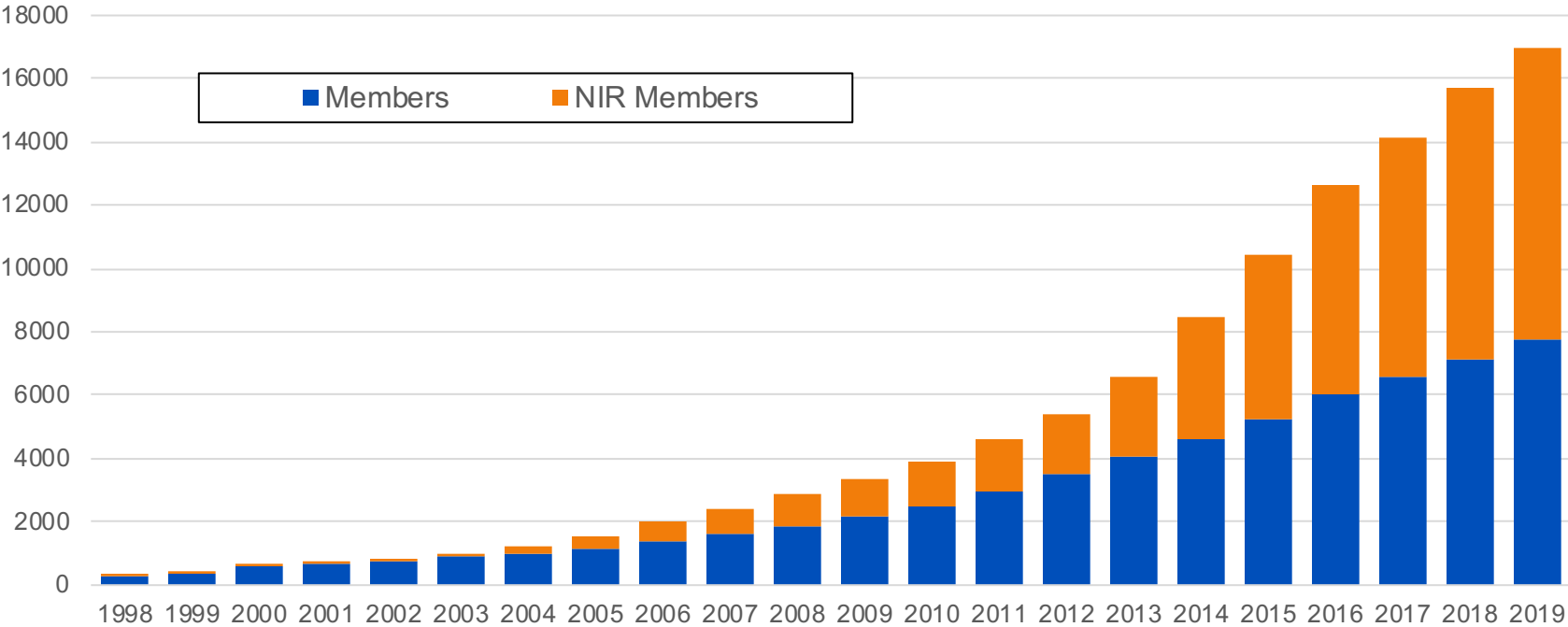


APNIC Secretariat Report

1 Jan to 31 Dec 2019

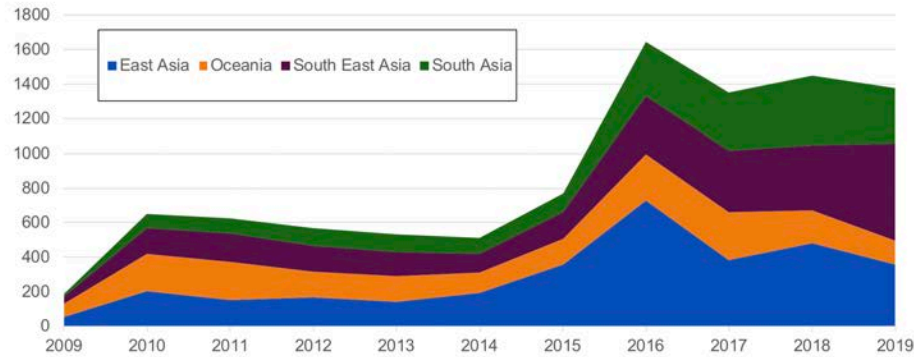
Annual General Meeting
Melbourne
18 February 2020

Membership

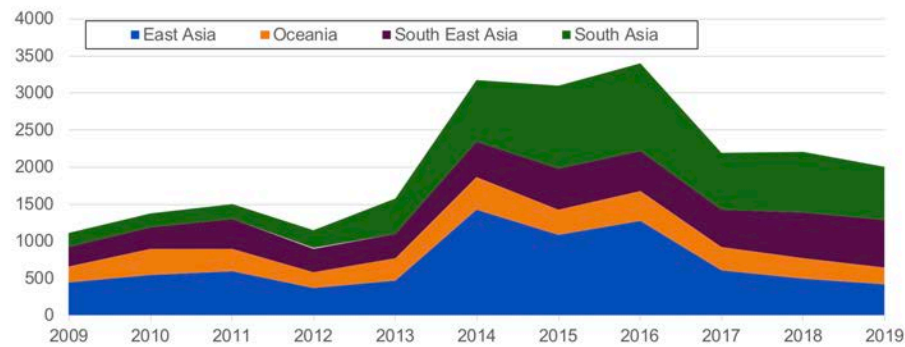


As at 31 Dec

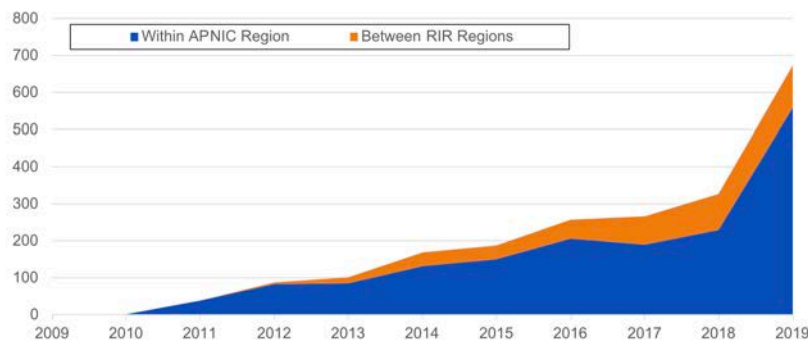
IPv6 Delegations



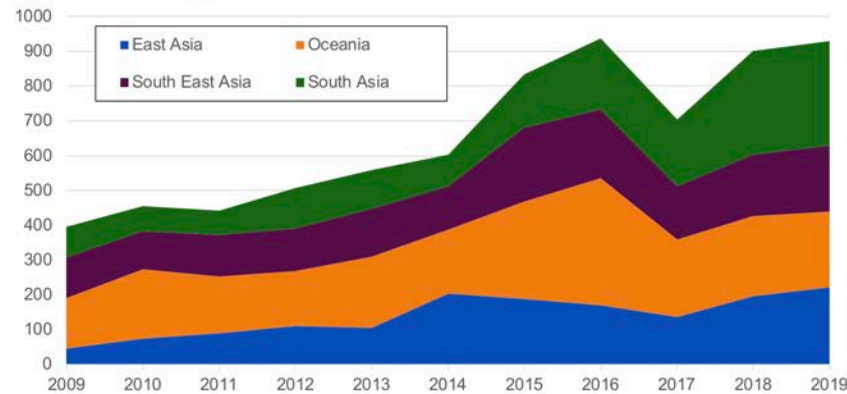
IPv4 Delegations



IPv4 Transfers



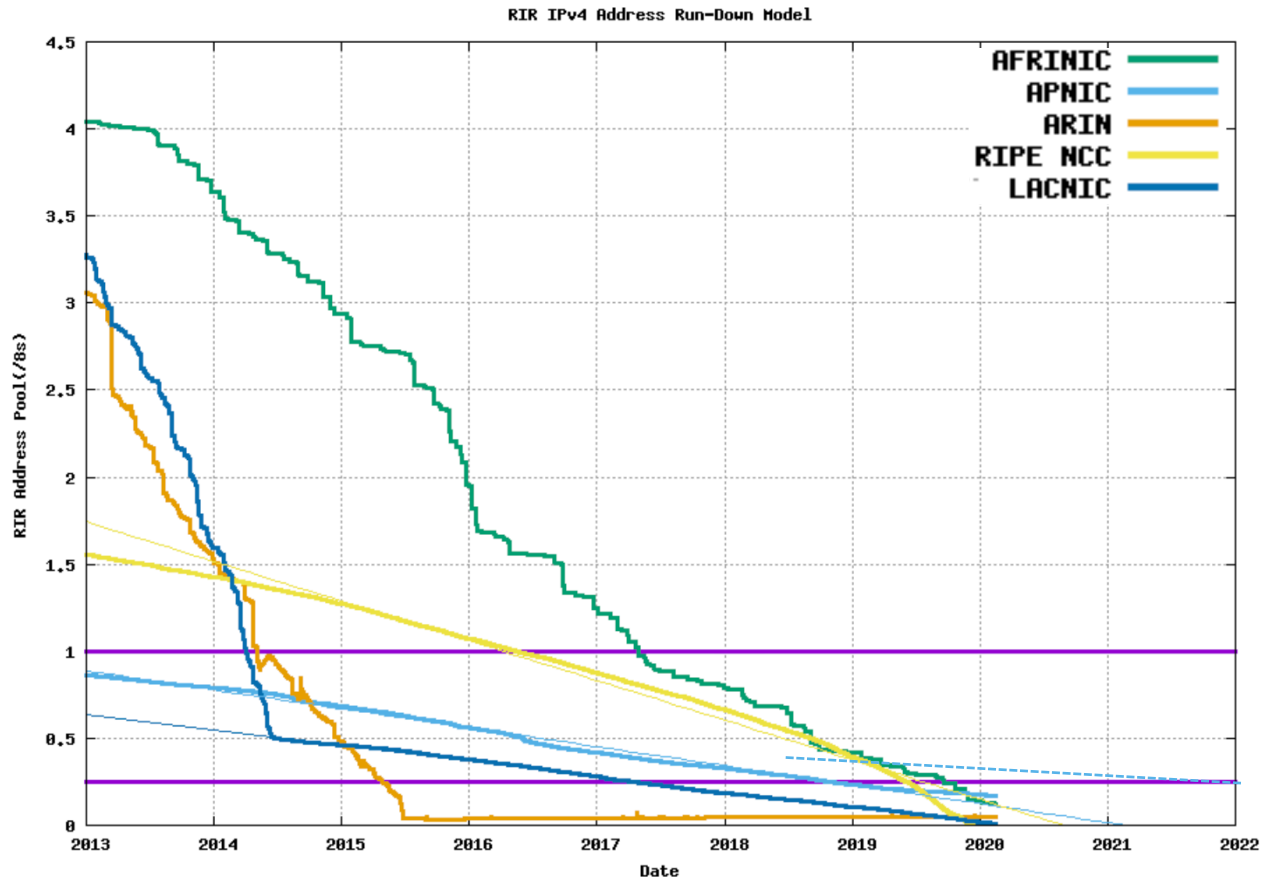
ASN Delegations



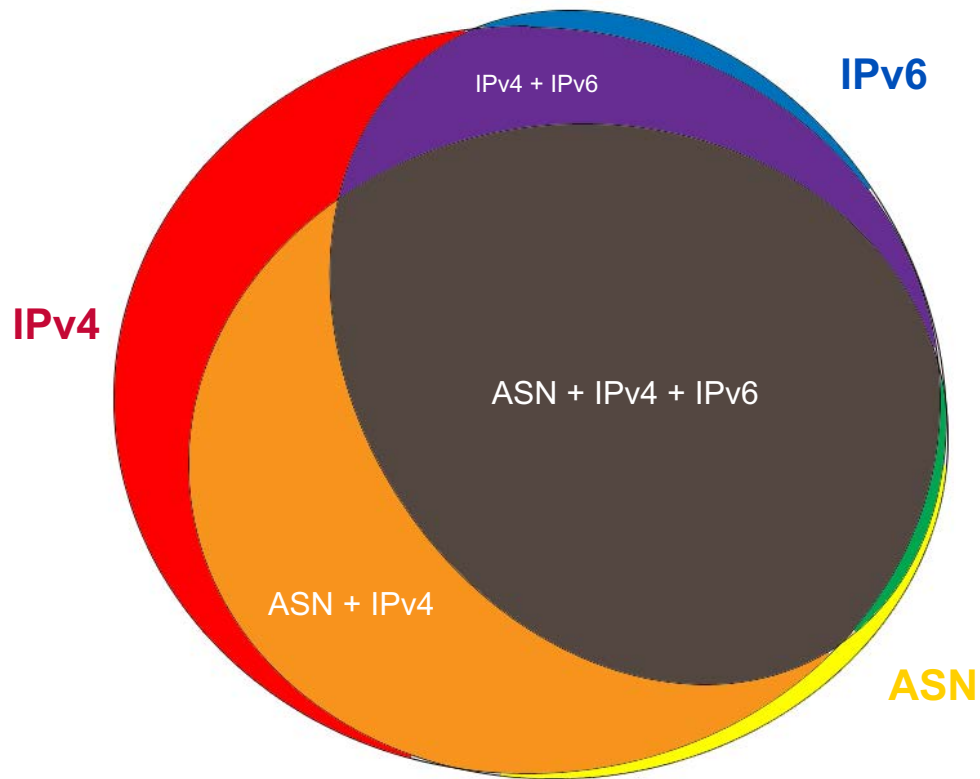
Last /8 address pool



Global IPv4 Availability



Resource Holdings



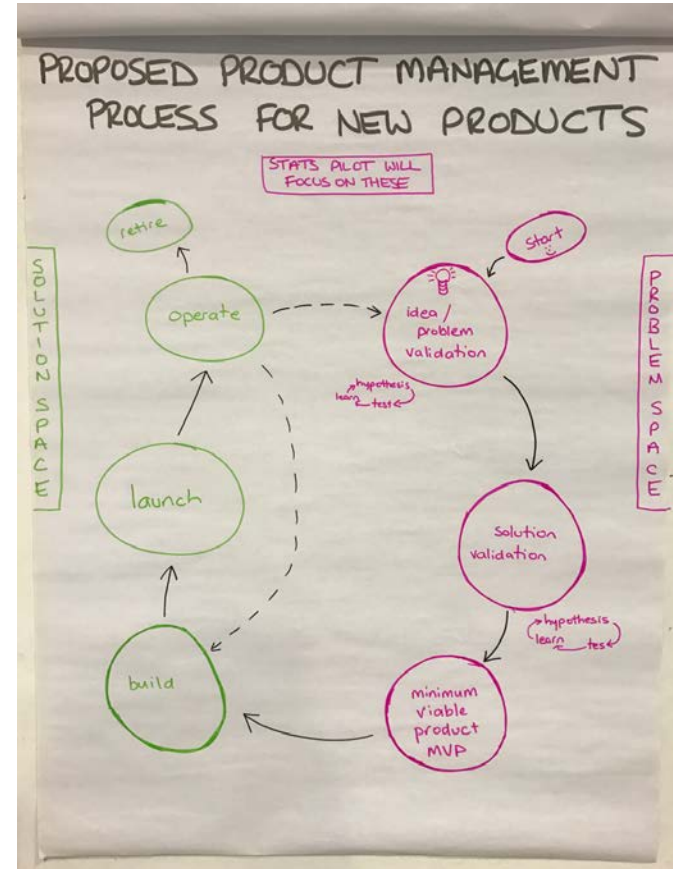
Member resource holdings

ASN	78%
IPv4	96%
IPv6	64%

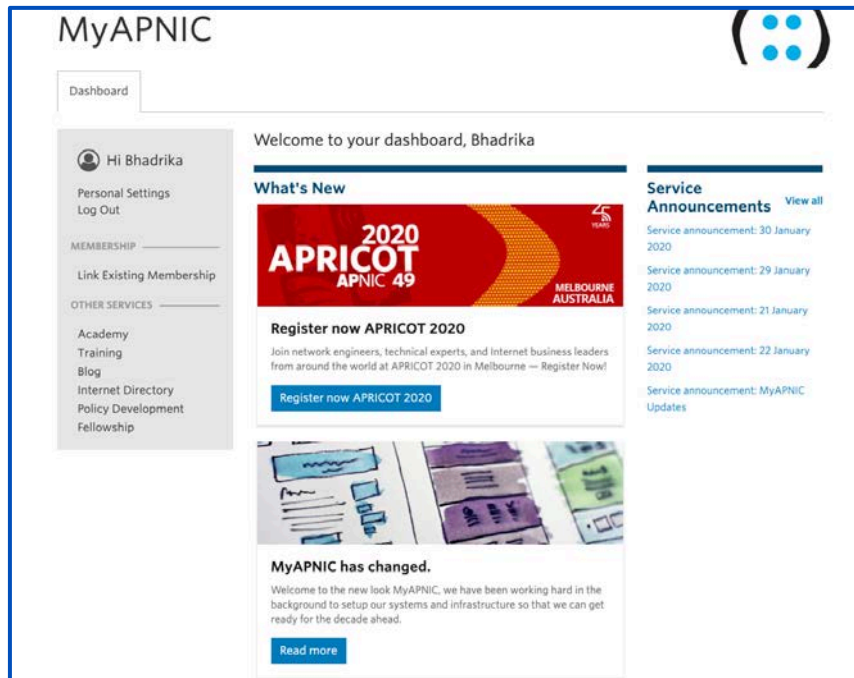
As at 31 Dec

Product Management

- Systematic approach to product development
 - Lifecycle management
 - User-centric
 - Agile
- Three cross-functional product teams
 - Registry
 - Membership
 - Information Services
- Three support teams
 - Web development
 - Platform
 - DevOps
- More in 2020



Membership Products



apnic.net/myapnic

- MyAPNIC+SSO integration:
 - Event registration
 - Academy
 - Information products
- Implemented independent election platform, BigPulse
 - Online proxy and voting
 - APNIC EC and NRO NC
- IRT and contact validation
 - Implementation of prop-125
 - 1,000 emails, 62% confirmation
 - Validation extended to IRT objects and 'abuse-c'

Reclaiming Unused IPv4

- Responding to 2018 APNIC Survey
 - Q14: 57% support from respondents
- Analyse routing status and history of APNIC space
 - Some 5+ /8s are not routed
- Identify the holders of
 - Unrouted current resources
 - Unrouted historical resources
 - Unrouted resources under NIR accounts
- Processes developed to contact these holders to encourage return/transfer of unused resources
- Listing service of available IPv4 (supply)
 - Designed for deployment in MyAPNIC

Registry Products – RDAP

- Google cloud-based APNIC RDAP service
 - For 2020 deployment
- RDAP services for NIR delegations
 - Work with NIRs
 - Submitted IETF draft on RDAP mirroring
 - Demonstrated running code for server and client
- RIR-specific RDAP profile
 - To improve consistency of RDAP data
 - Work with other RIRs (NRO ECG)

Registry Products – Whois

- Improved synchronization and consistency of APNIC-NIR data
- API specifications to support APNIC-NIR automation
- Deployed whois 'stub' records for transfers out of APNIC
 - Improved accuracy of transfer recording
- Developed 'registry correction' functions
 - To safely correct past events
 - To represent date of transfer not date of registration
- Whois cleanup, due to software bug
 - Restored consistency between whois, RDAP and delegation statistics.

Registry Products – RPKI

- RPKI Technical support to NIRs
 - CNNIC, JPNIC, TWNIC, IDNIC
- Implementation proposal for prop-132 (AS0)
 - Presentation at APNIC 49
- Resource Tagged Attestation (RTA)
 - IETF draft, development underway
- NLNET Labs' 'Krill' interoperability testing
 - Delegated RPKI management
- Deployment support
 - 22 routing security workshops
 - Technical assistance for 3 Members
 - APNIC 48
 - NOG presentations, 17 RPKI blog posts
- New Routing Security/RPKI SIG

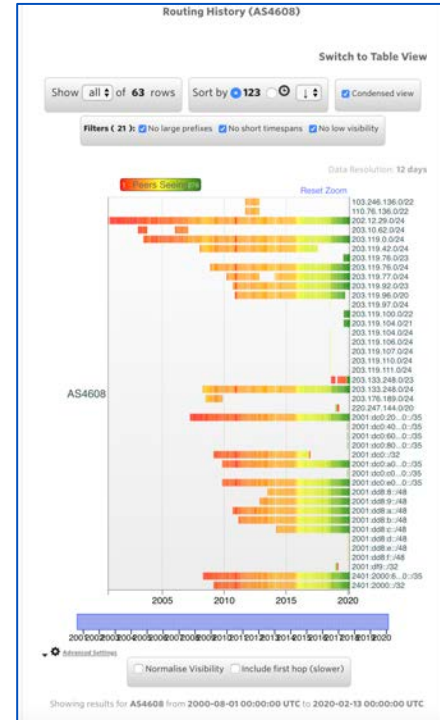
Measure	31/12/2018	31/12/2019	Δ
Members with certs	21.9%	30.9%	41%
Members with ROAs	11.3%	25.97%	130%
IPv4 under ROAs	6.1%	10.66%	75%
IPv6 under ROAs	5.6%	14.2%	154%



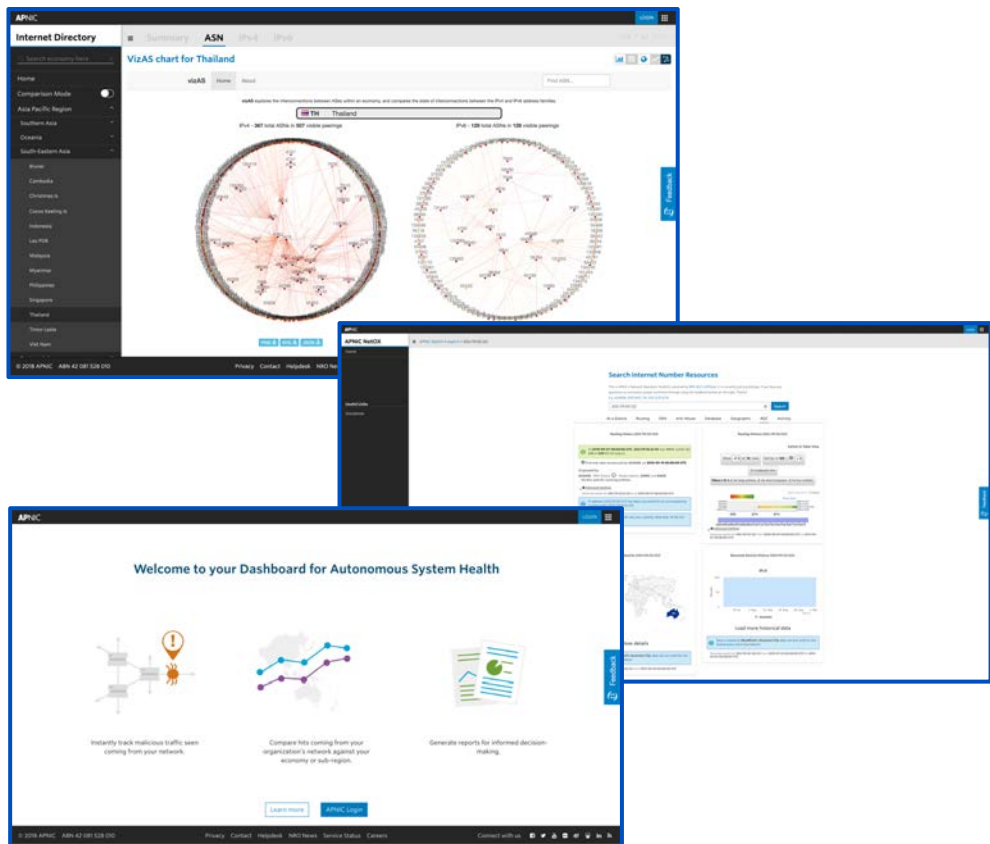
apnic.net/rpki

Registry Products – RQC

- Resource Quality Check
 - Previously RQA
- Identify operational issues with Members' address blocks
 - Routing status and history
 - Route filtering
 - Email and other blacklists
 - Geolocation errors
- Included in APNIC NetOX (Network Operators Toolbox)
 - Widgets for resource quality and transfer history



Information Products

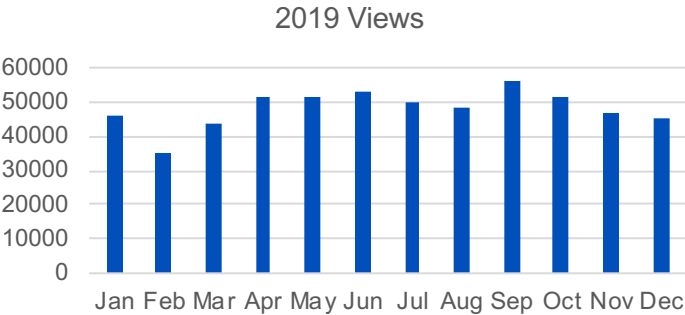


- DASH – Dashboard for AS Health
 - Launched at APNIC 48
 - Helps operators monitor suspicious traffic coming from their networks
 - Uses data from APNIC Honeynet Project
- NetOX – based on RIPEstat
 - Includes RQC functions
 - New widgets (AS relationships, PoC, IRR explorer, transfer history, abuse contacts)
- Internet Directory v2.1
 - Economy comparisons
 - IPv6 capability
 - VizAS

Technical Infrastructure

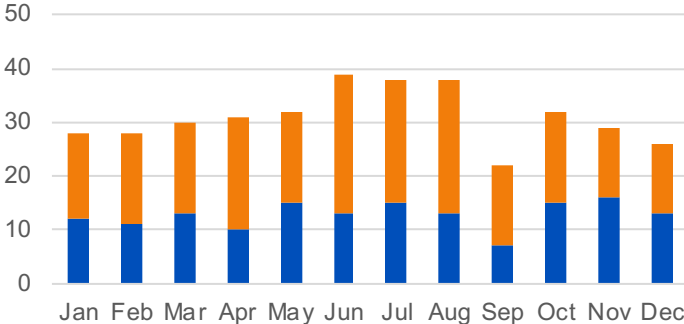
Service	Update
Data centres and interconnections	Tokyo and Singapore selected as priority for additional IXP/peering connections; upgraded network and server infrastructure in Japan and Brisbane DCs
Information architecture	Data Vault 2.0 industry standard for BI architecture and governance
Business applications	Okta SSO authentication for internal business applications; new Salesforce registration system launched for APNIC 48;
Virtualization and cloud	RDAP in test deployment on Google cloud; product development systems also hosted in the cloud; DNS server infrastructure in Japan DC fully virtualized to host anycast RDNS nodes; decommissioned DNS unicast servers
Software process improvements	CICD used to improve workflow efficiencies; Increasing use of Kubernetes cloud deployment methods to support CICD
Software maintenance	Non-profit status with TechSoup for better organization discounts; Consolidating licensing
APNIC-CSIRT	Updated incident handling draft finalized for ISMS ISO27001; New NRO Public Safety Coordination Group established; Information security introduced in annual BCP and disaster recovery exercises

Views



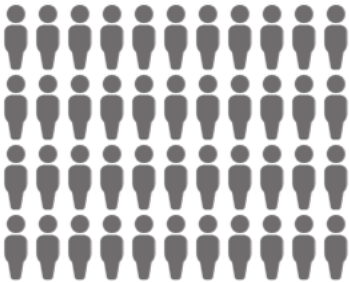
■ Views to date
Average: 48,026 / month

Monthly Posts



■ Guest Posts ■ APNIC Posts

Guest
Blog Posts



159

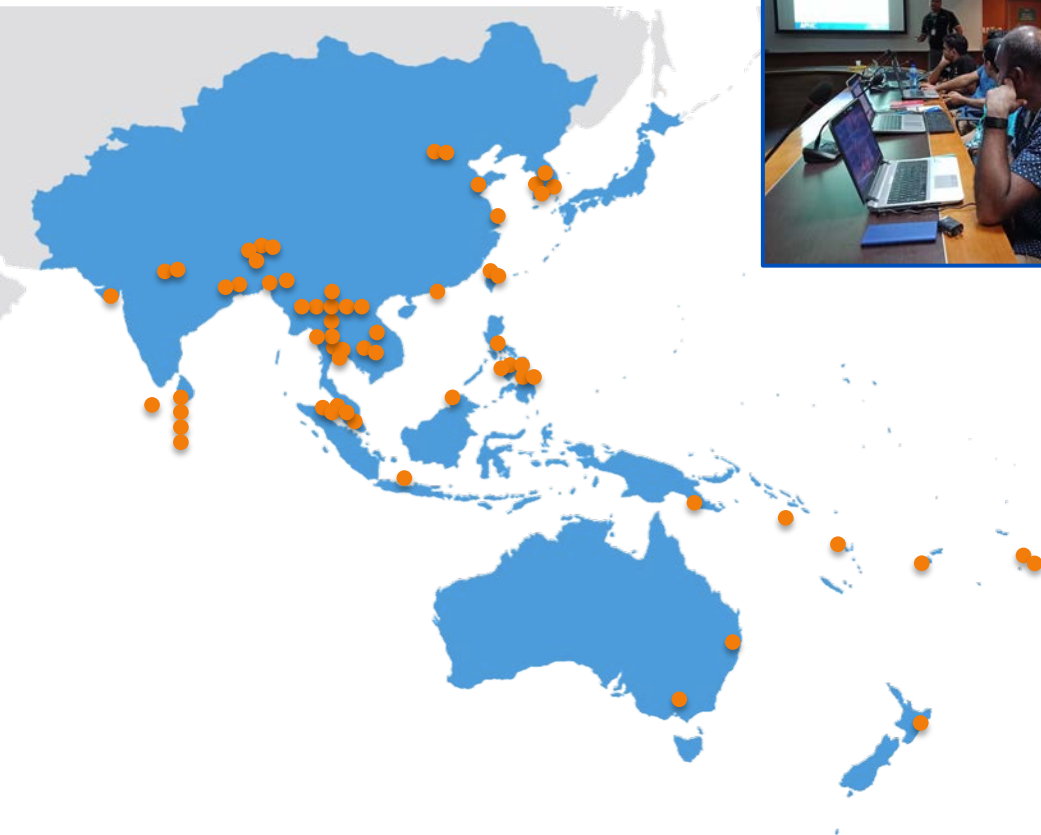
Topics



Top 5: Guest Post, Security,
DNS, IPV6, BGP

As at 31 Dec

Training



	2019
Face-to-face training	69
Economies	30
Trainees	1,971
Trainee days	5,757
Community Trainers	22
APNIC Academy Users	5,060
Economies	42
Virtual Labs	1,723
Course completions	870
Trainee days	525
YouTube training views	37,729

APNIC Academy



- New webinar platform
 - 12 webinars
- New courses
 - IPv6 fundamentals (5 modules);
 - IPv6 Address Planning (in development)
- New Labs
 - Cisco, Mikrotik etc etc
- Access to 'eduroam'
 - APNIC Members only
- Support for 8 languages
 - EN, CNx2, JP, KR, TH, VN, ID

academy.apnic.net

APNIC Conferences



- APNIC 47 / APRICOT 2019
 - 714 attendees from 57 economies
 - IPv6 Hackathon
 - 16 participants (4 female and 12 male)
 - GFCE Triple-I meeting, FIRST TC, APCERT, AP*, DotAsia, APIX
- APNIC 48
 - 422 attendees from 54 economies
 - 52 Fellows from 20 economies
 - 27 Professional, 21 Youth, 4 Returning
 - 50:50 gender ratio
 - Security and RPKI focus
 - NextGen Careers BoF

conference.apnic.net

Technical Community



- **NOGs:** 25 regional NOGs
- **Root servers:**
 - F-root in FJ relocated;
 - K-root at BTIX, MMIX, VNIX (2);
 - new agreement for M-root with WIDE Project and JPRS
- **R&E:**
 - GEANT training at APAN 47, 48
 - Jamie Gillespie is Co-Chair for APAN Security Working Group
 - Joint AI3 & SOI Meeting
 - R&E training, supported by funding from Asi@Connect
 - Support NRENs and universities as APNIC Members

IPv6



- IPv6 Training
 - 18 face-to-face, 539 trainees
 - New 5-module Academy course
- 57 blog posts
 - IPv6 Week promotion
 - 4 new success stories (30 total)
- IPv6 deployment sessions at APNIC conferences; IPv6-only Wi-Fi
- 3 technical assistance engagements
- Members holding IPv6: 64.07%
- Regional IPv6 capability: 29.87% (APNIC Labs)

Security



- 19 security engagements
 - presentations and workshops
 - 31 face-to-face trainings
 - 11 CERT meetings
 - 8 LEA workshops
- FIRST tracks in APNIC 47, 48
- Webinars on DDoS mitigation, DNS security and cybersecurity awareness
- APNIC Community Honeynet to BT, BD, MY, WS, TO and ID
- 93 security-related blog posts

apnic.net/security

Government and IGOs

- ASEAN Regional Cyber Norms Workshop (MY)
- APT-WTSA20-1, first prep meeting for 2020 ITU WTSA (JP)
- ITU, Global Symposium for Regulators 2019 (VU)
- Singapore International Cyber Week (SG)
- APT PRFP-12, moderating a panel on Connectivity in the Pacific (TO)
- APEC TEL 60, 10th year engaging with APEC TEL on IPv6 (KR)
- WIC 2019 (CN)
- Working Group on Big Data (AU)



Internet Governance

- APrIGF 2019 (RU)
- VanIGF - First local IGF event in VU
- Sylvia Cadena reappointed to IGF MAG; Rajesh Chharia appointed as a new member
- APIGA 2019 – IG Academy (KR)
- Nethui 2019 – APNIC sponsored fellows (NZ)
- NetThing 2019 – revived auIGF (AU)
- inSIG 2019 and Youth IGF (IN)
- Global IGF: APNIC coordinated sessions on Safety and Security, cybernorms, data governance and safety; supported NRO CCG (DE)



APNIC Foundation



'To have a global, open, stable and secure Internet that is affordable and accessible to the entire Asia Pacific community'

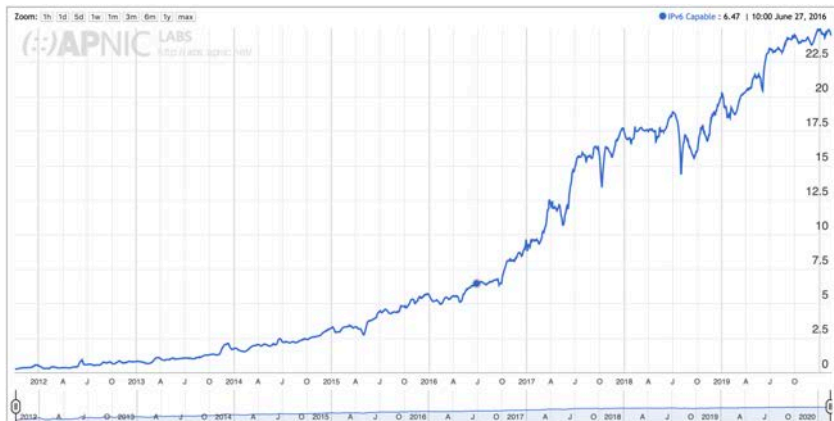
apnic.foundation

- Six board members now appointed: Edward Tian (CN), Sharad Sanghi (IN), Sylvia Sumarlin (ID), Michael Malone (AU), Danish Lakhani (PK), Jun Murai (JP)
- Second board meeting held in May
- Second annual report including audited financial statements published in September
- Foundation now funding administrative and project support positions (AU, PG, FJ)
- APNIC continues to provide other administrative support

Foundation Activities

- PNG training project (AUD 140K)
 - Six workshops, one technical assistance, 2 community consultations
 - First national NOG in the Pacific Islands, PNGNOG
- Final regional workshop for Pacific CERT project (AUD 21K)
- Final workshop for Pacific LEA project completed
- Final work completed for equipment support to PNGCERT
- New Pacific training project (AUD 500K)
 - Community consultations in SB, TO, VU and FJ
- Two workshops in Myanmar (fully funded by KDDI)
- Fellowships to APRICOT 2020 RPKI sessions
 - Foundation and JPNIC

APNIC Labs



- 25 presentations at RIRs, NOGs, IETF...
- 29 research blog posts in 2019
- Research projects
 - DNS resolution and efficiency
 - DNSSEC deployment and validation
 - ICANN SSAC and RSSAC
 - IPv6 capability
 - BGP update analysis
- Measurements and experiments
 - TCP MSS values
 - NSEC caching
 - DNS query duplication/minimization
 - Profile of unsolicited traffic in IPv4
 - Path prepending in BGP



labs.apnic.net

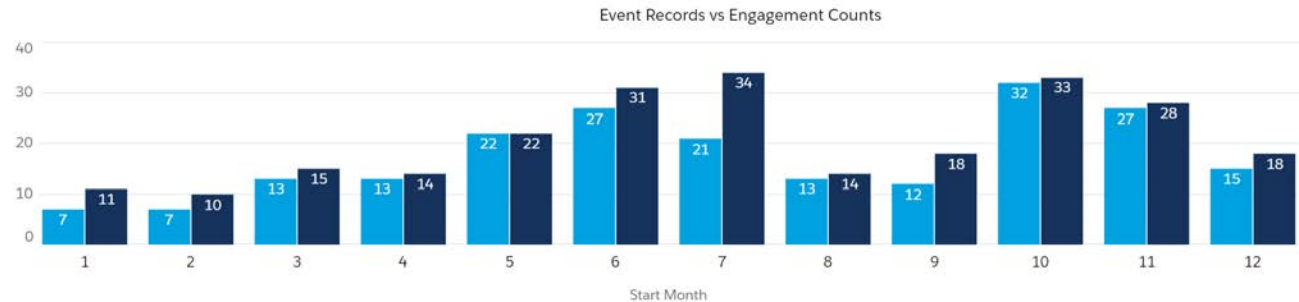
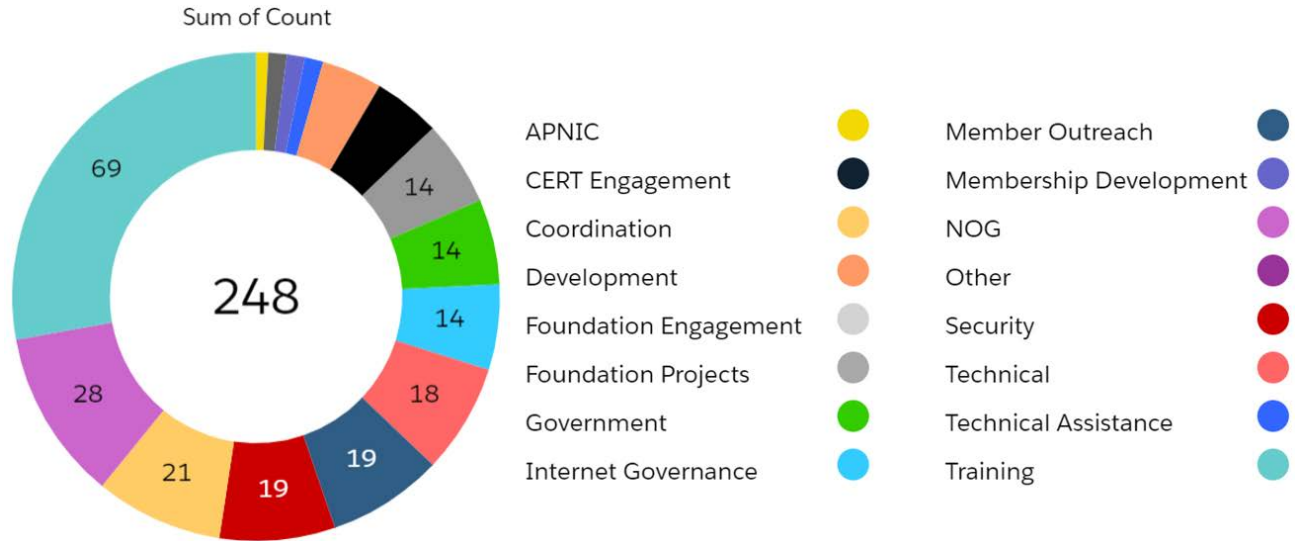
RIR Collaboration



- Completed ASO Review
- NRO Coordination
 - NRO EC
 - New PSCG and CSIRT
 - ECG, CCG, RSCG
 - Policy managers
 - HR Managers
 - CFOs
- Staff exchanges
 - RIPE NCC, LACNIC, AFRINIC
- NRO presence at IGF 2019

External Engagement Summary

* Includes Foundation engagements



Behind the Scenes

- Updated internal systems
 - Expensify for expense management
 - Egencia for self-service travel booking system
 - Elmo for HR management
 - Salesforce for event registration (conferences and training)
 - Bigpulse election platform integration
 - Okta for internal SSO integration with 2FA
- Finance
 - Online partial payment options
 - Western Union payments (with FX)

Behind the Scenes

- Seven permanent vacancies filled and several casual and contract roles
- Extended new staff onboarding process, to include extended workforce such as community trainers and interns
 - Concise version of the staff policy handbook
 - Online training for compliance and professional development
- Full 3-yearly recertification on ISO 9001 QMS
- WH&S management certified and overseen by EC

Thanks!

