



# 2016

## **Annual Report**

addressing the Internet in the Asia Pacific



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## EXECUTIVE COUNCIL



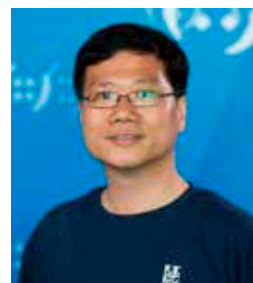
**Gaurab Raj Upadhaya, Chair**  
Director of Network Strategy and Interconnection,  
Limelight Networks (LLNW)



**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



**Kam Sze Yeung**  
Senior Manager, Network Architecture,  
Akamai Technologies



**James Spenceley, Treasurer**  
Director, MHOR Asset Management



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



**Kenny Huang**  
IP Committee Member, TWNIC  
and Board Member, Mind Extension Inc.



**Paul Wilson, Ex-officio**  
Director General, APNIC



## INTRODUCTION FROM THE DIRECTOR GENERAL

**2016: An outstanding year of collaborative, community effort towards a global, open, stable, and secure Internet that serves the entire Asia Pacific community.**

**Meeting Member expectations.** The APNIC 2016 Survey was completed in August, and sets our focus for 2017-18. However, it was great to see that APNIC's activities during the year were already well aligned with the survey's findings, including our focus on IPv6 deployment, Internet security, technical assistance and training.

**IPv6 surging in the Asia Pacific.** 2016 set new records in the number of delegations across IPv6, IPv4, ASNs and IPv4 transfers, however IPv6 growth was most outstanding. We processed 1,644 IPv6 delegations, more than twice as many as 2015, and over half of APNIC Members now have IPv6 addresses. Notable IPv6 deployments in 2016 included AIS Fibre in Thailand, FPT in Vietnam, Telstra in Australia, and India's Reliance Jio, which deployed a nationwide dual-stack LTE cellular network. According to APNIC Labs, Reliance Jio's network is now 74% IPv6 capable, and represents the largest single IPv6 footprint in the Asia Pacific region.

**Collaborating on security.** APNIC worked with CERTs, ICANN, FIRST and the ITU to provide workshops on security incident handling issues for engineers, government telecom regulators, and law enforcement agencies. Using our networks, we helped to bring global security experts to share their knowledge with the

community at many conferences and NOG meetings. We worked closely with the Tongan community on the successful creation of CERT.to, the first operational CERT in the Pacific Islands.

Personally, I was honoured to join the advisory board of the Global Forum on Cyber Expertise (GFCE) to contribute a numbers community perspective to global cybersecurity efforts by governments.

**Training 2,800+ students, with some help from friends.** Nine recognized Internet operational experts volunteered as APNIC Community Trainers in 2016, helping us to reach 1,934 training participants in 25 locations around the region (including the Marshall Islands and Federated States of Micronesia for the first time). An additional 883 trainees participated in 130 eLearning courses.

Other steps were taken to expand training services to keep up with demand. Working with the RIPE NCC, we developed a new online training delivery platform — the APNIC Academy — which will launch in early 2017. The APNIC Foundation was also officially incorporated in Hong Kong in September 2016, and will begin its search in 2017 for new resources to expand training and Internet development activity.

**Delivering consistent, high quality service to our Members.** The Secretariat successfully passed a full quality audit and upgrade to the new AS/NZS ISO 9001:2016 quality standard. We also made progress

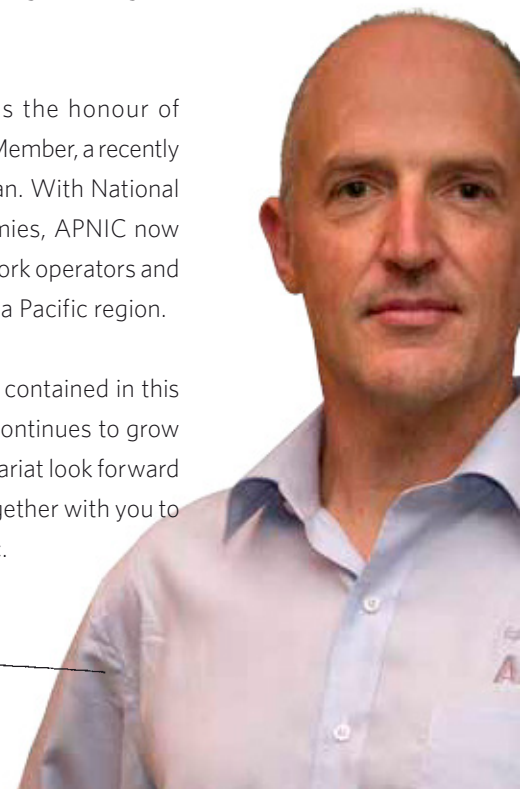
in preparing our information security management systems for an ISO 27001:2013 Information Security Standard audit in 2017.

**Successful transition of the IANA function.** This historic milestone in September 2016 would not have been achieved without a huge contribution from the Asia Pacific community. With the transition now complete, the APNIC Secretariat and community is able to focus on building the Internet with greater certainty about its role into the future; let me join the APNIC EC Chair in once more congratulating the community on this effort.

Finally, and a 2016 highlight, was the honour of welcoming APNIC's 6,000th direct Member, a recently established start-up ISP from Bhutan. With National Internet Registries in seven economies, APNIC now serves more than 13,000 ISPs, network operators and other Internet businesses in the Asia Pacific region.

More detail on 2016's activities are contained in this report. As the APNIC community continues to grow in 2017, I and everyone at the Secretariat look forward to another exciting year working together with you to build the Internet in the Asia Pacific.

Paul Wilson  
Director General





## MESSAGE FROM THE EC CHAIR

I am happy to provide you with my review on the previous year and thoughts on the coming year as the Chair of the APNIC EC.

This is my first time writing this message as Chair, and at the start, I'd like to thank my predecessor Maemura Akinori for his excellent leadership in the last decade. I think I have big shoes to fill. Also, I'd like to thank the other EC members who stepped down at APRICOT 2016 - Che-Hoo Cheng and Ma Yan, and welcome the newly elected members - Kam Sze Yeung, Rajesh Chharia, and R.S. Perhar.

In 2016, we had some very important activities both global and internal to APNIC. First and foremost, the long running IANA Stewardship Transition process came to a logical conclusion. At APNIC 42 we adopted the Colombo Declaration on the IANA Stewardship Transition, and committed that the APNIC community will continue to be a good overseer of these critical functions in the future. Thanks to all who were very involved in this effort, especially the members of the CRISP Team.

2016 also brought us the APNIC Survey. The survey is conducted every two years and provides the EC with guidance on the priorities we set for APNIC in the future years. Last year, we engaged a professional

survey company which has prior experience working with non-profit and member-driven organizations. The survey report provided concrete direction for continued support to IPv6, training and sharing of best practices.

One of the things we've noticed over the years, and confirmed by the survey, is the weak participation in the policy development process. With the waning of IPv4, the number of policies proposed are on the decline, but at the same time, newer issues around identity, whois accuracy, security and so on continue to crop up. I hope during this year, we'll see wider engagement in the policy making process from all in the community.

In 2016, the first recipient of the APNIC Internet Operations Research Grants was announced. The purpose of this grant is to encourage and facilitate operational research related to the Internet. This program ties very well with the long running ISIF Asia grants program and the wider APNIC development program.

To continue facilitating, and to expand the scope of APNIC's development initiatives, the APNIC EC decided to formalize the creation of the APNIC Foundation. The foundation will play an important role in the future

funding of APNIC's development services to meet the increasing demand for training, infrastructure support, and technical assistance.

As you'll see in this annual report, APNIC continues to be active and strong. It's active within the region and outside, with NOGs, industry organizations and governments, and in both technical and non-technical communities. It continues to have strong financials. I hope you'll have time to go through the report.

I hope to meet you at APNIC events or at events around the world, and will always have an open ear for ways that APNIC can serve its Members better.

Gaurab Raj Upadhaya





## VISION

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

## MISSION

APNIC...

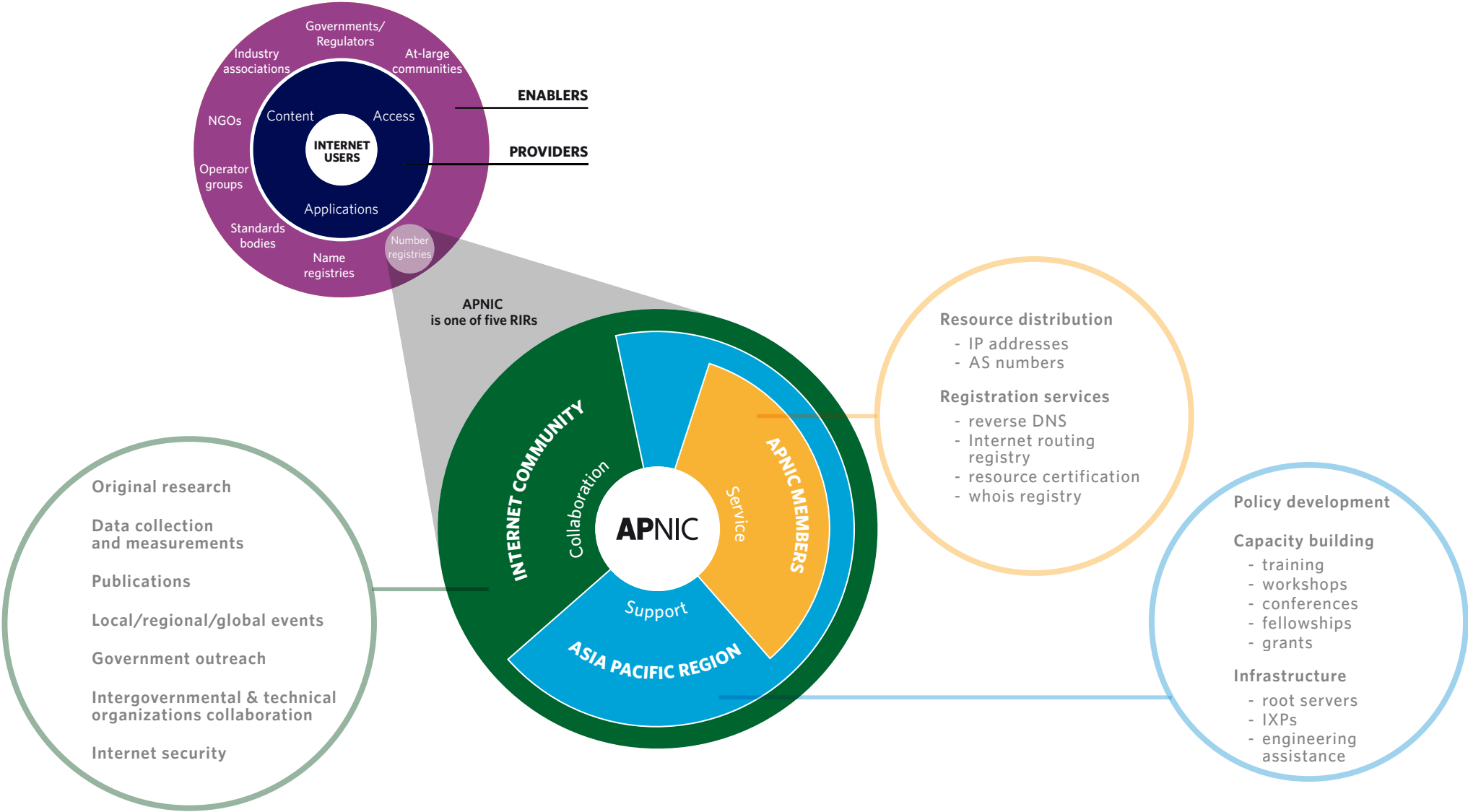
- **Functions** as the Regional Internet Registry for the Asia Pacific, in the service of the community of Members and others
- **Provides** Internet registry services to the highest possible standards of trust, neutrality and accuracy
- **Provides** information, training and supporting services to assist 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 in the Internet ecosystem





# Structure of this document

APNIC categorizes its activities under four main areas. This document is structured according to these areas, and the activities underneath them, as follows:



## SERVING MEMBERS

### ● REGISTRATION SERVICES

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

### ● CUSTOMER SERVICE

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

### ● TECHNICAL INFRASTRUCTURE

*The operation and maintenance of the technical infrastructure underpinning APNIC and its services, including networks, data centres, applications and licensing.*

### ● MEMBER TRAINING

*APNIC's technical training and technical assistance services provided throughout the region.*



## REGIONAL DEVELOPMENT & OUTREACH

### ● APNIC CONFERENCES

*Arranging the APRICOT and stand-alone APNIC conference each year.*

### ● REGIONAL TECHNICAL DEVELOPMENT

*Support for the Policy Development Process, infrastructure development in the region, NOGs, 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, the IETF and ISOC, 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 programs, and presenting research 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, GOVERNANCE & FACILITIES

*Activity related to legal matters, APNIC's compliance with workplace health and safety, and maintaining APNIC's office facilities.*

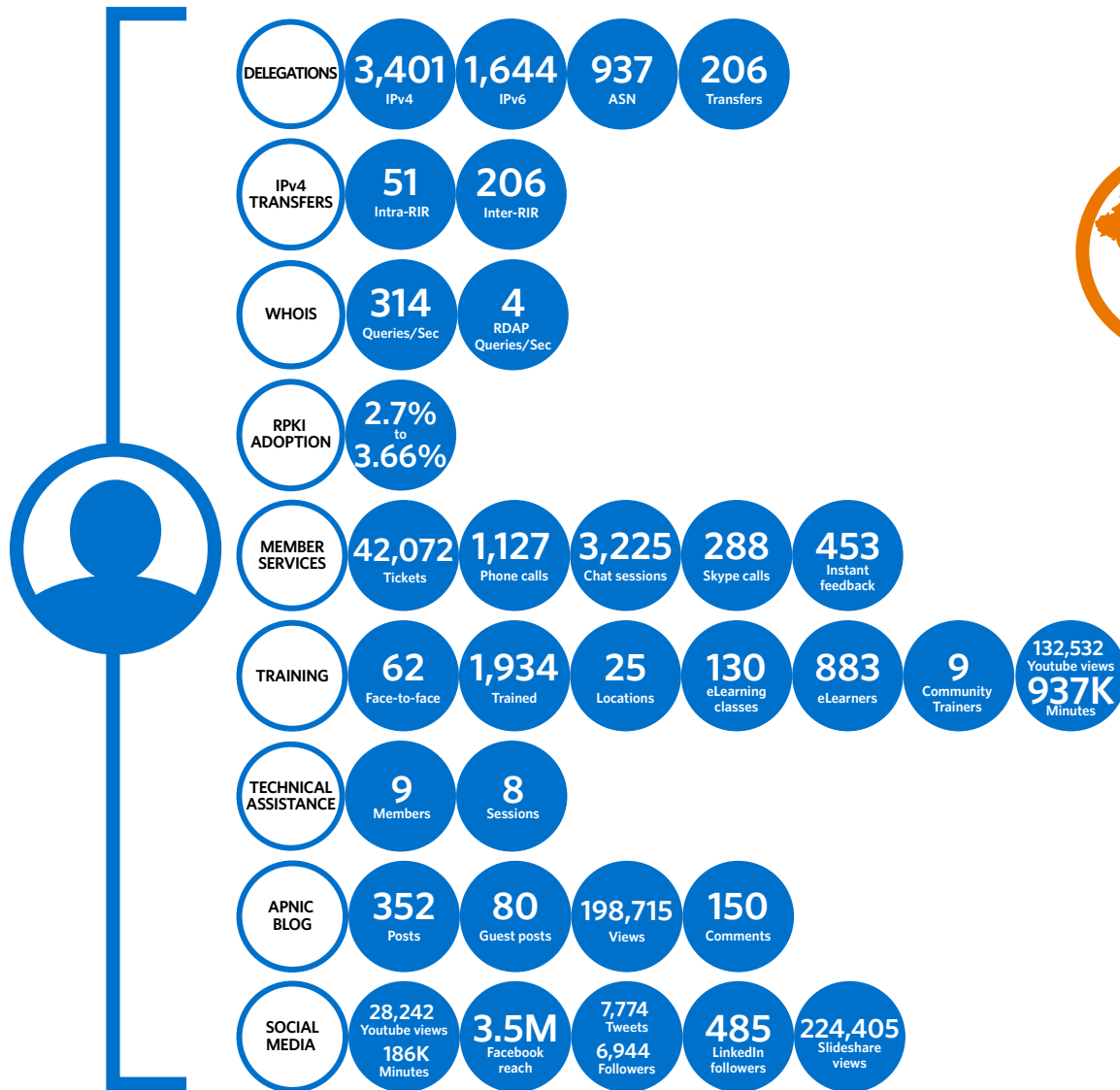
In each section, APNIC's planned work is listed under 'Core Activities' and 'Projects'. 'Core Activities' includes ongoing work that APNIC does each year to meet its objectives; 'Projects' are short-term pieces of work with definitive start and end times (most being completed within one to two years).

At the start of each of the four sections, the link to APNIC's Four-Year Strategic Direction is summarized with high-level strategies to meet each of the goals.





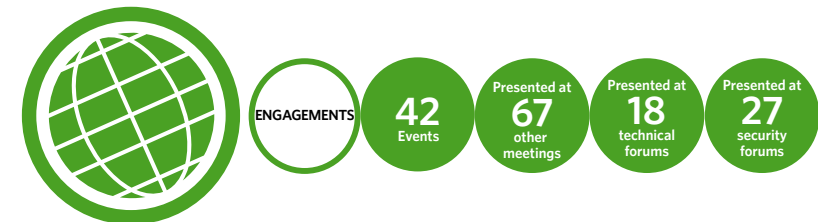
## SERVING MEMBERS



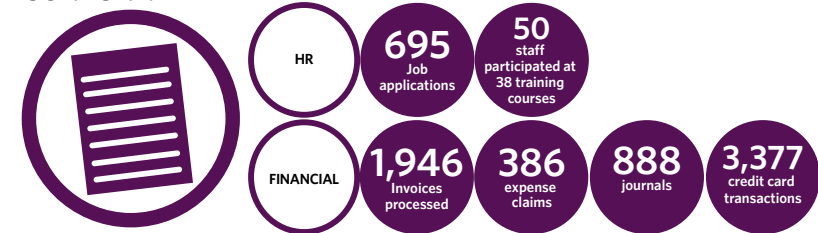
## REGIONAL DEVELOPMENT



## GLOBAL COOPERATION

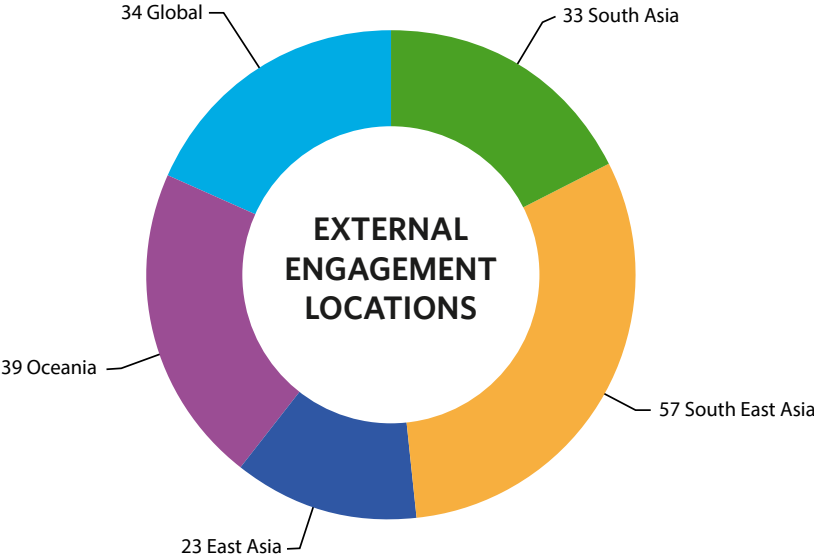
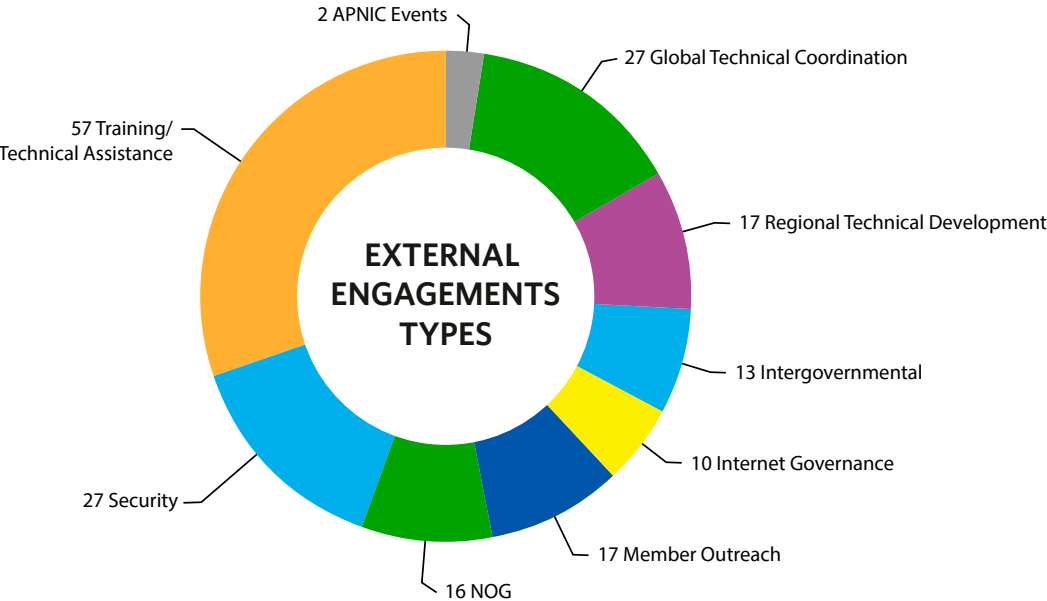


## CORPORATE





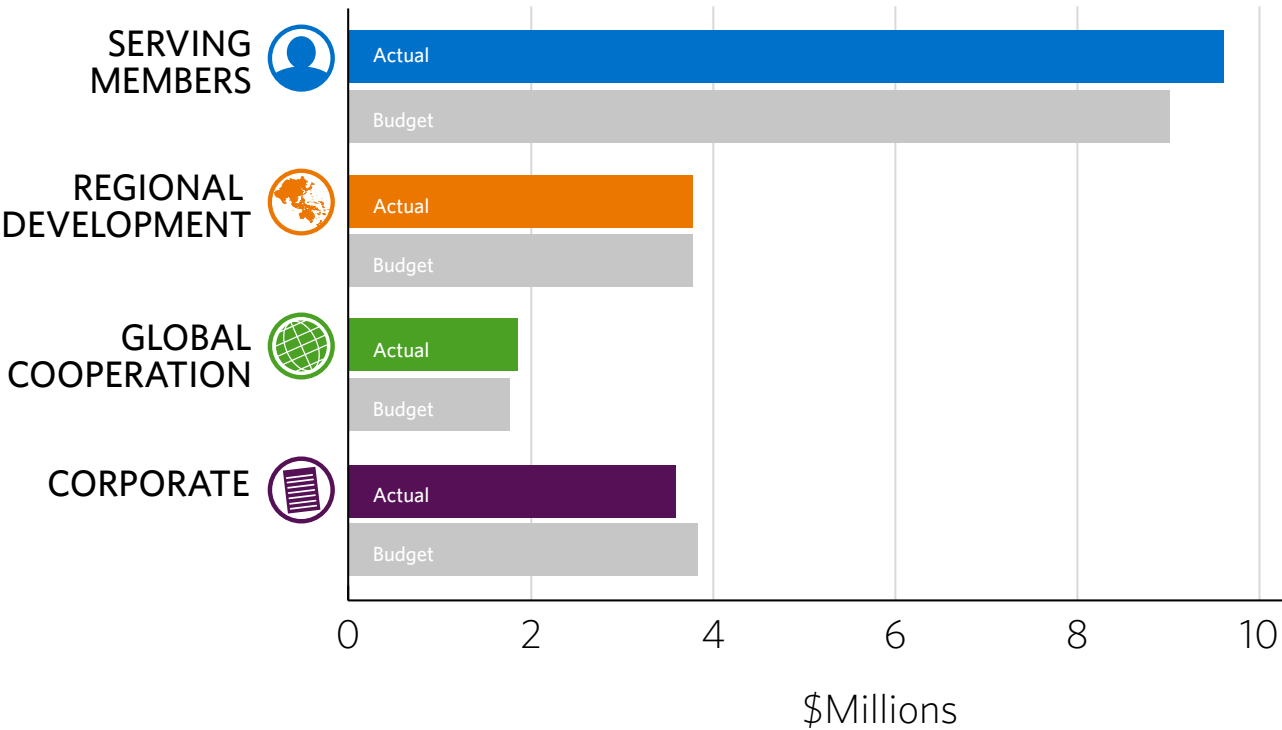
EXTERNAL ENGAGEMENT





# Financial performance

## EXPENSES BY ACTIVITY



A detailed breakdown of the 2016 financial performance is available on [Page 55](#).

A table details the resources (financial and human) needed to successfully complete each activity and project in each section. The total cost of those activities and projects are summarized in a table at the beginning of each section.

|            | Budget      | Actual      |
|------------|-------------|-------------|
| 1 FTE      | 43.4        | 44.2        |
| 2 Expenses | \$9,049,183 | \$8,923,304 |
| 3 CAPEX    | \$1,486,884 | \$697,384   |

- 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.
- 2 **Expenses:** Refers to all operational costs directly incurred by the activity (in AUD).
- 3 **CAPEX:** Refers to capital expenditure (for equipment, hardware, software, property etc) required by the activity (in AUD).



## SERVING MEMBERS

### GOALS

#### 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

### STRATEGIES

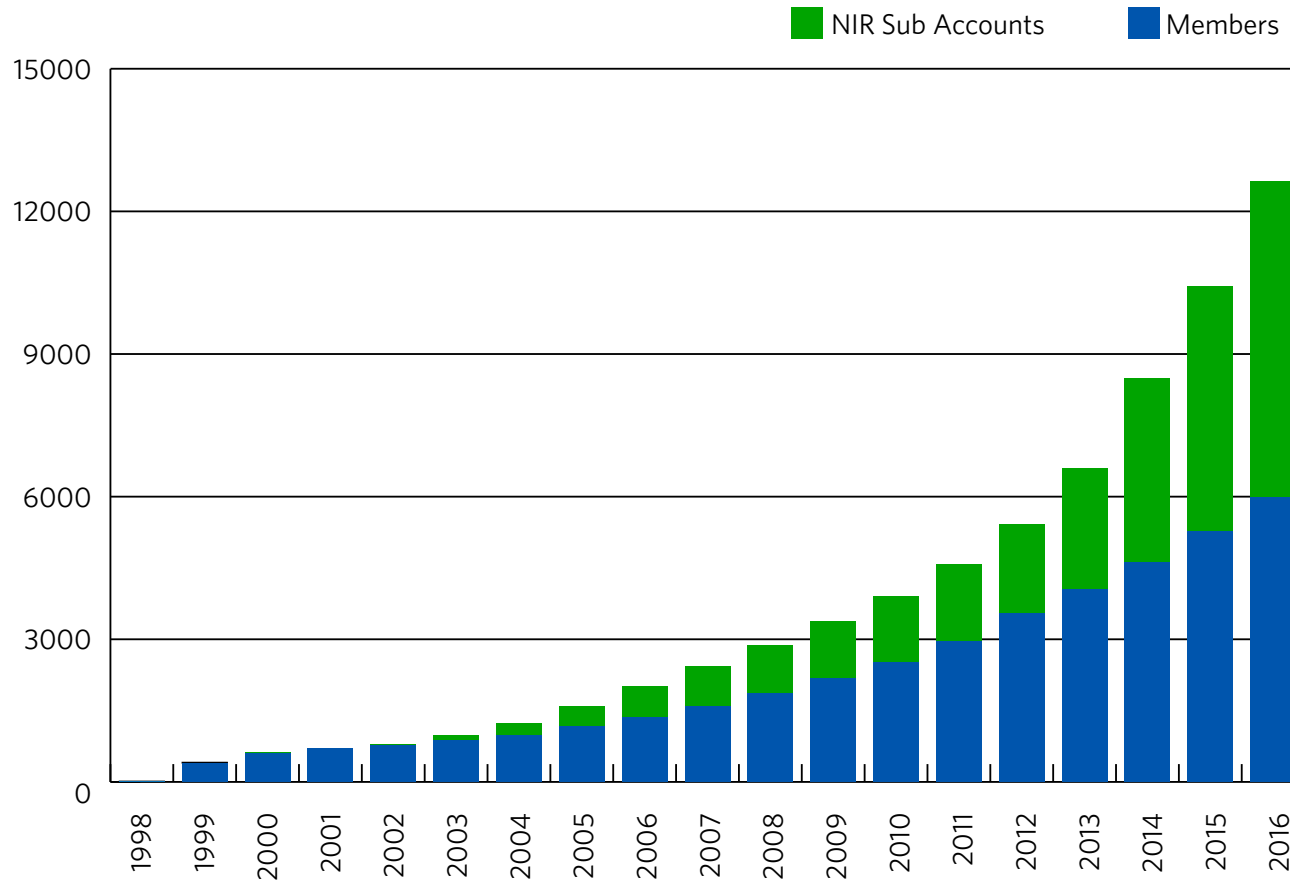
- Develop services in response to Member needs
- Develop and maintain service delivery systems that are easy to use and use the latest technologies
- Ensure Members are aware of the need, and able to deploy IPv6, RPKI and DNSSEC
- Understand Members' skill development needs and respond with appropriate training service
- Encourage interconnection among Members to strengthen Internet infrastructure
- Encourage Members to actively participate in the APNIC policy development process
- Encourage Members to engage in relevant Internet governance discussions
- Responsive adjustments of APNIC fees, balancing sustainability and affordability
- Prioritize budget allocations to registry and Member service activities

### Serving Members - Summary

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 43.4        | 44.2        |
| Expenses | \$9,049,183 | \$8,923,304 |
| CAPEX    | \$1,486,884 | \$697,384   |



## Membership growth



At the end of 2016, APNIC direct membership stood at 5,994, an increase of 14% on 2015. NIR sub account growth was 28% in 2016, lifting the number of NIR sub accounts to 6,630.

Total combined membership was 12,624.

# Registration services

## CORE ACTIVITIES:

### IPv4, IPv6 and ASN management

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

A record number of number resource delegations were made by APNIC in 2016: 1,644 IPv6 delegations, 3,401 IPv4 delegations, and 937 AS number assignments. It also processed 206 IPv4 address transfers within the Asia Pacific region and 51 transfers between APNIC and other RIR regions.

For a detailed breakdown of Internet number resource distribution in 2016, please refer to the charts on page 15.

### Registry services development and maintenance

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

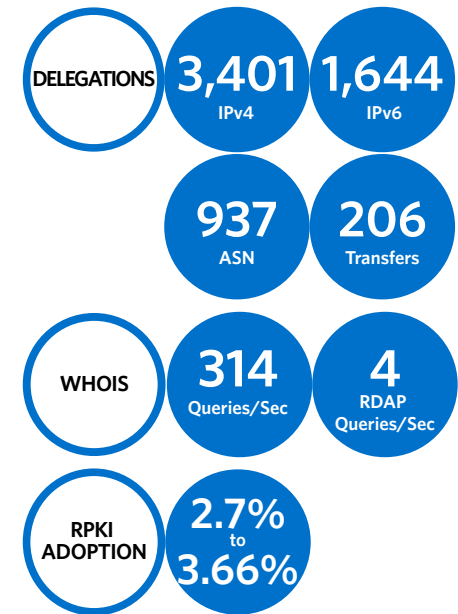
During 2016, the APNIC Whois Database answered 9,929,433,914 conventional 'port 43' queries (an average of 314 per second), and 126,489,604 RDAP queries (an average of 4 per second).

[www.apnic.net/whois](http://www.apnic.net/whois)

[www.apnic.net/rdap](http://www.apnic.net/rdap)

Resource Certification adoption rates in the Asia Pacific have steadily improved in the past year from 2.7% to 3.66%.

[www.apnic.net/roa](http://www.apnic.net/roa)

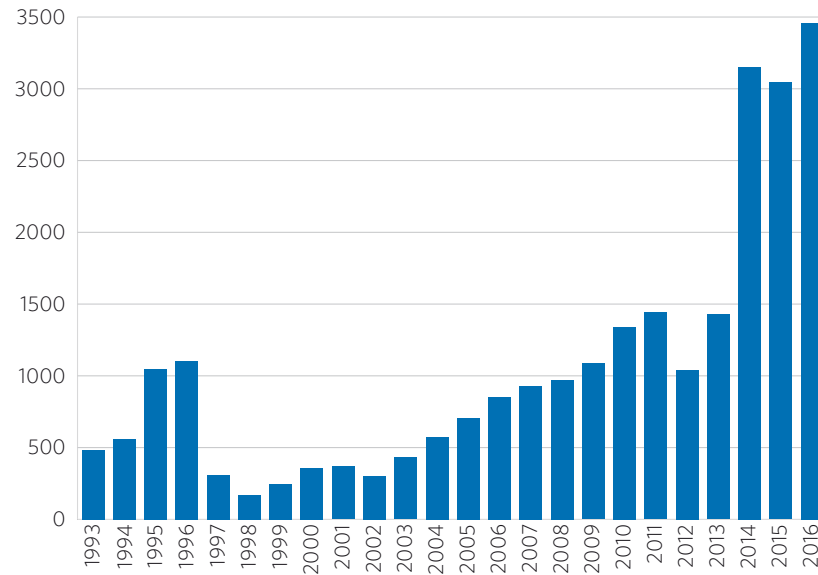


### Registration services

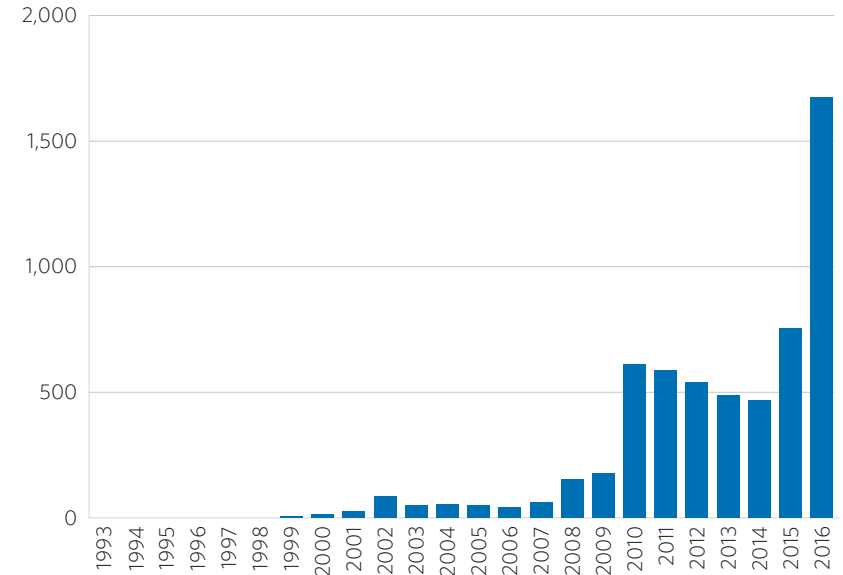
|          | Budget      | Actual    |
|----------|-------------|-----------|
| FTE      | 9.3         | 8.2       |
| Expenses | \$1,611,264 | 1,449,589 |
| CAPEX    | \$6,000     | \$6,072   |



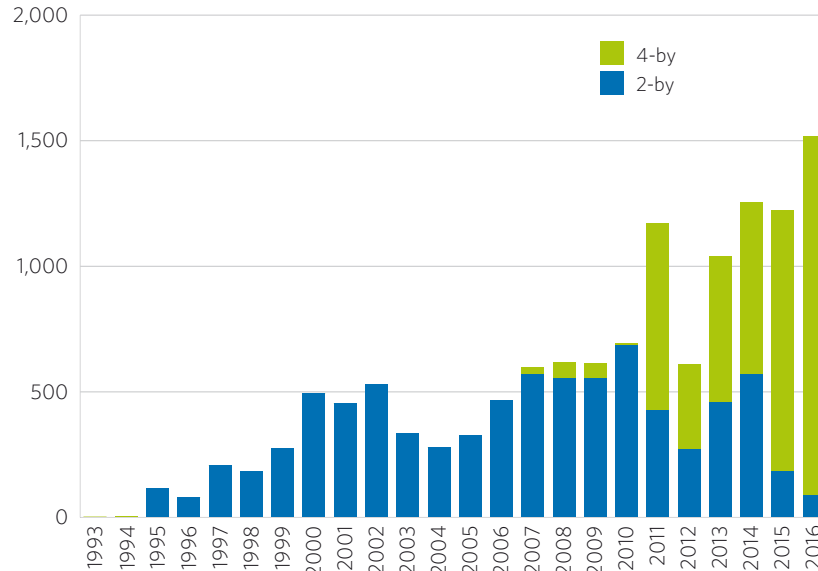
### IPv4 DELEGATIONS



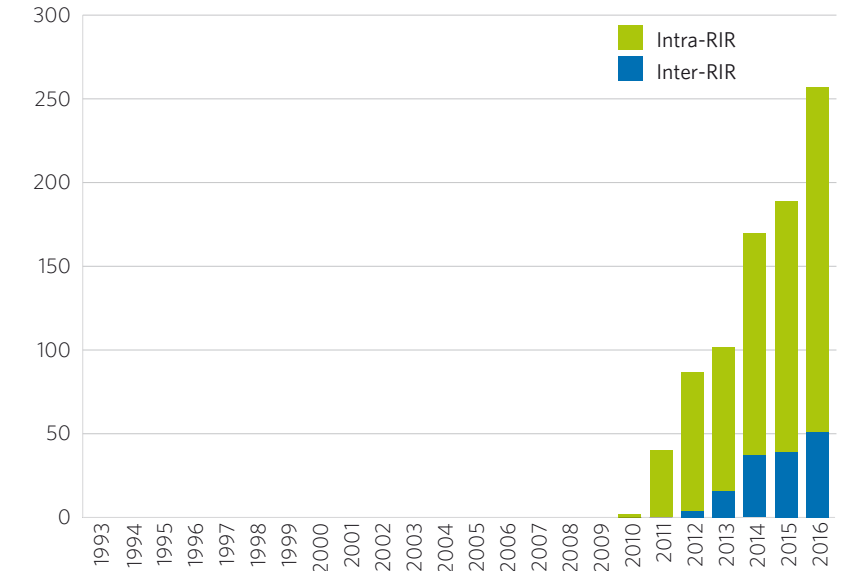
### IPv6 DELEGATIONS



### ASN DELEGATIONS



### IPv4 MARKET TRANSFERS



# Registration services

## KEY 2016 PROJECTS:

### Registry System development

In 2016, APNIC continued to strengthen its core registry system by separating it into front-end clients and a registry back-end service.

The new registry back-end service was written using an event-sourcing approach: this allows for greater confidence in the auditability and quality of the registry data by storing transaction information in an event store.

Client-side ARMS and MyAPNIC Perl code was also updated to interface to this registry back-end service instead of the Perl libraries, which accessed the database directly.

The project continues in 2017, with further integration work, and the final migration from a traditional database to an event store, realising the advantages mentioned earlier around auditability and data quality.

### Whois data quality improvement

During 2016, APNIC Services staff held information sessions at APNIC conferences, NOG events, and Member gatherings to encourage Members to maintain valid contact information in the APNIC Whois Database. Three hundred Members worked with APNIC staff to update whois details as a result.

A new 'search and replace' tool for whois bulk updates was introduced in 2016 to help Members keep multiple records current.

#### 2016 Planned Project

#### Member Benefit

#### 2016 Achievements

**Strengthen core registry system by separating it into front-end and back-end services while also migrating it to a more maintainable code base**

Improved reporting and auditability of registry changes

Legacy code replaced with new 'pool service' code; completed initial integration

**Improve the quality of contact information in the whois database and identify invalid customer assignments**

Improved whois data quality and easier and faster management of Members' whois records

Whois details updated for 300 Members; new tool for whois bulk updates



# Registration services

## KEY 2016 PROJECTS:

### Adding historical information to whois service

Providing a public record of previous whois objects related to APNIC resources (a 'whowas' service) allows Members to access authoritative information about the historical state of the registry.

In 2016, APNIC created an API that provides RDAP responses to historical whois queries, and it was deployed alongside the regular RDAP service. An enhanced user interface is planned for release in mid-2017.

[www.apnic.net/whowas](http://www.apnic.net/whowas)

### IPv4 waiting list

In June 2016, APNIC approved its first request for addresses from the IPv4 Recovered Pool that could not be immediately met. This triggered the IPv4 Recovered Pool waiting list.

The waiting list tracks approved resource requests from the IPv4 Recovered Pool (not 103/8) that APNIC cannot fulfil due to lack of addresses in the pool. These requests are automatically added to the waiting list, in order of the date and time received by APNIC. When additional recovered address space is added to the Recovered Pool, requests on the waiting list are fulfilled, from the oldest request to the newest.

| 2016 Planned Project  | Member Benefit  | 2016 Achievements  |
|---|---|--|
| <b>Adding historical whois information to provide a public record of previous whois objects</b> | Access to publicly available authoritative information about the historical state of the registry | Created API that provides RDAP responses to historical whois queries |

|   |   |  |
|---|---|--|
| <b>Unplanned project: IPv4 waiting list</b> | Fair and orderly access to recovered IPv4 address space for qualified Members | Time-stamped public waiting list of approved requests for recovered IPv4 addresses |
|---|---|--|



# Customer service

## CORE ACTIVITIES:

### 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.*

In 2016, the Member Services team handled 42,072 'tickets' created by Member enquiries, 1,127 phone calls, and 3,225 online chat sessions. Services staff attended 18 events across 14 economies to provide hostmaster support and assist Members with number resource management queries.



### Membership outreach

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

In 2016, APNIC services staff presented at 22 events across the region to share information with Members on topics including resource allocation, transfers, route management, resource certification and whois.

To provide network operators with the latest service updates and answer questions on APNIC Membership, Member gathering events were held at:

- SANOG 27, Nepal
- SANOG 28, India
- PHNOG, Philippines
- BKNIX Peering Forum, Thailand
- Communicasia, Singapore
- Communicast, Myanmar

### Customer service

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 13.8        | 17.3        |
| Expenses | \$2,904,402 | \$3,462,292 |
| CAPEX    | \$247,800   | \$36,950    |

# Customer service

## CORE ACTIVITIES:

### MyAPNIC development and maintenance

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

During 2016, an average of 1,410 Members accessed MyAPNIC each month. Members made 4,667 updates to contact details via MyAPNIC during the year. Following on from the first MyAPNIC user survey conducted in 2015, APNIC implemented a range of improvements to MyAPNIC in 2016. These are detailed in the projects section.

### Quality management

*APNIC is an ISO 9001 Quality Management System certified organization. This ensures we deliver a high quality and consistent service to our Members.*

APNIC has successfully maintained its accreditation for its Quality Management System to the ISO 9001:2008 standard since 2013. In 2016, APNIC participated in a full quality audit to successfully achieve accreditation for the new standard AS/NZS ISO 9001:2016.



# Customer service

## KEY 2016 PROJECTS:

### MyAPNIC improvements

Based on Member feedback from the 2015 MyAPNIC Survey, APNIC implemented several changes in 2016 to improve the MyAPNIC user experience, including:

- Improvement of whois and billing management features
- Integrated route and ROA management features
- Single view of IPv4 and IPv6 reverse DNS management
- Improved authorization checks for Corporate Contact appointment and bulk contact update features

[www.apnic.net/myapnic](http://www.apnic.net/myapnic)

### Website improvements

In 2016, APNIC's website improvements included:

- A simplified design to align with the updated Homepage design
- Refreshing the entire IPv6 section, including integration of relevant regional statistics/resources and APNIC Labs data
- Revised and updated content (with removal of duplicate and outdated information)
- Creation of a new statistics portal to provide dynamic charting of registration data

A new website Content Management System (CMS) was selected in 2016 to provide a more flexible and cost-effective platform. Migration to the new Wordpress CMS has been completed.

[www.apnic.net](http://www.apnic.net)

[www.apnic.net/ipv6](http://www.apnic.net/ipv6)

### 2016 Planned Project

### Member Benefit

### 2016 Achievements

|  |   |   |
|--|---|---|
| <b>Implementation of improvements based on the 2015 MyAPNIC user survey</b>                                    | Access to simple resource and contact management features, with streamlined updates | New features implemented for RDNS, whois, ROA and route management, and billing |
| <b>Updating the IPv6 and community web pages and upgrading APNIC's website Content Management System (CMS)</b> | Easier to find information and improved user experience on the APNIC website        | New statistics portal, refreshed IPv6 pages and CMS migration complete          |

# Customer service

## KEY 2016 PROJECTS:

### Implement a new Customer Relationship Management (CRM) system

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

In 2016, APNIC evaluated and selected a CRM platform, with the mailing system component implemented. Data modelling and workflow processes are under development to begin the main CRM implementation in 2017.

### Resource Management Process improvement

To streamline resource transfers, account reactivations, and terminated IPv4 space due to account closures, APNIC has improved its internal resource management system processes and increased automation.

Also implemented in 2016 were:

- A new merger and acquisition transfer form
- An improved procedure for faster account reactivation
- An automated resource quality assurance check for terminated IPv4 space (before redistribution)

#### 2016 Planned Project

#### Member Benefit

#### 2016 Achievements

|                                       |   |  |
|---------------------------------------|---|--|
| <b>Work to implement a CRM system</b> | Improved customer service experience and improved communications with APNIC community | Platform selected; mailing list component implemented; data modelling and workflow process under development |
|---------------------------------------|---|--|

|  |   |                                    |
|--|---|------------------------------------|
| <b>Improving resource management system processes to better handle resource transfers, account reactivations and terminated IPv4 space</b> | Improved services efficiency and better Member experience | Internal process improvements made |
|--|---|------------------------------------|

# Customer service

## KEY 2016 PROJECTS :

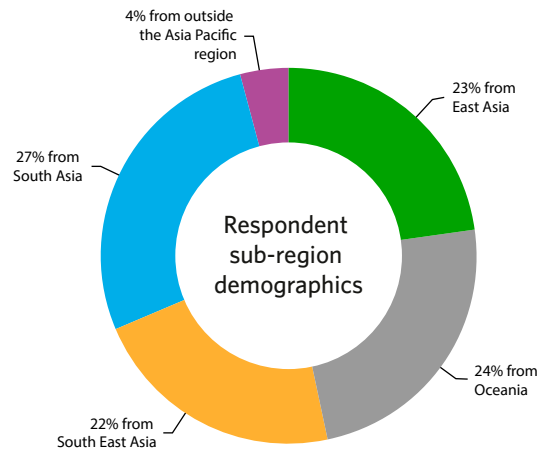
### APNIC Survey 2016

The APNIC Survey 2016 received 1,175 valid responses, 68% of which were from APNIC Account Holders and 32% of which were from NIR members and other stakeholders. Ninety-six per cent of responses were from the APNIC region.

The Survey followed 16 Focus Group discussions held in 11 economies in the region.

The Survey found that satisfaction with APNIC's overall service provision was high, with 92% of respondents rating service quality and 90% rating the value provided by APNIC services positively. The survey feedback provided vital input into the development of APNIC's 2017 Activity Plan and Budget. APNIC encourages the community to read the full survey report available on the APNIC website.

[www.apnic.net/survey](http://www.apnic.net/survey)



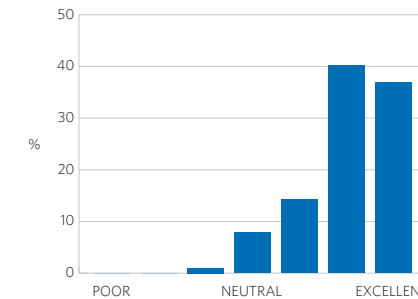
### 2016 Planned Project

### Member Benefit

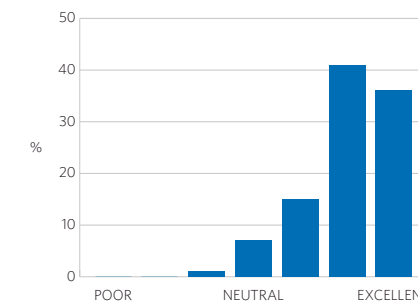
### 2016 Achievements

|  |   |   |
|--|---|---|
| <b>Undertake the APNIC Survey 2016</b> | APNIC Secretariat activities align with Members' and stakeholders' feedback | 1,175 valid responses received, with overall satisfaction rating highly |
|--|---|---|

### VALUE OF SERVICES



### QUALITY OF SERVICES DELIVERY



# Technical infrastructure

## CORE ACTIVITIES:

### Maintenance of APNIC systems and online services

*APNIC operates its main technical infrastructure from two independent data centres in Brisbane in full redundancy mode, ensuring high availability. APNIC also has co-location facilities in Hong Kong and Japan.*

Key performance metrics for APNIC's core technical infrastructure are below. In addition, the following activities were completed as part of APNIC's ongoing maintenance of its technical infrastructure in 2016:

- Reconfigured hardware at data centres to ensure full redundancy
- Deployed Cloudflare to improve user access speeds and DDoS mitigation for [www.apnic.net](http://www.apnic.net) and [blog.apnic.net](http://blog.apnic.net)
- Completed an external network infrastructure architecture review including penetration testing
- Added external network monitoring from US, UK and Japan

| Core system uptime   |          |
|----------------------|----------|
| FTP                  | 99.9995% |
| MyAPNIC              | 99.998%  |
| RDNS                 | 100%     |
| RDNS DNSSEC Validity | 99.61%   |
| Whois                | 99.997%  |
| RPKI                 | 99.9995% |
| RDAP                 | 99.9995% |

| Average query rates (per second) |       |
|----------------------------------|-------|
| Whois                            | 314   |
| RDAP                             | 4     |
| RDNS                             | 21000 |
| RPKI                             | 15    |
| FTP                              | 3     |
| MyAPNIC                          | 1     |

| Average data centre bandwidth usage |          |
|-------------------------------------|----------|
| AU In                               | 40 Mbps  |
| AU Out                              | 130 Mbps |
| JP In                               | 20 Mbps  |
| JP Out                              | 75 Mbps  |
| HK In                               | 10 Mbps  |
| HK Out                              | 30 Mbps  |

Larger technical infrastructure projects undertaken in 2016 are detailed in the following pages.

## Technical infrastructure

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 14.3        | 12.9        |
| Expenses | \$3,406,335 | \$2,890,389 |
| CAPEX    | \$1,159,084 | \$515,579   |

# Technical infrastructure

## KEY 2016 PROJECTS:

### Whois version update

APNIC upgraded its whois deployment to the latest version, in sync with the RIPE NCC's code release, to maintain stability. Query-side changes were completed in 2016 with a query node running the new code deployed into production. Further changes required for business rule validation have been documented and are scheduled for completion in Q1 2017.

### RPKI version update

*This project aims to deploy the Delta protocol distribution mechanism to the APNIC Member RPKI repository to increase performance and reduce potential operational risks and costs for the RPKI registry service.*

This activity was deferred to 2017.

### Remote infrastructure maintenance and improvement

*APNIC plans to update network equipment at its remote infrastructure sites, virtualize existing services and implement anycast for increased rDNS service reliability.*

Due to high upgrade costs for APNIC's remote infrastructure sites in Hong Kong and Japan, the project was delayed until 2017 to allow time for alternative deployment strategies to be evaluated.

To remove one dependency, the DNS distribution server was migrated to APNIC's Brisbane data centres in 2016.

| 2016 Planned Project  | Member Benefit   | 2016 Achievements  |
|---|--|--|
| <b>Upgrading the whois system to the latest version in sync with RIPE NCC's code releases</b>   | Stable and updated whois service   | Whois query-side changes complete, and query node running the new code |
| <b>Deploying the Delta protocol distribution mechanism for the APNIC Member RPKI repository</b> | Increased performance distribution mechanism for RPKI data; reduced operational risk and potential operational costs of RPKI service; global alignment with other RIRs | Activity deferred to Q4 2017   |
| <b>Upgrading APNIC remote infrastructure site in Hong Kong and Japan</b>                        | Enhanced reliability and performance of the rDNS service   | Deployment delayed until alternative strategies (cloud) evaluated      |



# Technical infrastructure

## KEY 2016 PROJECTS :

### Adoption of the 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.*

In 2016, project progress included:

- Completion of an independent external cybersecurity audit and gap analysis
- Identification and documentation of required policies, procedures and practices to address gap analysis and risks
- Increased staff awareness regarding the purpose and requirements of the security standard within APNIC

APNIC expects to be prepared for audit in 2017.

### Data backup and retention management

*APNIC's data backup and retention plan aims to provide higher availability and integrity of important APNIC data.*

In 2016, APNIC procured, installed and configured an archival server and created a tool for automated management of the archive server and agents. A backup system (Bareos) was chosen and installed to collect, compress, de-duplicate, store and retrieve archived data.

| 2016 Planned Project  | Member Benefit  | 2016 Achievements   |
|---|---|---|
| <b>Adoption of the ISO 27001:2013 Information Security Standard</b> | Assurance that APNIC's information security is in line with international standards | Independent external cybersecurity audit conducted. Project scheduled for 2017 completion |

|  |   |  |
|--|---|--|
| <b>Roll out second phase of data backup project that began in 2015</b> | High availability and integrity of important APNIC data; long-term retention and easier retrieval of archived information | Selected archiving system vendor; server installed |
|--|---|--|



# Member training

## CORE ACTIVITIES:

### Training services

*APNIC supports Internet growth and development in the Asia Pacific region by providing training and education services. The training program builds the capacity of the APNIC community in Internet number resource management and best practices in network operations.*

In 2016, APNIC held 62 face-to-face training sessions in 25 locations around the region, training 1,934 participants. An additional 883 trainees participated in 130 eLearning courses delivered by APNIC. Further details on specific training projects follow in this section.

[training.apnic.net](http://training.apnic.net)

### Technical assistance

*APNIC responds 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 2016, APNIC provided technical assistance to nine Members in Indonesia, Fiji, New Caledonia, Bangladesh and Timor-Leste. Advice and assistance covered RPKI and RPSL deployment, IPv6 address planning, IXP operation and OSS deployment, and several community-driven DDoS mitigation techniques.

[www.apnic.net/tas](http://www.apnic.net/tas)



### Member training

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 6.0         | 5.8         |
| Expenses | \$1,127,182 | \$1,121,034 |
| CAPEX    | \$74,000    | \$138,783   |

# Member training

## KEY PROJECTS

### Training curriculum improvements

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

In 2016, Internet Resource Management (IRM), Internet Routing Registry (IRR), and network security courses were updated, with new hands-on exercises on RPKI and community-driven DDoS mitigation tools included. MPLS technical materials were redesigned with additional hands-on exercises, and a new tutorial and eLearning course on Software Defined Networking (SDN) and Network Function Virtualization (NFV) were introduced.

### Community trainer network

*Community trainers are volunteer 'country champion' Internet engineers who provide training alongside APNIC trainers and help address local operational issues.*

Nine recognized Internet operational experts from Bangladesh, Cambodia, Pakistan, India, Indonesia, Vanuatu and New Zealand have volunteered as APNIC Community Trainers. Community trainers supported 12 training sessions in six economies during 2016.

| 2016 Planned Project | Member Benefit | 2016 Achievements |
|----------------------|----------------|-------------------|
|----------------------|----------------|-------------------|

|   |  |   |
|---|--|---|
| <b>Improvement of the APNIC Training curricula and management of training</b> | High quality Internet operations training that is up to date and regularly peer reviewed | Updated IRM, IRR, network security and MPLS materials. Introduced new SDN and NFV tutorial and eLearning course |
|---|--|---|

|   |   |  |
|---|---|--|
| <b>Continue developing a network of technical trainers by adding community-based support trainers who are recognized experts in their economies</b> | High quality technical training for Members using local expertise and knowledge | Nine community trainers supported APNIC training |
|---|---|--|



# Member training

## KEY PROJECTS

### 'APNIC Academy' online platform

Working with the RIPE NCC, APNIC is building an online platform (APNIC Academy) delivering self-paced eLearning modules, examinations, and certification for APNIC training courses. Security and IRM courses were developed in 2016 for the launch of the APNIC Academy platform in 2017.

### Joint training with the ITU

*APNIC continued its collaboration with the ITU on IPv6 and network security capacity development in Asia Pacific developing economies.*

Alongside the ITU's Asia Pacific Centre of Excellence, APNIC delivered an Internet and IPv6 Infrastructure Security workshop in Bangkok, Thailand, to 42 participants from 10 economies in May 2016. The partnership with the ITU also included providing technical advice on IPv6 in Cambodia as part of an ITU Direct Country Assistance project, and an IXP training workshop in Timor-Leste.

| 2016 Planned Project  | Member Benefit                               | 2016 Achievements   |
|---|--|---|
| <b>Develop an online training delivery platform that includes self-paced eLearning modules, examinations and certification for APNIC training courses</b> | Globally-accessible online learning platform | Security and IRM courses developed for APNIC Academy launch in 2017 |

|  |   |  |
|--|---|--|
| <b>Continued collaboration with the ITU on IPv6 and network security capacity development in Asia Pacific developing economies</b> | Increased training opportunities on IPv6 and network security | Successfully held IPv6 security training with the ITU in Bangkok |
|--|---|--|



## REGIONAL DEVELOPMENT & OUTREACH

### GOALS

#### DELIVER ADVANCED NUMBER REGISTRY AND MEMBER INFORMATION SERVICES

- Gather and disseminate information relevant to APNIC's role and activities

#### STRENGTHEN CORE TECHNICAL FOCUS (SUCH AS IPv6, RPKI AND DNSSEC) AND ENGAGE COMMUNITY TO ADVANCE ADOPTION AND DEPLOYMENT

- Support existing and new NOGs as a channel for network information and knowledge exchange
- Support specific national/regional IPv6, RPKI and DNSSEC adoption and deployment as appropriate

#### SUSTAINABLY SUPPORT INTERNET INFRASTRUCTURE IN THE ASIA PACIFIC AND HUMAN CAPACITY DEVELOPMENT

- Implement cost-effective mechanisms to support development activities
- Engage the donor community in building a robust technical infrastructure in the region

#### ENGAGE THE APNIC COMMUNITY TO STRENGTHEN THE OPEN, MULTISTAKEHOLDER, BOTTOM UP POLICY DEVELOPMENT PROCESSES AND INTERNET GOVERNANCE MODEL

- Facilitate development and implementation of Internet number and related policies in the region
- Encourage wide, multistakeholder participation at APNIC events

#### MAINTAIN A STRONG ORGANIZATION TO CARRY OUT APNIC'S MISSION

- Attract other sources of development funds and resources
- Establish the APNIC Foundation to provide structural separation, sustainability and scalability of development activities

### STRATEGIES

### Regional development and outreach - Summary

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 13.7        | 14.7        |
| Expenses | \$3,586,863 | \$3,763,697 |
| CAPEX    | \$203,000   | \$21,181    |

## APNIC conferences

### CORE ACTIVITIES:

#### 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 organized APRICOT 2016 in Auckland, New Zealand, and APNIC 42 in Colombo, Sri Lanka. A total of 863 delegates from 53 economies attended the conferences in 2016, with an additional 2783 conference sessions viewed remotely.

|  | APNIC 42       | APRICOT 2016   |
|--|----------------|----------------|
| Total number of on-site delegates      | 332            | 531            |
| Economies represented                  | 39             | 53             |
| APNIC Member organizations represented | 133            | 125            |
| AMM delegates                          | 287            | 237            |
| Remote Participants                    |                |                |
| Adobe Connect                          | 131            | 52             |
| YouTube Views (Minutes)                | 1,414 (10,646) | 1,186 (18,228) |

[conference.apnic.net](http://conference.apnic.net)

#### APNIC Regional Meetings

Regional meetings provide additional opportunities for community members to meet with their peers, share experiences, and get the latest updates on APNIC's activities.

In 2016, APNIC held regional meetings as part of the conference programs for SANOG 27 in Nepal, SANOG 28 in India, BKNIX Peering Forum in Bangkok, and PACNOG 19 in Fiji. More than 600 people attended the events.



#### APNIC conferences

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 4.6         | 5.8         |
| Expenses | \$1,219,043 | \$1,276,507 |
| CAPEX    | \$23,000    | \$6,535     |

## Regional technical development

### CORE ACTIVITIES:

#### 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 address resources by APNIC, NIRs, and Members in the Asia Pacific region. APNIC facilitates twice-yearly Policy SIG meetings, the Policy SIG mailing list, the election and support of ASO Address Council Members from the APNIC region, and exchanges policy-related information with other RIRs and ICANN.*

#### Policy SIG results

##### APNIC 41 (APRICOT 2016)

- prop-115: Registration of detailed assignment information in whois DB  
This proposal was abandoned before APNIC 41 and was not considered for consensus. Instead, the proposal authors presented their ideas as an informational presentation to gauge community interest in the subject.
- The Secretariat introduced travel support to SIG Chairs and Co-Chairs attending APNIC conferences.



#### Regional technical development

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 3.2         | 3.6         |
| Expenses | \$1,065,067 | \$1,052,543 |
| CAPEX    | \$180,000   | \$14,646    |

# Regional technical development

## CORE ACTIVITIES:

### Policy SIG Results APNIC 42

- prop-116: Prohibit to transfer IPv4 addresses in the final /8 block  
This proposal was presented, but did not reach consensus and was returned to the author for further consideration.
- 'A Proposal to review the procedures for electing APNIC SIG Chair and Co-Chair positions'  
This proposal was discussed at a joint sitting of all SIGs, however, no consensus decision was reached and the proposal was returned to the author for further consideration.

A community discussion about whois data quality was held at both APNIC 41 and 42. At APNIC 42, presentations were made on whois data accuracy by law enforcement agencies including the Sri Lanka National Police, the USA's Federal Bureau of Investigation and the New Zealand Police.

[www.apnic.net/policy](http://www.apnic.net/policy)







# Regional technical development

## CORE ACTIVITIES:

### IXP and root server deployment

*APNIC supports a number of IXP (Internet Exchange Point) and DNS root server installations in the region, coordinating with hosts and root server operators, managing maintenance work and handling requests for new installations.*

In October 2016, APNIC conducted an IXP training workshop and provided technical assistance in Timor-Leste with the ITU, resulting in the creation of the economy's first test case IXP.

APNIC also began hosting a new J-root server instance in APNIC's co-location facility in Brisbane.

Following the well-publicized denial of service attacks against global targets in 2016, APNIC received requests (and has agreed) to support more root server deployments in 2017.

[www.apnic.net/rootserver](http://www.apnic.net/rootserver)





# Regional technical development

## KEY PROJECTS

### RIPE Atlas deployments

*APNIC has been collaborating with the RIPE NCC on RIPE Atlas deployment in the region through anchors and probes since 2014. These probes help measure local and regional Internet connectivity and reachability, to understand the state of the Internet in real time.*

In 2016, APNIC sponsored the deployment of seven anchors in the region. Three – in Bhutan, Cambodia, and Papua New Guinea – were fully deployed, and the deployment of the remaining four – in Nepal, Myanmar, India, and Mongolia – were in progress.

| 2016 Planned Project  | Member Benefit  | 2016 Achievements   |
|---|---|---|
| Continue providing support to the RIPE NCC to deploy Atlas anchors; distribute probes in the region | Access to the results of anchoring measurements (ping, ping6, traceroute, traceroute6) providing a continual overview of regional connectivity and reachability | Three RIPE Atlas anchors fully deployed and four additional deployments begun |





# Community engagement

## CORE ACTIVITIES:

### NOG support

*Network Operator Groups (NOGs) encourage and facilitate local Internet development, provide a forum for training, and opportunities for network engineers and administrators to build relationships with peers.*

APNIC participated in 13 regional NOG events (AusNOG, bdNOG, BTNOG, HKNOG, IDNOG, two NPNOG events, PacNOG, PHNOG, two SANOG events, TWNOG, and VNNOG) providing speakers, sponsorship, hostmaster consultations and technical support (where required).

### Collaboration with other Asia Pacific Internet organizations

*APNIC continues to collaborate with other Asia Pacific organizations in projects and partnerships that develop the Internet in the region. The collaboration includes training, strengthening Internet critical infrastructure, research and measurements, meetings and conferences, and policy development.*

In 2016, APNIC signed a new Memorandum of Understanding (MoU) with Sri Lanka CERT|CC. APNIC also renewed its MoU with APIA.

APNIC provided sponsorship support to nine technical conferences held in the Asia Pacific region.



## Community engagement

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 4.9         | 4.3         |
| Expenses | \$1,121,126 | \$1,224,720 |
| CAPEX    | -           | -           |



# Community engagement

## CORE ACTIVITIES:

### 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.*

In 2016, APNIC supported the travel and attendance of 52 fellows from 17 economies at APNIC 42 in Colombo, Sri Lanka - the largest group of fellows ever funded under the program. The group included 14 youths and 20 women.

Many thanks go to Google, the Internet Society and APIA for their support of the fellowship program.

### Regional IGF

*APNIC contributes actively to national and regional IGFs to ensure that IP addressing and critical Internet infrastructure issues are understood on all levels.*

APNIC participated at the Asia Pacific Regional Internet Governance Forum (APrIGF) in Taipei, Taiwan. Paul Wilson is currently the APrIGF Chair of the Multistakeholder Steering Group (MSG).

APNIC also supported two regional capacity-building initiatives: the Asia-Pacific Internet Governance Academy (APIGA), organized by ICANN and KISA at Yonsei University in Seoul; and the Asia-Pacific School of Internet Governance (APSIG), lead by Prof. Kilnam Chon, at the Asia Institute of Technology in Bangkok. APNIC's efforts focused on building awareness of IP addressing policies and fundamentals.



# Community engagement

## CORE ACTIVITIES:

### ISIF Asia grants program

*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. APNIC operates the ISIF Asia Secretariat, providing administrative support, facilitating the selection process, grantee reporting and dissemination strategy, fund raising, and program evaluation.*

In 2016, 10 projects from nine economies were awarded grants under four categories:

- APNIC Internet Operations Research Grants
- Internet Society Cybersecurity Grant
- Community Impact Grants
- Technical Innovation Grants

In total, AUD 431,000 in grants were allocated.

A mentoring program for scale-up grants also commenced in 2016, supporting two projects in Myanmar and India.

Two projects from Malaysia and the Philippines received ISIF Asia Awards of AUD 3,000 and a travel grant to attend the 2016 Internet Governance Forum (IGF) in Mexico. ISIF project grantees from Pakistan and Tonga also received fellowship support to attend an ISIF cybersecurity workshop at the 2016 IGF in Mexico.

<http://isif.asia>





# Community engagement

## CORE ACTIVITIES:

### 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.*

In 2016, APNIC partnered with LACNIC to participate in APEC TEL 53 in Tacna, Peru. LACNIC staff delivered an update on IPv6 across the APEC economies. APNIC participated remotely in TEL's Security and Prosperity Steering Group (SPSG). APNIC staff also participated in APEC TEL 54 in Kyoto, Japan.

APNIC participated as an observer in the 3rd and 4th Meetings of the Asia Pacific Telecommunity (APT) preparatory group for the International Telecommunication Union (ITU) World Telecommunications Standardization Assembly 2016 (WTSA-16).

| Event   | Location | Date       |
|---|----------|------------|
| ITU Forum on the Internet of Things in Smart Sustainable Cities | SG       | 18/01/2016 |
| ASEAN APNIC-IDA IPv6 Workshop                                   | ID       | 09/05/2016 |
| WTSA APT-3  | NP       | 14/06/2016 |
| APT 9th Policy and Regulation Forum for Pacific (PRFP-9)        | PG       | 28/06/2016 |
| WTSA APT-4  | VN       | 23/08/2016 |
| APEC TEL 54   | JP       | 31/10/2016 |

# Community engagement

## KEY PROJECTS

### Fellowship Alumni

*APNIC established the APNIC Fellowship alumni group in 2016 to support the development of a fellowship community and provide a platform for the ongoing sharing of experience.*

APNIC successfully launched the online alumni platform and previous fellows were recruited to join this network. Following APNIC 42 in Sri Lanka, APNIC created a Facebook group, and invited all past fellows from APNIC 18 onwards to join. So far, 80 fellows have joined the group and have started to engage with the alumni community.

### Internet Operations Research Grants

*APNIC established the ISIF Asia Internet Operations Research Grants in 2015 to support independent technical research on Internet operations, infrastructure, protocols and related issues. The fund aims to support the development of an Internet research community in the Asia Pacific.*

Three projects from Australia and New Zealand were awarded grants totalling AUD 115,000 in 2016.

- The University of Auckland, New Zealand – ‘Realistic simulation of uncoded, coded and proxied Internet satellite links with a flexible hardware-based simulator’.
- Centre for Advanced Internet Architectures (CAIA), Swinburne University of Technology, Australia – ‘Rapid detection of BGP anomalies’.
- Telco2 Limited, New Zealand. ‘A Peering Strategy for the Pacific Islands’.

The results of this research work will be reported back to the community in 2017.

| 2016 Planned Project  | Member Benefit  | 2016 Achievements                                      |
|---|---|--|
| <b>Establishment of an APNIC Fellowship alumni to support and promote relationships built by fellows during their fellowship experience</b> | Ongoing learning opportunities for previous fellows and an expanded and engaged technical community                       | Online alumni platform launched                        |
| <b>Internet Operations Research Grants to support and develop the regional Internet research community</b>                                  | To support independent research to improve the availability, reliability and security of the Internet in the Asia Pacific | AUD 115,000 in grant funding awarded to three projects |



## APNIC Foundation

### CORE ACTIVITIES:

#### Develop partnerships

*APNIC works with development agencies and other organizations to expand and enhance training and technical support for Internet development in the Asia Pacific region.*

APNIC was successful in securing funding from development partners to support additional projects in the region, as detailed in the table below.

| Project                     | Funding source | Funding amount                                       |
|-----------------------------|----------------|--|
| Seed Alliance               | IDRC           | CAD 500,000<br>(including CAD 100,000 for ISIF Asia) |
| APNIC Academy               | JICA           | USD 20,000   |
| IPv6 training               | ITU            | USD 9,500  |
| IXP deployment and training | ITU            | USD 4,300  |

APNIC also submitted funding proposals to the World Bank and the Australian Department of Foreign Affairs.



#### APNIC Foundation

|          | Budget    | Actual    |
|----------|-----------|-----------|
| FTE      | 1.0       | 1.0       |
| Expenses | \$181,627 | \$209,927 |
| CAPEX    | -         | -         |

# APNIC Foundation

## KEY PROJECTS

### The APNIC Foundation

*In February 2016, the APNIC EC established the APNIC Foundation as a registered charity in Hong Kong to raise funds independently from APNIC membership contributions. The aim of the Foundation is to advance professional development among network operators in the region, through training, technical workshops and direct technical assistance.*

The APNIC Foundation was officially incorporated in Hong Kong in September 2016, with the Board and Advisory Council terms and conditions completed. The Foundation will begin its first year of operation in 2017.

<https://apnic.foundation>

#### 2016 Planned Project

#### Member Benefit

#### 2016 Achievements

|   |  |  |
|---|--|--|
| <b>Develop and implement a new mechanism to fund an expansion of APNIC's development services</b> | Additional source of funding and expanded development services | The APNIC Foundation was officially incorporated in September 2016 |
|---|--|--|



## GLOBAL COOPERATION

### GOALS

#### 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

### STRATEGIES

- Service and information exchange coordination with other RIRs and global Internet organizations
- Take leadership role as appropriate in global IPv6, RPKI and DNSSEC coordination efforts
- Monitor global IPv6, RPKI and DNSSEC deployment and share its success stories in the AP region
- Engage with ISOC, ICANN and other global agencies supporting regional Internet development
- Facilitate a policy environment which maximizes the accessibility and effectiveness of the Internet to the AP region
- Collaborate with other RIRs on business continuity, infrastructure sharing, and staff development

### Global cooperation - Summary

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 4.9         | 3.4         |
| Expenses | \$1,695,342 | \$1,791,572 |
| CAPEX    | \$77,500    | \$72,425    |

# Global technical community

## CORE ACTIVITIES:

### Collaboration work with other RIRs

*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.*

Some of the highlights in 2016 included:

- APNIC Digital Communication Officer, Robbie Mitchell, spent two weeks with AFRINIC to support communication activities for AFRINIC 24 in Botswana and provide coaching to AFRINIC staff on its new blog.
- APNIC worked with LACNIC to present IPv6 deployment updates at APEC TEL 53 in Peru.
- Training staff worked closely with the RIPE NCC to develop the APNIC Academy online learning portal, with RIPE NCC's Sandra Bras visiting the APNIC offices in February.
- AFRINIC's Ashil Oogarah, Radha Ramphul, and Nirmal Manic all visited APNIC to learn more about APNIC's communications activities, customer service operations, and financial management respectively.
- APNIC staff participated in eight RIR meetings and actively contributed to Number Resource Organization (NRO) coordination groups.



AFRINIC 24

### Global technical community

|          | Budget    | Actual      |
|----------|-----------|-------------|
| FTE      | 2.3       | 2.0         |
| Expenses | \$988,666 | \$1,025,496 |
| CAPEX    | \$4,000   | \$4,825     |

# Global technical community

## CORE ACTIVITIES:

### Collaboration with I\* (ICANN, IANA, IETF, ISOC)

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

At ICANN 55 in Marrakech, the RIRs finalized negotiations with ICANN and agreed to a Service Level Agreement (SLA) for the IANA Numbering Services pending a successful IANA stewardship transition. The SLA was signed at ICANN 56 in Helsinki by the heads of each RIR.

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.

APNIC, ISOC, ICANN and the RIPE NCC developed and coordinated the 'Getting the Logical Infrastructure Right: Enabling Sustainable E-Commerce Growth with IPv6' panel discussion at the United Nations Conference on Trade and Development's (UNCTAD) E-Commerce Week in Geneva.

APNIC also continued its close collaboration with the ICANN APAC Hub on training opportunities in the region and international policy debates on cybersecurity.



*Signing of SLA between ICANN and RIRs for IANA Numbering Services*



# Global technical community

## CORE ACTIVITIES:

### Participation in other global Internet forums

APNIC provided Asia Pacific technical perspectives in several global Internet forums in 2016, including:

- Paul Wilson presented at the GSMA World Congress in Shanghai on Internet of Things (IoT) security, IPv6 for IoT and the importance of equipment manufacturers to become part of the Internet and security ecosystems.
- APNIC participated in the Ministerial Program at the Mobile World Congress in Barcelona, the highest-level track of this event.
- APNIC participated at the 2016 IGF in Mexico, organizing sessions including the Seed Alliance Awards Ceremony and 'Netgov, please meet Cybernorns. Opening the debate'. APNIC staff supported the IGF IPv6 Best Practices Forum by securing regional contributions to the effort.
- APNIC participated at the 3rd World Internet Conference in Wuzhen, China. Paul Wilson served as a member of the High-Level Advisory Council of the Organizing Committee for this conference.

| Event                             | Location | Date       |
|-----------------------------------|----------|------------|
| Mobile World Congress, Barcelona  | ES       | 22/02/2016 |
| WSIS Forum                        | CH       | 02/05/2016 |
| Mobile World Congress, Shanghai   | CN       | 29/06/2016 |
| World Internet Conference, Wuzhen | CN       | 16/11/2016 |
| IGF 2016                          | MX       | 06/12/2016 |

**A full library of event wrap reports, covering all regional and global engagements by APNIC staff, is available on the [APNIC Blog](#).**



# Global technical community

## KEY PROJECTS

### IANA Stewardship Transition Plan

The IANA Stewardship Transition Plan was approved by the United States government and the stewardship of the IANA functions were transferred to the global Internet community on 30 September 2016. This historic milestone was achieved only with significant community endeavour, and the APNIC EC passed a resolution at APNIC 42 in Colombo thanking the APNIC community for its support of the process.

[www.apnic.net/ianaxfer](http://www.apnic.net/ianaxfer)

#### 2016 Planned Project

#### Member Benefit

#### 2016 Achievements

|   |   |   |
|---|---|---|
| <b>Support community discussions and communicate relevant updates to the community on the IANA Stewardship Transition</b> | Assured continuity of IANA services, with independence from the prior US government arrangements and associated risks | Plan approved by the US government and stewardship of IANA functions transferred on 30 September 2016 |
|---|---|---|

#### Colombo Declaration on IANA Stewardship Transition

*The transition of the stewardship of the IANA functions from the United States government to the global Internet community is a significant achievement that is 18 years in the making.*

*As the world's fastest growing Internet region, it was vital that the voice of the Asia Pacific was heard in the IANA Stewardship Transition process and we salute the tireless effort of all those involved.*

*This is a celebration of the process as much as it is of the results. This process has – once again – demonstrated that the multistakeholder model works, and is the best governance model to maintain a growing, stable and open Internet. No single person, company, organization, or government runs the Internet; it belongs to everyone.*

*The APNIC community will continue to manage Internet number resources responsibly and is ready to assume its role in the oversight of these critical functions.*



# Intergovernmental outreach

## CORE ACTIVITIES:

### Intergovernmental liaison

*APNIC attends various global intergovernmental 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 participated at the ITU WTSA-16 (which determines the activities for the ITU-T in the next four years) and preparatory Asia Pacific Telecommunity (APT) meetings leading to it. Numbering, addressing and identification were contentious topics at this conference, with some ITU members supporting non-IP numbering schemas.

APNIC worked closely with RIR counterparts to organize the NRO's IPv6 discussion session at the OECD Ministerial Meeting on Digital Economy held in Mexico in June.

Paul Wilson joined the first annual meeting of the Global Forum on Cyber Expertise (GFCE) as a member of the Advisory Board. The Advisory Board provides strategic guidance and advice to the GFCE, which has capacity development initiatives focused on issues ranging from cybersecurity to Internet infrastructure.

| Event                               | Location | Date       |
|-------------------------------------|----------|------------|
| ITU - CWG Internet/WSIS             | CH       | 15/02/2016 |
| Global Forum on Cyber Expertise     | US       | 31/05/2016 |
| OECD Ministerial on Digital Economy | MX       | 21/06/2016 |
| WTSA-16                             | TU       | 25/10/2016 |

### Intergovernmental outreach

|          | Budget    | Actual    |
|----------|-----------|-----------|
| FTE      | 1.1       | 0.7       |
| Expenses | \$281,360 | \$322,142 |
| CAPEX    | \$3,500   | \$2,490   |





# Global research

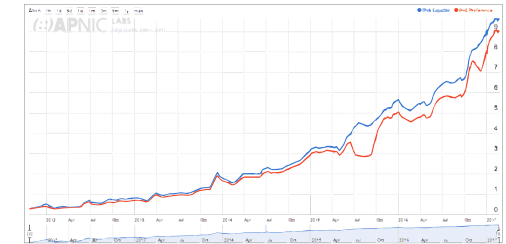
## CORE ACTIVITIES:

### Global research and measurements

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

APNIC Labs' focus in 2016 was on DNSSEC measurement, which evolved into a detailed investigation of UDP over IPv6. The Labs team also created a new reporting tool showing the performance of IPv6 relative to IPv4 at both an economy-by-economy level and a network-by-network level.

More than seven million individual measurements per day were processed on IPv6 and DNSSEC.



### Technical advocacy at global forums

In 2016, APNIC shared its research findings at 18 technical forums around the world, helping network engineers and policy makers make better decisions about Internet design and development.

## Global research

|          | Budget    | Actual    |
|----------|-----------|-----------|
| FTE      | 1.5       | 0.7       |
| Expenses | \$425,316 | \$443,934 |
| CAPEX    | \$70,000  | \$65,110  |



## CORPORATE

### GOALS

#### 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

### STRATEGIES

- Develop clear organizational priorities for APNIC's core activities as a registry and network information centre
- Improve IPv6, RPKI and DNSSEC skills and usage in APNIC's own network, and share the knowledge widely
- Establish the APNIC Foundation to provide structural separation, sustainability and scalability of development activities
- Develop staff skills and knowledge to engage effectively with different stakeholders
- Maintain a sustainable business model for now and the future
- Maintain an optimal organizational structure and culture to deliver tangible outcomes

### Corporate - Summary

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 14.0        | 12.7        |
| Expenses | \$3,759,856 | \$3,571,505 |
| CAPEX    | \$83,265    | \$30,772    |



# Human resource management

## CORE ACTIVITIES:

### Staff recruitment

In 2016, APNIC filled 10 vacancies created by either staff attrition or new roles. The vacancies filled:

- Web & Systems Manager
  - Web Developer
  - Systems Analyst / Project Lead
  - Business Administration Manager
- 2x DevOps Engineers
  - 2x Internet Resource Analysts
  - Senior Training Officer
  - Software Engineer

Six hundred and ninety-five applications were received for these roles.

### Staff training and development

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

Sixty-five APNIC staff participated in 49 external training and professional development courses in 2016.

External training courses covered topics including routing, community engagement, accounting, and leadership. In addition, seven in-house workshops attracted 79 attendees on topics including time and energy management, product management, Huawei router training, and situational leadership.

As part of regular RIR staff exchange, APNIC hosted four colleagues from RIPE NCC, AFRINIC and ARIN, and one APNIC staff member visited AFRINIC.

Development of the APNIC Academy was initiated as a result of staff exchange collaboration with the RIPE NCC.



## Human resource management

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 4.5         | 3.3         |
| Expenses | \$1,105,362 | \$1,096,404 |
| CAPEX    | \$3,500     | \$3,162     |

# Human resource management

## KEY PROJECTS

### Staff conference

All APNIC staff participated in a staff conference in July 2016 to review the 2016-2020 Strategic Plan. Through various exercises, staff were able to visualize and clearly understand their roles and contributions to achieving organizational goals.

APNIC EC Chair, Gaurab Upadhaya, presented a keynote address and external speakers presented on topics including cultural intelligence, coding, network configuration, IPv6 transition technologies, Internet of Things, and design.

#### 2016 Planned Project

**Gather all staff together for the review and communication of the 2016-2020 Strategic Plan and to ensure alignment of goals**

#### Member Benefit

Motivated Secretariat team committed to delivering service excellence to APNIC Members

#### 2016 Achievements

Staff conference held



# Finance and administration

## CORE ACTIVITIES:

### Financial management

In 2016, APNIC's finance team processed 1,947 invoices, prepared 888 journals, settled 386 expense claims, and handled 3,377 credit card transactions.

During the year, APNIC added 3D Secure to its online payment portal to provide extra security protection for APNIC Members making online payments via credit card.

### 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.

In 2016, a comprehensive review of APNIC's insurance coverage and insurance management model was completed. A cyber insurance policy was also introduced.

### Travel management

APNIC staff, APNIC EC members, and APNIC NRO NC members undertake regular travel to cover various events in the Asia Pacific region and globally. Travel management activities in 2016 covered travel planning, cost comparisons, booking, liaising with travel agencies and airlines, travel insurance and emergency support.



## Finance and administration

|          | Budget      | Actual      |
|----------|-------------|-------------|
| FTE      | 7.9         | 6.4         |
| Expenses | \$1,522,847 | \$1,266,237 |
| CAPEX    | \$9,500     | \$11,674    |

# Legal, governance and facilities

## CORE ACTIVITIES:

### Legal counsel

APNIC's general counsel provided ongoing legal advice, drafts and reviews of contracts, and guidance in corporate governance activities throughout 2016.

### 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, were completed in 2016 to minimize the risk of workplace incidents. No significant workplace accident or injury was recorded in 2016.

### 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.

### Legal and governance

|          | Budget    | Actual    |
|----------|-----------|-----------|
| FTE      | 1.4       | 1.6       |
| Expenses | \$718,465 | \$680,009 |
| CAPEX    | \$3,500   | \$3,800   |

### Facilities

|          | Budget    | Actual    |
|----------|-----------|-----------|
| FTE      | 0.2       | 1.4       |
| Expenses | \$413,182 | \$528,855 |
| CAPEX    | \$66,765  | \$12,136  |

## 2016 FINANCIAL REPORT BY ACTIVITY

| Activity                       | FTE         |             |             | CAPEX            |                |                   | OPEX              |                   |                 |
|--------------------------------|-------------|-------------|-------------|------------------|----------------|-------------------|-------------------|-------------------|-----------------|
|                                | Budget 2016 | Actual 2016 | Variance    | Budget 2016      | Actual 2016    | Variance          | Budget 2016       | Actual 2016       | Variance        |
| <b>Serving Members</b>         |             |             |             |                  |                |                   |                   |                   |                 |
| Customer Service               | 13.8        | 17.3        | 3.5         | 247,800          | 36,950         | -210,850          | 2,904,402         | 3,462,292         | 557,890         |
| Member Training                | 6.0         | 5.8         | -0.2        | 74,000           | 138,783        | 64,783            | 1,127,182         | 1,121,034         | -6,148          |
| Registration Service           | 9.3         | 8.2         | -1.1        | 6,000            | 6,072          | 72                | 1,611,264         | 1,449,589         | -161,675        |
| Technical Infrastructure       | 14.3        | 12.9        | -1.4        | 1,159,084        | 515,579        | -643,505          | 3,406,335         | 2,890,389         | -515,946        |
| <b>Total</b>                   | <b>43.4</b> | <b>44.2</b> | <b>0.8</b>  | <b>1,486,884</b> | <b>697,384</b> | <b>-789,500</b>   | <b>9,049,183</b>  | <b>8,923,304</b>  | <b>-125,879</b> |
| <b>Regional Development</b>    |             |             |             |                  |                |                   |                   |                   |                 |
| APNIC Conferences              | 4.6         | 5.8         | 1.2         | 23,000           | 6,535          | -16,465           | 1,219,043         | 1,276,507         | 57,464          |
| APNIC Foundation               | 1.0         | 1.0         | 0.0         | —                | —              | 0                 | 181,627           | 209,927           | 28,300          |
| Community Engagement           | 4.9         | 4.3         | -0.6        | —                | —              | 0                 | 1,121,126         | 1,224,720         | 103,594         |
| Regional Technical Development | 3.2         | 3.6         | 0.4         | 180,000          | 14,646         | -165,354          | 1,065,067         | 1,052,543         | -12,524         |
| <b>Total</b>                   | <b>13.7</b> | <b>14.7</b> | <b>1.00</b> | <b>203,000</b>   | <b>21,181</b>  | <b>-181,819</b>   | <b>3,586,863</b>  | <b>3,763,697</b>  | <b>176,834</b>  |
| <b>Global Coordination</b>     |             |             |             |                  |                |                   |                   |                   |                 |
| Global Research                | 1.5         | 0.7         | -0.8        | 70,000           | 65,110         | -4,890            | 425,316           | 443,934           | 18,618          |
| Global Technical Community     | 2.3         | 2.0         | -0.3        | 4,000            | 4,825          | 825               | 988,666           | 1,025,496         | 36,830          |
| Inter-governmental Outreach    | 1.1         | 0.7         | -0.4        | 3,500            | 2,490          | -1,010            | 281,360           | 322,142           | 40,782          |
| <b>Total</b>                   | <b>4.9</b>  | <b>3.4</b>  | <b>-1.5</b> | <b>77,500</b>    | <b>72,425</b>  | <b>-5,075</b>     | <b>1,695,342</b>  | <b>1,791,572</b>  | <b>96,230</b>   |
| <b>Corporate</b>               |             |             |             |                  |                |                   |                   |                   |                 |
| Facilities                     | 0.2         | 1.4         | 1.2         | 66,765           | 12,136         | -54,629           | 413,182           | 528,855           | 115,673         |
| Finance & Administration       | 7.9         | 6.4         | -1.5        | 9,500            | 11,674         | 2,174             | 1,522,847         | 1,266,237         | -256,610        |
| Human Resource Management      | 4.5         | 3.3         | -1.2        | 3,500            | 3,162          | -338              | 1,105,362         | 1,096,404         | -8,958          |
| Legal & Governance             | 1.4         | 1.6         | 0.2         | 3,500            | 3,800          | 300               | 718,465           | 680,009           | -38,456         |
| <b>Total</b>                   | <b>14.0</b> | <b>12.7</b> | <b>-1.3</b> | <b>83,265</b>    | <b>30,772</b>  | <b>-52,493</b>    | <b>3,759,856</b>  | <b>3,571,505</b>  | <b>-188,351</b> |
| <b>Total</b>                   | <b>76.0</b> | <b>75.0</b> | <b>-1.0</b> | <b>1,850,649</b> | <b>821,762</b> | <b>-1,028,887</b> | <b>18,091,244</b> | <b>18,050,078</b> | <b>-41,166</b>  |

## 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 2016, 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.

|                                     | 2016 (AUD)        | 2015 (AUD)        | % change from 2015 |
|-------------------------------------|-------------------|-------------------|--------------------|
| <b>Assets</b>                       |                   |                   |                    |
| <b>Current assets</b>               |                   |                   |                    |
| Cash and cash equivalents           | 5,518,359         | 1,785,266         | 209%               |
| Trade and other receivables         | 2,679,877         | 5,486,288         | -51%               |
| Other current assets                | 649,029           | 553,685           | 17%                |
| Total current assets                | 8,847,265         | 7,825,239         | 13%                |
| <b>Non-current assets</b>           |                   |                   |                    |
| Available-for-sale financial assets | 21,149,445        | 18,951,801        | 12%                |
| Property, plant and equipment       | 7,875,245         | 7,842,424         | 0%                 |
| Deferred tax assets                 | 149,602           | 139,580           | 7%                 |
| Total non-current assets            | 29,174,292        | 26,933,805        | 8%                 |
| <b>Total assets</b>                 | <b>38,021,557</b> | <b>34,759,044</b> | <b>9%</b>          |
| <b>Liabilities</b>                  |                   |                   |                    |
| <b>Current liabilities</b>          |                   |                   |                    |
| Payables                            | 1,121,453         | 1,196,385         | -6%                |
| Provisions                          | 1,238,585         | 1,138,287         | 9%                 |
| Unearned revenue                    | 9,400,834         | 8,546,573         | 10%                |
| Total current liabilities           | 11,760,872        | 10,881,245        | 8%                 |
| <b>Non-current liabilities</b>      |                   |                   |                    |
| Deferred tax liabilities            | 298,186           | 276,432           | 8%                 |
| Provisions                          | 314,993           | 281,908           | 12%                |
| Total non-current liabilities       | 613,179           | 558,340           | 10%                |
| <b>Total liabilities</b>            | <b>12,374,051</b> | <b>11,439,585</b> | <b>8%</b>          |
| <b>Net Assets</b>                   | <b>25,647,506</b> | <b>23,319,459</b> | <b>10%</b>         |
| <b>Equity</b>                       |                   |                   |                    |
| Contributed equity                  | 1                 | 1                 | 0%                 |
| Other reserves                      | 651,145           | 589,460           | 10%                |
| Retained earnings                   | 24,996,360        | 22,729,998        | 10%                |
| <b>Total equity</b>                 | <b>25,647,506</b> | <b>23,319,459</b> | <b>10%</b>         |



## STATEMENT OF INCOME

|  | 2016(AUD)         | 2015 (AUD)        | % change from 2015 |
|--|-------------------|-------------------|--------------------|
| <b>Revenue</b>                             |                   |                   |                    |
| Investment income                          | 890,951           | 792,041           | 12%                |
| Membership fees                            | 18,354,898        | 16,933,413        | 8%                 |
| Non-Member fees                            | 243,923           | 243,049           | 0%                 |
| Reactivation fees                          | 37,700            | 37,600            | 0%                 |
| Sign-up fees                               | 465,000           | 437,625           | 6%                 |
| Sundry income                              | 318,419           | 303,523           | 5%                 |
| Foreign exchange gain                      | 5,549             | 27,185            | -80%               |
| <b>Total revenue</b>                       | <b>20,316,440</b> | <b>18,774,436</b> | <b>8%</b>          |
| <b>Expenses</b>                            |                   |                   |                    |
| Communication expenses                     | 532,212           | 591,885           | -10%               |
| Computer expenses                          | 533,628           | 520,784           | 2%                 |
| Depreciation expense                       | 785,218           | 764,145           | 3%                 |
| ICANN contract fees                        | 243,026           | 284,161           | -14%               |
| Meeting and training expenses              | 363,343           | 350,313           | 4%                 |
| Office operating expenses                  | 324,948           | 315,608           | 3%                 |
| Professional fees                          | 1,409,430         | 1,195,494         | 18%                |
| Salaries and personnel expenses            | 10,459,153        | 9,586,575         | 9%                 |
| Sponsorship and publicity expenses         | 624,179           | 575,775           | 8%                 |
| Travel expenses                            | 2,085,745         | 1,961,551         | 6%                 |
| Other operating expenses                   | 707,413           | 659,204           | 7%                 |
| <b>Total expenses</b>                      | <b>18,068,295</b> | <b>16,805,495</b> | <b>8%</b>          |
| <b>Operating surplus</b>                   |                   |                   |                    |
| <b>Operating surplus before income tax</b> | <b>2,248,145</b>  | <b>1,968,941</b>  | <b>14%</b>         |
| Income tax benefit/ (expense)              | 18,217            | (12,777)          | -243%              |
| <b>Operating surplus after income tax</b>  | <b>2,266,362</b>  | <b>1,956,164</b>  | <b>16%</b>         |

## CASH FLOW STATEMENT

|   | 2016(AUD)        | 2015 (AUD)         | % change from 2015 |
|---|------------------|--------------------|--------------------|
| <b>Cash flows from operating activities</b>                   |                  |                    |                    |
| Receipts from Members and customers                           | 20,677,423       | 18,570,973         | 11%                |
| Payments to suppliers, employees and grantees                 | (17,770,585)     | (17,227,843)       | 3%                 |
| Grants received   | 383,136          | 799,587            | -52%               |
| Interest received   | 181,707          | 142,420            | 28%                |
| <b>Net cash inflow from operating activities</b>              | <b>3,471,681</b> | <b>2,285,137</b>   | <b>52%</b>         |
| <b>Cash flows from investing activities</b>                   |                  |                    |                    |
| Redemption of short-term deposits                             | 2,600,000        | (400,000)          | -750%              |
| Payments for property, plant and equipment                    | (822,871)        | (709,029)          | 16%                |
| Proceeds from sale of property, plant and equipment           | 13,435           | 7,230              | 86%                |
| Purchase of available-for-sale financial assets               | (1,500,000)      | (500,000)          | 200%               |
| <b>Net cash inflow/ (outflow) from investing activities</b>   | <b>290,564</b>   | <b>(1,601,799)</b> | <b>-118%</b>       |
| <b>Net increase in cash and cash equivalents:</b>             | <b>3,762,245</b> | <b>683,338</b>     | <b>451%</b>        |
| Cash and cash equivalents at the beginning of year            | 1,785,266        | 1,062,097          | 68%                |
| Effects of exchange rate changes on cash and cash equivalents | (29,152)         | 39,831             | -173%              |
| <b>Cash and cash equivalents at the end of year</b>           | <b>5,518,359</b> | <b>1,785,266</b>   | <b>209%</b>        |



# Supporters

APNIC acknowledges and thanks the following organizations for their generous support during 2016.

## APNIC Events Supporters (In alphabetical order)

|   |  |
|---|--|
| ADVA Optical Networking                               | ISOC   |
| Afilias   | InternetNZ                                   |
| Akamai  | IPv4 Auctions                                |
| Alcatel-Lucent  | IPv4 Market Group                            |
| APIA, Asia Pacific Internet Association               | JPIX, Japanese Internet Exchange Company Ltd |
| APJII, Asosiasi Penyelenggara Jasa Internet Indonesia | JPNIC, Japan Network Information Centre      |
| Arbor Networks, Inc                                   | Juniper Networks, Inc.                       |
| Brocade   | KISA, Korea Internet Security Agency         |
| BTI Systems   | LankaCom                                     |
| CCSL, Computer Society of Sri Lanka                   | LEARN, Lanka Education and Research Network  |
| Chorus  | Megaport                                     |
| CNNIC, China Network Information Centre               | Netflix                                      |
| Curvature Solutions Pte Ltd                           | NetK System                                  |
| Dialog Enterprise                                     | Nokia  |
| DotAsia Organisation                                  | NSRC, Network Startup Resource Centre        |
| Equinix   | OPT Nouvelle-Caledonie                       |
| Go Wireless NZ  | Oracle                                       |
| Google  | Paraqum Technologies                         |
| ICANN   | Sri Lanka Cert CC                            |
| ICTA  | Sri Lanka Convention Bureau                  |
|   | TWNIC, Taiwan Network Information Centre     |

## Training Sponsors in 2016 were:

|   |   |
|---|---|
| American University of Afghanistan (AUAF)   | Pacific Islands Telecommunications Association (PITA)                             |
| Professional Development Institute (PDI)  | Pakistan Telecom Authority (PTA)  |
| Asosiasi Penyelenggara Jasa Internet Indonesia (APJII)                            | Philippine Cable Television Association, Inc. (PCTA)                              |
| China Internet Network Information Centre (CNNIC)                                 | University of the Philippines Information Technology Development Center (UP ITDC) |
| Federated States of Micronesia Telecommunications Corporation                     |   |
| Habib University, Karachi   |   |
| Lagoon New Caledonia  |   |
| Lahore University of Management Sciences (LUMS)                                   |   |
| Malaysia Internet Exchange (MylX)   |   |
| Marshall Islands National Telecommunication Authority                             |   |
| Maximum Business Information Technology (MaxBIT)                                  |   |
| Micro Logic Systems (MLS), New Caledonia  |   |
| National Information Technology Professionals Association of Afghanistan (NITPAA) |   |
| Office of the Government Chief Information Office (OGCIO), Vanuatu                |   |
| OPT Nouvelle-Caledonie  |   |

**Helpdesk**

Monday–Friday 09:00–21:00 (UTC +10)

**Postal address**

PO Box 3646  
South Brisbane, QLD 4101,  
Australia

**Email**

[helpdesk@apnic.net](mailto:helpdesk@apnic.net)

**Phone**

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