and more effective management remains moot.

Prior to the formation of .auDA and the formalisation of self-regulatory structures with clear rules and objectives, there was little formal governance of the domain name system. That is not to say that there wasn't a clear commitment by knowledgeable and very enthusiastic volunteers to the work of ensuring that Australia's part of the Internet architecture worked effectively.[28]

As mentioned above, Robert Elz was the delegate responsible for the IANA[29] functions in Australia and worked with others on what became the Australian Academic Research Network (AARNet) linking universities and research bodies.

Elz' trusteeship of the domain name system for .au space, in particular his development and administration of policy for .au domain name registration, was not the result of appointment by the Commonwealth Government or by Australia's (then) monopoly telecommunications carrier.

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[25] These figures are drawn from the (former) AUNIC registry and from data supplied by AusRegistry (http://www.ausregistry.com.au), concentrating on the major 'commercial' 2LDs.

[26] Zittrain, in his review of Mueller's *Ruling the Root*, echoes Dave Clark in referring to "rough consensus and running code" by way of explanation for the manner in which, in the early days, the computing scientists ran the DNS. Zittrain, Jonathan, 'What's In A Name' *Federal Communications Law Journal*, 2002 55:1 at http://www.law.indiana.edu/fclj/pubs/v55/no1/zittrain.pdf

[27] The .auDA website holds archived information at http://www.auda.org.au/archive/adna.

[28] MelbourneIT's Chief Technology Officer, Bruce Tonkin, provides some interesting commentary on 'volunteerism' at http://www.auda.org.au/list/dns/archive/112001/0132.html

[29] A full list of the functions of the Internet Assigned Names Authority is found at http://www.iana.org/. The most important of the IANA functions is to ensure that the country code top level domains are managed in a robust and consistent manner around the world. This includes ensuring that the country administrators conduct themselves effectively…delegations, and the tensions surrounding re-delegations are critical. Close relationship to ICANN and policy functions.

Instead, as in other countries, responsibility reflected the delegation from one wizard[30] to another in relation to a network that was managed by a small group of engineers – often with close personal links – but with no commercial interests in what they were doing.

A comprehensive public policy framework didn't underpin delegation. Indeed it predates by several years the publication of the key Internet Request For Comment (RFC) on country code top level domain (ccTLD) delegations. Equally important, given the shape of the early Internet, is that regulatory arrangements such as delegations were not reflected in a publicly available suite of policy statements, such as rules about .au name allocation and resolution of disagreements with the trustee.[31]

Uptake of the Internet by Australian government agencies, businesses, educational institutions, other organisations and individuals placed significant pressure on Elz and those volunteers to whom he had delegated responsibility for other 2LDs. That pressure was quantitative (handling ever increasing numbers of registration requests) and qualitative (responding to criticisms about delays in processing requests for registrations or about what some perceived as the absence of comprehensive policy statements attuned to commercial realities as the dot com boom gathered pace).

It was reflected in increasing attention from the Commonwealth Government and from a range of business and community groups such as the Internet Industry Association (IIA) and the Internet Society's Australian chapter (ISOC-AU).[32]

During the early development of new regulatory arrangements, there is great opportunity for personalities (either individual or corporate) to exert enormous influence over the regulatory agenda. This has certainly been the case in Australia.

Until the processes for objective regulatory management are in place, there is an "influence transition" which takes place. Australia and the .au space are now at a point where the objective criteria for full range of regulatory functions are established.

During the Elz years, however, arrangements were made on a "rough consensus and running code" basis that meant very little to those outside the technical community within research institutions.

At the ICANN level, delegations for the management of country codes take up much of the resources of ICANN/IANA. Delegation arrangements are a major source of angst as it is perceived, in many quarters, that the management of the country code is a source of national honour, cash and control of a national asset. [33]

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[30] The term "wizard" was popularised by Hafner and Lyon in their 1996 book *Where Wizards Stay Up Late: Origins of the Internet.*

[31] It is, perhaps, interesting to note that disputes about name allocation became much more prevalent when the use of domain names moved from an easy way of resolving the limitations of a number string to considerations of intellectual property protection. Not surprisingly, the first in first served rule did not satisfy those who perceived they deserved preferential treatment in the allocation of rights to use a domain name.

[32] Background is provided in the discussion of ADNA and the Dot-Au Working Group in *The Road To Self-Regulation – The Australian Experience*, a 2002 NOIE paper at http://inet2002.org/CD-ROM/lu65rw2n/papers/g03-a.htm, and in the *auDA & the dot-au space* profile at http://www.caslon.com.au/audaprofile.htm. A history of ISOC-AU features on that organisation's site at http://www.isoc-au.org.au, complemented by the discussion of 'legitimacy' in Werle & Leib's 1999 *The Internet Society and its Struggle for Recognition and Influence*.

[33] This is certainly the case in small Pacific Island nations and in the developing economies of Vietnam, Cambodia and Laos.

In Australia's case, ICANN was motivated to provide as much assistance as possible to resolve the issue because, in part, it needed to have the country codes inside the ICANN "stent". Australia was the first country code administrator to sign a contract with ICANN under the country code arrangements. In turn, Australia required the support of ICANN/IANA to break the deadlock for Elz and the Commonwealth to formally hand over management of the space to .auDA.

The Minister of Communications, Information Technology and the Arts[34] is responsible for the direction of DNS policy in Australia. The Minister retains the right, through an amendment to the *Telecommunications Act*[35] to direct the Australian Communications Authority (ACA) or the Australian Competition and Consumer Commission (ACCC), under the 2000 amendment to the 1997 Act to effect regulatory arrangements for DNS management.

Even though Australia's Internet governance arrangements are, internationally, with ICANN under Californian contract law, it is clear that the Commonwealth maintains very much arms length authority over the .au space. That the Commonwealth has devolved that authority to .auDA is evidence that the shift from government bureaucracy to a private sector model is now well underway.

I have set out here a very brief history of the management of the domain name system in Australia. It focuses particularly on the way in which it has been managed as a technical resource rather than what it has been used for or how it has driven many other policy decisions such as the development of on-line content regulation, e-commerce standards or prohibitions on on-line gambling.

The Internet in Australia mirrors the way in which the Internet evolved in the USA – a resource that enabled universities and research institutions to talk to each other. That AARNET developed the way in which it did is testimony to the impact of personalities on Internet governance. Those personalities have now been brought into a more institutional-like setting.

Regulatory Models

The broader work, of which this article is part, discusses the globalisation literature in the context of models for Internet governance. It also analyses the shift from multilateral treaty based arrangements such as those within the International Telecommunications Union (ITU) to the ICANN hybrid which mixes government involvement, private sector funding and self-regulation.

The work of Sassen, Braithwaite and Drahos and Arup has been particularly helpful in providing literature to support the discussion of the shift to a private sector, self-regulatory model for Internet governance in Australia.

Börzel & Risse[36] have compiled diagrammatic representations of the "realm of governance" which can be usefully employed to illustrate where the .auDA model sits. The diagram reproduced here would have .auDA sitting near to the top right hand corner of the diagram. In their analysis Börzel & Risse argue that "private self-regulation is often triggered by the very lack of effective international norms and rules".[37]

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[34] Senator Richard Alston has been the Minister for Communications since March 1996 and is the longest serving Federal Minister for Communications. He was Shadow Minister for Communications from 1989 to 1996.

[35] Found in full at http://scaleplus.law.gov.au/html/pasteact/2/3021/top.htm

[36] Börzel, Tanja A & Risse, Thomas, *Public-Private Partnerships: Effective and Legitimate Tools of International Governance*, http://www2.hu-berlin.de/compliance, p3 & p9, April 6, 2001.

[37] Op cit, p9.

Australia followed a similar course to that set by the USA's Clinton Administration with respect to the broader Domain Name System[38].

[38] It is worthwhile reproducing the initial instructions to the Department of Commerce from President Clinton which set in train a whole new regulatory regime of which .au is a critical part. The most important drivers of change are the introduction of competition and participation in management of Internet resources.

"On July 1, 1997, as part of the Clinton Administration's *Framework for Global Electronic Commerce*, the President directed the Secretary of Commerce to privatize the domain name system (DNS) in a manner that increases competition and facilitates international participation in its management.

Accordingly, on July 2, 1997, the Department of Commerce issued a Request for Comments (RFC) on DNS administration. The RFC solicited public input on issues relating to the overall framework of the DNS administration, the creation of new top-level domains, policies for domain name registrars, and trademark issues. During the comment period, more than 430 comments were received, amounting to some 1500 pages.

On January 30, 1998, the National Telecommunications and Information Administration (NTIA), an agency of the Department of Commerce, issued for comment, *A Proposal to Improve the Technical Management of Internet Names and Addresses.* The proposed rulemaking, or "Green Paper," was published in the Federal Register on February 20, 1998, providing opportunity for public comment. NTIA received more than 650 comments, as of March 23, 1998, when the comment period closed.

From the http://www.icann.org/general/white-paper-05jun98.htm

The Realm of Public-Private Partnerships[39]

Public regulation
no involvement of private actors

Lobbying of public actors
by private actors

Consultation and Cooptation of private actors
(e.g. private actors as members of state delegation) participation of private actors in negotiating systems

Co-Regulation of public and private actors

(e.g. private actors as negotiation partners)
joint decision-making of public and private actors

Delegation to private actors
(e.g. standard-setting)
participation of public actors

Private self-regulation
in the shadow of hierarchy
(e.g. voluntary agreements)
involvement of public actors

Public Adoption of private Regulation
output control by public actors

Private self-regulation
(Purely private regimes)
no public involvement

← increasing autonomy of private actors — increasing autonomy of public actors →

[39] Reproduced by permission of the authors.

It is helpful to divert quickly into more general discussions of regulatory models – the spectrum ranging from completely public sector government bureaucracies to completely private sector arrangements with no intervention from governments.

.auDA, like the international equivalent ICANN, is a regulatory hybrid that approximates the co-regulatory model one finds in the Australian telecommunications, financial services or food standards industries. In the DNS case, the Minister, in effect, retains the right to re-delegate responsibility for the management of the .au domain name space. Now that the arrangements for this model have settled, it is unlikely this power would be used. However, in the early stages of the implementation of .auDA much concern was expressed about the conditions under which the Minister could withdraw his support.

The appointment of the two Independent Directors, one of whom was appointed Chairman of the Board[40], contributed greatly to a rapid increase in industry confidence that the organisation could indeed deliver on its mandate.

There has been an undercurrent of dissatisfaction, most regularly expressed on the email Domain Name System (DNS) list.[41] The list is not moderated and provides an open forum for comment on any issue with respect to DNS management in Australia. At its best, it is a mechanism for hearing end user views and facilitating the transparency of .auDA's operations in a practical, timely and responsible way. At its worst, it has been a running sore of personal invective, captured by a vocal minority who repeat their, often unsubstantiated, views loudly and often.

One measure of effectiveness of the current arrangements could be that the Board, since the appointment of the current Chief Executive Officer and Chairman, has been very stable. There have been no attempts to spill the Board or to force resignations. There has not been a major turnover of Directors and most have sought second and sometimes third terms. At a Board level there is strong degree of cohesiveness and co-operation whilst also taking very serious account of the work of the Policy Panels. It is interesting to note that the same situation exists at an international level within ICANN.[42]

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[40] Tony Staley is a former Federal Minister of Communications, former Federal Director of the Liberal Party of Australia and close confidante of the current Minister for Communications, Richard Alston. Some concise background is found at http://www.pm.gov.au/news/speeches/1999/staley0307.htm

[41] The DNS list is open to the public with, at December 2002, about 350 subscribers. Like most on-line lists, there is a core of around 20 subscribers. Like many such lists, it is noted for the vehemence and passion with which views are expressed rather than their cogency or any reflection of a broader community view. The personal invective sometimes found on the list has been the source of some unhelpful destabilisation of the work of .auDA. It could also be argued that the "robust" character of the DNS list has dissuaded people from participating for fear that their email in-boxes will be flooded with off topic raves from those with personal agendas. Recently, the list has undergone some changes and is now moderated to keep the debate on topic.

http://www.auda.org.au/list/dns/archive/122000/0016.html This reference gives a slightly different slant on "independent", "consensus" and "mandate" and is a balance to more positive coverage of .auDA's operations.

[42] The significance of newsgroups, blogs and other electronic fora in influencing policymaking is explored elsewhere in the dissertation of which this article forms a part. The website of Bret Fausett (http://www.lextext.com/icann/), ICANNWatch (for example contributions by Michael Froomkin at http://www.icannwatch.org) and online intervention by ICANN At Large Director Karl Auerbach (http://www.cavebear.com) are particularly important.

The process for the withdrawal of Ministerial support for .auDA would require, under the legislation, the co-operation of both the Australian Communications Authority[43] (ACA) and the Australian Competition and Consumer Commission[44] (ACCC).

However, it is now unlikely that either regulatory agency would exercise their power under the legislation. This is particularly the case whilst .auDA continues to develop new polices for future second level domains, prepares to review its mandatory Registrar's Code of Practice and continues to actively involve a broad range of interest groups in both its structure and decision making processes.

.auDA: Structure, Operation and Mandate

With an understanding of the broader research, a sense of the historical position, some knowledge of market statistics and some discussion of regulatory models, we can now turn to a more detailed examination of the operations of .auDA.

.auDA is a small organisation managed by a Chief Executive Officer, a Policy Officer and administrative staff. It is funded by contributions from members, registrar fees ($11 per domain name registration), registry fees and, most recently, by off budget windfalls from the sale of generic domain names. It does not receive funding from government.

It operates under the *Corporations Law* and is managed by a Board of Directors (currently 13) eleven of whom are elected by .auDA's members[45] and two of whom are appointed as Independent Directors[46]

A range of formal working parties has assisted policy development. Members of those parties serve on a voluntary basis – their costs are met by the individual participants or by organisations that they represent. As such, the cost of regulation has been successfully transferred from government to those subject to the regulation in a similar way, for example, to the work of the Australian Communications Industry Forum (ACIF) which develops codes of practice for the telecommunications sector. Membership of .auDA's policy panels is representative of the broader community with skills in information technology and engineering, telecommunications policy,

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[43] The ACA website provides information on its broad responsibilities and particular information of relevance here. For example, on the registration of codes of conduct for the industry. http://www.aca.gov.au/codes/codint.htm

[44] The ACCC's submission to WIPO's discussion of domain name registration neatly sets out the competition regulator's responsibility for and interest in .auDA's activities. Note however that the focus of the submission is on intellectual property protection rather than the governance of Internet architecture and resources. http://www.accc.gov.au/ecomm/access1b.htm

[45] Membership is open to Australian organisations and individuals (details at http://www.auda.org.au) with voting in staggered Board elections across three membership categories. This prevents Board capture by special interest groups. As at December 2002, .auDA had approximately 380 members – a similar number to ISOC-AU – including individuals, small businesses, consumer advocates and corporate interests. However, in compliance with the Australian *Privacy Act*, detailed demographics are not publicly available. Profiles of Board candidates published during elections suggest that candidates and, as importantly, those actually elected, are not restricted to major corporate interests of areas of expertise such as information technology and law.

[46] Currently the independent directors are former ICANN Board member Greg Crew (http://www.icann.org/biog/crew.htm) and Chair Tony Staley. The independent directors are paid for their work; the elected directors are not.

intellectual property protection and consumer advocacy. The Registrar's Code of Practice is a case in point.[47]

The activity of the working parties is publicised by .auDA through public forums and the online membership list. The working parties typically seek community submissions, for example, on appropriate competition models or names policy. Exposure drafts are released after regular physical meetings of the panels. These are refined after further public consultation and input. The documentation is made public on the .auDA website and remains posted.[48] The use of working parties and policy panels reflects a commitment to consensus policy making and inclusiveness. It also ensures that policy development is delivered from the community to .auDA. This achieves three objectives – it obviates the need for a large secretariat, it pushes the cost of regulation to the private sector and it ensures comprehensive compliance.

.auDA's legitimacy has not been successfully contested.[49] As outlined above, .auDA is supported by Commonwealth legislation but its operation is independent of government agencies. It is well recognised by ICANN staff and by the various ICANN constituencies in which Australians are active. Its authority ultimately rests on its ongoing effectiveness as a ccTLD manager which is demonstrated by the development of codes of practice, consensus based policy and the input of a range of stakeholders. Objective management of the views of all stakeholders is critical. This objectivity is borne out in a policy environment which actively seeks to facilitate competition, which bolsters a robust internet services industry – at both the registrar and reseller level. Operational objectivity is closely matched to international standards – especially with respect to public consultation and consensus driven policy – and to including a broader range of talents and skills including legal, policy, regulatory and commercial experience.

As a result, the regulatory load of DNS governance in Australia is spread across representatives from peak associations, registrars, the technical community and individual members. Regulatory capture is difficult to achieve and clearer business rules mean that investment decisions can be made in a relatively stable economic environment.

Conclusions

If the domain name system had remained a pure technical numbering resource, it is unlikely that the discussion of Internet governance would have created any traction in political and policy circles. That the numbering system has been subsumed by discussions of naming and who controls the system is a function of the politicization of engineering – what is termed elsewhere in the research as IP (Internet Protocol) versus IP (Intellectual Property). The control of the naming system is a critical policy discussion – critical at the infrastructure layer; critical to users who rely on Internet resources for their businesses; critical to the consumer advocacy community as they discuss

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[47] The final version of the mandatory Code of Practice can be found at http://www.auda.org.au/docs/auda-2002-26.pdf. The author was Chair of the Registrar's Code of Practice Committee, the membership of which was drawn from a broad spectrum of industry and consumer organisations.

[48] The transparency of .auDA's operation (through public forums, through online publication and through encouragement of participation in its working parties) has been little remarked. It is of interest in comparison to the operation of other regulatory bodies, where participation is difficult (eg restricted to a particular epistemic community) and where observers have access to outcomes rather than the deliberations that led to those outcomes.

[49] In contrast to ICANN it has not faced sustained criticism in legal, information technology or other publications and, overall, has secured the endorsement of bodies such as the Internet Industry Association, Australian Competition & Consumer Commission and ISOC-AU. Two "anti-auDA" groups, such as the DNS Action Group, do not appear to have a major following and proposals for an .auDA Watch site apparently did not eventuate.

equitable access to the Internet and critical to those who wish to protect their brands and trademarks. The tensions between the political camps is obvious. With commercial criticality comes the discussion of policy and then the enactment of mechanisms to govern fairly.

The evolution of the .au regulatory space continues in both a domestic and international context. The most significant changes forecast for the .au space are a review of existing policies and the introduction of new second level domains. The latter is being considered during 2003 by a newly constituted policy panel.

The .au Domain Administration has reached a level of maturity which means that it is unlikely that the Minister would find any justification for the forced re-delegation of authority from .auDA to any other organisation. The legislative and regulatory basis for the management of the .au DNS is stable with a small, solid administrative body running the policy functions and regulatory arm of the .au domain.

The paradigm shift is, with some hindsight, obvious. The economic conditions in a technology boom, comprehensive broadband rollout which facilitates efficient Internet access, a highly educated and demanding set of consumers coupled with active government engagement across the spectrum of domestic and international policy debates have led to significant regulatory changes. Considering these changes in the broader context of the globalisation of regulation and the development of a new regulatory economy, it is clear that the Australian experience will do much to inform the development of hybrid regulatory structures to manage DNS governance in other countries.

Further research is being undertaken with respect to the cosmocracy of global governance. This research will determine who is responsible for what effect in which regulatory arena – and the price that must be paid for that to happen effectively - as we move inexorably to private sector governance models where governments observe and advise and where private sector actors and agencies take the regulatory lead.

Bibliography

1. Australian Media Law & Policy Bibliography [Web Page]. Accessed 1998 Feb 12. Available at: http://www.holdingredlich.com.au/bibliog.htm.

2. Average Length of Domain Names [Web Page]. 2002 Apr 29; Accessed 2002 Jul 17. Available at: http://www.zooknic.com/domains/dn_length.html.

3. Considerations Related to Domain Name Valuation [Web Page]. 2000 Nov 3; Accessed 2002 Jul 16. Available at: http://www.WebProNews.com.

4. Constructing World Culture: International NonGovernmental Organisations Since 1875, John Boli (ed), Stanford: Stanford Uni Press; 1999.

5. Current Practice in Brand Valuation [Web Page]. 2001? Available at: http://www.brandfinance.com/gee.pdf.

6. Domain name generators marketing research report component [Web Page]. 2000; Accessed 2002 Jul 21. Available at: http://www.domainfellow.com/Ezine/MarketResearch/exhibit1.asp.

7. Rony, Ellen and Rony, Peter. The Domain Name Handbook: High Stakes & Strategies in Cyberspace. Gilroy: RD Books; 1998.

8. ICANN announces selections for new top-level domains [Web Page]. 2000 Nov 16; Accessed 2001 19 Apr.

9. ICANN Cost Recovery Structure for Domain Name Registries [Web Page]. 200 Nov 10; Accessed 2000 Nov 17. Available at: www.icann.org.

10. Uncomfortable Bedfellows: Domain names and trademarks [Web Page]. 2002; Accessed 2002 Jul 16. Available at: www.derwent.com/ipmatter.
Note: 261.239.33.100.

11. What Price, This Name? A Short Essay on the Science of Domain Valuation [Web Page]. Accessed 2002 Jul 21. Available at: http://www.tangy.com/about/namescience.cfm.

12. World Trade Organization [Web Page]. 1999; Accessed 2000 Feb 23. Available at: www.wto.org.

13. Abel, Sally. Trademark Issues in Cyberspace: The Brave New Frontier [Web Page]. 1999 May; Accessed 2002 Jul 16. Available at: http://www.mttlr.org/volfive/abel_art.html.

14. Aigrain, Philipe. Attention, Media Value & Economics [Web Page]. Available at: http://www.firstmonday.dk/issues/issue2_9/aigrain.

15. Alston, Richard. Endorsement of .au Domain Administration [Web Page]. 1915 Oct-1915 Oct 31; Accessed 2001 Feb 14. Available at: http://www.auda.org.au/docs/Endorse_Letter_Final.html.

16. American Bar Association. Achieving Legal and Business Order in Cyberspace. London: American Bar Association; 2000.

17. Anson, Weston. Domain Names: Hidden Asset Values. Trademark World. 1997 Oct:28-30.

18. ---. Establishing Market Values for Brands, Trademarks and Marketing Intangibles. Business Valuation Review. 1996 Jun:47-56.

19. ---. The million dollar domain name. Managing Intellectual Property. 1998 May:40-43.

20. Arnold, Bruce. auDA and the dot-au space [Web Page]. Accessed 2003 Feb 10. Available at: http://www.caslon.com.au/audaprofile.htm.

21. Aronson, Jonathan D. Global Networks, Electronic Trading and the Rise of Digital Cash: Implications for Policymakers. Hufbauer, Gary Clyde and Wada, Erika, Editors. Unfinished Business: Telecommunictions after the Uruguay Round. Washington, DC: Institute for International Economics; 1997 Dec.

22. Arup, Christopher. The New World Trade Organization Agreements: Globalizing Law Through Services and Intellectual Property. Cambridge: Cambridge University Press; 2000.

23. Australian Bureau of Statistics. Use of the Internet by householders [Web Page]. 1999 May; Accessed 1999 Oct. Available at: http://www.abs.gov.au.

24. Baer, Walter S. Will the Global Information Infrastructure Need Transnational (or Any) Governance? National Information Infrastructure Initiative. Cambridge, Mass: The MIT Press; 1997; pp. 532-552.

25. Berent, Phil. Solving domain name scarcity [Web Page]. 2000 Nov. Available at: tldapplication@affinity.com.

26. Berners-Lee, Tim. Weaving the Web. London: Orion Business Books; 1999; ISBN: 0752820907.

27. Binder, Alan S. The Internet and the New Economy [Web Page]. 2000 Jan; Accessed 2000 Jul 12. Available at: http://www.internetpolicy.org/briefing/1_00.html.

28. Blakeney, Michael. Interfacing Trade Marks & Domain Names. Murdoch E-Law Journal. 1999.

29. Börzel, Tanja A and Risse, Thomas. Public-Private Partnerships: Effective and Legitimate Tools of International Governance. Global Governance; 2001 Apr 6-2001 Apr 7; European University Institute, Florence.

30. Boyd, Tony and Butler, Grant. Age of internet currency dawns. Australian Financial Review. Sydney; 2000 Jan 12: 6.

31. Global Business Regulation. Cambridge: Cambridge University Press; 2000; ISBN: 0521784999.

32. Brown, John Seely and Duguid, Paul. The Social Life of Information. Cambridge, Mass: Harvard Business School Press; 2000; ISBN: 087847625.

33. Chayes, Abram and Chayes, Antonia Handler. The New Sovereignty: Compliance with International Regulatory Agreements. Cambridge, Mass: Harvard University Press; 1995; ISBN: 0-674-61782-7.

34. Cisneros, Oscar S. ICANN down to discussing dots [Web Page]. 2000 Nov 15; Accessed 2000 Nov 21. Available at: http://www.wired.com/news/print/0,1294,40211,00.html.

35. Cisneros, Oscar S. ICANN: The Winners Are. . . [Web Page]. 2000 Nov 16; Accessed 2000 Nov 21. Available at: http://www.wired.com/news/print/0,1294,40228,00.html.

36. Clausing, Jeri. ICANN runs into more trouble over election plans [Web Page]. 2000 May 16; Accessed 2000 May 17. Available at: http://www.nytimes.com/library/tech/00/05/cyber/capital/16capital.html_.

37. Cockburn, Andy and McKenzie, Bruce. What Do Web Users Do? An Empirical Analysis of Web Use [Web Page]. 2001. Available at: http://www.cosc.canterbury.ac.nz/~andy/papers/ijhcsAnalysis.pdf.

38. Codding, George. The International Telecommunications Union: An Experiment in International Cooperation. New York: Arno; 1972.

39. Coleman, William D. Private Governance and Democracy in International Finance. 10th Annual Conference on Socio-Economic; 1998 Jul 13-1998 Jul 16; Vienna, Austria.

40. Comer, Edward. The Global Political Economy of Communication: Hegemony, Telecommunications & the Information Economy. New York: St Martin's; 1994.

41. Consor. Key issues in Valuing and Licensing Internet Assets [Web Page]. 2001; Accessed 2003 Jan 12. Available at: www.consor.com/internet.

42. Crew, Greg. ICANN - An Internet Conspiracy Exposed. Telecommunications Journal of Australia. 2000 Winter; 50(2):23-28.

43. Diehl, Paul. The Politics of Global Governance: International Organizations in an Interdependent World. Boulder: Rienner; 2001.

44. Doern, Bruce. Global Change & Intellectual Property Agencies: An Institutional Perspective. London: Pinter; 1999.

45. Drawbaugh, Kevin. Brands in the Balance - meeting the challenges to commercial identity. London: Reuters; 2001.

46. Dreier, Thomas. The Current Copyright landscape in the Age of the Internet & Multimedia [Web Page]. 1995; Accessed 2002 Jul 16. Available at: http://www.ipa-uie.org/copyright/copyright_pub/dreier.html.

47. Edelman, Ben. DNS as a Search Engine: A Quantitative Evaluation [Web Page]. 2002 Jul 1; Accessed 2002 Jul 3. Available at: http://www.cyber.law.harvard.edu/people/edelman/dns-as-search/.

48. Edelman, Ben and Zittrain, Jonathan. Survey of Usage of the .biz TLD [Web Page]. 2002. Available at: http://cyber.law.harvard.edu/tlds/001.

49. European Commission. Commission sets out its policy for Internet management [Web Page]. 2000 Apr 11; Accessed 2000 Apr 13. Available at: http://europa.eu.int/rapid/start/cgi/guesten.ksh?p_action.gettxt=gt&doc=IP/00/355|0|RAPID&lg=EN.

50. Fausett, Bret A. Want to create a secret committee? [Web Page]. 2000 May 10; Accessed 2000 May 17. Available at: http://www.lextext.com/21days.html.

51. Froomkin, Michael (froomkin@law.miami.edu). FC: ICANN creates election committees without public input. E-mail to: Declan McCullagh (declan@well.com). 2000 May 16.

52. ---. The Internet as a source of regulatory arbitrage. Kahin, Brian and Nesson, Charles, Editors. Borders in Cyberspace. Harvard University: Harvard Information Infrastructure Project; 1997; pp. 129-163.

53. Froomkin, Michael. Is ICANN's New Generation of Internet Domain Name Selection Process Thwarting Competition? [Web Page]. 2001. Available at: http://personal.law.miami.law/%7Efroomkin/articles/commerce8Jan2001.htm.

54. Geist, Michael. Fair.com? An Examination of the Allegations of Systemic Unfairness in the UDRP [Web Page]. Available at: http://aix1.uottawa.ca/~geist/geistudrp.pdf.

55. Geist, Michael. Fair.com Updated [Web Page]. 2002. Available at: http://aix1.uottawa.ca/~geist/fairupdate.pdf.

56. Geist, Michael. ICANN's Uniform Dispute Resolution Processes: Lessons in ADR [Web Page]. 2000 Sep 11. Available at: http://www.ilpf.org/events/jurisdiction2/presentations/geist_pr/.

57. Goodchild, John and Callow, Clive. Brands: Visions and Values. Macpherson, Shonaig. Internet Branding: Brave New World? New York: Wiley; 2001.

58. Graham, Gordon. The Internet: A Philosophical Inquiry. London: Routledge; 1999.

59. Greenstein, Shane (Kellogg Graduate School of Management, Northwestern University). Commercialization of the Internet: The Interaction of Public Policy and Private Choices. National Bureau of Economic Research: NBER Program on Innovation Policy and the Economy.

60. Hafner, Katie and Lyon, Matthew. Where Wizards Stay Up Late: The Origins of the Internet. New York: Simon & Schuster; 1996.

61. Hagen, Gregory and von Arx, Kim. Patriation of the .ca. Canadian Journal of Law and Technology. 2002 Nov; 1(3).

62. Hoekman, Bernard and Kostecki, Michael. The Political Economy of the World Trading System: From GATT to WTO. Oxford: Oxford University Press; 1995.

63. Huberman, Bernardo. The Laws of the Web: Patterns in the Ecology of Information. Cambridge, Mass: MIT Press; 2000.

64. ICANN. Keeping the Internet a Reliable Global Public Resource: Response to New.net 'Policy Paper' [Web Page]. 2001. Available at: http://www.icann.org/icp/icp-3-background/response-to-new.net-09jul01.htm.

65. ICANN Watch. ICANN'S latest outrage [Web Page]. 2000 May 10; Accessed 2000 May 17. Available at: http://www.icannwatch.org.

66. Irlam, George. Controlling the Internet: Legal and Technical Aspects of the Domain Name System [Web Page]. 1997 Jul 13; Accessed 2000 Nov 21. Available at: http://www.base.com/gordoni/thoughts/dns-control/dns-control.html.

67. Jackson, John. The World Trading System: Law and Policy of International Economic Relations. Cambridge, Mass: MIT Press; 1997.

68. Jackson, John H. The Jurisprudence of GATT & the WTO. Cambridge: Cambridge University Press; 2000; ISBN: 0521620562.

69. Jayasuriya, Kanishka. Globalization, Law, and the Transformation of Sovereignty: The Emergence of Global Regulatory Governance. Global Legal Studies Journal. 1999 Spring; 6(2):425-455.

70. Johnson, David R and Post, David G. The Rise of Law on the Global Network. Kahin, Brian and Nesson, Charles, Editors. Borders in Cyberspace. Harvard University: Harvard Information Infrastructure Project; 1997; pp. 3-47.

71. Kahin, Brian. Auctioning global namespace: a new form of intellectual property, a new vision of universal service [Web Page]. 1996 Feb 5; Accessed 2000 Mar 7. Available at: http://www.ksg.harvard.edu//iip/cix.html.

72. Kahin, Brian and Nesson, Charles. Borders in Cyberspace. Cambridge, Mass: MIT Press; 1997; ISBN: 0262112205.

73. Kahin, Brian and Wilson, Ernest. National Information Infrastructure Initiative. Kahin, Brian, Editor. The US National Information Infrastructure Initiative: The Market, the Net and the Virtual Project. Cambridge, Mass: The MIT Press; 1997; pp. 150-189.

74. Kahn, Robert and Cerf, Vinton. What is the Internet (and what makes it work)? [Web Page]. 1999 Dec; Accessed 2000 Dec 7. Available at: http://www.internetpolicy.org/briefing/12_99_story.html.

75. Katsh, Ethan. Law in a Digital World. Oxford: Oxford University Press; 1995.

76. Kolb, Charles and Schwartz, Elliot. Regulating the Internet: How Far Should Government Reach [Web Page]. Accessed 2000 Jul 12. Available at: http://www.internetpolicy.org/briefing/responsesKolbSchwartz.html.

77. Koops, Bert-Jaap. ICT Law & Internationalisation: A Survey of Government Views. Hague: Kluwer; 2000.

78. Koppell, Jonathan GS. Analysis: Internet body seen as future of government [Web Page]. 2000 Aug 24; Accessed 2000 Feb 9. Available at: http://www.cnn.com/20...24/icann.future.gov.idg/index.html.

79. Kozyrev, A. N. Evaluation of Intellectual Property and Intangible Assets. High-Level Task Force on Valuation and Capitalization of Intellectual Assets; 2002 Nov 18-2002 Nov 19; Geneva. Central Economics and Mathematics Institute, Russian Academy of Sciences; 2002 Jul 31.

80. Lance, Kate. The Domain Name System: Engineering vs Economics [Web Page]. 1998 Sep; Accessed 2000 Nov 21. Available at: check.

81. Lessig, Lawrence. Code and other laws of cyberspace. Basic Books; 1999.

82. ---. The Future of Ideas: The Fate of the Commons in a Connected World. New York: Random; 2001.

83. Lindstrom, Martin and Andersen, Tim. Brand Building on the Internet. South Yarra: Hardie Grant; 1999.

84. Loader, Brian. The Governance of Cyberspace: Politics, Technology & Global Restructuring. London: Routledge; 1997.

85. Marsden, Christopher T. The Open Internet and Its Discontents: Living in the Age of the Ostrich, the Gildered, or the Military-Intellectual Property Complex. International Journal of Communications Law and Policy. 2000 Summer(5):1-5.

86. Max Planck Institute for Foreign & International Patent, Copyright & Competition Law Intellectual Property Institute. 2002. Available at: http://www.intellecprop.mpg.de/Online-Publikationen/2002/UDRP-study-final-02.pdf.

87. Mueller, Milton (mueller@syr.edu). FC: Jamie Love replies on ICANN and e-democracy project. E-mail to: Declan McCullagh (declan@well.com). 2000 Jul 7.

88. ---. Internet Domain Names: Property Rights and Institutional Innovation. Entrepreneurship and Economic Growth in the American Economy. 2000; 12:93-131.

89. ---. Technology and Institutional Innovation: Internet Domain Names. International Journal of Communications Law & Policy. 2000 Summer; (5):1-32.

90. National Telecommunications and Information Administration. Memorandum of Understanding between the US Department of Commerce and the Internet Corporation for Assigned Names and Numbers [Web Page]. Accessed 2001 Feb 10. Available at: http://www.ntia.doc.gov/ntiahome/domainname/icann-memorandum.htm.

91. Noam, Eli. Interconnecting the Network of Networks. Cambridge: MIT Press; 2001.

92. O'Brien, Robert and Goetz, Anne Marie. Contesting Global Governance: Multilateral Economic Institutions & Global Social Movements. Cambridge: Cambridge University Press; 2000.

93. O'Donnell, Shawn (MIT Program on Internet & Telecoms Convergence, Fletcher School, Tufts University). An economic map of the Internet. TPRC 30th Research Conference on Communication, Information and Internet Policy; 2002 Sep 29; Alexandria, Virginia. TPRC 2002.

94. Olsen, John R; Maniatis, Spyros M, and Wood, Nick. Domain Names: Global Practice and Procedure. Sweet & Maxwell; 2000 Dec 14.

95. Perritt, Henry H. Cyberspace & State Sovereignty [Web Page]. 1997. Available at: http://www.kentlaw.edu/perritt/professorperritt/jilspub.html.

96. ---. Jurisdiction in Cyberspace: The Role of Intermediaries. Kahin, Brian and Nesson, Charles, Editors. Borders in Cyberspace. Harvard University: Harvard Information Infrastructure Project; 1997; pp. 164-204.

97. ---. Law & the Information Superhighway: Privacy, Access, Intellectual Property, Commerce, Liability. New York: Wiley; 1996.

98. Perritt, Henry H. The Role & Efficacy of International Bodies & Agreements in the Global Electronic Marketplace [Web Page]. Available at: http://www.kentlaw.edu/perritt/ftc12.html.

99. Post, David. Anarchy, State & the Internet: An Essay on Law-Making in Cyberspace [Web Page]. 1999. Available at: http://warthog.cc.wm.edu/law/publications/jol/post.html.

100. Post, David. Juries and the new common law of cyberspace [Web Page]. 2000 Sep 8; Accessed 2000 Sep 22. Available at: http://www.temple.edu/lawschool/dpost/juries.html.

101. Reid, Robert H. Architects of the Web. Toronto: John Wiley & Sons; 1997.

102. Reidenberg, Joel. Governing Networks and Rule-Making in Cyberspace. Kahin, Brian and Nesson, Charles, Editors. Borders in Cyberspace. Harvard University: Harvard Information Infrastructure Project; 1997; pp. 84-105.

103. Reidenberg, Joel. Governing Networks & Rule-Making in Cyberspace [Web Page]. 1996. Available at: http://www.law.emory.edu/ELJ/volumes/sum96/reiden.html.

104. Rood, Hendrik. Are naming and numbering systems natural resources? [Web Page]. 1999 Jun 20; Accessed 2002 Feb 16. Available at: http://www.tbm.tudelft.nl/webstaf/henrikr/MaastrichtPaper.pdf.

105. Rutkowski, Andreas. The Internet: Governance for Grabs? [Web Page]. Available at: http://www.wia.org/pub/forgrabs.html.

106. Sassen, Saskia. Globalisation and Its Discontents. Chicago: Chicago University Press; 1998.

107. Searing, Matthew. What's in a Domain Name? A Critical Analysis of the National and International Impact on Domain Name Cybersquatting. Washburn Law Journal. 2000.

108. Shalit, Ruth. The Name Game [Web Page]. 1999. Available at: http://www.salon.com/media/col/shal/1999/11/30/naming/index.html.

109. Shiller, Robert. Irrational Exuberance. Melbourne: Scribe Publications; 2000.

110. Ticoll, David. Governance in the Digital Economy. Alliance for Converging Technologies. 1999; 1-11.

111. Weinberg, Jonathan. ICANN & the Problem of Legitimacy. Duke Law Journal. 2000.

112. Werle, Raymund and Leib, Volker. The Internet Society and its Struggle for Recognition and Influence. Max Planck Institute for the Studies of Societies. 1999 Nov; 99(12):1-21.

113. Zacher, Mark and Sutton, Brent. Governing Global Networks: International Regimes for Transportation & Communications. Cambridge: Cambridge University Press; 1996.

114. Zysman, John and Weber, Steven. Governance & Politics of the Internet Economy - Historical Transformation or Ordinary Politics with a New Vocabulary [Web Page]. 2000. Available at: http://e-conomy.berkeley.edu/publications/wp/ECwp16.pdf.

Liz began researching and writing about computers and the Internet in 1992 whilst university teaching in Japan. Since then she has completed a Masters in Communication (University of Canberra) on regulating the Internet and privacy (http://www.lizwilliams.net/ma_thesis.htm). She was awarded a University of Canberra Research Scholarship to complete her studies.

In June 2003, she will complete her doctoral dissertation - *The Globalisation of Regulation and its Impact on the Domain Name System: Domain Names and the New Regulatory Economy* - at the Queensland University of Technology's Faculty of Information Technology Faculty (http://www.lizwilliams.net/phdthesis.htm). Liz was awarded a QUT Post Graduate Research Scholarship to complete her doctoral studies.

Liz Williams was an elected member of the Board of Directors for the .au Domain Administration in 2001 and 2002. .auDA is responsible for the management of the .au country code registry, the conduct of registrars in Australia and the development of the domain name industry in Australia – www.auda.org.au

Liz also served as the Deputy Chair of the Board. Prior to joining the Board, Liz was an active member of the Competition Model Advisory Panel which provided detailed advice to the Board about the nature of competition in the Australian domain name market.

Whilst on the Board, Liz chaired the Registrar Code of Practice Committee which developed the mandatory Code of Practice for regulating registrar and reseller conduct. Liz was an active member of the Membership Sub-Committee, responsible for determining a new membership structure, fees and charges for membership and member benefits.

At an international level, Liz has been active in ICANN's Registrars' Constituency working on diverse issues such as the development of policies for the transfer and deletion of domain names and the development of policy on new registry services. In addition she conducted a comprehensive review of the Registrars' Constituency By-Laws to enable the Constituency to work more effectively.

She has also been involved in the ccTLD constituency as a member of the .auDA Board. She is on the .cx Policy Advisory Board and assisted the DOT CX corporation with their negotiations with the Commonwealth of Australia and ICANN on key re-delegation issues.

Liz has advised the Pacific Island Forum Secretariat on domain name system governance issues and opportunities for Pacific nations to participate more actively in ICANN processes and activities. She has an ongoing commitment to PIF to provide advice and assistance on a wide range of Internet governance issues.

In addition to her work on Internet governance, Liz is an expert in telecommunications regulation and policy. She is currently managing a large telecommunications policy formulation and capacity building project for the Asian Development Bank providing advice to the governments of Vietnam, Cambodia and Laos. She has been based in Hanoi and travels to Cambodia and Laos on a regular basis.

She specialises in facilitating the development of regulatory structures and corporate governance models to build capacity within institutions. She has worked with a range of private sector and government clients in both developed and developing countries.

Liz has been active in the APEC Telecommunications Working Group for many years and has completed APEC funded projects, in conjunction with AusAid on regulatory structures in APEC economies. Liz has appeared regularly before government policy-making bodies and legislators to advocate positions on telecommunications matters including competition policy and regulation, technical standards and Internet governance.

She previously held a senior position at British Telecom Asia Pacific, where she was responsible for all regulatory matters in Australia and, in an Asia Pacific regional capacity, for all Internet-related regulation.

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