.au DOMAIN ADMINISTRATION LTD

Quarterly Report

OCTOBER – DECEMBER 2019

From the Chairman

The final quarter of 2019 was a busy and transformative period for auDA as the organisation continued the important policy and compliance work required to ensure the reliability, stability and security of the .au Domain Name System, as well as the organisational transformation program required following the Australian Government's 2018 review of auDA.

A further round of widespread consultations on auDA's proposed Licensing Rules and .au Namespace Implementation was conducted throughout October and November, reaching more than 1 million impressions across social media in addition to advertisements in major national and metropolitan newspapers. This extensive reach generated 2,400 hits to the consultation webpages, more than 1,400 responses to our online survey, and more than 200 people participating in a range of workshops and webinars around the country. The Board is reviewing this feedback and considering next steps early in 2020.

The organisation's Annual Report and Performance Report were published in October, detailing the considerable progress made against recommendations contained in the Government's review. At the time of writing, only 4 of the 38 recommendations have yet to be fully completed (relating to membership growth and ongoing government and international engagement). We are and will be actively engaged on both those issues.

At the AGM in mid-November, an entirely new Board took office and immediately commenced the important work of getting to know each other and the organisation, and establishing our processes and operating rhythms. We are mindful that only three of the four elected director positions were filled at the AGM, and are considering how to address the issue of that vacancy. We are also looking closely at the Board committee structure and how to take advantage of the expertise and experience of the members of our advisory groups.

Our first priority was the appointment of a Chief Executive Officer, and the Board devoted significant time in our first

couple of months to this task. I am delighted that Rosemary Sinclair AM will commence as auDA's new Chief Executive in March 2020. We were pleased that she was able to join the Board for its two day induction meeting in late January.

With the new Board settling in, a new CEO soon to take office, much of the organisational transformation bedded down and some significant policy changes under consideration, auDA's 21st year of operation promises to be another significant milestone in the organisation's history, and I encourage all stakeholders to get involved..

Alan Cameron AO
Chair

Policy update

auDA conducted a further round of broad public and stakeholder consultation in October and November 2019 to obtain additional feedback on various aspects of the new licensing rules and .au implementation rules.

This public consultation was conducted via various formats:

- Posting on the auDA website of the Licensing Rules, Explanatory Guide and key consultation topics, together with a call for public submissions
- A dedicated microsite – aufeedback.org.au – for completion of a short survey on the key consultation topics
- Public forums held in Canberra, Sydney, Melbourne, and Brisbane
- Webinars

These public opportunities to provide feedback were widely promoted to encourage maximum participation via:

- A paid digital campaign and dedicated microsite
- Advertising in national and metropolitan newspapers
- Use of owned channels – email, social and web
- Direct contact with people and organisations involved with earlier consultations

Targeted consultation sessions were also held via:

- A session at the annual auDA Registrars Summit in October 2019
- A forum held with members of auDA's General Advisory Standing Committee (GASC)
- Discussions with interested stakeholders, including Commonwealth and State government agencies

Phase 1 of the campaign promoting participation in the workshops and webinars generated 175,000 impressions across Facebook and LinkedIn, and nearly 900 click-throughs, in addition to the national and major metropolitan newspaper advertisements.

Phase 2 of the campaign encouraging feedback through the online survey generated 687,000 impressions across Facebook and LinkedIn, and 3,065 click-throughs. This paid campaign was further amplified through auDA's social media channels. auDA also communicated directly via email with Associate Members and stakeholders.

The Licensing Rules, Explanatory Guide and key consultation topics were posted on the auDA website, together with a call for public submissions. This webpage received 2,404 pageviews during the campaign period. Thirteen submissions were received, including from major organisations (REA Group, Education Services Australia, and Consumer Affairs Australia and New Zealand on behalf of Australian Consumer Law regulators), and a range of registrants, domain investors, and website companies.

The dedicated microsite received 4,501 pageviews from 2,770 unique users. The survey received 1,410 responses, with 975 respondents answering all 7 questions, and a further 435 partial completions. An average of 1126 responses was received across the seven issues.

More than 100 people attended the four public workshops and three webinars, with nearly 100 more people attending a range of targeted consultations.

Feedback from the consultation can be found online at: **auda.org.au/public-comment/au-consultation-oct2019/**

Membership update

At the end of 2019, auDA's membership base is approaching 1,800 and continues to attract members predominantly employed in the technology sector (30%), and primarily from VIC (32%), NSW (28%) and QLD (21%). While this largely reflects population distribution and the concentration of jobs in the sector, auDA remains focused on measures to broaden and diversify the areas and sectors from where Associate Members are drawn.

All Associate Members were invited to have their say about potential changes on auDA's licensing rules via attending workshops, making a submission or participating in the online survey. Around 15-20 Associate Members registered to attend each of the consultation workshops in Brisbane, Canberra, Sydney and Melbourne.

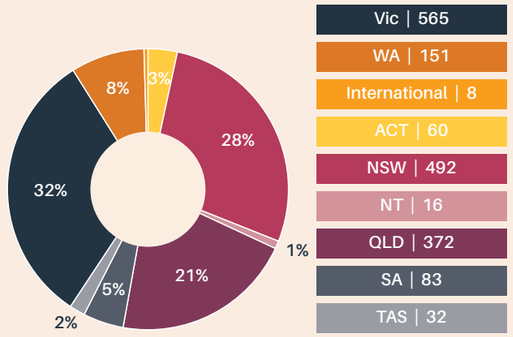
In October, auDA hosted networking events in Brisbane and Sydney that allowed like-minded people in the Australian digital landscape the opportunity to network. Twenty-seven Associate Members registered for the Sydney event, with around half that number registering to attend the Brisbane event.

Associate Members were encouraged to cast their votes in the ballot for auDA Elected Directors - with 19% participating – and to attend the AGM in Melbourne or online.

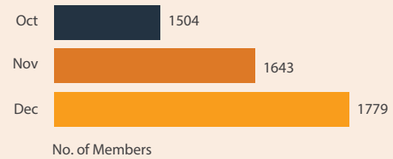
An end of year networking event with the new Board, Registrars and Associate Members was held at auDA's office in mid-December. Forty-four Associate Members registered to attend what was a very successful event, and similar events with Directors and Associate Members will be held around Australia in 2020.

Eligible individuals or organisations are encouraged to become auDA Associate Members for free and get access to some exclusive benefits. And with a smooth online application and approval process, it only takes a minute to apply via **joinauda.org.au**.

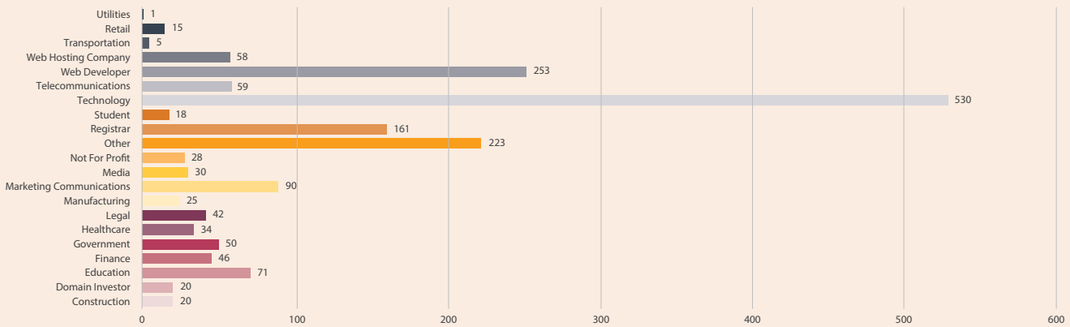
Membership by state



Asssociate membership growth



Membership by industry



Security update

DNSSEC

During November auDA generated the Key Signing Key (KSK) and 4 Zone Signing Keys (ZSKs) for the 2020 period. Each key is carefully reviewed to ensure overlap (roll over) has been correctly implemented and that the cryptographic hashes match. The 2020 KSK was submitted and published in the root zone by IANA in December. auDA also performed a ZSK rollover, the last for 2019, without incident in line with standard practices.

Split key management and testing

auDA continued testing split key processes with Afilias for the .au zone. With the planned introduction of registration directly at .au, the plan is that auDA will control the KSK and Afilias will control the ZSK for the .au zone. Both auDA and Afilias have encountered hardware and software compatibilities issues that will be worked through in Q1 of 2020.

Road to ISO 27001 certification

auDA is in the final stages of completing all the required documentation for an internal audit. In January 2020, the current contractor assisting auDA to achieve ISO27001 certification, will conduct the internal audit and provide a report to auDA by the end of January. The internal audit will likely have remediation actions which auDA will address in Q1 2020. The external certification audit with SAI Global has been proposed for mid-March/early April 2020.

SharePoint rollout

auDA has migrated all on-premise data to SharePoint in the cloud and is continuing with staff training and assistance to ensure as smooth a transition as possible. The auDA IT team is currently assisting each department with audits to ensure all data has been transitioned as well as understanding end-user processes to assess what tasks may be automated.

Improved resilience to high traffic volumes

As reported in the Q3 report, auDA experienced some large DNS traffic spikes relating to zone walking (using data from zones such as .com to query the .au DNS) on the AU zone (which contains entries for .com.au, .gov.au etc), to build a copy of the .au zonefile. This had particular impact on the DNS name servers being operated by auDA, which have a lower capacity compared to the name severs operated by Afilias. As a result, auDA reviewed its infrastructure configuration and improved the architecture to prevent further impacts. Through a combination of increased capacity, increased distribution points and employing additional fine-grained rate limiting policies auDA was able to mitigate and prevent any further incidents. The external parties have ceased their attempts in November 2019 and December 2019.

Onboarding of a new DNS slave operator

In September auDA began discussions with Neustar about onboarding Neustar as an additional DNS slave operator for the .AU zone. Using the Neustar UltraDNS platform provides auDA with increased diversity (both vendor and name server software) as well as increased capacity and improved resilience. Neustar are a leading provider of DNS services with guaranteed 100% uptime as well as a long history of DDoS protection and mitigation. In November 2019 auDA was able to add Neustar's anycast network as an official authoritative Name Server for the .AU zone (m.au and n.au). Adding this capacity to that already supplied by Afilias, Packet Clearing House (PCH) and Cloudflare makes .AU one of the most distributed, if not the most distributed, ccTLD namespace in the world.

Onboarding new auDA Board members

In November 2019, a new auDA Board was established, in accordance with the new constitution approved in September 2018. As part of the onboarding the auDA IT took the opportunity to improve the confidentiality, integrity and availability of board papers, emails and access to auDA corporate data. The new Directors will be enrolled with auDA's security awareness training and receive regular reports from the IT team.

Patching of servers and workstations

All applicable windows and Linux servers are currently patched for September 2019 errata. Workstations are configured to check for updates daily and apply within the day.

Monthly checkpoint meeting with host-based intrusion detection (HIDS/HIPS) vendor

Ongoing review of the prevention policies identify possible gaps in detection/prevention, and to address issues as they come up.

Operations update

Q4 2019 volumes

	Oct-2019	Nov-2019	Dec-2019
Total new domains created	44, 032	40,218	32,717
Total names under management	3,193,984	3,188,695	3,171,889

Distribution of domain name licence periods

	Oct-Dec 2019
1 year	181, 773
2 years	212,094
3 years	7,328
4 years	696
5 years	26,762

Afilias service level performance

Service Level Name	Expected	Oct 19	Nov 19	Dec 19
Overall DNS Availability	100%	100%	100%	100%
DNS availability per Anycast node				
q.au	99.9%	100%	99.88%	100%
r.au	99.9%	100%	100%	100%
s.au	99.9%	100%	99.99%	100%
t.au	99.9%	100%	100%	100%
DNS update delay time - % of updates within 5 mins	96%	99.99%	99.93%	100%
Cross network name server round trip time	300ms	100ms	77ms	57ms
DNS Round Trip Time (RTT) - % processed within 250 ms	95%	98.31%	99.50%	99.90%
WHOIS service availability	100%	100%	100%	100%
WHOIS update delay time - % of updates within 5 mins	96%	100%	99.95%	100%
WHOIS Round Trip Time (RTT) - % processed within 1 second	95%	100%	100%	100%
EPP service availability	100%	100%	99.99%	100%
EPP Round Trip Time- % of queries processed within 500ms	95%	100%	99.99%	100%
EPP Round Trip Time - % of changes processed within 1 sec	95%	100%	100%	100%

.au top-level DNS performance

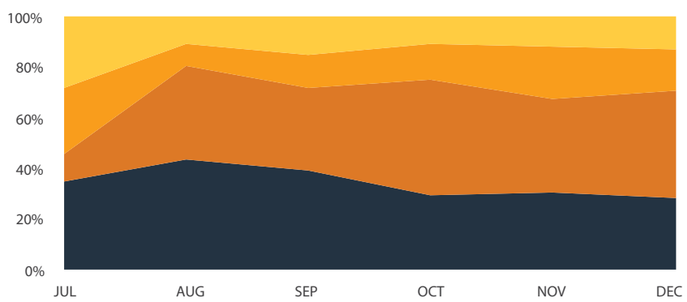
Measure Name	Oct 19	Nov 19	Dec 19
Overall DNS Availability	100%	100%	100%
DNS availability per Anycast node			
a.au (auDA)	100%	100%	100%
c.au (Cloudflare)	100%	100%	100%
d.au (Cloudflare)	100%	100%	100%
m.au (Neustar)	n/a	n/a	100%
n.au (Neustar)	n/a	n/a	100%
q.au (Afilias)	100%	99.88%	100%
r.au (Afilias)	100%	100%	100%
s.au (Afilias)	100%	99.99%	100%
t.au (Afilias)	100%	100%	100%
DNS Round Trip Time (RTT) % processed within 250 ms	99.89%	99.90%	100%

Quarterly financial performance

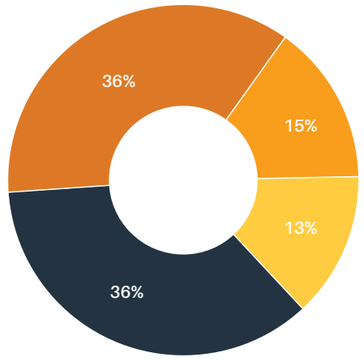
The administration of the .au ccTLD is resource-intensive. Outlays include technical operations, compliance, policy development, stakeholder engagement and membership activities.

auDA aims to run as efficiently as possible and be transparent about the costs of administering the .au ccTLD.

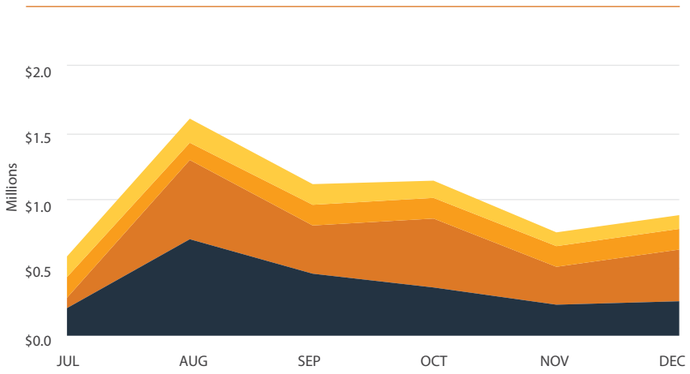
Operating cost monthly %



YTD operating cost breakdown

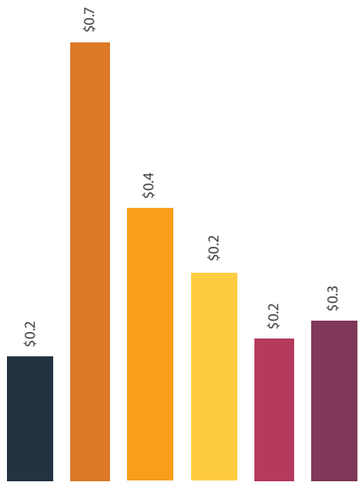


Operating cost monthly $'m

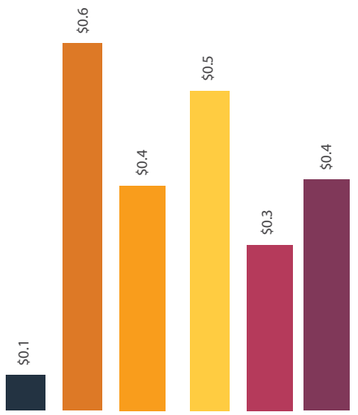


Operating cost monthly $'m

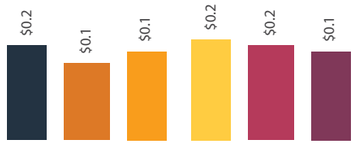
Corporate overheads



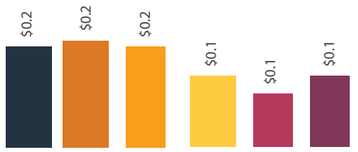
Engagement



Technical operations



Compliance and policy development



Compliance dashboard

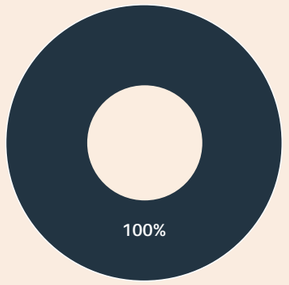
Compliance is a major part of auDA's role as the administrator of the .au ccTLD and is key to ensuring that .au remains a safe, secure and highly-trusted domain.

This information includes the number, type and time to resolve domain-related complaints.

Creation date

Creation Date Requests

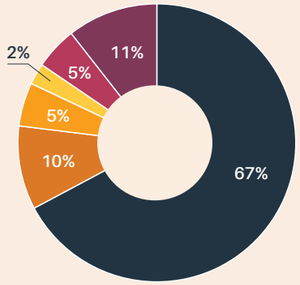
- Advised



Days to resolve

- 0 to 7 Days

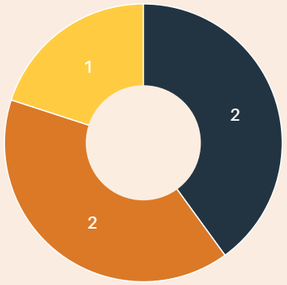
Enquiries



729 Enquiries | Days to resolve

- 0 to 7 Days
- 8 to 14 Days
- 15 to 21 Days
- 22 to 28 Days
- 29 to 35 Days
- Over 35 Days

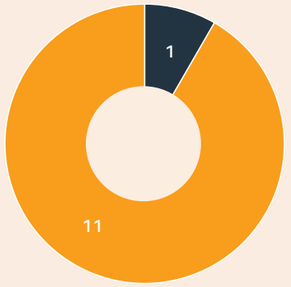
auDRP cases



Case Outcomes

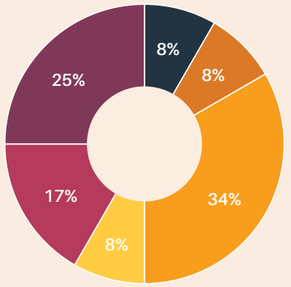
- Cancelled
- Transferred
- Denied

Enforcement



Law Enforcement Requests

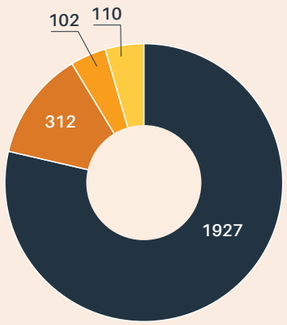
- Upheld
- Advised



Days to resolve

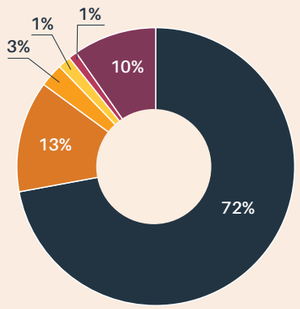
- 0 to 7 Days
- 8 to 14 Days
- 15 to 21 Days
- 22 to 28 Days
- 29 to 35 Days
- Over 35 Days

Complaints



2451 Complaints | Complaints Outcomes

- Upheld
- Denied
- Advised
- Adjourned



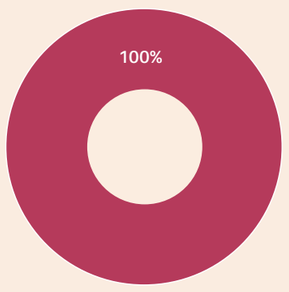
Days to resolve

- 0 to 7 Days
- 8 to 14 Days
- 15 to 21 Days
- 22 to 28 Days
- 29 to 35 Days
- Over 35 Days

Applications to Registrant Review Panel

Applications

- Upheld



Days to resolve

- 29 to 35 Days

International engagement update

ICANN64, Montreal - November 2019

A major theme of the ICANN meeting in Montreal was dealing with DNS Abuse. Domain name registries and registrars generally define DNS Abuse as malware, botnets, phishing, pharming, and spam (when it serves as a delivery mechanism for the other forms of DNS Abuse). ICANN's Competition, Consumer Trust and Consumer Choice (CCT) Review team defined DNS Abuse as "Intentionally deceptive, conniving, or unsolicited activities that actively make use of the DNS and/or the procedures used to register domain names".

auDA's COO Dr Bruce Tonkin was asked to moderate a cross-community public forum on the topic of DNS Abuse that consisted of panellists from the business community, Government, non-commercial community, domain name registrars and registries, and from ICANN's Security and Stability Advisory Committee. This forum was well attended by several thousand people from across the ICANN community.

In the lead up to the public forum Bruce attended several events including a DNS Abuse forum convened by the International Trademark Association (INTA) and presentations from ccTLD managers at the ICANN country-code Names Supporting Organization (ccNSO) meetings.

auDA's COO and CTO also took part in a simulated exercise run by the ccNSO to test disaster recovery practices, and to assist ccTLD managers to develop disaster recovery plans. The simulated exercise included a scenario where a domain name registry had been hacked, additional domains were registered and existing domain names were changed. auDA is planning to run its own simulated exercises in 2020 and will be documenting its disaster recovery plans in accordance with ISO standard 22301 – Business Continuity Management. auDA will be able to leverage the materials that have been developed for the ccNSO community.

auDA participated in the ccNSO tech day and presented auDA's approach to using a security red-team to conduct penetration testing of auDA and Afilias Australia. auDA learnt how ICANN had also been applying red-team penetration testing to the network it uses for ICANN meetings, and it is planning to use the same approach for all ICANN networks in future. There were also presentations on how Microsoft leverages WHOIS data from TLD registries for their services such as Office 365, and the deployment of the new RDAP directory service in .ca. Many Australians use Office 365 services, and many of these use .au domain names, so it is useful to understand how major vendors in the Australian market leverage the WHOIS information that is made public. auDA is planning to implement RDAP to provide improved access to WHOIS data once implementations become more stable globally.

At ICANN, auDA held face-to-face meetings with several of its registrars that are based outside of Australia including Tucows, CentralNic, GoDaddy, MarkMonitor, Safenames, and InterNetX. Registrars were asked for feedback on the proposed changes to the .au policies, and also discussed various operational and compliance issues.

auDA took advantage of the proximity of Montreal to Toronto to visit the software development centre for Afilias in Toronto. auDA discussed requirements for further improvements to the .au registry, implementing the policy changes being proposed by auDA, and also discussed how Afilias manages criminal DNS Abuse across its portfolio of TLDs.

Timor Leste support

At ICANN in Montreal, auDA was invited to join a small working group convened by the apTLD Association to assist the registry manager of Timor Leste (.tl) in improving its operations, which includes the ccTLD managers from Portugal and Indonesia.

OARC 31, Texas - November 2019

DNS-OARC is a non-profit, membership organization that seeks to improve the security, stability, and understanding of the Internet's DNS infrastructure. Part of these aims are achieved through workshops. The CTO of auDA (Adam King) attended the DNS OARC workshop in Austin, Texas in November 2019.

The biggest item over the 3 days was DNS Over HTTPS (DOH) and DNS Over TLS (DOT). Many researchers and resolver operators noted they would prefer to only do DOT but as service providers they will have to deploy both. There are 2,000 DOT servers operating and responding (run by approximately 200 providers), whereas DOH has about 17 providers.

DOH requires a lot of trust be put in the control of a few providers. It will break some enterprise security controls and services like parental controls, as it will bypass corporate firewalls and policies, and allow employees/children to visit sites that previously would have been blocked.

There was also concern about the performance cost of doing DNS TCP queries and having always open connections.

Comcast (600 billion queries per second) is currently rolling out DOH and will be publishing all their learnings and lessons once complete. Comcast are one of the largest ISPs in the US and are always breaking new ground with their customer base.

A presentation on characterising DNS DDoS attacks was relevant to auDA. Researchers are currently analysing and watching attacks that use randomised names that all produce NXDOMAIN responses. Original investigation indicated this was being generated by a single source of malware but now widely believed to be a family of malware. The reason for the attacks or benefits of the attacks are currently unknown. This is similar to activity auDA was seeing around August 2019 to October 2019.

Adam King also met with members of the Afilias DIG team, staff from ISC (BIND) and CZ.NIC (Knot DNS). He discussed the use of split keys for signing (where auDA generates the Key Signing Key and Afilias generates the Zone Signing Key), complications we had seen, software compatibilities with the AEP HSM and how we can resolve them.

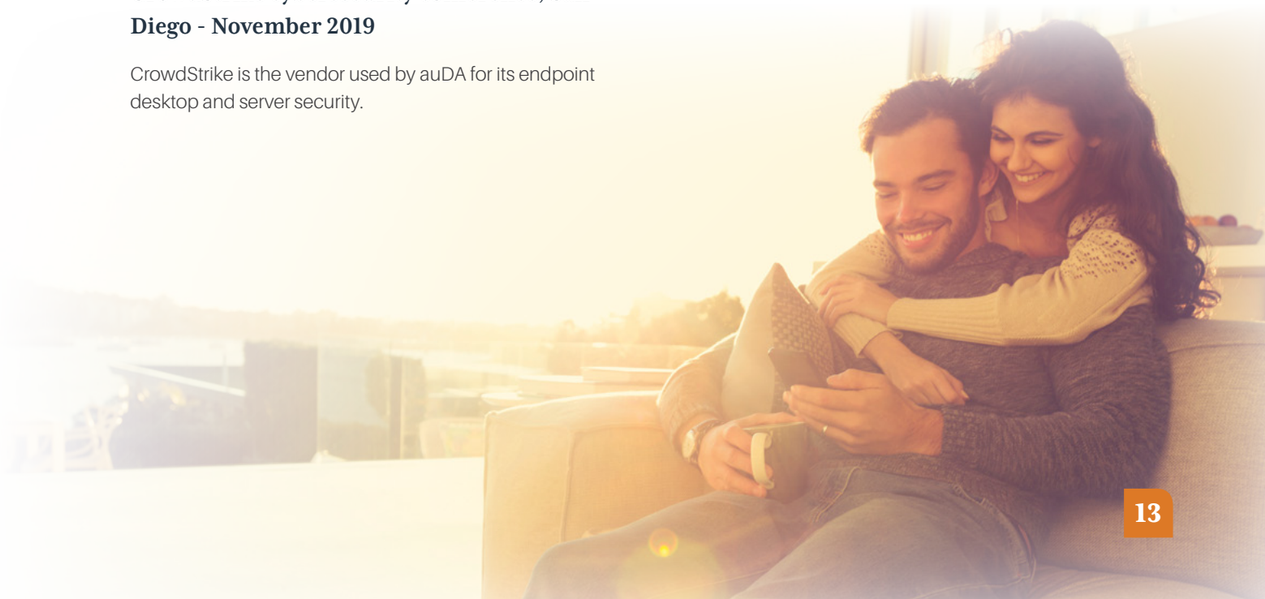
CrowdStrike cybersecurity conference, San Diego - November 2019

CrowdStrike is the vendor used by auDA for its endpoint desktop and server security.

auDA's CTO (Adam King) attended the annual CrowdStrike Cybersecurity conference, which had 1500 attendees, compared to 300 at the last conference auDA attended in 2017. Adam mainly attended sessions that discussed new features that had been introduced in 2019 and those planned for 2020. auDA will do a review of each of the new modules CrowdStrike has introduced over the last 12 months (mainly spotlight, Discover, mobile protection, CrowdScore, container security, host-based firewall) and determine the appropriateness for the auDA SOE (standard operating environment) and meeting the ISO 27001 requirements.

Keynote speakers talked about the evolving landscape, the rapid deployment and activation of malware and the importance of using the best tools available. The Anti-Virus/Endpoint-Detection & Response market is contracting as major players buy up competitors. Making it important organisations choose a vendor who is forward thinking and willing to push the boundaries/use latest technologies and ideas – not relay on old methods like signatures and heuristics to detect threats. Additionally, it's important to understand who the threat actors are, their motives and new nation state alliances. CrowdStrike is providing this sort of threat intel and it assists organisations understand the likelihood of targeted attacks.

auDA met with other Australian organisations who either were using various modules of CrowdStrike or who were about to sign up to using CrowdStrike. It was good to learn how each organisation was using some of the modules and understanding how these may benefit auDA.



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