ARI Registry Services Company Background

ARI Registry Services is a wholly owned subsidiary of AusRegistry Pty Ltd, the company that has been the TLD Registry provider for Australia's country code TLD, .au, since 2002.

Taking our business and expertise to the global audience, ARI Registry Services commenced operations to leverage the DNS and TLD Registry system expertise and infrastructure built in the parent company, and to provide a platform for innovative usage of this technology in the provision of 'World's Best Practice' TLD Registry Services to clients internationally.

> *AusRegistry has built a world's best practice Domain Name registry utilising the industry-standard EPP interface and hardware from leading vendors including IBM, Oracle and Cisco. All areas of auDA's technical specifications have been complied with or, in many cases, exceeded especially in the areas of security, stability.*
>
> **Chris Dispain, CEO - auDA**

ARI Registry Services is a proven specialist in the development and deployment of TLD Registry systems and accompanying policies and procedures. Our comprehensive program ensures technical excellence and guaranteed results.

In addition, ARI Registry Services:

- Has been an active contributor to Internet policy development and implementation for over 10 years,
- Has been an Internet Corporation of Assigned Names and Numbers (ICANN) Accredited Registrar since 2001,
- Is a Domain Name Industry expert frequently requested to present on a wide range of technical and administrative topics at conferences around the world, and
- Is a trusted consultant to a number of government entities on best practice TLD operations and the criticality of the Internet and the DNS.

International Experience

ARI Registry Services also has extensive international TLD Registry experience currently operating several TLD Registries across the globe and is the trusted provider for multinational enterprises and international governments alike.

Our capabilities and dedication are most evidenced by our success running a number of TLDs around the globe and by developing long term relationships with our expanding list of high profile clients. These have been outlined in more detail below.

Provision of Backend Registry Services

The company was appointed as Back-End Registry Operator for the .au TLD by auDA (the .au Domain Administration Limited) the .au TLD Regulator, after an open, competitive tender process in 2001. The tender was awarded for a four-year term. The company was again successful in a second open, competitive tender in 2005. In 2009, the company was awarded a further four-year extension, taking this contract to June 2014.

During the company's tenure as Back-End Registry Operator, the .au TLD has become entrenched as the dominant TLD brand within the Australian market, with registrations growing at an annual average rate approaching 25%, taking the total number of active Domain Names from about 250,000 in 2002 to nearly 2.3 million to date. This growth has been supported by our commitment to providing technically superior services, stakeholder support, and the implementation of innovative marketing for the .au TLD.

> *AusRegistry has provided the technical platform, as well as effective marketing and education programmes and high levels of support to Registrars, that has helped to ensure the continued strong growth of the .au ccTLD as the pre-eminent domain space within Australia, and the default choice for Australian businesses.*
>
> **Chris Dispain, CEO – auDA**

Launching and Re-launching TLD Registries

ARI Registry Services has supported (and continues to support) the launch and re-launch of a number of Top Level Domains, including organizational and policy development, preparation and execution of marketing and communications plans, technical implementation and operational management and support.

TLD Re-launches

TLD	Country	Details
.au	Australia	Re-launched 2002
.ae	United Arab Emirates	Re-launched with second-level registrations 2008
.qa	Qatar	Re-launched with second-level registrations 2011
.om	Oman	Re-launching 2012

New TLD Launches

TLD	Country	Details
امارات. (.emarat)	Arabic script IDN ccTLD for UAE	Launched 2010
قطر. (.qatar)	Arabic script IDN ccTLD for Qatar	Launched 2011
عمان. (.oman)	Arabic script IDN ccTLD for Oman	Launching 2012

Internationalised Domain Name Experience

As part of our engagement with the Governments of the United Arab Emirates and the State of Qatar, ARI Registry Services completed the planning and policy development for the introduction of the Internationalised Domain Name representations of their respective country names, in particular the Trademark Protection and Sunrise process and policies.

The طر ة. (.qatar) and امارات. (.emarat) Internationalised TLDs were amongst the first delegated by IANA in early 2011. Significant effort was placed in the development of the supporting policies for these new TLDs. This project saw the confluence of a unique set of circumstances; the introduction of Internationalised Domain Names for the first time on the Internet, and the need to implement policies for a Sunrise Period for their launch.

As a result ARI Registry Services team of Domain Name Industry Consultants developed polces for the Sunrise Period that mirrored industry best practice, and dealt with the complex issues surrounding Internationalised Domain Names. Both the طر ة. (.qatar) and امارات. (.emarat) Internationalised TLDs were launched successfully after the completion of the successful Sunrise periods.

Consulting and Other Registry Services

In addition to the services outlined above, ARI Registry Services has performed a number of key projects for customers providing a wide range of TLD Registry products and services to clients such as:

Country	TLD	Service
Australia	.au TLD	TLD Registry Services and Consulting Services
Egypt	.eg TLD	TLD Consulting Services
Nauru	.nr TLD	TLD Registry Services and Consulting Services
Oman	.om TLD	TLD Registry Software and Consulting Services
Oman	عمان. IDN TLD	TLD Registry Software and Consulting Services
Qatar	.qa TLD	TLD Registry Software and Consulting Services
Qatar	قطر. IDN TLD	TLD Registry Software and Consulting Services
Saudi Arabia	.sa TLD	TLD Consulting Services
Singapore	.sg TLD	TLD Consulting Services
Solomon Island	.sb TLD	TLD Registry Services and Consulting Services
South Africa	.za TLD	TLD Consulting Services
United Arab Emirates	.ae TLD	TLD Registry Software and Consulting Services
United Arab Emirates	امارات. IDN TLD	TLD Registry Software and Consulting Services

ARI Staff & Roles

ARI is a dedicated registry service company and is structured as such.

Organisational Structure

ARI is divided into distinct operational departments:

- Executive Management Team (4 staff)
- Products and Consulting Team (7 staff)
- Legal, Abuse and Compliance Team (6 staff)
- Production Support Group (27 staff)
- Development Team (11 staff)
- Client Services Team (4 staff)
- Finance Team (4 staff)

The number of resources required to design, build, operate and support the SRS does not vary significantly with, and is not linearly proportional to, the number or size of TLDs that ARI provides registry services to.

ARI protects against loss of critical staff by employing multiple people in each role. Staff members have a primary role plus a secondary role for protection against personnel absence. Additionally ARI can scale resources as required. Additional trained resources can be added to any of the above teams with a 2 month lead time.

Executive Management Team

The Executive Management team is responsible for the development and execution of company and technology strategy. The members have significant skills and experience in the management, deployment and operation of Domain Name Registry services.

Members attend ICANN and other relevant conferences where they participate in meetings and forums.

The team consists of:

- Chief Executive Officer: Adrian Kinderis
  Adrian is the CEO of the AusRegistry Group of companies including AusRegistry Pty Ltd and AusRegistry International Pty Ltd (trading as ARI).
  Adrian was elected by the Registrar Constituency to the GNSO Council for ICANN. In this role he has, amongst other bodies of work, contributed to the 'Introduction of New Generic Top-Level Domains Document (11 September 2007)'.
  Adrian has the experience in the industry to understand the requirements of meeting both the existing and new obligations of TLD registries.
- Chief Technology Officer: Chris Wright
  Chris is charged with technical oversight of the on-going operation, maintenance and improvement of the registry and its associated DNS and WhoIs services.
  Chris actively participates in ICANN and IETF, especially in the areas of DNS, DNSSEC, DNS Security, IDNs and general registry/Registrar interactions. Chris contributed to the development of the IDNA 2008 standard.

- Chief Operations Officer: Robin Schmitt
  Robin is responsible for business operations across all sectors of ARI, to ensure efficient and effective management of resources and distribution of services.
  One of Robin's main priorities within the role of Chief Operating Officer is to manage the expansion of ARI and ensure continued growth of the organisation into the future.
  Robin is a Certified Project Management Professional (PMP/PMBOK), Certified PRINCE2 Practitioner and has in depth Agile/XP coaching experience. Robin is also well trained in management, IT Governance, Enterprise Architecture and Business Process Management.
- Chief Strategy Officer: Krista Papac
  Krista has been involved with the International Trademark Association (INTA) since 2001, and has been an active ICANN participant; including membership on a number of ICANN policy-making groups since 2007. She is affiliated with a wide range of industry associations and contributes valuable knowledge across many forums and working groups on behalf of ARI.

Products and Consulting Team

The Products and Consulting team is responsible for managing the ARI product suite and delivering project management and domain name industry consulting. The product suite consists of the ARI Domain Names Registry System, Managed TLD Registry Services, TLD Application Consulting and TLD Implementation Services. The members of the Products and Consulting team have an excellent understanding of the domain name industry and comprehensive knowledge of ICANN policies and procedures.

Members of the Products and Consulting Team act as product owners and subject matter experts, disseminating their knowledge to areas like the Development Team and Production Support Group. It consists of:

- 1 Products and Consulting Manager: manages the day to day operations of the department, including monitoring and controlling the delivery of a program of product development, domain name registry implementation, policy development and application consulting projects.
- 1 Product Manager: ensures that products are developed and maintained to meet customer requirements, while maintaining compliance with all relevant policies and technical standards. They also manage relationships with third parties for delivery of services, such as escrow and auctions.
- 1 Technical Product Manager: owns and documents technical product requirements, working with business analysts in the development team to deliver fit-for-purpose registry systems.
- 4 Domain Name Industry Consultants: are responsible for maintaining expert knowledge and providing consulting services of the domain name industry, including technical registry operations, domain name policies, abuse prevention and rights protection.

Legal, Abuse and Compliance Team

The Legal, Abuse and Compliance Team is responsible for the compliance of mandated RPMs and the enforcement of the anti-abuse policy to minimise abusive registrations in the TLD. As well as acting as general counsel for the organisation. With respect to registry services this team has three core responsibilities:

- Compliance with ICANN mandated RPMs including the URS.
- Point-of contact for external reports of abusive registrations.
- Provision of an expedited process for law enforcement agencies.

The Legal, Abuse and Compliance team provides policy, abuse and compliance functions to the TLDs operated by ARI. The team consists of staff that have assisted in the development of policy for several ccTLD namespaces. The team consists of:

- 1 Legal Manager: oversees the operation of the department, enforcing appropriate controls and ensuring that the departmental operations adhere to legal, policy, contractual and compliance requirements.
- 1 Legal Counsel: Is a qualified lawyer and responsible for all in-house legal advice and guidance to the Executive Management team. This may be in the areas of response to law enforcement or dealing with Domain Name Abuse.
- 4 Policy Compliance Officers: Are responsible for the enforcement of anti-abuse policies and the execution of instructions from URS providers and law enforcement agencies. Staff members bring skills including domain name law relating to trademarks and technical skills used to identify malicious domains. Policy Compliance Officers are required to have the following skills/qualifications: customer service/fault handling experience, comprehensive knowledge of abusive behaviour with respect to domain names and related policies, Internet industry knowledge, relevant post-secondary qualification, excellent communication and professional skills, accurate data entry skills, high-level problem solving skills, and high-level computer skills.

Production Support Group

The Production Support Group (PSG) of ARI is responsible for the design, deployment and on-going maintenance of the registry infrastructure including capacity planning. This team ensures the registry services are available and performing at the appropriate level, and operating correctly. The technical customer support function is also contained within the PSG. To assist with the smooth deployment of new TLDs and operation of existing TLDs, PSG is divided into three virtual groups – the service desk, implementation and the operations groups. The groups consist of:

- Production Support Manager: is responsible for overseeing the day-to-day operations of the group. The PSM also holds the responsibility of being the Information Security Officer (ISO).
- Service Desk:
  - 1 Level 1 Support Team Lead: guides the Customer Support Representatives in the day-to-day responsibilities of their role and is responsible for ensuring that OLA and SLA targets for ticket response times are met.
  - 8 Customer Support Representatives (Level 1 support): Are the first line of support for customers. CSRs are generally trained in the Domain Name Industry, the registry interfaces and are assigned to track a problem through to its completion regardless of how it gets escalated.
  - 1 Level 2 Support Team Lead: guides the registry specialists in the day-to-day responsibilities of their role and ensures that OLA and SLA targets are met.
  - 4 Registry Specialists (Level 2 support): Are trained in all aspects of the registry system to a detailed and technical level. They have knowledge of the toolkits that are provided to Registrars and understand details of the internal workings of the registry system. Registry specialist will be technically proficient having been developers or system engineers.
- Operations (Level 3 support):

- o 1 Operations Team Lead: Is responsible for overseeing day-to-day management of the operations team.
- o 2 Systems Administrators: Are responsible for administration of all registry systems, including overseeing backup and escrow operations.
- o 2 Database Administrators: Are responsible for the operations of the Oracle databases including Production, OTE and Staging environments. They look after backup of the environment as well as ensuring that performance is up to standard.
- o 2 Network Engineers: Manage and monitor the network and associated devices. They are experts in routing and respond to all network events generate by monitoring systems.
- Implementation:
  - o 1 Project Manager: Is responsible for project managing implementation projects.
  - o 2 Systems Administrators: Are responsible for configuration, testing and deployment of servers and storage.
  - o 1 Database Administrators: Are responsible for the configuration and deployment of database platforms, as well as the required backups and testing.
  - o 1 Network Engineer: Is responsible for configuration and deployment of network equipment, as well as routing design and bandwidth provisioning.

The Operations and Implementation team members of the PSG are also divided into two virtual teams, team A and team B, for dealing with emergency scenarios. Should recovery efforts taken, when an event occurs, require 12 or more hours of continuous work the teams will swap after 12 hours. Roles allocated to each team:

- 2 Systems Administrator
- 1-2 Database Administrator
- 1-2 Network Engineer
- 1 Shift Team Leader
- 1 Operations Manager

The following is a description of the skills and responsibilities of each role:

- Production Support Manager: Oversees the operation of the Production Support Group (PSG). In addition to being a major driving force for continuous improvement, the PSM takes responsibility for stability of continuing operations, delivering on projects and motivation. The manager is certified in the IT Infrastructure Library (ITIL) framework and the Project Management Body of Knowledge (PMBOK).
- Project Manager: Responsible for the project management of implementation projects.
- Team Leader: Manages workload across all team members and delegating daily tasks. They also fulfil some of the daily duties within the team.
- System Administrator: Are responsible for all Unix systems that host applications developed by ARI or by a third party. Systems Engineers hold a minimum certification of Red Hat Certified Engineer (RHCE).
- Database Administrator: Are responsible for all database servers used by ARI to deliver registry services. They interact with development teams to ensure that database designs can stand to circumstances that eventuate in production environments. They participate in project work to contribute their operational experience. DBAs are Oracle Certified Professionals (OCP) and may also hold RHCE status.

- Network Administrator: Are responsible for all network equipment operations and setup. They contribute their knowledge of operations to relevant projects. Network Engineers hold relevant networking qualifications including: Cisco Certified Network Associate (CCNA), Cisco Certified Network Professional (CCNP), Cisco Certified Design Associate (CCDA), Cisco Certified Design Professional (CCDP) and F5 Product Consultant (LTM) certifications as well as RHCE.
- Registry Specialist: Respond to trouble tickets which cannot be performed by CSRs. They interact with the development and product teams to maintain knowledge regarding the design and operation of registry systems. Registry specialists may hold Red Hat Certifies Technician qualifications.
- Customer Support Representative: Are the first point of call for external parties. CSRs engage in basic troubleshooting and problem analysis. CSRs may hold Red Hat Certifies Technician qualifications.

Development

The Development Team is responsible for the maintenance of the registry software and the development of new features. Staff that are required to perform "training" days in other departments, for example Finance, Production Support or Client Services to understand how each department interacts with the registry system. The team consists of:

- 1 Development Manager: Oversees the operation of the Development Team. They are responsible for the delivery of projects and continually improving development capability.
- 2 Business Analysts: Are responsible for the gathering of functional and non-functional requirements and communicating these requirements to the Developers and Quality Analysts. They also verify tests to ensure they meet the documented requirements.
- 6 Developers: Are responsible for writing and maintaining the registry software. They maintain skills in two or more programming languages and contribute to the team with years of development experience.
- 2 Quality Analysts: Are responsible for the accuracy of registry software. They work closely with the Business Analysts to develop test cases and scenarios that are then added to a regression suite.

Client Services

The Client Services team provides liaison services to ARI's supported Registrars and registry operators. The team consists of:

- 1 Client Services Manager: Is responsible for the day-to-day operations of the Client Service team and is the first point of escalation for any issue clients face that their assigned Client Service Officer cannot address.
- 3 Client Services Officers: Are responsible for account management duties to registry operators and Registrar alike.

Finance

The finance team is responsible for the maintenance of Registrar account balances and invoicing. The team consists of:

- 1 Financial Controller: Responsible for day-to-day management of the finance tea, as well as ensuring the quality of accounting within ARI.
- 1 Accountant: Is responsible for overseeing accounting functionality including reconciling registry operator and Registrar accounts.

- 2 Book Keepers: Are responsible for the day-to-day entering of finance information into ARI's accounting system as well as reconciling transactions from the registry system.

Training and Continual Learning

ARI understands that domain names, registry systems, DNS and the domain name industry in general are a constantly evolving subject. To effectively deliver services for the TLDs, staff are encouraged to continually learn and develop. ARI supports this through annual staff review processes with a focus on skills development. These reviews identify gaps in knowledge from both individuals and the broader organisation. This process is supported with an annual training budget allowing staff to attend training courses. Staff participate in formal research projects and vendor technology briefings to ensure skills and operational practices remain current.

ARI staff attend industry forums and events (ICANN and IETF) and staff membership in industry groups is highly encouraged (e.g. System Administrators Guide of Australia [SAGE-AU]).

Capacity

ARI has undertaken a staff capacity increase project to ensure skills and staff numbers to meet anticipated requirements.

Despite staff increases, ARI retains staff with significant experience in the domain name industry in all teams described. ARI's unique position within the Australian labour marketplace ensures it receives preferential attention from domain name industry skilled individuals.

Hiring and Background Checks

ARI employs the following process for hiring new technical staff for its registry operations:

1. CV Screening – CV screening eliminates candidates who do not have sufficient experience or an appropriate background for the role.
2. Technical Exam – appropriate technical exams are held in house for each skill set. These are more difficult than the corresponding industry course exams and are a good indicator of skills and knowledge. Each exam contains several questions are answerable correctly only by candidates who have experience, that is no textbook holds the answer. These questions cover security related knowledge and experience. Exams are set such that most candidates with appropriate experience and work history fail the exam and are not invited for a follow-up interview.
3. Initial Interview – a first interview validates the candidate's knowledge, experience and basic work habits. This is a technical interview with technical staff. Most candidates that make it to the first interview are eliminated during the first interview.
4. Second Interview – a second interview identifies the candidate's motivation, team work and manageability. Candidates that succeed in gaining a second interview are generally in the top 1-2% of their fields and are effectively on a short list. However, most are not hired.

ARI planning processes allow for up to 3-6 months to find the right candidate for some types of roles, to ensure that only the best candidates are hired.

Once a candidate is selected, Police background checks are performed to eliminate the possibility of a criminal background. If these background checks are acceptable, an Australian Federal Government 'Protected' security clearance is applied for. This is mandatory as registry operations staff come into contact with information that

the Australian Federal Government has classified as 'Protected'. This process is very involved, includes a five year history of work, living arrangements and travel, and identifies any vulnerability the candidate may have.

The candidate must agree to all security policies and responsibilities as identified in their position description.

Appendix 1 – Selected Case Studies

ARI Registry Services – Case Study .auDA

Situation

In 2000 the .au Domain Administration (auDA) received the endorsement of the Australian Government to act as the regulator of the .au TLD, and in 2001 signed a sponsorship agreement with ICANN and was assigned the responsibility for .au TLD.

Faced with a multitude of challenges regarding the management of the .au namespace, auDA issued a competitive open tender for interested parties to implement and operate a best practice Doman Name Registry System and in doing so, consolidate and rectify the challenges faced by auDA.

Solution

Working closely with auDA and the Australian Government, ARI Registry Services (via Parent Company AusRegistry Pty Ltd) designed, developed and implemented a TLD Registry system and associated DNS infrastructure to provide industry best practice technology to underpin Australia's TLD.

In doing so ARI Registry Services worked with auDA to:

- Automate enforcement of .au policy framework.
- Consolidate multiple second-level Registries involving complex migration of inconsistent legacy data.
- Establish a vigorously competitive Registrar channel.
- Develop the .au brand to become the first choice for the Australian market.
- Grow the namespace to over 2.3 million registrations through strong registration growth (averaging 25% growth, year-on-year).

Outcome

As a result of our reliable and professional work with auDA, the company has been re-awarded the .au contract multiple times and remains the current TLD Registry Services provider for the .au TLD today.

ARI Registry Services – Case Study .aeDA

Situation

The Telecommunications Regulatory Authority (TRA) of the United Arab Emirates (UAE) identified that the UAE's Top Level Domain (.ae) was not sufficiently developed to reflect the identity, dynamism and modernity of the UAE. A decision was therefore made to review the operations of the .ae TLD and the structure of the Domain Name industry within the UAE.

Solution

In 2006, the TRA appointed ARI Registry Services to conduct a thorough review of the framework, governance and administration of the .ae TLD. ARI Registry Services employed its proprietary consulting methodology for this project, and generated the following outcomes:

- The establishment of a new body to administer the .ae TLD – .ae Domain Administration (.aeDA).
- The development of a comprehensive suite of Domain Name policies, designed to uphold the cultural and moral values of the UAE while protecting intellectual property rights and providing the basis for a high quality registration base for the .ae TLD.
- The creation of internal processes and procedures and the recruitment and training of local staff to build .aeDA's capacity.
- The delivery of comprehensive branding and marketing plans for .aeDA and for the .ae TLD.
- Another important aspect of ARI Registry Services' involvement included navigating the IANA re-delegation process, through which the responsibility for the .ae TLD was transferred from the incumbent operator to the .aeDA.

Outcome

The relationship between ARI Registry Services and aeDA has been highly successful and the aeDA now enjoys a position of industry leadership within the region.

In the years since its re-launch, .ae TLD has seen significant growth in registration volumes. As a result of the significant growth of the name space, an aftermarket has also developed for.ae TLD Domain Names indicating a solid global and local demand for the .ae TLD brand. In one of the early, more high profile examples, a single .ae TLD Domain Name was resold in July 2009 for approximately USD 1.6 million dollars.