APNIC

addressing the Internet in the Asia Pacific

2017

Annual Report

Contents

EXECUTIVE COUNCIL

Gaurab Raj Upadhaya, Chair
Senior Director of Network Strategy and
Interconnection, Limelight Networks (LLNW)

Roopinder Singh Perhar
President Strategy and Planning,
Netplus Broadband Services Private Limited

Rajesh Chharia, Secretary
President, Internet Service Providers Association of
India (ISPAI),
CEO, CJ Online Private Limited

Jessica Shen
Director of IP Operations,
China Network Information Center (CNNIC)

Kenny Huang, PhD, Treasurer
CEO and Board Member,
TWNIC

Kam Sze Yeung
Senior Manager, Network Architecture,
Akamai Technologies

Izumi Okutani
Programme Manager, Business Taskforce,
Institute for Global Environmental Strategies
(IGES)

Paul Wilson, Ex-officio
Director General, APNIC

INTRODUCTION FROM THE DIRECTOR GENERAL

As the Internet continued to expand in the Asia Pacific region in 2017, APNIC membership and services continued to grow. In the last year, membership grew to 6,557; so that together with the NIRs, APNIC now serves more than 14,000 organizations in the region. Along with membership growth, APNIC's services are still in demand, and IPv6 deployment in particular has continued to accelerate.

If there is a theme to the Secretariat's work in 2017, I would describe it as 'Building the NIC in APNIC'; that is, continuing to improve our core 'Network Information Centre' services to benefit the growing Internet community.

There are many examples of this theme in our work in 2017, as follows.

Improving the APNIC registry. We upgraded the codebase of the whois server, introducing new features such as organization objects to more easily identify organizations and their resource holdings. A new interface for the 'whowas' service allows users to view the history of registry records in a timeline format. Improvements to MyAPNIC, including a bulk update feature for whois objects, were also introduced.

Sharing expertise and training. Demand for APNIC's technical training remains high. More than 2,600 professionals participated in face-to-face and online training, with 61 sessions held around the region and 129 elearning classes delivered. The APNIC Academy

was launched with 1,852 enrolling in the first two courses, and 318 certificates of completion delivered.

In the Pacific, we focused on building CERT/CSIRT capacity with training and technical support. We visited Fiji, Papua New Guinea, Tonga, Vanuatu and the Solomon Islands during the year, and provided ongoing support for the CERT in Tonga, the first in the Pacific Island nations.

Boosting IPv6. APNIC's IPv6 web pages were revamped, with 19 deployment success stories published, and increased promotion around the region. In 2017 the percentage of Members holding IPv6 resources increased from 50% to 57%. According to APNIC Labs, total IPv6 capability in the region grew from 7% to 19% during 2017.

Research data. APNIC Labs provided valuable data to assist ICANN in its plans to rollover the DNSSEC Key Signing Key (KSK), and identify network operators that may need to take action. Labs research results also inspired APNIC's contribution to the development of aggressive NSEC caching in ISC's open source DNS software, BIND 9.12, as a measure to reduce query load on DNS rootservers.

Open dialogue. APNIC's main information sharing channel, the APNIC Blog, saw record readership growth in 2017, with 463,719 views and 350 comments generated by 363 blog posts – 127 of those posts written by community contributors.

Community participation. APNIC participated in 185 engagements across the region in 2017, including 24 NOGs; providing speakers, sponsorship, Member support and training. A total of 1,037 delegates from 56 economies attended the APNIC 43 and 44 conferences in Viet Nam and Taiwan.

Information services. In response to results of the 2016 APNIC Survey, BoFs were held at both APNIC conferences last year to discuss possible data gathering and reporting activities. Work continued on improving APNIC statistics with more data and easier access, and this will continue in 2018.

These, and all of APNIC's activities, are guided by Member and community input. APNIC will conduct its biennial survey in 2018 and I strongly encourage you to provide your thoughts, so APNIC can continue to pursue the initiatives you want to see.

This is just a small snapshot of APNIC's 2017 activity – I appreciate you taking the time to read on to learn more.

Paul Wilson
Director General

WELCOME FROM THE EXECUTIVE COUNCIL CHAIR

Welcome to the APNIC Annual Report. 2017 has been a busy year for APNIC and I thank you for taking the time to read this report on the year's activities and achievements.

APNIC had a greater focus in 2017 on improving core registry services. This included upgrades of the whois server, new MyAPNIC functions, back-end registry improvements, deployment of a new 'whowas' user interface and improving other information services. Training and outreach continued on core technical subjects such as IPv6 adoption, DNSSEC and resource certification. APNIC technical staff accompanied the training team in many of these community activities, sharing their expertise and experience.

In 2016's Annual Report, I mentioned the Executive Council's hope to see greater involvement by the community in the APNIC policy process. I'm glad to say that in 2017 we saw more active policy discussions and excellent community engagement on the mailing list and at the Policy SIG meetings. APNIC 44 was exemplary in this area and I do hope this increased participation continues in 2018.

2017 was the first year of operation for the APNIC Foundation. While the Foundation will report its activities separately in its own Annual Report, the EC is pleased with its progress. We also welcome the appointment of new members Edward Tian, Sylvia Sumarlin, and Sharad Sanghi to the Foundation's Board. We expect the full board to be installed this year, and the Foundation to become more active.

The second independent review of the ICANN Address Supporting Organization (ASO) was completed last year. This has increased significance in the changing context of the RIRs' relationship with ICANN. During APNIC 44, our region was the first to begin community consultations on the review, which will continue in 2018.

I want to thank James Spenceley for his long service and contribution to the APNIC EC. James stepped down in 2017, after eight years as an EC member, seven of those as Treasurer. APNIC's financial health strengthened in that period, and James' work as Treasurer leaves a great legacy. In 2017 it was also a pleasure to welcome Izumi Okutani to the EC.

APNIC continues to work hard to responsibly service the needs of its Members and wider Internet community. I echo Paul's comments about the importance of participating in the upcoming APNIC Survey and making sure your voice is heard to help guide the future direction of APNIC.

In the meantime, the EC are always open to hearing your feedback. Please feel free to contact me or my EC colleagues if you have thoughts to share on how APNIC can best serve your organization.
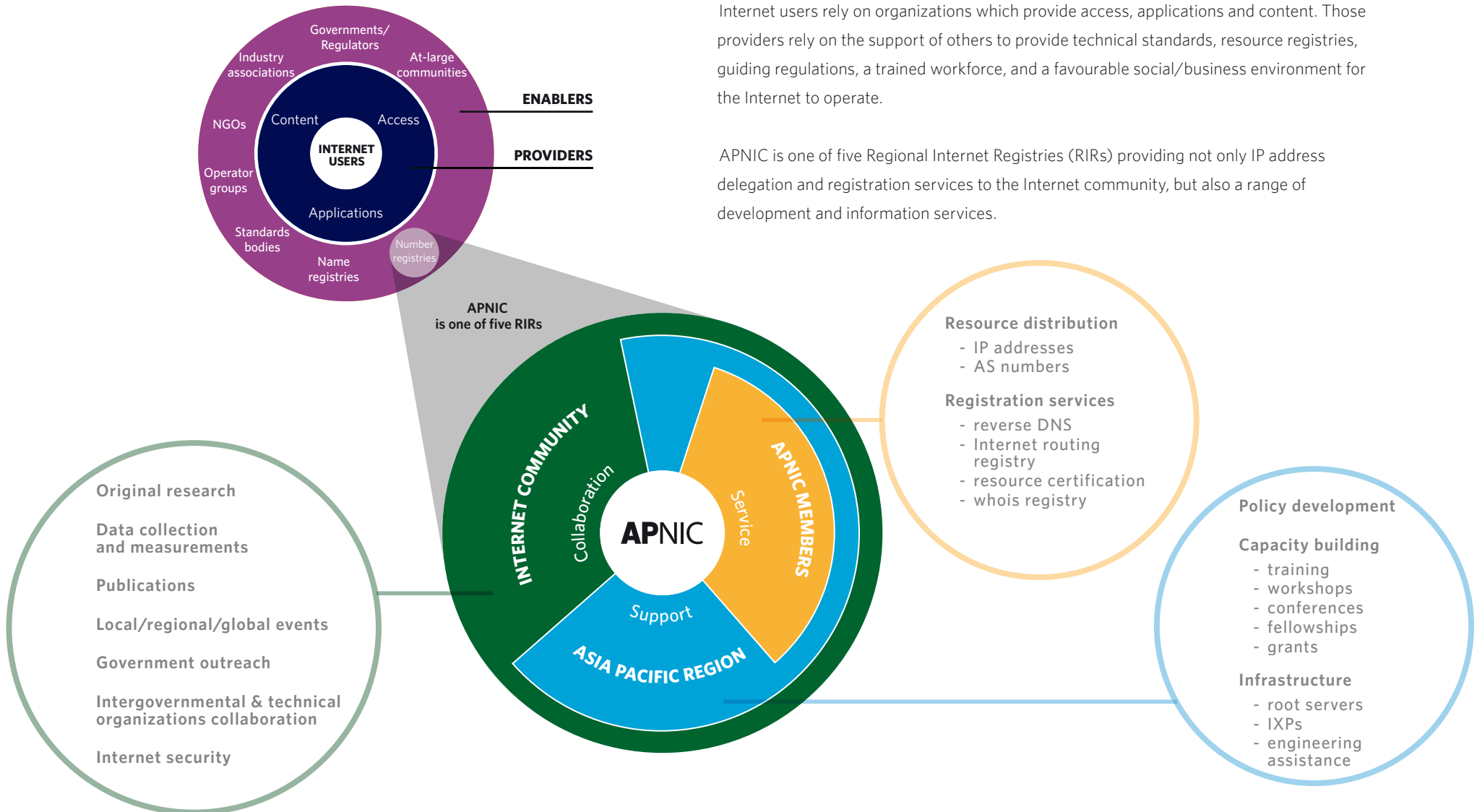
Gaurab Raj Upadhaya

APNIC in the Internet ecosystem

The Internet ecosystem includes many different organizations cooperating to perform necessary roles.

Internet users rely on organizations which provide access, applications and content. Those providers rely on the support of others to provide technical standards, resource registries, guiding regulations, a trained workforce, and a favourable social/business environment for the Internet to operate.

APNIC is one of five Regional Internet Registries (RIRs) providing not only IP address delegation and registration services to the Internet community, but also a range of development and information services.

ENABLERS
PROVIDERS

Governments/Regulators
Industry associations
At-large communities
NGOs
Content
Access
INTERNET USERS
Operator groups
Applications
Standards bodies
Name registries
Number registries

APNIC is one of five RIRs

INTERNET COMMUNITY
Collaboration
APNIC
Service
APNIC MEMBERS
Support
ASIA PACIFIC REGION

Original research

Data collection and measurements

Publications

Local/regional/global events

Government outreach

Intergovernmental & technical organizations collaboration

Internet security

Resource distribution
- IP addresses
- AS numbers

Registration services
- reverse DNS
- Internet routing registry
- resource certification
- whois registry

Policy development

Capacity building
- training
- workshops
- conferences
- fellowships
- grants

Infrastructure
- root servers
- IXPs
- engineering assistance

VISION

A global, open, stable and secure Internet that serves the entire Asia Pacific community.

MISSION

APNIC...

- **Functions** as the Regional Internet Registry for the Asia Pacific, in the service of the community of Members and others

- **Provides** Internet registry services to the highest possible standards of trust, neutrality and accuracy

- **Provides** information, training and supporting services to assist the community in building and managing the Internet

- **Supports** critical Internet infrastructure to assist in creating and maintaining a robust Internet environment

- **Provides** leadership and advocacy in support of its vision and the community

- **Facilitates** regional Internet development as needed throughout the APNIC community

STRATEGIC DIRECTION

- Deliver advanced number registry and Member information services
- Strengthen core technical focus (such as IPv6, RPKI and DNSSEC) and engage community to advance adoption and deployment
- Sustainably support Internet infrastructure in the Asia Pacific and human capacity development
- Engage the APNIC community to strengthen the open, multistakeholder, bottom-up policy development processes and Internet governance model
- Maintain a strong organization to carry out APNIC's mission

APNIC's Activities

APNIC categorizes its activities under four outcome areas.

SERVING MEMBERS

● **REGISTRATION SERVICES**
All activities related to the registration of Internet number resources (IPv4, IPv6, and ASNs) and developing and maintaining the APNIC registry.

● **CUSTOMER SERVICE**
Maintaining a high level of service to Members via the Helpdesk, MyAPNIC, Member communication, and quality management systems.

● **TECHNICAL INFRASTRUCTURE SERVICES**
Operation and maintenance of the technical infrastructure underpinning APNIC and its services, including data centres, network, systems and applications.

● **MEMBER TRAINING**
Technical training and technical assistance services provided throughout the region.

REGIONAL DEVELOPMENT

● **APNIC CONFERENCES**
Arranging the APRICOT and APNIC conferences each year.

● **REGIONAL TECHNICAL DEVELOPMENT**
Support for the Policy Development Process, infrastructure development in the region, NOGs, CERTs and security programs.

● **COMMUNITY ENGAGEMENT**
Collaboration with other Asia Pacific Internet organizations, maintaining the fellowship program, participating in the regional IGF and working with Asia Pacific government organizations on Internet development.

● **APNIC FOUNDATION**
Developing funding partnerships with international development agencies and supporting the ISIF Asia grants program.

GLOBAL COOPERATION

● **GLOBAL TECHNICAL COMMUNITY**
Collaboration with other RIRs, global technical organizations such as ICANN, PTI, the IETF and the Internet Society, and participation in global forums such as the IGF.

● **INTERGOVERNMENTAL OUTREACH**
Participation in global inter-governmental forums as a member of the technical community.

● **GLOBAL RESEARCH**
Undertaking global research and measurement and presenting outcomes at regional and global events.

CORPORATE

● **HUMAN RESOURCE MANAGEMENT**
Managing staff resources, development and knowledge management.

● **FINANCE AND ADMINISTRATION**
Managing APNIC's finance, office and travel functions.

● **LEGAL AND GOVERNANCE**
Activity related to legal matters and APNIC's compliance with workplace health and safety.
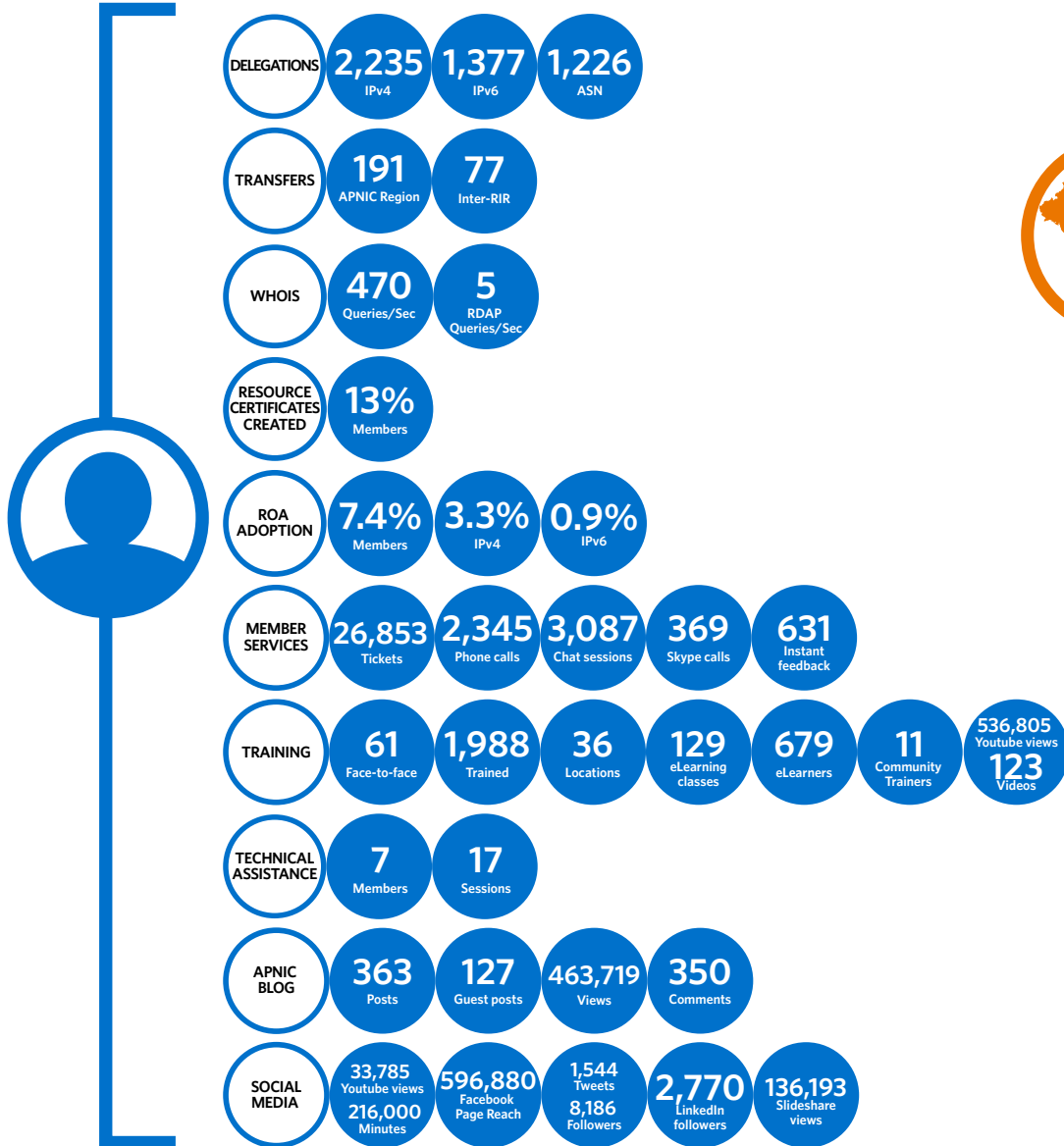
● **FACILITIES**
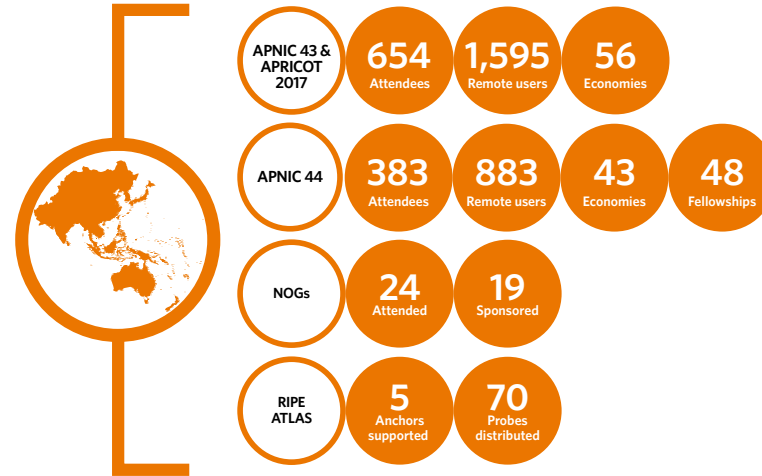*Maintaining APNIC's office facilities.*
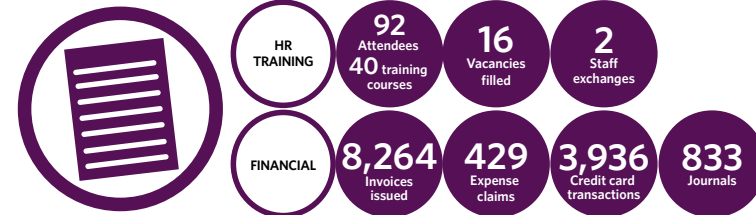
2017 in Numbers

SERVING MEMBERS

DELEGATIONS
- 2,235 IPv4
- 1,377 IPv6
- 1,226 ASN

TRANSFERS
- 191 APNIC Region
- 77 Inter-RIR

WHOIS
- 470 Queries/Sec
- 5 RDAP Queries/Sec

RESOURCE CERTIFICATES CREATED
- 13% Members

ROA ADOPTION
- 7.4% Members
- 3.3% IPv4
- 0.9% IPv6

MEMBER SERVICES
- 26,853 Tickets
- 2,345 Phone calls
- 3,087 Chat sessions
- 369 Skype calls
- 631 Instant feedback

TRAINING
- 61 Face-to-face
- 1,988 Trained
- 36 Locations
- 129 eLearning classes
- 679 eLearners
- 11 Community Trainers
- 536,805 Youtube views
- 123 Videos

TECHNICAL ASSISTANCE
- 7 Members
- 17 Sessions

APNIC BLOG
- 363 Posts
- 127 Guest posts
- 463,719 Views
- 350 Comments

SOCIAL MEDIA
- 33,785 Youtube views / 216,000 Minutes
- 596,880 Facebook Page Reach
- 1,544 Tweets / 8,186 Followers
- 2,770 LinkedIn followers
- 136,193 Slideshare views

REGIONAL DEVELOPMENT

APNIC 43 & APRICOT 2017
- 654 Attendees
- 1,595 Remote users
- 56 Economies

APNIC 44
- 383 Attendees
- 883 Remote users
- 43 Economies
- 48 Fellowships

NOGs
- 24 Attended
- 19 Sponsored

RIPE ATLAS
- 5 Anchors supported
- 70 Probes distributed

GLOBAL COOPERATION

GLOBAL ENGAGEMENTS
- 34 Engagements
- 25 Global technical forums
- 4 Global security forums

CORPORATE

HR TRAINING
- 92 Attendees
- 40 training courses
- 16 Vacancies filled
- 2 Staff exchanges

FINANCIAL
- 8,264 Invoices issued
- 429 Expense claims
- 3,936 Credit card transactions
- 833 Journals

External Engagement Summary

TYPES

2 APNIC Events
18 Global Technical Coordination
4 Regional Technical Development
13 Intergovernmental
78 Training/ Technical Assistance
12 Internet Governance
12 Member Outreach
27 NOG
37 Security

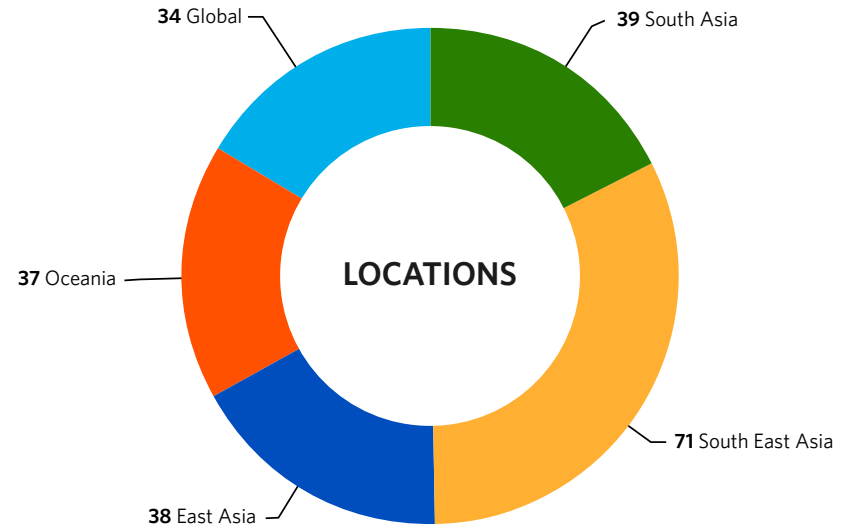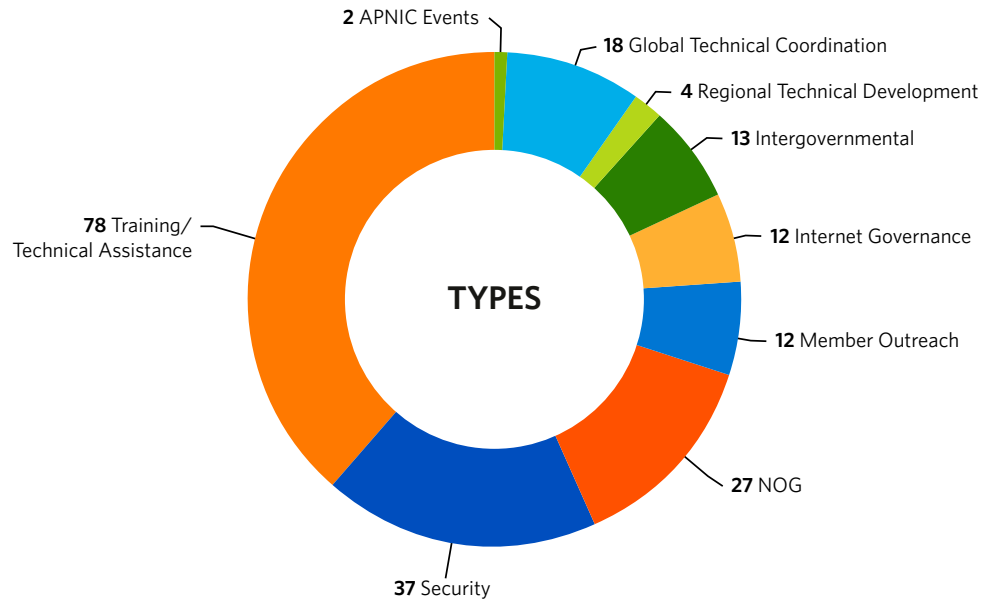## LOCATIONS

34 Global
39 South Asia
37 Oceania
71 South East Asia
38 East Asia

To better illustrate the scope of its activity in the region, APNIC tracks the number of distinct engagements it participates in when attending events.

For example - at a single NOG event, APNIC may provide training but also deliver technical presentations at the NOG conference track.

The two charts above show the number, type and location of those engagements in 2017. A full list of events at which APNIC participated in 2017 is provided on page 75.

Financial Performance Summary

EXPENSES BY OUTCOME AREA

SERVING MEMBERS
- Actual
- Budget

REGIONAL DEVELOPMENT
- Actual
- Budget

GLOBAL COOPERATION
- Actual
- Budget

CORPORATE
- Actual
- Budget

0   2   4   6   8   10   12

$Millions (AUD)
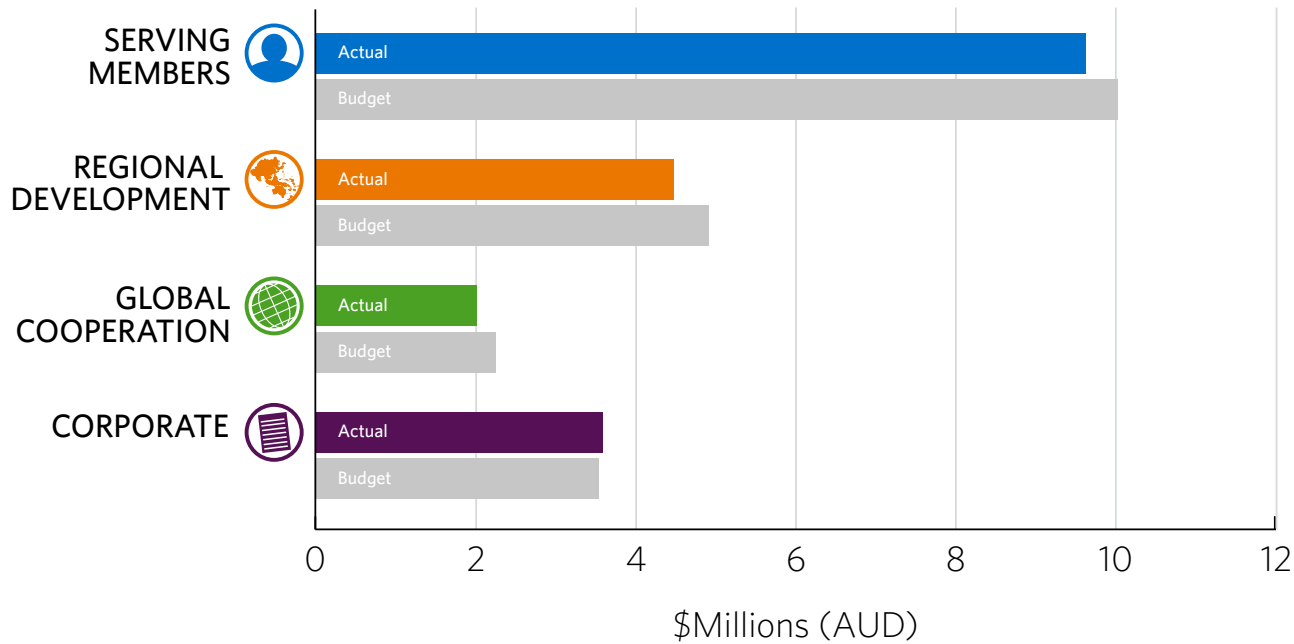
APNIC categorizes its expenses under the 15 activities and four outcome areas detailed on page 8.

The chart on this page illustrates 2017's actual expenses compared to the budget in the 2017 Activity Plan.

For more details on APNIC's 2017 finances, please refer to pages 70–73 to view:

- Financial Report by Activity
- Statement of Financial Position
- Statement of Income
- Cash Flow Statement

Notes on the Activities

APNIC's activities are reported in this document under the 15 activity groups and four outcome areas outlined on page 8.

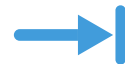|	
🔵 Serving Members	🟠 Regional Development
🟢 Global Cooperation	🟣 Corporate

The activities are described in terms of 'Ongoing' work and 'Projects'.

🔁 **'Ongoing'** includes core, ongoing work that APNIC performs each year to meet its objectives.

➡️ **'Projects'** are short-term pieces of work with defined start and end times (most being complete within one to two years).

A table summarizes the resources (financial and human) needed to successfully complete the activities and projects in each activity group.

All monetary figures quoted are in Australian Dollars (AUD).

	Budget	Actual
1 FTE	17.9	17.7
2 Expenses	$3,819,787	$4,172,199
3 CAPEX	$233,000	$327,500

1 **FTE:** The number of Full-Time Equivalent employees required for the activity. In all cases, contributions from more than one employee are involved, and the FTE number will comprise a percentage of time from each employee. For example – an FTE of 1.6 may be made up of four employees who each dedicate 40% (0.4) of their time to the activity, for a period of one year (2017).

2 **Expenses:** Refers to all operational costs directly incurred by the activity (in AUD) during 2017.

3 **CAPEX**: Provides the provision for capital expenditure required by the activity (in AUD) in 2017.

SERVING MEMBERS

GOALS

REGISTRATION SERVICES

CUSTOMER SERVICE

TECHNICAL INFRASTRUCTURE SERVICES

MEMBER TRAINING

STRATEGIES

All activities related to the registration of Internet number resources (IPv4, IPv6, and ASNs) and developing and maintaining the APNIC registry.

Maintaining a high level of service to Members via the Helpdesk, MyAPNIC, Member communication, and quality management systems.

Operation and maintenance of the technical infrastructure underpinning APNIC and its services, including data centres, network, systems and applications.
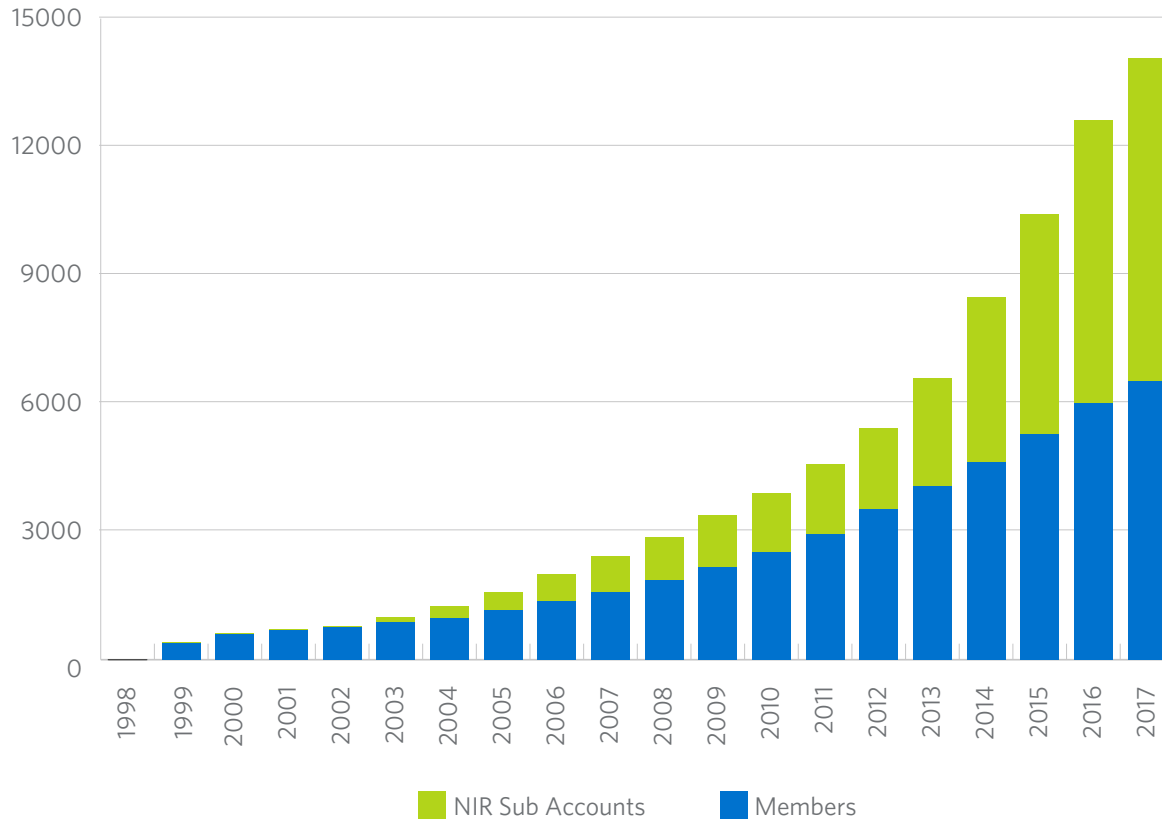
Technical training and technical assistance services provided throughout the region.

Serving Members - Summary

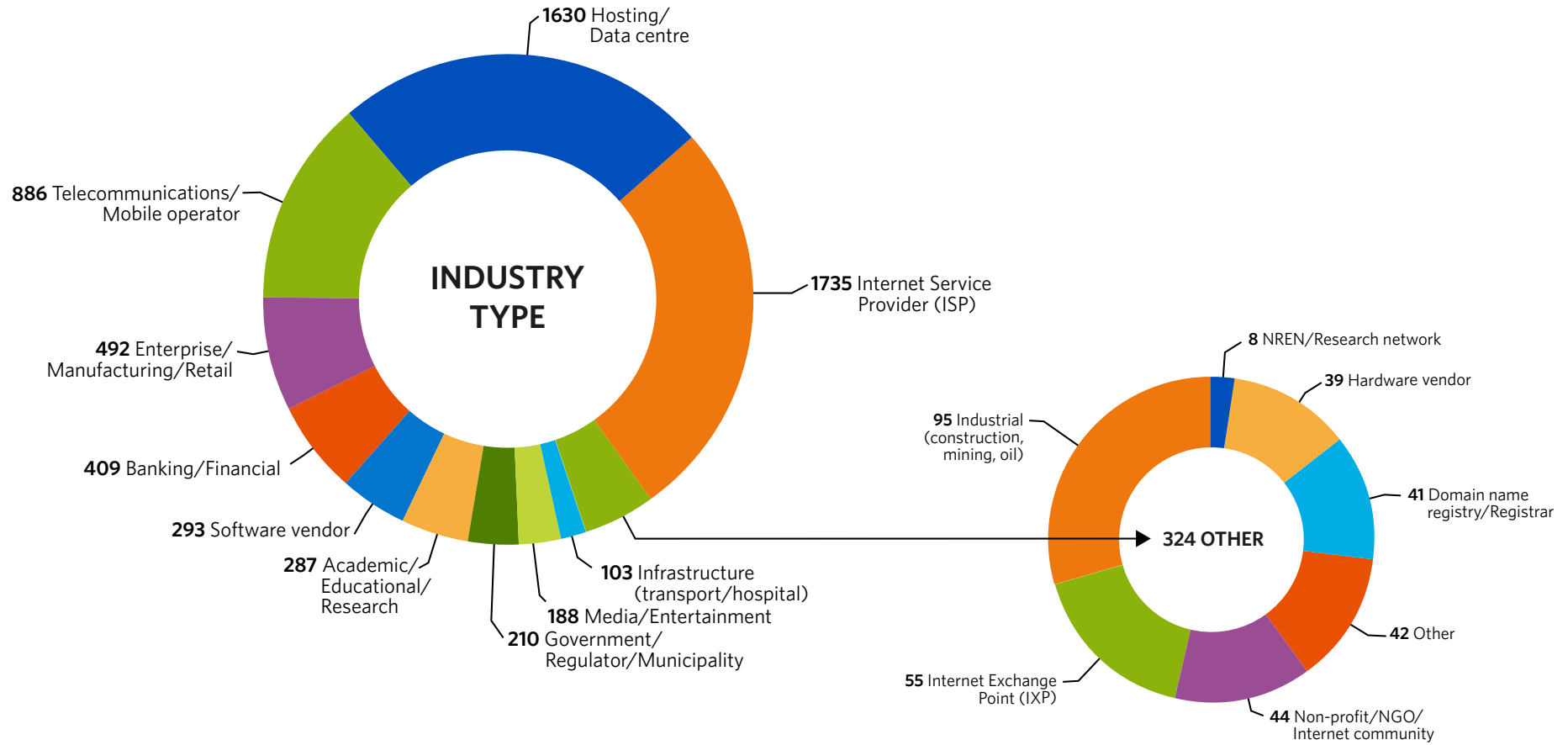|	Budget	Actual
FTE	45.80	46.20
Expenses	$10,023,486	$9,619,172
CAPEX	$915,118	$500,488

< Back to contents page

Membership Growth

At the end of 2017, APNIC direct membership stood at 6,557 an increase of 9% on 2016. NIR sub account growth was 14% in 2017, lifting the number of NIR sub accounts to 7,579.

Total combined membership was 14,126.

< Back to contents page

Membership Industry Type

1630 Hosting/Data centre

886 Telecommunications/Mobile operator

492 Enterprise/Manufacturing/Retail

409 Banking/Financial

293 Software vendor

287 Academic/Educational/Research

210 Government/Regulator/Municipality

188 Media/Entertainment

103 Infrastructure (transport/hospital)

INDUSTRY TYPE

1735 Internet Service Provider (ISP)

324 OTHER

95 Industrial (construction, mining, oil)

8 NREN/Research network

39 Hardware vendor

41 Domain name registry/Registrar

42 Other

44 Non-profit/NGO/Internet community

55 Internet Exchange Point (IXP)

Registration Services

ONGOING

IPv4, IPv6 and ASN delegation and registration services ⟳

APNIC's core activity as a Regional Internet Registry is the distribution and registration of Internet number resources (IP addresses and AS numbers (ASNs)).

In 2017, APNIC processed 1,377 IPv6 delegations, 2,235 IPv4 delegations, 1,226 ASN assignments and 268 IPv4 transfers (191 within the Asia Pacific region and 77 between APNIC and other RIR regions). For a detailed breakdown of Internet number resource distribution in 2017, please refer to the charts on page 18.

APNIC received two IPv4 allocations from PTI from the IPv4 recovered pool: a /19 in March and a /20 in September. APNIC also requested, and received, 32-bit ASNs 137530-138553 and 138554-139577 from PTI in December.

DELEGATIONS
2,235 IPv4
1,377 IPv6
1,226 ASN

TRANSFERS
191 APNIC Region
77 Inter-RIR
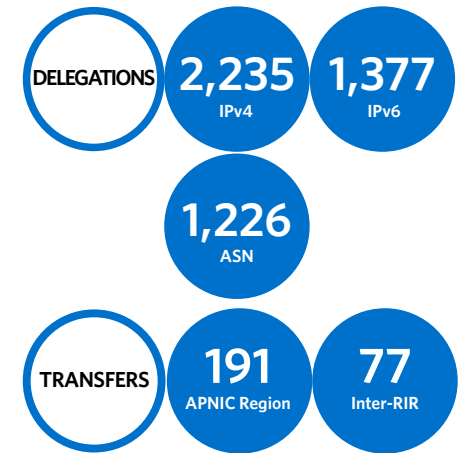
Registration Services

	Budget	Actual
FTE	8.60	8.60
Expenses	$1,506,879	$1,529,631
CAPEX	$0	$6,245

Registration Services

ONGOING

Registry operation and maintenance ⟳

APNIC maintains a publicly accessible whois database and associated registry services that support the use of Internet number resources.

During 2017, the APNIC Whois Database was queried 470 times per second, on average. APNIC's RDAP (Registration Data Access Protocol) service was queried 5 times per second, on average. APNIC account holders made more than half a million updates to whois records in 2017 (501,738).
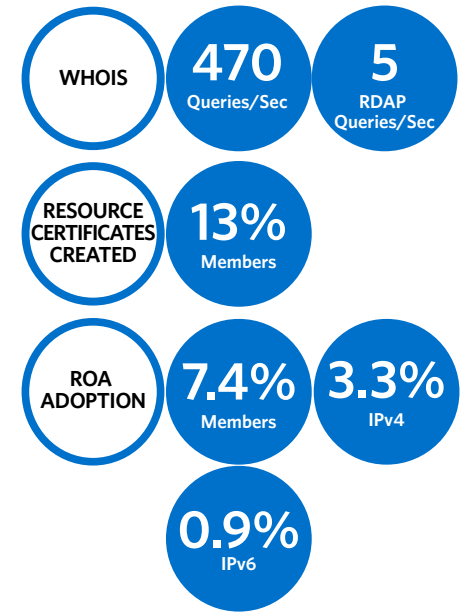
www.apnic.net/whois
www.apnic.net/rdap

At the end of 2017, 13% of APNIC Members had created resource certificates, with 7.4% of Members creating Route Origin Authorizations (ROAs).
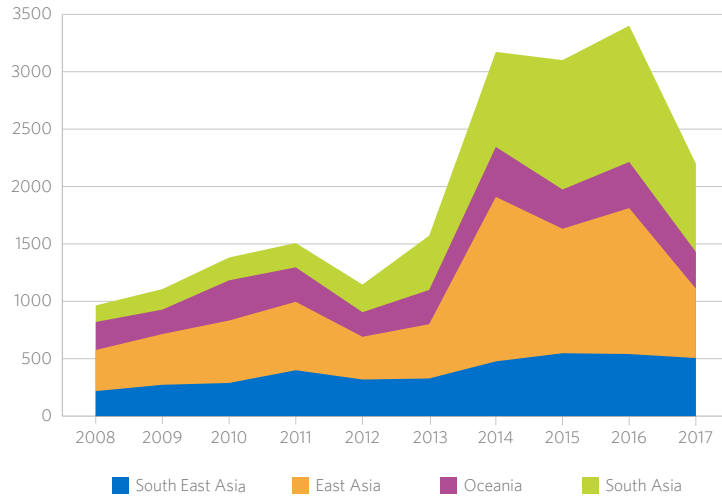
The percentage of allocated resources under ROAs stood at 3.3% for IPv4 and 0.9% for IPv6.
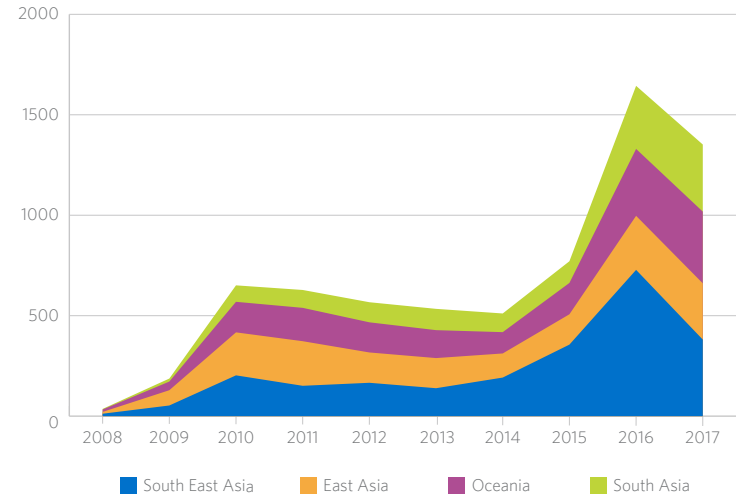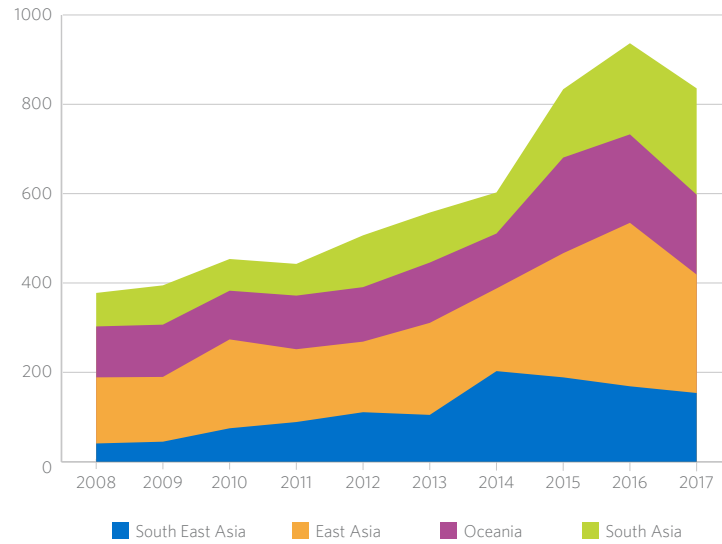
www.apnic.net/roa

WHOIS

470 Queries/Sec

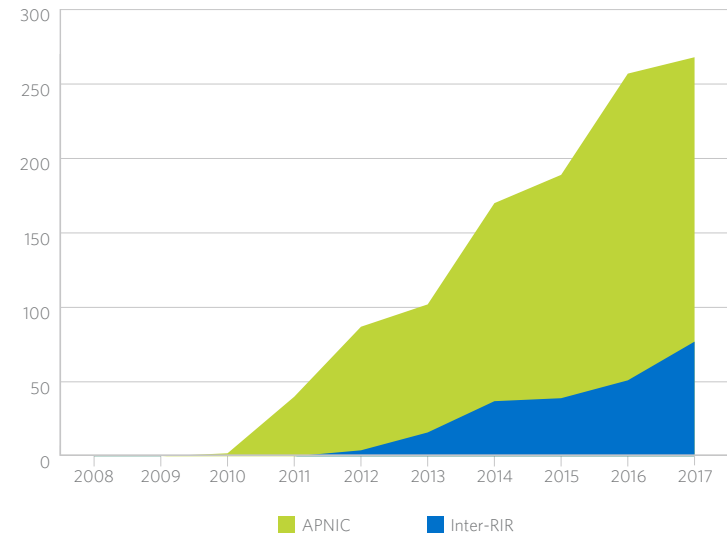**5** RDAP Queries/Sec

RESOURCE CERTIFICATES CREATED

13% Members

ROA ADOPTION

7.4% Members

3.3% IPv4

0.9% IPv6

IPv4 DELEGATIONS

■ South East Asia ■ East Asia ■ Oceania ■ South Asia

IPv6 DELEGATIONS

■ South East Asia ■ East Asia ■ Oceania ■ South Asia

ASN DELEGATIONS

■ South East Asia ■ East Asia ■ Oceania ■ South Asia

IPv4 MARKET TRANSFERS

■ APNIC ■ Inter-RIR

Registration Services

PROJECTS

Registry system architecture ➜|

APNIC made significant progress in redeveloping the code base to allow the registry service to use 'event sourcing' for its authoritative state. The data storage algorithm was enhanced to allow for events across time queries (such as transfers in and out of a particular resource). Further development to complete this project will occur in 2018. Plans to redevelop the ARMS (APNIC Resource Management System) resource selection source code from Perl to Java were cancelled to focus resources on the event sourcing work.

Historical whois service ('whowas') ➜|

The APNIC whowas service provides visibility into prior states of APNIC whois records. It offers a search function for the previous registration data of IP addresses, ASNs, and other records such as person, role and IRT objects.

In 2017, APNIC deployed an improved whowas interface that allows users to view whois object history in a timeline format.

A draft specification of an RDAP extension for history was presented to the Internet Engineering Task Force at IETF 99 for comments.

www.apnic.net/whowas

2017 Project	Member Benefit	Status
Registry system architecture	A more reliable, robust, and flexible registry system that can be adapted more easily to implement policy changes	Project in progress
Historical whois service ('whowas')	Authoritative information about the historical state of the registry made publicly available	Project completed

Registration Services

Whois upgrade ➵

APNIC completed the upgrade of its whois master server to version 4 of the RIPE NCC whois codebase. The upgrade includes the deployment of the new 'organization object' and the 'last modified' attribute, which replaces the 'changed' attribute. A workshop was held with the National Internet Registries (NIRs) to encourage the creation of organization objects by NIR members.

As at 31 December 2017, 68% of resource holders had added their organizational object to their whois records.

Whois data quality improvement ➵

As part of APNIC's efforts to improve the quality of whois data, the creation of a new visual whois dashboard in MyAPNIC was planned to allow Members to track the currency of their whois objects.

Due to resource re-prioritization this project was postponed. It is scheduled to be completed in the first half of 2018.

2017 Project	Member Benefit	Status
Whois upgrade	Stable, maintainable and updated whois service providing access to new features	Project completed
Whois data quality improvement	Easier access to information on last update of Members' Internet resources and easier whois updates	Project postponed

Registration Services

Public statistics improvement →|

To provide Members with better access to APNIC's various data sources and statistics, APNIC began developing a new platform in 2017 that builds on the existing statistics portal (https://stats.apnic.net). This new platform is expected to serve additional data sources, and Data Gathering and Analysis BoF sessions were held at APNIC 43 and 44 to discuss potential data collection and aggregation of community interest.

The new platform's prototype user interface was developed, and user validation sessions were held at various events and meetings with Members.

The current statistics portal is being continuously improved, this year's development includes:

- Improvements to its data ingestion capability

- Ability to store information in multiple database types

- Ability to drill-down to monthly and daily data

- Ability to select and compare multiple economies/regions

- Development of chart and graphics 'widget' that can be embedded in other systems

The project will continue in 2018 with ongoing consultation with Members and the community as needed.

2017 Project	Member Benefit	Status
Public statistics improvement	Improved access to APNIC registry information and industry data for insights on the state of the Internet and industry benchmarking	Project in progress

Registration Services

Resource certification improvements ➞|

APNIC completed development of the Delta protocol (RFC 8182) distribution mechanism for the APNIC RPKI repository for release in Q1 2018. The new protocol improves the publication of RPKI objects and remedies scalability issues with the previous publication protocol, RSYNC.

In MyAPNIC, a new user interface was developed to combine route and ROA management functions.

In 2017, APNIC made its resource certification service available to historical resource account holders who also have a membership account.

In addition, APNIC provided significant technical support and advice to CNNIC for its RPKI service launch.

2017 Project	Member Benefit	Status
Resource certification improvements	Increased performance distribution mechanism for RPKI data; global alignment with other RIRs; improved user experience and wider community access to RPKI services	Project completed

Customer Service

ONGOING

Member Services/Helpdesk ↻

The Member Services Helpdesk serves as a single point of contact for technical, administrative, and billing support for APNIC Members and the wider Internet community. The Helpdesk operates from 09:00 to 21:00 (UTC +10) on weekdays.
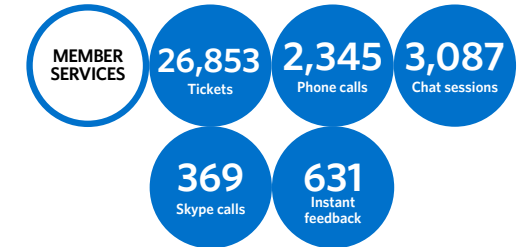
The Member Services team handled 26,853 'tickets' created by Member enquiries, 2,714 calls (phone and Skype), and 3,087 online chat sessions in 2017. In addition, more than 8,250 Member invoices and receipts were processed during 2017. The APNIC Helpdesk maintains a standing commitment to respond to Member queries within two business days.

APNIC invites 'instant feedback' from Members who interact with the Helpdesk to monitor service levels. In 2017, 576 pieces of feedback were received, with 90% rating the service received as above average or better.

Membership outreach ↻

APNIC membership outreach communication helps ensure those organizations that need Internet resources are aware of APNIC and the services it offers.

In 2017, APNIC held five Member gatherings for existing and prospective Members in China, Cambodia, Mongolia, Nepal and Indonesia, with 112 network operators attending to learn more about resource allocation, transfers, route management, resource certification and whois. APNIC also participated at CommunicAsia, Singapore, and CommuniCast, Myanmar, as an exhibitor.

MEMBER SERVICES

26,853 Tickets
2,345 Phone calls
3,087 Chat sessions
369 Skype calls
631 Instant feedback

Customer Service

	Budget	Actual
FTE	17.90	18.25
Expenses	$3,819,787	$3,671,745
CAPEX	$233,000	$152,734

Customer Service

MyAPNIC development and maintenance

MyAPNIC is a secure services website for Members to manage Internet number resources, update contact information, and receive APNIC services online, anytime.

New features introduced in MyAPNIC in 2017 included a bulk update feature for whois objects, alerts to review and update Member contacts on the MyAPNIC landing page; automatic updates of organization objects in whois when Members update their organization details in MyAPNIC; and resource certification improvements mentioned previously.

Quality management

APNIC is an AS/NZS ISO 9001:2016 Quality Management System certified organization. This ensures APNIC delivers a high quality and consistent service to our Members.

APNIC passed an annual ISO 9001 Quality Management System surveillance audit in 2017. It has successfully maintained this accreditation since 2013.

AS/NZS
ISO
9001:2016
CERTIFIED

Customer Service

PROJECTS

Improving online experience →|

Development commenced on a two-year project to integrate APNIC's online services to create a single point of access and improved experience for users of APNIC's services.

Development of Single Sign On (SSO) authentication – providing users with access to APNIC online services via a single set of log-in credentials – is completed, with deployment to production services planned for the first quarter of 2018.

Customer Relationship Management (CRM) →|

APNIC is continuing to implement a more integrated and functional CRM system for managing communications with Members and other stakeholders.

Salesforce CRM was deployed in 2017, with contact creation and management functionality rolled out. Other implementation milestones reached in the past 12 months includes SSO authentication, streamlining and automating all travel and external event information, and the deployment of an internal messaging platform within the CRM.

During 2017, 3,090 contact and 1,986 organization records were created; 250 economy records were integrated; and 65 economies have event records for 2017.

2017 Project	Member Benefit	Status
Improving online experience	Better user experience across all online APNIC services with improved problem resolution through self-service tools	Project in progress
Customer Relationship Management (CRM)	Improved understanding of Member needs and better communication with Members	Project in progress

Technical Infrastructure Services

ONGOING

Operation of APNIC service infrastructure ↻

APNIC maintains its main technical infrastructure in two fully-redundant data centres in Brisbane, linked to the APNIC office via a triangle of fibre interconnection. APNIC also uses cloud services to provide additional redundancy and load-balancing. In addition, regular maintenance and hardware/software updates are required across APNIC's technical infrastructure.

In 2017, the APNIC technical team made ongoing improvements to both internal and external services through:

- Replacing single connections between the APNIC office and two Brisbane datacentres with CWDM and vPC inter-site links
- Improving bandwidth and redundancy of interconnection links
- Server vulnerability patching and upgrades

- F5 load-balancer OS upgrades
- Storage infrastructure and network device OS upgrades
- Kubernetes version upgrades
- VMware version upgrades
- Whois infrastructure upgrades
- DNS infrastructure upgrades

2017 performance metrics for APNIC's core technical infrastructure are below.

Core system uptime	
FTP	99.996%
MyAPNIC	99.996%
RDNS	99.998%
RDNS DNSSEC Validity	100%
Whois	99.998%
RPKI	99.998%
RDAP	99.996%

Average data centre bandwidth usage (Mbps)	
AU edge inbound	108
AU edge outbound	154
JP edge inbound	21

Average query rates (per second)	
Whois	470
RDAP	5
rDNS	17,900
RPKI	23
FTP	2.3
MyAPNIC	0.18

Technical Infrastructure

	Budget	Actual
FTE	12.70	13.80
Expenses	$3,157,280	$3,114,484
CAPEX	$570,118	$287,374

Technical Infrastructure Services

PROJECTS

Improved reliability and availability of publicly accessible services ➝

A range of important infrastructure upgrades were completed in 2017 to improve the reliability, availability and redundancy of APNIC's publicly accessible services:

- Two additional anycast DNS servers were deployed
- New core switches with heavy use of vPC (Cisco Virtual Port Channel) to increase reliability and redundancy were deployed
- Next-generation firewall deployed in a clustered node across Brisbane data centres
- New network monitoring system deployed to improve quality of problem detection
- Logging reliability improvements to Kubernetes cluster

Quarterly data recovery testing was implemented in 2017. Efforts to distribute APNIC's RDAP service to other locations to improve availability began in 2017 and will be completed in 2018.

Adoption of ISO 27001:2013 Information Security Standard ➝

APNIC plans to adopt the ISO/IEC 27001:2013 Information Security Standard that specifies the requirements for implementing, maintaining and continually improving its information security management systems.

APNIC's information security management system framework was fully documented in March, followed by the completion of the required procedures and policies. An internal audit identified additional roles and responsibilities, which were assigned to appropriate Secretariat staff.

2017 Project	Member Benefit	Status
Improved reliability and availability of APNIC's publicly accessible services	More available and better performing services with higher level of security and faster recovery of services in case of disaster	Project completed
Adoption of ISO 27001:2013 Information Security Standard	Assurance that APNIC's information security is in line with international standards	Project in progress

Member Training

ONGOING

Training services

APNIC supports Internet growth and development in the Asia Pacific region by providing training services aimed at building the capacity of the APNIC community on Internet number resource management and best practices in network operation.

In 2017, APNIC held 61 face-to-face training sessions in 36 locations around the region, training 1,988 participants. An additional 679 trainees participated in 129 eLearning courses delivered by APNIC.

training.apnic.net

Technical assistance

APNIC's training staff respond to requests from Members for technical assistance by providing one-on-one support in a format that is neutral, independent, and cost effective. In many cases this is done through partnerships and collaboration with other recognized technical experts and with funding by external agencies.

In 2017, APNIC provided technical assistance to Members in the Philippines, Fiji, Myanmar, India, Viet Nam, and Papua New Guinea. Advice and assistance covered IPv6 address planning and IXP establishment and operation. More information is contained in the 'Internet exchanges and measurement support' section.

www.apnic.net/tas

TRAINING

61 Face-to-face	**1,988** Trained	**36** Locations
129 eLearning classes	**679** eLearners	**536,805** Youtube views **123** Videos

TECHNICAL ASSISTANCE

7 Members	**17** Sessions

Member Training

	Budget	Actual
FTE	6.60	5.55
Expenses	$1,539,540	$1,303,312
CAPEX	$112,000	$54,134

Member Training

PROJECTS

Curriculum improvements ➔|

APNIC continually improves its face-to-face and on-line training curricula to ensure relevance to today's best current practices.

In 2017, APNIC successfully launched a new Software Defined Networking (SDN) training course at APNIC 44, and the Network Security workshop materials were fully updated. The training team also developed an Advanced BGP lab module as part of the IPv4/IPv6 BGP Routing workshop. The training lab was upgraded with a Juniper router in the latter part of 2017.

Community Trainers ➔|

Community trainers are volunteer Internet engineers who help APNIC to provide training and technical assistance throughout the region.

Eleven recognized Internet technical experts from Bangladesh, Cambodia, Pakistan, India, Indonesia, Vanuatu and Australia have volunteered as APNIC Community Trainers. Community trainers supported 21 training sessions in eight economies during 2017.

2017 Project	Member Benefit	Status
Curriculum improvements	High quality Internet operations training that is up to date and regularly peer reviewed	Project completed
Community Trainers	Greater access to high quality technical training for Members in local language and context	Project in progress

Member Training

APNIC Academy →|

APNIC Academy – an online training platform delivering self-paced eLearning modules, examinations, and certification for APNIC training courses – was launched in 2017.

Two courses were released: 'Introduction to Cybersecurity' and 'Internet Resource Management'. At year's end, 1,852 people had enrolled in APNIC Academy, with 318 successfully completing at least one of the courses for certification. A 'Routing Basics' course developed in 2017 will launch in early 2018.

Joint training with the ITU →|

APNIC continued its collaboration with the International Telecommunications Union (ITU) on IPv6 and network security capacity development in Asia Pacific developing economies.

In partnership with the ITU Asia-Pacific Centre of Excellence (ITU ASP CoE) an Internet and IPv6 Infrastructure Security workshop was held in May at the TOT Academy in Nonthaburi, Thailand, for 34 participants from 13 economies. It marked the fifth consecutive year the joint workshop was held.

The partnership with the ITU also included providing training and technical advice to develop an IPv6 Roadmap for Bhutan as part of a 'Direct Country Assistance' project in June. The Bhutan Ministry of Information and Communications has since deployed IPv6 in its networks.

Later that month, APNIC partnered with PacNOG and the ITU to deliver an Internet IPv6 Infrastructure and Security course at PacNOG 21 in Tonga for 27 participants from across the Pacific.

2017 Project	Member Benefit	Status
APNIC Academy	An online learning platform available anywhere, anytime	Project completed
Joint training with the ITU	Increased training opportunities on IPv6 and network security	Project completed

Member Training

Cybersecurity workshops ➝|

In 2017, APNIC conducted more than 25 security-related training sessions across the region, including:

- A one-day training course on Internet Investigation for ASEAN Law Enforcement Officers at the INTERPOL Global Complex of Innovation, Singapore

- A cybersecurity seminar and workshop working with LaoCERT

- Working with Asi@Connect, APNIC staff delivered cybersecurity and incident response training alongside the APAN 44 conference in China and with BTCIRT in Bhutan

- Contributing to the Third Country Training Program on Cybersecurity for ASEAN economies in Singapore

- Contributing to an INTERPOL cybercrime training course for LEAs from across the Pacific in Fiji

APNIC continues to engage with the incident response community, including participation in KISA APISC training in Seoul, and China's CNCERT Conference. APNIC signed an MoU with FIRST (Forum of Incident Response and Security Teams) in July to work together on developing cybersecurity capacity in the Asia Pacific region.

2017 Project	Member Benefit	Status
Cybersecurity workshops	Increased community awareness of security issues and improved effectiveness of governmental security initiatives	Project completed

REGIONAL DEVELOPMENT

GOALS

APNIC CONFERENCES

REGIONAL TECHNICAL DEVELOPMENT

COMMUNITY ENGAGEMENT

APNIC FOUNDATION

STRATEGIES

Arranging the APRICOT and APNIC conferences each year.

Support for the Policy Development Process, infrastructure development in the region, NOGs, CERTs and security programs.

Collaboration with other Asia Pacific Internet organizations, maintaining the fellowship program, participating in the regional IGF and working with Asia Pacific government organizations on Internet development.

Developing funding partnerships with international development agencies and supporting the ISIF Asia grants program.

Regional Development – Summary

	Budget	Actual
FTE	16.70	14.90
Expenses	$4,904,670	$4,473,387
CAPEX	$298,000	$31,864

APNIC Conferences
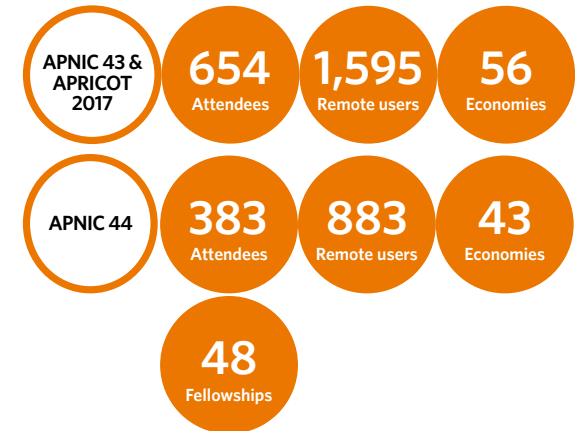
ONGOING

APNIC Conferences ⟳

APNIC conferences provide Members and the technical community with opportunities to participate in training, hear from global experts, participate in policy discussions and attend formal Member meetings.

APNIC staged APRICOT 2017 in Ho Chi Minh City, Viet Nam, and APNIC 44 in Taichung, Taiwan. A total of 1,037 delegates from 56 economies attended the conferences in 2017, with an additional 2,478 conference sessions viewed remotely.

A new MoU between APNIC and APRICOT was finalised and signed at APNIC 44.

	APRICOT 2017	APNIC 44
Total number of on-site delegates	654	383
Economies represented	56	43
APNIC Member organizations represented	178	128
Remote participants		
Adobe Connect	58	186
YouTube views (minutes)	1,537 (18,271)	697 (6,432)

conference.apnic.net

APNIC 43 & APRICOT 2017

654 Attendees **1,595** Remote users **56** Economies

APNIC 44

383 Attendees **883** Remote users **43** Economies

48 Fellowships

APNIC Conferences

	Budget	Actual
FTE	4.80	4.80
Expenses	$1,274,959	$1,315,852
CAPEX	$23,000	$3,478

Regional Technical Development

Policy development

APNIC supports community policy development primarily through the Policy SIG, which develops policies and procedures that relate to the management and use of Internet number resources by APNIC, NIRs, and Members in the Asia Pacific region.

The APNIC Policy SIG considered seven proposals throughout 2017.

- prop-116: Prohibit to transfer IPv4 addresses in the final /8 block
  - Presented at APNIC 43 and APNIC 44. Reached consensus at APNIC 44
  - Implemented 20 November 2017

- prop-117: Returned IPv4 address management and Final /8 exhaustion
  - Presented at APNIC 43 and reached partial consensus (on procedure for handling returned IPv4 addresses).
  - Implemented 4 August 2017

- prop-118 - No need policy in APNIC region
  - Presented at APNIC 43 and APNIC 44. Did not reach consensus and was returned to author

Regional Technical Development

	Budget	Actual
FTE	5.30	5.40
Expenses	$1,277,726	$1,140,009
CAPEX	$275,000	$28,387

Regional Technical Development

- prop-119 - Temporary transfers
  - Presented at APNIC 44. Did not reach consensus and was returned to author

- prop-120 - Final /8 pool exhaustion plan
  - Presented at APNIC 44. Did not reach consensus and was returned to author

- prop-121: Updating 'Initial IPv6 allocation' policy
  - Presented and reached consensus at APNIC 44
  - Implemented 20 November 2017

- prop-122: Updating 'Subsequent IPv6 allocation' policy
  - Presented and reached consensus at APNIC 44
  - Implemented 20 November 2017

Policy SIG election results

The Policy SIG conducted a Chair election with the following results:

- Chair - Sumon Ahmed Sabir

- Co-Chairs - Ching-Heng Ku and Bertrand Cherrier

The APNIC EC and Secretariat thank outgoing Policy SIG Chair, Masato Yamanishi, for his many years of service.

www.apnic.net/policy

Regional Technical Development

Rootserver maintenance ⟳

APNIC supports a number of DNS root server installations in the region, coordinating with hosts and root server operators, and managing their maintenance.

In 2017, APNIC coordinated with Netnod and Sri Lanka Telecom to replace failed I-root server equipment in Colombo. Working with F-root operator, Internet Systems Consortium (ISC), APNIC began the process of replacing the nodes in Brisbane and began planning an upgrade that will see 10 old F-root nodes converted into simplified and economical single server configurations.

New rootserver instances are described in the projects section on page 41.

www.apnic.net/rootserver

Internet exchanges and measurement support ⟳

APNIC supports the deployment and management of IXPs as needed to provide an improved Internet experience.

APNIC provided training and technical assistance for the establishment of IXPs in Papua New Guinea and Fiji in 2017, with preparatory work also undertaken to establish an IXP in Bhutan.

APNIC facilitated five new RIPE Atlas Anchor deployments in Mongolia, Australia, Indonesia, Nepal and Vietnam, with 70 Atlas probes distributed in 2017 across the region.

Regional Technical Development

Network Operator Group (NOG) support

Network Operator Groups (NOGs) support local Internet development, technical training, and networking opportunities for engineers and operators.

APNIC participated in 24 NOG events in the region, providing speakers, sponsorship, hostmaster consultations and technical support (where needed).

Japan - JANOG

Bhutan - BhutanNOG

Nepal - npNOG

Bangladesh - bdNOG

Taiwan - TWNOG

Hong Kong - HKNOG

Myanmar - MMNOG

Thailand - ThaiNOG

Viet Nam - VNIX-VNOG

Philippines - PhNOG

Sri Lanka - LKNOG

Singapore - SGNOG

Malaysia - MyNOG

Indonesia - IDNOG

South Asia – SANOG

Pacific - PacNOG

Australia - AusNOG

New Zealand - NZNOG

Regional Technical Development

Security support

APNIC promotes security best practice among APNIC Members, advises community stakeholders on the importance of establishing incident response capabilities at network operator, national and regional levels, and actively participates in the global cybersecurity community.

In addition to security training activities, APNIC participated in 37 other security engagements in 2017. This included the FS-ISAC APAC Summit, INTERPOL Global Cybercrime Expert Group, Singapore International Cyber Week, Global Conference on Cyberspace (GCCS 2017) in India, and outreach to the ASEAN community through the CSCAP Workshop on Cybersecurity at the ARF Inter-sessional and Third Country Training Program on Cybersecurity for ASEAN Countries.

APNIC partnered with FIRST to host a Technical Colloquia with the APRICOT 2017 conference in Ho Chi Minh City, Viet Nam, and a Symposium at APNIC 44 in Taichung, Taiwan.

APNIC offered sponsorship and in-kind support for the Sri Lanka CERT Conference, Global Honey Pot Conference in Australia, and the RISE – Underground Economy Conference in Cambodia.

APNIC's Senior Security Specialist, Adli Wahid, was re-elected to the FIRST board in July.

www.apnic.net/security

Regional Technical Development

PROJECTS

Policy engagement →|

To improve accessibility, policy content on the APNIC website was reviewed and updated with new visual aids and messaging based on community feedback. Summaries of policy proposals for discussion at APNIC 43 and 44, as well as summaries of policy outcomes at those events, were developed and translated into seven languages.

Two promotional webinars and two policy briefings were held at NOG events ahead of APNIC 44 to raise awareness, and a mock Policy SIG concept was developed and held for newcomers at APNIC 44 to increase participation in the policy process. This was supported by increased social media promotion and blog activity.

2017 Project	Member Benefit	Status
Policy engagement	Greater awareness of the PDP with reduction of knowledge/language barriers to participating in the PDP	Project completed

Regional Technical Development

IPv6 awareness →|

APNIC released revamped IPv6 web pages including 19 IPv6 deployment success stories and updated transition technologies resources.

APNIC presented on IPv6 and deployment strategies to technical, policy and business decision makers at 15 events during the year, including NOG events in Indonesia, Nepal and Bhutan; at the Asia-Pacific Digital Society Policy Forum in Thailand; Acceleration of IPv6 Implementation event in Indonesia; APT Policy and Regulatory Forum held in Sri Lanka; BICSI-Japan conference in Tokyo: and CommunicAsia in Singapore. An APNIC IPv6 deployment panel discussion held at PTC'17 with Telekom Malaysia, Telstra and Comcast was live-streamed to the region attracting 1,085 views.

The 5th anniversary of World IPv6 Launch on 6 June 2017 was marked with a week of APNIC IPv6 promotional activities including seven blog posts, a dedicated social media campaign, release of an NRO IPv6 video and direct emails encouraging Members without IPv6 to request an IPv6 delegation. By 31 December, 57% of APNIC Members had received an IPv6 delegation, an increase from 50% at the start of 2017.

2017 Project	Member Benefit	Status
IPv6 awareness	Help with building a relevant and effective business case for IPv6 deployment	Project completed

Regional Technical Development

DNS rootservers ➡️

APNIC sponsored the development of aggressive NSEC caching functionality — based on RFC 8198 (July 2017) — in the next major version of ISC's open source DNS software, BIND. This is expected to significantly reduce query load on DNS rootservers to make them more resilient against DDoS attacks. BIND 9.12 is expected to be released in early 2018.

In January 2017, APNIC assisted Verisign in the deployment of a J-root server in Nepal. An APNIC-sponsored F-root node installation is also in progress at the PNG IXP and coordination has begun with the F-root node operator in Fiji to move the server to the newly established Fiji IX.

An updated MoU was signed with ISC to support new F-root instances around the region.

Following a call for expressions of interest (EOI), APNIC received two EOI responses from hosts in Indonesia and Taiwan to deploy K-root nodes in 2018.

2017 Project	Member Benefit	Status
DNS rootservers	Increase resiliency of global DNS services	Project completed

Regional Technical Development

Additional Project: Pacific CERT/CSIRT development →|

APNIC's security engagement in the Pacific received additional funding via the APNIC Foundation to promote and support CERT/CSIRT establishment. APNIC provides CERT advice, training and technical support.

APNIC worked in Fiji, Papua New Guinea, Tonga, Vanuatu and Solomon Islands, including mentoring, technical training and assistance, and community engagements. Preliminary CERT establishment workshops have been held in Papua New Guinea and Vanuatu.

In addition, APNIC Senior Security Specialist, Adli Wahid, has been active in providing mentoring to Tonga CERT, attending regular conference calls and providing technical assistance and advice. Tonga CERT and APNIC jointly hosted a one-day cybersecurity workshop for system administrators in December.

APNIC has coordinated closely with APCERT, CERT-Australia, the ITU and other national CERTs, which are investing in security capacity development in the Pacific.

2017 Project	Member Benefit	Status
Pacific CERT/CSIRT development	Enhanced capabilities of Member economies to identify, manage and respond to cybersecurity risks	Project in progress

Community Engagement

ONGOING

Community sponsorship ↻

APNIC provides sponsorship to various Internet organizations and events to support Internet development and help build capacity, especially in developing economies.

In addition to sponsoring 19 NOG events in 2017, APNIC also supported another 21 events in the region covering security, technical research, peering forums, regional and national IGFs, schools of Internet governance, and other major technical events. (A full list of sponsored events is included in Appendix 1).

APNIC also provides annual membership contributions to APT, PTC, Internet Society, and PeeringDB.

Community Engagement

	Budget	Actual
FTE	5.60	3.85
Expenses	$1,631,704	$1,303,969
CAPEX	$0	$0

Community Engagement

Fellowship program

APNIC's fellowship program provides opportunities for those working in the Asia Pacific Internet community to attend and participate in APNIC conferences. The program places special emphasis on encouraging diversity and supporting community members from developing economies.

Forty-eight fellows accepted fellowships for APNIC 44 from the working professional, youth, and the new 'returning' fellowship categories. The returning fellows category encourages previous fellows (who have a demonstrated track record of contributing to their technical communities) to return to an APNIC conference to play a more active community role. The fellows were drawn from 16 economies and included 23 females.

A basic Linux Administration training workshop was held at APNIC 44 for youth fellows, following feedback received from youth fellows at APNIC 42. APNIC repeated the successful Fellows BoF at APNIC 44, providing an opportunity for fellows to engage with community leaders and experts on key technical issues.

APNIC also contributed AUD 10,000 to each of the APrIGF 2017 and PacIGF 2017 fellowship programs and sponsored two technical fellowships to IETF 100.

Community Engagement

Government and sub-regional liaison

Governments and regulatory bodies are important partners in supporting the sustainable growth of the Internet and IPv6 deployment. APNIC provides these organizations with advice on IP addressing and critical Internet infrastructure issues wherever possible.

APNIC participated in a number of regional government engagements, including:

● Three Asia Pacific Telecommunity (APT) meetings (part of the ITU World Telecommunication Development Conference (WTDC) preparatory process) in Papua New Guinea, Thailand, and Malaysia to help delegations understand the activities of the Internet addressing community. APNIC also attended the APT's Pacific Policy and Regulation Forums in Fiji and Sri Lanka.

● The Regional Development Forum in Indonesia and presented at the Asia Digital Societies Policy Forum in Bangkok.

● Pacific Islands Telecommunication Association (PITA) meetings in Hawaii (during PTC) and Cook Islands.

● The Asia Pacific Economic Cooperation Telecommunications and Information Working Group (APEC TEL) meeting in Thailand, where APNIC contributed on IPv6 and Security related topics.

● An ICANN Government Advisory Committee (GAC) capacity development workshop in Fiji, with governmental representatives from 26 Pacific Islands.

● A CSCAP Workshop on Cybersecurity in Indonesia, the Pacific ICT Days in Vanuatu, the China Internet Conference in Beijing, and the Pacific Broadband Forum in Samoa.

Community Engagement

Community awareness

APNIC initiated a Community Engagement Pilot project to increase participation from Members and interested parties in South Asia in preparation for APNIC 45 in February 2018.

As part of this project, APNIC held interactive Community sessions at SANOG 30, Nepal IGF and bdNOG 7. Additional informal meetings were held at various events throughout the year, such as inSIG 2017, ICANN 60, and the Global Conference on Cyberspace 2017 (GCCS 2017).

There were 108 community contributors to the APNIC Blog in 2017, authoring 127 guest posts on a range of topics relevant to the numbers community. Ninety of these authors were contributing to the blog for the first time.

APNIC Foundation

ONGOING

Foundation incubation

The APNIC Foundation works with new funding partners to increase investment in Internet development in the Asia Pacific.

APNIC provides financial and other support to the Foundation as it seeks new funding to expand APNIC's development activities (including training, technical assistance, fellowships and community support).

The APNIC EC appointed the first three members of the APNIC Foundation board: Edward Tian (China), Sylvia Sumarlin (Indonesia), and Sharad Sanghi (India).

Two full time APNIC employees were seconded to the Foundation in 2017 and this will continue in 2018. Additional support from APNIC for other Foundation functions totalled one FTE in 2017.

https://apnic.foundation

APNIC Foundation

	Budget	Actual
FTE	1.00	0.85
Expenses	$720,281	$713,558
CAPEX	$0	$0

APNIC Foundation

ISIF Asia

The Information Society Innovation Fund Asia (ISIF Asia) is a grants and awards program aimed at stimulating creative solutions to ICT development needs in the Asia Pacific region. The APNIC Foundation operates the ISIF Asia Secretariat, providing administrative support, facilitating the selection process, grantee reporting and dissemination strategy, fund raising, and program evaluation.

In 2017, ISIF Asia granted AUD 160,000 to five organizations in the Asia Pacific to support research and development of Internet technologies for the benefit of the Asia Pacific.

After the transfer of the ISIF Asia Secretariat from APNIC to the APNIC Foundation, two of the main donors – Canada's IDRC and ISOC – renewed their support for the program. The APNIC EC also approved APNIC's contribution to ISIF Asia allowing it to continue its grants and awards program in 2018, which will mark the 10th anniversary of ISIF Asia.

http://isif.asia

GLOBAL COOPERATION

GOALS

GLOBAL TECHNICAL COMMUNITY

INTER-GOVERNMENTAL OUTREACH

GLOBAL RESEARCH

STRATEGIES

Collaboration with other RIRs, global technical organizations such as ICANN, PTI, the IETF and the Internet Society, and participation in global forums such as the IGF.

Participation in global inter-governmental forums as a member of the technical community.

Undertaking global research and measurement and presenting outcomes at regional and global events.

Global Cooperation - Summary

	Budget	Actual
FTE	4.30	4.45
Expenses	$2,239,324	$2,003,849
CAPEX	$30,000	$20,848

Global Technical Community Cooperation

ONGOING

RIR collaboration ⟳

APNIC works with other RIRs to share experiences and expertise, and collaborate on joint projects and activities. Through the Number Resource Organization (NRO), the five RIRs work together on issues and projects of importance to the entire RIR community.

The APNIC EC held a joint meeting with the AFRINIC Board during AFRINIC 26 in Nairobi, Kenya, in June. APNIC staff participated in eight RIR meetings in 2017.

APNIC worked with LACNIC to develop a presentation on IPv6 deployment across the APEC region delivered at APEC TEL 55 in Mexico.

AFRINIC's travel co-ordinator and database manager both visited the APNIC offices on an RIR staff exchange in 2017, with APNIC's HR Director, Louise Tromp, and Finance Director, Richard Brown, spending time at AFRINIC providing advice and support.

APNIC hosted a meeting of the NRO Registration Services Coordination Group in Ho Chi Minh City, Viet Nam, during APRICOT 2017.

Global Technical Community Cooperation

	Budget	Actual
FTE	2.90	2.82
Expenses	$1,533,562	$1,289,433
CAPEX	$0	$730

Global Technical Community Cooperation

Collaboration with ICANN, PTI, IETF, ISOC ⟳

APNIC maintains relationships with global technical organizations such as ICANN, PTI, IETF, and ISOC to ensure global Internet discussions and policies include regional technical considerations.

APNIC Chief Scientist, Geoff Huston, continued his work as an elected member of the ICANN Security and Stability Advisory Committee (SSAC) and also contributed to the ICANN GAC Public Safety Working Group.

Working with the ISOC AP Regional Bureau, ICANN APAC team and DotAsia, APNIC helped create APASA (Asia Pacific Alliance for Schools and Academies of Internet Governance) – a coordinated framework for assessing funding and support requests for emerging regional and local schools of Internet governance.

APNIC staff participated at ICANN and IETF meetings during 2017, helping to celebrate the IETF's 100th meeting in Singapore.

Address Supporting Organization (ASO)

An independent review of the Addressing Supporting Organization (ASO) was conducted by ITEMS International in 2017 to examine the effectiveness of the ASO within ICANN. The final report was published in August and each RIR is conducting regional consultations to consider the report's recommendations. A 90-minute session to discuss the ASO review report was held during APNIC 44.

The APNIC EC appointed Henri Kasyfi Soemartono as a member of the Number Resource Organization Number Council (NRO NC) representing the APNIC region. He will serve a one-year term, from 1 January 2018 to 31 December 2018. Henri is the Secretary General of APJII, the Indonesian Association of Internet Service Providers.

Global Technical Community Cooperation

Other forums

APNIC provided Asia Pacific technical perspectives in several global Internet forums in 2017, including:

- APNIC presented at the International Symposium on Cybercrime Response (ISCR 2017) in Seoul and participated at the INTERPOL Digital Forensics Experts Group Meeting, which was held at the same time.

- APNIC participated at the CTO Broadband Pacific Forum and met with GCCS officials to follow up on plans for cybersecurity efforts in the Pacific in 2018.

- APNIC participated at the fourth World Internet Conference (WIC 2017) held in Wuzhen, China, and contributed to a panel on 'cybernorms'. Paul Wilson also participated as a member of the WIC High Level Advisory Committee during 2017.

Global Technical Community Cooperation

PROJECTS

IANA Transition →|

The Cross Community Working Group on Enhancing Accountability (CCWG Accountability) continued its work to address ICANN accountability topics.

There are nine subtopics under discussion, of which APNIC has mainly followed three:

    (1) SO/AC accountability
    (2) Guidelines for Good Faith Conduct
    (3) Jurisdiction

The APNIC EC appointed Simon Sohel Baroi (Bangladesh) and Bertrand Cherrier (New Caledonia) to the IANA Numbering Services Review Committee for a one-year term beginning on 1 January 2018. The EC also resolved to introduce a community election process at APNIC 46 for the Review Committee positions for 2019 onwards.

Simon and Bertrand join APNIC Secretariat representative, George Kuo, on the committee to periodically review the provision of IANA numbering services to the RIRs. The Review Committee includes 15 members in total (three from each RIR community).

2017 Project	Member Benefit	Status
IANA Transition	Monitoring of PTI performance to ensure compliance with the SLA	Project completed

Global Technical Community Cooperation

Internet governance outreach →|

APNIC attended and participated in three 'SIG' (School of Internet Governance) initiatives in 2017 – APSIG in Thailand, APIGA in the Republic of Korea, and inSIG in India – and another two remotely, AfSIG (Afghanistan) and PKSIG (Pakistan).

Paul Wilson ended his term as Chair of the APrIGF Multistakeholder Steering Group (MSG) for the APrIGF at its meeting in Thailand. The APNIC Foundation's Sylvia Cadena was elected as Co-Chair of the APrIGF Multistakeholder Group. At the APrIGF, APIGA and inSIG, APNIC taught IP addressing and network fundamentals through an in-house designed card game called 'IPGO'.

APNIC also participated in seven other Internet Governance Forums in the region, including Pacific IGF (Vanuatu), NPIGF (Nepal), IGFA (Afghanistan), TWIGF (Taiwan), IDIGF (Indonesia), NetHui (New Zealand), and KRIGF (Republic of Korea).

At the global IGF in Geneva, APNIC organized a workshop "International Cooperation between CERTs: technical diplomacy for cybersecurity?". This workshop brought together members of the UN Governmental Group of Experts, international law experts and members of the technical community.

2017 Project	Member Benefit	Status
Internet governance outreach	Better understanding of wider Internet governance processes and better representation of technical issues in wider governance discussions	Project completed

Global Technical Community Cooperation

NRO Secretariat ➜|

APNIC performed the NRO Secretariat duties this year as part of the RIR rotation for the three official coordination groups (engineering, registration services, communications) as well as the informal finance and HR groups to share best practice.

The NRO EC held two face-to-face meetings during 2017 – the first at ICANN 58 and the second at ICANN 60.

Additional project: DNSSEC KSK Rollover ➜|

APNIC supported ICANN's plans to rollover the DNSSEC Root Zone KSK (Key Signing Key) by raising awareness among operators performing DNSSEC validation in the Asia Pacific. Activities included:

● Identification of 'higher risk' network operators performing DNSSEC validation, according to APNIC Labs data

● Development of a KSK rollover web page with information resources in English, Japanese and simplified Chinese

● A 45-minute information session held at APNIC 44 with Geoff Huston and ICANN's Ed Lewis

● Communication activities to educate and raise awareness – including information emails sent to identified network operators (from APNIC Labs data) and the wider membership, blog posts from Geoff Huston and ICANN's Matt Larson, and social media outreach including a Facebook Live video interview with ISC's Eddy Winstead

On 28 September 2017, ICANN postponed the KSK rollover till 2018.

2017 Project	Member Benefit	Status
NRO Secretariat	Ongoing improvement of APNIC operations via sharing of global best practice among the RIRs	Project completed
DNSSEC KSK Rollover	Ensure network operators performing DNSSEC validation are aware of the change and take action to avoid network disruption	Project completed

Global Technical Community Cooperation

Additional Project: Single Trust Anchor ➔|

In 2017, APNIC transitioned from its previous Resource Public Key Infrastructure (RPKI) trust anchor arrangement to a new single 'all resources' global trust anchor configuration as part of a global initiative agreed by the five RIRs.

APNIC completed the following steps in the transition:

(1) Expanded the existing trust anchor for resources from IANA, issued the new intermediate CA, and re-signed one of the existing online CAs under that intermediate CA.

(2) Re-signed the other online CAs under the new intermediate CA.

(3) Reduced the other trust anchors' resources to AS0, to indicate that they were no longer in use.

The final stage, removal of the other trust anchors and their repositories, is scheduled for completion in early 2018. The project also included working closely with JPNIC to ensure full interoperability with its resource certification systems.

2017 Project	Member Benefit	Status
Single Trust Anchor	Improved way of allowing resources covered under RPKI to be transferred from one RIR to another	Project in progress

Intergovernmental Outreach

ONGOING

Intergovernmental liaison ⟳

APNIC attends various global inter-governmental forums as a member of the technical community advocating:

- *The importance of IPv6 adoption as the only viable option for future Internet growth*
- *The relevance of the APNIC community in the Internet ecosystem*
- *The need to preserve and promote the multistakeholder model of Internet governance*

APNIC attended the ITU quadrennial WTDC in Argentina as a Sector Member of the ITU-D. The WTDC agreed on plans for the ITU to engage in IPv6 and cybersecurity related activities in the Asia Pacific region. It also supported capacity building and infrastructure development initiatives in the region. The ITU recognized the importance of cooperating with the RIRs on IPv6-related matters.

APNIC participated at a Council Working Group meeting in Geneva, to discuss the ITU's involvement on Internet matters and collaborated with the ITU on a Cyber Drill in Moldova.

APNIC also participated at the EUROPOL / INTERPOL Cybercrime Conference in The Hague, Netherlands.

Inter-governmental Outreach

	Budget	Actual
FTE	0.70	0.73
Expenses	$278,051	$284,069
CAPEX	0	0

Global Research

ONGOING

Global research and measurements

APNIC Labs delivers globally-recognized research and measurement reports of key technologies including IPv6, BGP and DNSSEC.

Research activities for APNIC Labs in 2017 included:

- KSK rollover investigations, including resolver characterization and user impact measurement

- Continued work on IPv6, extension headers and IPv6 fragmentations,

- Measuring the extent of latent QUIC capability

- DNS-related research with ICANN

- Investigation into the dynamic behaviour of Google's TCP flow control algorithm, BBR

- Investigation of DNSSEC and its role in NSEC caching

Technical advocacy at global forums

In 2017, APNIC shared its research findings at 32 technical forums around the world, helping network engineers and policy makers make better decisions about Internet design and development. In addition, Chief Scientist, Geoff Huston, authored 27 blog articles during 2017.

Global Research

	Budget	Actual
FTE	0.7	0.9
Expenses	$427,711	$430,347
CAPEX	$30,000	$20,119

CORPORATE

GOALS

HUMAN RESOURCE MANAGEMENT

FINANCE AND ADMINISTRATION

LEGAL AND GOVERNANCE

FACILITIES

STRATEGIES

Managing staff resources, development and knowledge management.

Managing APNIC's finance, office and travel functions.

Activity related to legal matters and APNIC's compliance with workplace health and safety.

Maintaining APNIC's office facilities.

Corporate - Summary

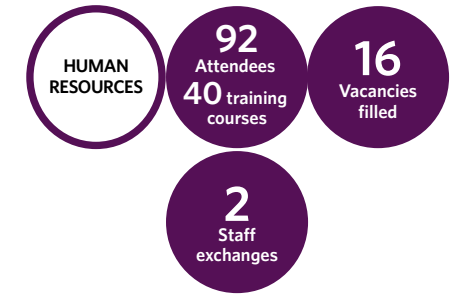|	Budget	Actual
FTE	11.00	12.00
Expenses	$3,531,857	$3,580,519
CAPEX	$49,500	$129,216

Human Resource Management

ONGOING

Secretariat staffing

In 2017, APNIC filled 16 vacancies created by either staff attrition or new required roles.
The vacancies filled included:

- Finance Officer
- Senior Training Officer
- Senior DevOps Engineer
- Systems Administrator
- Web Developer
- Internet Resource Analyst

- Software Engineer
- eLearning Developer
- Development Director
- Digital Communication Officer
- Internet Security Specialist
- Data Scientist

HUMAN RESOURCES

92 Attendees
40 training courses

16 Vacancies filled

2 Staff exchanges

Human Resource Management

	Budget	Actual
FTE	2.00	2.00
Expenses	$886,763	$913,968
CAPEX	$3,500	$3,038

Human Resource Management

Staff development

APNIC staff regularly undertake skills training and professional development, relevant to their roles, to improve their effectiveness and expertise.

Forty-two APNIC staff participated in 33 external training and professional development courses in 2017.

External training courses covered topics including people management, internal audit, and leadership. In addition, seven in-house workshops attracted 50 attendees on topics including Agile, Kanban, writing, and CPR. Annual compliance training on fraud prevention, sexual harassment prevention, equal opportunity, and bullying prevention were completed by all staff.

APNIC staff are also provided access to online learning courses through Lynda.com. Courses completed by staff this year included PHP development, UX design, and project management.

APNIC's annual staff engagement survey, conducted by Korn Ferry Hay Group, showed engagement levels exceeding industry benchmarks.

Human Resource Management

Knowledge management

Knowledge/information management will include collaboration with all business units to integrate systems, to improve the quality and relevance of information generated.

Improvement of internal information systems in 2017 included:

- Integration of event, training and travel databases to eliminate duplication and automate previously manual systems

- Revision of Member industry classifications for data cross referencing with other RIRs

- Integration of the APNIC Member database with APNIC's email notification tools to streamline Member notifications

- Extended and improved management dashboard to improve monitoring of service levels and other KPIs

- Full upgrade of the APNIC Secretariat staff wiki

CORPORATE

PROJECTS

Employer branding

APNIC engaged an employer brand consultant to develop and articulate APNIC's value to prospective employees. In 2018, this work will be translated into an improved recruitment section of the APNIC website and social media materials to help attract the right talent to APNIC.

HR Management System

Evaluation of potential HRM systems began in 2017 and will be finalized in 2018.

2017 Project	Member Benefit	Status
Employer branding	APNIC can continue to attract and retain strong talent	Project in progress
HR Management System	Improve efficiency and automation to reduce staff time used on administration	Project in progress

< Back to contents page

63

Finance and Administration

ONGOING

Financial management

In 2017, APNIC's finance team issued 8,264 invoices, paid 1,957 supplier invoices, prepared 833 journals, settled 429 expense claims, and reconciled 3,936 credit card transactions.
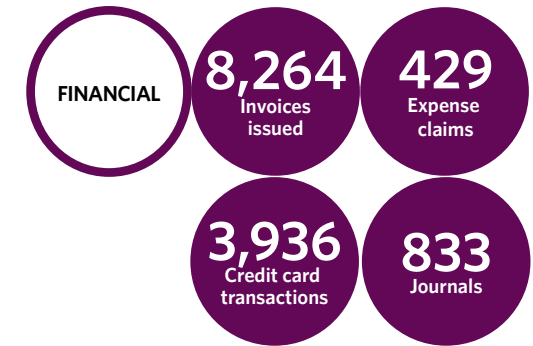
A Netsuite financial management solution for the APNIC Foundation was implemented to manage the ISIF grant program and Foundation activities in June.

Office management

APNIC's office management team maintained a healthy and productive work environment for APNIC staff, including managing office supplies, telephony costs, postage/shipment and general administrative tasks.

Travel management

APNIC managed 420 travel bookings in 2017 and supported travellers with visa management, travel insurance queries and emergency support where required. Travellers supported included APNIC staff and contractors, Foundation staff, the APNIC EC, NRO NC representatives, SIG Chairs, and fellowship recipients.

FINANCIAL

8,264 Invoices issued

429 Expense claims

3,936 Credit card transactions

833 Journals

Finance and Administration

	Budget	Actual
FTE	6.90	7.90
Expenses	$1,508,299	$1,507,827
CAPEX	$12,500	$12,385

Finance and Administration

PROJECTS

Document management and collaboration platform →|

SharePoint has been selected as APNIC's document management platform, with initial development and implementation completed in late 2017.

2017 Project	Member Benefit	Status
Document management and collaboration platform	Enhanced management of corporate information leading to improved service	Project completed

Legal and Governance

ONGOING

Legal counsel

APNIC's General Counsel provided ongoing legal advice, draft and review of contracts, and guidance in corporate governance activities throughout 2017.

A review of the terms and conditions applying to different parts of APNIC's online services was conducted, with the aim to consolidate them into a universal set of terms and conditions.

APNIC's legal counsel also coordinated with the other RIRs and the NRO EC in relation to the processes for exercising the Empowered Community's rights and powers under ICANN's new bylaws.

Workplace health and safety compliance

APNIC has a legal responsibility to provide a safe work environment to staff, contractors, and visitors. A range of activities to comply with these requirements, including quarterly audits and inspections and staff training, were completed in 2017 to minimize the risk of workplace incidents. No significant workplace accident or injury was recorded in 2017.

Legal and Governance

	Budget	Actual
FTE	0.40	0.40
Expenses	$522,538	$552,531
CAPEX	$0	$0

Legal and Governance

PROJECTS

Enterprise policies →|

Organizational policies and procedures were reviewed in advance of APNIC's annual ISO9001 Quality Management System audit and updated where necessary to ensure compliance was maintained. Refinements were made to internal document storage hierarchy based on this review.

2017 Project	Member Benefit	Status
Enterprise policies	System to support strong internal controls and governance framework	Project completed

Facilities

ONGOING

Building and office facilities

Activities included oversight to equipment, interior fit-outs, office furniture, building security, and repair and maintenance to APNIC's Brisbane office.

Facilities

	Budget	Actual
FTE	1.70	1.70
Expenses	$614,257	$606,193
CAPEX	$33,500	$113,793

Facilities

PROJECTS

Office accommodation →|

To meet resourcing levels in 2017, APNIC reconfigured the office accommodation. Workstation capacity was increased by 13 seats, a meeting room was converted into two new private rooms, and meeting room facilities were upgraded. New furniture was installed in common areas to improve workplace flexibility.

2017 Project	Member Benefit	Status
Office accommodation	Office accommodation that supports organizational stability long term	Project completed

2017 FINANCIAL REPORT BY ACTIVITY

Activity	FTE Actual 2017	FTE Budget 2017	FTE Variance	CAPEX Actual (AUD) 2017	CAPEX Budget (AUD) 2017	CAPEX Variance (AUD)	OPEX Actual (AUD) 2017	OPEX Budget (AUD) 2017	OPEX Variance (AUD)
Serving Members									
Customer Service	18.25	17.90	0.35	152,734	233,000	-80,266	3,671,745	3,819,787	-148,042
Member Training	5.55	6.60	-1.05	54,134	112,000	-57,866	1,303,312	1,539,540	-236,228
Registration Services	8.60	8.60	0.00	6,245	0	6,245	1,529,631	1,506,879	22,752
Technical Infrastructure	13.80	12.70	1.10	287,374	570,118	-282,744	3,114,484	3,157,280	-42,796
Total	46.20	45.80	0.40	500,488	915,118	-414,631	9,619,172	10,023,486	-404,314
Regional Development									
APNIC Conferences	4.80	4.80	0.00	3,478	23,000	-19,522	1,315,852	1,274,959	40,893
APNIC Foundation	0.85	1.00	-0.15	0	0	0	713,558	720,281	-6,723
Community Engagement	3.85	5.60	-1.75	0	0	0	1,303,969	1,631,704	-327,735
Regional Technical Development	5.40	5.30	0.10	28,387	275,000	-246,613	1,140,009	1,277,726	-137,717
Total	14.90	16.70	-1.80	31,864	298,000	-266,136	4,473,387	4,904,670	-431,283
Global Coordination									
Global Research	0.90	0.70	0.20	20,119	30,000	-9,881	430,347	427,711	2,636
Global Technical Community	2.82	2.90	-0.08	730	0	730	1,289,433	1,533,562	-244,129
Inter-governmental Outreach	0.73	0.70	0.03	0	0	0	284,069	278,051	6,018
Total	4.45	4.30	0.15	20,848	30,000	-9,152	2,003,849	2,239,324	-235,475
Corporate									
Facilities	1.70	1.70	0.00	113,793	33,500	80,293	606,193	614,257	-8,064
Finance & Administration	7.90	6.90	1.00	12,385	12,500	-115	1,507,827	1,508,299	-472
Human Resource Management	2.00	2.00	0.00	3,038	3,500	-462	913,968	886,763	27,205
Legal & Governance	0.40	0.40	0.00	0	0	0	552,531	522,538	29,993
Total	12.00	11.00	1.00	129,216	49,500	79,716	3,580,519	3,531,857	48,662
Total	**77.55**	**77.80**	**-0.25**	**682,417**	**1,292,618**	**-610,201**	**19,676,928**	**20,699,337**	**-1,022,409**

STATEMENT OF FINANCIAL POSITION

For a better understanding of APNIC Pty Ltd's financial position and performance, as represented by the results of its operations for the financial year ended 31 December 2017, the statement of financial position, and statement of income, should be read in conjunction with the annual statutory financial report and the audit report contained therein.

Assets

	2017 (AUD)	2016 (AUD)	% change from 2016
Current assets			
Cash and cash equivalents	3,629,427	5,518,359	-34%
Trade and other receivables	5,526,829	2,679,877	106%
Other current assets	748,981	649,029	15%
Total current assets	9,905,237	8,847,265	12%
Non-current assets			
Available-for-sale financial assets	22,893,372	21,149,445	8%
Property, plant and equipment	7,745,911	7,875,245	-2%
Deferred tax assets	202,401	149,602	35%
Total non-current assets	30,841,684	29,174,292	6%
Total assets	40,746,921	38,021,557	7%

Liabilities

	2017 (AUD)	2016 (AUD)	% change from 2016
Current liabilities			
Payables	1,086,670	1,121,453	-3%
Provisions	1,424,271	1,238,585	15%
Unearned revenue	9,742,793	9,400,834	4%
Total current liabilities	12,253,734	11,760,872	4%
Non-current liabilities			
Deferred tax liabilities	466,112	298,186	56%
Provisions	319,062	314,993	1%
Total non-current liabilities	785,174	613,179	28%
Total liabilities	13,038,908	12,374,051	5%
Net Assets	**27,708,013**	**25,647,506**	**8%**

Equity

	2017 (AUD)	2016 (AUD)	% change from 2016
Contributed equity	1	1	0%
Other reserves	1,156,552	651,145	78%
Retained earnings	26,551,460	24,996,360	6%
Total equity	**27,708,013**	**25,647,506**	**8%**

STATEMENT OF INCOME

	2017(AUD)	2016 (AUD)	% change from 2016
Revenue			
Investment income	841,080	890,951	-6%
Membership fees	19,310,962	18,354,898	5%
Non-Member fees	260,010	243,923	7%
Reactivation fees	27,200	37,700	-28%
Sign-up fees	373,250	465,000	-20%
Sundry income	359,196	318,419	13%
Foreign exchange gain	(21,955)	5,549	-496%
Total revenue	**21,149,743**	**20,316,440**	**4%**
Expenses			
Communication expenses	561,271	532,212	5%
Computer expenses	647,453	533,628	21%
Contribution to APNIC Foundation	665,058	18,003	3594%
Depreciation expense	807,596	785,218	3%
ICANN contract fees	244,657	243,026	1%
Meeting and training expenses	389,922	363,343	7%
Office operating expenses	337,207	324,948	4%
Professional fees	1,304,343	1,409,430	-7%
Salaries and personnel expenses	11,096,470	10,459,153	6%
Sponsorship and publicity expenses	681,342	624,179	9%
Travel expenses	2,161,034	2,085,745	4%
Other operating expenses	780,574	689,410	13%
Total expenses	**19,676,927**	**18,068,295**	**8%**
Operating surplus			
Operating surplus before income tax	1,472,816	2,248,145	-34%
Income tax (expense)/ benefit	82,284	18,217	352%
Operating surplus after income tax	**1,555,100**	**2,266,362**	**-31%**

CASH FLOW STATEMENT

	2017 (AUD)	2016 (AUD)	% change from 2016
Cash flows from operating activities			
Receipts from Members and customers	20,790,523	20,677,423	1%
Payments to suppliers, employees and grantees	(19,234,261)	(17,770,585)	8%
Grants received	338,550	383,136	-12%
Interest received	167,515	181,707	-8%
Net cash inflow from operating activities	**2,062,327**	**3,471,681**	**-41%**
Cash flows from investing activities			
Redemption of short-term deposits	0	3,100,000	-100%
Transfers to short term deposits	(2,750,000)	(500,000)	450%
Payments for property, plant and equipment	(682,417)	(822,871)	-17%
Proceeds from sale of property, plant and equipment	3,096	13,435	-77%
Purchase of available-for-sale financial assets	(500,014)	(1,500,000)	-67%
Net cash (outflow) / inflow from investing activities	**(3,929,335)**	**290,564**	**-1,452%**
Net (decrease)/ increase in cash and cash equivalents:	**(1,867,008)**	**3,762,245**	**-150%**
Cash and cash equivalents at the beginning of year	5,518,359	1,785,266	209%
Effects of exchange rate changes on cash and cash equivalents	(21,924)	(29,152)	-25%
Cash and cash equivalents at the end of year	**3,629,427**	**5,518,359**	**-34%**

Supporters

APNIC acknowledges and thanks the following organizations for their generous support for APNIC conferences and training events during 2017.

@Tokyo

ADVA Optical Networking

Afilias

Akamai

AMSIX, Amsterdam Internet Exchange

APJII, Asosiasi Penyelenggara Jasa Internet Indonesia

Arbor Networks, Inc

Arista

BRI, Bank Rakyat Indonesia

CAMS, Communications Authority Maldives

Chief

CMC Telecom

CNNIC, China Internet Network Information Center

Equinix

Facebook

Gandi.net

Google

Grandstream

Hilco Streambank

HiNet

Hkcolo.net

HKIRC, Hong Kong Internet Registration Corporation Limited

ICANN

Imperva Incapsula

Internet Society India Kolkata Chapter

IPv4 Market Group

ISIF, Information Society Innovation Fund

ISOC

ISPAB, ISP Association of Bangladesh

JPIX, Japan Internet Exchange Co Ltd

JPNAP

JPNIC, Japan Network Information Centre

KISA, Korea Internet & Security Agency

Megaport

Ministry of Communication, Transport and Tourism Development, Kiribati

MyIX, Malaysia Internet Exchange

Netflix

Netk System

Netn@m

NICTA, National Information & Communications Technology Authority of Papua New Guinea

Nokia

Nomadix

NS Focus

NSRC, Network Startup Resource Centre

OPT Nouvelle-Caledonie

Oracle

Our Telekom Solomon Islands

Packet Design

Paraqum Technologies

PCCW Global

PCTA, Philippine Cable Television Association, INC.

PITA, Pacific Islands Telecommunications Association

PLDT Inc

Seiko Solutions Inc

Taichung City Government

TEIN

Telia Carrier

Telstra

TWNIC, Taiwan Network Information Centre

VIA, Vietnam Internet Association

VNNIC, Vietnam Network Information Centre

Yahoo

Appendix: 2017 Events List

Following is the list of events in which APNIC staff participated in 2017. A star (★) indicates events where APNIC provided sponsorship.

JANUARY

INTERPOL Cybercrime Investigation Training for ASEAN	Singapore	Singapore
OpenIXP ID Peering Event	Jakarta	Indonesia
PTC '17	Honolulu	USA
Forum for Incident Response and Security Teams (FIRST) Board Meeting/ TF-CSIRT Symposia	Valencia	Spain
SANOG 29 ★	Islamabad	Pakistan
NZNOG 2017 ★	Tauranga	New Zealand
NANOG 69	Washington DC	USA

FEBRUARY

ITU CWG-Internet/WSIS & EG-ITRs	Geneva	Switzerland
Asia-Pacific Telecommunity ITU WTDC17-2 and PP18-1 Prepratory Meeting	Port Moresby	Papua New Guinea
HKNOG 4.0 ★	Hong Kong	Hong Kong
APRICOT 2017 ★	Ho Chi Minh City	Viet Nam
GSMA Mobile World Congress 2017	Barcelona	Spain

MARCH

MMNOG★	Yangon	Myanmar
PhNOG Conference 2017 ★	Makati	Philippines
ICANN 58	Copenhagen	Denmark
ACSC Conference 2017	Canberra	Australia
ITU Regional Development Forum & Regional Preparatory Meeting	Bali	Indonesia
IETF 98	Chicago	USA
Passive and Active Measurment Conference 2017 (PAM 2017)	Sydney	Australia

APRIL

ARIN 39	New Orleans	USA
Financial Services-Information Sharing and Analysis Center (FS-ISAC) Summit	Singapore	Singapore
Pacific Islands Telecommunications Association (PITA) 21	Rarotonga	Cook Islands
Philippines Cable Television Association Conference (PCTA)	Iloilo City	Philippines
CSCAP Workshop on Cybersecurity at the ASEAN Regional Forum	Semarang	Indonesia
IEEE Internet Inclusion: Advancing Solutions	Washington DC	USA
Asia Pacific Telecommunity (APT) Policy and Regulation Forum for Pacific 10 (PRFP-10)	Nadi	Fiji
Pacific ICANN GAC Meeting	Nadi	Fiji
IDNIC Open Policy Meeting/APJII National Meeting	Denpasar	Indonesia

MAY

IEEE International Conference on Computer Communications	Atlanta	USA
ITU-GSMA Asia's Digital Societies Policy Forum 2017	Bangkok	Thailand
RIPE 74	Budapest	Hungary
DNS OARC 26 Workshop	Madrid	Spain
BKNIX Peering Forum ★	Bangkok	Thailand
Stockholm Internet Forum	Stockholm	Sweden
Pacific ICT Days & Pacific Internet Governance Forum (IGF) ★	Port Vila	Vanuatu
bdNOG 6 ★	Bogra	Bangladesh
CNCERT Conference	Qingdao	China
LACNIC 27	Foz do Iguazu	Brazil
Africa Internet Summit '17 / AFRINIC 26	Nairobi	Kenya
CommunicAsia 2017	Singapore	Singapore
Eurasia NOG (ENOG)	Saint Petersburg	Russia

JUNE

Asia-Pacific Telecommunity ITU WTDC17-3 Prepratory Meeting	Bangkok	Thailand
BhutanNOG ★	Thimpu	Bhutan
Asian Venture Philanthropy Network 2017	Bangkok	Thailand
Forum for Incident Response and Security Teams (FIRST) Annual Conference	San Juan	Puerto Rico
CNNIC Open Policy Meeting	Kunming	China
npNOG 2 ★	Kathmandu	Nepal
TWNIC Open Policy Meeting and TWNOG	Taipei	Taiwan
ICANN 59	Johannesburg	South Africa
INTERPOL Cybercrime Expert Group (IGCEG)	Singapore	Singapore
PacNOG 20 ★	Suva	Fiji

JULY

SANOG 30 ★	Gurgaon	India
China Internet Conference	Beijing	China
IETF 99	Prague	Czech Republic
Asia-Pacific Telecommunity Policy and Regulatory Forum	Colombo	Sri Lanka
IDNOG 04 ★	Jakarta	Indonesia
Commonwealth Broadband Pacific Forum	Apia	Samoa
JANOG 40 ★	Koriyama	Japan
Asia-Pacific Regional Internet Government Forum (APrIGF) 2017 ★	Bangkok	Thailand
Asia-Pacific School of Internet Governance (APSIG) ★	Bangkok	Thailand

AUGUST

Asia-Pacific Telecommunity ITU WTDC17-4 Prepratory Meeting	Kuala Lumpur	Malaysia
Nepal IGF 2017 ★	Kathmandu	Nepal
VNNIC Open Policy Meeting and VNIX	Ho Chi Minh City	Viet Nam
Sri Lanka CERT Conference ★	Colombo	Sri Lanka
International Symposium on Cybercrime Response 2017	Seoul	Republic of Korea
APAN 44	Dalian	China

SEPTEMBER

Asia-Pacific Telecommunity Telecom/ICT Development Forum	Manila	Philippines
SGNOG 5 ★	Singapore	Singapore
CloudSEC 2017	Taipei	Taiwan
AusNOG 2017	Melbourne	Australia
APNIC 44	Taichung	Taiwan
TWIGF	Taipei	Taiwan
HKNOG 5.0 ★	Hong Kong	Hong Kong
LACNIC 28	Montevideo	Uruguay
European Peering Forum	Lisbon	Portugal
Singapore International Cyber Week	Singapore	Singapore
Information and Communication Technology Disaster Response Conference 2017	Cebu	Philippines
Europol Cybercrime Conference	The Hague	Netherlands
DNS OARC 27 Workshop	San Jose	USA

OCTOBER

NANOG 71	San Jose	USA
ARIN 40	San Jose	USA
ITU World Telecommunication Development Conference (WTDC)	Buenos Aires	Argentina
Netnod Tech Meeting	Stockholm	Sweden
LKNOG ★	Colombo	Sri Lanka
RIPE 75	Dubai	UAE
Asia-Pacific Telecommunity Cybersecurity Forum	Dhaka	Bangladesh
India School of Internet Governance (inSIG)	Trivandrum	India
MYIX / MYNOG 6 ★	Kuala Lumpur	Malaysia
ICANN 60	Abu Dhabi	UAE

NOVEMBER

Asia Information Superhighway Steering Committee	Dhaka	Bangladesh
Peering Asia ★	Kyoto	Japan
NetHui 2017 ★	Auckland	New Zealand
IETF 100 ★	Singapore	Singapore
APCERT	New Delhi	India
Impact Investment Summit	Sydney	Australia
bdNOG 7 ★	Dhaka	Bangladesh
Asian Internet Engineering Conference (AINTEC) ★	Bangkok	Thailand
ThaiNOG	Bangkok	Thailand
IDNIC OPM and Indonesia Internet eXpo & Summit (IIXS)	Jakarta	Indonesia
Global Conference on Cyberspace (GCCS) 2017	New Delhi	India
AFRINIC 27	Lagos	Nigeria
Indonesia Internet Governance Forum (idIGF) ★	Jakarta	Indonesia
PhNOG Regional Conference 2017	Cebu	Philippines
Blockchain Summit	Sydney	Australia
Internet Week ★	Tokyo	Japan
CommuniCast 2017	Yangon	Myanmar
Vanuatu Regulatory Internet Forum	Port Vila	Vanuatu
RISE Conference ★	Phnom Penh	Cambodia
BICSI Japan Conference	Tokyo	Japan

DECEMBER

World Internet Conference - Wuzhen Summit	Wuzhen	China
PacNOG 21 ★	Nuku'alofa	Tonga
npNOG 3 ★	Chitwan	Nepal
Asia Pacific Economic Cooperation Telecommunications and Information Working Group (APEC TEL) 56	Bangkok	Thailand
CAIDA/MIT Workshop on Internet Economics	San Diego	USA
Internet Governance Forum (IGF) 2017	Geneva	Switzerland

APNIC

Helpdesk
Monday–Friday 09:00–21:00 (UTC +10)

Postal address
PO Box 3646
South Brisbane, QLD 4101,
Australia

Email
helpdesk@apnic.net

Phone
+61 7 3858 3188

SIP
helpdesk@voip.apnic.net

Skype
apnic-helpdesk

www.apnic.net

ABN 42 081 528 010