auDA Competition Model Advisory Panel

Stage Two Report

Domain Service Provision: The Status of Competition Worldwide

December 2000

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CMAP STAGE TWO SUB GROUP[1]

APPROACHES TO COMPETITION IN OTHER DOMAINS

1. Background

1.1. The CMAP Stage 2 sub-group who volunteered to complete the task of reviewing approaches to competition in other domains around the world have worked on the assumptions set out below[2].

2. Executive Summary

2.1 The Group, in its detailed research into competition around the world, found a number of possible models that illustrate the ways in which competition could be implemented. The Group set out to describe the attributes of each competition model and use some specific objective criteria to analyse those models. This document in no way makes any judgement about the veracity of any of the models.

2.2 The Group included in their research the information contained in the Internet Engineering Taskforce's RFC 2826[3], the Summary of which is as follows:

To remain a global network, the Internet requires the existence of a globally unique public name space. The DNS name space is a hierarchical name space derived from a single, globally unique root.

This is a technical constraint inherent in the design of the DNS. Therefore it is not technically feasible for there to be more than one root in the public DNS. That one root must be supported by a set of coordinated root servers administered by a unique naming authority.

Put simply, deploying multiple public DNS roots would raise a very strong possibility that users of different ISPs who click on the same link on a web page could end up at different destinations, against the will of the web page designers.

This does not preclude private networks from operating their own private name spaces, but if they wish to make use of names uniquely defined for the global Internet, they have to fetch that information from the global DNS naming hierarchy, and in particular from the coordinated root servers of the global DNS naming hierarchy.

2.3 In all the models there are two key areas of possible competition. The first is between resellers within a single domain space (eg, .com or .com.au). This is usually quite vigorous with a wide range of prices. The lowest price tends to reach the level slightly above the wholesale price from the registry and in some cases domain names are given away for "free". This phenomenon is much the same as Internet Access and Mobile Phones which are given away "free" as part of a larger agreement.

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1 The group consisted of Liz Williams, Bruce Tonkin, Rob Anderson, Andrew van der Stock, Pauline van Winsen, Tony Hill and Greg Sononenburg with input from George Michaelson & Jo Lim.

2 That we focus on the competition aspects of domain name policy management;
That we use the ICANN division of regions in the world (Africa, Asia/Pacific/Japan, Europe, Latin America & Caribbean, North America) to analyse competition in the provision of registry and registrar services;
That we use a case study approach to pull together some comparisons and judgements about how competition has been introduced in the provision of domain names services in other countries; and
That we produce a simple report indicating best practice for competition in this arena which is consistent with general competition policy principles and recognises the technical and other impacts on the management of domain names.

3http://www.ietf.org/rfc/rfc2826.txt?number=2826

2.4 The second area of competition is between registries. At the international level there is competition between .com, .ca, .com.au and .co.uk. Competition is mostly affected by how open the domain is, for example, .com is much more open than .com.au, and the international recognition of the domain name amongst consumers (tends to relate to the population of the country). ICANN's recently announced expansion of the gTLD space will create an opportunity for competition in .aero, .biz, .coop, .info, .museum, .name, and .pro.[4]

2.5 Whilst competition is strongest at the international level, at the country level there is competition between, for example, .com.au and .net.au. Competition is currently limited due to the limited number of second level domains and their quite specific meanings to consumers (eg .com.au which is seen as commercial and, for example, .net.au which is seen as for network service providers).

2.6 As a result of the significant differences in each of the models and the impact that will have on any decision with respect to an appropriate model for Australia, the specific nuances of each of the models will be found in the Stage Three Report.

2.7 In arriving at any conclusions in the Stage Three Report, the Stage Two Sub Group and the wider CMAP agreed that end user benefits be taken into account in addition to any technical considerations.

3. CMAP Terms of Reference[5]

3.1 The group focused on the competition policy principles contained in the CMAP Terms of References and included in their analysis the broader impact of the necessity for technical stability within the DNS. We also took account of the feasibility of implementation and whether the model had support from the community for which it was designed.

3.2 We developed a glossary of terms which, if shared across the Names Panel & CMAP, may provide some common ways of describing important aspects of the work of both groups. The glossary can be found at Appendix Two.

4. Rationale

4.1 The analysis here is intended to identify the main differences between the competition models adopted around the world. We have identified models in terms of the countries where they are used, for example, "the New Zealand model or the USA model". We have tried to identify the characteristics of particular models, use neutral criteria to assess those characteristics and then divine attributes that may be applicable to the Australian environment.

4.2 One common thread is that competition mostly occurs at the provision of customer service (this is variously described as registrars, resellers, members) for a particular domain. In some domains the Registry provides no customer service to Registrants (eg ".com", ".ca"), and in other domains the registry organisation can also carry out direct sales and customer service (".co.uk", ".com.au"). Competition also occurs between registries (eg ".com.au", ".net.au", ".com").

4.3 The Registry function can be divided into several components. These components can either be provided by a single organisation (eg in ".uk" and ".ca") or are provided by several organisations (eg ".com" separates DNS zonefile functions from details of domain owners, ".com.au" also does this). Thus ".uk"

4 Further information can be found at http://www.icann.org/announcements/icann-pr16nov00.htm.

5 http://www.auda.org.au/panel/competition/tor.html#Principles

and ".ca" are considered to have fat registries, and "com" and ".com.au" have thin registries for the DNS information (ie the domain name, and the IP address of the nameserver that resolves the domain name to an IP address).

4.4 The international trend (eg ".ca", ".com", ".co.uk") is to minimise any policy work. This helps keep the Registry costs down, as the operation is fully automated. The trend is also to combine the DNS information, the primary name server, and the domain name registrant information in one site (ie a fat registry). This again leads to operational efficiencies and hence cost savings in registry services.

4.5 Note that some domains separate policies from the registry (eg ".com", ".com.au"), and others have policy managed by the registry (".co.uk", ".ca", ".net.au"). This seems to correlate with whether the registry is run by a non-profit company or not.

5. Competition Arrangements in Top Level Domains (gTLDs)

5.1 It is useful to highlight here the competition aspects of top-level domains.

5.2 ICANN is the body responsible for introducing competition for the .com, .net and .org gTLDs under its Memorandum of Understanding with the US Department of Commerce signed on 25 November 1998.[6] ICANN's role in developing competition is specified in part C5 of the MOU.

5.3 A year after signing its MOU with the Department of Commerce, ICANN signed an agreement with Network Solutions, Inc effectively beginning the introduction of competition. It allowed for multiple registrars to gain access to the Shared Registration System developed by NSI. The Agreement was signed on 10 November 1999.[7]

5.4 Prior to the agreement with ICANN, NSI held a government-granted monopoly over new domain name registrations and renewals.[8] The Agreement with NSI is designed to last for four years or up to eight years if NSI divests its registry function to a non-related body, under clause 23.

5.5 ICANN takes on the role of accrediting registrars and signs an agreement with each one. There is a 16-step process outlined for accreditation by ICANN as a registrar. Several steps in this process involve signing agreements and establishing the relationship with NSI.[9] There are currently around 65 accredited and operational registrars, plus another 55 registrars accredited but not operational.[10]

5.6 NSI sets the price of access to its registry at US$6.00 per initial registration or annual increment, in its agreements with registrars - clause 5.2(b).[11] The establishment of a set price is noted but not set in the agreement with ICANN. NSI Registry Division operated registry services for .com, .net and .org until recently. On 14 September 2000, Network Solutions Registry division has changed its name to VeriSign Global Registry Services. According to Verisign, the name change of the Registry division highlights internal moves to capitalise on the synergies between this unit and its VeriSign parent. It is also part of a

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6 Refer http://www.icann.org/general/icann-mou-25nov98.htm

7 Refer: http://www.icann.org/nsi/amend1-jpamou-04nov99.htm

8 Refer: http://www.icann.org/general/background.htm#4

9 Refer: http://www.icann.org/registrars/accreditation-process.htm

10 Refer: http://www.icann.org/registrars/accredited-list.html

11 Refer: http://www.icann.org/nsi/nsi-rla-04nov99.htm

larger plan to establish VeriSign as the world's pre-eminent Internet infrastructure company.[12]

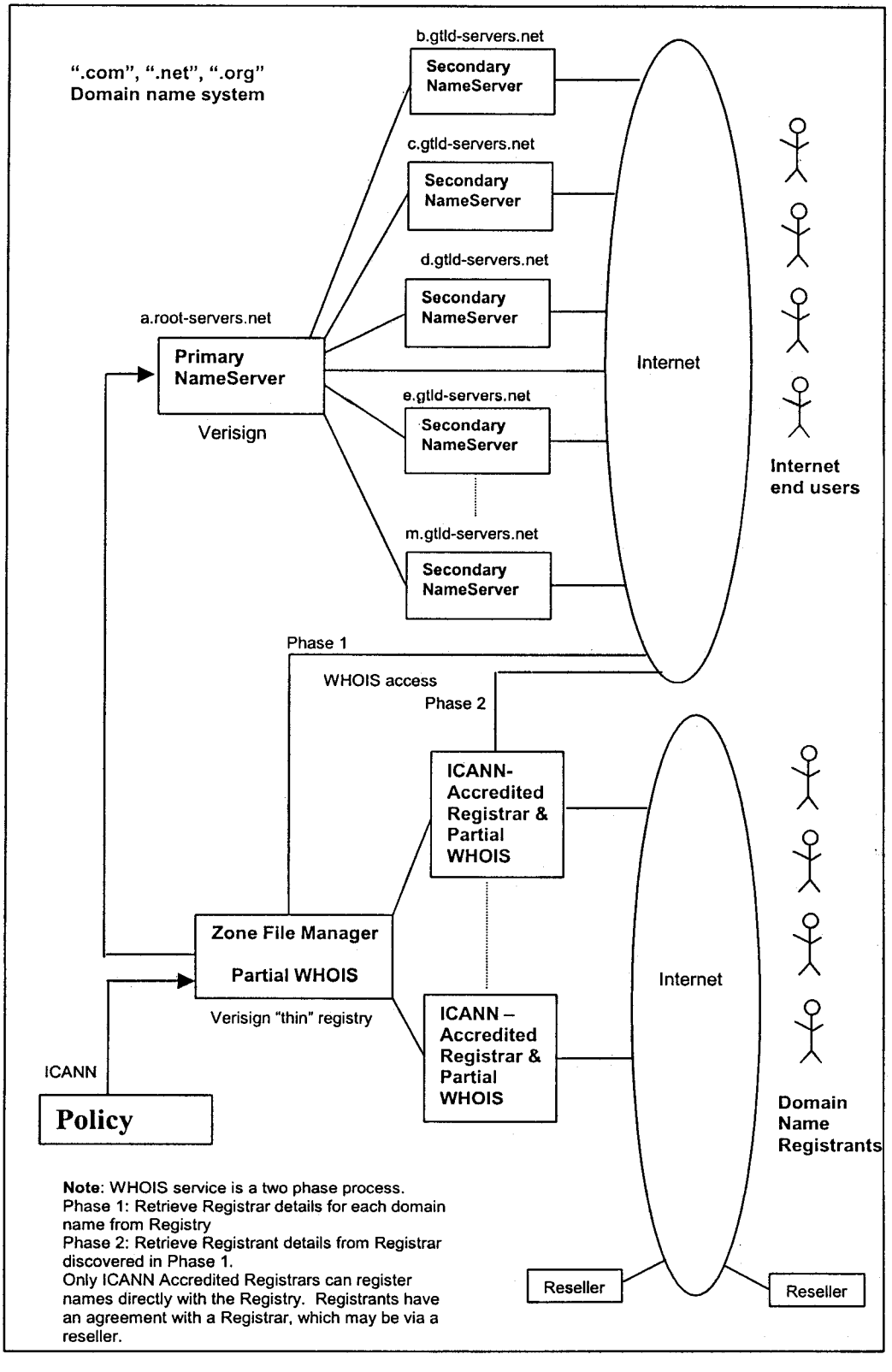
5.7 Among the services that offered by VeriSign Registry Services are technical assistance to registrars attempting to complete the certification process, on-going access to the Operational Test and Evaluation environment to enable registrars to test new software enhancements, 24x7 customer (registrar) support, high-touch, "hub and spoke" customer service model (one point of contact assigned to provide access to key technical and business subject experts), a cross-functional SWAT team that is mobilised as necessary and finally but most importantly - belief in the philosophy that only the customer can tell us when their problem is resolved, not us.[13]

5.8 The model illustrated below includes only technical and mechanical engineering characteristics. The success of any competition model though depends on other factors including broader community stakeholder interests. In addition, historical, political and policy impacts need to be taken into account. A graphical representation of the situation for .com, .net & .org is found below:

12 Refer: http://www.nsiregistry.com/aboutus/news/2000sept/press091300.html

13 Refer: http://www.nsiregistry.com/aboutus/

Table 1 - .com/.net/.org Model



6. The Global Domain Name Market

6.1 In order to get to the stage where it was possible to analyse specific competition models, we needed a clear understanding of the domain name market in all ccTLDs. This section sets out in summary form some demographics about the domain name market around the world. It also includes some detailed case studies of particular approaches to the introduction of competition. Detailed information on each ccTLD can be found at the end of the document, in Acrobat Reader form, in a series of comprehensive tables which the group have pulled together as base data for the analysis which appears below.

6.2 We divided the world along lines consistent with ICANN's (http://www.icann.org) regional divisions. The volunteers to the group each choose a region that they analysed. This section, by its very nature, requires some subjective judgement. That judgement is filtered, based on the principles outlined in footnote two above.

7. Regional Summary

Table 2 - Regional Summary

Region	*Key features*
Africa	Little competition now and little expected for foreseeable future
Asia/Australia/Pacific	No common features, discussions about how to introduce competition well advanced in some countries; non-existent in others. Approaches to competition all different.
Europe	Competition advanced in some countries. Moving rapidly to competitive environment.
Latin America/Caribbean	Little competition yet.
North America & Canada	Provision of domain names services very competitive. Canadian model highlighted below.

7.1 The series of tables below indicate, in each domain listed the various components of a domain name registration system, the organisation (or individual) responsible for each component, and where there is competition (via multiple organisations) for performing the functions of any component. The tables illustrate a selective list of domains.

Table 3- Policy Management

Domain	Policy Body	Policy type	Policy automation	Policy check	Policy dispute resolution
"."	ICANN	Closed	Manual	ICANN	None
".com"	ICANN	Open	Automated	Verisign	None
".au"	Robert Elz	Closed	Manual	Robert Elz	None
".com.au"	auDA	Partially closed	Partial automation	Melbourne IT	Independent arbitration
".net.au"	Connect.com.au	Partially closed	Partial automation	Connect. com.au	None
".org.au"	Robert Elz	Partially closed	Manual	Robert Elz	None
".ca"	CIRA	Open	Automated	CIRA	None
".uk"	Nominet	Closed	Manual	Nominet	None
".co.uk"	Nominet	Open	Automated	Nominet	None
".nz"	ISOCNZ	Closed	Manual	ISOCNZ (domainz)	None

".co.il"	ISOC-il	ISOC-il and Accredited Registrars	Advisory Committee Panel
".tv"	dotTV	dotTV and accredited resellers	Uniform Dispute Resolution Policy
".cc"	eNic	eNic and accredited resellers	None

8. Case Studies

8.1 This section describes in detail specific models for competition which have been implemented in other countries. No judgements are made here about the effectiveness and efficiency of any of the models. Analysis of the various attributes of the models are made in the tables which highlight objective criteria against which the models were assessed by the group.

8.2 New Zealand

8.2.1 The New Zealand Shared Registration System working group has tabled their recommended model for the .nz domain space. This model could be classified as a Thick Registry model and has three groups, excluding registrants managing the processes of providing all domains under the .nz ccTLD

8.2.2 These groups are: ccTLD manager, the registry, accredited registrars and registrants. The ccTLD Manager is independent of the Registry and only deals with registrants if dispute resolution is required. The Registry does not provide domain registration services to Registrants.

8.2.3 The October 20, 2000 "woodenman" model proposed the main roles, responsibilities and authorities of the three groups as follows:

Table 6- New Zealand

ccTLD Manager	Creates and enforces policies Oversees correct and efficient operation of the domain registration process Manages tenders and accreditation of Registry and Registrars Facilitates dispute resolution process Receives funding from the Registry from funds collected from Registrars
Registry	Provides/maintains systems for the Registrars and resellers Does not deal directly with registrants- sole customers are the Registrars Maintains a "thick Registry" and escrow services including the audit log (time-stamping of any changes to records) Provides the public with a basic WHOIS service Authenticates any cases where a registrant has lost their Unique ID (password) Collects fees from the Registrars and distributes some of these fees to itself and ccTLD Manager for infrastructure / overheads
Registrars	Provides all services including authentication passwords to the Registrant.

8.2.4 On October 20 2000, the Shared Registration System (SRS) working group tabled their "woodenman" proposed model for the .nz domain space. This model supersedes the three "strawmen" models which were tabled for discussion in July. The working group was formed on 31st March and they had hoped to complete the process by the 23rd June.

8.2.5 The three strawmen models were:

- A thin registry model with no interaction between the registrant and the registry. This model proposed the introduction of an "escrow agent" which would maintain the data not held in the registry so that an audit trail existed on all registry operations (eg transfers of domains). This escrow body would also provide a backup set of data in the event that a Registrar ceased operation or there was a dispute between parties.
- A "Lighter" registry where the registry acts as the operational arm of the ccTLD Manager. This model had a much larger amount of data sitting on the registry as the registry assumed the role that the escrow body would have performed under model 1. The registry would not deal directly with the registrant and the registrars would issue the password to the registrant.
- A Thick model which argued the case for providing registrants a hard copy certificate and discussed in some detail how they saw the mechanism working for managing the password or registrant ID.

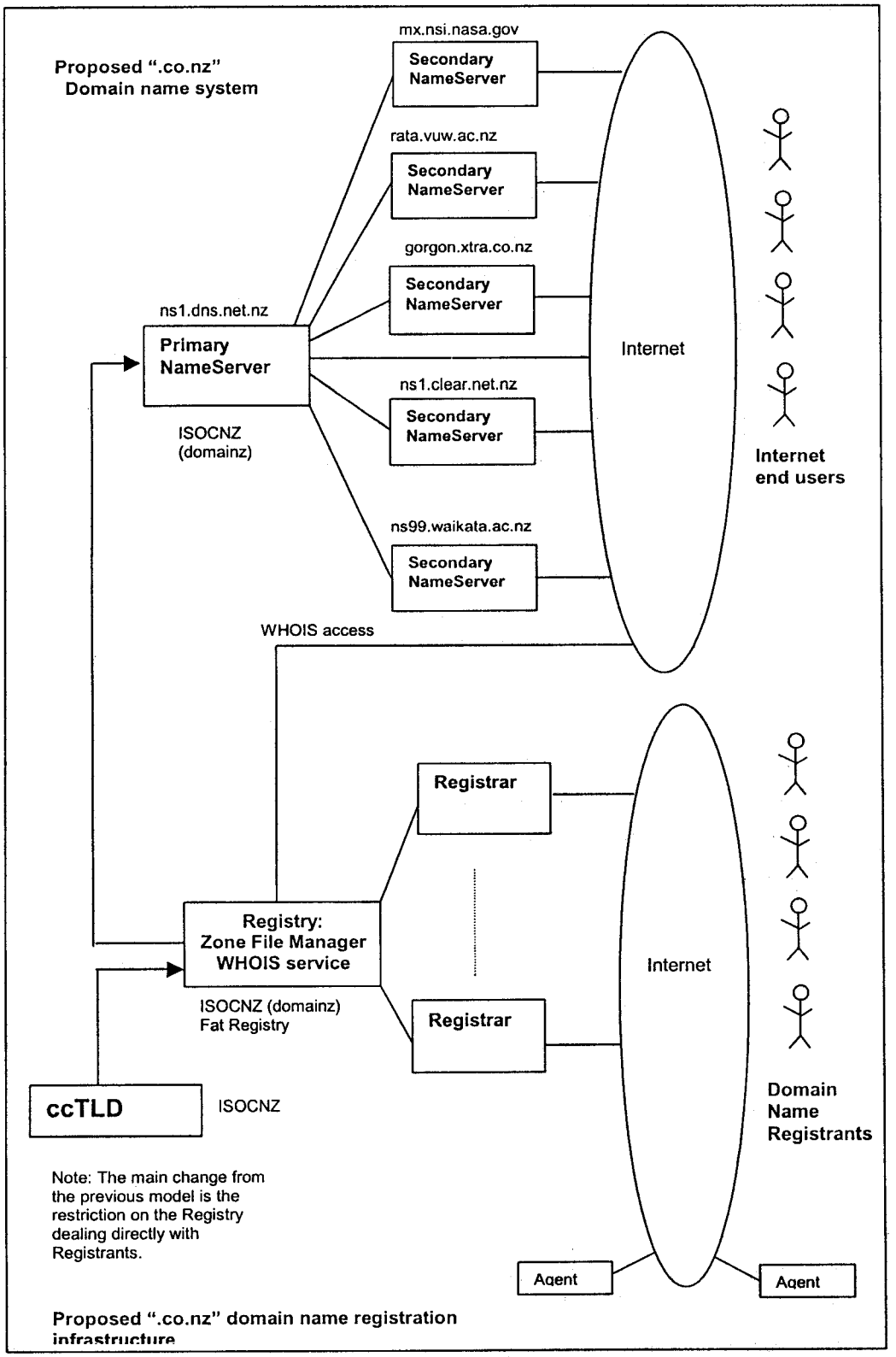
8.2.6 In reviewing the models, consideration was given to shortcomings in the current gTLD model where a "bungled" transfer resulted in "races.com" being accidentally made available to another applicant, and for the domain "sex.com" to be stolen by the use of a forged letter requesting a domain transfer.

Table 7- NZ Data Capture

Data to be maintained:

	WHO -IS	Registry	Registrar / registrant
Domain Name	Y	Y	Y
Registrar Name	Y	Y	Y
Registrar contact details	Y	Y	Y
Registrant Name	Y	Y	Y
Registrant (admin)contact details	Y	Y	Y
Technical contact information	Y	Y	Y
Domain Password		Y	Y
Name servers		Y	Y
Domain Name status		Y	Y
Domain expiry date		Y	Y
Initial registration date		Y	
History of domain name changes		Y	
Billing Name / Contact details			Y

Table 8- NZ Model



8.2.7 New Zealand's report is at http://www.isocnz.org.nz/consult/FinalReport201000.html. Analysis of the final model and industry discussions can be found at http://www.isocnz.org.nz/consult/Woodenman.html and this was decided upon after reviewing these 3 models http://www.isocnz.org.nz/consult/strawmen.html.

8.3 Canada

8.3.1 From November 8th, 2000 the Canadian domain name administration is handled by CIRA, the Canadian Internet Registration Authority. A transfer was made from the University of British Columbia (UBC) to CIRA. The explosion of the Net made the informal arrangements with UBC obsolete and necessitated a sound legal footing for domain name management.

8.3.2 CIRA is a not-for-profit association (www.cira.ca) in which Canadian Government has vested domain name administration. It is responsible for setting policy, managing and operating the .ca domain database and registering Domain Names. CIRA is now accrediting registrars in the .ca domain. While CIRA itself is a monopoly registry, there is active competition in the registrar business in Canada. As at November 24th, 2000, there were 63 CIRA accredited registrars. An informal organization of registrars, the ca-registrar group, has been formed to represent the registrars' interests to the CIRA Board.

8.3.3 CIRA's current Board is due to be gradually replaced by elected members. Holders of .ca domains are eligible to vote if they decide to become members of CIRA. The rules for holding .ca names are also due to be liberalised under the new CIRA regime; nevertheless Canadian citizenship, incorporation, or some form of physical presence is still required to hold a .ca name.

8.3.4 There are currently 98,000 .ca registrants. .ca names became available after November 8th to qualified applicants on a first-come, first-served basis. The CIRA website explains the eligibility rules and sets out a list of registrars that potential customers can peruse - (http://grive.cira.ca/en/docs_registrant.html). Further references can be found at http://www.internic.ca/transfer/faq.asp and http://www.cira.ca/.

8.4 United Kingdom

8.4.1 Domain name services in the UK are provided under a fat registry model. Nominet UK is the primary name server, registry, zone file manager and policy body for .uk domain names. Nominet states that it is "not a governing or regulatory body, but provides a public service for the .uk namespace on behalf of the Internet community".

8.4.2 Nominet has over 2000 members, mainly ISPs, who have voting rights in the way the company is run. Most members are also 'Tag Holders', which allows them to process domain name applications through Nominet's automated registration system, the 'Automaton', at a wholesale rate.

8.4.3 The Group recognised that the Nominet UK model has some interesting features that are worth exploring, and should be considered in more detail during later phases of the Panel's work.

8.4.4 The graphical representation of the Nominet UK model is found below.

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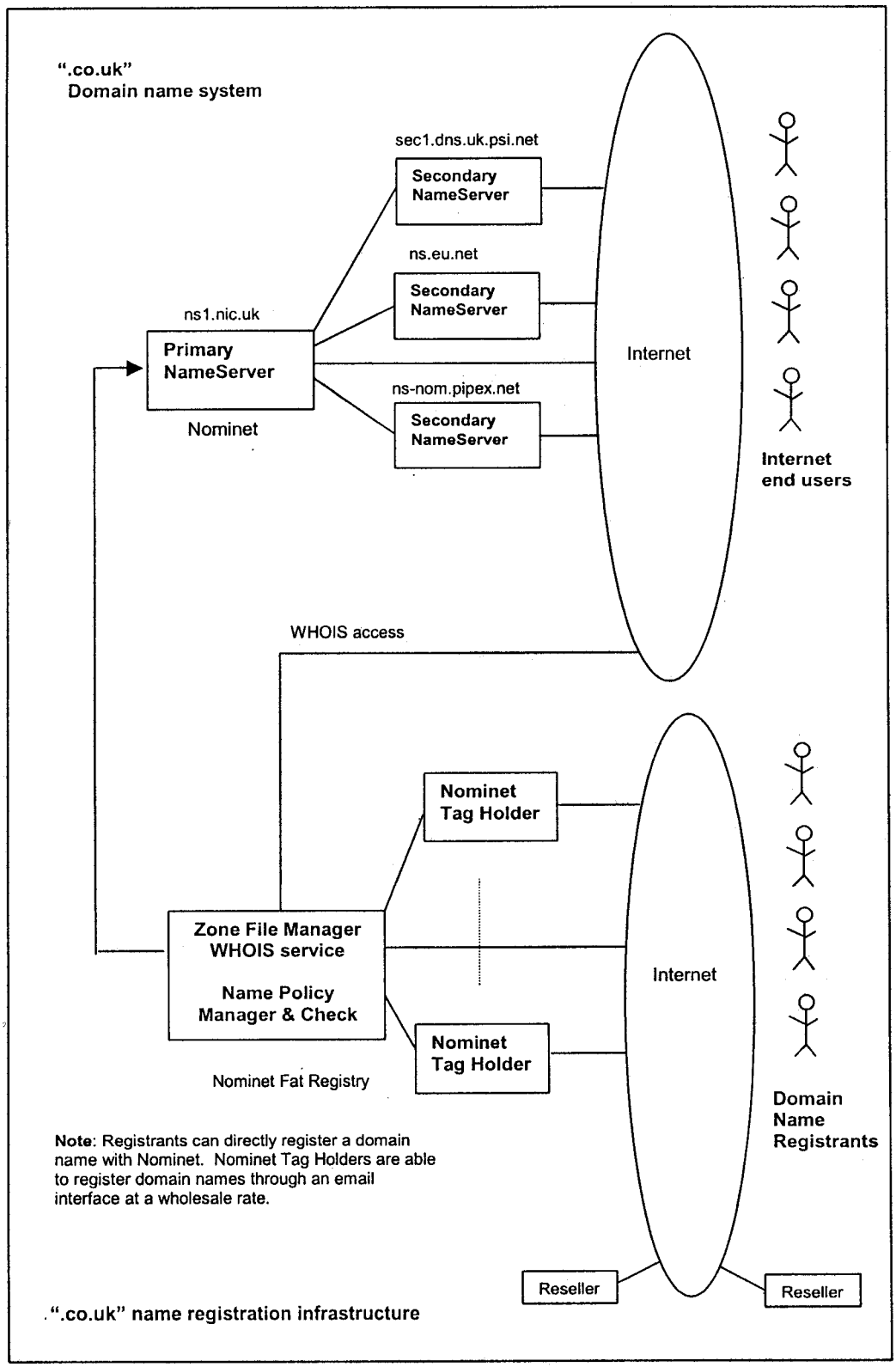
Table 9 - UK Model



9. Smaller country case studies

9.1 The smaller countries outlined below have taken different approaches to running their ccTLD. They are included here to provide an alternative view to the larger countries.

9.2 Tuvalu

9.2.1 The .tv domain space is managed by dotTV which has sole rights to the domain space as a result of a minimum US$4 million per annum deal. The competition they have introduced is only between their resellers. They sell direct to the public at US$50 per domain year and offer 30+% discounts to resellers. They do register generic and 1 – 3 character domain names at premium prices. They currently offer five Asian Internationalised domain characters.

9.3 Israel

9.3.1 The .il domain space is administered by ISOC-IL (the Israeli Internet Society) which acts as ccTLD manager and registry. It is still effectively a monopoly with an initial charge of US$60 for a two-year registration followed by US$20 for each subsequent two-year registration.

9.4 Cocos (Keeling) Islands

9.4.1 This is another domain space run by Americans who have very successfully marketed the domain space to the global market. They offer 24 internationalised domain character sets.

10. Criteria for Analysis

10.1 As the Group did their work it became obvious that there were sets of salient questions that needed answering before we could analyse the efficacy of any particular model. The questions are not an exhaustive list and the broader group may have some further comments to make.

10.2 We have included data for .au, .nz and .ca to illustrate what a completed table may look like.

Table 10 - Key Questions

	.au present	Proposed .nz	New Canada
Name of ccTLD Manager	Robert Elz AuDA has been delegated .com.au	Currently ISOCNZ	CIRA
Name of Registry	Various	Currently Domainz	CIRA
Structure			
can registrants register as second level domains?	No	No	Yes but geographic second levels exist
are separate registry functions maintained for the different second level domains?	Yes	No	N/A
is the Registry separate from the ccTLD Manager?	Yes	Yes	No
can the Registry act as a Registrar?	Yes- sole registrars but reseller programs are in place with .com.au	No	No
who is responsible for maintaining the WHOIS database?	AUNIC , Connect	Registry	CIRA
who is responsible for running, maintenance and redundancy of DNS name servers?	Registries/ Robert Elz	Registry	CIRA
who generates the zone files?	Registries	Registry	CIRA
how readily can domains be transferred to a new Registrar?	N/A	Easy	Easy
Contracts			
are all contracts with registry(ies) managed by the ccTLD Manager?	auDA manages .com.au contract	Yes	Yes
how is the tender process for the Registry function managed?	N/A	To be determined	N/A
who accredits and manages the Registrars?	Robert Elz	ccTLD Manager	ccTLD Manager/Registry
who manages the ccTLD and its delegation?	Robert Elz	Currently ISOCNZ	CIRA
Policy – if there is a policy with respect to names then			
who sets the policies?	Robert Elz	ccTLD Manager	CIRA
who implements them?	Registries	Registry	CIRA

how automatable is the policy checking process?	Partial	Fully	Fully
Disputes			
what dispute resolution processes exist and do they apply to all levels of dispute,	Independent arbitration at .com.au, none at .au level	Guidelines set and process facilitated by ccTLD Manager	CIRA are developing Alternate Dispute Resolution policy
who sets the dispute resolution guidelines?	Registries	ccTLD Manager	CIRA
who arbitrates those disputes and where does that take place?	Independent arbiter chosen and paid for by complainant	Independent Arbiter	TBA
are all disputes handled by the same mechanism?	N/A	N/A	N/A
Escrow			
what is the extent of data that is maintained, where is it held, who has access to it?	Registrant info not centralised	Extensive	
Does this data include an audit log (time-stamping history) ?	No	Yes	
Is this data held in escrow ?	AUNIC data is not in escrow, Melbourne IT data has good redundancy	Yes	
who is responsible for it ?	Registries	Registry	CIRA
does the ccTLD Manager have access to it?	No	Yes	N/A
what data is held by Registrars that is not in escrow?	N/A	Billing only	Billing only
Security			
authentication for access to domain names – issued by registrar or registry	N/A	Registrar	
password control – who does it and who manages authentication	N/A	Registrar	
are there hard copy certificates issued	No	No	No

Costs			
how much is paid for the registry function and who pays for it	N/A		Registrars pay C$1000 + $20 per domain year to CIRA
who pays the ccTLD Manager and how is this managed	Robert Elz acts as volunteer. AuDA receives funding from Government and key registries	Registry	Registrars

11. Conclusions - Making Rational Choices About Realistic Models

11.1 The documentation here provides a comprehensive illustration of how competition has been implemented in other countries around the world. The Sub Group has attempted to be objective, descriptive and factual in their data collection. Any correction of errors is welcomed.

11.2 The Group have not made any recommendations about any particular model – this analysis for the next stage of the broader Group's work. We have identified a number of issues which will need to be taken into account in the Stage Three analysis and will contribute those issues to the Group as a whole.

Appendix One – Detailed Discussion of Regions

This section gives some detail on the approach to competition in each region. Each of the volunteers used the CMAP terms of reference as the filter for the issues they would focus on and the outcomes they found to work effectively. In some cases, little information is available and that has been highlighted. The spreadsheets indicating the attributes of each ccTLD is included for further information.

Africa

Summary

There are no competitive registries in operation in Africa. Some country codes have only recently been delegated, eg .ps, Palestinian States, and many NICs which have been established are unstable possibly due to political problems and/or issues with reliable bandwidth, eg .ng, Nigeria, .sd, Sudan, & .gm, Gambia. Given the difficulties, the fact that some registries exist at all is quite astounding.

Various domain registrars around the world offer to register domains in the African ccTLDs for nominal fees plus the ccTLD charges if they apply. Fees for domain registrations vary widely between the African ccTLDs. A popular model in operation is free registrations for local organisations in order to stimulate local interest in the Internet, with charges being applied to international organisations, eg .cg, Republic of Congo.

Other ccTLDs are operated as commercial concerns by organisations/individuals outside of the country concerned, eg .sh, St Helena and .ac, Ascension Island. In most cases it was unclear who were beneficiaries of monies collected via domain registrations. Many ccTLDs imposed restrictions on name choice to organisational relevant names within the 2LD hierarchy. Others permitted any "non-offensive" names at the top-level.

The website, http://www.afridns.org, was immensely helpful in consolidating information. This organisation is Africa's parallel to ICANN. This site lists the state of play with many of the ccTLD registries and hosts mailing lists where issues with African domain name registries are discussed.

Of interest to .au, or maybe .au will be of interest to the interested parties in South Africa, is the current state of play with the South African domain, .za. .za has a similar model to .au, where .co.za is run as a commercial registry and a volunteer handles all other 2LD's. Discussions are in progress as to the future of the .za domain. These discussions are available at:
http://www.isoc.org.za/dc/index.html

Asia/Australia/Pacific

Summary

There is very little homogenous information on this region. The region includes such diverse countries as Israel, Australia and the small Pacific States. With respect to the latter, the impact of the sale of country codes such as .tv is not yet fully understood but the commercialisation of country codes is an important issue requiring further investigation.

Australia

This information is provided in the Stage One CMAP document.

Asia/Pacific

This enormous collection of countries offers little homogeneity with respect to competition. Each of the country codes are outlined in the associated spreadsheets detailing delegation of authority and management of root servers.

Europe

Summary

The really competitive regimes are those where the registry allows ISPs and other registrars (aka "participants", "suppliers") to register domains as well as themselves. Even small countries like Sweden had literally hundreds of registrars, along with very cheap domains (the cheapest being Denmark at approximately $8.70 + tax per year). The most expensive was Ireland, which was competitive.

The least competitive and most restrictive regimes was a tie between .eu (in transition), Nominet (UK) and Greece (which is like Australia was about 10 years ago before .net.au and .com.au were spun off).

All European ccTLD registries (with the exception of .uk) allowed domainname.cc, with Germany taking the cake for 2LD - over three million.

Currency conversion is via http://www.fxtop.com if euro price is not marked. If an annual fee in national currency says "+ VAT", the converted euro price is without VAT. http://www.iana.org/cctld/cctld-whois.htm was priceless to me in the preparation of this spreadsheet. Most registries have complete English pages, with the exception of Portugal, Sweden and Netherlands (http://babelfish.altavista.com) ftp://ftp.ripe.net/ripe/docs/ripe-152.txt is an interesting read for somewhere further down the track.

Latin America/Caribbean

Summary

Domain name registration throughout Latin America and the Caribbean has not yet reached the stage of development where competition has been introduced . Consequently the existing policies in this region provide very little input to the process of developing a competition model recommendation for Australia There are 41 countries in the region of which 20 are members of LACTLD (Latin American Caribbean Country Code Top Level Domain Organization). At present there are only three registration models operating in the various countries investigated:

1. Administration is still maintained by Universities / Government ministries.
2. Administration is maintained by commercial organisations promoting the ccTLDs as international domains (eg. .tt, .ag)
3. For some of the smaller Caribbean countries the local telecommunication company maintains the administration. Domain registration in these cases is rarely advertised on the websites, but is available by email contact.

The pricing levels are still relatively high and numbers of registration are relatively low compared with most other regions of the world. None of the services in this region offer immediate on-line registration, so cost of processing a registration is not insignificant.

Not only do the countries investigated currently operate under a monopoly , but also there appear to be very few offering reseller programs. ISPs and other companies acting as resellers are charging fees in addition to those that would be charged if registering directly with the Registry. Of the 35 countries reviewed all have a central Registry which acts as the Registry for all first and second level domains.

Although outside the scope of this panel's brief , it is interesting to note that several countries are already offering a wide range of second level domains. Brazil for example offers 32 profession codes (eg .trd.br for translators). Most countries require a local presence to register a domain name.

North America

Summary

USA

The .us domain name is one of the most under-used in existence. It provides little in the way of useful information on competition and is referred back to the group for further study.

Canada

This information is provided in the main body of the document above.

Appendix Two – Glossary of Terms

In discussing worldwide competition models, we found it useful to have a ready reckoner of definitions. The following is not an exhaustive list but it is what the Stage Two Group have been using in their analysis.

DNS - Domain Name System

Provides a means for a user to access a computer on the Internet by using an easy to remember text name, instead of the numerical Internet address. The service is provided by a series of directories arranged in a hierarchy. These on-line directories are called **nameservers**. When a user types in a domain name in their Web browser, their computer queries a nameserver (or sequence of nameservers) to obtain the numerical IP address. The top of the hierarchy is ".", and the top-level directory is called the **root server**. The hierarchy then consists of the "global top level domains (gTLDs) such as ".com", ".net", and ".org", along with country code top level domains (ccTLDs) such as ".au" and ".uk". The second level of the hierarchy (2LDS) consists of ".com.au" or ".co.uk". Each part of the hierarchy consists of a **primary nameserver**, which also updates **secondary nameservers**. These nameservers contain the accurate status of all domains in their part of the domain name hierarchy (zone) at any point in time.

Organisations can also make copies of the data in these Nameservers to provide their own nameserver service (often called a DNS server), but the data may be out-of-date. Each domain name in a nameserver may in turn point to a nameserver that contains more detail on that domain (for example a company such as melbourneit.com.au, can run its own name servers to describe machines in that domain eg leda.melbourneit.com.au).

Primary Name Server

Provides an on-line directory with the official mapping of domain names to their corresponding nameservers for a particular part of the domain name hierarchy. The process of assigning a nameserver to a domain name is called **delegation**. Examples include munnari.oz.au (".com.au") maintained by the University of Melbourne, and yalumba.connect.com.au (".net.au") maintained by connect.com.au.

Secondary Name Server

Provides some redundancy to the Primary Name Server. If a computer can't reach a primary name server, then it can query a secondary name server. For reasons of balancing the processing load, it is preferable to use a secondary name server nearby. For example, European users of ".com" would access a secondary name server for ".com" in Europe.

Root server

The root server is the primary name server for ".". It contains mappings between ".com", ".au" etc and their corresponding nameservers. It is the key to the domain name system and is maintained in a carrier-class data centre, with high security. It is called a.root-servers.net. There are 12 secondary root servers - most of which reside in the USA, with one in Sweden and one in Japan.

Domain Name Delegation

Is the process of assigning a nameserver for a particular domain name. A domain name without a nameserver is **undelegated**, and hence unreachable by an Internet user. When a user moves a computer from one ISP to another ISP,

they usually need to change the nameserver information. This is called re-delegation. There are security issues here, and usually some proof is required before the manager of a particular part of the domain name hierarchy will make a change (eg via a unique password for each domain name).

Thin Registry

Is central database of domain name information for a particular part of the domain name hierarchy (eg ".com"), which only contains minimal details for each domain name. These details normally include the domain name and the corresponding nameserver. Verisign Global Registry Services provide a thin registry for ".com", and Melbourne IT maintains a thin registry for ".com.au". The thin registry database is used to create a Zone file, which is sent to the Primary Name Server for that part of the domain name hierarchy.

Fat Registry

Is a central database of domain name information that includes details of the domain name **registrant**, in addition to the basic DNS information. Examples include ".ca" and ".co.uk". This registry normally provides a service for querying details of the registrant of a particular domain name, in addition to the services described above under thin registry. This service is commonly called a **WHOIS** service.

WHOIS service

Is a service that allows users to query details of the Registrant of a particular domain name. For ".com.au" this service is provided by AUNIC (which stores the authoritative details of domain name registrants separately from Melbourne IT). For ".com", this information is distributed amongst organisations that handle customer service. For most other domains, the "fat registry" operator provides the service.

Zone

Is a part of the domain name hierarchy.

Zone file

The zone file contains the mappings between domain names and their corresponding nameservers for a particular zone. Examples of zones include ".com", ".au", and ".com.au". The zone file for ".au" contains the domain ".com.au" and a mapping to munnari.oz.au as the nameserver. The zone file for "com.au" contains the domain "telstra.com.au" and a mapping to ns.telstra.com.au as the nameserver.

Domain Name Registrant

The person or organisation that applies for a domain name.

Accredited Registrar

An organisation that interfaces directly to the Registry provider, and has passed an accreditation process.

This term commonly applies to the ICANN model, where ICANN accredits **Registrars** to connect to a **Registry**.

The **Registrar** primarily provides a customer service function, and pays a fixed fee to the **Registry** for each domain name registered. Registrars can sell domain names directly to Registrants, or they can provide a wholesale service to Resellers (which is often an improved software interface compared to the basic service provided by the Registry). For example, Melbourne IT is an accredited Registrar with ICANN for ".com". "net", and ".org", and primarily provides a wholesale service to resellers (typically ISPs). In this model, the Registry does not directly interface with registrants (hence has minimal customer service costs). This is term is typically used where there is no policy to be applied at the Registry. Examples include the ICANN model for ".com", and the model for ".ca".

Resellers, Members, Registrars

These terms are basically equivalent. ".com.au" and ".co.uk" have a large number of resellers that handle the customer service issues of providing domain names, and receive a wholesale discount from the Registry operator (eg Nominet). ".uk" uses the term "Members", as the Registry operator is non-for-profit and members have a vote in the operation of the operator. Both Melbourne IT (".com.au") and Nominet (".uk") also provide services direct to Registrants at a retail price. ".com" has thousands of resellers that each needs to connect to an accredited registrar, which in turn connects to the Registry. Note also that some of the larger resellers in turn provide wholesale services to smaller resellers and so on. Thus the supply chain is similar to any other retail supply chain for a commodity product.

Appendix Three – The Global Picture: ccTLDs

Africa

ccTLD	Country	Name of the Service	Name of the Institution	Type of organisation	Annual Pricing	Local Presence Required	Range of second level domains	Comments
.ac	Acension Island	NIC.AC	Cable & Wireless	Telecom/ISP company	Free locals, US$50 others	No	unrestricted, first come, first served	
.ao	Angola		Faculdade de Engenharia da Universidade Agostinho Neto	University				Possibly administered from Portugal
.bf	Burkina Faso		Délégué Général à l'Informatique du Burkina Faso	Government Ministry				
.bi	Burundi	NIC-Congo	NIC-Congo/Centre National de l'Informatique	Not stated	Free locals, Chf350 others	No	unrestricted, first come, first served at top level, restricted in gov, edu, int, com, co, ac, mil, net gouv	
.bj	Benin		Offices des Posteset Telecommunications du Benin	Government Ministry				
.bv	Bouvet Island		UNINETT A/S Norway	Non-Profit Organisation				Applicants deferred to register in .no, no current registrations in this ccTLD
.bw	Botswana		Botswana Telecommunications Corporation	Telecom/ISP company				
.cd	Democratic People's Republic of Congo	NIC-Congo	ONPT Congo and Interpoint Switzerland	Not stated	Free locals, Chf350 others	No	unrestricted, first come, first served at top level, restricted in gov, edu, int, com, co, ac, mil, net gouv	
.cf	Central African Republic		Societe Centrafricaine de Telecommunications - SOCATEL	Not stated		Yes		No registrations at present
.cg	Republic of Congo	NIC-Congo	ONPT Congo and Interpoint Switzerland	Not stated	Free locals, Chf350 others		unrestricted, first come, first served at top level, restricted in gov, edu, int, com, co, ac, mil, net gouv	
.ci	Cote d'Ivoire	CINIC	INP-HB Institut National Polytechnique Felix Houphouet Boigny	Not stated	US$60	Yes		
.cm	Cameroon	CM DOM-REG	INTELCAM	Telecom/ISP company	US$150			
.cv	Cap Verde		Instituto Superior de Engenharia e Ciencias do Mar	Not stated	Free	Yes		
.dj	Djibouti		Societe des Telecommunications Internationales de Djibouti (STID)	Not stated	Free	Yes		
.dz	Algeria		CERIST	Not stated	Free	Yes		No registrations at present
.eg	Egypt		Egyptian Universities Network (EUN)	University Co-operative	Free	Yes		Need connection to EG net to register
.eh	Western Sahara							Not delegated or established due to political problems
.er	Eritrea		Eritrea Information Systems Agency (EISA)	Not stated	Free	Yes	com, edu, gov	
.et	Ethiopia		Ethiopian Telecommunications Corporation	Telecom/ISP company	not stated	Yes		
.ga	Gabon		Office des Postes & Telecommunications de la Republique Gabonaise	Government Ministry	not stated	Yes		
.gh	Ghana		Network Computer Systems Limited	Telecom/ISP company	US$50	Yes	com, edu, gov, org, mil	
.gm	Gambia	GM-NIC	GM-NIC	Not stated	US$75	Not required if have domain in other national TLD registered		Appears to be administered from Norway - Concerns about administration raised
.gn	Guinea		Centre National des Sciences Halieutiques de Boussoura	Not stated	Free	Yes	com, ac, gov, org, net	
.gq	Equatorial Guinea		GETESA - La Sociedad Anonima de Telecomunicaciones de la Republica de Guinea Ecuatorial	Not stated	Free	Yes		
.gw	Guinea Bissau		Guine Telecom	Telecom/ISP company	Free	Yes		
.ke	Kenya		NairobiNet Online	Telecom/ISP company	US$50	Yes	co, ac	
.km	Comoros		SNPT(Societe Nationale des Postes et Telecommunications)	Not stated	Not stated	Not stated		Just assigned - not yet in operation
.lr	Liberia		Data Technology Solutions, Inc.	Technology Company	Free	Yes		
.ls	Lesotho		National University of Lesotho	University	Free	Yes		
.ly	Libya	NIC LY	LYDOMAINS.COM	Telecom/ISP company	US$100	No	com, edu, net	
.ma	Morocco		ANRT - L'Agence Nationale de Réglementation des Télécommunications	Government Ministry	US$110	No		
.mg	Madagascar		Ecole Superieure Polytechnique d'Antananarivo (ESPA)	University	Free	Yes		
.ml	Mali		Societe des Telecommunications du Mali (SOTELMA)	Government Ministry	Free	Yes		

Africa

ccTLD	Country	Name of the Service	Name of the Institution	Type of organisation	Annual Pricing	Local Presence Required	Range of second level domains	Comments
.mr	Mauritania	NIC Mauritanie	La Faculté des Sciences et Techniques de l'Université de Nouakchott	University	Free	Yes	org, com, edu	
.mu	Mauritius	.mu NIC	Internet Direct Ltd	Telecom/ISP company	Free	Yes		
.mw	Malawi		TARSUS SOFTWARE, INC.	Technology Company	US$70	No		
.mz	Mozambique		Centro de Informatica de Universidade Eduardo Mondlane	University	US$100 + US$50/modification	Yes	co or top level	
.na	Namibia	NA-NIC	Namibian Network Information Center	Not stated	Depends on Tld requested & origin of requestor - foreigners pay more	No	com, org, alt, cul, edu, un, net	
.ne	Niger		La Société Nigérienne des Télécommunications	Government Ministry	Free	Yes		
.ng	Nigeria				Free	Yes		
.ps	Palestinian Territories		Government Computer Center Ministry of Planning and International Cooperation	Government Ministry	not stated	not stated		New delegation
.re	Reunion Island	AFNIC (NIC France)	Association Française pour le Nommage Internet en Coopération	Not stated	Free	Yes		
.rw	Rwanda	NIC-Congo	NIC Congo - Interpoint SARL	Not stated	Free locals, Chf350 others	No	unrestricted, first come, first served at top level, restricted in gov, edu, int, com, co, ac, mil, net gouv	
.sc	Seychelles		ATLAS (Seychelles) Ltd	Not stated	US$200	No		
.sd	Sudan		Sudatel	Government Ministry				Complaints registered about operation of this domain - not operational due to political problems
.sh	St. Helena	NIC .SH	ICB Plc.	Telecom/ISP company	Free locals, US$50 others	No	unrestricted, first come, first served	
.sl	Sierra Leone		Sierratel	Not stated				
.sn	Senegal	NIC Sénégal	Ecole Supérieure Polytechnique Université Cheikh Anta Diop de Dakar	University	Free	No		Not accepting registrations yet
.so	Somalia				Free	Yes		
.st	Sao Tome and Principe	ST Registry	ST Registry - Sweden	Not stated	US$70	No		Not accepting registrations yet - NIC website doesn't respond
.sz	Swaziland		Africa Online Swaziland	Telecom/ISP company	Free	Yes		
.td	Chad		Telecommunications Internationale du Tchad (TIT)	Not stated				No registrations at present - NIC website doesn't respond
.tf	French Southern Territories		AdamsNames	Domain Registration Company	US$50	No		
.tg	Togo		CAFE INFORMATIQUE AND TELECOMMUNICATION	Government Ministry	Free	Yes		
.tn	Tunisia	NIC TUNISIE	Agence Tunisienne d'Internet	Government Ministry	$US55	Yes		
.tz	Tanzania		University of Dar Es Salaam	University	Free	Yes		
.ug	Uganda		The Uganda Domain Name Service	Not stated	$US50	Yes	co, or, ne, go, ac	
.yt	Mayotte	AFNIC (NIC France)	Association Française pour le Nommage Internet en Coopération		$US20	Yes		
.za	South Africa		National Research Foundation	Not stated	$US50	No		**Similar to .au - co.za registered differently from other 2lds - discussion on futures © http://www.isoc.org.za/dc/index.html**
.zm	Zambia		Zamnet Communications Systems	Telecom/ISP company	$US50	Yes		
.zr	Zaire	NIC Congo	NIC Congo - Interpoint SARL	Not stated	Free locals, Chf350 others	No	unrestricted, first come, first served at top level, restricted in gov, edu, int, com, co, ac, mil, net gov	
.zw	Zimbabwe		Telecommunications Regulatory Authority (ERT)	Government Ministry	$US50	Yes		

ASIA PACIFIC

ccTLD	Country	Name of the Service	Name of the Institution	Type of organisation	Annual Pricing	Local Presence Required	Range of second level domains	Comments
.as	America Samoa	asnic	AS Domain Registry	Registry	US$45	No	Not mentioned	1st 2yrs payable in advance
.au	Australia							
.bd	Bangladesh	No name	Ministry of Post and Communications	Gov Dept	?	?	?	Application by post
.bn	Brunei Darusalaam	BruNet	Jabatan Telekom	Gov.Dept	$250 first yr ($50 subsequent yrs)	?	com,org,edu,gov	
.bt	Bhutan	BTNIC	Ministry of Communications - Division of Telecom	Gov	Nu1800	Not Stated	com,org,gov,edu,net	
.cc	Cocos (Keeling) Islands	eNIC (now)	eNIC Corporation	Corporation	US$50	Not Stated	unrestricted	
.ck	Cook Islands	Oyster TCI Internet Services	Telecom Cook Islands	Telecom NZ (60%) Cook Island Gov (40%)	US$35 local's, NZ$75 others	no	co,org,edu,gov,net	
.cn	China	CNNIC	Chinese Academy of Science	Non-profit	300RMB	yes	com,org,gov,net, ac, bj,sh,tj,cq +many more	Application by post
.cx	Christmas Island	Dot CX	Dot CX	Non-profit Christmas Island company	Not stated	no	unrestricted	Under reconstruction - currently no accredited registrars
.fj	Fiji	FJ Domain Registration	University of the South Pacific	University	US$50			
.fm	Fed States Micronesia	Dot.FM	BRS Media (also has ccTLD .am)	Corporation	US$100	No	Unrestricted	BRS Media (also has ccTLD .am)
.gu	Guam	?	University of Guam Computer Centre	University	Not stated	Not stated	Not stated	
.hk	Hong Kong	HKNIC	Joint Universities Computer Centres		Free	Yes	.org.hk; EDU.HK, GOV.HK, COM.HK, NET.HK, ORG.HK	
.id	Indonesia	IDDomreg	?	?	Rp.165.000,00	?	web, sch, war.net.id, ac, co, or, net, mil	Site was in Bahasa so couldn't read!
.in	India	Indian Domain Registration Services	National Centre for Software Technology	R&D Centre of Ministry of IT	Rs750	Yes	co,firm,ac,res,gov,mil,net,org,ind ,gen	
.io	British Indian Ocean Territory	INTERNET ONE	Cable & Wireless	Corporation	GBP30	No	com,org,net,gov,mil,edu	
.jp	Japan	JPNIC	JPNIC	Incorporated Government Authorised Association	?	?	?	Site in Japanese Text
.kh	Cambodia	CAMNET	Ministry of Posts and Telecommunications	Gov ISP	US$60	Not stated	ac,com,edu,gov,mil,net,org	
.ki	Kiribati	?	Ministry of Renewable Resources	Gov	?	?	?	not online
.km	Comoros	?	SNPT(Societe Nationale des Postes et Telecommunications)	Gov	?	?	?	not online
.kp	Korea (North)	?	?	?	?	?	?	not online (not in use?)
.kr	Korea (South)	KRNIC	Ministry of Communications and Information	Gov	?	?	ac,co,or,go,ne,re,es,ms,hs,sc + numerous regional 2LDs	Couldn't find how to register online from site
.la	Laos	?	Science, Technology and Environment Organization (STENO) Prime Minister's Office	?	?	?	?	not online
.lk	Sri Lanka	Sri Lanka Domain Registry	CINTEC (=Council for IT)	Branch of university runs day to day ops, and is overseen by Gov.	Rs.2500	Yes	com,gov,sch, and unrestricted	
.mg	Madagascar	?	Ecole Superieure Polytechnique d'Antananarivo (ESPA)	?	?	?	?	site not online
.mh	Marshall Islands	Marshall Islands NIC	Marshall Islands NIC	Not stated	Not stated	Not stated	Not stated	limited info on site
.mm	Myanmar	MMNIC	MMNIC	Not stated	$50 (US)	No (but additional $100 charge if no local address)	edu,com,gov,mil,net,org,mail,nic	
.mn	Mongolia	.MN Domain Registry	Datacom Company	ISP	US$55	Yes	unrestricted	
.mo	Macau	MONIC	University of Macau	University	Free	Yes	com,gov,edu,net,org	
.mp	North Mariana Islands	DOTMP	Saipan Datacom, Inc.	Corp.contracted long term by gov.	Not stated	Not stated	Not stated	
.mu	Mauritius	Not stated	Internet Direct Ltd	?	Not stated	Not stated	co,org,net,ac + unrestricted	
.mv	Maldives	?	Dhiraagu Pvt. Ltd.	?	?	?	?	Not online
.my	Malaysia	MYNIC	Malaysian Institute of Microelectronic Systems (MIMOS)	Corporatised Gov. Dept.	RM. 100.00	yes	com, net, org, gov, edu, mil	
.nc	New Caledonia	Domain Name Registration	Institut de recherche pour le développement (IRD)	?	Free	yes	unrestricted - (current public domains - asso, culture)	

ASIA PACIFIC

ccTLD	Country	Name of the Service	Name of the Institution	Type of organisation	Annual Pricing	Local Presence Required	Range of second level domains	Comments
.nf	Norfolk Island	Norfolk Island Data Services	Norfolk Island Data Services	ISP	Standard US$50 Premium US$100	No	Unrestricted (Premium) and com,rec,per...	
.np	Nepal		Mercantile Communications Pvt. Ltd.	Company	Free	No	com,org,net,gov	
.nr	Nauru	?	CENPAC NET	?		?	?	Not online
.nu	Niue	.nu	Internet Users Society - Niue a US-incorporated, tax exempt foundation, and the Savage Island Network in Niue	(see previous column)	2yrs-US$45, 3yrs-$65, 4yrs-$85, 5yrs-$100, 10yrs-$200	no	Unrestricted	
.nz	New Zealand	domainNZ	The New Zealand Internet Registry Ltd.	Company	$44	Not stated	co, govt, iwi, cri, school, ac, org, mil, net and gen	
.pf	French Polynesia	?	MANA S.A.	?	?	?	?	site not online
.pg	Papua New Guinea	PNG DNS Administration	The Papua New Guinea University of Technology	University	?	?	?	couldn't access uni site : http://www.unitech.ac.pg/
.ph	Philippines	dotPHone	dotPHone	Incorporated Entity	US$35	No	unrestricted	.gov.ph & .edu.ph subdomains administered seperately
.pk	Pakistan	PKNIC	Ashar Research	Self supporting organisation	Rs.1000	Local Admin Contact required	web,biz,com,gov,net,edu,fam,gov,gob,gok,gon,gop,gos	
.pn	Pitcairn	.pn	Pitcairn Island Council	Council	US$50 or by auction for generic names	No	gpv,co,org,edu,net + uinrestricted	
.pw	Palau	PW Domain Registry	PW Domain Registry	?	?	?	?	site not online
.re	Reunion	AFNIC	AFNIC (French Association for Internet Naming in Cooperation)	Non-profit	?	yes	?	Run by FrenchNIC as Reunion is French Dependency (website in French)
.sb	Solomon Islands	SNIC	SBNIC	Not stated	$SB300	No	com,net,org,edu,gov	
.sc	Seychelles		ATLAS Seychelles Ltd.	ISP	?	?	?	Service not available online
.sg	Singapore	The .sg Domain Registry	SGNIC	Not for profit wholly owned subsidiary of National Computer Board (NCB)	1st domain - $60, 2nd & subsequent $120	yes	com,net,org,gov,edu	
.tf	French Southern Territories	Adam's Names - The Internet Names Organisation	Adam's Names - The Internet Names Organisation	Company	US$50	no	unrestricted	English Company
.th	Thailand	THNIC	THNIC	Not stated	US$28	No	co,ac,go,net,or,mi,in	
.tk	Tokelau	2day.com	2Day Internet Limited	private company (web hosting)	?	?	?	NZ company. No info on .tk on the site
.to	Tonga	TONIC	TONIC	Corporation	US$50	No	Unrestricted	Works in conjunction with Government of Tonga
.tp	East Timor	.tp Domain Registration	Connect-Ireland Communications Ltd	ISP	$30 (Currency?)	No	com,net,org,gov,mil,edu + unrestricted	Administered from Ireland
.tv	Tuvalu	dotTV	dotTV	Corporation	$US50-100,000	No	unrestricted	Run by corporation, with royalties paid to Tuvalu
.tw	Taiwan, Province of	TWNIC	?	?	?	?	?	Site in Taiwanese Script
.vn	Vietnam	Vietnam Internet Network Information Center (VNNIC)	General Department of Posts and Telecommunications of Vietnam	Gov Dept	?	?	?	Site in Vietnemese
.vu	Vanuatu	VUNIC	TONIC + Telecom Vanuata Ltd	Corporation	US$50	No	unrestricted	Run by TONIC (.to)
.wf	Wallis & Futuna Islands	AFNIC	AFNIC (French Association for Internet Naming in Cooperation)	Non-profit	?	yes	?	Run by FrenchNIC as is French Dependency (website in French)
.ws	Samoa	The.WS Samoan World Site	Computer Services Ltd	Company	4+letters=US$35 , 3 letters=$1000, 2 letters=2500	no	com,net,org,gov,edu +unrestricted	

Canada

ccTLD	Country	Name of the Service	Name of the Institution	Type of organisation	Annual Pricing	Local Presence Reqd	Range of second level domains	Comments
.ca	Canada	CIRA	Canadian Internet Registration Authority	Non-profit	Varies - typical pricing $CDN25	Yes - Canadian citizenship, incorporation, physical presence	unrestricted	Change-over during review process from non-competitive to competitive process

Europe

ccTLD	Country	Name of the Service	Name of the Institution	Type of organisation	Annual Pricing	Local Presence Required	Range of second level domains	Comments
.at	Austria	nic.at	Internet Verwaltungs- und Betriebsgesellschaft m.b.H.	ISP controlled company	ATS 500	No	.co.at, or.at, many others	
.be	Belgium	DNS-BE VZW	DNS-BE VZW	Civil association with industry, education, ISP and other players	BEF 2000	Yes	.be, many others	Registration through registrars and DNSBE
.de	Germany	deNIC eG	DENIC eG Domain Verwaltungs- und Betriebsgesellschaft	ISP Cooperative	DM 113.44	No	.de, many others (about three million)	
.dk	Denmark	DK Hostmaster	DK Hostmaster A/S	ISP controlled company	DK 40 + VAT	No	.dk, many others (about 230,000)	Registration through registrars and DK Hostmaster
.es	Spain	ES-NIC	Centro de Comunicactiones CSIC RedIRIRS (ES-NIC)	Government formed body, ISPs are "suppliers"	ESP 8000	No	.es, many others	Must register through suppliers (ISPs)
.eu	Europe	EC-POP	EC Panel of Participants in Internet Organisation and Management	EC body similar to auDA	N/A	Yes		
.fi	Finland	EUnet Finland Oy	Telecommunications Administration Centre Finland	Government body (equivalent to old style department)	FIM 100	Yes	.fi, many others	Foreign nationals can register through creating registering with Finnish Trade Register
.fr	France	AFNIC (NIC France)	Association Française pour le Nommage Internet en Coopération	Non-profit org	FF 100 + VAT	No	.fr, .com.fr, .tm.fr, many others	Must register through suppliers (ISPs). Very competitive
.gr	Austria	ICS-FORTH GR	Department of Internet Domain Names Administration	University	DRS 8850	No	.com.gr, .edu.gr, .org.gr, many others	Very basic functionality
.ie	Ireland	University College Dublin	IE Domain Registry in University College Dublin	University	IEP 100	No	.ie - many others	Open and transparent. 60% discount for 10 or more domains. ISPs create domains through nic.ie
.it	Italy	IAT - CNR	Registration Authority Italiana	Government body with University/Research background	ITL 200,000	No	.it - many others	
.lu	Luxembourg	RESTENA	DNS-LU	Government body with University/Research background	LUF 3000	No	.lu - many others	
.nl	Netherlands	SIDN	Stichting Internet Domeinregistratie Nederland	Non-profit org	NLG 100 + VAT	If in .eu then NO, else YES - but can use a .NL intermediary	.nl - many others	Registration only through "participants" (ISPs and other bodies). Prices derived from www.netco.nl
.pt	Portugal	FCCN	Fundacao para a Computacao Cientifica Nacional	Private company within research organisation	12000 + 17% VAT	No	.pt - many others	
.se	Sweden	II-Stiftelsen	Network Information Centre Sweden AB	Registry	SEK 245	YES - must have legal status in Sweden	.se - many others	Registration only through registrars. Prices from domain.se
.uk	England	Nominet	Nominet	Registry	UKP80 + VAT (2 years)	No		

All prices include local value added taxes unless otherwise indicated

Latin American - Caribbean

LACTLD Member Countries

ccTLD	Country	Name of the Service	Name of the Institution	Type of organisation	Annual Pricing		Local Presence Required	Range of second level domains	Comments
.ar	Argentina	NIC-Argentina	Ministerio de Relaciones Exteriores, Comercio Internacional y Culto	Government Ministry	No charge		Yes	com,net,org,mil,net	
.br	Brazil	Registro-Br	Fundacao de Amparo a Pesquisa do Estado de Sao Paulo	Government Ministry	A$50 direct resellers	A$75	Yes	com,net,org,gov,mil,edu,art,inf, am,fm,tv,etc,rec,tmp,trd,mus,n ot, and lots more	
.bo	Bolivia	NIC-Bolivia	BolNet / Consejo Nacional de Ciencia y Tecnología	National Council	US$100		Yes	com,net,org,edu,gov	
.cl	Chile	NIC-Chile	Universidad de Chile	Public University	US$40		Yes		30th sept. formed policy assessment committee
.co	Colombia	NIC-Colombia	Universidad de los Andes	Public University	US$76		Yes	com,net,org,gov,mil,arts,firm,inf o,store, rec,web	
.cr	Costa rica	NIC Costa Rica	Academia Nacional de Ciencias	Scientific Council	US$50		Yes	co,ed,fi,go,or,sa	
.cu	Cuba	Cuba-NIC	CENIAInternet	Government Ministry	US$50		Yes	.cu,com,net,org,gov,edu,inf,	
.do	Dominican republic	NIC-Do	Pontificia Universidad Católica Madre y Maestra	Public University	US$35		No	com,net,org,gov,mil,web,art,sid	
.ec	Ecuador	NIC-Ecuador	Corporación Ecuatoriana de Información	Non-profit IT organisation	not stated			com,net,org,gov,mil,edu,fin,me d	
.sv	El Salvador	SVNet	Consejo Nacional de Ciencia y Tecnología	Civil Association	Free		Yes	com,red,org,gob,edu	
.gp	Guadeloupe	GP & MQ NIC	GP & MQ NIC	Civil Association	not stated		not stated		
.gt	Guatemala	NIC GT	Universidad del Valle de Guatemala	Universidad Privada	US$100		No	com,net,org,gov,mil,edu,ind	
.hn	Honduras		Red de Desarrollo Sostenible	Civil Association	US$50		not stated	.hn	
.mq	Martinique	GP & MQ NIC	GP & MQ NIC	Civil Association	not stated		not stated	.mq	
.mx	Mexico	NIC-México	Instituto Tecnológico y de Estudios Superiores de Monterrey	Private university	US$ 35		not stated	com.net,org,gob,edu	
.pa	Panama	PANNET	PANNETUniversidad Tecnológica de Panamá	Public University	US$50		No	com,net,org,gov	
.pe	Peru	NIC-Perú	Red Cienifica Peruana	Scientific Intenet organisation	US$50		Yes	com,net,org,gb,edu,mil,nom	
.py	Paraguay	NIC-Paraguay	Universidad Católica de Asunción y Universidad Nacional de Asunción	Public University	US$50		Yes	com,net,edu	
.uy	Uraguay	NIC-UY	Universidad de la República	State university	Free		Yes	com,net,edu	
.ve	Venezuela	NIC-VE	Red académica de centros de investigación y Universidades Nacionales	Civil association			No	co, net,org,gov,mil,edu	

Other Latin American /Caribbean Countries

ccTLD	Country	Name of the Service	Name of the Institution	Type of organisation	Annual Pricing	Local Presence Reqd	Range of second level domains	Comments
ag	Antigua , Barbadua	NIC-AG	UHSA Department of medicine	University	US$150 locals US$300others	No	.ag,.com,.net,.org,.edu,gov	
ai	Anguilla	NIC-AI	Offshore	Telecom/ISP company		No		
an	Netherlands Antilles	una.net	University of the Netherlands Antilles	University	not stated	Yes		
aw	Aruba	SETAR	Setar	Telecom/ISP company		??	.aw	
bb	Barbados	Cable & Wireless		Telecom/ISP company		Yes	com , net , org	
bm	Bermuda	Bermudanic	Bermuda college	University		Yes	com , net, org , gov , edu	
bs	Bahamas	BSNIC	The College of the Bahamas	University		??	com , net , org	

bz	Belize		University College of Belize	University		Yes-Admin contact	.bz
dm	Dominica		University of Puerto rico	University		??	.dm
fk	Falkland islands	FIDC.org	Falkland Islands development Corporation	Civil Association		Yes	co, net,org,gov,nom
gf	French Guiana	Outremer	NetPlus	French telecom	500FF	No	.gf
gy	Guyana		University of Guyana	University			.gy
ht	Haiti	Haitiworld	Hinterfocus	Telecom/ISP company			.ht
jm	Jamaica		University of west Indies	University	JD 25	No	.jm
ky	Cayman Islands	nic.ky	Cayman Community trust fund	Civil Association		Yes	ky
lc	St. Lucia	St Lucia one stop shopping	University of Puerto rico	Local Portal	US$50	No	com net org edu gov
ni	Nicaragua		Universidad Nacional del Ingernieria	University		no policy	com net org
pr	Puerto Rico		University of Puerto rico	University	US$50	Yes	com net org
tt	Trinidad Tobago	TTNIC	University Of West Indies	University	US$100 .com.tt US$1000 .tt	No	.tt,.com,.net,.org
vg	British virgin Islands	AdamsNames	Pinebrook Developments	Private company	US$ 50	No	co net org
vi	US Virgin Islands	NIC.VI	Virgin Islands public telecommunications Systems	Telecom/ISP company			co net org