

auDA Competition Model Advisory Panel

Second Report for Public Consultation

**Recommended Competition Model for the
.au Domain Space**

May 2001

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1. INTRODUCTION

1.1 Background

1.1.1 The .au Domain Administration (auDA) was created in 1999 by the Australian Internet community with the goal of becoming the industry self-regulatory body for administering the .au country code Top Level Domain (ccTLD) and its associated sub-domains, for the benefit of the Australian community.

1.1.2 In September 2000, the auDA Board established the Competition Model Advisory Panel to investigate and recommend a model for the introduction of competition in domain name services in the .au domain. The Panel's Terms of Reference and membership are at [Appendices 1](#) and [2](#). Documents recording Panel activities to date are archived on the auDA website.¹

1.2 First public consultation report, February 2001

1.2.1 In February 2001, the Panel released its first public consultation report, that discussed relevant competition policy issues and put forward a series of proposals aimed at facilitating the development of a competitive domain name services market in Australia. The report is available on the auDA website.²

1.2.2 The Panel received 13 submissions in response to the first report; all are available on the auDA website.³ The Panel was pleased to note a number of well-considered, substantive responses to the report. The Panel has considered all comments in revising its report for a second round of consultation.

1.3 Purpose of this report

1.3.1 This is the Panel's second and final public consultation report. It outlines the recommendations that the Panel proposes to deliver to the auDA Board at the end of June 2001, subject to the outcomes of the second round of public consultation.

1.3.2 This report does not repeat the background material contained in the first report. The Panel encourages people to read the first report in order to familiarise themselves with the key facts and issues under consideration.

1.3.3 This report includes the Panel's recommended implementation strategy (Section 5), required under Stage 4 of its Terms of Reference.

¹ See <http://www.auda.org.au/panel/competition>

² See <http://www.auda.org.au/panel/competition>

³ See <http://www.auda.org.au/panel/competition/submissions.html>

2. PUBLIC CONSULTATION

2.1 The Panel encourages everyone with an interest in the Australian DNS to consider this report. People wishing to comment on the recommendations, or any other matter contained in the report, should send a submission to:

Ms Jo Lim
Chief Policy Officer
.au Domain Administration

email: jo.lim@auda.org.au

fax: 03 9226 9499

postal: GPO Box 1545P, Melbourne VIC 3001

2.2 Electronic submissions are preferred. All submissions will be posted on the auDA website within 2 working days of receipt. Confidential information will not be accepted. The Panel is required to engage in public consultation and therefore all submissions will be made public.

2.3 The closing date for submissions is **Friday 8 June 2001**. The Panel is required to provide a final report to the auDA Board by 30 June 2001.

3. EXECUTIVE SUMMARY

3.1 After considering the outcomes of the first round of public consultation, the Panel has revised its report. The main recommendations of the Panel are listed below, and discussed in detail in [Sections 4](#) and [5](#) of the report.

[Recommendation 4.2 – Policy authority](#)

- ❑ Only auDA will have authority for setting domain name policy for .au.
- ❑ auDA may delegate its policy authority for a 2LD under .au to another body.
- ❑ There should be a clear separation of policy and operations.
- ❑ auDA is accountable to its members, and subject to legislative and judicial review.
- ❑ Reviews of the self-regulatory regime should be periodic, independent and the results made publicly available.

[Recommendation 4.3 – Registry](#)

- ❑ auDA will adopt a competition model that allows for multiple registries.
- ❑ Provision of registry services will be contestable, through a periodic tender process to be administered by auDA.
- ❑ Closed 2LDs may elect to be included in the tender process; if they choose to opt-out, then they must provide a minimum set of registry services in the public interest.
- ❑ The registry operator(s) will provide the authoritative nameserver, generate zone files and maintain public (WHOIS) information for their own 2LD(s).
- ❑ The registry operator(s) will provide registrars with an electronic interface to enter and update records in the registry.
- ❑ The registry operator(s) will perform final policy compliance checks to maintain the integrity of the registry database.
- ❑ The registry operator(s) must provide customer service to all registrars.
- ❑ Registry information will be published in a central data register to be maintained by auDA, by replicating the registry data in a central repository.
- ❑ auDA will set minimum technical standards, data protocols, security and service level requirements for the registry operator(s).
- ❑ auDA will develop a disaster recovery plan, so that it is in a position to protect the .au domain and related infrastructure.
- ❑ A registry operator may not also operate as a registrar unless there is a clear and effective separation of the two business operations.

[Recommendation 4.4 – Registrars](#)

- ❑ Provision of registrar services will be contestable, through an accreditation process to be administered by auDA.
- ❑ Registrars will provide customer sales and support services either directly to registrants or through their resellers.
- ❑ Registrars will have rights of access to all 2LDs (with the possible exception of the closed 2LDs).
- ❑ Registrars will perform policy compliance checks, with non-objective policy requiring independent certification.
- ❑ In closed 2LDs with only one registrar, the registrar may perform all policy compliance functions.

- ❑ auDA will impose minimum conditions on registrars, focused mainly on ensuring adequate consumer safeguards, such as privacy of personal information.
- ❑ Registrars will develop and adhere to an industry code of practice to deal with issues such as transfer of registrants and complaints-handling.

Recommendation 4.5 – Resellers

- ❑ Resellers will provide customer services to registrants.
- ❑ Registrars will be responsible for managing the behaviour of their resellers and will be ultimately responsible to the registrant.
- ❑ Resellers should disclose their relationship with the registrar(s).
- ❑ auDA should require registrars to include some minimum consumer safeguards in their reseller agreements.

Recommendation 4.6 – Registrants

- ❑ auDA will ensure adequate consumer safeguards for registrants by subjecting registry operators and registrars to agreed standards that include technical standards, data protocols, security, service levels, and escrow requirements.
- ❑ All registrants will be entitled to become members of auDA upon licensing a domain name, without additional charge.

Recommendation 4.7 – Funding model for auDA

- ❑ Funding for auDA will be secured primarily through a levy on domain name registrations and renewals.
- ❑ auDA will charge fees for registry operator and registrar licences to meet the cost of managing compliance with technical requirements and consumer safeguards.
- ❑ auDA may also charge fees for accreditation of registrars, complaints-handling, dispute resolution and other services, on a cost-recovery basis.
- ❑ auDA will conduct regular reviews of its budgets and the results will be made publicly available.

Recommendation 5 – Implementation strategy

- ❑ auDA will adopt an implementation strategy that is in accordance with sound commercial practice and ensures that the integrity and stability of the .au domain is maintained during the transition period.

4. PROPOSED COMPETITION MODEL

4.1 Five levels of competitive activity

4.1.1 As outlined in its first report, the Panel has identified five levels of activity in the domain name services industry:

1. Policy Authority – determines the domain name eligibility and allocation rules for a given domain, and also performs governance, regulatory and enforcement functions
2. Registry – maintains master database for a level of the domain name hierarchy, provides the corresponding public information service and maintains the corresponding authoritative DNS nameserver, and provides customer service to registrars
3. Registrar – processes data on behalf of a registrant or reseller into a registry, and provides customer service to resellers or registrants
4. Reseller – sells domain name services and provides customer service to registrants, and uses a registrar(s) to provide back-end technical domain name services (does not interact with the registry)
5. Registrant – encompasses domain name licence holders, domain name licence applicants and their agents.

4.1.2 The recommended competition model outlined in this section defines the functions and behaviours of each level of activity, and how the levels interact with each other. This is illustrated in the diagram at [Attachment A](#).

4.2 Policy Authority

Recommendation 4.2:

- ❑ **Only auDA will have authority for setting domain name policy for .au.**
- ❑ **auDA may delegate its policy authority for a 2LD under .au to another body.**
- ❑ **There should be a clear separation of policy and operations.**
- ❑ **auDA is accountable to its members, and subject to legislative and judicial review.**
- ❑ **Reviews of the self-regulatory regime should be periodic, independent and the results made publicly available.**

4.2.1 Public submissions to the Panel's first report demonstrated support for the proposal that auDA be the sole body with authority and responsibility for setting domain name policy for the .au domain. There was also support for the proposal that auDA may delegate its policy authority for a 2LD to another body; this is most likely to happen in the case of the closed 2LDs, whose administrators have a stated preference for retaining policy autonomy (subject to ratification by auDA).

4.2.2 In its first report, the Panel asserted that there is a need for auDA to maintain clear separation of policy and operations, even where it has delegated authority to another body (ie. auDA should encourage the closed 2LD administrators to also maintain separation of policy and operations). For this reason, the Panel suggested that it may be undesirable for auDA to also operate as a registry or registrar.

4.2.3 The Panel notes that some public submissions questioned the need for auDA to maintain clear separation of policy and operations. The Panel recognises that there are independent review mechanisms in place, that could be used to hold auDA accountable if it were to operate as a registry or registrar. These are as follows:

- ❑ auDA is accountable to its members. In section 4.6 of this report, the Panel recommends that all registrants be entitled to become members of auDA upon licensing a domain name, without additional charge. This would broaden auDA's membership base, and make its activities directly reviewable by all .au domain name licence holders. If auDA breached its own Constitution or otherwise mismanaged the .au domain, its members could, for example, elect a new board of directors at the annual general meeting.
- ❑ As noted in the first report, the Australian Communications Authority (ACA) and Australian Competition and Consumer Commission (ACCC) have reserve powers under the *Telecommunications Act 1997* to declare auDA the "manager of electronic addressing" and give it directions. In extreme circumstances, the ACA could itself assume responsibility for management of the .au domain.
- ❑ Furthermore, it would be possible for auDA to be held accountable for its actions by way of litigation.

4.2.4 Although noting the existence of these independent review mechanisms, the Panel continues to assert its belief that auDA should not be a registry operator or registrar, as this would compromise, or be seen to compromise, auDA's ability to act as an independent regulator of the industry.

4.2.5 The Panel considers that monitoring and review of industry self-regulation are important to ensure that it is still relevant to addressing specific problems and improving market outcomes. The Panel notes that reviews and annual reporting by auDA or auDA Advisory Panels are appropriate mechanisms that assist in providing measures of transparency and accountability. The Panel recommends that reviews of the self-regulatory regime should be periodic, independent and the results made publicly available.

The Panel invites comments on the issues raised in Section 4.2.

4.3 Registry

Recommendation 4.3:

- ❑ ***auDA will adopt a competition model that allows for multiple registries.***
- ❑ ***Provision of registry services will be contestable, through a periodic tender process to be administered by auDA.***
- ❑ ***Closed 2LDs may elect to be included in the tender process; if they choose to opt-out, then they must provide a minimum set of registry services in the public interest.***
- ❑ ***The registry operator(s) will provide the authoritative nameserver, generate zone files and maintain public (WHOIS) information for their own 2LD(s).***
- ❑ ***The registry operator(s) will provide registrars with an electronic interface to enter and update records in the registry.***
- ❑ ***The registry operator(s) will perform final policy compliance checks to maintain the integrity of the registry database.***

- ❑ ***The registry operator(s) must provide customer service to all registrars.***
- ❑ ***Registry information will be published in a central data register to be maintained by auDA, by replicating the registry data in a central repository.***
- ❑ ***auDA will set minimum technical standards, data protocols, security and service level requirements for the registry operator(s).***
- ❑ ***auDA will develop a disaster recovery plan, so that it is in a position to protect the .au domain and related infrastructure.***
- ❑ ***A registry operator may not also operate as a registrar unless there is a clear and effective separation of the two business operations.***

4.3.1 In its first report, the Panel put forward two options at the registry level – a single registry on the one hand, or multiple registries on the other. Public submissions to the report did not demonstrate unequivocal support for either model, reflecting the Panel’s own lack of consensus on this issue.

4.3.2 The Panel acknowledges that both approaches have desirable features. The multiple registries model is premised on the notion that there will be better incentive for innovation and more choice for registrants or organisations sponsoring a new 2LD, while the single registry model asserts that efficiencies from a single operator outweigh the benefits of innovation and competition at this level.

4.3.3 After considering comments made in public submissions, the Panel has reached consensus on a compromise option. The Panel recommends that auDA adopt a competition model that allows for multiple registries; however, in the implementation strategy detailed in section 5 of this report, the Panel recommends that auDA tender all the existing open 2LDs (including asn.au, com.au, id.au, info.au, net.au and org.au) to a single registry operator. The closed 2LDs (csiro.au, edu.au, and gov.au) may choose to participate in this tender, or opt-out. The Panel favours a single registry operator in recognition of the current dominance of the com.au 2LD in the Australian marketplace (ie. there are more than 200,000 domain names under management in com.au, while the other 2LDs each have less than 20,000 domain names). This makes it unlikely that there would be sufficient scale of business to support multiple registry operators at high service levels.

4.3.4 In other words, while the recommended competition model admits the possibility of multiple registry operators in future (for example upon the introduction of new 2LDs), there would be a single registry operator in the first instance for the existing open 2LDs (and possibly some or all closed 2LDs).

4.3.5 The Panel considers that this compromise option is attractive because it would:

- ❑ provide an acceptable balance between innovation and efficiency;
- ❑ test the registry operator market through the initial single tender, before going to multiple tenders;
- ❑ enable initial uniform service level agreements (SLAs) to be imposed across all (open) 2LDs via a single registry operator, that would serve as a benchmark for future multiple registry operators;
- ❑ allow time for the industry and consumers to adjust to a multiple registrar environment, before introducing multiple registry operators; and
- ❑ address public interest concerns regarding efficiency of resources and duplication of infrastructure.

Registry function and services

4.3.6 As noted in the first report, a registry provides two key services to the Internet community: it provides a public information service (known as WHOIS) so that users can find the domain name licence holder corresponding to a particular domain name; and it provides the authoritative nameserver for a particular level of hierarchy in the DNS so that an Internet end user's computer can translate a domain name to a physical Internet address for online access. It also provides data in the form of a 'zone file' for other secondary nameservers.

4.3.7 The Panel recommends that the registry operator(s) replicate the registry data in a central register to be maintained by auDA for the purposes of providing a centralised WHOIS service. The Panel considers that the WHOIS service is an essential feature of the DNS, as it allows users to find out information about the holder of a domain name. This is especially important in the commercial domains, for consumer protection reasons (eg. to trace the owner of a website that contains false and misleading information). The Panel notes that the requirement to provide WHOIS information in commercial domains is commensurate with disclosure requirements on businesses in the offline world.

4.3.8 At the same time, the Panel is aware that domain name registrants may have concerns about the privacy of their personal information. The Panel considers it may be desirable to differentiate between 2LDs, so that the WHOIS data set for commercial 2LDs contains more information than the WHOIS data set in personal 2LDs. For example, it may not be appropriate to require domain name registrants in an individual domain such as id.au to provide administrative and technical contact information. The Panel considers that an opt-in approach to the provision of WHOIS information in personal domains may be appropriate.

4.3.9 To address privacy concerns, the Panel recommends that bulk access to WHOIS information should be restricted to a more limited set of data (eg. no personal contact details), and must be authorised by auDA with appropriate conditions of use (eg. not to be used for sending unsolicited postal mail, faxes or email).

4.3.10 The Panel recommends that the registry operator provide registrars with an electronic interface to the registry using an international industry standard protocol to add new domain records, update domain name registrant contact details, update nameserver information (delegation and re-delegation), transfer domain name ownership, transfer domain names between responsible registrars, renew or de-register domain names. The WHOIS data in the registry will provide the name of the registrar responsible for maintaining the record.

4.3.11 The Panel also recommends that registry operators be responsible for performing final policy compliance checks to maintain the integrity and stability of the registry database. Based on the recommendations of auDA's Name Policy Advisory Panel, approved by the auDA Board on 8 May 2001, it seems likely that most domain name policy rules will be automatable (eg. checks against reserved lists of objectionable words) or if human scrutiny is required, the rules will be able to be applied objectively. However, there may be some policy rules that include an element of subjectivity. If an independent party is used for compliance checks for non-objective policy rules, then the registry should confirm that the independent party has given approval (eg. via an automated check of a digital signature). The registry will report to auDA on the numbers

of domain names that fail policy compliance checks submitted by each registrar to assist auDA in regulating the performance of registrars.

4.3.12 Continuous .au domain name service is essential in at least the following events:

- a registry business collapses;
- a registry operator fails to maintain correct DNS operation;
- during handover from incumbent to designate registry operator.

The Panel recommends that auDA impose electronic data escrow requirements on registry operator(s), both for consumer protection and DNS integrity reasons.

4.3.13 The Panel recommends that auDA require the registry operator(s) to develop and implement an auDA-approved, full business continuity plan covering disaster recovery sites with regular disaster recovery testing. The Panel also recommends that auDA develop its own disaster recovery plan, so that it is in a position to protect the .au domain and related infrastructure, including against any failure of a registry. The Panel further recommends that auDA consult the Commonwealth's E-Security Information Group regarding these plans.

4.3.14 The Panel considers that it may be desirable for a registry to act as a registrar of last resort, for example in the event that a registrar suddenly ceases to operate, or where no registrar is offering service for a particular 2LD. The Panel recommends that there must be a clear and transparent separation of the two business operations, to ensure that competing registrars have fair and equal access to the registry. Accounting separation is necessary, but not sufficient. The usual ring-fencing arrangements could be imposed (eg. no common staff, regular audits, etc), however other measures may be necessary to ensure competing registrars have access to registry services on an equivalent basis to the registry's own operations. For example, it may be necessary for the registry and registrar businesses to be separate legal entities, with appropriate monopoly accountability mechanisms in registry constituent documents. These mechanisms should be based on existing access models (such as telecommunications) or on incentive based models which allow vertical integration once certain guarantees are in place. Alternatively, the 'misuse of market power' provisions in the *Trade Practices Act 1974* may be sufficient. Such arrangements may create additional costs by increasing the complexity of regulation and requirements of auditing.

4.3.15 More detail on registry functions and services is provided in the Technical Requirements paper at [Attachment B](#).

Tender process

4.3.16 The Panel recommends that an open and competitive tender be called for the operation of the registry under a licence agreement from auDA that specifies the prices the registry operator will charge registrars and also the service levels which will be provided to registrars. The licence period should be long enough to enable the winning tenderer to implement its business strategy and achieve a reasonable return on investment. The Panel suggests a period of 3-5 years.

4.3.17 The Panel does not consider it desirable to restrict the tender to Australian-owned entities. The Panel notes that there are possible national interest considerations in awarding the registry tender to a foreign-owned entity. However, the Panel recommends that these could be addressed by imposing certain conditions on the registry operator, for example, the lodgement of a bond and the regular backup and

supply of data to auDA. It may also be appropriate to require the registry operator to house some servers and backups in Australia, as opposed to offshore.

4.3.18 As discussed in section 4.7 of this report, the Panel recommends a funding model for auDA based primarily, but not exclusively, on a levy on domain name registrations and renewals. Accordingly, the Panel recommends that the auDA Request for Tender invite tenderers to submit bids which include both a fixed and a volume related component. Registry operators will be required to pay an annual licence fee plus a per domain name registration fee. The fee charged by the registry operator to registrars may be fixed, or may include both a fixed fee and a per domain name fee. The fees charged may be adjusted for such factors as inflation (eg. consumer price index (CPI)), expected productivity gains (CPI - x, where $x > 0$), risk adjustment, rate of return on registrar investment, and/or the number of domain names under management.

4.3.19 To ensure a basic level of interoperability and adequate consumer safeguards, the Panel recommends that auDA set minimum technical standards, data protocols and service levels for the registry that comply with international industry standards; see the Technical Requirements paper at [Attachment B](#) for more detail. These would be foreshadowed in the tender documents, and then finalised in negotiation with the winning tenderer. It is possible that auDA might conduct post-tender negotiations with at least two competing tenderers, prior to announcing a winning tender.

4.3.20 More detail is provided in the Tender Process paper at [Attachment C](#).

New 2LDs

4.3.21 The Panel notes that the Terms of Reference of auDA's Name Policy Advisory Panel have been extended to allow that Panel to consider the creation of a number of new 2LDs in the .au domain to remedy pressing problems in the Australian DNS. Under the recommended competition model, selection of the provider of registry services for new 2LDs would be by an open and competitive public tender process conducted by auDA. The Panel recognises that auDA might choose to award registry operator rights for the new 2LD(s) to the existing single registry operator; however, that decision would have to be justified through an open and competitive public tender process.

The Panel invites comments on the issues raised in Section 4.3.

4.4 Registrars

Recommendation 4.4:

- Provision of registrar services will be contestable, through an accreditation process to be administered by auDA.***
- Registrars will provide customer sales and support services either directly to registrants or through their resellers.***
- Registrars will have rights of access to all 2LDs (with the possible exception of the closed 2LDs).***
- Registrars will perform policy compliance checks, with non-objective policy requiring independent certification.***
- In closed 2LDs with only one registrar, the registrar may perform all policy compliance functions.***

- ❑ ***auDA will impose minimum conditions on registrars, focused mainly on ensuring adequate consumer safeguards, such as privacy of personal information.***
- ❑ ***Registrars will develop and adhere to an industry code of practice to deal with issues such as transfer of registrants and complaints-handling.***

4.4.1 As described in the first report, domain name registrars provide customer sales and technical support services, including billing and renewals, and update the registry database to include new domain names and associated registry data, and manage modifications to data associated with existing domain names. Registrars may either provide wholesale technical services to resellers, or provide retail services direct to registrants. Some registrars do both. At the wholesale level, registrars provide a range of interfaces to resellers, ranging from electronic interfaces with advanced protocols, to simple fax or telephone interfaces. In computing terms, the registry provides the instruction set for the underlying registry, and the registrars provide resellers with a choice of operating systems or applications to use for accessing the registry. This allows levels of innovation for registrars to customise systems for particular resellers. At the wholesale level, registrars typically also provide resellers with access to a range of different domain name registries on an international basis.

4.4.2 The Panel recommends that registrars be responsible for performing policy compliance checks, to ensure that they provide an adequate customer service to registrants or resellers, and provide a level of quality control of registrars. Registrars that consistently fail to perform compliance checks correctly risk financial penalties and/or losing their accreditation.

4.4.3 As noted in paragraph 4.3.11, it seems likely that most domain name policy rules will be automatable or if human scrutiny is required, the rules will be able to be applied objectively. The Panel recommends that compliance checks for non-objective policy rules be certified by an independent party before the domain name is submitted to the registry. It is suggested that this function could be performed by the registry operator. Alternatively, auDA could establish an independent body for this purpose, comprised of representatives from the registry and registrar sectors of the industry and a representative from the consumer sector. The Panel notes that the independent body should be subject to defined service levels (such as a minimum 2 day turn around, with an expedited turn around possible for a higher fee). Registrants should not experience a lower level of service than currently available for com.au registrants, as a result of any need for independent human scrutiny. The cost of independent certification would be borne by the registrar, recoverable from registrants. This would have cost and timing implications for domain name registration service; however, it would protect registrars from liability in the event of a dispute by a registrant, and would also guard against registrar-shopping by registrants to obtain 'soft' policy compliance checking. The Panel notes that if a closed 2LD chose to have only one registrar for that domain, there would be no reason not to have that registrar carry out all policy compliance checks, given that forum-shopping issues would not arise.

4.4.4 The Panel recommends that auDA perform accreditation of registrars. As noted in section 4.7 of this report, auDA may charge an accreditation fee that reflects the cost of the accreditation process. The accreditation process will require the satisfactory completion of a test of the registrar's interface to a test registry system. This test will confirm that the potential registrar has correctly implemented the registry protocol, and

also confirm that the registrar correctly applies policy compliance checks to a selection of legal and illegal domain names. The Panel recommends that auDA address the following matters in formulating its accreditation criteria:

- managerial capability and financial capacity;
- ability to interpret domain name policy and correctly apply policy compliance checks;
- ability to interface with the registry using specified protocols;
- adequate customer support services, including an internal complaints-handling mechanism;
- adequate billing system;
- compliance with data escrow requirements;
- need for law enforcement background checks;
- management of reseller arrangements; and
- sign on to the self-regulatory regime, including auDA's dispute resolution procedure.

4.4.5 The Panel recognises that the accreditation process must achieve a balance between on the one hand preserving the public interest in the DNS by ensuring a high quality of service, and on the other hand facilitating the entrance of new players by ensuring the barriers to entry are not too high.

4.4.6 The Panel recommends that accredited registrars have rights of access to all 2LDs, however, registrars would not necessarily choose to operate in all 2LDs. In the event that no registrars choose to operate in a particular 2LD, auDA may need to authorise the registry to act as a registrar for the particular 2LD (see paragraph 4.3.14). The Panel notes that some closed 2LD administrators may prefer to use a single registrar; this would have to be agreed between the closed 2LD administrator and auDA.

4.4.7 The Panel recommends that auDA impose some minimum conditions on accredited registrars, focused mainly on consumer protection issues, such as protection of personal information. The Panel also recommends that registrars and consumer representatives develop an industry code of practice, using a model such as the Australian Communications Industry Forum, to set standards for consumer protection covering such matters as minimum levels of disclosure, handling of registration fees paid in advance, transfer of registrants between registrars, handling of disputes between registrars and registrants and credit management. This code of practice should be approved by auDA, with adherence to be imposed as a licence condition for all registrars.

4.4.8 Considering the large number of diverse participants within the domain name services industry, the Panel notes that there may be difficulties in reaching consensus on an industry code of practice in a timely manner. To ensure the introduction of consumer safeguards occurs concurrently with the introduction of competition, the Panel recommends that such safeguards be incorporated into auDA's initial registrar licence agreements. This would remove the need for auDA to establish immediately a forum for the development of industry codes, and would also allow time for new entrants to gain industry experience. More detail is provided in the Consumer Safeguards paper at [Attachment D](#).

4.4.9 In Section 4.7 of this report, the Panel recommends that accredited registrars pay auDA an annual licence fee plus a per domain name registration fee (or alternatively the licence fee could vary according to bands of number of domain names under management, eg under 1,000, 1,000-5,000, 5,000-10,000, 10,000-20,000, above

20,000). A sliding scale of registrar licence fees ensures that both small and large registrars can pay a fee that is in proportion to the size of their operation. The registry operator(s) can provide auDA with the number of domain names registered by each registrar to allow the size of licence fee to be determined. The annual licence fee would contribute to auDA's costs in regulating competition amongst registrars, and ensuring compliance against the registrar licence agreement.

The Panel invites comments on the issues raised in Section 4.4.

4.5 Resellers

Recommendation 4.5:

- ❑ ***Resellers will provide customer services to registrants.***
- ❑ ***Registrars will be responsible for managing the behaviour of their resellers and will be ultimately responsible to the registrant.***
- ❑ ***Resellers should disclose their relationship with the registrar(s).***
- ❑ ***auDA should require registrars to include some minimum consumer safeguards in their reseller agreements.***

4.5.1 Domain name resellers operate at an intermediate level between registrar and registrant. The types of entities acting as domain name resellers range from law firms to ISPs. In the com.au market, most resellers bundle domain name registration with other value-add services, separately brand their domain name services, and set their own retail prices; therefore, they are more than merely agents of the registrar. In the .com domain name market, resellers often change registrars whilst retaining their own branding of domain name services, or use different registrars for various parts of their business.

4.5.2 The Panel expects that resellers will continue to be a part of the domain name services industry. Whilst some existing resellers may decide to seek accreditation as a registrar, for many resellers domain name service is not a core business activity, and there would be no reason for them to become a registrar. In a multiple registrars model, the Panel expects that registrars would compete for both reseller and registrant business, and resellers would compete for registrant business. The presence of resellers in the market would have a direct impact on the retail price of domain names, as well as on consumer choice of service provider.

4.5.3 The Panel expressed the view in its first report that auDA should not have a role in regulating behaviour at the reseller level, and registrars should be held responsible for managing the behaviour of their resellers. However, the Panel recognises that there should be a mechanism for auDA to intervene if a reseller is engaging in conduct that is harmful to registrants or prospective registrants. The Panel therefore recommends that auDA should require registrars to include some minimum consumer safeguards in their agreements with resellers. For example, resellers should be required to disclose their relationship with a registrar or registrars directly to registrants. See the Consumer Safeguards paper at [Attachment D](#) for more detail.

4.5.4 auDA should have the ability to take appropriate disciplinary action against registrars whose resellers fail to meet agreed minimum consumer safeguards and

standards, and to ensure appropriate remedies and redress for registrants quickly. For example, auDA could direct a registrar to cease providing wholesale services to a reseller.

The Panel invites comments on Section 4.5.

4.6 Registrant

Proposal 4.6:

- ***auDA will ensure adequate consumer safeguards for registrants by subjecting registry operators and registrars to agreed standards that include technical standards, data protocols, security, service levels, and escrow requirements..***
- ***All registrants are entitled to become members of auDA upon licensing a domain name, without additional charge.***

4.6.1 In the first report, the Panel listed a number of matters that are important from registrant perspective, such as choice of service provider, assured service levels, and full disclosure of domain name licence terms and conditions. The Panel recommends that auDA address these issues through its licence agreements with the registry operator(s), and its registrar accreditation process. These issues should also be dealt with under the industry code of practice, recommended by the Panel in section 4.4 of this report. See the Consumer Safeguards paper at [Attachment D](#) for more detail.

4.6.2 The Panel acknowledges that many registrants are concerned about the protection of their personal information. The Panel recommends that auDA require all registry operators and registrars to develop privacy policies (this could be included in the industry code of practice discussed in section 4.4 of this report). As noted in paragraph 4.3.9, the Panel further recommends that bulk access to WHOIS data be controlled by auDA, with terms and conditions that prevent use of the bulk data for sending unsolicited postal mail, faxes, or email. auDA could maintain checks for conformance against these conditions by seeding the bulk data with entries that include addresses monitored by auDA.

4.6.3 As indicated in paragraph 4.2.3, the Panel recommends that all registrants be entitled to become members of auDA upon licensing a domain name, without additional charge. This would give all domain name licence holders voting rights at auDA's annual general meetings, thus helping to ensure that auDA's Board of directors is truly representative of, and responsive to, the Australian Internet community. It would also act as an important accountability check on auDA and its management of the .au domain in the public interest. The Panel recommends that the cost of auDA membership be rolled in to the levy to be imposed on domain name registrations and renewals (see section 4.7 of this report).

4.6.4 The Panel notes that auDA has established a Dispute Resolution Working Group to develop a framework for dealing with disputes that may arise in relation to domain name policy and service.⁴ The Panel wishes to emphasise the need for auDA's dispute

⁴ See <http://www.auda.org.au/panel/drwg>

resolution procedure to be accessible, fair, transparent, accountable, efficient and effective.

The Panel invites comments on the issues raised in Section 4.6.

4.7 Funding model for auDA

Recommendation 4.7:

- ❑ ***Funding for auDA will be secured primarily, but not exclusively, through a levy on domain name registrations and renewals.***
- ❑ ***auDA will charge fees for registry operator and registrar licences to meet the cost of managing compliance with technical requirements and consumer safeguards.***
- ❑ ***auDA may also charge fees for accreditation of registrars, complaints-handling, dispute resolution and other services, on a cost-recovery basis.***
- ❑ ***auDA will conduct regular reviews of its budgets and the results will be made publicly available.***

4.7.1 The Panel has defined a regulatory role and identified a number of specific functions for auDA in managing the .au domain. In doing so, the Panel has been conscious of the need to keep administrative costs to a minimum. The Panel's Terms of Reference require it to consider an ongoing funding model for auDA. The Panel recognises that auDA must be adequately resourced so that it can be an effective industry regulator. The Panel is also conscious that auDA needs sufficient flexibility to determine its own budget and funding sources in response to changes in industry structure (eg. an increase in number of registrars/resellers) and new developments in the DNS (eg. the introduction of new 2LDs). The Panel has therefore recommended a scalable funding model that can be adjusted from time to time to meet auDA's budgetary requirements. The Panel recommends that auDA conduct regular reviews of its budget (eg. quarterly, or triggered by increasing volume of domain names). The results of such reviews should be made publicly available.

4.7.2 The Panel recommends that auDA secure its funding primarily, but not exclusively, through a levy on domain name registrations and renewals. In this way, the costs associated with managing the .au domain are borne by all domain name licence holders. As discussed in section 4.6 of this report, in return, domain name licence holders would be entitled to membership of auDA and a voice in how the .au domain is managed.

4.7.3 In addition to the per domain name fee levied on domain name licence holders, collected from the registry operator to meet the costs of policy development and the provision of central services such as consumer information and education, auDA would also charge a licence fee for registry operator(s) and accredited registrars that varies in proportion to the number of domain names under management by each registrar or registry operator to meet the cost of regulation and compliance checking. A sliding fee structure ensures that registrars and registry operator(s) pay fees in proportion to the size of their domain name operation.

4.7.4 The Panel further recommends that auDA may charge fees for some services, such as registrar accreditation, complaints-handling and dispute resolution. The fees for these types of services should be set on a cost-recovery basis, so that service fees do not form a barrier to entry for market participants.

The Panel invites comments on the issues raised in Section 4.7.

5. IMPLEMENTATION STRATEGY

Recommendation 5:

- ***auDA will adopt an implementation strategy that is in accordance with sound commercial practice and ensures that the integrity and stability of the .au domain is maintained during the transition period.***

5.1 Noting the expectations of industry, consumers and government, the Panel recommends that auDA implement the competition model outlined in section 4 of this report as quickly as possible. However the Panel notes that the major consideration is to maintain the stability of the .au domain for the existing holders of domain name licences, as problems in introducing changes to the system could have a major economic impact on the many companies that are now increasingly relying on the Internet in Australia. Some aspects of the recommended competition model have not been fully detailed by the Panel but left to auDA to decide; the Panel is aware that this will necessitate additional technical and legal input during the implementation phase. Therefore, the Panel has not specified a timeline for implementation.

5.2 The Panel recommends that auDA perform the following steps to implement the competition model:

1. Issue tender for a single registry operator for all existing open 2LDs. See [Attachment C](#) for more information on the tender process. The tender would include technical and functional specifications discussed in [Attachment B](#) of this report.
2. Call for expressions of interest from registrars.
3. Negotiate contract and licence agreement with a short-list of tenderers. Announce successful tender.
4. Accredite and negotiate agreements with initial registrars that have sufficient technical skills to help test the implementation of the registry by the registry operator, and identify problems for resolution.
5. The registry operator to develop both a test and production registry based on international industry standards
6. Maintain AUNIC as the central backup WHOIS repository, and retain munnari.oz.au as a secondary nameserver for backward compatibility
7. Undertake a 3 month test-bed period, to test registry/registrar interfaces, new authoritative nameserver, and WHOIS service, using the test registry with a limited number of provisional accredited registrars (eg. 5) using a new 2LD (eg. testbed.au). Test interface between the registry and AUNIC for backup WHOIS services, and between the registry and munnari as a secondary nameserver. auDA, the registry operator and the initial registrars to meet weekly to discuss progress and share information.
8. Go 'live' with the new system once auDA has certified that the system is stable and meets the standards agreed with the registry operator. auDA, the registry operator and the initial registrars to meet weekly to discuss progress and share information for a further period of at least 3 months until the new environment is stable. This will ensure that the stability of .au is maintained, during a major change to the operation of .au.

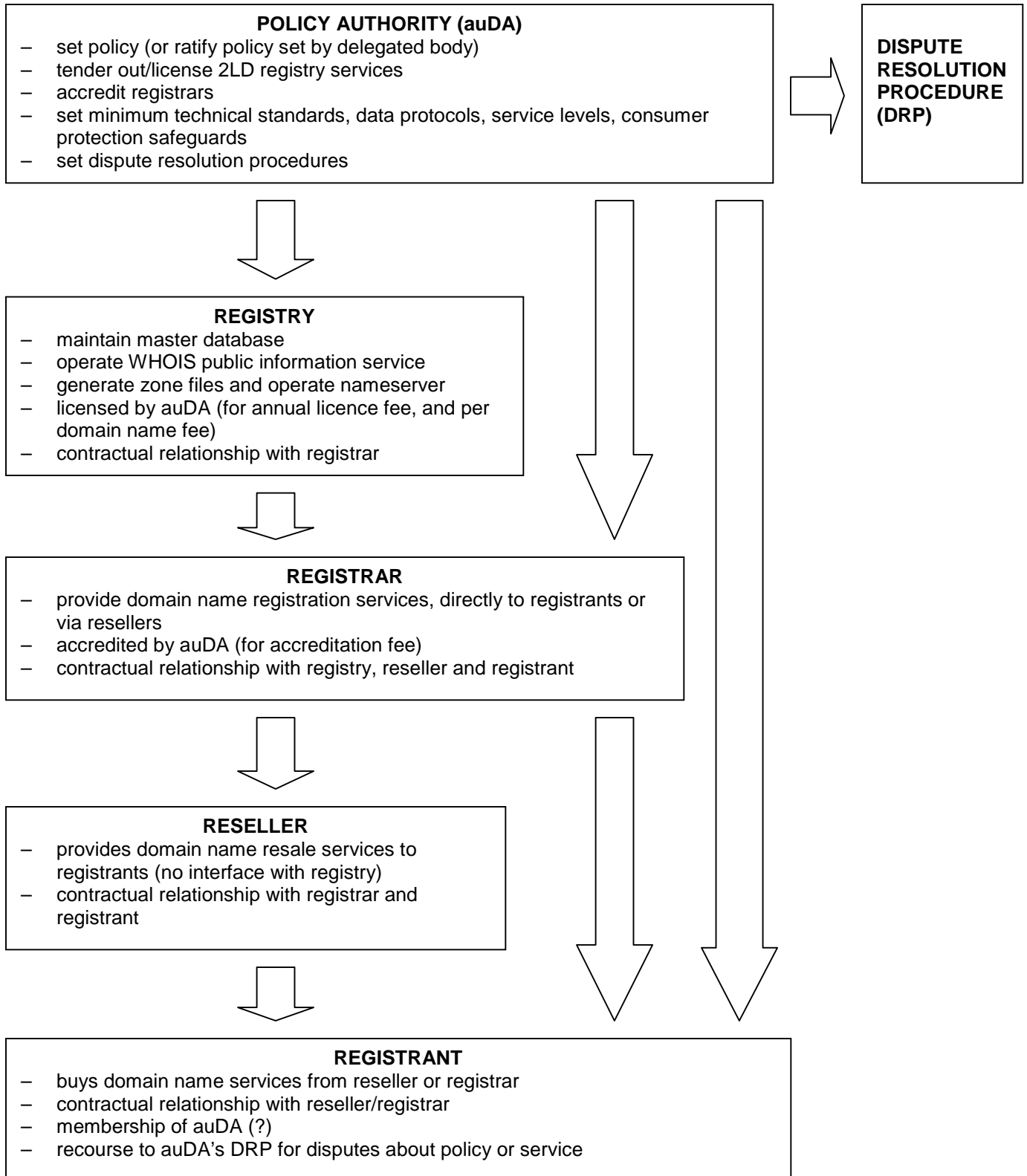
9. New registrars to be tested using the test registry as part of accreditation before accessing the production system to ensure that the integrity of .au is maintained.

5.3 Steps 1 and 2, and steps 3 and 4 would be performed in parallel. Steps 8 and 9 can also be performed in parallel.

5.4 The Panel recognises that during the implementation phase, auDA will be preparing to introduce changes to domain name policy according to the recommendations of the Name Policy Advisory Panel, as well as a dispute resolution procedure following the report of the Dispute Resolution Working Group.

The Panel invites comments on the issues raised in Section 5.

ATTACHMENT A: DIAGRAM OF PROPOSED COMPETITION MODEL



ATTACHMENT B: TECHNICAL REQUIREMENTS FOR REGISTRY AND REGISTRAR

1. Introduction

1.1 This paper outlines some of the technical requirements that auDA will need to specify at both registry and registrar level, to ensure the stability and integrity of the Australian DNS.

1.2 The Panel has drawn on existing material in developing technical requirements for registry and registrars operating in the .au domain, in particular the registry and registrar agreements used by the Internet Corporation for Assigned Names and Numbers (ICANN).¹ Wherever possible auDA should use international standards. This will ensure that Australian registrars can compete in the international domain name market, as well as provide more competition in Australia through the existence of international registrars. This will likely lower the costs for Australian consumers in the long term.

1.3 It is expected that the Panel's recommendations would be used by auDA as the basis for legal drafting of registry and registrar licence agreements.

2. Functional specifications

2.1 The registry operator(s) must provide:

- ❑ a registry database for storing all domain name details;
- ❑ a protocol for allowing registrars direct access to the registry database;
- ❑ an authoritative nameserver service; and
- ❑ and a public WHOIS service.

2.2 The registry functions should be located in a carrier-class data center, with redundant network connections (through multiple telecommunication carriers) of at least 2 Mbit/s capacity each, redundant air-conditioning systems, redundant power supplies (including UPS and diesel power backup), fire detection and control systems (sprinklers or gas fire suppression), 24-hour manned security systems. The registry operator should be required to provide a security policy compliant with AS4444, which incorporates a full disaster recovery plan and backup procedures.

2.3 The registry-to-registrar protocol should be consistent with Internet Engineering Task Force (IETF) standards. The IETF Provisioning Registry Protocol (provreg) working group is currently developing a new protocol designed to support a multiple registrar model, as well as support the existence of multiple registries around the world.² So far, the working group has drafted a working document that details the requirements for a generic registry-registrar protocol, and there is a proposed protocol currently under evaluation. A final draft of the protocol is scheduled to be ready by September 2001 for submission for the approval process as an IETF standard. Depending on the outcome of this process, auDA may decide to adopt the new protocol, or an appropriate subset. The Panel considers it likely that open source implementations of the protocol will be

¹ ICANN-NSI Registry Agreement (<http://www.icann.org/nsi/nsi-registry-agreement-04nov99.htm>) and ICANN Registrar Accreditation Agreement (<http://www.icann.org/nsi/icann-raa-04nov99.htm>)

² IETF Provisioning Registry Protocol Working Group (<http://www.ietf.org/html.charters/provreg-charter.html>)

available for Australian domain name registrars. This protocol is based on using XML (extensible markup language) from the World Wide Web Consortium³ to provide an extensible protocol that supports the addition of new services. This is important in a multiple registry environment, where not all registries will provide the same features. It also allows support for the policy rich environment to be incorporated in the protocol (eg. incorporating sign-off procedures from an independent body to approve certain domain names), and will support the different requirements of the various 2LDs within .au.

2.4 The authoritative nameserver service is likely to be implemented with several nameservers to maintain high levels of availability. The registry operator(s) may operate a primary nameserver, and may cooperate with other registry operators, carriers, or ISPs to host secondary nameservers. The registry operator(s) will be responsible for a specified overall level of system reliability. The registry operator(s) will be responsible for generating the DNS zone file and distributing to the secondary nameservers (or other nameservers as specified from time-to-time by auDA) on a close to real-time basis. The zone file may also be made available by auDA to third parties on the approval of auDA, and subject to terms and conditions preventing the use of the file for generating mailing lists for sending unsolicited email, fax or postal mail. It is desirable that these nameservers be located in geographically diverse locations, including the USA and Europe as well as Australia, to ensure that international Internet users have effective access to Internet sites using a .au domain name.

2.5 The authoritative nameservers will comply with the IETF standards for the DNS (RFC1035, RFC2181, RFC 2182)⁴. In addition, DNS extensions (security, transactional updates, internationalisation, etc) adopted or proposed by IETF will be assessed by auDA or the registry operator(s) and supported consistent with industry acceptance and prudent operational considerations

2.6 The registry operator(s) will be responsible for operating the WHOIS service, compliant with IETF standard RFC 954⁵. The standard WHOIS service is intended as a lookup service for registries, registrars and registrants, as well as for other individuals and businesses that wish to query details of domain names or nameservers stored in the registry. Registrars will be able to provide a front-end web interface to the standard WHOIS service, through the use of the registry-registrar protocol. In addition, the registry operator is required to provide its own front-end web interface to allow convenient user access to the WHOIS service.

2.7 The WHOIS service must be able to handle high transaction load and be integral to the standard suite of registry services, and meet service level agreements. The service will return a single response per domain name or nameserver query.

2.8 The registry operator(s) will be responsible for providing at least a daily update of the WHOIS database to the AUNIC central data repository managed by auDA for all second level domains in .au. AUNIC will not need to be maintained to the same levels of service availability.

³ See <http://www.w3c.org>

⁴ IETF RFCs (<http://www.ietf.org/rfc.html>)

⁵ IETF RFCs (<http://www.ietf.org/rfc.html>)

2.9 The RFC 954-conformant service provided by the registry will have the following features:

- ❑ standard protocol accessible over port 43;
- ❑ consistent format (fields and formatting) for all registrars;
- ❑ near real-time updates, eliminating timing problems when modifying registry information; and
- ❑ extensible field capability.

3. Performance specifications

3.1 The performance specification matrix in Table A below specifies the major elements of performance. The full definitions of these service levels would be specified in the licence agreement between auDA and the registry operator(s). Examples of definitions can be obtained from the ICANN registry agreements for new gTLDs.⁶

3.2 The performance specification matrix in Table A raises the quality of the Australian DNS infrastructure to international levels, and is consistent with a critical infrastructure to the Australian economy. These figures can be considered to approach the service levels expected of telephone communication systems. Note that the nameserver and WHOIS services will be kept to within 15 minutes of updates to the core registry database. This will result in a significant improvement in response times when an organisation wishes to change the physical location or IP addresses of their Internet servers. By making the registry operator responsible for all three critical registry functions, it can ensure that the service levels below can be met for the Australian community.

3.3 The processing time figures represent the performance for 95% of transactions. The planned outage times are not counted in the service availability figures listed in item 1. They allow for maintenance and major upgrades to the registry, but ensure that the business of registrars is not adversely affected during these times by choosing a maintenance window well outside of normal business hours.

Table A: Performance Specification Matrix

	Performance Specification Description	Registry Database	Nameserver	WHOIS
1	Service availability	99.9% per calendar month	99.999% per calendar year	99.5% per calendar month
2	Processing time – add, modify, delete	3 sec for 95%	NA	NA
3	Processing time – query domain	1.5 sec for 95%	NA	NA
4	Processing time – WHOIS	NA	NA	1.5 sec for 95%
5	Processing time – nameserver resolution	NA	1.5 sec for 95%	NA

⁶ ICANN New TLD Program (<http://www.icann.org/tlds/>)

6	Update frequency	NA	15 min for 95%	15 min for 95%
7	Planned outage – duration	8 hrs per calendar month	not allowed	8 hrs per calendar month
8	Planned outage – timeframe	0600-1400 AEST Sun	not allowed	0600-1400 AEST Sun
9	Planned outage – notification	3 days	not allowed	3 days
10	Extended planned outage – duration	18 hrs per calendar quarter	not allowed	18 hrs per calendar quarter
11	Extended planned outage – timeframe	0600-1400 AEST Sun	not allowed	0600-1400 AEST Sun
12	Extended planned outage – notification	28 days	not allowed	28 days
13	Cross-network nameserver performance	NA	300 ms RTT and 10% packet loss	NA

4. Service level agreement (SLA)

4.1 The purpose of an SLA is to provide a clear statement of expected service levels in relation to specified functions, against which performance can be monitored and measured at regular intervals. SLAs would exist between registry and registrar, and registrar and registrant. The SLA would normally refer to the performance specifications in Table A, and define financial penalties to be provided to registrars by the registry for failure to meet these standards. The financial penalties ensure that a registry operator has the incentive to maintain high levels of performance. If the performance of a registry operator was consistently poor, this would be grounds for auDA to cancel its licence and award the registry to another registry operator. The presence of multiple registry operators will make this step easier and more feasible.

4.2 Any SLA needs to be cognisant of maximum availability of multiple backbone providers (ie. the SLA usually refers to the performance of the registry operator’s system measured at the interface between the registry operator and the external Internet, and does not take into account the quality of the network connection between any particular registrar and the registry).

5. WHOIS specifications

5.1 Domain name data is currently accessible by the public through the WHOIS protocol, however there is no commonly recognised standard set of information or user interface. Table B below demonstrates the differences in WHOIS data sets used by other ccTLDs and for the gTLDs.

Table B: WHOIS data sets provided by AUNIC, ICANN, CIRA and Nominet

WHOIS provider	WHOIS data set
AUNIC (provides WHOIS for all .au 2LDs except	<ul style="list-style-type: none"> the name of the third level domain (3LD); the name and postal address of the 3LD holder; the original creation date of the 3LD;

asn.au, csiro.au and net.au) ⁷	<ul style="list-style-type: none"> the date of the last modification to the 3LD contact details; the name, postal address, telephone number, fax number, email address and NIC handle of the administrative contact for the 3LD; and the name, postal address, telephone number, fax number, email address and NIC handle of the technical contact for the 3LD.
ICANN (mandated WHOIS data set provided by all accredited registrars) ⁸	<ul style="list-style-type: none"> the name of the second level domain (SLD) being registered and the TLD for which registration is being requested; the IP addresses of the primary nameserver and secondary nameserver(s) for the SLD; the corresponding names of those nameservers; the identity of the registrar (which may be provided through the registrar's website); the original creation date of the registration; the expiration date of the registration; the name and postal address of the SLD holder; the name, postal address, email address, voice telephone number and (where available) fax number of the technical contact for the SLD; and the name, postal address, email address, voice telephone number and (where available) fax number of the administrative contact for the SLD.
CIRA (provides WHOIS for all .ca domains) ⁹	<ul style="list-style-type: none"> the domain name; the name of the domain name holder; the name of the registrar; the renewal date of the registration; the approval date of the registration; the date of the last change to the registration details; the name and IP addresses of the primary and secondary nameservers; the name, job title, postal address, phone number, fax number and email address of the administrative contact; and the name, job title, postal address, phone number, fax number and email address of the technical contact.
Nominet (provides WHOIS for co.uk, org.uk, net.uk, plc.uk and ltd.uk) ¹⁰	<ul style="list-style-type: none"> the name of the 3LD; the name of the 3LD holder; the name of the registrar; the date of the last update to the registration record; and the name and IP addresses of the nameservers.

5.2 The Panel considers that the WHOIS service is an essential feature of the DNS, as it allows users to find out information about the holder of a domain name. It is

⁷ AUNIC WHOIS query (<http://www.aunic.net/whois>)

⁸ ICANN Registrar Accreditation Agreement Section II.F.1 (<http://www.icann.org/nsi/icann-raa-04nov99.htm - IIF>)

⁹ CIRA WHOIS query (http://www.cira.ca/en/re_whois.html)

¹⁰ Nominet WHOIS query (<http://www.nic.uk/>)

therefore desirable for auDA to mandate a standard WHOIS data set and user interface for the .au domain; this is particularly important in a multiple registries model, where domain name information is stored in more than one registry database.

5.3 The Panel recommends that the WHOIS data set for .au comprise at least the following elements:

- ❑ the name of the domain name registered;
- ❑ the IP addresses of the primary nameserver and secondary nameserver(s) of the name registered;
- ❑ the corresponding names of those nameservers;
- ❑ the identity of the registrar;
- ❑ the original creation date and term of the registration;
- ❑ the name, postal address, e-mail address, voice telephone number, and (where available) fax number of the domain name registrant;
- ❑ the name, postal address, e-mail address, voice telephone number, and (where available) fax number of the technical contact for the name registered; and
- ❑ the name, postal address, e-mail address, voice telephone number, and (where available) fax number of the administrative contact for the name registered.

5.4 It is important to note that WHOIS data comprises only the information that is publicly accessible; there is other data associated with domain name registrations that is held by the registry and registrar that should not be included in the WHOIS data set (eg. billing information, other personal details of the registrant).

5.5 Some fields may be optional (eg. fax number of the administrative or technical contact). Domain name expiry and other fields that would allow third parties to harrass legitimate current domain name holders should be limited, except to registrars who need this information.

5.6 The Panel notes that the value of the WHOIS service is entirely dependent on the quality of the information it provides. Accordingly, it is important that registrants be required, under the terms and conditions of the domain name licence agreement, to maintain correct contact details. The Panel recommends that the registry should be entitled to de-list or de-register a domain name if the registrant fails to maintain correct contact information (or deliberately provides incorrect contact information).

5.7 Bulk WHOIS data can be used for a range of purposes including searching services (eg. for domains that contain certain strings, or for domains corresponding to particular geographic locations). The bulk WHOIS data can be used by registrars to create specialised services as a point of differentiation. Access to bulk WHOIS data has benefits and problems (most notably unsolicited advertising). One option is to have a greater amount of data available for a lookup service, versus the amount of data available to a third party in bulk form. For example, the bulk access may just contain the list of domain names, and the name or organisation name of the registrant – but not include email and phone contact details. It may also be desirable to adopt an opt-in policy for bulk WHOIS data (particularly relevant for individuals for an id.au or other personal domain space). The Panel recommends that access to bulk WHOIS data be controlled by auDA.

6. Data escrow specifications

6.1 Data escrow is the practice of storing data in a secure, independent location for access by a third party under strictly limited circumstances. Data escrow is an essential requirement for both registry and registrars, for consumer protection and DNS integrity reasons.

6.2 Data escrow should be an automated feature, to minimise the risk that it will be neglected. The Panel recommends that this involve regular backups of essential data to an escrow site on a regular (at least weekly, preferably daily) basis. The incumbent registry operator(s) will maintain full and accurate records, in accordance with Australian Standard, Records Management AS4390. These will be made available in a timely manner to the subsequent successful tenderer. This is critical in the event that a registry operator fails.

6.3 At registry rollover, there must be a seamless transition between an incumbent registry operator and the designate registry operator. All data required to perform the handover of the .au DNS to the next registry operator should be provided. Adequate planning between the incumbent registry operator and the designate registry operator to ensure continuous service is essential, including a reasonable handover process. The Panel recommends that all required data should be transferred electronically in transparent form (ie. non-opaque and non-obfuscated ASCII or UNICODE UTF-8 or similar textual form). Additionally, the two parties may agree to non-electronic transfer, as long as this does not preclude a seamless transition.

7. Domain name expiry and deletion

7.1 The Panel considers it essential that all .au domain names under the control of a registry operator or registrar that expire or are deleted at the request of a registrant become available (following a fixed grace period of 30 days to allow the current registrant to renew the domain name) to the entire competitive market as soon as technically feasible.

7.2 Under no circumstances should a registry operator or registrar squat on expired or unregistered domain names. The Panel recommends that domain names that are shown to be held in bad faith by a registry operator or registrar be made available to the first aggrieved registrant pending resolution via auDA's dispute resolution policy.

7.3 The Panel further recommends that registry operators and registrars, and any closely held companies or organisations, be prohibited from using domain availability information (from WHOIS or other sources) to speculate on the likely acquisition of domain names from registrants in any way that diminishes competition and/or increases the costs to registrants. Examples of undesirable practices include:

- ❑ a registry operator who operates a web-based WHOIS service, which squats on domain names pending an increased fee, auction or other market-distorting contrivance;
- ❑ a registrar who takes a domain name off the market in response to a WHOIS query from a prospective registrant, and then tries to obtain additional money from that prospective registrant; or

- a registrar who uses business registration information to squat on related domain names, and then tries to obtain additional money from the relevant prospective registrant.

ATTACHMENT C: TENDER PROCESS

1.1 The Panel considers it essential that the tender process to award registry operator rights be conducted by auDA in accordance with sound commercial practice and a view to principles of open and effective competition, ethics, fair dealing and accountability.

1.2 The tender process may be broadly characterised by four stages:

1. Identification stage

- identify the objectives of the tender – to introduce competition, improve efficiency (including through innovation and price cap regulation), minimise ‘price of service’ to registrars and maximise quality of service, etc.;
- define the terms of reference for the planning stage; and
- identify the need for external advisors in such areas as contract management, finance, taxation, technology, security and law.

2. Planning stage

- develop a detailed tender management plan, including timetable, financial models and risk management plan, consistent with the objectives of the tender and related tender strategy approved by the auDA Board; and
- identify alternative tender strategies (eg. one or two stage process), the regulatory environment, (eg. price caps, rate of return regulation, etc), a precise definition of what is being tendered, any ownership/control restrictions (eg. foreign ownership/control, registrar ownership/control), staff and other resources required to conduct the tender efficiently and effectively (eg. need for law enforcement background inquiries of tenderers, processes for engagement of advisors/consultants, funding the tender process, etc).

3. Implementation stage

- selection of any steering committee or panel to oversight/guide the tender process, including approval of tender documentation;
- selection of team to manage/run tender process;
- selection, engagement and management of advisors/consultants;
- management of the tender process;
- development and maintenance of the tender management plan, including timetable with milestones and tender evaluation plan;
- preparation, execution and management of confidentiality agreements;
- development of financial model(s) – cost, pricing and evaluation;
- preparation of Request for Tender (RFT), including specification of service requirements and reconciliation of RFT against cost model(s);
- preparation of Service Level Agreement (SLA), including definition and measurement of service levels;
- development/negotiation of registry licence(s), including performance, pricing and other terms and conditions;
- management of due diligence;
- preparation of relevant legal, security and financial risk assessments;
- evaluation of tenders;

- selection of successful tenderer and granting of licence(s); and
- post-tender responsibilities, including licence agreement management and SLA management.

4. Evaluation stage

- an independent, post-tender evaluation of the tender process, including report to the auDA Board covering lessons arising from the process and whether the process could be carried out more economically, efficiently and effectively in future.

ATTACHMENT D: CONSUMER SAFEGUARDS

1. Introduction

1.1 This paper outlines some consumer safeguards that the Panel considers necessary for the protection of registrants in a competitive domain name market place.

1.2 The Panel has drawn on existing material, for example the practices of other countries such as New Zealand¹, Canada² and the UK³, as well as ICANN.⁴ Consumer safeguards in the Australian telecommunications industry are well-documented (and in some cases, legislated) and may be applicable to the domain name industry.⁵

1.3 It is expected that the Panel's recommendations would be used by auDA as the basis for legal drafting of registry and registrar licence agreements.

2. Service level agreement (SLA)

2.1 The purpose of an SLA is to provide a clear statement of expected service levels in relation to specified functions, against which performance can be monitored and measured at regular intervals.

2.2 The SLA between registrar and registrant would include matters such as:

- stated time limits for domain name registrations (eg. minimum 2-day turnaround);
- provision of customer support services;
- advance payment of fees; and
- complaints handling mechanism.

3. Disclosure of information

3.1 Registrars should be required to fully disclose all terms and conditions associated with domain name registration, including price and billing information. Most of this information could be included in a standard domain name licence agreement (ie. to be used by all registrars across all 2LDs). Another option would be to require registrars (or the registry) to issue registrants with a 'certificate of registration' (which could be provided electronically to reduce postage and handling costs), including the details of the domain name, the registrant, the registrar, the licence period and obligations of the registrant.

3.2 Registrars should also be constrained from providing misleading information. For example, registrars in the UK⁶ and New Zealand⁷ must agree not to misrepresent the

¹ Domainz .nz Provider Agreement V1.2, 27 July 2000

(<http://www2.domainz.net.nz/registration/NewSystem/ACCRED-AG-V1.2.pdf>)

² CIRA Procedures, Policies and Certification Requirements for Registrars
(http://www.cira.ca/official-doc/23.Registrar_Agreement.doc)

³ Nominet UK Tag Holder Contract (<http://www.nominet.org.uk/tag-terms.html>)

⁴ ICANN Registrar Accreditation Agreement (<http://www.icann.org/nsi/icann-raa-04nov99.htm>)

⁵ For example, the Australian Communications Industry Forum (ACIF) Consumer Codes
(http://www.acif.org.au/ACIF/files/Consumer_Codes_booklet.pdf)

⁶ Nominet UK Tag Holder Contract Section 4 (<http://www.nominet.org.uk/tag-terms.html>)

⁷ Domainz .nz Provider Agreement V1.2, 27 July 2000 Schedule B
(<http://www2.domainz.net.nz/registration/NewSystem/ACCRED-AG-V1.2.pdf>)

nature of a domain name; in particular, they must not indicate that registering a domain name creates any proprietary rights in that name. Ultimately, the provisions relating to false and misleading information in the Trade Practices Act would apply.

4. Transfer between registrars

4.1 One of the benefits of a competitive marketplace is that registrants are able to choose their preferred registrar at the time of registration, and can change their registrar at any time during the term of the domain name licence. The Panel considers it essential that registrars and the registry operator(s) be required to facilitate the speedy transfer of registrant information, upon request by a registrant to transfer their domain name registration to another registrar.

4.2 The Panel notes that it may be permissible for a registrar or the registry operator(s) to charge a transfer fee. For example, CIRA registrars may charge an administrative fee for transferring a registrant to another registrar, however it may not exceed \$CAD20.00 regardless of the number of domain name licences held by the registrant.⁸

4.3 While there may be a right for the registrant to change registrars, this should not be at the cost of the original registrar unless it is for reasons of breach by the registrar. Special consideration needs to be given to the rights or recourse of registrants in the event that a registrar goes bankrupt or otherwise ceases to exist.

5. Privacy of personal data

5.1 The domain name registration process does not require registrants to provide personal information, apart from the name and contact details of their administrative and technical contacts. However, it is likely that registrars will collect additional personal information as part of their broader business relationship with the registrant (eg. ISP and web-hosting services, etc).

5.2 The Panel recommends that registrars should be required to put in place appropriate arrangements to protect the privacy of personal data. Registrars should not be permitted to sell or otherwise disclose personal data without the registrant's knowledge and consent. For example, ICANN requires its accredited registrars to agree to take reasonable precautions to protect personal data from loss, misuse, unauthorised access or disclosure, alteration or destruction.⁹

5.3 The registry operator(s), registrars and resellers should be encouraged to use P3P headers in their website to reflect privacy policies. In addition, it is recommended that a 'Privacy' area be linked from the web homepage for consumers to easily obtain information about the privacy policies of an organisation.

5.4 The Panel notes that the new amendments to the *Privacy Act 1988* may apply to some large registrars (in general, small business operators are exempt from the new privacy provisions).

⁸ CIRA Registration Rules V1.2 (http://www.cira.ca/official-doc/24.CIRA_Policiesv2.1.txt)

⁹ ICANN Registrar Accreditation Agreement Section II.J.7 (<http://www.icann.org/nsi/icann-raa-04nov99.htm#IIJ>)

6. Reseller arrangements

6.1 The Panel has recommended that registrars should be responsible for the behaviour of their resellers, and should be ultimately responsible to the registrant. Therefore, registrants who use a reseller instead of dealing directly with a registrar, will still be covered by the consumer safeguards imposed on registrars. As a reinforcement measure, the Panel recommends that registrars be required to include compliance with consumer safeguards as part of the terms and conditions of their reseller agreements. A reseller should be required to disclose to the registrant, at the time of registration, the name of the registrar which will be processing the registration.

7. Industry code of conduct

7.1 The Panel recommends that a code of conduct be developed by the industry, in consultation with the ACA and ACCC, to handle matters such as transfer of registrant, and reseller arrangements. However, the Panel recognises that the development of an industry code will require time and a structured process. The Panel therefore recommends that consumer safeguards be incorporated into auDA's registrar agreements, until the code is finalised.

7.2 The Panel notes that ICANN Accredited Registrars have developed a draft code of conduct, which could be used as a starting point for the Australian code of conduct. It is set out in Table A below, with some changes to indicate how it would apply to auDA accredited registrars. The Panel recommends that, until the Australian code is finalised, auDA ensure that its registrar agreements incorporate at least all the matters listed in the ICANN draft code.

Table A: Registrar Code of Conduct

Preamble

Registrars accredited by auDA seek to operate in good faith and according to established standards, practices and rules: to promote confidence of users and other important communities; to maintain fair and open competition; and to advance the reputation and standing of the Registrar community.

Purpose

This Registrar Code of Conduct describes key areas of operation for accredited registrars competing in the registration of domains within .au. The Code has been developed by operational Registrars, to reflect experience under the terms and conditions of the auDA Registrar Accreditation Agreement, identifying roles and responsibilities common to all registrars and providing interpretive guidance; it should thus be considered in concert with the Agreement, with the detailed operational Frequently Asked Questions document, and any other documentation relevant to a particular transaction.

The Registrars shall review this Code annually. All auDA Accredited Registrars shall affirm their compliance with the provisions of the Code during the periodic re-accreditation process.

Provisions:

1. Resolution of Customer Grievances

Registrars and their agents should endeavor to resolve customer complaints in an expeditious and courteous manner. Registrars and their agents are expected to furnish each registrant with contact information for the registrar's and reseller's customer support personnel, to include information such as, phone number, fax number, e-mail address or link to home page. Inclusion of such information in registrar's registration agreement or in a confirming e-mail sent to registrants would normally satisfy this requirement.

2. Bad Faith Registrations and Front running

auDA accredited registrars should refrain from registering domain names on their own behalf, or on behalf of any director, officer, employee or agent of such registrar, if such registration would constitute a bad faith registration under the auDA dispute resolution policy. Further, auDA accredited registrars shall not engage in Frontrunning. For purposes hereof, "Frontrunning" shall mean employing a process designed to anticipate a consumer's preference for a domain name (via sniffing of WHOIS data or other process), or otherwise obtaining specific information regarding such preference, with the intent of registering such domain name on behalf of the registrar, or any director, officer, employee or agent of registrar, and subsequently registering that domain name on behalf of the above parties

3. Disclosure to consumer of applicable Registrar information

With regard to registrations of domain names initiated at (i) web sites operated by registrar under a trade name other than the trade name listed on the auDA list of registrars or (ii) web sites operated by third parties (eg. resellers), the identity of the registrar (using the trade name shown on the auDA list of registrars) must be explicitly and conspicuously disclosed to the registrant prior to the completion of the registration.

4. Warehousing

auDA Accredited Registrars shall not engage in Warehousing.

Warehousing, also referred to as domain names speculation, is defined as the pre-registration of domain names not on behalf of a registrant, but knowingly for the express purpose of resell at a later date.

Registration of a domain name for other than for the conduct of its own business or the express purpose of acting as an agent for a Registrant shall constitute a violation of that agreement.

5. Fraudulent transfers (Hijacking)

auDA accredited registrars should refrain from fraudulently transferring domain names on their own behalf, or on behalf of any director, officer, employee or agent of such registrar. Such fraudulent transfer, with the intention of depriving the rightful domain name registrant, or "domain hijacking" shall be considered a violation of the auDA Registrar Accreditation Agreement.

6. Registrar's rights to domain name registration

Domain names not renewed must be returned to the Registry at the time of expiration or prior to the conclusion of any grace period. Registrars have no claim or right to domain names not renewed proactively by the domain name registrant.

7. Registration Period

The registration period submitted by the Registrar to the Registry must match the period that the registrant has registered for with the Registrar.

8. WHOIS Integrity

Registrars are required to maintain the integrity of central WHOIS information. Reliable and current nameserver and IP addresses must be maintained, as stated therein. Registrars must investigate and attempt in good faith to correct information found to be inaccurate or unreliable for those domain names for which they are responsible.

9. Transfers

This paragraph modifies or clarifies the current process of transferring domain name registration sponsorship between registrars.

A. Registrar acknowledges that the policy that the sponsorship of a domain name not be transferred between registrars within the 60 day period following registration shall be enforced by the registry

B. Prior to initiating with the registry a change in sponsoring registrar of a domain name, the gaining registrar must obtain express authorization from an individual who has the apparent authority to legally bind the registrant. For purposes of clarification, the term "express authorization" shall mean authorization, in written or electronic form, conveyed directly to the gaining registrar by the individual having apparent authority to bind the registrant. Oral communications from such individual shall not constitute valid authorization.

C. Each registrar will be required to retain and provide records of authorizations.

D. Registrants must be made explicitly aware of the gaining registrar's identity and must agree to the gaining registrar's applicable terms and conditions prior to the initiation of a transfer request. This may typically occur when a reseller moves a group of domain names from one registrar to another registrar.

E. The transfer of sponsorship of a domain name registration between registrars may not be initiated concurrently with a change of the registrant of such domain or the nameservers associated therewith.

F. The gaining registrar must maintain a record of the identity of the registrant of a domain name transferred to such gaining registrar and the nameservers associated with such domain name (each as reflected in the WHOIS database immediately prior to initiation of the transfer) for a period of at least 15 days subsequent to the completion of a transfer. Additionally, the losing registrar may not disable DNS services for a period of 90 days subsequent to the transfer.

9. Procurement and Retention of Documentation.

A. The Registrar License and Agreement provides certain requirements regarding the procurement and retention of documentation with respect to a registrar's business. All such documentation (i) shall be retained by the registrar in a central location for the time periods prescribed in the Accreditation Agreement, and (ii) shall be subject to inspection by auDA upon reasonable notice to the registrar. The registrar's obligations under this paragraph may not be delegated to any third party(ies), including, without limitation, any agents or reseller(s) of the registrar.

B. With respect to documentation related to a change of sponsoring registrars, copies of all relevant documentation regarding such change shall be forwarded to the registry and/or the losing registrar, within a commercially reasonable period of time, upon request by the registry or losing registrar.

8. Dispute resolution

8.1 The Panel considers it essential that registrants have access to a dispute resolution process to address any issues arising in respect of the allocation of domain names between the registrant and registrar (including the reseller of the registrar is applicable). A self-funding model such as the industry-funded Telecommunications Industry Ombudsman model may be appropriate to consider. The Panel notes that auDA has established a Dispute Resolution Working Group to develop an dispute resolution policy for the .au domain.

COMPETITION MODEL

auDA ADVISORY PANEL NO. 2 TERMS OF REFERENCE

Revision Date: 23 June 2000

This document is the Terms of Reference for the auDA Policy Advisory Panel Number 2, for the development of a Competition Model for the .au namespace.

1. Objective

auDA's objective is to develop the .au namespace in the interests of domain name users and the industry. A key component in delivering this objective is the implementation of competition in the provision of domain name services, to deliver the best result for:

- quality of service
- user choice
- lowest cost

2. Principles

In recommending the introduction of a particular competition model for the provision of .au domain name services, the Panel should take into account competition and industry specific principles.

General Competition Principles

- fostering business efficiency, especially where this results in improved international competitiveness
- industry rationalisation resulting in more efficient allocation of resources and in lower or contained unit production costs
- industrial harmony
- improvements in the quality and safety of goods and services and expansion of consumer choice
- supply of better information to consumers and business to enable informed choice in their dealings
- promotion of equitable dealings in the market
- promotion of industry cost savings resulting in contained or lower prices at all levels of the supply chain
- equality of access and a level playing field for all who want to participate in the market

Industry Specific principles:

- The integrity of the .au TLD is paramount, and the introduction of competition must not interfere with a consistent view of .au domain names.
- Regulation & administration of the .au namespace is undertaken on a cost-recovery not-for-profit basis.
- Non-contestable elements of the domain name process must be justified, and operated in an industry-neutral manner.
- Contestable elements of the domain name process, and the introduction of competition must be commensurate with long term stability of the DNS

3. Activity

This Advisory Panel will develop a Model to be used to introduce competition in the provision of domain name services in the .au namespace. The panel will review how registries, registrars, and users operate and interact, including but not limited to issues of:

- single/multiple registries
- location and content of registry / registrar data
- access, ownership and IP of registry data
- communication between registry and registrar, and between Users and registry / registrar
- security
- transfer of users between registrars, including registrars who cease to operate
- service levels - quality and timeliness
- licensing and accreditation of registry / registrar
- barriers to entry
- dispute resolution between various levels
- equality of access
- registry and registrar fees
- continuing funding model for auDA

4. Outcome

The panel's operations will have multiple stages, with a separate report from each stage:

Stage 1: Define existing environment and scope, including the domain name services provided by and used by entities

Stage 2: Review current practices worldwide in other domains

Stage 3: Recommend a competition model for .au

Stage 4: Provide a strategy for the implementation of the model

Stage 1 and 2 may run concurrently.

5. Duration

The estimated timeline for the panel is subject to change. The current estimate is:

Elapsed Time	Time	Activity
		auDA board to confirm Terms of Reference
2 weeks	2 weeks	Call for participants
4 weeks	2 weeks	auDA board to confirm participants
7 weeks	3 weeks	First meeting; confirm Panel operational procedures; start Stage 1 and Stage 2
11 weeks	4 weeks	Stage 1 Documentation Draft complete
15 weeks	8 weeks	Stage 2 Draft complete; start Stage 3
23 weeks	8 weeks	Stage 3 Draft complete; start first public consultation period
26 weeks	3 weeks	End first public consultation period; start Proposed report.
28 weeks	2 weeks	End Proposed report; start second public consultation period

30 weeks	2 weeks	End second public consultation period; start final Report
32 weeks	2 weeks	Complete final Stage 3 report; submit to auDA board
34 weeks	2 weeks	Stage 3 report approved by auDA board, commence Stage 4
38 weeks	4 weeks	Stage 4 complete
51 weeks	13 weeks	Implementation

6. Chair

The panel will have co-chairs; George Michaelson and another yet to be appointed.

7. Members

The panel should include representatives from all areas of the community including:

- Consumers
- General domain name users
- Registrars
- ISP & Web Hosting entities
- Government

Panel membership will be limited to 30. auDA will issue a general invitation via the auDA members and discussion lists to interested parties to participate in the panel.

8. Operations and budget

Members of the panel will determine their method of operation. auDA will provide email list server, web site including archived submissions provided to the panel, documentation of work, will arrange meeting venues, and provide teleconference support for meetings. auDA also plans to provide resources to enable a consultant to carry out a substantial part of Stage 2.

auDA COMPETITION MODEL ADVISORY PANEL**Co-Chairs**

Mr David Lieberman
Special Counsel
Blake Dawson Waldron

Mr George Michaelson
Technical Services Manager
Asia Pacific Network Information Centre

Members

Mr Rob Anderson
Director
cheapglobaldomains.com

Mr Philip Argy
Senior Partner
Mallesons Stephen Jaques (representing the
Australian Computer Society)

Dr Evan Arthur
Assistant Secretary
Department of Education, Training and Youth Affairs

Ms Sonja Bernhardt
Director
Thoughtware Pty Ltd

Mr Larry Bloch
Chief Executive Officer
Net Registry

Mr Alan Chalmers
Numbering Team
Australian Communications Authority

Professor Eugene Clark
Pro Vice-Chancellor
University of Canberra

Mr Roberto Colanzi
Senior Research Officer
Victorian Automobile Chamber of Commerce

Mr Matthew Hall
Partner
Deacons Lawyers (representing the Australian
Information Industries Association)

Mr Matthew Healy
Telecommunications Analyst
Australian Competition and Consumer Commission

Mr Tony Hill
Executive Director
Internet Society of Australia

Mr David Howarth
Solicitor
Freehills

Mr Geoff Huston
Chief Scientist, Internet
Telstra

Ms Amanda James
National Business Manager
AAP Information Services Pty Ltd

Mr Ian Johnston
Policy Consultant
Small Enterprise Telecommunications Centre Ltd

Mr John Lindsay
Strategic Development Manager
Internode Systems Pty Ltd

Mr Peter McGrath
Chief Operating Officer
connect.com.au

Mr Bill O'Chee
Director
B2G.com.au Ltd

Mr Jonathon Potter
General Manager, IT Services
Commonwealth Scientific and Industrial Research
Organisation

Mr Andrew Robertson
Chief Executive Officer
Tradegate Australia Ltd

Dr Bruce Tonkin
Chief Technology Officer
Melbourne IT Ltd

Mr Galen Townson
Western Australian Internet Association

Mr Andrew van der Stock
Senior Security Architect
E-Secure (representing the Systems Administrators'
Guild of Australia)

Ms Pauline van Winsen
Consultant

Ms Karina Warnest
Solicitor
Kelly & Co Lawyers

Ms Tania Wickman
Internet Consultant

GLOSSARY

Term	Definition
ACA	Australian Communications Authority
ACCC	Australian Competition and Consumer Commission
auDA	au Domain Administration – the Australian body established by the Internet community to become the industry self-regulatory body for administering the .au ccTLD and its associated sub-domains, for the benefit of the Australian community
AUNIC	the database of domain name registrant contact details and WHOIS service for all .au domain names except those registered in asn.au, csiro.au and net.au.
TLD	Top Level Domain – a name at the top level of the global domain name hierarchy (eg. .com, .net, .uk)
ccTLD	country code Top Level Domain – in the global domain name hierarchy, all countries have been allocated their own top level country domain (eg. .au in Australia, .uk in the United Kingdom)
gTLD	generic Top Level Domain – names in the top level of the domain name hierarchy, other than the ccTLDs, where organisations can register directly (ie. .com, .net, .org, .edu, .gov, .mil)
2LD	Second Level Domain – a name at the second level of the domain name hierarchy (eg. microsoft.com, com.au, co.uk)
closed 2LD	a Second Level Domain that has a strictly limited community of interest (eg. csiro.au, edu.au, gov.au)
open 2LD	a Second Level Domain that is basically open to all users, subject to some eligibility criteria (eg. com.au, net.au, org.au)
data escrow	the practice of storing data in a secure, independent location for access by a third party under strictly limited circumstances (eg. if the custodian of the data goes out of business)
domain name	provides a means for a user to access a device on the Internet by using an easy to remember text name rather than a numerical Internet address
domain name licence	the licence to use a domain name for a specified period of time
DNS	Domain Name System
ICANN	International Corporation for Assigned Names and Numbers
IETF	Internet Engineering Task Force
IP address	Internet Protocol address (eg. 203.63.53.117)
ISP	Internet service provider
nameserver	provides a service to computers to resolve a domain name to a physical IP address
primary nameserver	provides the authoritative service for a particular level in the domain name hierarchy

secondary nameserver	provides some redundancy to the primary nameserver, so that if a computer is unable to reach the primary nameserver, it can query a secondary nameserver
P3P	Platform for Privacy Preferences Project (P3P), developed by the World Wide Web Consortium, is emerging as an industry standard providing a simple, automated way for users to gain more control over the use of personal information on web sites they visit
registrant	encompasses domain name licence holders, domain name licence applicants and their agents
registrar	an organisation that processes data on behalf of the registrant into the registry
registry	a database for a particular level of hierarchy in the DNS that contains all the domain names registered at that level and associated public information
reseller	a service agent for a registrar
RFC	Request for Comment issued by the IETF – the basis for official Internet standards
WHOIS	a protocol used to provide a public information service in relation to domain name data
zone file	a file that contains a mapping between each domain name in a domain zone (eg. com.au) and the address of a computer that can resolve the domain name to a physical Internet address