

APNIC EC Meeting Minutes

Face-to-Face meeting, Nouméa, New Caledonia

Monday, 10 September 2018, 09:12 – 16:47 (UTC +11)

Meeting start: 09:12 (UTC +11), Monday, 10 September 2018

Present

Benyamin Naibaho
Gaurab Raj Upadhaya, Chair (remote)
Izumi Okutani (remote)
Jessica Shen
Kam Sze Yeung
Kenny Huang, Treasurer
Paul Wilson, Director General
Rajesh Chharia, Secretary (remote)

Connie Chan, Senior Executive Assistant (minutes)
Craig Ng, General Counsel
Richard Brown, Business Director

Apologies

Nil

Agenda

1. Opening of meeting and declaration of quorum
2. Agenda bashing
3. Declaration of interests
4. Review of minutes of last meeting and record of circular resolutions passed since the last meeting
5. Matters arising from the last meeting
6. Chair update
7. WH&S update
8. Financial report
9. APNIC Survey update
10. Secretariat report
11. ASO Review
12. Service Partner update
13. APNIC Foundation update
14. NRO NC election procedures
15. Risk Register update
16. Remote participation for SIG Chair election
17. Any other business (AOB)
18. Next EC meeting

Minutes

1. Opening of meeting and declaration of quorum

The Chair of the EC welcomed all attendees to the meeting. The Chair declared the meeting open at 09:12 (UTC +11) on Monday, 10 September 2018, and noted that a quorum was present.

2. Agenda bashing

The Chair called for comments on the agenda. There were no changes to the agenda.

It is noted that Serge Radovic from the RIPE NCC has requested to sit in for part of the EC meeting that relates to the APNIC Survey report.

3. Declaration of interests

The Chair asked the EC members to review the Register of Interests (attached), and to declare any potential conflicts of interests, and for any such declaration to be recorded in the minutes.

No other declarations of interest were noted. All EC members present confirmed that their entries in the Register of Interests are complete and correct.

4. Review of minutes of last meeting and record of circular resolutions passed since the last meeting

The following circular resolutions (that require the agreement of all EC members who are entitled to vote on the resolution) were passed by the EC during the period between the last EC meeting and this meeting and are recorded in these minutes for completeness.

Resolution 2018-09: The EC resolved to adopt the minutes of the EC meeting of 2 June 2018.

5. Matters arising from the last meeting

The following matters were completed:

Action item 2018-05: The Secretariat to set up the online compliance training for Benjamin Naibaho.

The following matters from the previous meetings are pending:

Action item 2017-23: The Secretariat to investigate and make recommendations concerning alternative electronic voting systems. [pending]

6. Chair update

The Chair presented the EC travel expense report. The Chair reminded the EC to participate in more regional meetings towards the end of this year.

The Chair confirmed that the joint meeting with the LACNIC Board will be held in Montevideo and will be broken into two afternoon sessions from 5 to 6 December 2018. We will bring in an external facilitator to manage discussions, and ensure the meeting keeps progressing towards a successful outcome.

The next EC meeting will be spread over three days, with two morning sessions and one full-day session from 5 to 7 December 2018. Along with the Survey report, the Chair suggested the EC devote more time to the strategic aspects of the agenda and plan for the next four-year strategic planning cycle from 2020 onward.

The Chair also noted that Izumi Okutani will continue her role as the APNIC EC observer to the NRO EC. If she is unable to attend a meeting, the Chair will assume the role.

7. WH&S update

Kam Sze Yeung spoke to the Health and Safety update. He reminded the EC that the responsibility for health and safety in a workplace rests with the EC. He welcomes contribution from the EC and would continue to advocate for workplace safety improvements.

8. Financial report

Richard Brown spoke to the financial report presentation (attached).

The EC considered the monthly financial report and the investment fund management report for July 2018 (attached). The EC noted that APNIC is solvent and able to meet all current debts.

The July financial report highlights an operating surplus of AUD 1.7M to date, with revenue tracking very close to the budget and expenses tracking at 2% under the budget forecast.

At the end of July 2018, APNIC had a total of 6,932 Members serving 54 economies.

Richard Brown then presented the financial outlook for 2019 and 2020 for consideration by the EC.

The EC discussed various impacts to the revenue and expense budgets at length. The budget for 2019 will be finalized and submitted for approval at the next EC meeting.

9. APNIC Survey update

Serge Radovic from the RIPE NCC and Brenda Mainland from Survey Matters joined the meeting for this agenda item.

Brenda Mainland spoke to the APNIC Survey report presentation (attached).

The EC noted that the overall results of the 2018 APNIC Survey were very positive. They discussed some feedback that will be incorporated into APNIC's planning processes in 2019. They also identified some areas for improvement in the next survey. The EC will publish a formal response to the survey.

10. Secretariat report

Sanjaya went through the Policy SIG proposals that will be discussed at the APNIC 46 Policy SIG (attached). The EC had a brief discussion of these proposals.

The DG spoke to the highlights of the Secretariat Report and the HR Report (attached).

[Izumi Okutani left the meeting at 14:00 (UTC +11)]

The EC noted that APNIC should increase the overall level of support for NOGs and set out clearer guidelines about how we could support NOGs.

The EC considered the draft AMM agenda for APNIC 46 (attached).

Resolution 2018-10: The EC resolved to approve the draft agenda for the APNIC Member Meeting of 13 September 2018.

Motion proposed by Rajesh Chharia; seconded by Kenny Huang. Passed unanimously.

The DG also briefed the EC on the APNIC and NRO responses to the NTIA Notice of Inquiry.

11. ASO Review

The DG gave an update on the progress regarding the ASO Review for the APNIC community. The third consultation session will be held with the APNIC community in Noumea as part of a global consultation on the ASO Review.

The DG also noted that the NRO EC recently published a joint statement on the public consultation to determine the future structure of the ASO.

12. Service Partner update

Sanjaya spoke to the Service Partner update presentation.

[Confidential material redacted]

13. APNIC Foundation update

The DG spoke to the Foundation update presentation (attached).

[Rajesh Chharia left the meeting at 15:15 (UTC +11)]

The EC discussed the possibility of nominating some EC members to join the ISIF Asia grants committee for the future round of funding.

14. NRO NC election procedures

The DG spoke to the election procedures for the conduct of the APNIC 46 NRO NC election (attached).

Resolution 2018-12: The EC resolved to appoint Ms Perrine Dhalluin as Election Chair, Mr George Kuo and Ms Connie Chan of the APNIC Secretariat as Election Officers, and Mr Jake Flint and Tom Do as Election Tellers, for the APNIC 46 NRO NC election.

Motion proposed by Paul Wilson; seconded by Jessica Shen. Passed unanimously.

15. Risk Register update

The EC reviewed the APNIC Risk Register. There were no proposed changes to the Risk Register. The EC noted and discussed some potential changes to the Risk Register.

As part of the next strategic planning cycle, it is suggested that we should review the Risk Register from the ground up.

16. Remote participation for SIG Chair election

The Chair spoke to the proposal for remote participation that Izumi Okutani presented at APNIC 44.

The EC discussed the proposal at length, and decided to form a technical working group, comprising Rajesh Chharia, Kenny Huang, Izumi Okutani, Sanjaya and Sunny Chendi. The working group will address the issues and come up with some potential solutions that can be presented to the EC and the membership for consideration.

The Chair also noted that he will convey this decision to the SIG Chair during the SIG Chair and EC meeting on 13 September 2018.

17. Any other business

The Chair called for any other business.

The Chair confirmed that he will chair the Member Meeting remotely on 13 September 2018. In case of Internet connectivity issues, the Director General shall preside as chairman of the meeting.

18. Next EC meeting

The next EC retreat is scheduled for 5 to 7 December 2018 in Montevideo, including two half-day sessions with the LACNIC Board.

Meeting closed at 16:47 (UTC +11), Monday, 10 September 2018.

Attachments:

- A. Register of interest**
- B. July 2018 financial report presentation and report**
- C. July 2018 investment report**
- D. 2018 APNIC Survey results presentation**
- E. 2018 APNIC Survey report**
- F. 2018 APNIC Appendix B data tables**
- G. 2018 APNIC Appendix C questionnaire**
- H. APNIC 46 policy proposal summary presentation**
- I. Secretariat report and presentation**
- J. [Confidential material redacted]**
- K. APNIC 46 AMM draft agenda**
- L. [Confidential material redacted]**
- M. [Confidential material redacted]**
- N. APNIC Foundation update presentation**
- O. NRO NC election procedures**
- P. [Confidential material redacted]**

Agenda Item 3

Declaration of Interests

APNIC EC Register of Interests

Declaration of interests of EC members

This register records the interests of EC members, which may conflict with the EC members' duties to APNIC. This register is accurate as at 16 July 2018.

Gaurab Raj Upadhaya declared that he currently holds the following positions:

- Employee of Amazon Web Services (AWS/Amazon) as the Principal for Infrastructure/IP Strategy Development
- Director of the Nepal Research and Education Network (NREN)
- Chairman of Nepal Internet Exchange (NPIX)

Izumi Okutani declared that she currently holds the following positions:

- Employee of Institute for Global Environmental Strategies (IGES) as Programme Manager of Business Taskforce
- Member of the Internationalization of JANOG (JANOG i18n)
- Member of the Secretariat of Internet Governance Conference Japan (IGCJ)
- Member of the Multistakeholder Steering Group of [APrIGF](#)

Jessica Shen declared that she currently holds the following positions:

- Employee of CNNIC as Director of IP Operation, under the Ministry of the Cyberspace Administration of China

Kam Sze Yeung declared that he currently holds the following positions:

- Member of the HKNOG Program Committee
- Employee of Akamai Technologies, Inc
- Member of the Working Group of Peering Asia, organizing Peering Asia 2.0

Kenny Huang declared that he currently holds the following positions:

- CEO of TWNIC
- Board of Director, ISOC Taiwan Chapter
- Member of the Advisory Council of [DotAsia](#) Organization

Rajesh Chharia declared that he currently holds the following positions:

- President of the Internet Service Providers Association of India (ISPAI)
- Director of the National Internet Exchange of India (NIXI)
- CEO of CJ Online Pvt. Ltd
- Director of Chandra Industrial Company Private Limited
- Founding member of INNOG

Benyamin Parulian Naibaho declared that he currently holds the following positions:

- President Director of PT. Cyber Network Indonesia (ISP, NAP, Data Center and VPN Provider)
- President Director of PT. Platinum Network Indonesia (ISP)
- Chief of Data Center and Indonesia Internet Exchange (IIX) - APJII (Indonesia ISP Association)
- MAG (Multistakeholder Advisory Group) of ID-IGF (Indonesia Internet Government Forum)
- Treasury of APJATEL (Indonesia Telecommunication Network Provider Association)

Paul Wilson declared that he was appointed as a nominee director of Affilias Australia when it bid for the registry contract for .au.

Agenda Item 8

Financial report

Finance Presentation

APNIC EC Meeting

APNIC 46

September 2018 - Noumea

Finance Presentation

- Financial Performance - YTD July 2018
- Financial Outlook for 2019 and 2020

Financial Performance

Year to date July 2018

Financial Highlights YTD July 2018

- Equity Position increased by 7% to date in 2018 ✓
- Revenue tracking \$114k above budget ✓
- Expenses tracking \$993k below budget ✓
- Surplus forecast at \$769k, \$523k above budget ✓
- Cash Flow + \$1,413K to date in 2018 ✓
- Activity expenditure in line with budget estimates ✓
- New Member Growth close to budget assumptions ✓

Statement of Financial Position

	31/07/2018	Year End 2017	Change	% Change
ASSETS				
Total Current Assets	11,982,280	9,905,236	2,077,044	21%
Total Non-Current Assets	31,679,540	30,841,683	837,857	3%
TOTAL ASSETS	43,661,820	40,746,920	2,914,901	7%
LIABILITIES				
Total Current Liabilities	13,380,758	12,253,734	1,127,024	9%
Total Non-Current Liabilities	678,804	785,173	-106,369	-14%
TOTAL LIABILITIES	14,059,562	13,038,907	1,020,655	8%
NET ASSETS/ TOTAL EQUITY	29,602,259	27,708,013	1,894,246	7%

All amounts in AUD – Australian Dollars

Statement of Financial Position

Net Equity position has increased by 7% (\$1,894k) to 31 July 2018

- Current Assets increased by 21% \$2,077k
 - Increase in cash by \$1,413k
 - Membership renewals effect on receivables increased by \$410k
 - Expenses incurred for NRO to be recovered increased by \$208k
 - Prepayment of deferred expenses and taxes increased by \$186k
- Non-Current Assets increased by \$838k
 - Reduction in Property & Equipment of \$203k
 - Investment portfolio increased by \$1,041k
 - \$500k transfer in July from Operating account

All amounts in AUD – Australian Dollars

Statement of Financial Position

- Current Liabilities increased by 9% \$1,127k
 - Staff Leave Provisions increased by \$244k
 - Accounts Payable increased by \$163k
 - Unearned Revenue increased by \$809k
 - Prepaid Sponsorship increased by \$239k
 - Members Prepaid fees increased by \$570k
- Non-Current Liabilities decreased by 14% \$106k
 - Long Service Leave Provisions decreased by \$106k

All amounts in AUD – Australian Dollars

Financial Stability Measure

	YTD 2018	2017	2016	2015
Total Equity	\$29,602,259	\$27,708,013	\$25,647,507	\$23,319,460
% Equity covered by Cash/ Cash Equivalents	112.1%	111.0%	110.6%	121.6%
Forecast/ Actual Daily Operating Expenses	\$60,048	\$53,909	\$49,430	\$46,077
Number of Months of expenses covered by Equity	16.59	16.90	17.01	16.64

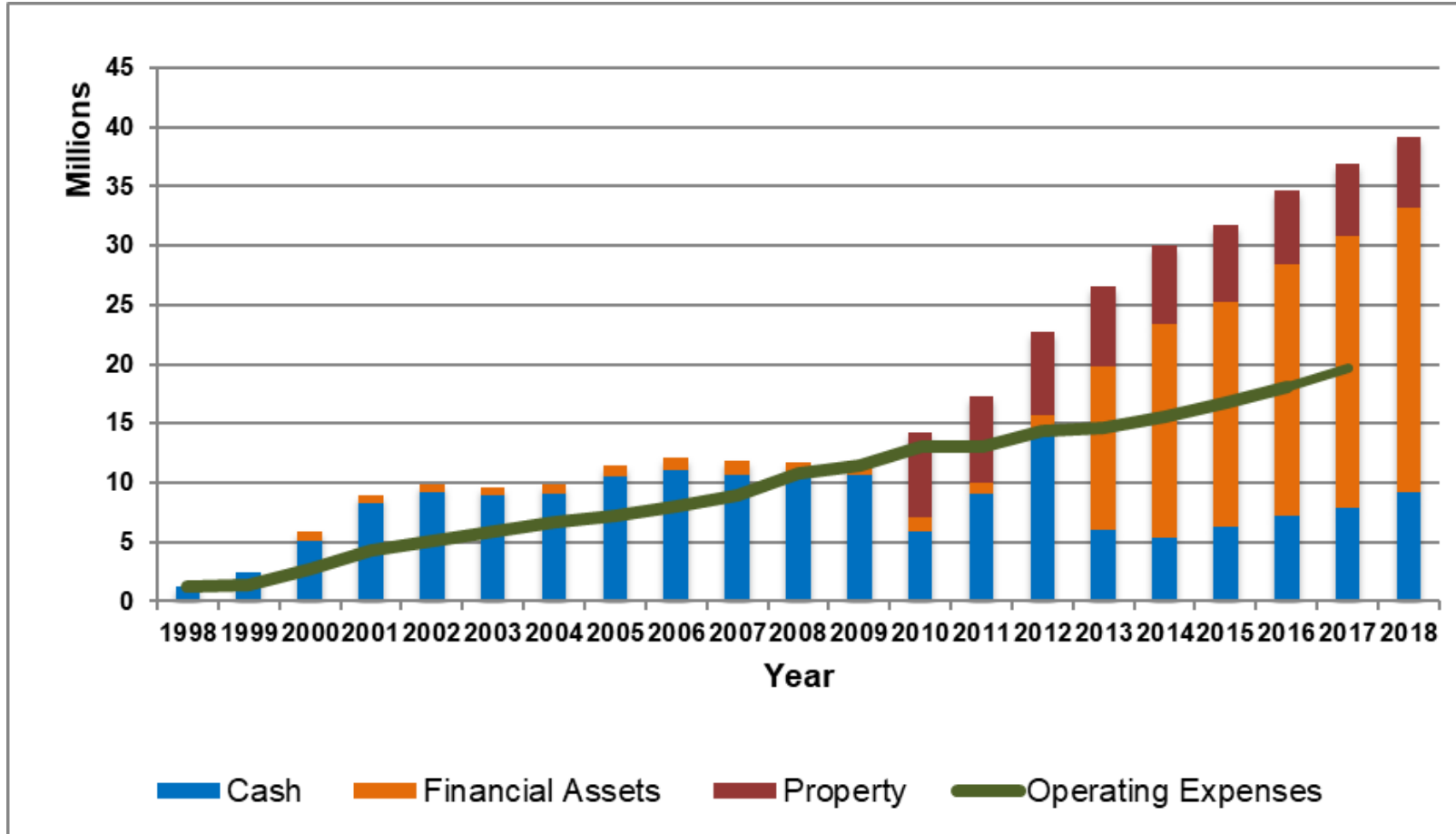


Target of 18 Months

- Based on Budget expenses
- Expected to improve over the year

All amounts in AUD – Australian Dollars

APNIC Capital Reserve



All amounts in AUD – Australian Dollars

Operating Surplus

	YTD Actual Jul 2018	YTD Actual Jul 2017	Variance %	Budget 2018	Forecast 2018	Budget Variance %
TOTAL REVENUE	12,822,829	12,154,768	5%	22,164,017	22,185,066	0%
TOTAL EXPENSES	11,079,175	10,773,355	3%	21,917,453	21,415,845	-2%
OPERATING SURPLUS/(DEFICIT)	1,743,654	1,381,412	26%	246,564	769,221	212%

All amounts in AUD – Australian Dollars

Statement of Income - Revenue

REVENUE (AUD)	YTD Actual Jul 2018	YTD Actual Jul 2017	Variance %	Budget 2018	Forecast 2018	Budget Variance %
Investment income	567,480	510,416	11%	960,000	820,000	-15%
Membership fees	11,673,226	11,159,005	5%	20,182,202	20,196,522	0%
Non-members fees	144,969	154,064	-6%	237,315	249,649	5%
Reactivation fees	14,000	14,700	-5%	23,500	24,000	2%
Sign-Up fees	198,500	225,500	-12%	378,000	331,000	-12%
Transfer fees	100,060	59,796	67%	130,000	173,843	34%
Sundry income	124,594	31,286	298%	253,000	390,052	54%
TOTAL REVENUE	12,822,829	12,154,768	5%	22,164,017	22,185,066	0%

All amounts in AUD – Australian Dollars

Statement of Income - Revenue

Revenue tracking \$114k above budget

- Investment income \$7.5k above budget
- Membership Fees \$8k above budget
 - New Member growth continues below budget estimates
 - 471 Actual vs 490 Budget to July 31
 - Offset by reduction in account closures
 - 105 Actual vs 182 Budget to July 31
 - Impacting on Sign-Up fees \$22k below budget
 - 19 Reactivations
 - Around 30% of new Members from LDC's compared to Budget 20%
- Transfers above budget by \$24k
- Sundry income above budget by \$42k
 - Training and workshop registration fees
 - Local organiser contributing to training/ technical assistance
 - The provision of consulting services

Investment Fund Update

Market Value as at 30 June 2018

	Market Value
APNIC Portfolio	A\$23,341,989

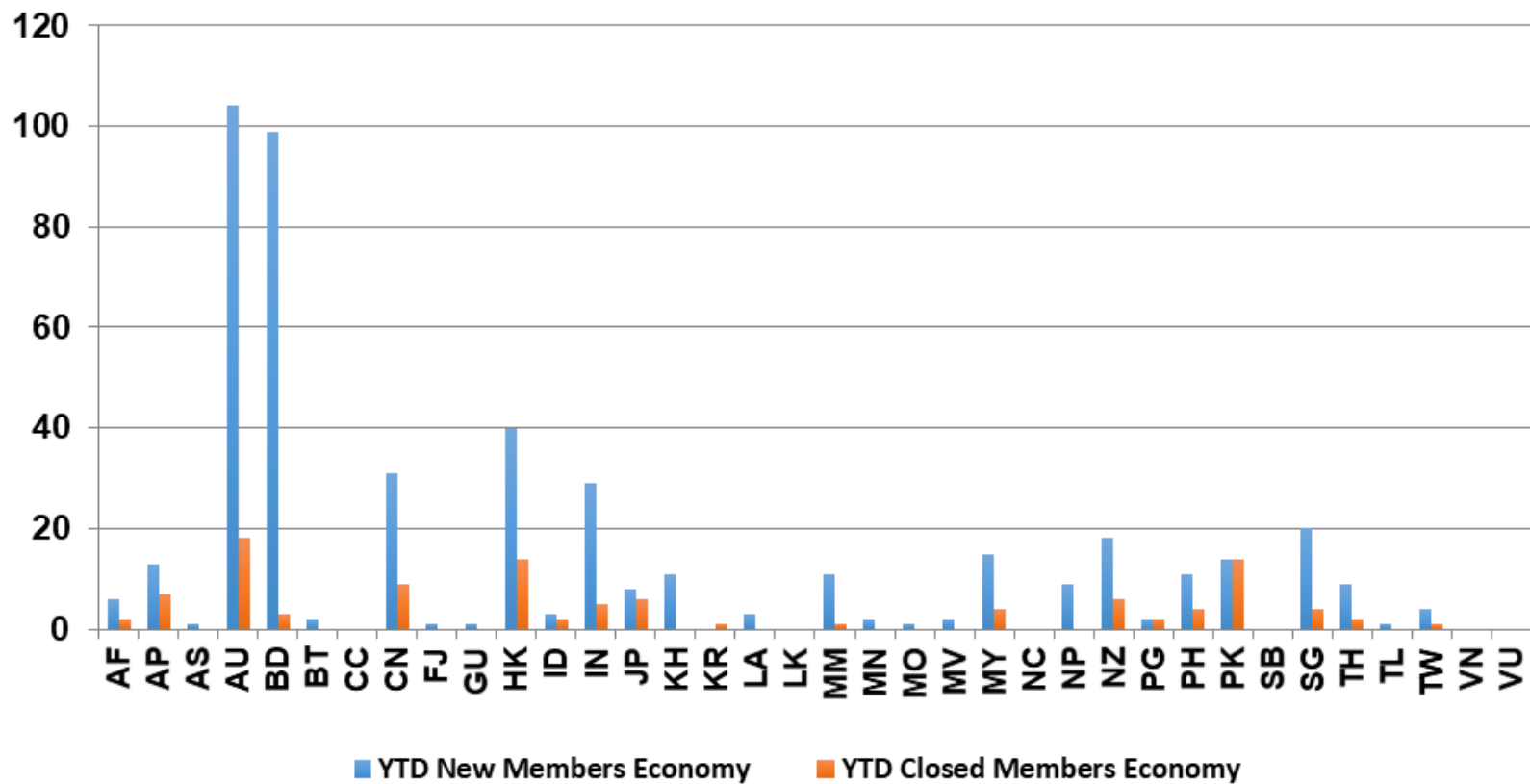
Performance as of 30 June 2018

APNIC Portfolio			
	Portfolio	Benchmark	Outperformance
Month	0.50%	0.80%	-0.30%
3 Months	2.01%	2.33%	-0.32%
Year To Date	1.97%	2.16%	-0.19%
1 Year	5.84%	5.78%	0.06%
3 Years pa	4.10%	4.51%	-0.41%
Since Inception pa	5.14%	5.45%	-0.31%

Membership Tracking

Membership	Total Dec 2017	YTD New Jul 2018	YTD Reactivate Jul 2018	YTD (Closed) Jul 2018	YTD Size Change Jul 2018	Total Jul 2018	% Total
Extra Large	23	0	0	0	0	23	0%
Very Large	41	0	0	0	1	42	1%
Large	138	0	0	-1	5	142	2%
Medium	473	2	1	-3	13	486	7%
Small	2,971	178	9	-48	87	3,197	44%
Very Small	2,769	274	9	-34	-105	2,913	43%
Associate	132	17	0	-19	-1	129	2%
TOTAL	6,547	471	19	-105	0	6,932	100%

Membership Growth



Membership Tracking – Closures by Economy

Economy	Breach of Agreement	Discontinue/ Business Not Operating	Merger/ Acquisition	Non Payment/ Non Contactable	Transfer to NIR	Transfer to Other Accounts	Transfer to Other RIR	Grand Total	IPv4 Resources Reclaimed (/24's)	IPv6 Resources Reclaimed (/48's)	ASN Reclaimed
AF				2				2	8	65536	2
AP		2		3		2		7	16	393217	1
AU		5	7	4		2		18	27	131075	8
BD		1		2				3	9	655361	3
CN	2	2		5				9	40	262145	14
HK	2	3		9				14	55	262146	8
ID				1	1			2	6		3
IN		2		3				5	11	65537	5
JP		2	1	3				6	16	65536	1
KR				1				1	4		
MM				1				1	2		1
MY		2		2				4	52	262144	4
NZ		3	1	1		1		6	7	196610	5
PG				2				2	4	65536	1
PH		1		3				4	4		3
PK		3		11				14		196608	9
SG		2		1		1		4	6	131072	1
TH		1		1				2	8	65536	2
TW			1					1			
Grand Total	4	29	10	55	1	6	0	105	275	2818059	71

Membership Tracking – Closures by Year Joined

Year Joined	Breach of Agreement	Discontinue / Business Not Operating	Merger/ Acquisition	Non Payment/ Non Contactable	Transfer to NIR	Transfer to Other Accounts	Transfer to Other RIR	Grand Total
1999		1						1
2002			1					1
2003				1				1
2005		1		1		1		3
2006			1	1				2
2007			1			2		3
2008				1		1		2
2009			1	1				2
2010			1	1				2
2011		2	2	3	1			8
2012		4	1	11				16
2013		5		4		1		10
2014	1	3		2				6
2015	1	1	2	8		1		13
2016	2	6		9				17
2017		4		11				15
2018		2		1				3
Grand Total	4	29	10	55	1	6	0	105

Statement of Income - Expenses

EXPENSES (AUD)	YTD Actual Jul 2018	YTD Actual Jul 2017	Variance %	Budget 2018	Forecast 2018	Budget Variance %
Bank service fees	108,832	101,532	7%	180,500	184,000	2%
Communication expenses	309,671	331,162	-6%	581,328	540,238	-7%
Computer expenses	422,088	355,970	19%	886,136	758,425	-14%
Contribution to APNIC Foundation	385,818	365,764	5%	700,683	659,333	-6%
Depreciation expense	497,026	470,967	6%	827,368	839,615	1%
Doubtful debt expenses	4,611	44,334	-90%	25,000	25,000	0%
ICANN contract fee	144,865	157,500	-8%	248,340	270,000	9%
Insurance expense	113,800	101,444	12%	186,000	189,738	2%
Meeting and training expenses	110,970	105,156	6%	479,000	463,662	-3%
Membership fees	29,701	33,048	-10%	52,840	49,222	-7%
Office operating expenses	188,053	187,410	0%	352,425	352,242	-0%
Postage & delivery	15,595	17,838	-13%	39,000	39,000	0%
Printing & photocopy	16,796	17,791	-6%	39,000	35,933	-8%
Professional fees	667,532	682,374	-2%	1,813,500	1,596,416	-12%
Recruitment expense	146,870	95,133	54%	120,000	200,000	67%
Salaries and personnel expenses	6,454,321	6,150,289	5%	12,094,603	11,968,000	-1%
Sponsorship and Publicity expenses	285,544	300,783	-5%	860,730	871,521	1%
Staff training/ Conference expenses	77,625	96,342	-19%	157,500	162,500	3%
Translation expenses	5,385	4,977	8%	23,500	11,000	-53%
Travel expenses	1,094,074	1,153,541	-5%	2,250,000	2,200,000	-2%
TOTAL EXPENSES	11,079,175	10,773,355	3%	21,917,453	21,415,845	-2%

All amounts in AUD – Australian Dollars

Statement of Income - Expenses

Expenses tracking \$993k(8%) below budget

- **Salaries & Personnel expenses** – below budget by \$175k
 - Impacts from the January restructure
 - Timing taken to recruit vacant positions
 - Timing of leave
 - Expected to be closer to around \$126k below budget at the end of 2018.
- **Professional fees** below budget by \$356k
 - Timing on engaging consultancy services such as technical assistance, community collaboration
 - Forecast to be below budget by nearly \$22k at the end of 2018
 - Non-staff trainers and technical consultants \$100k not utilised in 2018
 - Content development and Academy development, usability testing will be \$85k below
 - ISMS Audit and Consulting will not incur these costs in 2018 of around \$31k
- **Recruitment expenses** are tracking above budget at the end of July by \$77k , this trend will continue with an overspend of \$80k forecast by the end of the year. A reliance on external agencies to attract suitable candidates.
- **Travel expenses** are below budget by \$218k at the end of July due to the timing of events, it is forecast that travel will be below budget by at least \$50k by the end of 2018.
- **Computer expenses** continue to track lower than budget with savings in licensing costs and maintenance agreements contributing to an estimated underspend of \$128k expected by the end of 2018.
 - Firewall and Intrusion detection \$30k
 - Netsuite ERP \$18k
 - API's \$17k
 - Vmware \$15k
- **Sponsorship and Publicity expenses** are tracking below budget by \$99k, this variance is related to the timing of the sponsorship of events.

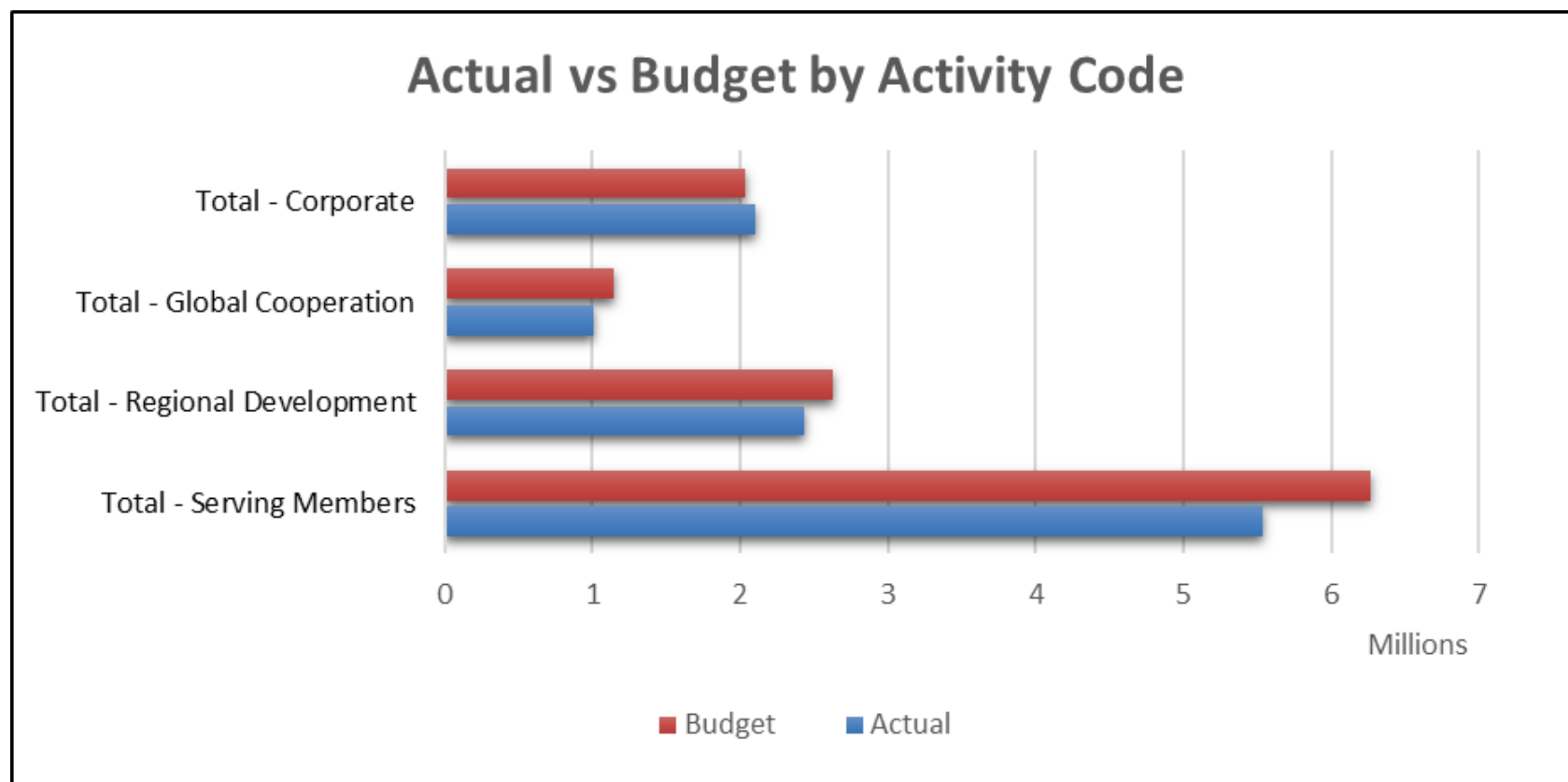
Capital Expenditure

CAPITAL (AUD)	YTD Actual Jul 2018	YTD Actual Jul 2017	Variance %	Budget 2018	Forecast 2018	Budget Variance %
Equipment & Software	269,558	224,431	20%	923,800	800,000	-13%
Office Furniture & Fittings	27,918	76,520	-64%	90,000	115,000	28%
Total - Capital Expenditure	297,476	300,952	-1%	1,013,800	915,000	-10%

Cash Flow YTD July 2018

Accounts	YTD Jul 2018
Operating Activities	
Net Income	1,743,654
Adjustments to Profit/(Loss)	
Accounts Receivable	-409,706
Other Current Asset	-254,212
Accounts Payable	163,116
Sales Tax Payable	-5,845
Other Current Liability	969,753
Total Adjustments to Profit/(Loss)	463,106
Total Operating Activities	2,206,760
Investing Activities	
Fixed Asset	203,020
Other Asset	-1,040,877
Total Investing Activities	-837,857
Financing Activities	
Long Term Liability	-106,369
Equity	150,591
Total Financing Activities	44,222
Net Change in Cash for Period	1,413,126
Cash at Beginning of Period	7,850,592
Cash at End of Period	9,263,717

Expenses by Activity



Expenses by Activity – YTD July

EXPENSES (AUD)	Actual 2018	Budget 2018	Variance \$	Variance %
Facilities	387,355	369,886	17,469	5%
Finance & Administration	841,757	793,848	47,909	6%
Human Resource Management	558,929	526,442	32,487	6%
Legal & Governance	318,848	338,322	-19,474	-6%
Total - Corporate	2,106,889	2,028,498	78,391	4%
Global Research	310,981	348,778	-37,797	-11%
Global Technical Community	564,927	642,551	-77,624	-12%
Inter-governmental Outreach	125,482	151,831	-26,349	-17%
Total - Global Cooperation	1,001,390	1,143,160	-141,770	-12%
APNIC Conferences	610,412	648,867	-38,455	-6%
APNIC Foundation	402,486	414,561	-12,075	-3%
Community Engagement	620,502	756,742	-136,240	-18%
Regional Technical Development	804,680	809,561	-4,881	-1%
Total - Regional Development	2,438,080	2,629,731	-191,651	-7%
Customer Service	2,214,526	2,343,116	-128,590	-5%
Member Training	767,416	965,900	-198,484	-21%
Registration Services	853,768	937,888	-84,120	-9%
Technical Infrastructure	1,697,104	2,024,156	-327,052	-16%
Total - Serving Members	5,532,815	6,271,060	-738,245	-12%
Total - Expenses	11,079,175	12,072,449	-993,274	-8%

Financial Outlook 2019 to 2020

High Level Forecast 2019/20

Background:

- The 2019 Budget and Activity Plan submission will be presented to the EC for approval at the EC retreat in early December 2018
- The APNIC Secretariat budget process will commence in October for completion in late November.
- The budget and activity plan incorporates the operational plan for 2019, incorporating new projects and ongoing activities
- The budget will include known commitments together with provisions for planned expenditure on new projects and activities

High Level Forecast 2019/20

Assumptions in this forecast:

- Membership growth continues on a similar trend to 2017/18
- Normal expenses to increase by around 2.5%
- Full year impact of expected staffing at the end of 2018
- Travel profile to be similar to 2018
- Investment fund performs in line with recent trends
- APNIC remains at the current office
- APNIC Foundation to utilize \$300k of new APNIC staff resource in 2019 and \$500k in 2020
- APNIC support for foundation continues at current level

Revenue 2019/20

	FY 2015	FY 2016	FY 2017	Forecast 2018	Forecast 2019	Forecast 2020
Revenue						
IP Resource Application Fee	\$ (18,375)	\$ -	\$ -			
Investment Income	\$ 792,041	\$ 890,951	\$ 841,080	\$ 820,000	\$ 861,000	\$ 904,050
Membership Fees Income	\$ 16,933,413	\$ 18,354,898	\$ 19,310,962	\$ 20,196,522	\$ 21,034,346	\$ 21,900,792
Non-Member Fees Income	\$ 243,049	\$ 243,923	\$ 260,010	\$ 249,649	\$ 260,000	\$ 260,000
Other Income	\$ 3,612	\$ 1,587	\$ 13,570	\$ -	\$ -	\$ -
Reactivation Fees	\$ 37,600	\$ 37,700	\$ 27,200	\$ 24,000	\$ 24,000	\$ 24,000
Income from Foundation Activities					\$ 300,000	\$ 500,000
Sundry Income	\$ 221,968	\$ 186,694	\$ 218,185	\$ 390,052	\$ 250,000	\$ 250,000
Realized Gain/Loss	\$ 61,508	\$ 34,701	\$ (31)			
Transfer Fees	\$ 77,943	\$ 130,139	\$ 127,440	\$ 173,843	\$ 173,843	\$ 173,843
Sign-Up Fee	\$ 456,000	\$ 465,000	\$ 373,250	\$ 331,000	\$ 331,000	\$ 331,000
Total - Revenue	\$ 18,808,759	\$ 20,345,592	\$ 21,171,667	\$ 22,185,066	\$ 23,234,189	\$ 24,343,685
		8.2%	4.1%	4.8%	4.7%	4.8%

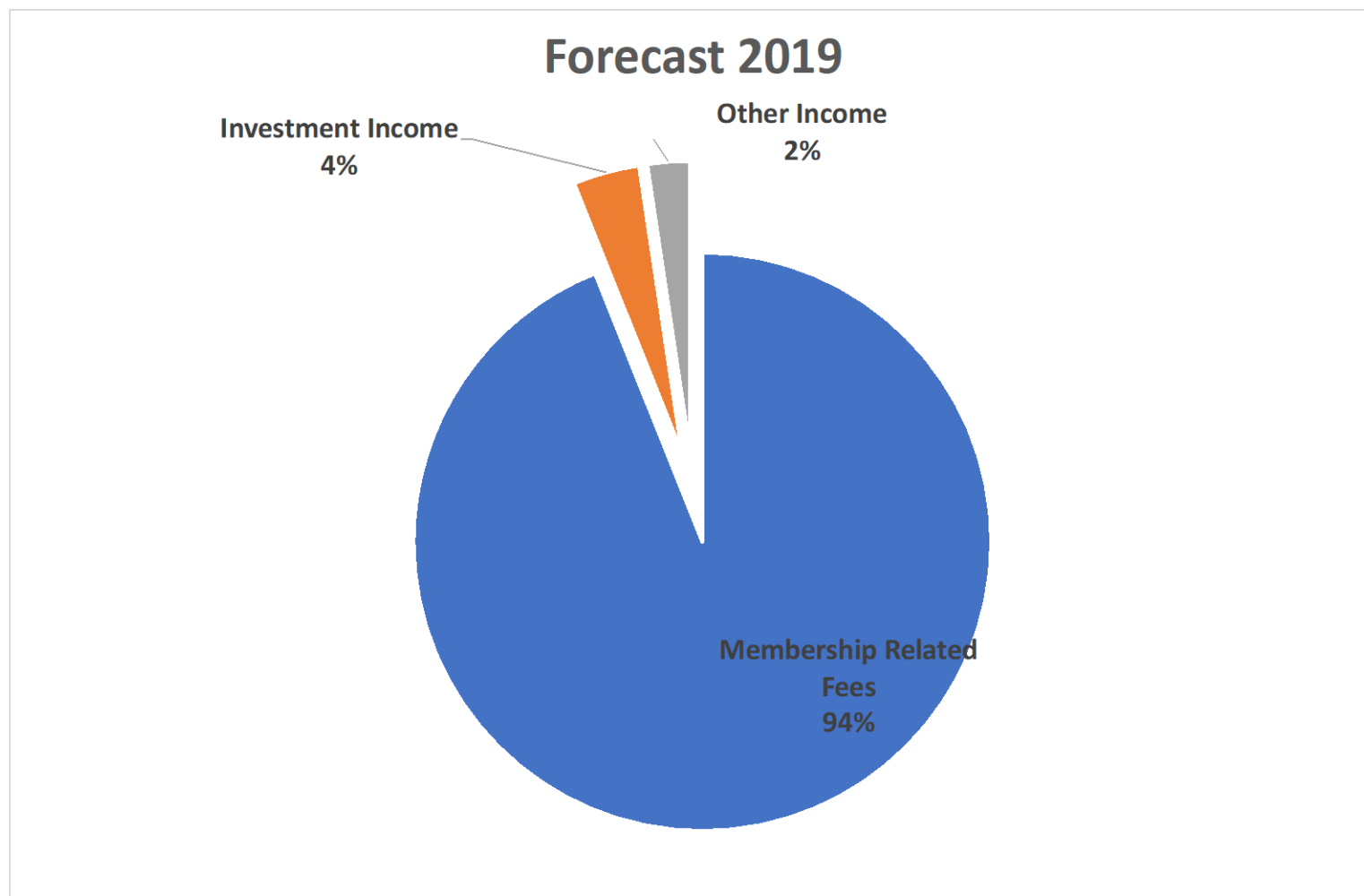
Expenses 2019/20

	FY 2015	FY 2016	FY 2017	Forecast 2018	Forecast 2019	Forecast 2020
Expenses						
Bank Service Fees	\$ 156,496	\$ 167,917	\$ 177,670	\$ 184,000	\$ 193,200	\$ 202,860
Communication Expenses	\$ 591,885	\$ 532,212	\$ 561,271	\$ 540,238	\$ 553,744	\$ 567,588
Computer Expenses	\$ 520,784	\$ 533,628	\$ 647,453	\$ 758,425	\$ 777,386	\$ 796,820
Contribution to APNIC Foundation	\$ -	\$ 18,003	\$ 665,058	\$ 659,333	\$ 659,333	\$ 659,333
Depreciation Expenses	\$ 764,145	\$ 785,218	\$ 807,596	\$ 839,615	\$ 860,605	\$ 882,121
Doubtful Debt Expenses	\$ (54,293)	\$ (6,225)	\$ 14,653	\$ 25,000	\$ 25,000	\$ 25,000
ICANN Contract Fees	\$ 284,161	\$ 243,026	\$ 244,657	\$ 270,000	\$ 283,500	\$ 297,675
Deferred Tax Expenses	\$ 12,777	\$ (18,217)	\$ (82,284)			
Insurance Expenses	\$ 131,550	\$ 128,793	\$ 173,610	\$ 189,738	\$ 199,225	\$ 209,186
Meeting and Training Expenses	\$ 350,313	\$ 363,343	\$ 389,922	\$ 463,662	\$ 475,254	\$ 487,135
Membership Fees	\$ 49,532	\$ 48,971	\$ 52,296	\$ 49,222	\$ 50,453	\$ 51,714
Office Operating Expenses	\$ 315,608	\$ 324,948	\$ 337,207	\$ 352,242	\$ 361,048	\$ 370,074
Postage & Delivery	\$ 51,029	\$ 41,893	\$ 40,610	\$ 39,000	\$ 39,975	\$ 40,974
Printing & Photocopy	\$ 33,807	\$ 38,165	\$ 29,311	\$ 35,933	\$ 36,831	\$ 37,752
Professional Fees	\$ 1,195,494	\$ 1,409,430	\$ 1,304,343	\$ 1,596,415	\$ 1,636,325	\$ 1,677,234
Recruitment Expense	\$ 119,077	\$ 94,307	\$ 134,793	\$ 200,000	\$ 205,000	\$ 210,125
Salaries and Personnel Expenses	\$ 9,586,575	\$ 10,459,153	\$ 11,096,470	\$ 11,968,000	\$ 13,072,000	\$ 13,935,600
Sponsorship and Publicity Expense	\$ 575,775	\$ 624,179	\$ 681,342	\$ 871,521	\$ 893,309	\$ 915,642
Staff Training Expense	\$ 169,122	\$ 164,441	\$ 148,603	\$ 162,500	\$ 166,563	\$ 170,727
Translation Expense	\$ 2,883	\$ 11,147	\$ 9,027	\$ 11,000	\$ 11,275	\$ 11,557
Travel Expenses	\$ 1,961,551	\$ 2,085,745	\$ 2,161,034	\$ 2,200,000	\$ 2,250,000	\$ 2,300,000
Unrealized Gain/Loss	\$ 34,323	\$ 29,152	\$ 21,924	\$ -	\$ -	\$ -
Total - Expenses	\$ 16,852,593	\$ 18,079,230	\$ 19,616,568	\$ 21,415,844	\$ 22,750,025	\$ 23,849,116
		7.3%	8.5%	9.2%	6.2%	4.8%

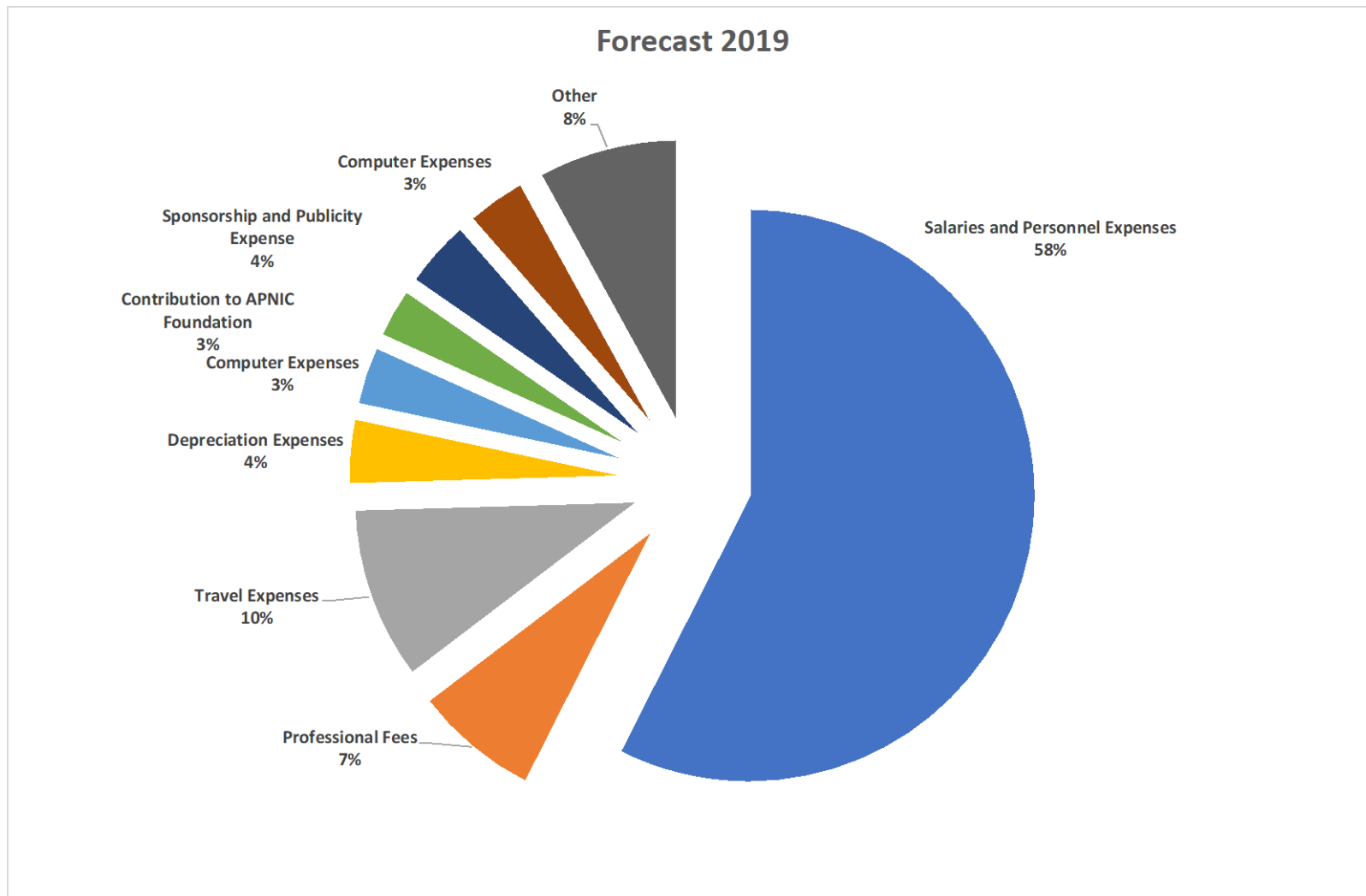
Surplus/Deficit

	FY 2015	FY 2016	FY 2017	Forecast 2018	Forecast 2019	Forecast 2020
Total - Revenue	\$ 18,808,759	\$ 20,345,592	\$ 21,171,667	\$ 22,185,066	\$ 23,234,189	\$ 24,343,685
		8.2%	4.1%	4.8%	4.7%	4.8%
Total - Expenses	\$ 16,852,593	\$ 18,079,230	\$ 19,616,568	\$ 21,415,844	\$ 22,750,025	\$ 23,849,116
		7.3%	8.5%	9.2%	6.2%	4.8%
Operating Surplus/(Deficit)	\$ 1,956,165	\$ 2,266,363	\$ 1,555,099	\$ 769,222	\$ 484,164	\$ 494,569

Revenue Breakdown



Expense Breakdown



Questions?

Monthly Financial Report

(in AUD)

July 2018

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1 Executive Summary

This financial report provides actual figures for July 2018, compared with the same period last year and with the 2018 budget estimate. There are no significant issues that would require any change to the approved 2018 budget plan, with revenue tracking close to budget and expenses tracking below the budget estimates. The report shows an operating surplus of \$1.7m to date with a final forecast estimated surplus of \$769k which is \$522k greater than budget.

Revenues:

- **Membership fees and Sign-Up fees** income has been tracking slightly below budget estimates in 2018 and is improving as the year continues. The actual number of new members in to date is 471, which is very close to the budget of 490; this small variance is more than offset by closures of 105 compared to the budget of 182.
- **Investment income:** The APNIC portfolio was positive again in July, up 0.37% for the month as AUD bonds were little changed. Australian equities rose 1.39% in July while global equities ex-Australia advanced 2.55% in AUD terms. Since inception, the portfolio has returned 5.13% per annum (after fees) compared to the benchmark of 5.43%.

Expenses:

- **Computer expenses** continue to track below budget because of timing of computer software/license and hardware maintenance contracts. Some licensing costs such as Firewall and Intrusion detection (\$30k), NetSuite ERP (\$18k), APIs (\$17k) and VMware (\$15k) will end 2018 lower than the budget estimate.
- **Professional fees** are below budget. Budgeted expenditure for external technical assistance and non-staff trainers is forecast to be underutilized by \$100k at the end of 2018. Provisions for content development (\$40k), ISMS consulting and audit (\$31.5k) as well as planned expenditure for Academy development and Usability testing (\$45k) will also be underspent.
- **Recruitment expenses** are above budget estimate. This is caused by extra use of external agencies to engage staff in a highly competitive environment.
- **Salaries and personnel expenses** are tracking below budget for a number of reasons: the timing of vacant positions being filled, the use of annual leave, and the actual incentive payments being less than accrued at the end of 2017.
- **Sponsorship and Publicity expenses** are tracking below budget but will align more closely as the year progresses.
- **Travel expenses** are low compared to budget due to the timing of planned activities. It is forecast that overall travel expenses will be below budget by around \$50k at the end of 2018.
- **Capital Expenditure** on equipment and software is tracking below budget, but the procurement of equipment is expected to align with budget estimates as the year progresses, and planned activities are completed. The refurbishment of the entrance and front stairs to the office and the reconfiguration of the media room will be completed in September.

2 Statement of Financial Position

	31/07/2018	Year End 2017	% Change
CURRENT ASSETS			
Cash/ Term deposits	9,263,717	7,850,592	18%
Receivables	1,694,481	1,284,166	32%
Others	1,024,082	770,479	33%
TOTAL CURRENT ASSETS	11,982,280	9,905,236	21%
NON-CURRENT ASSETS			
Other financial assets	23,934,249	22,893,372	5%
Property, plant and equipment	7,542,891	7,745,911	-3%
Deferred tax assets/ liabilities	202,401	202,401	0%
TOTAL NON-CURRENT ASSETS	31,679,540	30,841,683	3%
TOTAL ASSETS	43,661,820	40,746,920	7%
CURRENT LIABILITIES			
Payables	1,160,286	1,086,670	7%
Provisions	1,668,518	1,424,271	17%
Unearned revenue	10,551,954	9,742,793	8%
TOTAL CURRENT LIABILITIES	13,380,758	12,253,734	9%
NON - CURRENT LIABILITIES			
Deferred Tax Liabilities	466,112	466,112	0%
Total Provisions	212,692	319,062	-33%
TOTAL NON-CURRENT LIABILITIES	678,804	785,173	-14%
TOTAL LIABILITIES	14,059,562	13,038,907	8%
NET ASSETS	29,602,259	27,708,013	7%
EQUITY			
Share capital	1	1	0%
Reserves other financial assets investment	1,307,143	1,156,552	13%
Retained earnings	26,551,460	24,996,361	6%
Net Income	1,743,654	1,555,099	12%
TOTAL EQUITY	29,602,259	27,708,013	7%

Table 1. Statement of Financial Position

3 Statement of Income

	YTD Actual Jul 2018	YTD Actual Jul 2017	Variance %	Budget 2018	Forecast 2018	Budget Variance %
Investment income	567,480	510,416	11%	960,000	820,000	-15%
Membership fees	11,673,226	11,159,005	5%	20,182,202	20,196,522	0%
Non-members fees	144,969	154,064	-6%	237,315	249,649	5%
Reactivation fees	14,000	14,700	-5%	23,500	24,000	2%
Sign-Up fees	198,500	225,500	-12%	378,000	331,000	-12%
Transfer fees	100,060	59,796	67%	130,000	173,843	34%
Sundry income	124,594	31,286	298%	253,000	390,052	54%
TOTAL REVENUE	12,822,829	12,154,768	5%	22,164,017	22,185,066	0%
Bank service fees	108,832	101,532	7%	180,500	184,000	2%
Communication expenses	309,671	331,162	-6%	581,328	540,238	-7%
Computer expenses	422,088	355,970	19%	886,136	758,425	-14%
Contribution to APNIC Foundation	385,818	365,764	5%	700,683	659,333	-6%
Depreciation expense	497,026	470,967	6%	827,368	839,615	1%
Doubtful debt expenses	4,611	44,334	-90%	25,000	25,000	0%
ICANN contract fee	144,865	157,500	-8%	248,340	270,000	9%
Insurance expense	113,800	101,444	12%	186,000	189,738	2%
Meeting and training expenses	110,970	105,156	6%	479,000	463,662	-3%
Membership fees	29,701	33,048	-10%	52,840	49,222	-7%
Office operating expenses	188,053	187,410	0%	352,425	352,242	-0%
Postage & delivery	15,595	17,838	-13%	39,000	39,000	0%
Printing & photocopy	16,796	17,791	-6%	39,000	35,933	-8%
Professional fees	667,532	682,374	-2%	1,813,500	1,596,416	-12%
Recruitment expense	146,870	95,133	54%	120,000	200,000	67%
Salaries and personnel expenses	6,454,321	6,150,289	5%	12,094,603	11,968,000	-1%
Sponsorship and Publicity expenses	285,544	300,783	-5%	860,730	871,521	1%
Staff training/ Conference expenses	77,625	96,342	-19%	157,500	162,500	3%
Translation expenses	5,385	4,977	8%	23,500	11,000	-53%
Travel expenses	1,094,074	1,153,541	-5%	2,250,000	2,200,000	-2%
TOTAL EXPENSES	11,079,175	10,773,355	3%	21,917,453	21,415,845	-2%
OPERATING SURPLUS/(DEFICIT)	1,743,654	1,381,412	26%	246,564	769,221	212%

Table 2. Statement of Income

4 Capital Expenditure

CAPITAL (AUD)	YTD Actual Jul 2018	YTD Actual Jul 2017	Variance %	Budget 2018	Forecast 2018	Budget Variance %
Equipment & Software	269,558	224,431	20%	923,800	800,000	-13%
Office Furniture & Fittings	27,918	76,520	-64%	90,000	115,000	28%
Total - Capital Expenditure	297,476	300,952	-1%	1,013,800	915,000	-10%

Table 3. Capital Expenditure by Category

5 Activity Reporting

5.1 Expenses by Activity Code

EXPENSES (AUD)	YTD Actual Jul 2018	YTD Budget Jul 2018	Variance \$	Variance %
Facilities	387,355	369,886	17,469	5%
Finance & Administration	841,757	793,848	47,909	6%
Human Resource Management	558,929	526,442	32,487	6%
Legal & Governance	318,848	338,322	-19,474	-6%
Total - Corporate	2,106,889	2,028,498	78,391	4%
Global Research	310,981	348,778	-37,797	-11%
Global Technical Community	564,927	642,551	-77,624	-12%
Inter-governmental Outreach	125,482	151,831	-26,349	-17%
Total - Global Cooperation	1,001,390	1,143,160	-141,770	-12%
APNIC Conferences	610,412	648,867	-38,455	-6%
APNIC Foundation	402,486	414,561	-12,075	-3%
Community Engagement	620,502	756,742	-136,240	-18%
Regional Technical Development	804,680	809,561	-4,881	-1%
Total - Regional Development	2,438,080	2,629,731	-191,651	-7%
Customer Service	2,214,526	2,343,116	-128,590	-5%
Member Training	767,416	965,900	-198,484	-21%
Registration Services	853,768	937,888	-84,120	-9%
Technical Infrastructure	1,697,104	2,024,156	-327,052	-16%
Total - Serving Members	5,532,815	6,271,060	-738,245	-12%
Total - Expenses	11,079,175	12,072,449	-993,274	-8%

Table 4. Expense by Activity Code

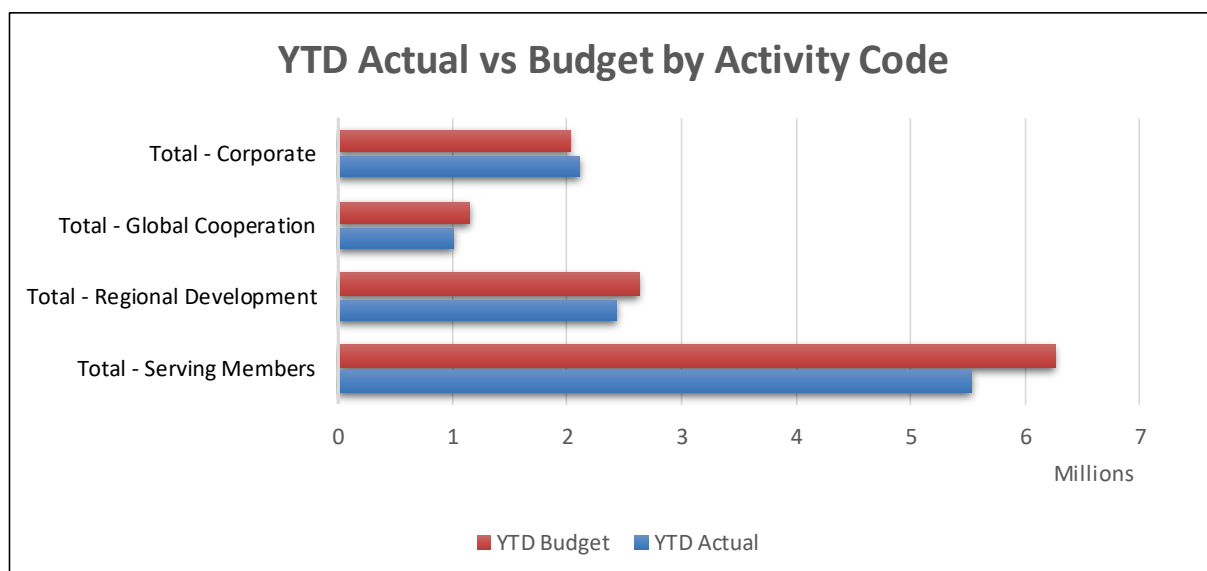


Figure 1. YTD Actual vs. Budget by Activity

5.2 Capital Expenditure by Activity Code

CAPITAL EXPENSES (AUD)	YTD Actual Jul 2018	YTD Budget Jul 2018	Variance \$	Variance %
Facilities	27,418	52,500	-25,082	-48%
Finance & Administration	8,613	5,250	3,363	64%
Human Resource Management				
Legal & Governance				
Total - Corporate	36,031	57,750	-21,719	-38%
Global Research				
Global Technical Community				
Inter-governmental Outreach				
Total - Global Cooperation				
APNIC Conferences		7,581	-7,581	-100%
APNIC Foundation				
Community Engagement				
Regional Technical Development	1,944	183,750	-181,806	-99%
Total - Regional Development	1,944	191,331	-189,387	-99%
Customer Service	188,536	191,037	-2,501	-1%
Member Training	9,478	33,250	-23,772	-71%
Registration Services				
Technical Infrastructure	61,487	118,006	-56,519	-48%
Total - Serving Members	259,501	342,293	-82,792	-24%
Total - Capital Expenses	297,476	591,374	-293,898	-50%

Table 5. Capital Expenditure by Activity Code

6 APNIC Reserve

6.1 Cash Flow Statement

Accounts	YTD Jul 2018
Operating Activities	
Net Income	1,743,654
Adjustments to Profit/(Loss)	
Accounts Receivable	-409,706
Other Current Asset	-254,212
Accounts Payable	163,116
Sales Tax Payable	-5,845
Other Current Liability	969,753
Total Adjustments to Profit/(Loss)	463,106
Total Operating Activities	2,206,760
Investing Activities	
Fixed Asset	203,020
Other Asset	-1,040,877
Total Investing Activities	-837,857
Financing Activities	
Long Term Liability	-106,369
Equity	150,591
Total Financing Activities	44,222
Net Change in Cash for Period	1,413,126
Cash at Beginning of Period	7,850,592
Cash at End of Period	9,263,717

Table 6. Cash Flow Statement

6.2 Capital Reserve

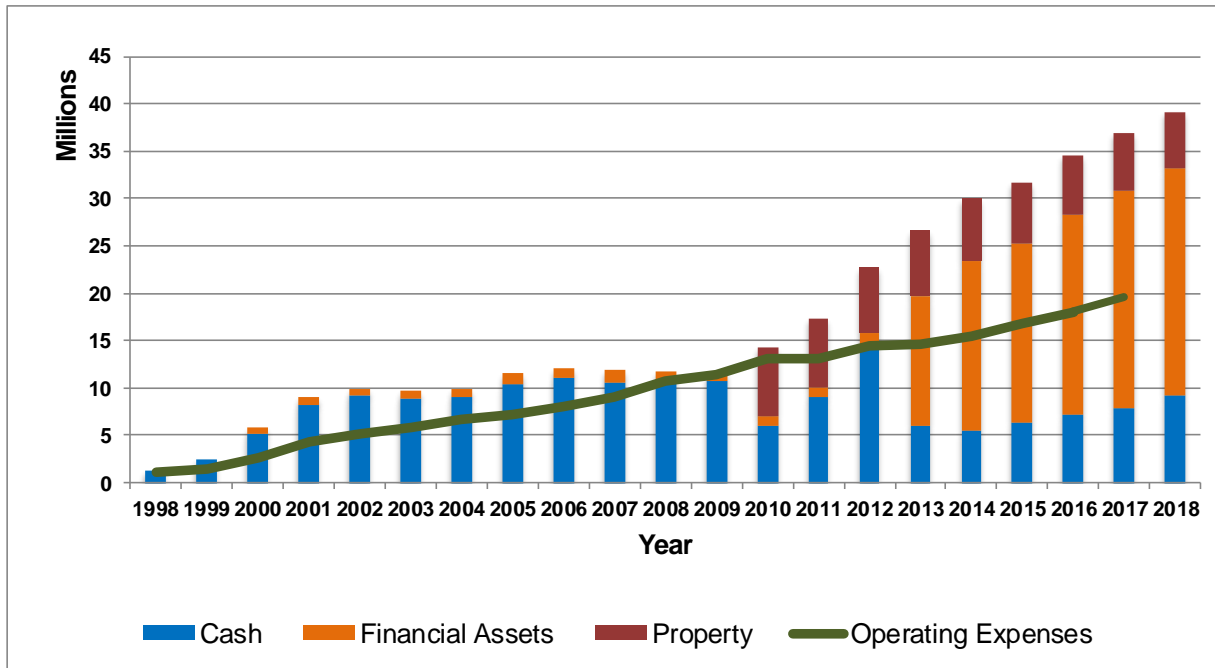


Figure 2. APNIC Reserves

6.3 APNIC's Equity and Reserves

By comparing the Total Equity (including retained earnings and unrealised capital gains), the Daily Operating Costs, the number of month's coverage of operational expenses is set out below:

	YTD 2018	2017	2016	2015
Total Equity	\$29,602,259	\$27,708,013	\$25,647,507	\$23,319,460
% Equity covered by Cash/ Cash Equivalents	112.1%	111.0%	110.6%	121.6%
Forecast/ Actual Daily Operating Expenses	\$60,048	\$53,909	\$49,430	\$46,077
Number of Months of expenses covered by Equity	16.59	16.90	17.01	16.64

Table 7. Equity and Reserves

7 Membership

7.1 Membership by Category

Membership	Total Dec 2017	YTD New Jul 2018	YTD Reactivate Jul 2018	YTD (Closed) Jul 2018	YTD Size Change Jul 2018	Total Jul 2018	% Total
Extra Large	23	0	0	0	0	23	0%
Very Large	41	0	0	0	1	42	1%
Large	138	0	0	-1	5	142	2%
Medium	473	2	1	-3	13	486	7%
Small	2,971	178	9	-48	87	3,197	44%
Very Small	2,769	274	9	-34	-105	2,913	43%
Associate	132	17	0	-19	-1	129	2%
TOTAL	6,547	471	19	-105	0	6,932	100%

Table 8. Membership by Category

7.2 Membership Growth

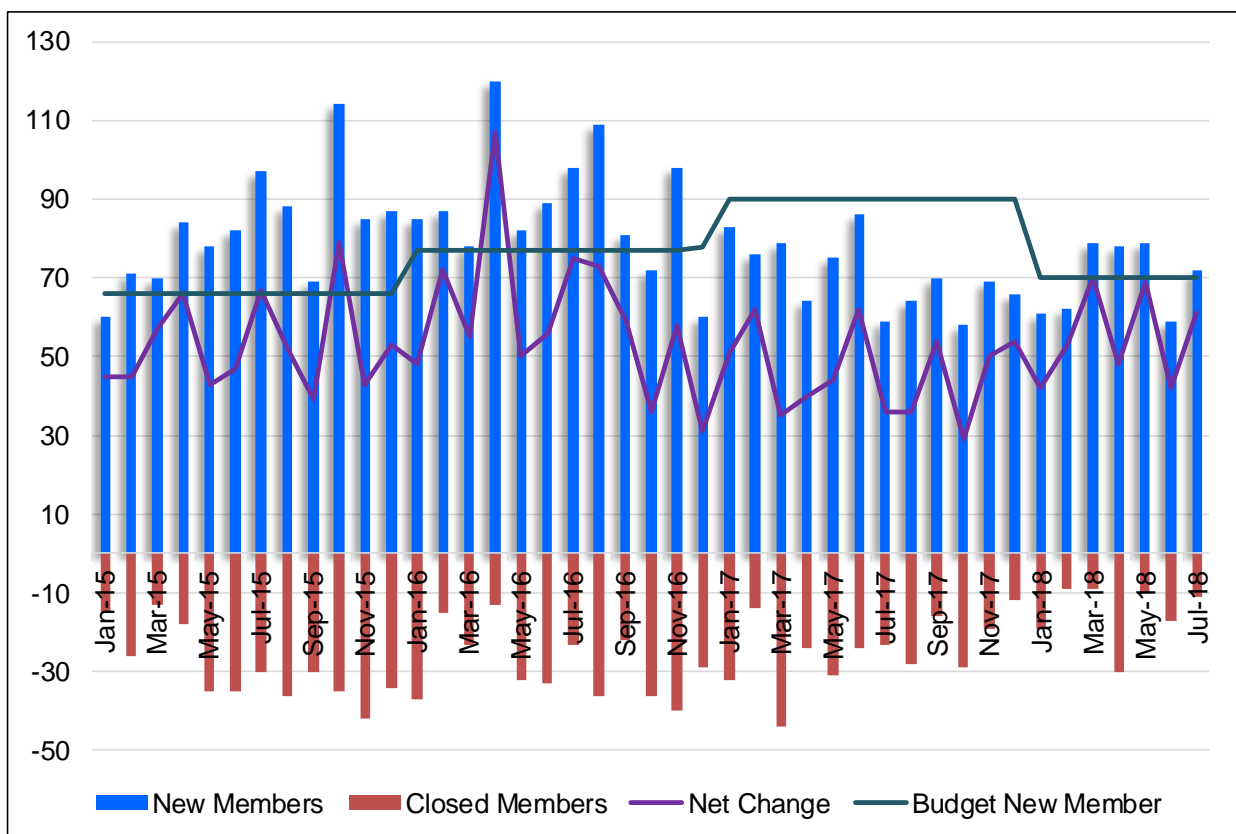


Figure 3. Membership Growth Analysis

7.3 Year-to-Date Membership Movement by Economy

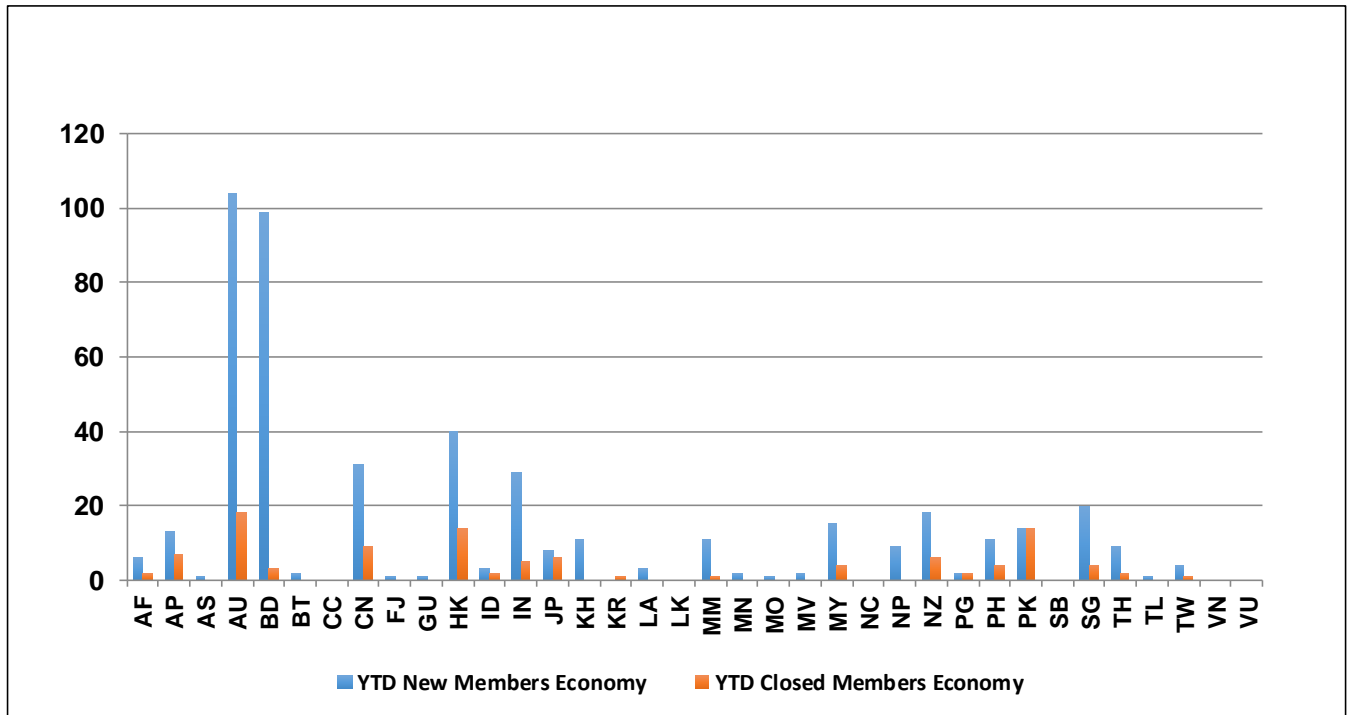


Figure 4. New and Closed Members Analysis

7.4 Membership Closures by Year Joined

Year Joined	Breach of Agreement	Discontinue/ Business Not Operating	Merger/ Acquisition	Non Payment/ Non Contactable	Transfer to NIR	Transfer to Other Accounts	Transfer to Other RIR	Grand Total
1999		1						1
2002			1					1
2003				1				1
2005		1		1		1		3
2006			1	1				2
2007			1			2		3
2008				1		1		2
2009			1	1				2
2010			1	1				2
2011		2	2	3	1			8
2012		4	1	11				16
2013		5		4		1		10
2014	1	3		2				6
2015	1	1	2	8		1		13
2016	2	6		9				17
2017		4		11				15
2018		2		1				3
Grand Total	4	29	10	55	1	6	0	105

Table 9. Membership Closure by Year Joined

7.5 Membership Closures by Economy

Economy	Breach of Agreement	Discontinue/ Business Not Operating	Merger/ Acquisition	Non Payment/ Non Contactable	Transfer to NIR	Transfer to Other Accounts	Transfer to Other RIR	Grand Total	IPv4 Resources Reclaimed (/24's)	IPv6 Resources Reclaimed (/48's)	ASN Reclaimed
AF				2				2	8	65536	2
AP		2		3		2		7	16	393217	1
AU		5	7	4		2		18	27	131075	8
BD		1		2				3	9	655361	3
CN	2	2		5				9	40	262145	14
HK	2	3		9				14	55	262146	8
ID				1	1			2	6		3
IN		2		3				5	11	65537	5
JP		2	1	3				6	16	65536	1
KR				1				1	4		
MM				1				1	2		1
MY		2		2				4	52	262144	4
NZ		3	1	1		1		6	7	196610	5
PG				2				2	4	65536	1
PH		1		3				4	4		3
PK		3		11				14		196608	9
SG		2		1		1		4	6	131072	1
TH		1		1				2	8	65536	2
TW			1					1			
Grand Total	4	29	10	55	1	6	0	105	275	2818059	71

Table 10. Membership Closure by Economy



Private Banking

Investment Report 1.7.2018 – 31.7.2018

APNIC PTY LTD

Portfolio: 3000039-70



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Investment Report 1.7.2018 – 31.7.2018

Portfolio **3000039-70**

In the Name of APNIC PTY LTD

Produced on 2.8.2018
Reporting Currency AUD

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Scope of Analysis
 as of 31.7.2018

Components	Portfolio	Asset Value in AUD	Discretionary Mandate	Opened	Closed	Performance Activation	Performance Deactivation
Investment related Positions							
AUD Portfolio	3000039-70	23,934,249	Yes	16.08.2013		31.12.2013	
Total Wealth		23,934,249					

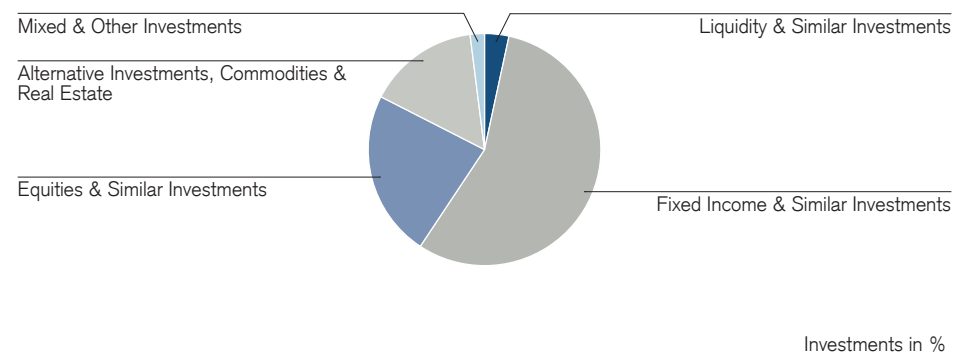
1. Overview

1.1. Asset Allocation

Asset Allocation by Asset Category

Period 1.7.2018 - 31.7.2018

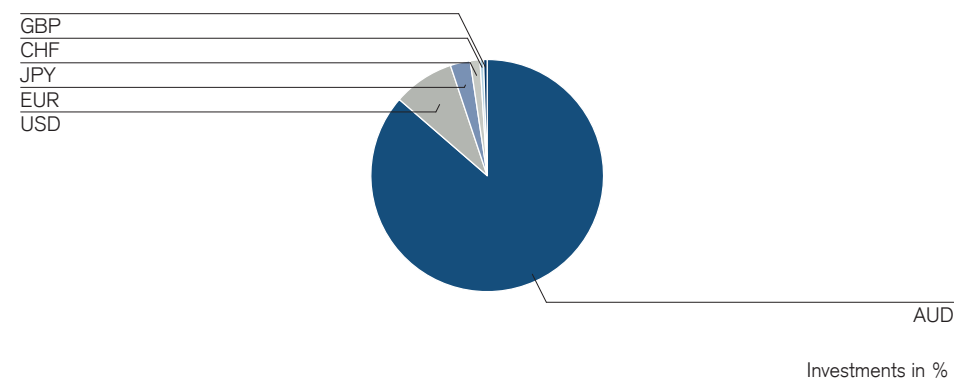
	Beginning Market Value in AUD	Change	Ending Market Value in AUD	Ending Market Value Prop.
■ Liquidity & Similar Investments	527,759	281,508	809,267	3.38%
■ Fixed Income & Similar Investments	13,123,179	265,291	13,388,470	55.94%
■ Equities & Similar Investments	5,401,477	152,513	5,553,990	23.21%
■ Alternative Investments, Commodities & Real Estate	3,782,714	-76,183	3,706,531	15.49%
■ Mixed & Other Investments	513,039	-37,049	475,990	1.99%
Total Investments	23,348,167		23,934,249	100.00%



Asset Allocation by Currency

Period 1.7.2018 - 31.7.2018

	Beginning Market Value in AUD	Change	Ending Market Value in AUD	Ending Market Value Prop.
■ AUD - Australian Dollar	20,224,625	551,228	20,775,853	86.80%
■ USD - US Dollar	2,024,402	21,753	2,046,155	8.55%
■ EUR - Euro	770,202	-103,934	666,267	2.78%
■ JPY - Japan Yen	328,938	-2,918	326,021	1.36%
■ CHF - Swiss Franc	0	61,537	61,537	0.26%
■ GBP - Pound Sterling	0	58,416	58,416	0.24%
Total Investments	23,348,167		23,934,249	100.00%



1.2. Income and Activity

Income Summary

Period 1.7.2018 - 31.7.2018

	Current Period in AUD	Year to Date in AUD
Cash Dividend	197,809	456,234
Coupon Received/Paid	0	0
Interest Earned/Paid	513	2,941
Net Income	198,322	459,175

Activity Summary

Period 1.7.2018 - 31.7.2018

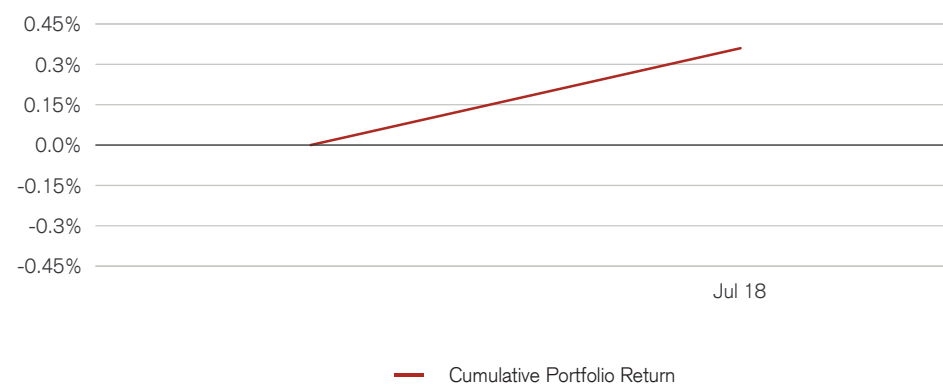
	Current Period in AUD	Year to Date in AUD
Asset Inflows	500,000	500,000
Asset Outflows	0	0
Net Investment Asset Flows	500,000	500,000
Net Non-Investment Flows	0	0

1.3. Performance

Performance Summary

Period 1.7.2018 - 31.7.2018

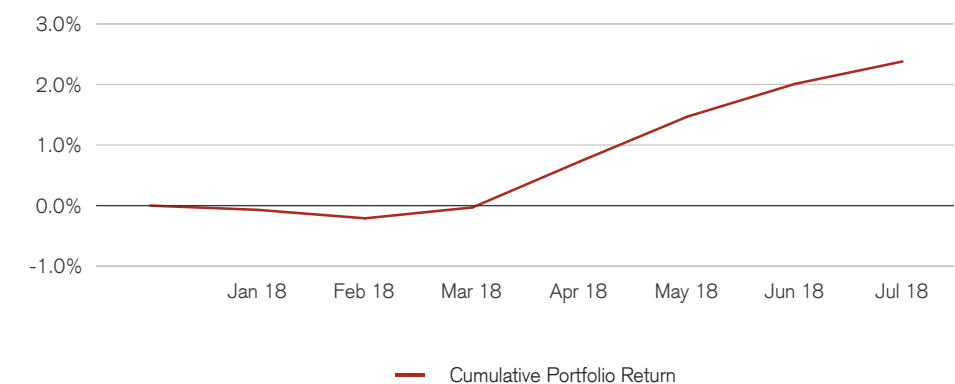
	Asset Value in AUD	Asset Value in AUD
Ending Market Value		23,934,249
Beginning Market Value		23,348,167
Asset Flows including		500,000
Inflows	500,000	
Outflows	0	
Net Non-Investment Flows	0	
Taxes	0	
Flow Adjusted Value Change		86,082
Cumulative Portfolio Return – net		0.36%



Performance Year-to-date

Period 1.1.2018 - 31.7.2018

	Asset Value in AUD	Asset Value in AUD
Ending Market Value		23,934,249
Beginning Market Value		22,894,610
Asset Flows including		493,737
Inflows	500,000	
Outflows	0	
Net Non-Investment Flows	0	
Taxes	-6,263	
Flow Adjusted Value Change		545,901
Cumulative Portfolio Return – net		2.38%



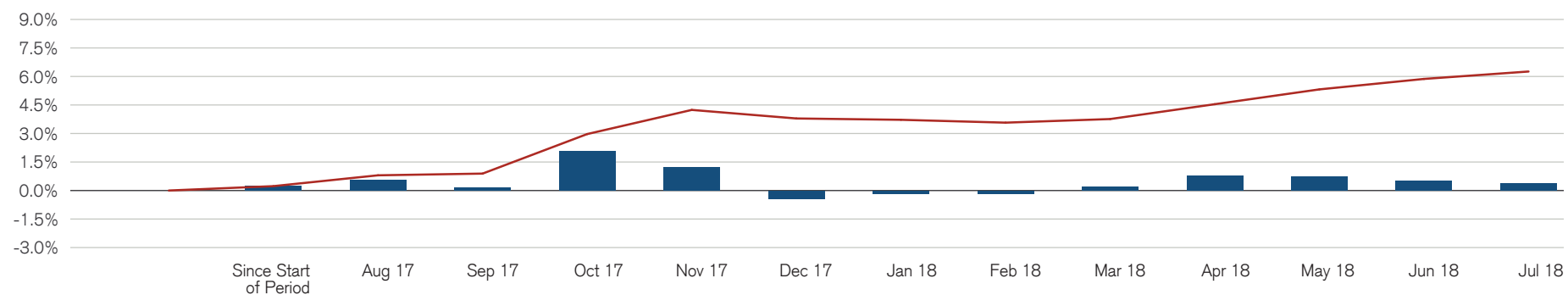
2. Analyses

2.1. Performance

Performance Details

Period 1.7.2017 - 31.7.2018

	Since Start of Period	Aug 17	Sep 17	Oct 17	Nov 17	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	Jun 18	Jul 18
Ending Market Value	21,618,222	21,742,060	22,257,046	22,717,001	22,997,237	22,894,610	22,879,301	22,845,845	22,883,939	23,057,480	23,228,882	23,348,167	23,934,249
Beginning Market Value	21,569,061	21,618,222	21,742,060	22,257,046	22,717,001	22,997,237	22,894,610	22,879,301	22,845,845	22,883,939	23,057,480	23,228,882	23,348,167
Asset Flows including	0	0	497,047	0	0	-3,087	0	0	-3,121	0	0	-3,142	500,000
Inflows	0	0	500,000	0	0	0	0	0	0	0	0	0	500,000
Outflows	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Non-Investment Flows	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxes	0	0	-2,953	0	0	-3,087	0	0	-3,121	0	0	-3,142	0
Flow Adjusted Value Change	49,162	123,838	17,938	459,955	280,236	-99,539	-15,310	-33,455	41,214	173,541	171,403	122,427	86,082
■ Portfolio Return – net	0.23%	0.57%	0.08%	2.07%	1.23%	-0.43%	-0.07%	-0.15%	0.18%	0.76%	0.74%	0.53%	0.36%
— Cumulative Portfolio Return	0.23%	0.80%	0.89%	2.97%	4.24%	3.79%	3.72%	3.57%	3.76%	4.54%	5.32%	5.87%	6.26%



3. Positions

3.1. Investment Related Positions

as of 31.7.2018

Number/ Nominal	Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
Liquidity & Similar Investments							
Accounts							
AUD	417,957.59	Current Account -20300003970945	1.0000		417,958		
					1.75%		
CHF	305.50	Current Account -20300003970010	1.0000		417	4	0.95%
			0.7401 AUD/CHF			4	0.95%
EUR	145,078.72	Current Account -20300003970056	1.0000		228,865	-1,027	-0.45%
			1.5846 EUR/AUD		0.96%	-1,027	-0.45%
GBP	0.32	Current Account -20300003970089	1.0000		1		
			1.7813 GBP/AUD				
JPY	12,992,517	Current Account -20300003970335	1.0000		157,820	618	0.39%
			82.6482 AUD/JPY		0.66%	618	0.39%
USD	3,122.24	Current Account -20300003970780	1.0000		4,207	-6	-0.13%
			0.7411 AUD/USD		0.02%	-6	-0.13%
Total Liquidity & Similar Investments					809,267	0	3.38%

Number/ Nominal	Description		Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
Fixed Income & Similar Investments								
Fixed Income & Similar Investments AUD								
AUD	4,004,845.64	UNITS -D- ISHARES AUSTRALIAN BOND INDEX FUND	AU60BGL01056 2244170	1.0280	1.0292 NAV 26.07.2018	4,121,887	4,968 4,968	0.12% 0.12%
						17.22%		
AUD	216,481.4291	UNITS BENTHAM WHOLESALE SYNDICATED LOAN FUND	AU60CSA00468 3242662	1.0139	1.0272 NAV 30.07.2018	222,370	2,873 2,873	1.31% 1.31%
						0.93%		
AUD	625.528	UNITS PIMCO GLOBAL CREDIT FUND	AU60ETL01145 3432906	1,001.6005	984.6345 NAV 31.07.2018	615,916	-10,613 -10,613	-1.69% -1.69%
						2.57%		
AUD	1,652.056	UNITS PIMCO AUSTRALIAN BOND FUND CLASS -A-	AU60ETL01152 3432899	1,112.1643	1,117.9146 NAV 31.07.2018	1,846,858	9,500 9,500	0.52% 0.52%
						7.72%		
AUD	2,466,718.97	UNITS LEGG MASON WESTERN ASSET AUSTRALIAN BOND TRUST CLASS -A-	AU60SSB01221 2248336	1.2071	1.2254 BID 30.07.2018	3,022,742	45,244 45,244	1.52% 1.52%
						12.63%		
AUD	3,177,408.28	UNITS VANGUARD AUSTRALIAN FIXED INTEREST INDEX FUND	AU60VAN00014 1653500	1.1291	1.1200 NAV 31.07.2018	3,558,697	-28,947 -28,947	-0.81% -0.81%
						14.87%		
Total Fixed Income & Similar Investments						13,388,470 0 55.94%		
Equities & Similar Investments								
Equities & Similar Investments AUD								
AUD	655	REGISTERED SHS AGL ENERGY LTD	AU000000AGL7 2449486 AGL.AX	22.5216	21.9900 CLO 31.07.2018	14,403	-348 -348	-2.36% -2.36%
						0.06%		

Number/ Nominal	Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
AUD	3,944 REGISTERED SHS AUSTRALIA & NEW ZEALAND BANKING GROUP LTD	AU000000ANZ3 640139 ANZ.AX	30.2706	29.3000 CLO 31.07.2018	115,559 0.48%	-3,828 -3,828	-3.21% -3.21%
AUD	7,387 REGISTERED SHS BHP BILLITON LTD	AU000000BHP4 640390 BHP.AX	28.3560	34.8600 CLO 31.07.2018	257,511 1.08%	48,045 48,045	22.94% 22.94%
AUD	1,337 REGISTERED SHS CARSALES.COM LTD	AU000000CAR3 10476764 CAR.AX	14.2157	13.9400 CLO 31.07.2018	18,638 0.08%	-369 -369	-1.94% -1.94%
AUD	2,202 REGISTERED SHS COMMONWEALTH BANK OF AUSTRALIA	AU000000CBA7 646758 CBA.AX	76.9862	74.7900 CLO 31.07.2018	164,688 0.69%	-4,836 -4,836	-2.85% -2.85%
AUD	3,786 REGISTERED SHS COMPUTERSHARE LTD	AU000000CPU5 241285 CPU.AX	16.7036	18.1900 CLO 31.07.2018	68,867 0.29%	5,627 5,627	8.90% 8.90%
AUD	1,268 REGISTERED SHS CSL LTD	AU000000CSL8 241548 CSL.AX	99.5501	196.6100 CLO 31.07.2018	249,301 1.04%	123,072 123,072	97.50% 97.50%
AUD	6,840 REGISTERED SHS EVOLUTION MINING LTD	AU000000EVN4 14241033 EVN.AX	2.4387	2.7900 CLO 31.07.2018	19,084 0.08%	2,403 2,403	14.40% 14.40%
AUD	3,750 REGISTERED SHS FORTESCUE METALS GROUP LTD	AU000000FMG4 1655130 FMG.AX	5.0451	4.3700 CLO 31.07.2018	16,388 0.07%	-2,532 -2,532	-13.38% -13.38%

Number/ Nominal	Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
AUD	7,298 UNITS ISHARES CORE S&P/ASX 200 ETF EXCHANGE TRADED FUND	AU000000IOZ4 12101500 IOZ.AX	24.4273	25.8800 CLO 31.07.2018	188,872 0.79%	10,602 10,602	5.95% 5.95%
AUD	2,254 CHESS UNITS OF FOREIGN SECURITIES JAMES HARDIE INDUSTRIES PLC	AU000000JHX1 1303670 JHX.AX	21.4891	21.5000 CLO 31.07.2018	48,461 0.20%	25 25	0.05% 0.05%
AUD	1,051 REGISTERED SHS MAGELLAN FINANCIAL GROUP LTD	AU000000MFG4 2807450 MFG.AX	23.9933	24.6800 CLO 31.07.2018	25,939 0.11%	722 722	2.86% 2.86%
AUD	1,088 REGISTERED SHS MACQUARIE GROUP LTD	AU000000MQG1 3422370 MQG.AX	64.8438	122.8200 CLO 31.07.2018	133,628 0.56%	63,078 63,078	89.41% 89.41%
AUD	4,972 REGISTERED SHS NATIONAL AUSTRALIA BANK LTD	AU000000NAB4 641643 NAB.AX	31.3540	28.3300 CLO 31.07.2018	140,857 0.59%	-15,035 -15,035	-9.64% -9.64%
AUD	1,004 REGISTERED SHS NEWCREST MINING LTD	AU000000NCM7 650853 NCM.AX	22.6903	21.6300 CLO 31.07.2018	21,717 0.09%	-1,065 -1,065	-4.67% -4.67%
AUD	14,228 REGISTERED SHS ORORA LTD	AU000000ORA8 22750502 ORA.AX	2.9538	3.6300 CLO 31.07.2018	51,648 0.22%	9,621 9,621	22.89% 22.89%
AUD	7,973 REGISTERED SHS ORIGIN ENERGY LTD	AU000000ORG5 1051439 ORG.AX	8.7632	9.7700 CLO 31.07.2018	77,896 0.33%	8,027 8,027	11.49% 11.49%

Number/ Nominal	Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
AUD	6,744 REGISTERED SHS QANTAS AIRWAYS LTD	AU000000QAN2 390413 QAN.AX	6.5416	6.7200 CLO 31.07.2018	45,320 0.19%	1,203 1,203	2.73% 2.73%
AUD	331 REGISTERED SHS REA GROUP LTD -47 of which is pending settlement	AU000000REA9 1023132 REA.AX	61.1165	86.8000 CLO 31.07.2018	28,731 0.12%	8,501 8,501	42.02% 42.02%
AUD	1,417 REGISTERED SHS RIO TINTO LTD	AU000000RIO1 603520 RIO.AX	66.1556	81.2000 CLO 31.07.2018	115,060 0.48%	21,318 21,318	22.74% 22.74%
AUD	1,248 SHS RESMED INC CHESS DEPOSITORY INTERESTS REPR 1/10 SH	AU000000RMD6 1058638 RMD.AX	9.4680	14.0900 CLO 31.07.2018	17,584 0.07%	5,768 5,768	48.82% 48.82%
AUD	34,350 UNITS SPDR S&P/ASX 200 LISTED PROPERTY FUND EXCHANGE TRADED FUND	AU000000SLF1 1377855 SLF.AX	11.8281	12.7100 CLO 31.07.2018	436,589 1.82%	30,293 30,293	7.46% 7.46%
AUD	3,288 UNITS SPDR S&P/ASX 200 FUND ETF AUSTRALIAN EQUITY EXCHANGE TRADED FUNDS	AU000000STW9 1285707 STW.AX	54.6345	58.8100 CLO 31.07.2018	193,367 0.81%	13,729 13,729	7.64% 7.64%
AUD	2,758 REGISTERED SHS SUNCORP GROUP LTD	AU000000SUN6 588679 SUN.AX	13.6846	14.9700 CLO 31.07.2018	41,287 0.17%	3,545 3,545	9.39% 9.39%
AUD	5,339 STAPLED SECURITY TRANSURBAN GROUP	AU000000TCL6 444655 TCL.AX	10.5638	11.7000 CLO 31.07.2018	62,466 0.26%	6,066 6,066	10.76% 10.76%

Number/ Nominal	Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
AUD	10,873	REGISTERED SHS TELSTRA CORPORATION LTD	AU000000TLS2 720464 TLS.AX	4.9151	2.8400 CLO 31.07.2018	30,879 -22,562 -22,562 0.13%	-42.22% -42.22%
AUD	5,137	REGISTERED SHS WESTPAC BANKING CORP	AU000000WBC1 642372 WBC.AX	32.4425	29.4600 CLO 31.07.2018	151,336 -15,321 -15,321 0.63%	-9.19% -9.19%
AUD	1,469 -285	REGISTERED SHS WESFARMERS LTD of which is pending settlement	AU000000WES1 642397 WES.AX	43.4520	49.4600 CLO 31.07.2018	72,657 8,826 8,826 0.30%	13.83% 13.83%
AUD	1,822	REGISTERED SHS WOOLWORTHS GROUP LTD	AU000000WOW2 81350 WOW.AX	29.1109	30.0900 CLO 31.07.2018	54,824 1,784 1,784 0.23%	3.36% 3.36%
AUD	1,970	REGISTERED SHS WOODSIDE PETROLEUM LTD	AU000000WPL2 642429 WPL.AX	35.0809	36.1400 CLO 31.07.2018	71,196 2,086 2,086 0.30%	3.02% 3.02%
AUD	45,533.01	UNITS ELEY GRIFFITHS GROUP SMALL COMPANIES FUND	AU60EGG00011 3222428	2.1061	2.3270 NAV 31.07.2018	105,955 10,059 10,059 0.44%	10.49% 10.49%
AUD	33,464.65040	UNITS ABERDEEN EMERGING OPPORTUNITIES FUND	AU60ETL00329 2220820	2.1370	2.2898 NAV 31.07.2018	76,627 5,115 5,115 0.32%	7.15% 7.15%
AUD	119,265	UNITS PARTNERS GROUP GLOBAL VALUE FUND (AUD) WHOLESALE	AU60ETL02762 26607292	1.8711	2.0346 NAV 29.06.2018	242,657 19,500 19,500 1.01%	8.74% 8.74%
AUD	20,828.8111	UNITS IRONBARK KARARA AUSTRALIAN SMALL COMPANIES FUND CLASS -A-	AU60PAT00021 2879000	2.9982	3.7651 BID 27.07.2018	78,423 15,974 15,974 0.33%	25.58% 25.58%

Number/ Nominal	Description		Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
AUD	917	REGISTERED SHS OIL SEARCH LTD	PG0008579883 809900 OSH.AX	7.8272	8.9800 CLO 31.07.2018	8,235 0.03%	1,057 1,057	14.73% 14.73%
Total Equities & Similar Investments AUD						3,446,649 0 14.40%		
Equities & Similar Investments CHF								
CHF	470	UNITS -A- ISHARES ETF (CH) - ISHARES SMI(R) ETF (CH)	CH0008899764 889976 CSSMI.S	91.3876 0.7370 AUD/CHF	95.3400 CLO 31.07.2018	61,120 0.26%	2,839 2,534 305	4.87% 4.32% 0.55%
Total Equities & Similar Investments CHF						61,120 0 0.26%		
Equities & Similar Investments EUR								
EUR	5,350	SHS EUR ISHARES II PLC - ISHARES MSCI EUROPE UCITS ETF EUR (DIST)	IE00B1YZSC51 3246398 IQQY.DE	23.7541 1.4983 EUR/AUD	24.6550 OFF 31.07.2018	208,082 0.87%	17,671 7,604 10,067	9.28% 3.79% 5.49%
EUR	8,647	ACCUM.PTG.SHS WELLINGTON MANAGEMENT FUNDS (IRELAND) PLC - WELLINGTON STRATEGIC EUROPEAN EQUITY FUND CLASS -N- UNHEDGED EUR	IE00B9DPD161 20938626	13.6140 1.4606 EUR/AUD	16.8114 NAV 30.07.2018	229,321 0.96%	57,380 43,615 13,765	33.37% 23.49% 9.89%
Total Equities & Similar Investments EUR						437,403 0 1.83%		

Number/ Nominal	Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
Equities & Similar Investments GBP							
GBP	277	ACCUM.SHS GBP ISHARES VII PLC - ISHARES FTSE 100 UCITS ETF	IE00B53HP851 10737489 CUKX.L	116.1683 1.7867 GBP/AUD 31.07.2018	58,415 0.24%	922 1,514 -592	1.60% 2.66% -1.06%
Total Equities & Similar Investments GBP					58,415 0 0.24%		
Equities & Similar Investments JPY							
JPY	601	UNITS NIKKEI 225 EXCHANGE TRADED FUND	JP3027650005 1264151 1321.T	18,676.7554 88.3391 AUD/JPY 31.07.2018	168,200 0.70%	41,136 31,853 9,283	32.37% 23.36% 9.01%
Total Equities & Similar Investments JPY					168,200 0 0.70%		
Equities & Similar Investments USD							
USD	234	ACCUM.PTG.SHS ISHARES VII PLC - ISHARES NASDAQ 100 UCITS ETF USD	IE00B53SZB19 10737617 CSNDX.S	188.8481 0.9141 AUD/USD 31.07.2018	126,866 0.53%	78,524 67,320 11,204	162.43% 113.05% 49.38%
USD	190	SHS -IP- RAM (LUX) SYSTEMATIC FUNDS SICAV - EMERGING MARKETS EQUITIES CAPITALISATION	LU0704154458 14219625	149.4364 0.7594 AUD/USD 30.07.2018	48,268 0.20%	10,878 10,009 869	29.09% 26.16% 2.93%
USD	36,695	SHS -UCITS ETF USD C- AMUNDI INDEX SOLUTIONS SICAV - AMUNDI MSCI EMERGING MARKETS CAPITALISATION	LU1681045453 38785088 AUEM.PA	5.3202 0.7975 AUD/USD 31.07.2018	235,789 0.99%	-8,992 -27,274 18,282	-3.67% -10.37% 6.69%

Number/ Nominal	Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
USD	1,160	SHS ISHARES GLOBAL HEALTHCARE ETF	US4642873255 1352444 IXJ.P	47.5979 0.8872 AUD/USD 31.07.2018	60.0100 CLO 93,801 0.39%	31,571 19,401 12,170	50.73% 26.08% 24.66%
USD	1,590	TRUST UNITS SPDR S&P 500 ETF TRUST	US78462F1030 45088 SPY.P	194.2484 0.8559 AUD/USD 31.07.2018	281.3300 CLO 602,753 2.52%	241,910 186,573 55,337	67.04% 44.83% 22.21%
USD	3,368	SHS FINANCIAL SELECT SECTOR SPDR FUND	US81369Y6059 986018 XLF.P	27.6309 0.7755 AUD/USD 31.07.2018	27.9500 CLO 126,847 0.53%	6,842 1,448 5,394	5.70% 1.15% 4.55%
USD	2,501	SHS VANGUARD FTSE EMERGING MARKETS ETF	US9220428588 2093958 VWO.P	41.2138 0.7809 AUD/USD 31.07.2018	43.8800 CLO 147,879 0.62%	15,882 8,985 6,896	12.03% 6.47% 5.56%
Total Equities & Similar Investments USD					1,382,203 0 5.77%		
Total Equities & Similar Investments					5,553,990 0 23.21%		
Alternative Investments, Commodities & Real Estate							
Hedge Funds							
AUD	324,858.41	UNITS BLACKROCK GLOBAL ALLOCATION FUND (AUST) CLASS -D- WHOLESALE	AU60MAL00181 3379478	1.2410	1.2257 NAV 26.07.2018	398,171 -4,993 -4,993	-1.24% -1.24%
					1.66%		
AUD	188,573	RED.PTG.SHS -A1- AHL (CAYMAN) SPC AUD CLASS A EVOLUTION SEGREGATED PORTFOLIO	KYG012291145 22393979	1.1382	1.7686 NAV 30.06.2018	333,510 118,875 118,875	55.38% 55.38%
					1.39%		

Number/ Nominal	Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
AUD	336,454.813	RED.PTG.SHS -A- AHL DIMENSION (CAYMAN) LIMITED AUD	KYG0132G1652 30773689	0.9991	1.0144 NAV 30.06.2018	341,300 5,138	1.53% 1.53%
					1.43%		
Total Hedge Funds					1,072,981 0 4.48%		
Commodities & Precious Metals							
AUD	3,763	ETC SECURITY ETFS METAL SECURITIES AUSTRALIA LTD 2003-WITHOUT FIXED MATURITY ON GOLD COMMODITY	AU00000GOLD7 1583458 GOLD.AX	148.4888	155.3700 CLO 31.07.2018	584,657 25,894	4.63% 4.63%
					2.44%		
USD	550	UBS ETC UBS AG, LONDON BRANCH 2007- OPEN END ON UBS BLOOMBER CMCI COMPOSITE TOTAL RETURN	CH0031794263 3179426 TCMCI.S	1,014.9918 0.8413 AUD/USD	890.2000 CLO 31.07.2018	659,745 -3,792 -92,486 88,694	-0.57% -12.29% 11.72%
					2.76%		
Total Commodities & Precious Metals					1,244,402 0 5.20%		
Real Estate							
AUD	7,604	STAPLED SECURITY DEXUS	AU000000DXS1 3819970 DXS.AX	9.9329	10.0800 CLO 31.07.2018	76,648 1,119	1.48% 1.48%
					0.32%		
AUD	22,496 14,513	STAPLED SECURITY GOODMAN GROUP of which is pending settlement	AU000000GMG2 18079202 GMG.AX	8.7338	9.6300 CLO 31.07.2018	216,636 20,160	10.26% 10.26%
					0.91%		
AUD	112,814	STAPLED SECURITY MIRVAC GROUP	AU000000MGR9 821911 MGR.AX	1.8177	2.2800 CLO 31.07.2018	257,216 52,150	25.43% 25.43%
					1.07%		

Number/ Nominal		Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
AUD	251,290	STAPLED SECURITY PROPERTYLINK GROUP	AU000000PLG5	0.8264	1.0600 CLO	266,367	58,693	28.26%
			33393604 PLG.AX		31.07.2018	1.11%	58,693	28.26%
AUD	22,046	STAPLED SECURITY SCENTRE GROUP	AU000000SCG8	3.4296	4.2500 CLO	93,696	18,087	23.92%
	-52,328	of which is pending settlement	23931192 SCG.AX		31.07.2018	0.39%	18,087	23.92%
AUD	2,163	STAPLED SECURITY STOCKLAND	AU000000SGP0	4.5725	4.1500 CLO	8,976	-914	-9.24%
			642077 SGP.AX		31.07.2018	0.04%	-914	-9.24%
Total Real Estate						919,540 0 3.84%		
Other Alternative Investments								
AUD	4,291	PTG.SHS LEGG MASON GLOBAL FUNDS PLC	IE00BYOZZ17	101.6481	109.4400 NAV	469,607	33,435	7.67%
		- LEGG MASON WESTERN ASSET MACRO	28828240		30.07.2018	1.96%	33,435	7.67%
		OPPORTUNITIES BOND FUND PREMIER						
		CLASS DISTRIBUTING (S) HEDGED AUD						
Total Other Alternative Investments						469,607 0 1.96%		
Total Alternative Investments, Commodities & Real Estate						3,706,531 0 15.49%		

Number/ Nominal		Description	Identification ISIN Valoren Number Ticker	Cost Valuation Price Exchange Rate	Current Valuation Price/ Type Date	Value in AUD of which Accrued Interest Proportion in %	Profit/ Loss Unrealized in AUD of which Instrument of which Forex	P/L Unreal. in % Instr. in % FX in %
Mixed & Other Investments								
AUD	462,530.637	UNITS GMO SYSTEMATIC GLOBAL MACRO TRUST CLASS -B-	AU60GMO00067 3375604	1.0083	1.0291 NAV 27.07.2018	475,990	9,626	2.06%
						1.99%	9,626	2.06%
Total Mixed & Other Investments						475,990 0 1.99%		
Total Investments						23,934,249 100.00%		
of which Accrued Interest						0		

4. Appendix

4.1. Explanations

Accrued Interest

Accrued interest is not displayed for financial instruments with variable interest rate or frequency within the same interest period, except for Floating Rate Notes. For FINER Revexus, the accrued interest displayed is based on the deposit currency for reference purpose only. Entitlement to the accrued interest depends on the product features. All accrued interests are displayed in the reporting currency of the portfolio and are calculated recognizing trades end of day. The FX conversion rates (reflected below) are used to convert the amount from original currency to reporting currency. The accrued interest payable/receivable is displayed as the net amount on Current Account balances. As a result of the foregoing and other factors, the accrued interest is only an estimate and may not reflect the actual interest accrued, if any.

Activity Summary

The asset inflows and outflows include client-instructed transactions, which are aggregated as Net Investment Asset Flows. Non-Investment Flows refer to transactions related to Non-Investment Related Positions such as loan transactions to finance such Non-Investment Related Positions. Non-investment Flows do not contribute to the performance of the account. Such asset inflows and outflows do not include fees and taxes.

Analyses

Values displayed for the respective month labels are as of month-end dates. If the report end period is not a month-end, the report period end month label will show the values as of the report period end date.

Asset Classification

If an instrument is classified as 'not classifiable', the instrument is pending its proper classification. As soon this is available in the system, the instrument will reflect the correct classification.

Cost Valuation Exchange Rates

For the Positions section, the cost valuation exchange rate displayed is always the instrument currency against the portfolio currency.

For the Transactions section, the cost valuation exchange rate displayed is always between the instrument currency and reporting currency. For execution of FX purchase/sale transactions, the transaction valuation is based on the end of day exchange rate on the value date and the cost valuation is based on the FX contract rate.

Duration

Modified duration is a change in the price of a bond arising from a change in market yields. Modified duration is expressed as an approximate percentage. The investment report displays the Modified Duration method for all Fixed Income instruments.

Fees/ Taxes

Fees include management or safekeeping fees.

Taxes include value-added taxes and service related taxes, depending on country specific rules.

Income Summary

Coupon received and coupon paid, as well as interest earned and interest paid, does not include accrued or unpaid coupon or interest.

Year to date figures include the addition of the monthly figures inclusive of any backdated income processing/ adjustments.

Figures shown can be gross or net depending on the specific country and market practice.

Non-Investment related Income is included in the Income Summary.

Market Value

The values stated as begin of period are asset values as of the last reported statement period.

The values stated as beginning/ ending market values are asset values that are inclusive of most updated market prices and backdated transactions.

Non-Investment Related Positions

Non-Investment Related Positions refer to positions held in the form of insurance policies, guarantees (standby letters of credit/bank guarantees/holdcovers) or mortgages,.

Non-Investment Related Positions are displayed in the Scope of Analysis and in the Non-Investment Related Positions section. However, they are not included in any other analyses.

Performance Calculation

The performance figures are calculated based on investment related positions using the TWR Daily method (Time Weighted Rate of Return), which is based on geometrically linking daily rates of return.

The start of period displayed for the performance calculation is referring to Beginning Market Value, which is the closing balance of the previous day. The end of period displayed is referring to Ending Market Value, which is the closing balance of the day.

The net of fees and gross of taxes return is calculated after deduction of fees and before deduction of taxes.

The cumulative return calculation is reset, every time when geometrically linking the rates of return would render distorted values. Such scenarios can happen when the market values fluctuate around zero.

Return values prior 2015 displayed in this report might be different from previously reported return values.

Profit/ Loss Calculation

Realized and unrealized profit and loss are calculated by comparing the market or transaction value with the average cost value. For every trade date the system computes the average cost, first processing investments before disinvestments. Transaction costs are included in both realized and unrealized profit/loss calculation.

Unrealized profit/ loss displayed in the Positions section are calculated as of the reporting date. FX conversion rates used in the computation of the unrealized profit/loss is the derived rate based on the average price as of the individual transaction date.

Rating

Rating refers to the rating of an investment product and is either based on information available to the Bank or is obtained from sources believed to be reliable by the Bank as of the investment report date.

Yield

The investment report displays Yield for all Fixed Income instruments and is displayed per market price.

Abbreviations

BID = Bid Price
 CLO = Closing Price
 NAV = Net Asset Value
 OFF = Official Price

Rounding logic

Values in this investment report are calculated with exact numbers, however when presenting the data, values are rounded and therefore minor rounding differences might occur.

Large Numbers

The figures are consolidated and shown in denominations of thousands, millions and billions where applicable. If a value is too long to be displayed in the report itself, e.g. 1,526,555,333.26 the figure is consolidated and displayed as 1,526,555.33 in thousands in the report. If the value exceeds the column limit, a further division will take place and the phrase in millions/in billions will be displayed.

Conversion Rates as of 31.7.2018

AUD 1.0000 = CHF 0.7331
 AUD 1.0000 = JPY 82.3247
 AUD 1.0000 = USD 0.7421

EUR 1.0000 = AUD 1.5775
 GBP 1.0000 = AUD 1.7683

4.2. Legal Information

According to the Account Opening Terms and Conditions, this investment report shall be conclusive and binding if the Bank does not receive your objection in writing to any matters contained in this investment report within 14 days from the issue date.

Deposits with Credit Suisse are not subject to Division 2 of the Banking Act - Protection of Depositors.

If your account is booked with Credit Suisse AG, Sydney Branch or if your Relationship Manager (RM) or Investment Consultant is located in Australia, please refer to the Important Notice on Sales Disclosure to Investors for sales related information including information on monetary benefits received by the Bank where it distributes an investment product to you.

The Bank provides price indications for financial derivatives transactions, structured products and non-listed financial instruments based upon available market reference prices believed to be reliable. The Bank does not make any representation as to the accuracy or completeness of price indications for transactions nor the guarantee to buy/sell at the price indicated. The Bank does not accept liability for any loss arising from the client's use of, or reliance on, such price indications. The price indications of the initial purchase price may be different from the actual purchase price.

In the absence of reliable market reference prices, the Bank may assign a nominal value or make an appropriate comment on your investment report. As a result, the investment report may contain price indications or comments as the Bank sees appropriate in the prevailing circumstances. If you have any queries in this respect, please contact your Relationship Manager.

The Bank will, at the time of printing this investment report, use the last price indications available to it. Due to the time differences between the Asia Pacific region and markets in other regions, the price indications reflected in the Bank's investment report will not always reflect the price indications available on the last business day of the month in certain markets.

The Bank may use either an onshore or offshore CNY rate for FX conversion to reporting currency depending on the asset. Please note that there may be a differential between the onshore and offshore rate. Please refer to your RM if you need further information on the FX conversion rate applied in relation to your CNY positions.

The information in this investment report does not constitute legal or tax advice. You should consult your legal and/or tax experts if you need any such advice. The investment report does not take tax rules and regulations into consideration, and thus it cannot be used for tax reporting purposes.

This investment report is an electronically generated report and does not require a signature.

Agenda Item 9

APNIC Survey report

2018 APNIC Member Survey

Presentation to Executive Council



AGENDA

Methodology

Language translations

Data cleansing and survey statistics

Results

Usage and satisfaction

Operational challenges

Governance

Survey Matters recommendations

Questions

METHODOLOGY

- Face to face focus groups held in ten (10) economies, plus five (5) online focus groups
- Online survey questions based on outputs from focus groups
- Distributed in June 2018 and open for four (4) weeks)
- 1,241 completed responses received – an increase of 5% on the 2016 Survey
 - Sample size provides 95% confidence that results are within +/- 3% of presented figures

Regions



South Asia	29%
East Asia	27%
South East Asia	21%
Oceania	20%
Non-APNIC Regions	3%

Economies



LDEs	Developing	Developed
24%	54%	19%

Organisation Relationship



Members	Stakeholders
73%	27%

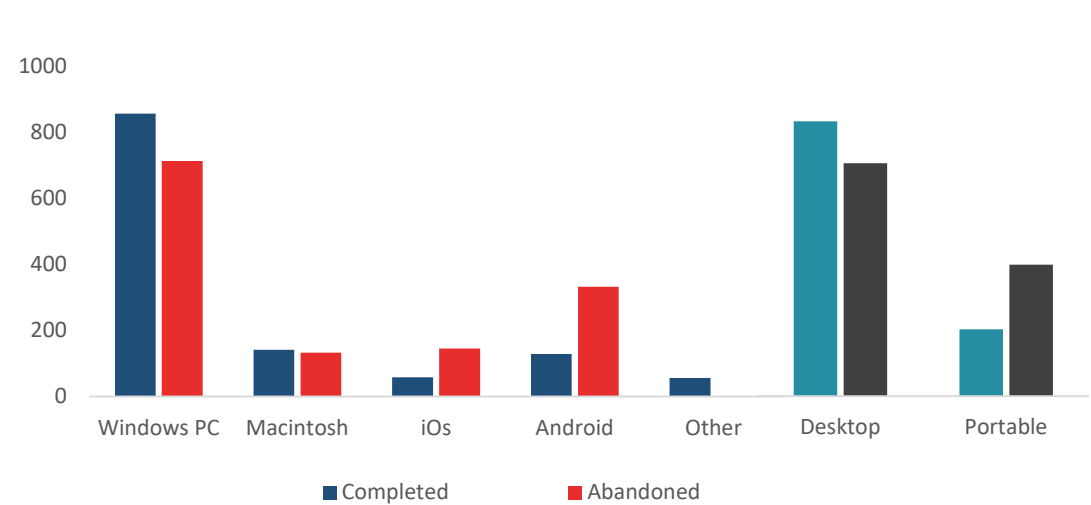
LANGUAGE TRANSLATIONS

- Survey translated into eight (8) different languages – Bengali, Simplified & Traditional Chinese, Bahasa Indonesia, Japanese, Korean, Mongolian and Thai
- Languages chosen based on level of perceived English proficiency, Membership size and level of engagement with previous surveys
- 31% of responses completed in language other than English
- Very successful trial - recommend expanding to other languages in next Survey

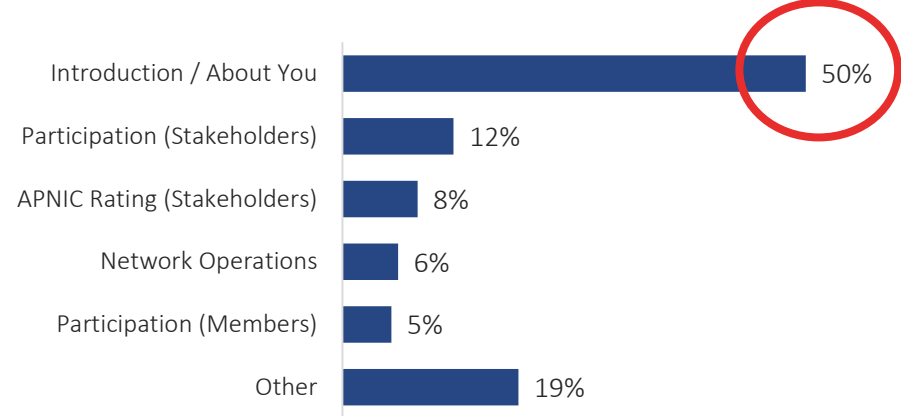
Where do you live?	Total Responses	Responses in other language	% Responses in other language	Language
Australia	132	2	1%	Mongolian & Simplified Chinese
Bangladesh	138	41	30%	Bengali
China	107	101	94%	Simplified & Traditional Chinese
Hong Kong Special Administrative Region of China	53	22	42%	Simplified & Traditional Chinese
India	82	2	2%	Bengali
Indonesia	51	43	84%	Bahasa Indonesian
Japan	63	61	97%	Japanese & Mongolian
Lao People's Democratic Republic	4	3	75%	Thai
Macao Special Administrative Region of China	2	2	100%	Traditional Chinese
Mongolia	71	45	63%	Mongolian
Republic of Korea	11	9	82%	Korean
Taiwan	30	28	93%	Traditional Chinese
Thailand	41	27	66%	Thai
Timor-Leste	2	1	50%	Bahasa Indonesian

SURVEY STATISTICS

Completed / Abandoned by Device Type



Abandoned by Survey Section



Even though we improved responses from 2016, the abandon rate was very high, particularly on mobile devices

The number who abandoned the survey without completing was 885

The abandoned graph includes respondents who came back to the survey more than once, but still did not complete it

The average time to complete the survey was 28 minutes, 25 seconds

Consistent with other surveys we conduct, most people abandon very early in the survey

DATA CLEANSING

Data Cleansing

- Total of 1,264 responses received
- After interrogation, 23 removed as either generally unreliable or multiple responses from the same respondent

Cleansing Methodology

- Removal of records where respondents answered too quickly or selected the same rating regardless of the question asked (called response bias)
- Removal of multiple responses where prize draw information was the same name, email and telephone number
- Review of records from the same IP address where the respondent data regarding relationship with APNIC and country of origin was inconsistent with the IP address and location data
- Review of free text comments for same or similar writing style and responses having the same wording



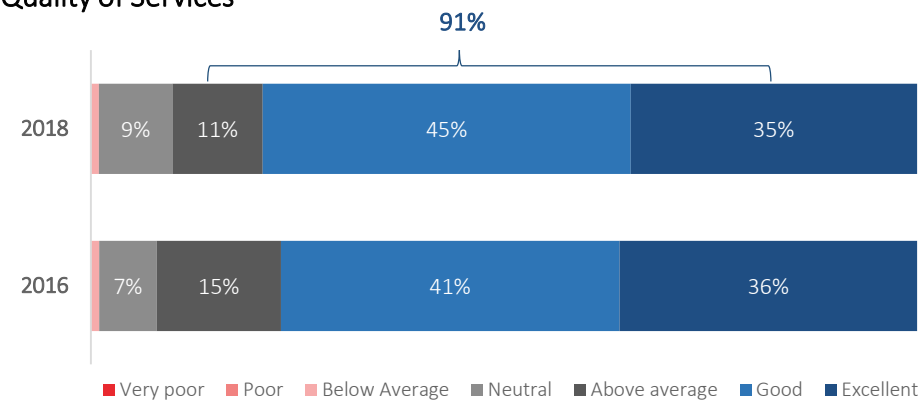
RESULTS

Usage and Satisfaction

OVERALL SATISFACTION

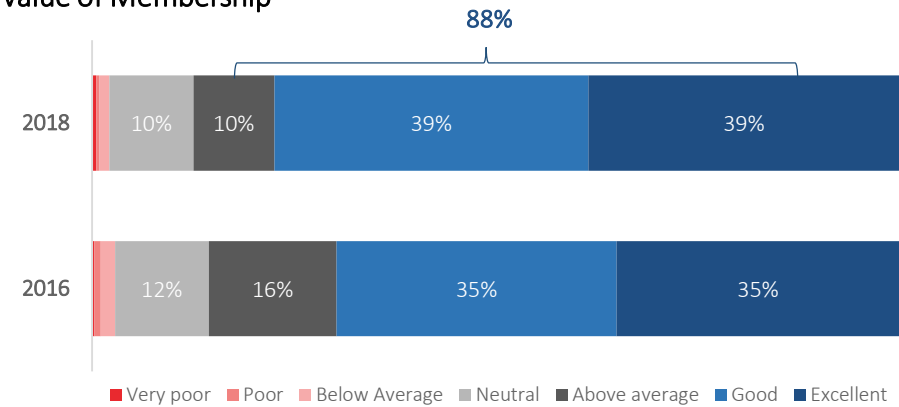
Q 8 –Thinking about APNIC overall, how would you rate: (Asked of Members only)

Quality of Services



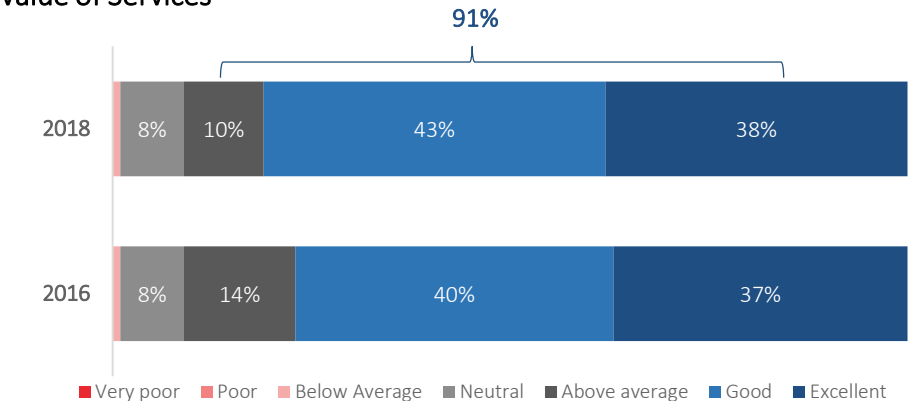
Q 8 –Thinking about APNIC overall, how would you rate: (Asked of Members only)

Value of Membership



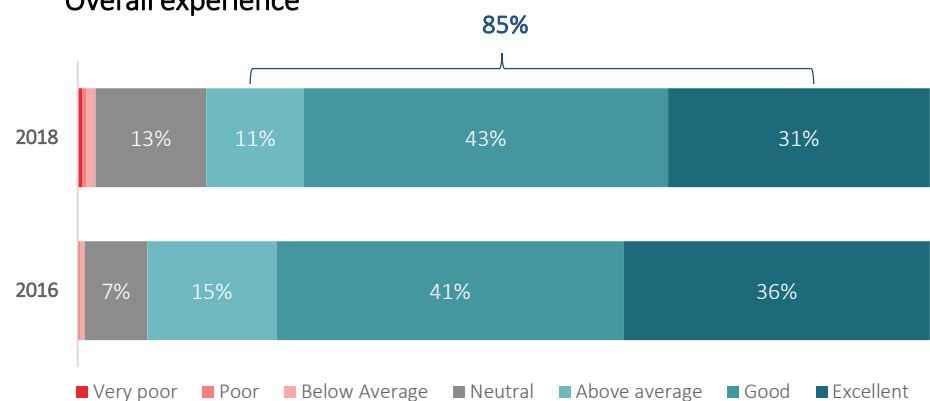
Q 8 –Thinking about APNIC overall, how would you rate: (Asked of Members only)

Value of Services



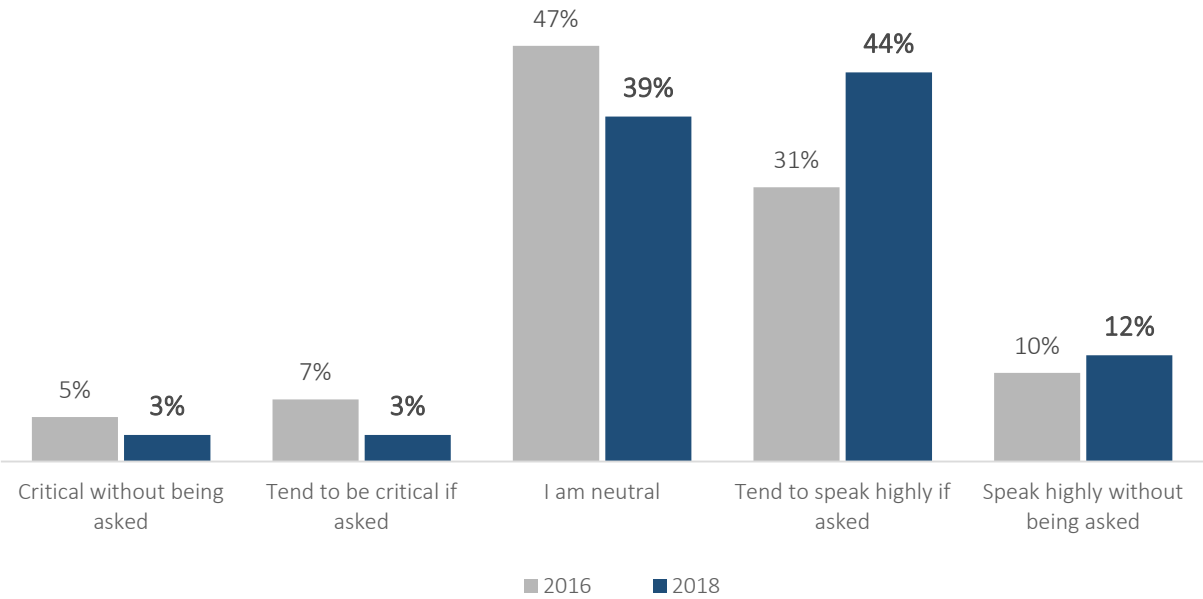
Q 9. Overall, how would you rate your experience dealing with APNIC? (Asked of Stakeholders only)

Overall experience



ENDORSEMENT

Q 38 – Which of these phrases best describes the way you speak about APNIC to others?



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	903	338	337	251	259	356	294	672	237
Critical without being asked	2%	5%	7%	0%	2%	2%	2%	4%	0%
Tend to be critical if asked	3%	2%	2%	2%	4%	2%	3%	3%	3%
I am neutral	36%	47%	50%	32%	48%	26%	27%	40%	49%
Tend to speak highly if asked	48%	32%	33%	49%	39%	53%	51%	40%	43%
Speak highly without being asked	12%	14%	9%	16%	7%	17%	18%	13%	5%
Mean Score	3.64	3.49	3.35	3.77	3.46	3.82	3.80	3.54	3.52

Segment mean significantly higher / lower than total mean score

SERVICE USAGE

Q 5 - APNIC Services used by respondents over the last 2 years

	Total	Member	Stakeholder	Change 2016-18
Visited the website	76%	77%	70%	+1%
* Used MyAPNIC	62%	62%	-	+3%
Used the Whois Database	56%	56%	54%	+7%
* Received IP addresses	45%	45%	-	-
Read the blog	44%	43%	48%	+1%
* Applied for IP addresses	41%	41%	-	-12%
* Contacted the helpdesk	38%	38%	-	+5%
Attended training	27%	26%	32%	+5%
Attend conference/event	25%	24%	30%	+3%
Personally met with APNIC	21%	21%	23%	+4%
* Used reverse DNS	20%	20%	-	-7%
Attended presentation	18%	16%	23%	+3%
** Contacted APNIC	16%	-	16%	-8%
* Technical assistance	13%	13%	-	-
* Transferred IPv4 addresses	13%	13%	-	+1%
* Used RPKI services	10%	10%	-	+5%
Participate SIGs/Meetings	9%	7%	14%	+2%
Policy Development	6%	5%	9%	+1%

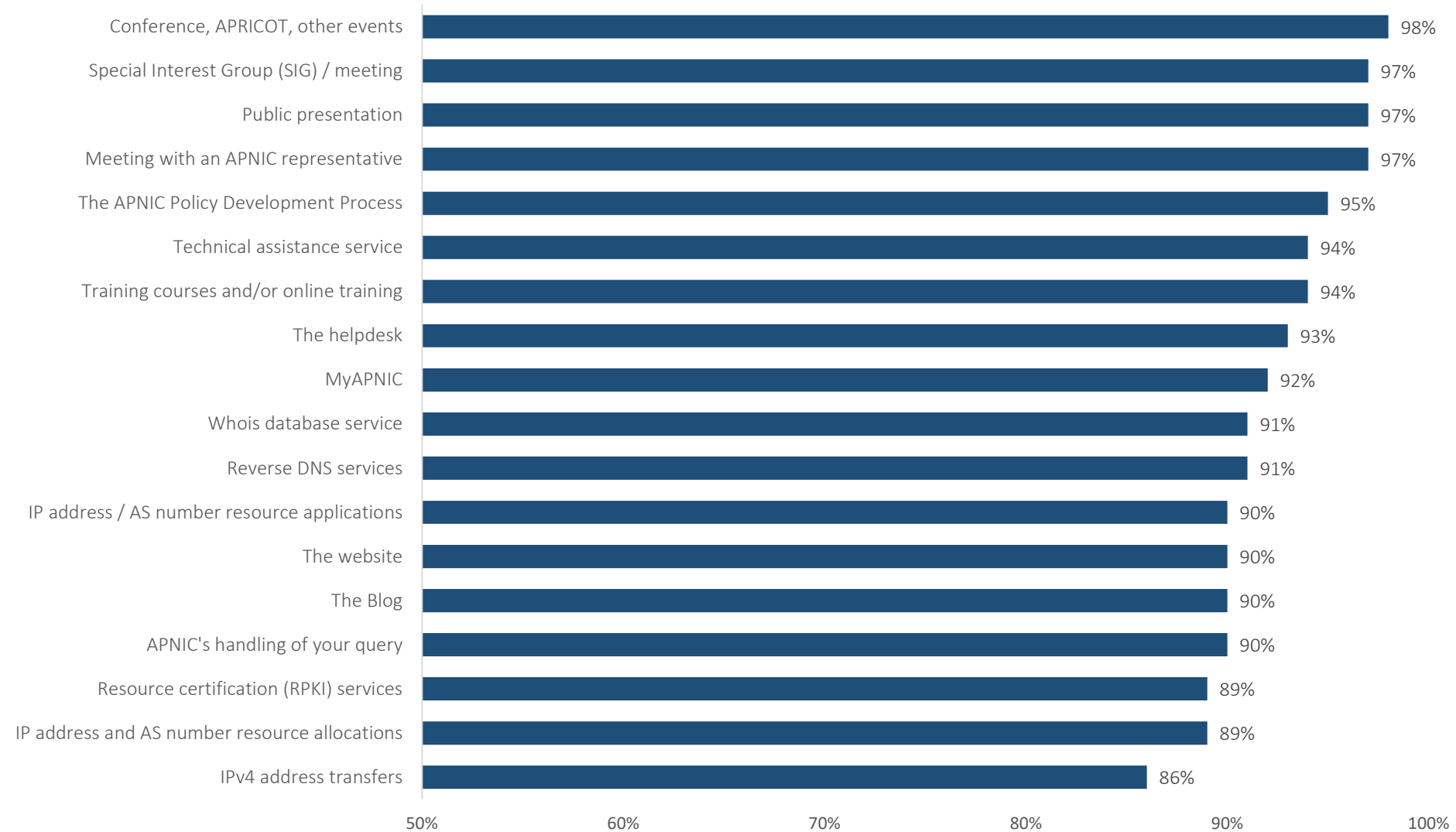
* Option not offered to Stakeholder respondents

** Option not offered to Member respondents

SERVICE SATISFACTION

Q 6 – Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

% = Above average, Good, Excellent



SERVICE SATISFACTION

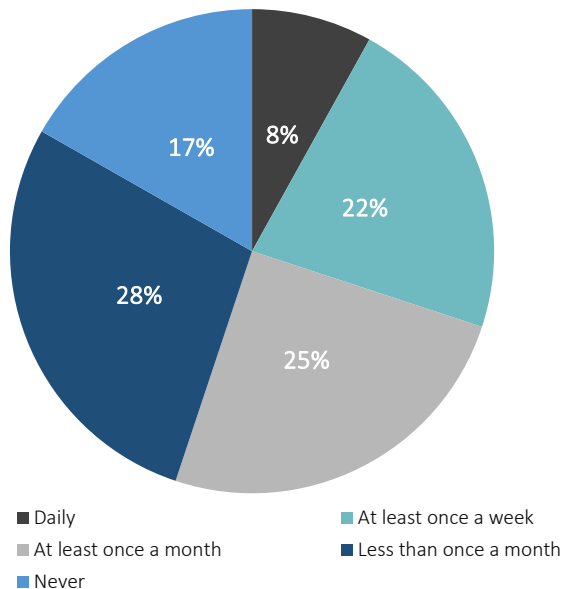
Q 6 – Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
APNIC Conference, APRICOT or other APNIC events	92%	96%	98%	100%	100%	96%	93%
Meeting with an APNIC representative	98%	97%	96%	98%	97%	98%	92%
APNIC public presentation	94%	96%	95%	98%	98%	96%	92%
APNIC Special Interest Group (SIG) / meeting	100%	92%	100%	94%	88%	100%	100%
The APNIC Policy Development Process	100%	100%	88%	97%	94%	97%	100%
APNIC training courses and/or online training	95%	92%	94%	96%	95%	95%	81%
APNIC technical assistance service	88%	100%	100%	95%	92%	97%	89%
APNIC helpdesk	94%	86%	97%	94%	95%	96%	84%
MyAPNIC	84%	88%	98%	97%	97%	94%	84%
APNIC reverse DNS services	79%	89%	92%	100%	100%	88%	87%
APNIC Whois database service	87%	90%	92%	96%	98%	91%	87%
APNIC's handling of your query	90%	86%	100%	100%	67%	96%	100%
APNIC Blog	87%	87%	91%	95%	97%	90%	82%
APNIC website	86%	86%	93%	96%	97%	92%	79%
APNIC IP address / AS number resource applications	82%	83%	95%	96%	96%	90%	81%
APNIC IP address and AS number resource allocations	83%	82%	93%	93%	95%	89%	82%
APNIC resource certification (RPKI) services	85%	90%	84%	96%	100%	83%	89%
IPv4 address transfers	82%	70%	97%	90%	84%	95%	64%

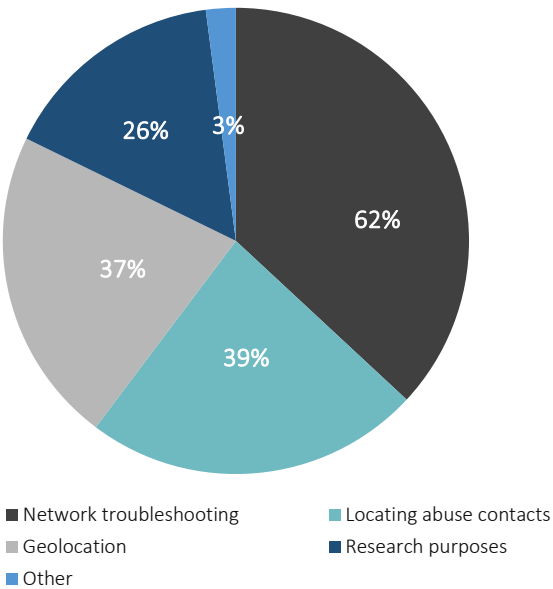
Significantly higher / lower than total

WHOIS USAGE AND FREQUENCY

Q 24. How often do you use the APNIC Whois database?



Q 26. What do you use the APNIC Whois database for?
(Respondents who use the Whois database)

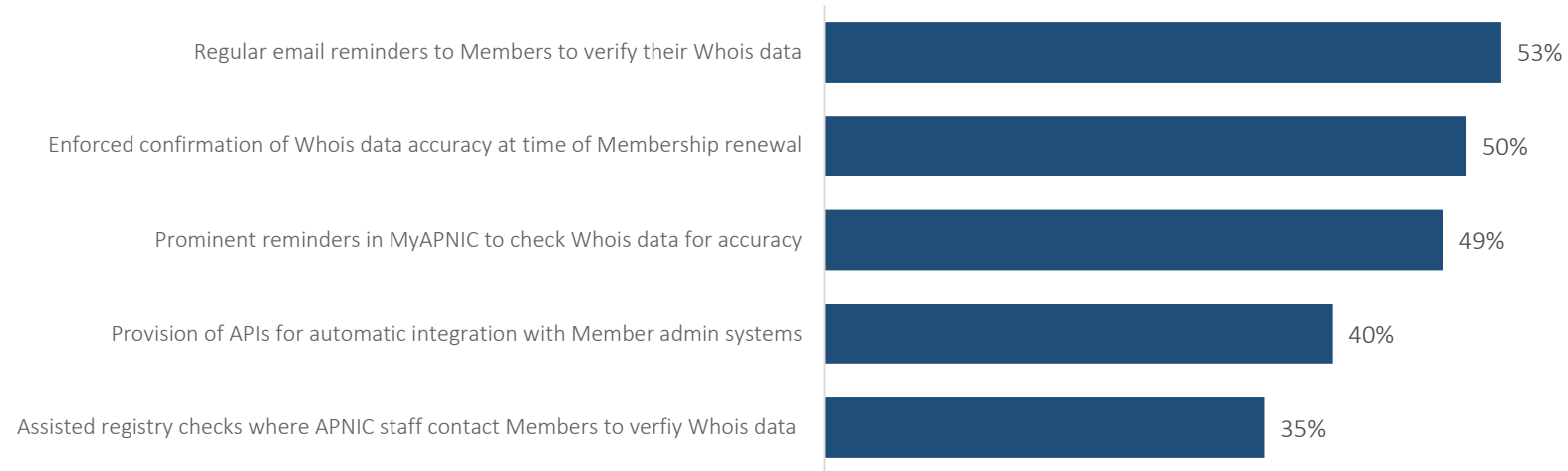


More than half of Members use the WHOIS database once a month or more

WHOIS is mainly used for network troubleshooting and locating abuse contacts

WHOIS ACCURACY – APNIC ASSISTANCE

Q 27. Thinking about how APNIC could help Members keep Whois information accurate and up to date, which of the following do you think would be most effective?



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	771	160	179	178	234	196	385	323
Regular email reminders to Members to verify their Whois data	53%	44%	48%	54%	62%	62%	51%	48%
Enforces confirmation of Whois data accuracy at time of Membership renewal	50%	47%	51%	49%	53%	53%	48%	52%
Prominent reminders in MyAPNIC to check Whois data for accuracy	49%	45%	39%	49%	59%	60%	51%	32%
Provision of APIs for automatic integration with Member admin systems	40%	42%	36%	40%	41%	43%	40%	35%
Assisted registry checks where APNIC staff contact Members to verify data	35%	34%	26%	42%	37%	37%	40%	21%

Significantly higher / lower than total



REASONS FOR HIGHER SATISFACTION

General Observations

- East Asia satisfaction scores improved overall compared to 2016
 - Quality of service delivery and Value of Membership increased by 5%
 - Value of services increased by 8%
- Usage of services is up for most activities and this often corresponds with an increase in overall satisfaction
 - Greater usage of, and satisfaction with, specific services relates to a greater sense of quality and value overall
 - The converse is also true, as seen in the Stakeholder satisfaction. Whilst overall satisfaction is down slightly, fewer Stakeholders have contacted or interacted with APNIC compared to the 2016 results

Survey Instrument

- Providing the survey in local languages boosted responses where previously there was little participation or engagement, particularly in East Asia
 - Mongolia increased from 9 responses in 2016 to 71
 - Japan from 24 to 63
 - Republic of Korea from 2 to 11

Statistical Correlations

- We examined satisfaction with individual APNIC services and overall satisfaction to see if there was a positive relationship between the two. (Please refer to the table on Slide 16)
 - There are several individual services that positively impact overall satisfaction – in particular the APNIC Helpdesk and IPv4 address transfers

CORRELATIONS – INDIVIDUAL SERVICES & SATISFACTION

Quality of Service Delivery		Legend
APNIC helpdesk	0.73	
IPv4 address transfers	0.71	
APNIC reverse DNS services	0.69	
APNIC technical assistance service	0.69	
APNIC IP address and AS number resource applications	0.68	
APNIC website	0.66	
APNIC IP address and AS number resource allocations	0.66	
MyAPNIC	0.65	
APNIC training courses and/or online training	0.62	
APNIC Conference, APRICOT or other APNIC events	0.58	
APNIC blog	0.58	
APNIC public presentation	0.58	
The APNIC Whois database service	0.57	
Meeting with an APNIC representative	0.56	
APNIC Special Interest Group (SIG), face-to-face meeting or mailing list	0.55	
APNIC resource certification (RPKI) services	0.55	
Value of Services		Legend
IPv4 address transfers	0.72	
APNIC helpdesk	0.66	
APNIC website	0.64	
APNIC reverse DNS services	0.62	
MyAPNIC	0.61	
The APNIC Whois database service	0.60	
APNIC IP address and AS number resource applications	0.60	
APNIC IP address and AS number resource allocations	0.59	
APNIC training courses and/or online training	0.56	
APNIC public presentation	0.55	
APNIC Conference, APRICOT or other APNIC events	0.53	
Meeting with an APNIC representative	0.51	
APNIC blog	0.50	
APNIC technical assistance service	0.48	
APNIC resource certification (RPKI) services	0.40	
APNIC Special Interest Group (SIG), face-to-face meeting or mailing list	0.30	

We apply statistical correlations to establish the relationship between the responses to a set of statements (e.g. individual service satisfaction) with another separate question (e.g. overall quality and value of services).

1.0 equals the highest relationship between the statements, and -1.0 is the lowest. The table to the left indicates the individual services that have the most (and least) impact on Members' overall satisfaction.

As an example, satisfaction with the APNIC Helpdesk has a positive influence on Members' ratings of quality of service.

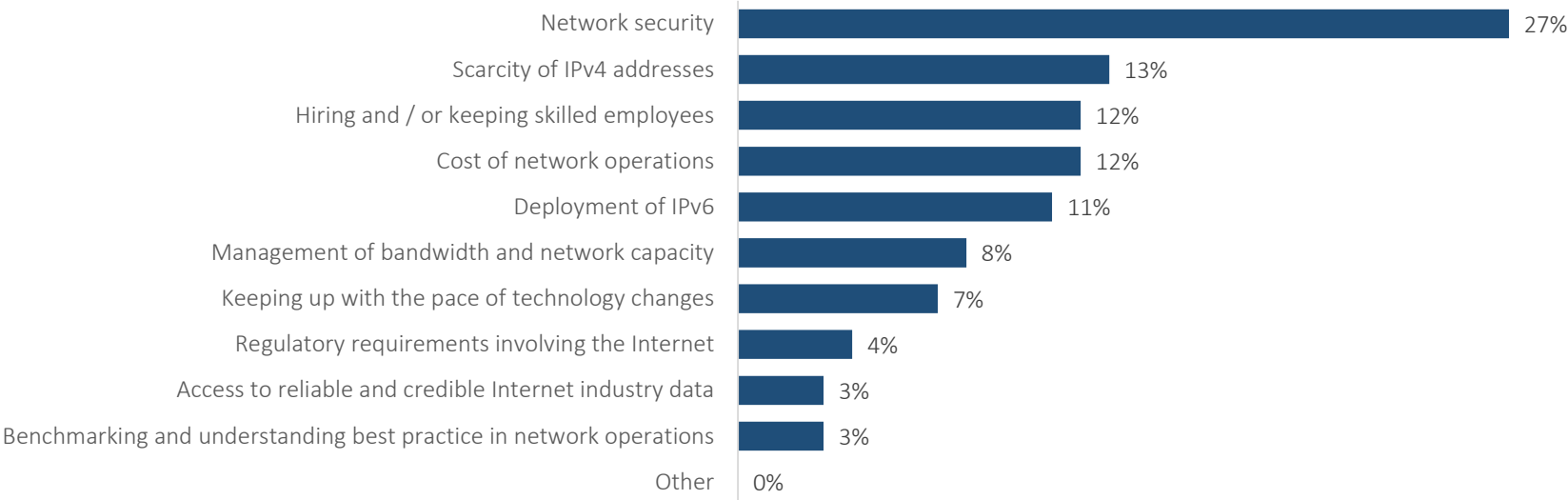


RESULTS

Operational Challenges

HIGHEST RATING CHALLENGES

Q9. Thinking about your Internet-related services, products or activities, what are the MAIN operational challenges facing your organisation?

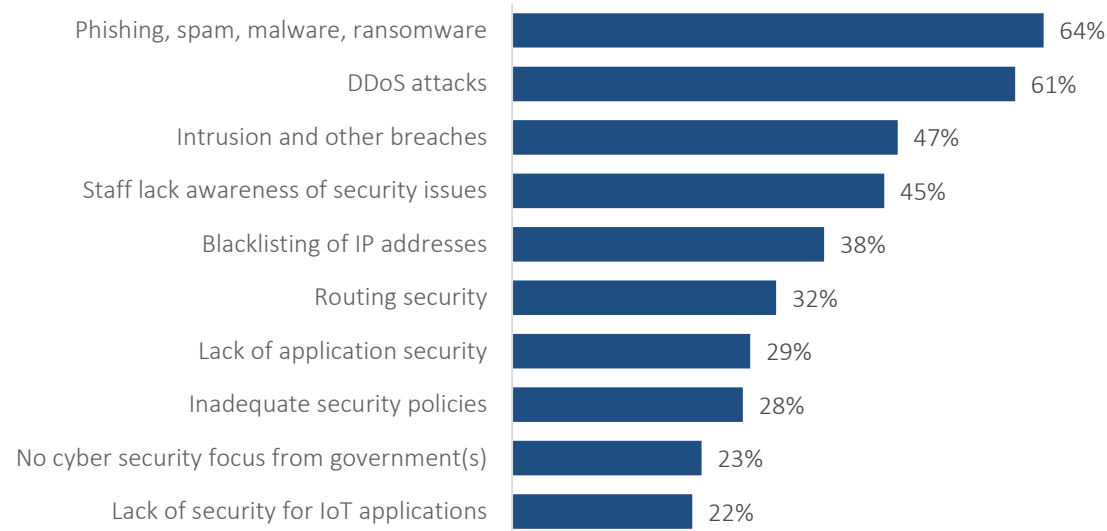


Consistent with focus group feedback, network security is the **number one** challenge facing the community in 2018

	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Network security	28%	34%	22%	26%	28%	25%	31%
Scarcity of IPv4 addresses	13%	9%	14%	14%	11%	13%	12%
Cost of network operations	10%	14%	17%	11%	13%	13%	11%
Hiring and / or keeping skilled employees	12%	12%	13%	10%	8%	11%	16%
Deployment of IPv6	9%	8%	8%	17%	16%	10%	7%
Management of bandwidth and network capacity	9%	9%	9%	8%	7%	9%	8%
Keeping up with the pace of technology changes	10%	5%	7%	6%	5%	9%	4%
Regulatory requirements involving the Internet	4%	6%	4%	3%	4%	4%	5%
Benchmarking and understanding best practice in network operations	4%	2%	3%	3%	3%	4%	3%
Access to reliable and credible Internet industry data	3%	1%	4%	3%	4%	2%	2%
Other	0%	1%	0%	0%	0%	0%	1%

NETWORK SECURITY

Q10. Thinking about network security, what are the MAIN challenges facing your organisation?



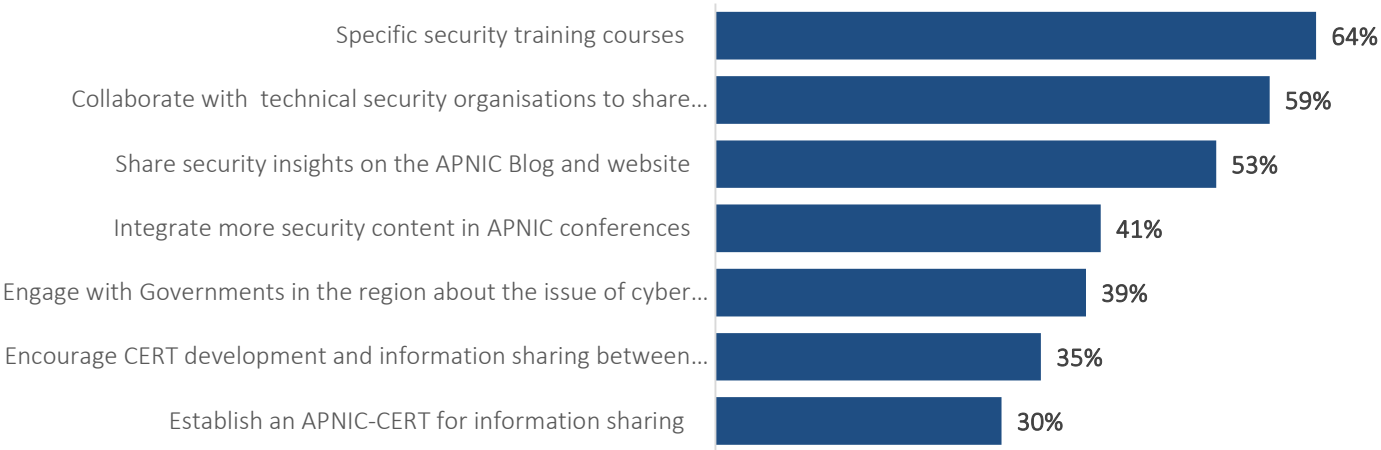
“Security is the greatest threat at all levels and is getting worse. How to tackle this is a big issue for the industry”

	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	337	251	259	356	294	672	237
Phishing, spam, malware, ransomware	58%	63%	74%	64%	66%	63%	65%
DDoS attacks	65%	45%	70%	61%	58%	64%	54%
Intrusion and other breaches	58%	55%	46%	30%	31%	51%	54%
Staff lack awareness of security issues	40%	50%	49%	46%	50%	44%	43%
Blacklisting of our IP addresses	30%	27%	47%	47%	49%	38%	24%
Routing security	36%	26%	29%	33%	32%	33%	27%
Lack of application security	23%	31%	29%	32%	35%	27%	27%
Inadequate security policies	25%	35%	22%	32%	39%	25%	25%
No cyber security focus from governments	14%	20%	21%	35%	41%	20%	8%
Lack of security for IoT applications	21%	23%	17%	24%	22%	21%	22%

Significantly higher / lower than total

NETWORK SECURITY – APNIC ASSISTANCE

Q11. How might APNIC best assist you or others with network security challenges?



“I would like to have more training on network security and best practice to implement in the network to protect against the network attacked.”

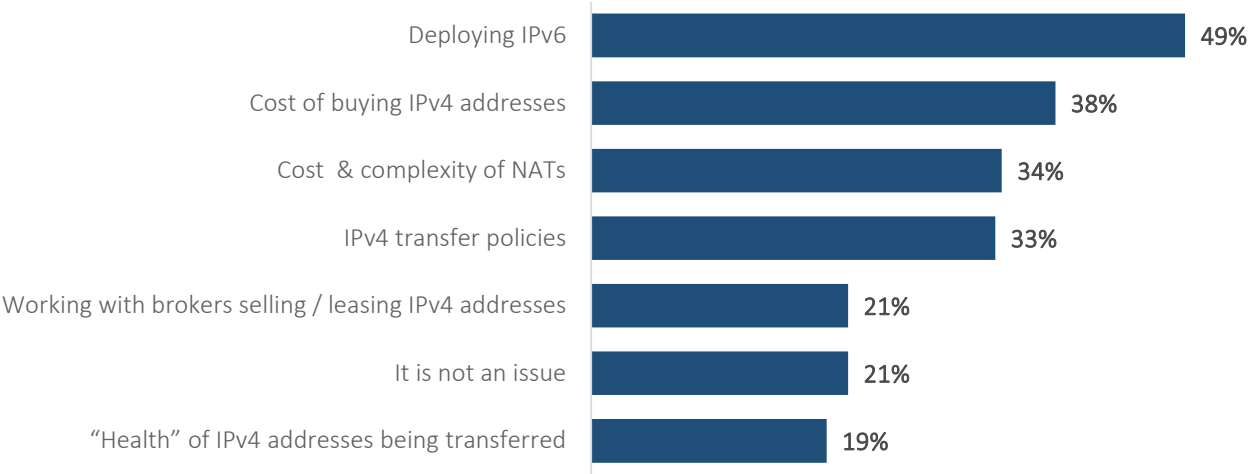
“The need for collaboration is growing. This involves a proactive APNIC”

	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	884	328	330	243	257	347	290	656	231
Specific security training courses	64%	63%	59%	52%	75%	72%	73%	70%	42%
Collaborate with technical security organisations to share information and best practice	59%	59%	56%	61%	61%	60%	60%	60%	57%
Share security insights on the APNIC Blog and website	55%	49%	44%	50%	60%	59%	57%	53%	49%
Integrate more security content in APNIC conferences	42%	38%	42%	22%	45%	52%	56%	44%	17%
Engage with Governments about cyber security	37%	45%	35%	40%	33%	48%	47%	38%	35%
Information sharing between CERTs and the APNIC community	33%	39%	34%	37%	37%	30%	32%	36%	33%
Establish an APNIC-CERT for information sharing	30%	30%	28%	30%	31%	34%	34%	32%	24%

Significantly higher / lower than total

IPv4 SCARCITY

Q13. Thinking about the scarcity of IPv4 addresses, what are the MAIN challenges facing your organisation?



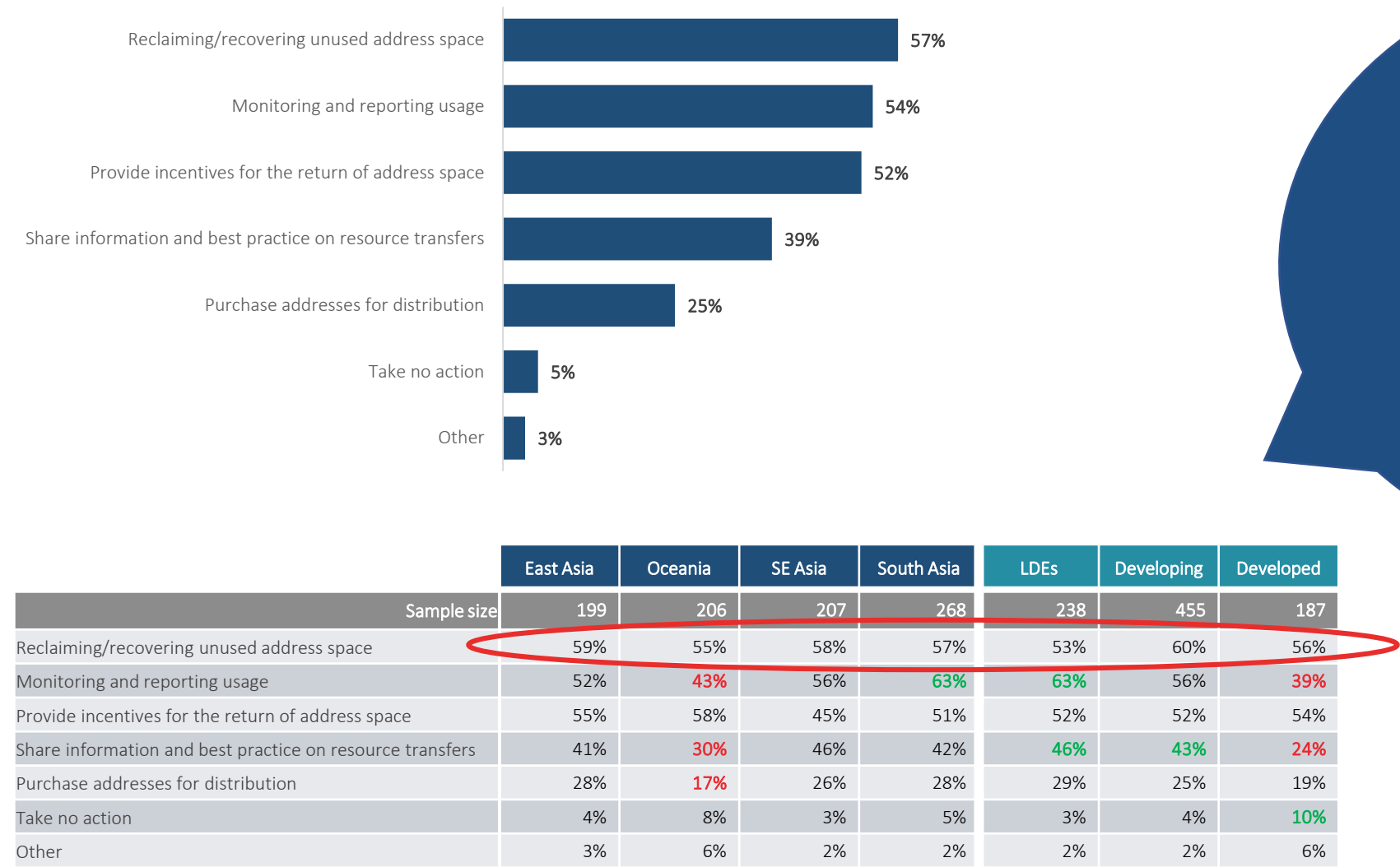
Deploying IPv6 is the main challenge occurring from the shortage of IPv4 addresses except in Developed economies where a lack of IPv4 is largely seen as “not an issue”.

	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	199	206	207	268	238	455	187
Deploying IPv6	54%	33%	55%	54%	55%	52%	35%
The cost of buying IPv4 addresses	44%	26%	42%	41%	40%	41%	29%
Cost and complexity of NATs	34%	22%	43%	37%	40%	36%	20%
IPv4 address transfer policies	40%	17%	38%	38%	41%	36%	18%
Working with brokers selling / leasing IPv4 addresses	22%	12%	24%	26%	29%	21%	12%
It is not an issue	13%	37%	17%	19%	19%	18%	33%
"Health" of addresses being transferred	28%	12%	26%	15%	15%	25%	11%

Significantly higher / lower than total

IPv4 SCARCITY – APNIC ASSISTANCE

Q14. Thinking about the scarcity of IPv4 addresses, which, if any, of the following IPv4 activities do you think APNIC should undertake?



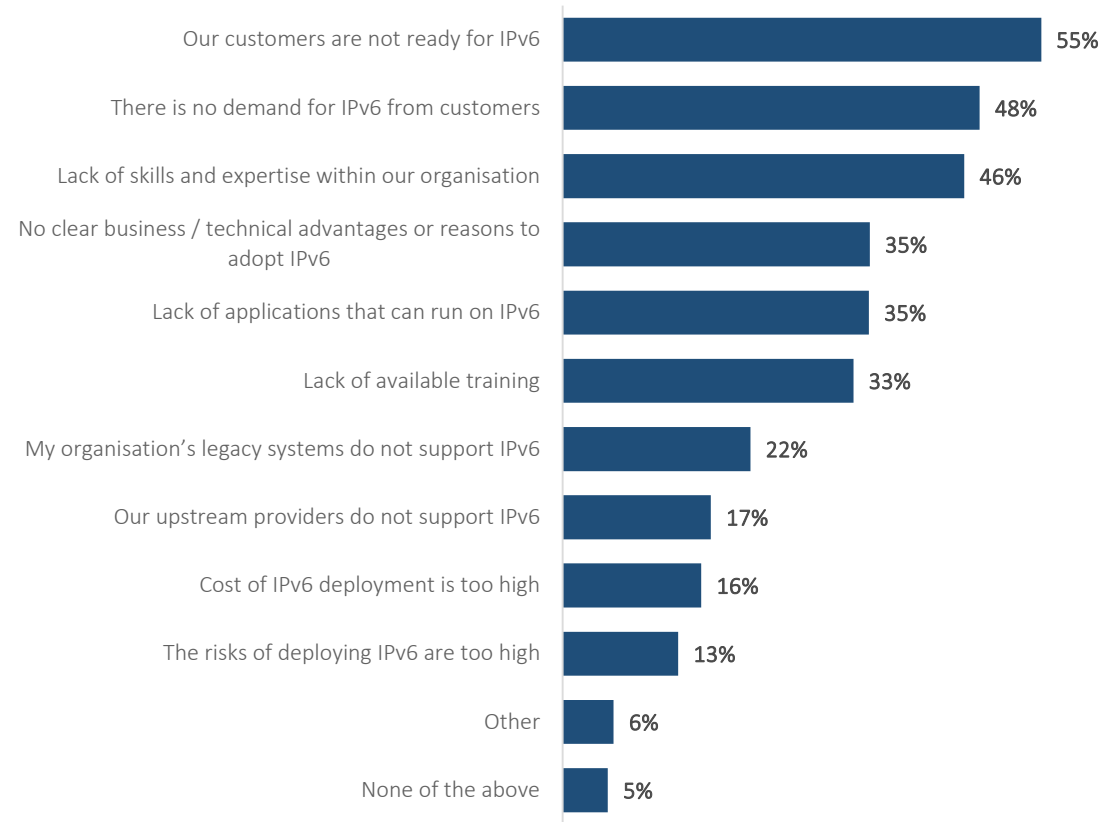
“There is so much wasted space out there being sat on - get it back and make it usable.”

“Checking on use from legacy allocations, e.g. in NZ a number of ISP's received multiple /16 address blocks which quite likely they shouldn't have - they should have been returned to the pool for re-allocation”

Significantly higher / lower than total

IPv6 DEPLOYMENT CHALLENGES

Q 17 – What are or were the MAIN challenges affecting your organisation’s deployment of IPv6?



	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	199	206	207	268	238	455	187
Our customers are not ready for IPv6	53%	41%	58%	66%	67%	57%	36%
There is no demand for IPv6 from customers	34%	54%	46%	56%	56%	43%	51%
Lack of skills and expertise within our organisation	40%	43%	53%	49%	59%	43%	39%
No clear advantages or reasons to adopt IPv6	37%	39%	38%	28%	31%	36%	39%
Lack of applications that can run on IPv6	41%	19%	40%	42%	38%	41%	20%
Lack of available training	29%	17%	37%	47%	49%	35%	12%
My organisation’s legacy systems do not support IPv6	23%	21%	24%	19%	18%	23%	22%
Our upstream providers do not support IPv6	20%	17%	13%	19%	21%	16%	15%
Cost of IPv6 deployment is too high	22%	11%	15%	16%	18%	16%	14%
The risks of deploying IPv6 are too high	12%	10%	18%	13%	14%	15%	10%
Other	6%	13%	4%	2%	2%	5%	12%
None of the above	6%	8%	3%	4%	3%	5%	8%

Significantly higher / lower than total

IPv6 DEPLOYMENT – APNIC ASSISTANCE

Q 18 – Which of the following APNIC activities do you believe are the most important to encouraging IPv6 adoption in the APNIC region?



“There are few engineers out there who understand IPv6, despite all the training ... This is a big problem”

“Actively promote upstream operators to deploy IPv6 networks. ... even if operators have deployed IPv6, operators' sales and technical personnel still do not know that IPv6 access can be provided.”

	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	199	206	207	268	238	455	187
Providing training in IPv6	51%	57%	65%	72%	71%	62%	53%
Sharing case studies and best current practices about IPv6	60%	56%	65%	63%	64%	64%	53%
Promoting IPv6 to hardware, software and/or content providers	59%	41%	51%	50%	49%	54%	43%
Knowledge sharing on IPv6 deployment experiences	50%	44%	50%	53%	54%	51%	40%
Promoting IPv6 to management / decision makers	44%	41%	47%	45%	46%	46%	36%
Promoting IPv6 to government organisations	46%	34%	42%	49%	54%	42%	32%
APNIC should take no action	1%	2%	3%	2%	2%	2%	2%
Other	1%	2%	1%	1%	2%	1%	2%

Significantly higher / lower than total

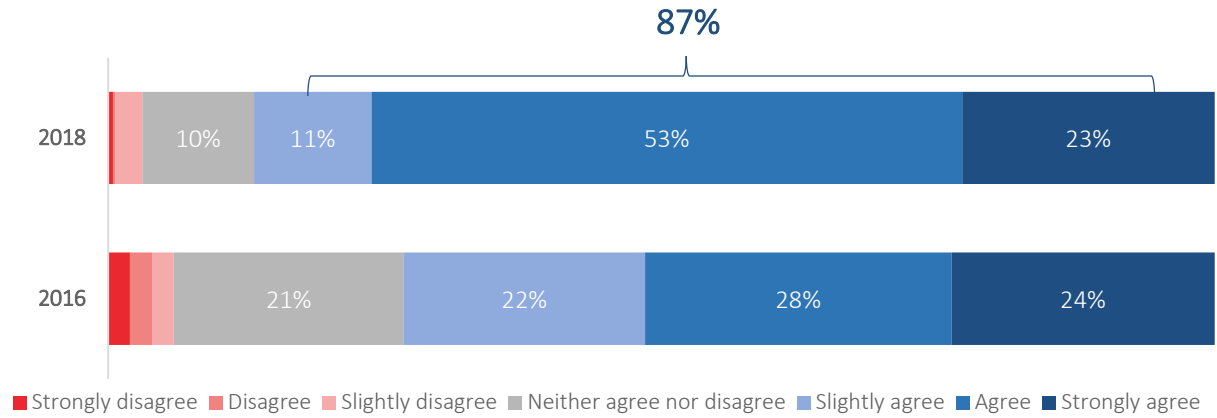


RESULTS

Governance

TRANSPARENCY

Q 35. APNIC is sufficiently open and transparent in its activities

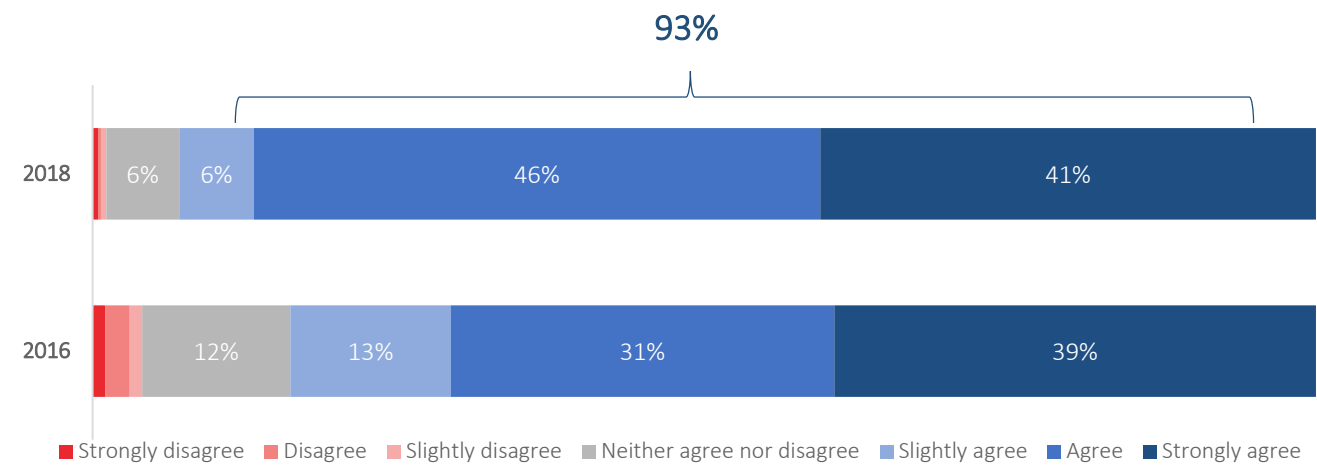


	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	199	206	207	268	290	403	187
2018 Top 3	83%	81%	87%	94%	94%	89%	74%
2016 Top 3	69%	68%	72%	83%	80%	75%	68%

Significantly higher / lower than total

RESPECTED IN THE INTERNET COMMUNITY

Q 35. APNIC is respected in the Internet community



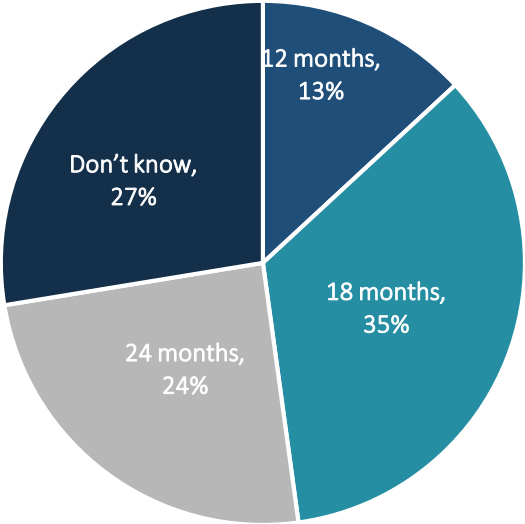
	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	199	206	207	268	290	403	187
2018 Top 3	87%	93%	95%	97%	95%	94%	88%
2016 Top 3	79%	82%	81%	91%	90%	83%	82%

Significantly higher / lower than total



CAPITAL RESERVES

Q 36. In your opinion, how many months of operating expenses should APNIC hold in reserve?



While over a quarter of Members don't have an opinion, over a third (35%) believe that APNIC should hold 18 months of operating expenses in reserve

	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	199	206	207	268	290	403	187
12 months	11%	8%	17%	16%	19%	12%	6%
18 months	35%	43%	33%	29%	31%	34%	41%
24 months	24%	21%	22%	29%	25%	25%	23%
Other	1%	0%	1%	0%	0%	0%	1%
Don't Know	29%	29%	27%	26%	25%	29%	29%

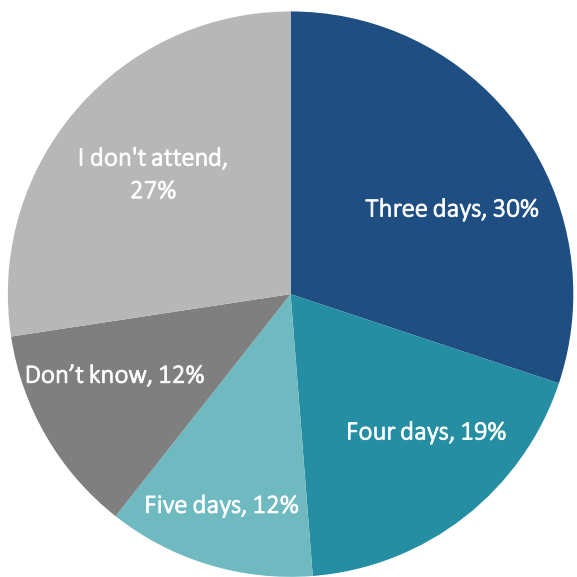


RESULTS

Other

IDEAL CONFERENCE LENGTH

Q 30. What do you believe is the ideal length for the APNIC conferences?
(Members and Stakeholders who have attended conference)



There is little consensus about the ideal conference length.

Those who have less access to expertise and greater need (LDEs) support conferences of 4 or 5 days.

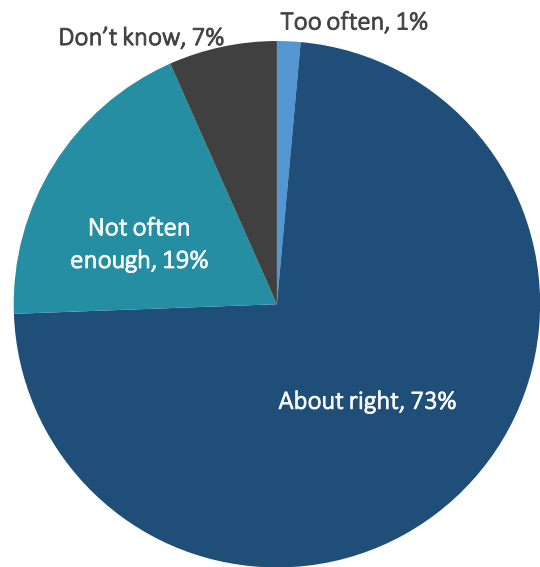
Members from LDEs and Developing economies are also more likely to attend conferences than those from Developed economies.

	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	215	213	218	290	248	499	189
Three days	37%	18%	35%	29%	31%	33%	20%
Four days	14%	10%	23%	26%	24%	21%	7%
Five days	8%	9%	9%	20%	21%	12%	2%
Don't know	16%	15%	11%	9%	8%	12%	17%
I don't attend	24%	47%	23%	17%	16%	22%	53%

Significantly higher / lower than total

APNIC SURVEY FREQUENCY

Q 31. Do you think the frequency of the APNIC survey is:



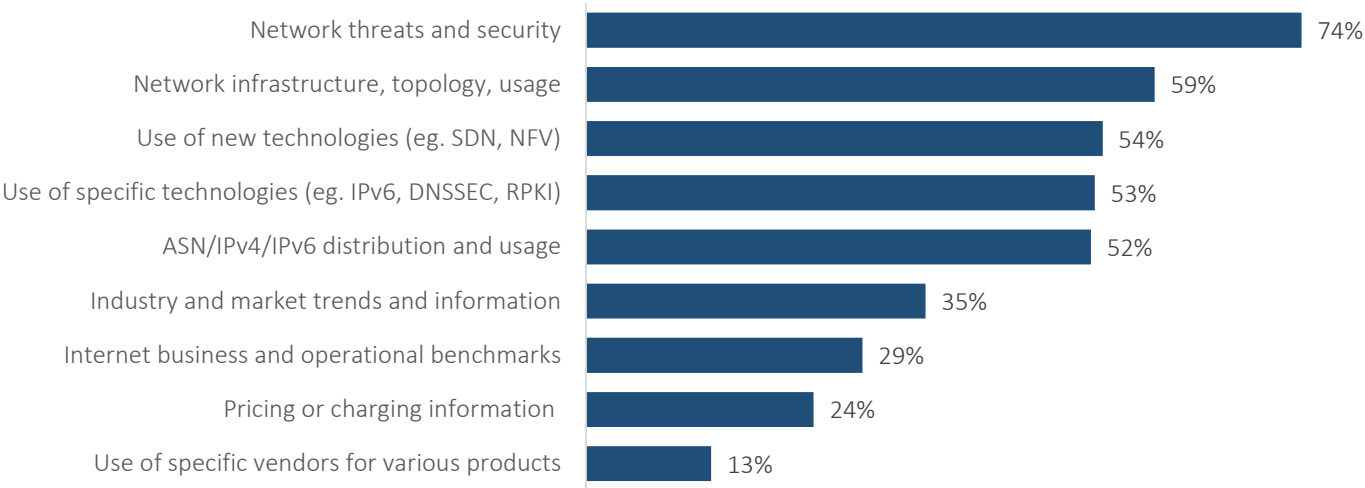
Nearly three quarters of Members think the frequency of the APNIC Survey is about right

	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	199	206	207	268	290	403	187
Too often	1%	0%	2%	3%	3%	1%	0%
About right	68%	76%	75%	72%	70%	74%	74%
Not often enough	22%	18%	18%	19%	19%	19%	18%
Don't know	9%	6%	5%	6%	7%	6%	7%

Significantly higher / lower than total

REGIONAL DATA COLLECTION

Q 28. The APNIC community is discussing the development of Internet trend and benchmarking data services. What information would be of most use to your organisation?



In line with the biggest challenge faced, Members would be most interested in information about network threats and security.

	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	338	337	251	259	356	294	672	237
Network threats and security	73%	77%	70%	76%	76%	77%	76%	74%	74%
Network infrastructure, topology, usage	60%	57%	51%	57%	62%	67%	68%	58%	51%
Use of new technologies	53%	55%	56%	48%	51%	58%	53%	58%	44%
Use of specific technologies	53%	52%	52%	54%	52%	53%	53%	53%	51%
ASN/IPv4/IPv6 distribution and usage	55%	45%	54%	44%	55%	56%	57%	54%	44%
Industry and market trends and information	35%	35%	36%	33%	38%	35%	35%	38%	29%
Internet business and operational benchmarks	27%	33%	26%	22%	36%	31%	30%	33%	16%
Pricing or charging information	24%	22%	15%	23%	29%	28%	29%	24%	15%
Use of specific vendors for various products	13%	12%	11%	16%	12%	14%	18%	13%	8%

Significantly higher / lower than total



SURVEY MATTERS RECOMMENDATIONS



AREAS FOR FOCUS

Training

Training in all formats was typically mentioned as the best way APNIC can assist Members with their challenges, particularly in LDEs and Developing economies

- Face to face training was frequently suggested in focus groups and free text comments in the online survey
- Online e-learning sessions were supported by more than half of respondents
- E-learning sessions in local time zones and materials translated into Local language are also popular
- Security specific and IPv6 deployment training are the courses Members believe would assist the most

Network Security

This is the biggest challenge to all members, regardless of economy or region

- Security specific training, collaboration with technical security organisations to share information and sharing security insights on the APNIC Blog and website are the areas Members think APNIC can best assist
- Including more security content in the APNIC conferences and engaging with Governments in the region are areas that Members in LDEs and South Asia believe will provide assistance



AREAS FOR FOCUS

IPv4 Scarcity

Nearly half of all respondents say that IPv6 deployment is their biggest challenge in dealing with the scarcity of IPv4 addresses.

There is consensus across all regions and economies for APNIC to investigate reclaiming or recovering unused IPv4 address space

- Monitoring and reporting of IPv4 usage is also supported, but Developed economies are less likely to support this
- Offering incentives for the return of address space also has wide-spread support
- Members in Developed economies are more likely to suggest that APNIC takes no action about IPv4 Scarcity

IPv6 Deployment Challenges

Members continue to report that customer readiness and no demand by their customers are the main challenges affecting their deployment of IPv6.

Training, information sharing and promotion of IPv6 to hardware, software and content providers are the activities that will help most Members

- Developing economies and LDEs are more likely to indicate that training in IPv6 offers the most assistance
- Apart from Members in Developed economies, sharing case studies and current best practice for IPv6 deployment are activities that will help

RECOMMENDATIONS FOR NEXT SURVEY

- Although attendance at focus groups was quite low, the outcomes remain very valuable for input into the online survey questionnaire
 - Suggest fewer focus groups and/or substitute with individual Skype calls to Members
 - There are advantages and disadvantages with each approach
- Increase the number of languages the Survey is presented in
 - Significant increases in responses from Japan, Hong Kong, Mongolia, Republic of Korea and Thailand this survey period
 - Consider further translation into Hindi, Khmer, Lao, Pashto/Dari, Urdu and Vietnamese
- Consider more free text questions asking for reasons for their ratings of value, satisfaction and endorsement to gather more information to support changes in ratings across different Survey periods
- Consider reducing the Survey length
 - Long surveys contribute to high abandon rates, particularly on mobile devices
 - The target average time to complete an online survey is 15 minutes
 - Reducing the length allows APNIC to concentrate on a smaller number of activities that will assist their Members most
 - There is a trend towards shorter, topic focussed surveys. This offers two benefits:
 - Provides more depth of information about a particular subject
 - Caters for the increasing tendency of respondents to provide feedback either 'on the run' or outside of work hours



QUESTIONS?

2018 APNIC Survey Report

Prepared by:

Rebecca Sullivan & Brenda Mainland
Survey Matters
August 2018



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Introduction & Methodology

The APNIC survey process comprises a series of focus groups across the region, interviews with interested respondents and an online survey promoted throughout the region.

The survey is open for any interested Member or Stakeholder to complete. The APNIC Survey is run every two years and is in its tenth iteration.

The 2018 APNIC Survey was conducted between the 5th of June and the 2nd of July 2018 to gain feedback from APNIC Members and other Stakeholders (Members of an NIR, or others involved in the Internet community) about APNIC services, the challenges they face and where APNIC can assist. The survey forms an integral part of the strategic planning process and helps the APNIC Executive Council (EC) and Secretariat to understand the needs and wishes of the community. The results are used to guide decisions on future priorities and developments, and inform APNIC strategic planning.

The 2018 Survey was conducted by Survey Matters, a research agency specialising in research for Member-based organisations. As with previous surveys, the APNIC EC commissioned and approved the survey, and engaged Survey Matters to ensure the anonymity of responses.

Individual responses are not identified in this report; results are provided at an aggregate level only. To further protect participant anonymity, no organisations or locations are noted against verbatim feedback provided in this report. No identifying data has been provided to APNIC.

This report provides the full feedback from the online survey. Where appropriate, it also draws on feedback from face to face and online focus groups conducted by Anne Lord, Dr John Earls and Survey Matters during early 2018.

Response Rates and Sample

Following a comprehensive communication and survey distribution program, 1,264 responses were received and, after data cleansing, 1,241 responses remained. The sample size provides 95% confidence that results are within +/- 3% of presented figures.

Of the responses received, 73% were received from APNIC Members or Account Holders. The remaining 27% were from Members of National Internet Registries (NIRs) within the APNIC region or other Stakeholders, namely consumers of APNIC services who are not formally APNIC Members.

Most responses (97%) were from the Asia Pacific economies served by APNIC. Consistent with 2016, only 3% were from outside the Asia Pacific. Overall, the sample distribution is relatively consistent with 2016 – although respondents from Australia and China comprise a slightly smaller proportion of responses.

Please note that some segments contain small samples and so do not aim to be representative of the different segments. They do, however, provide directional feedback about the opinions of these respondents.

Focus Groups

The survey instrument (online survey form) that forms the basis of this 2018 APNIC Survey Report was developed following a series of focus group consultations held in January and February 2018.

Conducting focus groups prior to undertaking an online survey is best practice in research of this kind, as it gathers perspectives directly from randomly selected Members that can be tested across the wider Member and Stakeholder base through the online survey instrument.

Face to face focus groups were conducted in ten economies. Online focus groups were conducted separately for groups of participants from five other economies, giving a total of 15 focus groups in the locations below:

- Afghanistan (Online)
- Australia (Online)
- Beijing
- Dhaka
- New Delhi
- India (Online)
- Dili
- Jakarta
- Kathmandu
- Kuala Lumpur
- Manila
- New Zealand (Online)
- Pakistan (Online)
- Taipei
- Tokyo

The full Focus Group Report is available at apnic.net/survey. Where relevant, focus group quotes and themes are referenced in this report, as they provide depth of understanding to the quantitative results.

Online Survey

The quantitative survey was designed by Survey Matters. It was based on output from the focus groups, but also included consultation with the APNIC EC and Secretariat.

As in 2016, the survey instrument comprised two separate surveys; one designed for Members and Account Holders of APNIC, the other for Members of an NIR or other interested Stakeholders.

A variety of question types were used in the survey. Where questions required a degree of agreement, satisfaction or priority, a seven point scale has been used. This allows results to be compared (where applicable) between this survey and those conducted in 2014 and 2016.

The 2018 survey questionnaire was designed primarily as a quantitative instrument, but respondents were also given opportunities to provide feedback in their own words (and in their own language if desired). The addition of these are used throughout this report to add depth to the statistical results.

Translation

The survey questionnaire was translated into eight languages in 2018 as part of a trial to see if translations would assist survey completion across the region. The languages selected for translation were Bengali (Bangladesh), Chinese (Simplified and Traditional), Indonesian, Japanese, Korean, Mongolian and Thai. These languages were chosen by the APNIC Secretariat based on several factors, including level of perceived English proficiency, membership size, and level of engagement (or lack of, in some cases) with previous surveys.

A total of 389 surveys were completed in languages other than English. Non-English verbatim feedback was translated back to English using Google translate, with a verification of translations undertaken by language specialists within APNIC.

A breakdown of non-English language survey completions by economy is provided on page 14.

Communication and Distribution

The survey was designed as an anonymous online instrument (hosted by Survey Matters), and promotion of the survey was done by the APNIC Secretariat. Several prizes were offered throughout the communication schedule to encourage responses at different stages of the fieldwork.

Data Cleansing

At the conclusion of the online survey, Survey Matters undertook data cleansing as per the standard protocols for market research. A total of 1,264 responses were reviewed and after interrogation 23 were removed as they were either generally unreliable or found to be multiple responses from the same respondent.

The method used to clean the data was as follows:

- Removal of records where respondents answered too quickly or selected the same rating or score regardless of the question being asked throughout the survey.
- Removal of multiple responses from the same IP address where the information regarding the prize draw was the same.

- Review of records from the same IP address where the respondent data regarding relationship with APNIC and country of origin that was inconsistent with the IP address and location data (although care has been taken in application of this process to ensure surveys completed while respondents were travelling or at industry events were not removed.)

Survey Analysis

When analysing the survey data, results have been cross tabulated by respondents' relationship with APNIC (Member or Stakeholder), APNIC sub-region (East Asia, Oceania, South East Asia and South Asia) and Classification of Economies (Developed, Developing and Least Developed Economies (LDEs) based on the UN classifications referenced on pages 13 and 14, and in Appendix A.

Differences in the opinions and behaviours of respondents based on their APNIC relationship, sub-region and economy classification are presented throughout the report and highlighted where the findings are significant.

The results to survey questions are displayed as either a mean score (always out of a maximum score of seven) or as a percentage of respondents who selected a particular option. Where possible and appropriate, a full frequency distribution is shown. Comparisons to the 2016 Survey are made where possible.

Where percentage ratings for agreement, satisfaction or importance are referred to throughout the body of the report, these have been classified as follows:

- Scores of 5, 6 or 7 out of 7 are positive (green)
- Score of 4 out of 7 is neutral (grey)
- Scores of 1, 2 and 3 out of 7 are negative (red)

We have also drawn on the qualitative comments and have referenced the feedback provided in the focus groups when reaching many of our conclusions. In many instances, the quantitative findings are used to validate the issues raised in the focus groups. In others, the free text or focus group feedback provides further insight into the quantitative findings.

Executive Summary

The results of the APNIC 2018 Survey are positive, and confirm much of feedback provided by focus group participants.

Satisfaction with APNIC service delivery remains high. Respondents are very satisfied with individual APNIC services and a majority believe that both the overall quality and value of APNIC services is high.

Like in 2016, respondents are most satisfied with the personal services and customer support provided by APNIC. APNIC conferences and events, personal meetings and public presentations are rated positive by an overwhelming majority of respondents.

Respondents' rating of their experience of the core APNIC services of IP address applications and allocations, the Whois database, reverse DNS and technical and helpdesk assistance are mostly unchanged from the 2016 Survey and remain positive. There were, however, a small number of responses that suggested the website and MyAPNIC is slow, and that IPv4 resource application processes are lengthy and arduous.

South Asian respondents are the most satisfied with APNIC services overall, with respondents from South East Asia also providing very positive ratings. Respondents from East Asia are the least satisfied with APNIC services. This is consistent with 2016.

Network Security

Consistent with focus group feedback, network security is overwhelmingly the biggest challenge facing the Internet community in 2018.

Sixty-two percent (62%) rank network security amongst the top three challenges facing their organisation, up from 41% in 2016.


Regarding specific security challenges, phishing, spam, malware and ransomware, DDoS attacks and intrusion and other breaches are all identified as a concern by large numbers of respondents. Respondents in South East Asia were more likely than those in other regions to identify these as issues for their organisation – although all regions report a high level of concern with these issues.

Two-thirds (64%) of respondents believe that training is the best way APNIC can help the community deal with the challenge posed by network security threats. A majority also believe that APNIC should collaborate with other technical and security organisations to share information and best practices in relation to security management.

Scarcity of IPv4

Scarcity of IPv4 addresses also remains a concern for many respondents, with 36% of respondents rating it amongst the top three operational challenges facing their organisation.

When asked what APNIC should do about the shortage of IPv4 addresses, increased market management activities suggested by focus group participants found support. Reclaiming and recovering unused IPv4 address space was favoured by 57% of respondents. Over half also indicated that APNIC should monitor and report usage of IPv4 addresses, while 52% supported the offering of incentives for the return of IPv4 addresses.



Despite this, many still believe the best thing APNIC can do about the lack of IPv4 address space is to encourage the transition to IPv6.

IPv6 Readiness

While still finding the transition to IPv6 challenging, focus groups indicated that the sense of urgency to transition appears to have decreased. Survey results support this. While network statistics indicate that there has been a significant increase in the number of users able to access IPv6 over the last two years¹, the proportion of respondents who reported that IPv6 is fully deployed in their organisation has not changed.

Consistent with 2016, 15% of respondents claim to have IPv6 fully deployed. This is supported by focus group feedback that the current feeling in relation to IPv6 is one of antipathy and that many believe that IPv4 and IPv6 will continue to co-exist into the foreseeable future.

Despite this, the proportion of respondents with a deployment plan has increased since 2016, and 62% expect to have IPv6 deployed by 2020. South East Asia is the region most likely to indicate IPv6 is fully deployed in their core network.

Lack of customer readiness and demand remain the main challenges facing organisation's deployment of IPv6, with ISPs most likely to indicate that this provides a challenge to their deployment of IPv6.

A lack of skills and experience within organisations is also making IPv6 deployment challenging. Consequently, a majority of respondents believe that providing training and sharing case studies and best practices are the most important things APNIC can do to encourage IPv6 adoption across the region. This is also borne out by the training topics respondents want APNIC to make available, where more than 50% of respondents mentioned IPv6 deployment training.

Many also believe that APNIC can aid the transition to IPv6 by promoting IPv6 to various stakeholders.

Respondents called for APNIC to “actively promote upstream operators to deploy IPv6 networks”, to “encourage ISPs to provide IPv6 support” and “show the importance of IPv6 to policy makers (government)”.

Training


With the provision of training and education that builds the technical knowledge and skills of the Internet community one of the key objectives of APNIC, and one of the main ways respondents believe APNIC can help them with many of the issues facing the community, the Survey also canvassed current awareness, preferences and ideas for improvements to APNIC training services.

Focus group discussions found that APNIC training is an extremely important service, with a high value attached to it. Awareness of APNIC Technical Training Services is reasonably high, at 74% of respondents. Just over a quarter (27%) of respondents have attended APNIC training, up from 22% in 2016. Fewer are aware of, or have used, the APNIC Academy.

While focus group indicated that face to face training is preferred, the Survey also found support for online e-learning sessions. Many respondents indicated that of potential APNIC training services, online e-learning sessions (57%) and live e-learning sessions in local time zones (46%) would provide value to their organisation.

Training that caters to respondents in their local language and time zones is highly valued. This aligns with focus group feedback that language and time zones are one of the biggest barriers to use of APNIC training services, and that local language training would improve accessibility. When asked how APNIC training could be improved, 19% of verbatim comments provided by Survey respondents suggested that “training by local trainer” or “training materials in the local language” would improve APNIC training.

¹ <https://www.apnic.net/community/ipv6/ipv6-in-your-region/>



Despite network security being the biggest challenge for Survey participants, the most frequently mentioned topic for potential APNIC training was IPv6 deployment training. Network security was, however, frequently mentioned with 51% of respondents indicating that they would like APNIC to make available training on network security.

Other Services

Regional industry data, the APNIC conference, and the APNIC Survey were three new topics canvassed by the survey.

In 2016, 43% of respondents expressed an interest in contributing to regional trend and benchmark information and, to build on this, the 2018 Survey sought to determine the information that would be of most use. Of the topics presented, over 50% of respondents expressed an interest in Internet trend and benchmarking information on network security and threats, network infrastructure and use of new and specific technologies.

Opinions about the ideal APNIC conference length vary by development status. A majority of respondents from LDEs and developing economies indicated a preference for a longer conference of four or five days. Conversely, respondents from developed economies, who are less likely to attend, favour maintaining the current three day conference.

A majority of respondents (73%) believe that the frequency of the APNIC survey is about right.

Conclusion

A prominent theme in the Survey was that APNIC is in a position to provide value through training and sharing of case studies, experiences, best practice and other information. Many suggestions about ways in which APNIC could assist the community, with the challenges arising from network security threats, and the transition to IPv6, focussed on providing training to build the skills and knowledge of the community. Collaboration with other organisations to build awareness and share information, best practices and case studies was also often suggested.

Demand for local opportunities (particularly in developing countries) and multi-lingual experiences was also apparent. Many respondents expressed a desire for information and training materials in local languages and time zones. Completion of the 2018 Survey by nearly a third of respondents in one of eight languages other than English is a significant step in this direction.

As in 2016, there is a divide between the needs and preferences of stakeholders in different regions and economies. Respondents in LDEs and developing economies appear to rely more heavily on APNIC, with those in LDEs more frequent users of APNIC services such as training, conferences, events and presentations. They are also more likely to suggest that APNIC is able to help them through training, longer conferences and information services and are more likely to speak highly of APNIC to others.

Finally, both the Survey and focus group discussions indicate that APNIC is a trusted organisation, whose neutrality and support for the region is valued. Satisfaction with APNIC transparency is positive, with 87% agreeing that APNIC is sufficiently open and transparent in its activities. A majority (93%) also agree that APNIC is respected in the Internet community and 88% believe that their Membership of APNIC provides value. Reflecting this, a majority of respondents (66%) speak positively about APNIC. This is up from 41% in 2016.

Summary of Results

Participation & Satisfaction

- Overall, reported use of APNIC services has fallen slightly since in 2016. Sixty-seven percent (67%) of respondents have used an APNIC service, contacted or interacted with APNIC in the last two years - down from 77% in 2016.
- Participation in APNIC activities is higher amongst Members, 77% of whom have had used an APNIC service or contacted APNIC for support over the last two years. Of these, 49% have interacted with APNIC between one and five times.
- Three quarters (76%) of respondents have visited the APNIC website, 62% have used MyAPNIC and 56% the Whois Database over the last two years. Approximately a quarter have attended APNIC training (27%) and APNIC conferences and events (25%). Thirty-eight percent (38%) of Members have contacted the Helpdesk for support.
- While respondents in developed economies are more likely to have used MyAPNIC and the Whois Database, respondents in LDEs and developing economies continue to be the most likely to use APNIC training services, attend APNIC conferences, events and presentations and personally meet with APNIC representatives, suggesting continued reliance on APNIC for support and assistance.
- Satisfaction with individual APNIC services remains very high, and for most services, has improved over the last two years. Like in 2016, respondents are most satisfied with the personal services and customer support provided by APNIC. APNIC conferences and events (98%), personal meetings (97%) and public presentations (97%) were given a positive rating by an overwhelming majority of respondents.
- Respondents' ratings of their experience of the core APNIC services of IP address applications and allocations, the Whois Database, reverse DNS and technical and helpdesk assistance are mostly unchanged from 2016 and remain positive. There were a very small number of free text comments that the application process was lengthy and confusing suggesting that improvements to the process may result in higher satisfaction.
- Consistent with 2016, a majority of respondents rated the overall quality and value of APNIC services and Membership highly. Although fewer respondents use these services, 91% rated the quality and value of service delivery positively (the same as 2016). Eighty-eight percent (88%) rated the value of APNIC Membership overall as above average or better, up from 86% in 2016.
- Respondents from South Asia are the most satisfied with APNIC's service quality and value. Respondents from East Asia were the least satisfied. This is the same as in 2016.

Network Operations

- Consistent with focus group feedback, network security is the number one challenge facing the Internet community in 2018. Network security was identified as the main operational challenge by 27% of respondents, and 62% included network security as one of the top three challenges facing their organisation. This is a very significant proportion.
- Scarcity of IPv4 addresses was also identified as a challenge. Thirteen percent of respondents rated it the number one challenge facing their organisation, while 36% included it amongst their top three challenges.
- The cost of network operations and hiring / keeping skilled staff were the next most commonly identified operational challenges.



Network Security

- Similar to 2016, phishing, spam, malware and ransomware (64%), DDoS attacks (61%) and intrusion and other breaches (47%) are the main security threats identified by respondents.
- Sixty-four percent (64%) of respondents believe training would be the best way APNIC can assist the community with the challenges posed by network security threats.
- A majority (59%) also indicated that APNIC can help with security related challenges by collaborating with other technical and security organisations to share information and best practice.
- While support for information sharing on security topics was strong, only 30% agreed that APNIC should establish an APNIC-CERT for information sharing.

Scarcity of IPv4

- Nearly half (49%) of respondents indicated that the challenges associated with the deployment of IPv6 was the main issue arising from the shortage of IPv4 addresses. The cost of IPv4 addresses was also cited as challenge by 38% of respondents, while 34% indicated that cost and complexity of NATs was problematic.
- When asked what activities APNIC should undertake to help manage the scarcity of IPv4 addresses, 57% of respondents favoured reclaiming and recovering unused IPv4 addresses, while 54% indicated that APNIC should monitor and report usage of IPv4 addresses.

IPv6 Readiness

- Consistent with 2016, 15% of respondents reported that their organisation has IPv6 fully deployed. South East Asia (20%) is again the region most likely to indicate that IPv6 is fully deployed.
- The proportion of respondents who indicate that their organisation has a deployment plan in place increased from 29% in 2016 to 32% in 2018. Of these, 62% expect to have IPv6 deployed by 2020. Nearly a quarter (22%) do not know when IPv6 deployment will be completed.
- Deployment of IPv6 was identified as the main operational challenge of 11% of respondents. The fall in relative importance is consistent with focus group feedback suggesting that many companies no longer feel a sense of urgency around the need to transition to IPv6, as many now understand the challenge better than in 2016.
- Lack of customer readiness (55%) and demand (48%) are the main challenges respondents face in relation to IPv6 deployment. A lack of skills and experience within their organisation is also making IPv6 deployment challenging. Reflecting focus group feedback, many organisations also see little economic or operational benefit in implementing IPv6, reducing the urgency to deploy until it is absolutely necessary for their organisation.
- A majority of respondents (62%) believe that providing basic and advanced training and sharing case studies and best practices are the most important things APNIC can do to encourage IPv6 adoption.



Training

- Awareness that APNIC provides Technical Training Services is reasonably high, at 74% of respondents. Fewer respondents (36%) are aware of the APNIC Academy.
- Twenty-seven percent (27%) of respondents have attended APNIC training over the last two (2) years, up from 22% in 2016.
- Of the potential training activities suggested, online e-learning sessions are the most popular form of training activity. Training that caters to respondents in their local language and time zone is also seen as valuable.
- Reflecting feedback from focus groups, 37% of respondents indicated that greater promotion of training activities and the published calendar of all training events in the region would be valuable.
- The most frequently mentioned topic for potential training was IPv6 deployment – more than half of all comments suggested that training focused on IPv6 deployment would help their organisation.
- The need for more advanced topics in the areas of network security and IPv6 deployment was prevalent in both focus groups and free text comments in the Survey.

APNIC Services

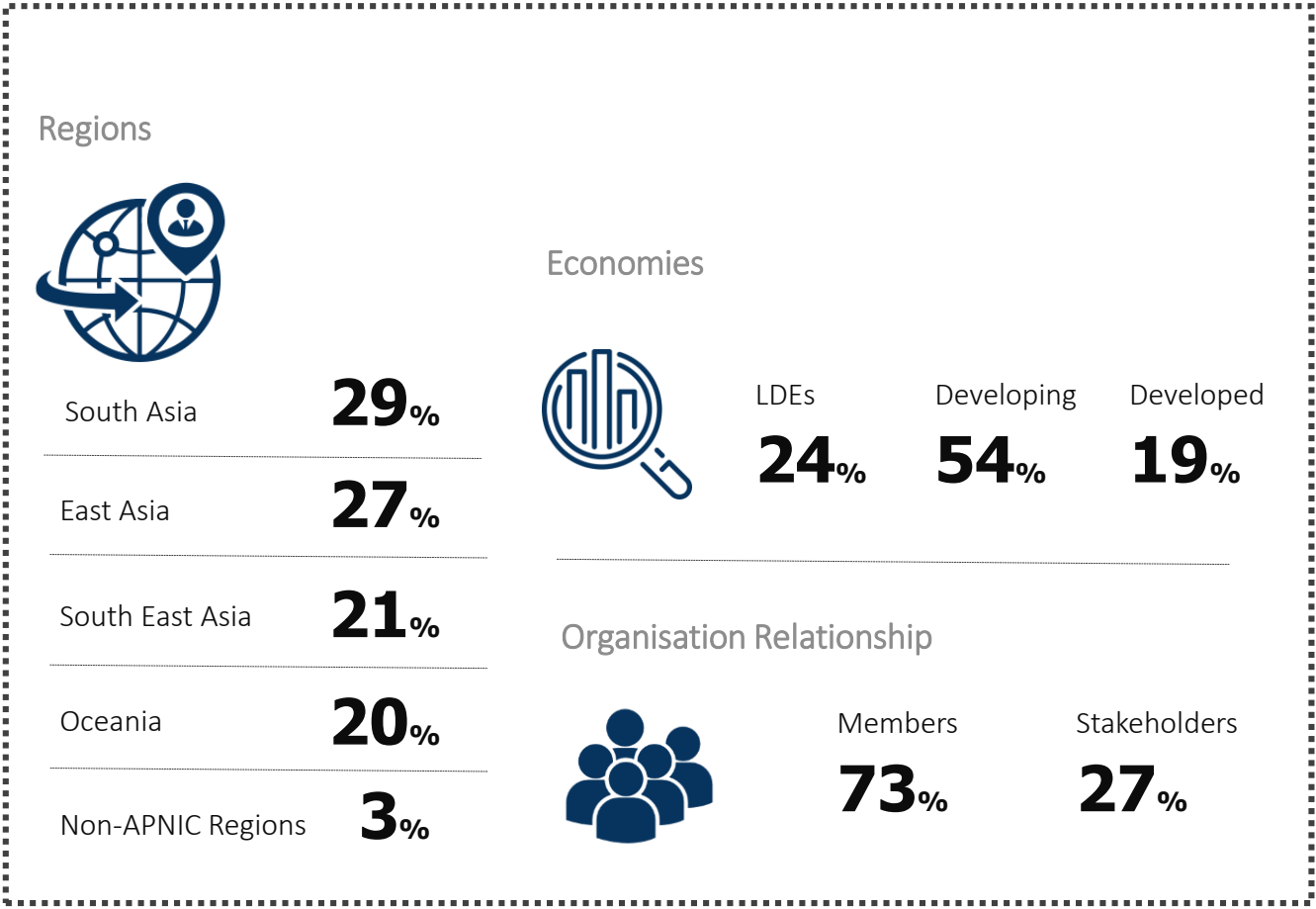
- The Whois Database is used by a majority of respondents, with 8% using it daily, 22% at least once a week and 25% at least monthly. Network troubleshooting is the main reason for using Whois. With concerns raised about the accuracy of the registry data in focus groups, respondents suggested that regular email reminders would be the most effective way of encouraging Members to keep their details up to date.
- If APNIC were to provide Internet trend and benchmarking data services, data about network security threats would be the most useful information for a majority (74%) of organisations. Information about network infrastructure would be of value to 59% of respondents, while 54% would value information about the use of new technologies.
- Overall, 30% of respondents believe three days is the ideal length for the APNIC conference, while 31% think a longer (four or five day) event would be preferable. Those in LDEs and developing economies, who are the most likely to attend, are more likely to favour a longer event.
- Consistent with 2016, participation in the APNIC Policy Development Process is low (6%). Again, lack of awareness was the main reason for non-participation.

Governance

- Overall, satisfaction with APNIC transparency and openness is positive. Eighty-seven percent (87%) of respondents agreed that APNIC is sufficiently open and transparent in its activities. An overwhelming majority of respondents (93%) also agree that APNIC is respected in the Internet community. This is up from 83% in 2016.
- Thirty-five percent (35%) of respondents agree that 18 months operating expenses is an appropriate target for capital reserves. A further 24% believe APNIC should hold 24 months operating expenses in reserve, while 13% believe that 12 months would be sufficient.

Sample

A total of 1,241 responses were analysed in 2018, with an even distribution of responses across APNIC sub-regions.



Survey responses by sub-region and economy

			2016		2018	
Code	Name	Economic Classification	Count	%	Count	%
East Asia						
CN	China	Developing	170	13%	107	9%
HK	Hong Kong Special Administrative Region of China	Developing	39	3%	53	4%
JP	Japan	Developed	24	2%	63	5%
KR	Republic of Korea	Developing	2	0%	11	1%
MN	Mongolia	Developing	9	1%	71	6%
MO	Macao Special Administrative Region of China	Developing	-	-	2	0%
TW	Taiwan	Developing	24	2%	30	2%
Sub-total			268	23%	337	27%
Oceania						
AS	American Samoa	Developing	1	0%	1	0%
AU	Australia	Developed	202	15%	132	11%
CK	Cook Islands	Developing	2	0%	1	0%
FJ	Fiji	Developing	4	0%	10	1%
FM	Micronesia	Developing	1	0%	-	-
GU	Guam	Developing	1	0%	1	0%
KI	Kiribati	LDE	-	-	1	0%
MH	Marshall Islands	Developing	-	-	1	0%
MP	Northern Mariana Islands	Developing	1	0%	-	-
NC	New Caledonia	Developing	2	0%	6	0%
NF	Norfolk Island	Developing	-	-	2	0%
NR	Nauru	Developing	1	0%	2	0%
NU	Niue	Developing	1	0%	1	0%
NZ	New Zealand	Developed	47	4%	42	3%
PG	Papua New Guinea	Developing	10	1%	10	1%
PW	Palau	Developing	2	0%	1	0%
SB	Solomon Islands	LDE	1	0%	22	2%
TK	Tokelau	Developing	1	0%	1	0%
TO	Tonga	Developing	2	0%	7	1%
TV	Tuvalu	LDE	1	0%	1	0%
VU	Vanuatu	LDE	2	0%	4	0%
WF	Wallis & Fortuna Islands	Developing	-	-	1	0%
WS	Samoa	Developing	1	0%	4	0%
Sub-total			283	24%	251	20%
SE Asia						
BN	Brunei Darussalam	Developing	1	0%	3	0%
ID	Indonesia	Developing	49	4%	51	4%
KH	Cambodia	LDE	15	1%	18	1%
LA	Lao People's Democratic Republic	LDE	4	0%	4	0%
MM	Myanmar	LDE	11	1%	24	2%
MY	Malaysia	Developing	39	3%	36	3%
PH	Philippines	Developing	43	3%	48	4%
SG	Singapore	Developing	27	2%	27	2%
TH	Thailand	Developing	18	1%	41	3%
TL	Timor-Leste	LDE	2	0%	2	0%
VN	Vietnam	Developing	48	4%	5	0%
Sub-total			257	22%	259	21%

Survey responses by sub-region and economy

			2016		2018	
Code	Name	Economic Classification	Count	%	Count	%
South Asia						
AF	Afghanistan	LDE	5	0%	8	1%
BD	Bangladesh	LDE	94	7%	138	11%
BT	Bhutan	LDE	7	1%	7	1%
IN	India	Developing	142	11%	82	7%
IO	British Indian Ocean Territory	Developing	-	-	-	-
LK	Sri Lanka	Developing	10	1%	16	1%
MV	Maldives	Developing	1	0%	4	0%
NP	Nepal	LDE	26	2%	65	5%
PK	Pakistan	Developing	36	3%	36	3%
Sub-total			321	27%	356	29%
Non APNIC Region						
AM	Armenia		-	-	1	0%
CH	Switzerland		-	-	2	0%
DE	Germany		1	0%	1	0%
DZ	Algeria		-	-	1	0%
ES	Spain		-	-	1	0%
GB	United Kingdom		2	0%	2	0%
IQ	Iraq		-	-	1	0%
IT	Italy		-	-	1	0%
LB	Lebanon		-	-	1	0%
NG	Nigeria		1	0%	1	0%
NL	Netherlands		6	0%	2	0%
SI	Slovenia		-	-	1	0%
TR	Turkey		-	-	1	0%
US	United States of America		16	1%	22	2%
Subtotal			46	4%	38	3%
Total			1,175	100%	1,241	100%

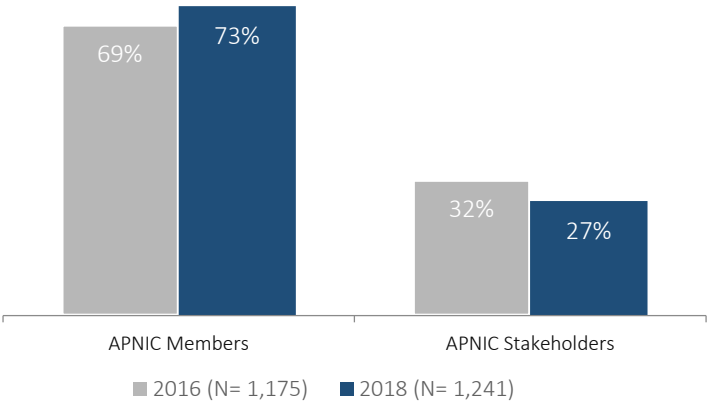
Translated surveys completed

Code	Language	Count	% of Total Responses
BD	Bangladesh (Bengali)	41	3%
CN	Chinese Simplified	101	8%
CN	Chinese Traditional	56	5%
ID	Indonesian	43	4%
JP	Japanese	60	5%
KR	Korean	9	1%
MN	Mongolian	49	4%
TH	Thai	30	2%
Total		389	32%

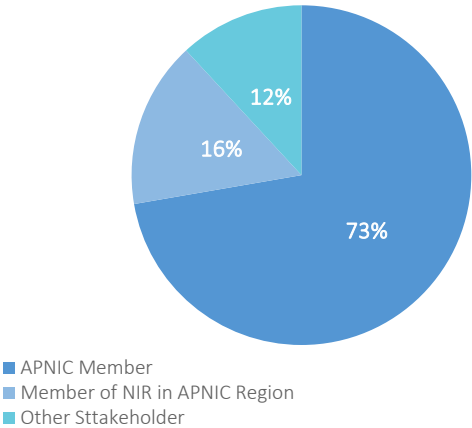
	2016	2018
Q. 3 - Organisation Type		
Sample Size	1,169	1,241
Internet Service Provider (ISP)	32%	34%
Telecommunications / Mobile Operator	11%	13%
Hosting / Data Centre	11%	7%
Academic/Educational/Research	9%	11%
Other	7%	7%
Banking/Financial	6%	5%
Government/Regulator/Municipality	5%	6%
Non-profit/NGO/Internet community	4%	4%
Enterprise/Manufacturing/Retail	3%	3%
Software Vendor	3%	3%
Media / Entertainment	2%	2%
Domain Name Registry / Registrar	2%	1%
NREN/Research network	1%	1%
Infrastructure (transport/hospital)	1%	1%
Internet Exchange Point (IXP)	1%	1%
Hardware Vendor	1%	1%
Industrial (construction, mining, oil)	1%	1%

	2016	2018
Q. 43 - Position		
Sample Size	1,173	1,241
IT/ICT Manager or equivalent	34%	33%
Technical Operations	29%	32%
Executive Director/ Managing Director/ CEO/CFO/CTO	19%	18%
Administration	6%	4%
Other	6%	8%
Business Development	3%	2%
Commercial Operations	2%	2%
Software Development	2%	2%

Q. 4 – Organisation Relationship (2016-2018)



Q. 4 – Organisation Relationship (2018)



DETAILED RESULTS





Service Usage & Satisfaction

In order to measure service usage and satisfaction, respondents were asked to indicate how often they had interacted with APNIC over the last two years, which services they had used and how satisfied they were with each of the APNIC products, services and activities they had experienced.

After rating their experience using individual APNIC services, respondents were also asked to rate the overall quality and value of APNIC services and Membership.

APNIC Contact Frequency

To track APNIC service usage, respondents were asked to indicate how often they had interacted with APNIC over the last two years.

Overall, 67% of respondents have used APNIC services or interacted with APNIC over the last two years. This compares to 77% in 2016.

As expected, APNIC Members were significantly more likely to have used APNIC services or contacted APNIC for support than other respondents. Over three quarters (77%) of APNIC Members had used an APNIC service or interacted with APNIC in some way at least once over the last two years. This compares to 41% of Members of NIRs or other Stakeholders.

Nearly half (49%) of APNIC Members and Account Holders had interacted with APNIC between one and five times (down from 52% in 2016), while 28% indicated they had interacted with APNIC more than five times over the last two years.

Thirteen percent (13%) of Members had no contact with APNIC over the last two years, up 4% from 2016. This compares to 43% of Members of NIRs or other Stakeholders – which increased from 20% in 2016.

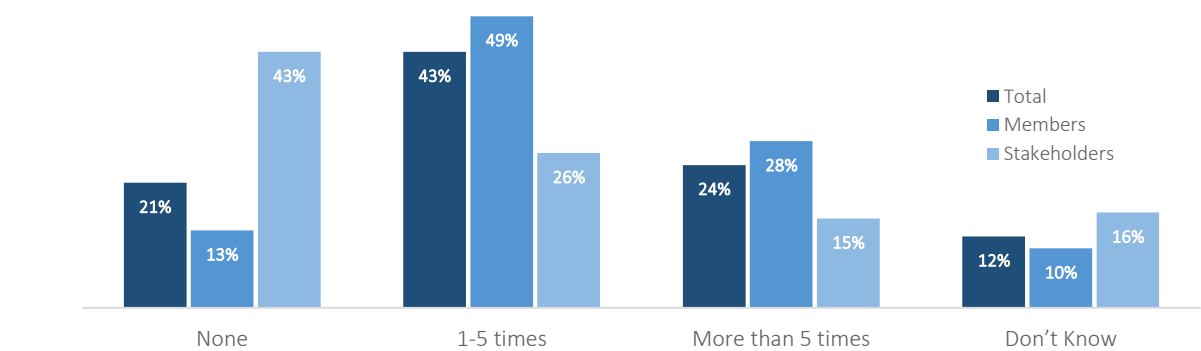
Respondents from Oceania were the most likely to have interacted with APNIC, with 81% indicating they had contact with APNIC at least once. This is broadly consistent with 2016.

Survey respondents from East Asia (32%) were more likely than counterparts from other regions to have had no contact with APNIC over the past two years.

Respondents from developing economies were also very likely to have interacted with APNIC, with 69% indicating they have had at least one interaction over the last two years. This validates free text feedback throughout the survey that indicates that respondents from developing economies would like to see greater APNIC presence and local support.

Q 4 – How many times have you used an APNIC service, contacted or interacted with APNIC in the last 2 years?

(All respondents: n=1241)



	2016	2018	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	1175	1241	337	251	259	356	294	672	237
None	12%	21%	32%	12%	19%	19%	21%	21%	22%
1-5 times	49%	43%	38%	56%	46%	37%	37%	43%	51%
More than 5 times	28%	24%	19%	25%	25%	28%	24%	26%	20%
Don't Know	11%	12%	12%	7%	10%	17%	18%	11%	7%

Significantly higher / lower than total

APNIC Service Usage

Q 5 - APNIC Services used by respondents over the last 2 years .

(Have used, interacted or contact APNIC in the last 2 years: n=980; Total mentions: 4721)

	2016			2018			Total Change 2016-18
	Total	Member	Stakeholder	Total	Member	Stakeholder	
Sample Size	1,030	735	295	980	788	192	
Visited the website	75%	77%	71%	76%	77%	70%	+1%
* Used MyAPNIC	59%	59%	-	62%	62%	-	+3%
Used the Whois Database	49%	53%	39%	56%	56%	54%	+7%
* Received IP addresses	45%	45%	-	45%	45%	-	-
Read the blog	43%	41%	46%	44%	43%	48%	+1%
* Applied for IP addresses	53%	53%	-	41%	41%	-	-12%
* Contacted the helpdesk	33%	33%	-	38%	38%	-	+5%
Attended training	22%	22%	20%	27%	26%	32%	+5%
Attend conference/event	22%	21%	24%	25%	24%	30%	+3%
Personally met with APNIC	17%	16%	22%	21%	21%	23%	+4%
* Used reverse DNS	27%	27%	-	20%	20%	-	-7%
Attended presentation	15%	13%	22%	18%	16%	23%	+3%
** Contacted APNIC	22%	-	22%	16%	-	16%	-8%
* Technical assistance	13%	13%	-	13%	13%	-	-
* Transferred IPv4 addresses	12%	12%	-	13%	13%	-	+1%
* Used RPKI services	5%	5%	-	10%	10%	-	+5%
Participate SIGs/Meetings	7%	5%	11%	9%	7%	14%	+2%
Policy Development	5%	4%	7%	6%	5%	9%	+1%
None of these	2%	1%	5%	3%	1%	7%	+1%
Other	2%	1%	4%	1%	1%	2%	-1%

* Option not offered to Stakeholder respondents

** Option not offered to Member respondents

Significantly higher / lower than total

While usage of some APNIC services, and participation in APNIC activities was broadly consistent with 2016, other services saw an increase in usage.

Similar to 2016, 76% of respondents indicated they had visited the APNIC website and 44% read the APNIC Blog. While fewer respondents applied for IP addresses (41%), a similar proportion received (45%) and transferred IP addresses (13%).

Fewer respondents indicated they had used reverse DNS services (20%) or contacted APNIC for support (16%).

Up 7% from 2016, 56% of respondents have used the Whois Database. Usage of MyAPNIC was also up 3%, at 62% of respondents over the last two years. The proportion of respondents contacting the APNIC helpdesk was also 5% higher than in 2016, at 38%.

Twenty-seven percent (27%) of respondents attended APNIC training, an increase of 5% since 2016. Conference attendance was also up slightly, to 25% of respondents.

From a sub-regional perspective, South Asia respondents were the most likely to have visited the website, used the Whois Database and read the APNIC Blog. Respondents in South Asia were also more likely to have attended an APNIC conference or event (48%) or met an APNIC representative (37%) in the last two years than respondents in other sub-regions.

APNIC training services are more likely to be attended by respondents in South East and South Asia (37% and 34% respectively). Respondents in East Asia were the least likely to have attended APNIC events and participated in training activities. MyAPNIC is more widely used in Oceania than other sub-regions.

While respondents in developed economies are more likely to have used MyAPNIC and the Whois Database, those in developing economies and LDEs continue to be more likely to read the Blog, use APNIC training services, attend APNIC conferences, events and presentations and personally meet with APNIC representatives, suggesting continued reliance on APNIC for support and assistance. The need for additional support amongst respondents in LDEs and developing economies was also a strong theme in free text feedback.

Q 5 –APNIC services used by respondents over the last 2 years by classification and region for 2018.

(Have used, interacted or contact APNIC in the last 2 years: n=980; Total mentions: 4721)

(See previous page for breakdown by relationship with APNIC)

	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	981	223	433	129	90	110	736	39
Visited the website	76%	75%	77%	74%	84%	79%	76%	79%
Used MyAPNIC	62%	53%	75%	58%	61%	62%	57%	76%
Used the Whois Database	56%	59%	55%	44%	61%	51%	55%	67%
Received IP addresses	45%	36%	41%	49%	51%	48%	44%	43%
Read the blog	44%	35%	51%	36%	54%	60%	43%	41%
Applied for IP addresses	41%	37%	36%	46%	42%	42%	41%	38%
Contacted the helpdesk	38%	29%	35%	40%	46%	38%	39%	36%
Attended training	27%	15%	30%	37%	34%	38%	27%	8%
Attend conference/event	25%	15%	26%	28%	48%	50%	23%	5%
Personally met with APNIC	21%	10%	23%	27%	37%	37%	20%	8%
Used reverse DNS	20%	21%	24%	14%	20%	20%	17%	27%
Attended presentation	18%	10%	19%	21%	30%	33%	17%	5%
Contacted APNIC	16%	15%	22%	6%	20%	9%	18%	17%
Technical assistance	13%	15%	6%	13%	18%	13%	17%	5%
Transferred IPv4 addresses	13%	17%	11%	17%	9%	10%	15%	13%
Used RPKI services	10%	12%	5%	11%	11%	13%	10%	5%
Participate SIGs/Meetings	9%	5%	10%	9%	12%	13%	9%	3%
Policy Development	6%	2%	8%	3%	9%	8%	5%	3%
None of these	3%	3%	3%	2%	0%	0%	3%	3%
Other	1%	0%	1%	3%	1%	3%	1%	0%

Significantly higher / lower than total

Assessment of APNIC Services

Having identified the APNIC services used, the next question asked respondents to rate their satisfaction with those APNIC services, on a seven point scale from Very Poor (1) to Excellent (7).

Results are presented below to show the mean scores. On the following pages comparisons are provided between different economy type and sub-region, as well as ratings from the 2016 Survey where they were able to be compared.

Overall, satisfaction with individual services is high and, for most services, has improved since 2016. Respondents’ rating of their experience of the core APNIC services of IP address applications and allocations, the Whois database, reverse DNS and technical and helpdesk assistance are mostly unchanged from the 2016 Survey and remain positive.

Ninety percent (90%) rated their experience of IP address and AS resource application processes favourably, and 89% were satisfied with the IP allocation process. Satisfaction with MyAPNIC (92%) and the Whois Database (91%) was also high.

Like in 2016, respondents are most satisfied with the personal services and customer support provided by APNIC. Of those respondents who had met personally with an APNIC representative, 97% rated the experience positively – up from 92% last year. The same proportion rated APNIC presentations as positive.

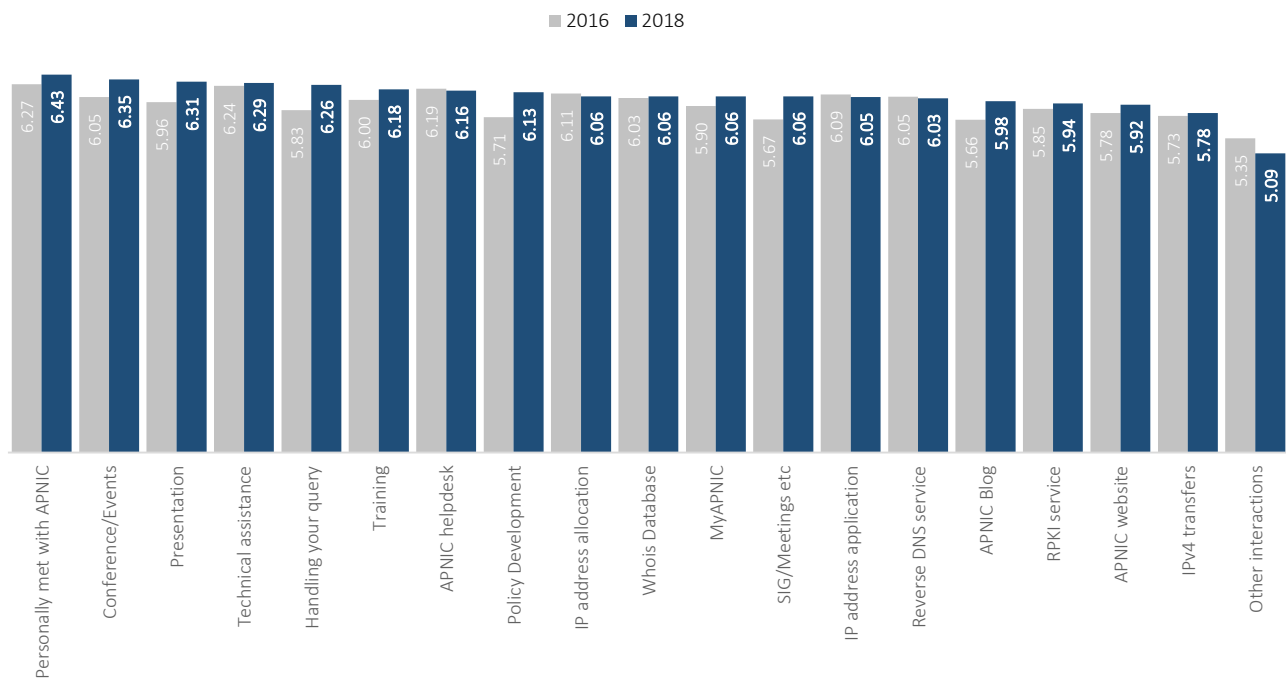
Over 90% of respondents also rated the service provided by the Technical Assistance Team and the APNIC helpdesk very highly (94% and 93% respectively).

Although they are used by fewer respondents, conferences and training also rated highly, with 98% and 94% of respondents rating them as above average, good or excellent. Nearly half (48%) of respondents rated APNIC conferences as excellent.

Ratings provided for the APNIC website, while slightly higher than in 2016, were lower than other services. While 90% provided a rating of five or above, only 29% rated it as excellent. A couple of comments suggested that the website is slow or complicated.

Q 6 – Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Have Used APNIC Service. Mean Score. N= 980, n=various)



Where: (1=Very Poor, 2=Poor, 3=Below Average, 4=Average, 5=Above Average, 6=Good, 7=Excellent)

Q 6 – Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Have Used APNIC Service. Top 3 Box Score (% Above Average, Good, Excellent) (N= 980, n=various)

	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
APNIC Conference, APRICOT or other APNIC events	98%	92%	96%	98%	100%	100%	96%	93%
Meeting with an APNIC representative	97%	98%	97%	96%	98%	97%	98%	92%
APNIC public presentation	97%	94%	96%	95%	98%	98%	96%	92%
APNIC Special Interest Group (SIG) / meeting	97%	100%	92%	100%	94%	88%	100%	100%
The APNIC Policy Development Process	95%	100%	100%	88%	97%	94%	97%	100%
APNIC training courses and/or online training	94%	95%	92%	94%	96%	95%	95%	81%
APNIC technical assistance service	94%	88%	100%	100%	95%	92%	97%	89%
APNIC helpdesk	93%	94%	86%	97%	94%	95%	96%	84%
MyAPNIC	92%	84%	88%	98%	97%	97%	94%	84%
APNIC reverse DNS services	91%	79%	89%	92%	100%	100%	88%	87%
The APNIC Whois database service	91%	87%	90%	92%	96%	98%	91%	87%
APNIC's handling of your query	90%	90%	86%	100%	100%	67%	96%	100%
APNIC Blog	90%	87%	87%	91%	95%	97%	90%	82%
APNIC website	90%	86%	86%	93%	96%	97%	92%	79%
APNIC IP address / AS number resource applications	90%	82%	83%	95%	96%	96%	90%	81%
APNIC IP address and AS number resource allocations	89%	83%	82%	93%	93%	95%	89%	82%
APNIC resource certification (RPKI) services	89%	85%	90%	84%	96%	100%	83%	89%
IPv4 address transfers	86%	82%	70%	97%	90%	84%	95%	64%

Significantly higher / lower than total

In some cases, satisfaction with APNIC services varies between economies based on development status or sub-region.

Respondents in developing economies are significantly more satisfied with APNIC training services than those in developed economies, with 95% rating them positively - 44% as excellent. This compares to 35% of respondents in LDE's and 25% in developed economies. Meetings with APNIC representatives are also rated more highly by respondents in developing economies.

Conversely, respondents in LDE's were significantly more likely to rate IP address applications and allocations, the APNIC website, the Whois Database, MyAPNIC and reverse DNS services as positive than respondents in developing or developed economies.

From a regional perspective, respondents in South Asia rated IP address applications and allocations, MyAPNIC, the Whois Database, the APNIC website and reverse DNS services more favourably than respondents in other regions. These respondents were also more likely to rate the APNIC Blog and website as excellent.

Respondents from East Asia were the least satisfied with IP address applications and allocations, reverse DNS services, the Whois Database, MyAPNIC and the APNIC website.

While APNIC public presentations were favourably rated by Oceanic respondents, with 64% rating them as excellent, these respondents were less satisfied with the IP address application and allocation process than respondents in South and South East Asia.

While a majority were satisfied with APNIC's service provisions, suggestions and ideas for improvement included improvements to policy processes, website upgrades to improve speed and ease of use and clearer and easier application process.

Overall Satisfaction

After rating their experience using individual APNIC services, APNIC Members or Account Holders were asked to rate the overall quality and value of APNIC services and Membership on a seven point scale from Very Poor (1) to Excellent (7).

Consistent with 2016, a majority of respondents rated the quality of service delivery positively with 91% rating the quality of services at a five or higher. Ninety-one percent (91%) also provided a rating higher than neutral for the value of APNIC services. Slightly fewer (88%) rated the overall value of APNIC Membership as above average or better. For all statements, the proportion of respondents providing the higher ‘good’ or ‘excellent’ rating increased.

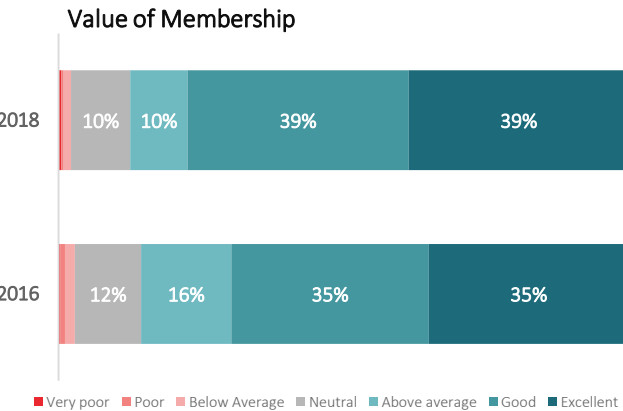
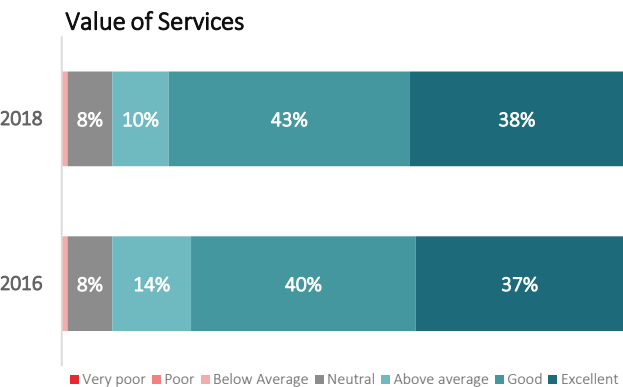
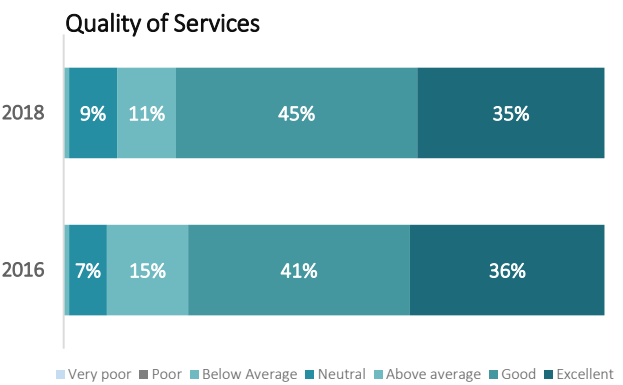
Across all dimensions, respondents in South Asia are the most satisfied, with 97% rating service quality and value positively. Ratings for APNIC service quality and value from respondents in South East Asia (91% and 94% respectively) were also positive.

While respondents from East Asia were less likely to provide a score of five or higher for APNIC service quality and value, satisfaction is up from 2016. The quality and value of APNIC service delivery was rated positively by 85% and 87% of respondents from East Asia respectively. This compares to 80% in 2016.

Respondents from Oceania also provided slightly lower overall ratings of 86% and 85% for service quality and value respectively – down from 91% and 89% in 2016.

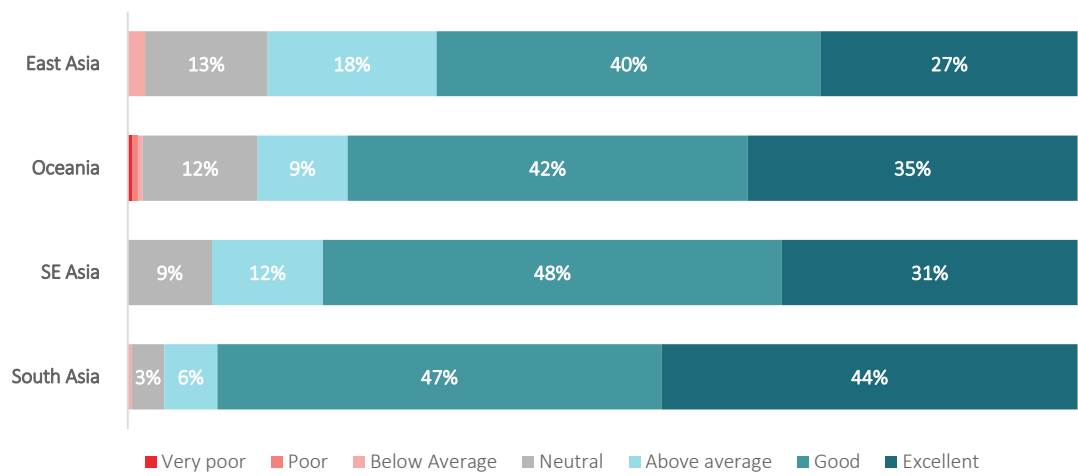
South and South East Asia respondents were also significantly more likely to be satisfied with the overall value provided by their Membership than respondents from the other two sub-regions. Ninety-four percent (94%) of respondents from South Asia and 91% of those from South East Asia rated the value of Membership positively. This compares to 81% in Oceania and 83% in East Asia.

Q 8 –Thinking about APNIC overall, how would you rate:
(Members only: n=788)

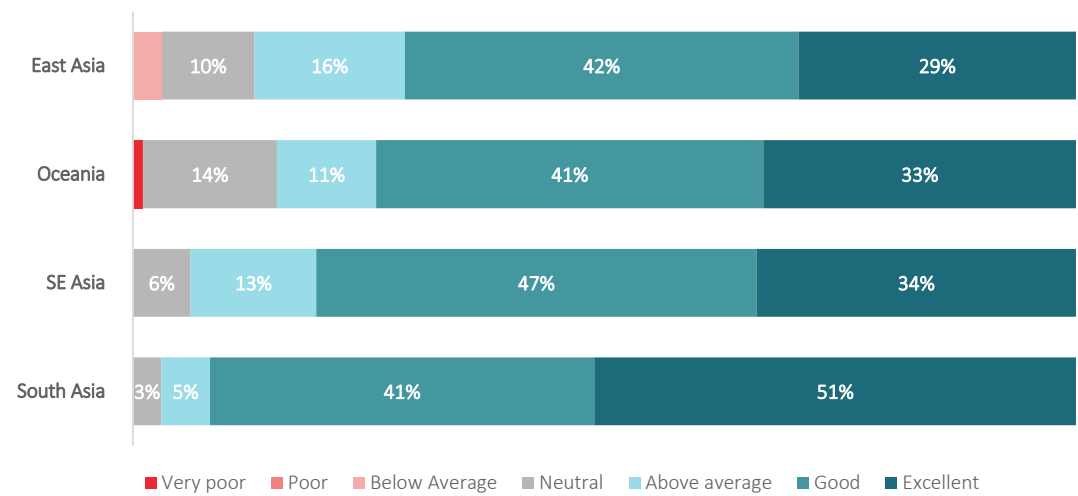


Overall satisfaction by sub-region

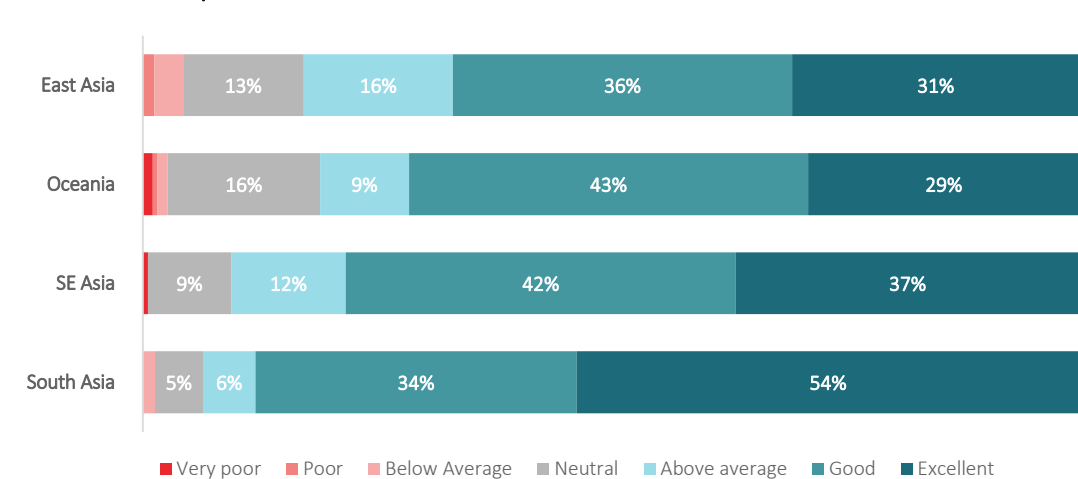
Quality of Service Delivery



Value of Services



Value of Membership



Overall, the mean rating of the quality of APNIC service delivery was consistent between 2016 and 2018, at 6.03. The mean rating for the value of APNIC services increased slightly from 6.02 to 6.07.

While satisfaction with the quality of service delivery has fallen slightly in South Asia, there has been an increase in the mean ratings provided by respondents in other APNIC sub-regions.

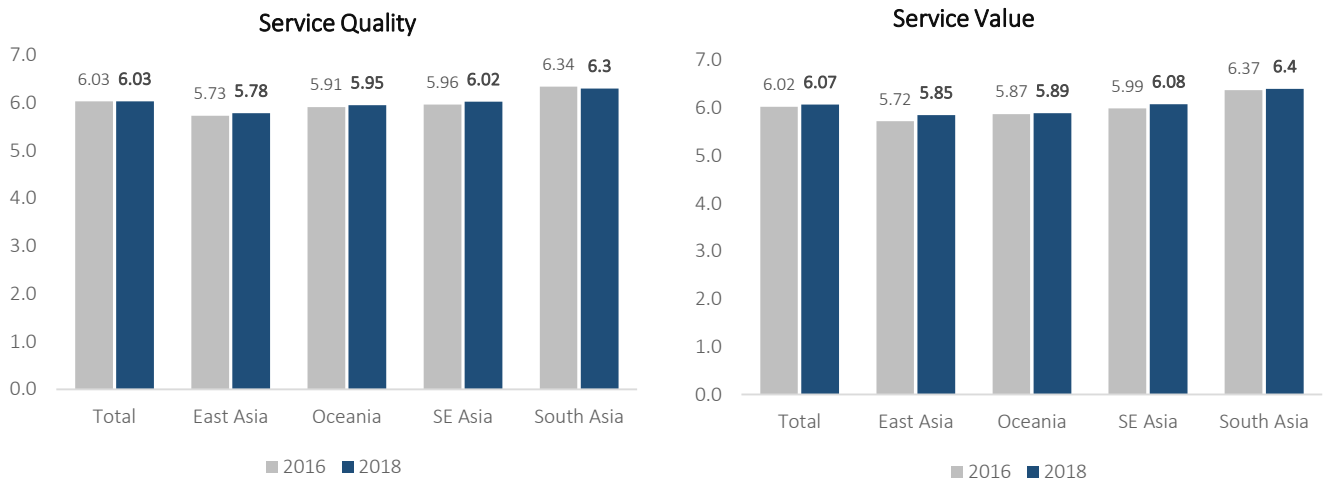
Mean ratings for the value of APNIC services has improved in all regions.

Comparison of respondents ratings of APNIC service quality and value provided in 2018, based on the number of interactions respondents had with APNIC, was also undertaken. Like in 2016, the number of interactions respondents had with APNIC had a positive impact on satisfaction ratings, with more frequent users rating service quality and value more highly.

In particular, more frequent contact enhanced perceptions of Membership value. Eighty-seven percent (87%) of respondents who had between one and five interactions with APNIC over the last two years rated the value of APNIC Membership as above average or higher, compared to 92% of those respondents who had more than five interactions.

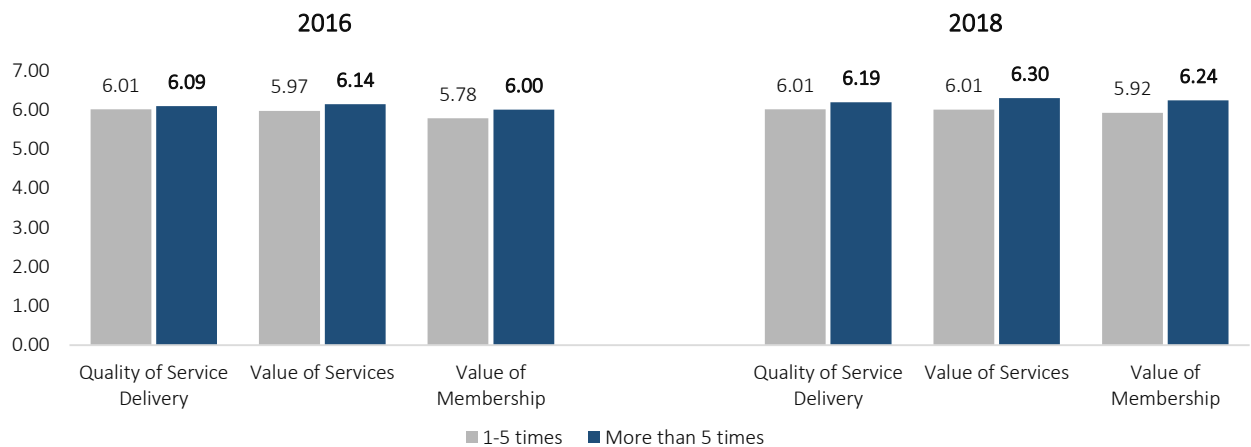
Q8. Respondents ratings of the quality and value of APNIC services compared to 2016.

(Mean scores of Members only: n=788)



Q 8 - Respondents ratings of the quality and value of APNIC services and Membership by frequency of interaction with APNIC

(Mean Score Members only: 2016 n=733; 2018 n= 696)



Stakeholder Satisfaction

Members of NIRs or other Stakeholders were also asked to rate their experience dealing with APNIC. Ratings were provided on a seven point scale, from Very Poor (1) to Excellent (7).

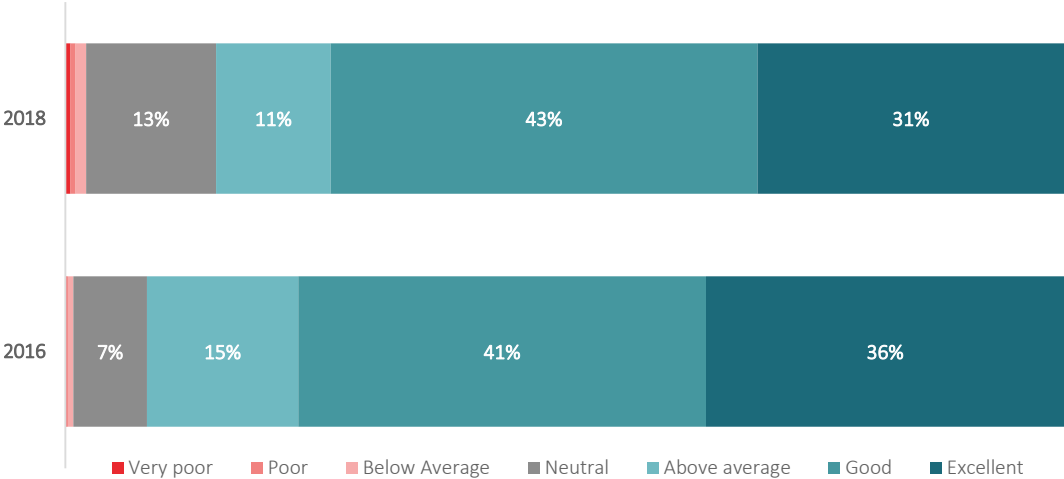
Down 7% from 2016, 85% of Members of NIRs or other Stakeholders rated their experience dealing with APNIC as positive. A further 13% provided a neutral rating.

Respondents in South East Asia provided the most positive feedback, with 94% rating their experience dealing with APNIC as above average, good or excellent. This is up significantly from 74% in 2016.

Ninety percent (90%) of respondents from Oceania also provided positive ratings, up from 88% in 2016. Positive ratings were provided by 85% of respondents from South Asia and 80% from East Asia.

Stakeholders from developed economies were more likely to rate their experience favourably, with 89% providing a positive rating. This compares to 85% of respondents in developing economies and 85% from the LDEs.

Q 9. Overall, how would you rate your experience dealing with APNIC?
(Stakeholders only: 2016 n=292; 2018 n=192)



Endorsement

As well as understanding satisfaction with APNIC services and Membership, the Survey asked respondents to indicate how they speak about APNIC to others.

Overall, 56% of respondents speak highly of APNIC - 12% speak highly of APNIC without being asked and 44% tend to speak highly if they are asked. This is up from 10% and 31% respectively in 2016.

Fewer respondents (39% compared to 47%) indicate that are neutral about APNIC, with many respondents who were previously ambivalent now indicating that they speak positively about APNIC. Very few speak negatively of the organisation.

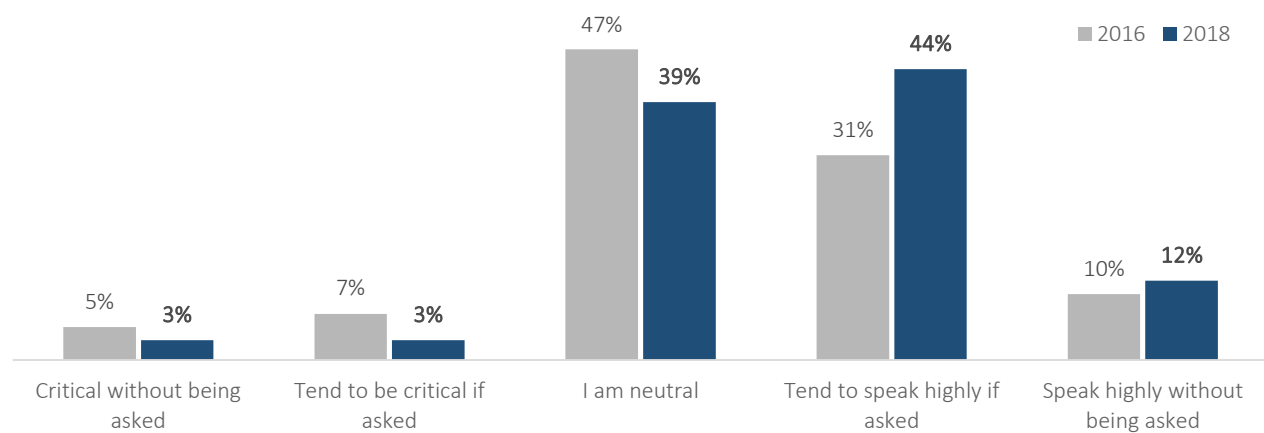
APNIC Members are more likely to provide favourable endorsement of APNIC than Members of NIRs or other Stakeholders, with 60% and 46% speaking highly of APNIC respectively.

Like in 2016, respondents from LDEs are the most likely to speak highly of APNIC – 18% speak highly without being asked and 51% provide positive feedback when asked. By comparison, only 5% of respondents in developed economies would provide positive feedback without being asked.

Respondents from South Asia were the most likely to provide positive word of mouth, with 71% indicating they speak highly of APNIC – 17% without being asked. Sixty-five percent (65%) of respondents from Oceania speak highly of APNIC.

Respondents from East Asia are the most likely to provide negative feedback – 7% of respondents from East Asia would speak poorly of APNIC without being asked.

Q 38 – Which of these phrases best describes the way you speak about APNIC to others?
(All respondents: 2016: 1,167; 2018: n=1,241)



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	903	338	337	251	259	356	294	672	237
Critical without being asked	2%	5%	7%	0%	2%	2%	2%	4%	0%
Tend to be critical if asked	3%	2%	2%	2%	4%	2%	3%	3%	3%
I am neutral	36%	47%	50%	32%	48%	26%	27%	40%	49%
Tend to speak highly if asked	48%	32%	33%	49%	39%	53%	51%	40%	43%
Speak highly without being asked	12%	14%	9%	16%	7%	17%	18%	13%	5%
Mean Score	3.64	3.49	3.35	3.77	3.46	3.82	3.80	3.54	3.52
Standard Deviation	0.80	0.93	0.91	0.75	0.76	0.80	0.82	0.90	0.64

Segment mean significantly higher / lower than total mean score



Network Operations

To test feedback from the focus group discussions and understand how APNIC can best support the Internet community, the Survey included a section about the operational challenges respondents face in providing Internet related products and services.

More detailed information about the challenges organisations face arising from the lack of IPv4 addresses and in attempting to deploy IPv6, as well as how respondents believe APNIC can help in these areas, was also canvassed by the Survey.

Operational Challenges

To test the feedback from the focus groups and understand how APNIC can best support the Internet community, a section was included in the Survey about the operational challenges organisations face in providing Internet-related services. The question asked respondents to identify the challenges facing their organisation, and to rank at least five in order of priority, from a list of ten items.

Like in 2016, network security was identified as the main operational challenge by 27% of respondents, while 62% of respondents rated network security as one of the top three operational challenges facing their organisation.

This reflects focus group feedback where security was identified as the number one challenge and many participants indicated that it is getting increasingly difficult to keep up with the threats and risks associated with security, particularly for smaller organisations.

Also reflecting focus group feedback, scarcity of IPv4 addresses was identified as a challenge for respondents. Thirteen percent (13%) of respondents indicated it was the number one challenge facing their organisation, while 36% included it amongst their top three challenges.

The cost of network operations and hiring / keeping skilled staff were the next most commonly selected challenges, both identified as the main operational challenge for their organisation by 12% of respondents.

Deployment of IPv6 was identified as the main operational challenge facing their organisation by 11% of respondents. This fall in the relative importance of IPv6 deployment in the Survey is consistent with focus group feedback suggesting that many companies no longer feel a sense of urgency around the need to transition to IPv6 while IPv4, although scarce, is still available.

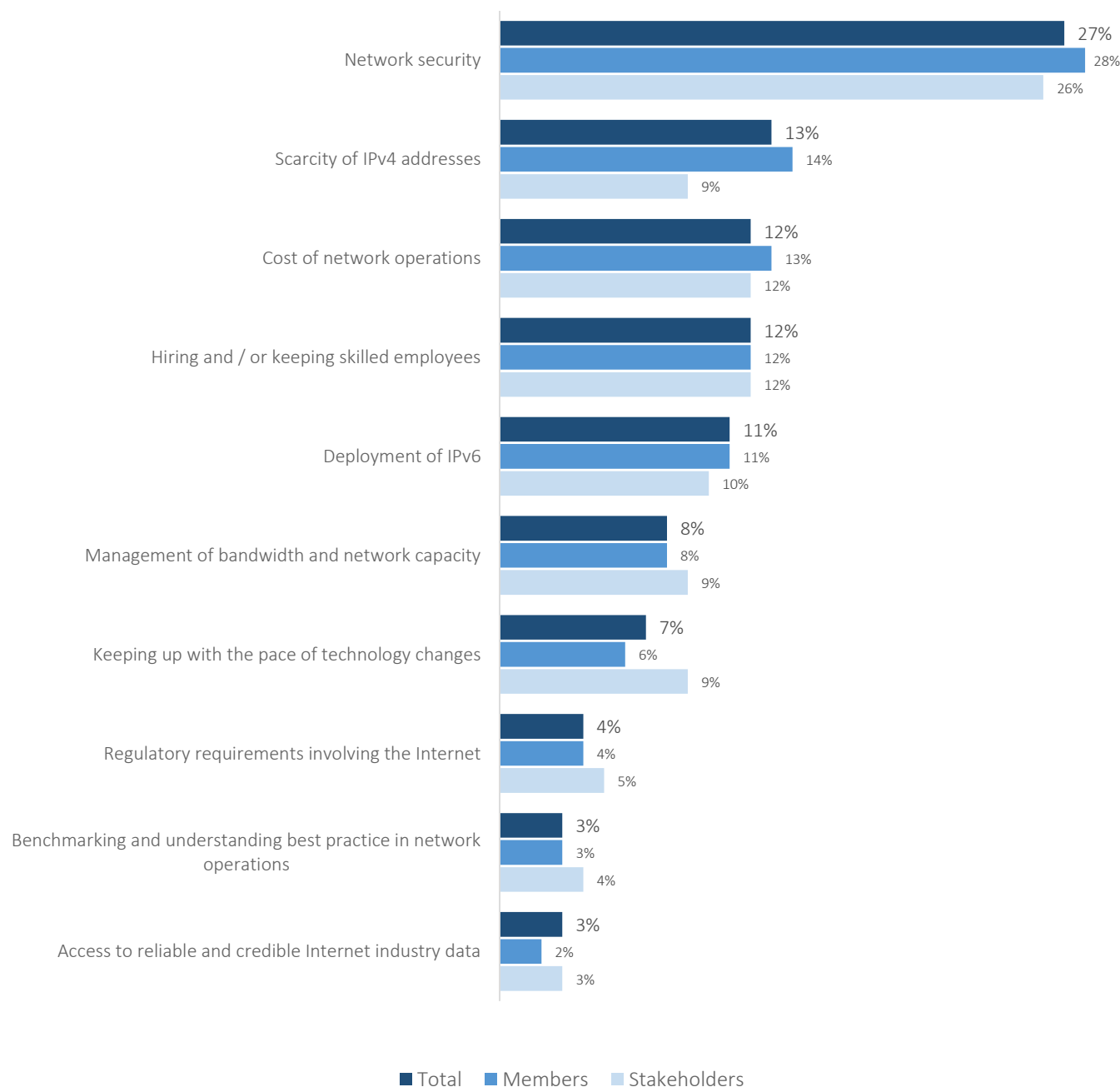
Consistent with the focus group feedback, security is the number one challenge facing the Internet community in 2018.

Q9. Thinking about your Internet-related services, products or activities, what are the MAIN operational challenges facing your organisation?

(Ranking Question. All Respondents asked to rank at least top 5 items)

	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	1241	337	251	259	356	294	672	237
Network security	27%	28%	34%	22%	26%	28%	25%	31%
Scarcity of IPv4 addresses	13%	13%	9%	14%	14%	11%	13%	12%
Cost of network operations	12%	10%	14%	17%	11%	13%	13%	11%
Hiring and / or keeping skilled employees	12%	12%	12%	13%	10%	8%	11%	16%
Deployment of IPv6	11%	9%	8%	8%	17%	16%	10%	7%
Management of bandwidth and network capacity	8%	9%	9%	9%	8%	7%	9%	8%
Keeping up with the pace of technology changes	7%	10%	5%	7%	6%	5%	9%	4%
Regulatory requirements involving the Internet	4%	4%	6%	4%	3%	4%	4%	5%
Benchmarking and understanding best practice in network operations	3%	4%	2%	3%	3%	3%	4%	3%
Access to reliable and credible Internet industry data	3%	3%	1%	4%	3%	4%	2%	2%
Other	0%	0%	1%	0%	0%	0%	0%	1%

Q9. Thinking about your Internet-related services, products or activities, what are the MAIN operational challenges facing your organisation?
 (Ranking Question. All Respondents asked to rank at least top 5 items)



Network Security

To provide a deeper understanding of the network security issues facing the community, the Survey next asked respondents to select, from a list of ten, the main network security challenges facing their organisation. Respondents were able to select up to five challenges.

Similar to the 2016 Survey, phishing, spam, malware, ransomware, DDoS attacks and intrusion and other breaches are the main security threats identified by respondents.

Sixty-four percent (64%) of respondents indicated that phishing, spam, malware and ransomware are an issue for their organisation. Respondents in South East Asia (74%) were more likely than those in other regions to identify these as issues for their organisation.

DDoS attacks were identified as problematic by 61% of respondents. Focus group feedback also suggested DDoS attacks had increased. Prevalence appears higher in South East Asia, where 70% of respondents indicated it is a problem for their organisation. Fewer respondents (45%) in Oceania selected DDoS attacks amongst their main security challenges.

Intrusion and other breaches were identified as one of the main security challenges by 47% of respondents. Those in East Asia (58%) and Oceania (55%) were most likely to report intrusions and other breaches as problematic for their organisation.

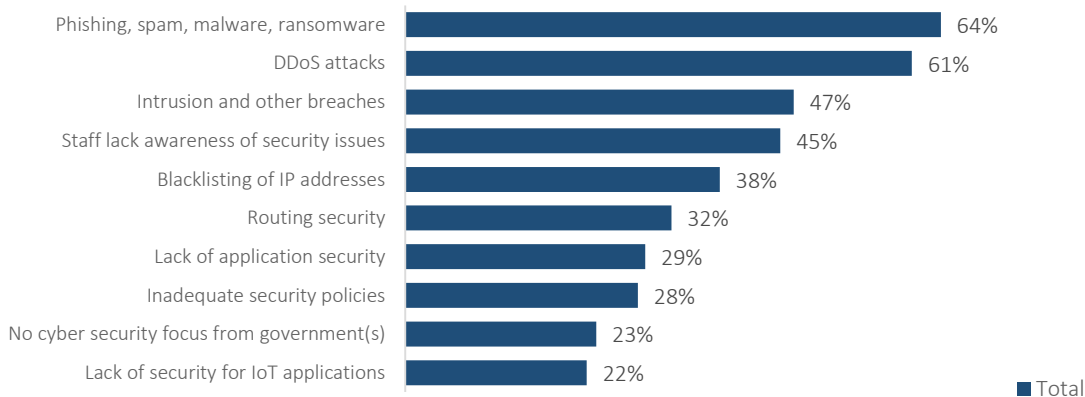
A strong theme in the focus group discussions, blacklisting of IP addresses was identified as a challenge with many reports that thorough testing is needed before deployment. This was confirmed by the Survey with 38% of respondents, particularly those in LDE's with 49% rating it amongst their main challenges. Those in South East Asia and South Asia were the most likely (47%) to rate it as a challenge.

Amongst the issues identified in focus groups, lack of security for IoT and government responses to security threats were rated as challenging by over 20% of respondents.

Other challenges identified included "security policy compliance", "government compliance mandates", being "under-resourced for effective network security" and lack of "DNSSEC deployment".

Q10. Thinking about network security, what are the MAIN challenges facing your organisation?

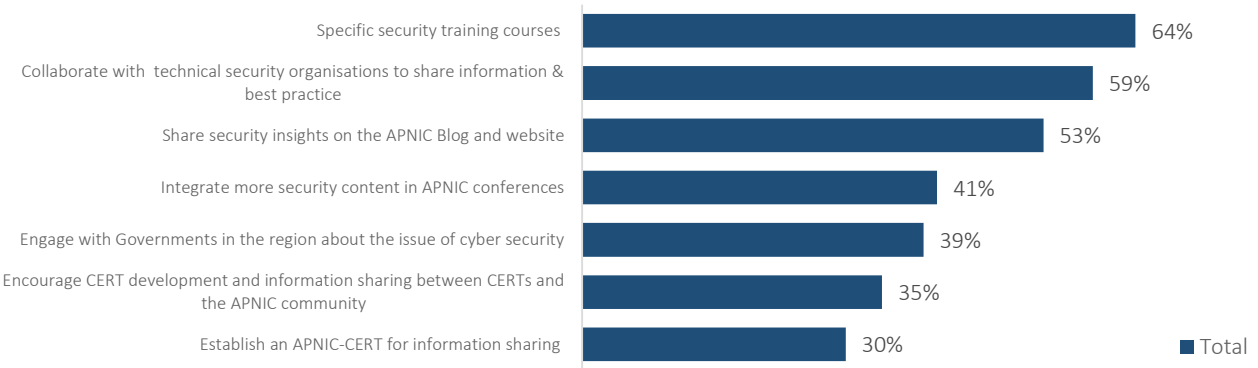
(All respondents: n=1,241; Total mentions: 4857)



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	338	337	251	259	356	294	672	237
Phishing, spam, malware, ransomware	65%	62%	58%	63%	74%	64%	66%	63%	65%
DDoS attacks	65%	48%	65%	45%	70%	61%	58%	64%	54%
Intrusion and other breaches	47%	47%	58%	55%	46%	30%	31%	51%	54%
Staff lack awareness of security issues	44%	48%	40%	50%	49%	46%	50%	44%	43%
Blacklisting of our IP addresses	40%	30%	30%	27%	47%	47%	49%	38%	24%
Routing security	31%	33%	36%	26%	29%	33%	32%	33%	27%
Lack of application security	28%	30%	23%	31%	29%	32%	35%	27%	27%
Inadequate security policies	26%	32%	25%	35%	22%	32%	39%	25%	25%
No cyber security focus from governments	21%	27%	14%	20%	21%	35%	41%	20%	8%
Lack of security for IoT applications	22%	21%	21%	23%	17%	24%	22%	21%	22%

Significantly higher / lower than total

Q11. How might APNIC best assist you or others with network security challenges?
 (All Respondents. n=1,212: Total mentions: 3932)



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	884	328	330	243	257	347	290	656	231
Specific security training courses	64%	63%	59%	52%	75%	72%	73%	70%	42%
Collaborate with technical security organisations to Share information and best practice	59%	59%	56%	61%	61%	60%	60%	60%	57%
Share security insights on the APNIC Blog and website	55%	49%	44%	50%	60%	59%	57%	53%	49%
Integrate more security content in APNIC conferences	42%	38%	42%	22%	45%	52%	56%	44%	17%
Engage with Governments about cyber security	37%	45%	35%	40%	33%	48%	47%	38%	35%
Information sharing between CERTs and the APNIC community	33%	39%	34%	37%	37%	30%	32%	36%	33%
Establish an APNIC-CERT for information sharing	30%	30%	28%	30%	31%	34%	34%	32%	24%

Significantly higher / lower than total

Training is the most common way both Members and other Stakeholders believe APNIC can assist the community with the challenges posed by network security threats. Overall, 64% of respondents believe APNIC could help by running specific security training courses, on topics such as DDoS prevention and security policy development. Many respondents suggested that APNIC should “provide more training on cyber security” and “do more practical workshops and conference on network security”.

Support for APNIC training is highest in South East and South Asia, at 75% and 72% of respondents respectively. While respondents in developed economies are least likely to indicate that APNIC security training courses would help them manage network security issues, 42% support the proposal.

A majority (59%) of respondents also believe that APNIC can help them with security related challenges by collaborating with other technical security organisations to share information and best practice.

This reflects focus group feedback, where participants called on APNIC, with “access to different organisations in the region” to “collaborate with other” to “gather lessons learnt from different places and compile experiences, solutions, best practices”.

Thirty-nine percent (39%) of respondents, particularly those in South Asia (48%) and LDEs (47%), indicated that engagement with government would also help, with verbatim survey comments that APNIC could “assist the government and relevant public legal entities to correctly formulate and implement information security policies.”

Fifty-three percent (53%) of respondents indicated that APNIC should raise awareness and share security insights with the community on the APNIC Blog and website. Respondents in East Asia (44%) were less likely to support this as a way in which APNIC can assist with network security concerns.

Forty-one percent (41%) of respondents believe that it would be beneficial if more security content was integrated in APNIC conferences, although this falls to only 22% of respondents in Oceania and 17% in developed economies.

Do you have any other ideas about how APNIC can help the region deal with network security challenges?

Education & Training

- “Conduct free training / workshops face to face for direct APNIC Members or educational institutions. Through education information will spread faster.” — *Member, South East Asia (Translated)*
- “APNIC can make more security related trainings rather concentrating only on IPv6 and DNS.” — *Member, South Asia*

Collaborate with Government & External Organisations

- “Involve the Governments, and widen their roles.” — *Stakeholder, South Asia*
- “Assist the government and relevant public legal entities to correctly formulate and implement information security policies.” — *Stakeholder, East Asia (Translated)*

Share Information & Best Practices

- “APNIC can play a major role of sharing the insights of other regions/countries approaches and best practices...” — *Member, South Asia*
- “Provide regular regional statistical information and make comparisons with your organization.” — *Member, East Asia (Translated)*

Raise Awareness

- “APNIC can help by spreading more awareness among the APNIC Members on security and guidelines for implementing Security practices.” — *Member, South Asia*
- “Network security is a major issue. APNIC should arrange conferences or seminars at Government level in an economy of Asia Pacific for awareness. They could also integrate that content on APNIC Web.” — *Member, South Asia*

Pioneer Development

- “APNIC can help to develop expertise and security systems” — *Member, South Asia*
- “Because security is a common interest, APNIC must be able to be a pioneer in the development of network security enforcement.” — *Stakeholder, South East Asia (Translated)*

Collect Feedback

- “Collect security concerns and take symmetry through survey.” *Member, East Asia (Translated)*
- “APNIC also could arrange completions to both public and students to survey the existing network security challenges within the region.” — *Stakeholder, East Asia*

IPv4 Scarcity

More detailed information about the challenges organisations face arising from the lack of IPv4 addresses was also canvassed by the Survey.

From a list of seven potential challenges, respondents were asked to indicate up to three main challenges facing their organisation as a result of IPv4 scarcity.

Deploying IPv6 is the main challenge arising from the shortage of IPv4 addresses. Nearly half (49%) of all respondents indicated that IPv6 deployment is an issue, although it is less of an issue for respondents in Oceania.

The cost of buying IPv4 addresses was cited as a challenge by 38% of respondents. Feedback from the focus group suggests that while the price of IPv4 addresses has increased significantly over the last two years, there is a divide between larger organisations who can afford to pay, and those that cannot afford IP addresses from the market. Reflecting this, cost is less of a challenge for respondents in Oceania (22%) and developed economies (20%).

The cost and complexity of NATs is a challenge for 34% of respondents. Reflecting focus group feedback that many respondents have become comfortable using NAT to extend the life of their IPv4 resources, the cost and complexity of NATs was less frequently cited by respondents in developed economies than those in LDEs and developing economies.

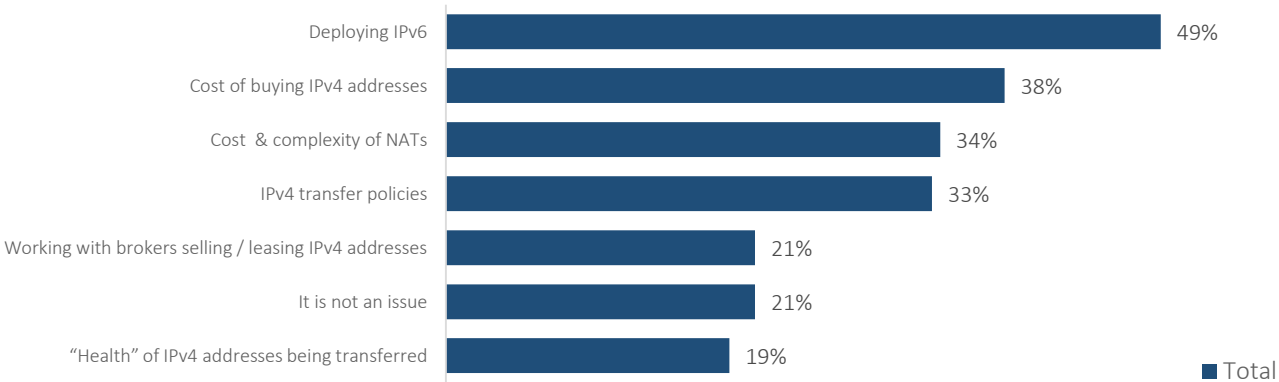
Also reflecting focus group discussion that described the recent policy restricting transfers as ‘problematic’, transfer policies were identified as an issue for 33% of respondents. Again, they appear to be less of an issue for respondents in developed economies, notably Oceania.

Trust in IP addresses secured from non-RIR source, and blacklisting of IP addresses, was mentioned by many focus group participants. While the health of IP addresses was selected by only 19% of Survey respondents, 28% of those in East Asia and 26% in South East Asia identified it as challenge for their organisation.

Overall, 21% of respondents indicated that the scarcity of IPv4 addresses is not an issue for their organisation. These respondents were predominantly in developed economies, most particularly in Oceania (37%).

Q13. Thinking about the scarcity of IPv4 addresses, what are the MAIN challenges facing your organisation?

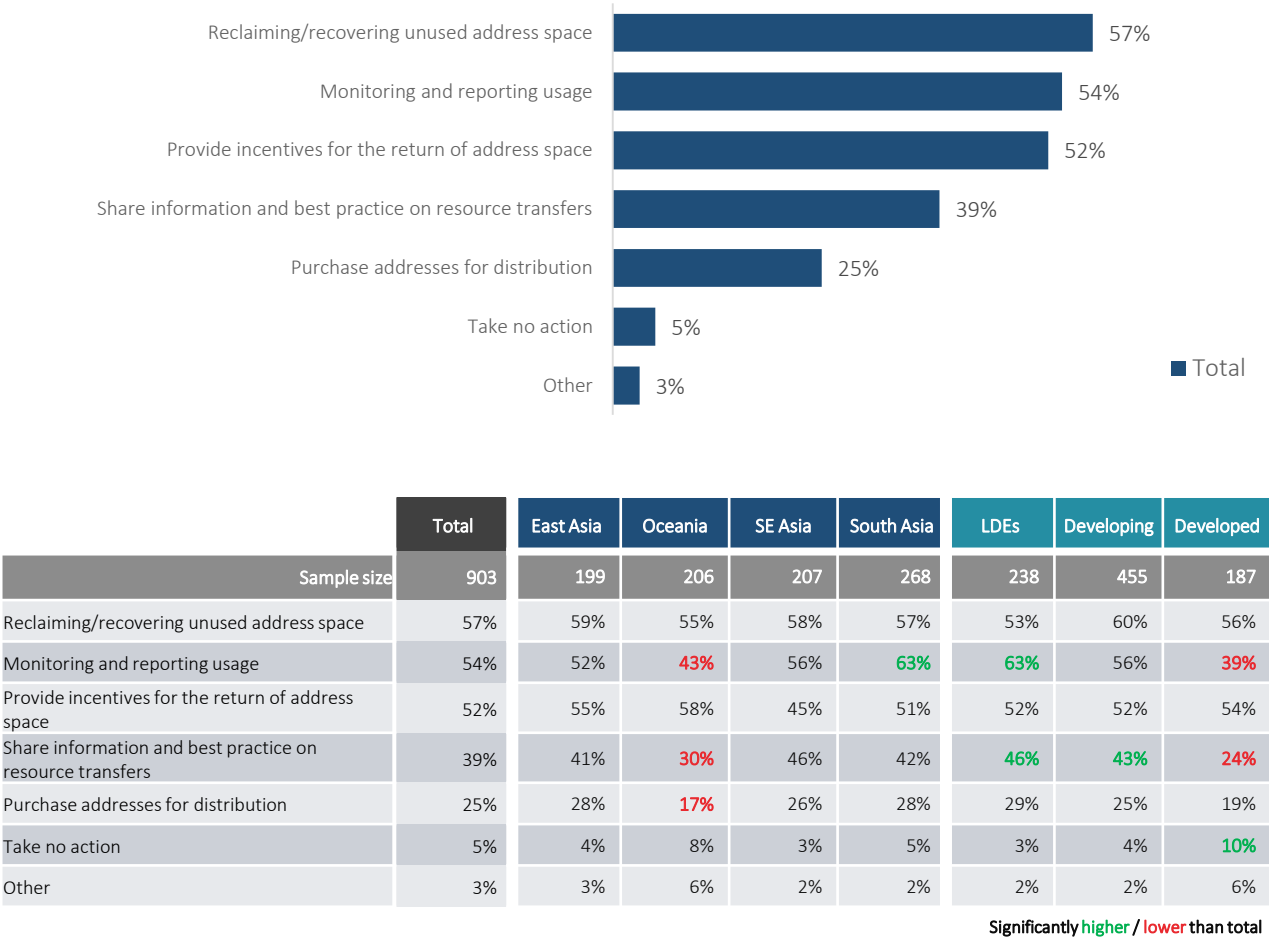
(Members only: n=903; Total mentions: 2032)



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	199	206	207	268	238	455	187
Deploying IPv6	49%	54%	33%	55%	54%	55%	52%	35%
The cost of buying IPv4 addresses	38%	44%	26%	42%	41%	40%	41%	29%
Cost and complexity of NATs	34%	34%	22%	43%	37%	40%	36%	20%
IPv4 address transfer policies	33%	40%	17%	38%	38%	41%	36%	18%
Working with brokers selling / leasing IPv4 addresses	21%	22%	12%	24%	26%	29%	21%	12%
It is not an issue	21%	13%	37%	17%	19%	19%	18%	33%
"Health" of addresses being transferred	19%	28%	12%	26%	15%	15%	25%	11%

Significantly higher / lower than total

Q14. Thinking about the scarcity of IPv4 addresses, which, if any, of the following IPv4 activities do you think APNIC should undertake?
 (Members only: n=903; Total mentions: 2122)



Respondents were next asked to indicate what activities APNIC should undertake to assist with the scarcity of IPv4 addresses.

A suggestion of some participants in the focus groups, reclaiming and recovering unused IPv4 address space, was supported by 57% of respondents. Support was evenly consistent across regions, albeit slightly stronger in developing economies.

Fifty-four percent (54%) of survey respondents indicated that APNIC should monitor and report usage of IPv4 addresses. Respondents in developed economies (39%) were the least likely to support monitoring and reporting of usage, with the strongest support for the activity found amongst respondents in LDEs (63%). Support for monitoring and reporting is highest in South Asia (63%).

Another focus group suggestion was that incentives be offered for the return of IPv4 addresses. There was support for this initiative amongst 52% of respondents, with a relatively even distribution across all regions.

The majority of ‘other’ suggestions indicated that APNIC should help with IPv4 address scarcity by promoting and encouraging the transition to IPv6. Ideas included that APNIC should “provide more education to switch to IPv6”, “encourage ISPs to provide IPv6 support” and “push IPv6 with local and state government”. With focus group participants suggesting that there should be greater management and control of the IPv4 address market, the idea that big ISPs, content and cloud providers and those with larger blocks should be ‘required’ to transition to IPv6 was also put forward.

Only 5% of respondents believe that APNIC should take no action in relation to the scarcity of IPv4 addresses.

IPv6 Deployment

While APNIC network statistics indicate the proportion of users able to access IPv6 has grown significantly over the last two years, there has been little change in the reported IPv6 deployment in the region. Consistent with 2016, 15% of respondents indicate that their organisation has IPv6 fully deployed. A further 23% say they have deployed IPv6 in their core network.

This reflects focus group feedback that while the majority of focus group participants were very aware of the need to transition to IPv6, and most had some level of IPv6 deployment in their network, there appears to be less urgency around the need to deploy to IPv6.

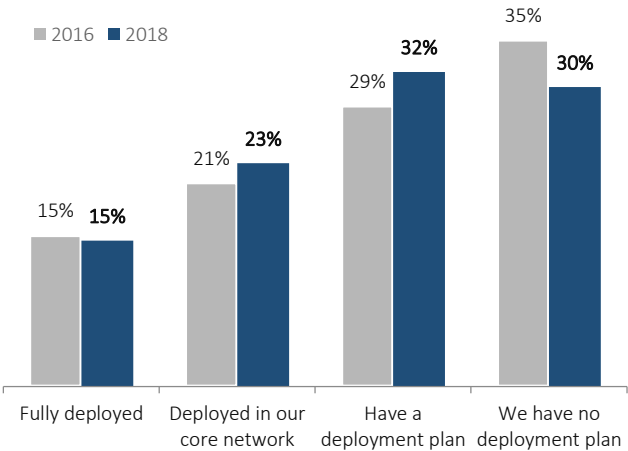
Respondents from South East Asia (20%) are again the region most likely to indicate that their organisation has IPv6 fully deployed. Seventeen percent (17%) of respondents from East Asia also indicate that their organisation has fully deployed IPv6. Only 14% of respondents from Oceania and 8% from South Asia suggested IPv6 is fully deployed in their organisation. Those in LDEs are the least likely to indicate that their organisation has deployed IPv6.

The proportion of respondents who indicated that their organisation has a deployment plan increased from 29% in 2016 to 32% in 2018. Respondents in LDEs (43%) and those from South Asia (43%) are the most likely to be planning deployment.

While 30% of respondents indicate that their organisation has no plan for deployment, this increases to 49% of respondents in Oceania.

Q 15. Has your organisation already deployed or are you ready for deployment of IPv6?

(Members only: n= 903)



Q 15 - IPv6 deployment by classification and region for 2018.

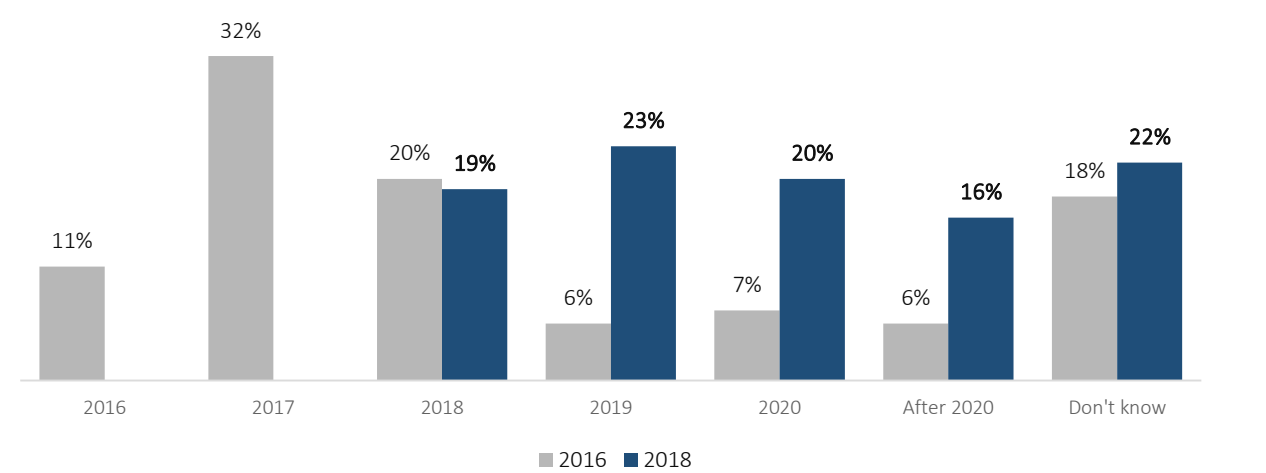
(Members only: n= 903)

	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	199	206	207	268	238	455	187
Fully deployed	15%	17%	14%	20%	8%	7%	17%	17%
Deployed in our core network	23%	24%	20%	26%	24%	23%	24%	21%
Have a deployment plan	32%	38%	17%	29%	43%	43%	33%	16%
We do not have any IPv6 deployment plans	30%	22%	49%	26%	26%	27%	25%	47%

Significantly higher / lower than total

Q 16 – When do you expect deployment to be completed?

(Respondents who have an IPv6 deployment plan: 2016 n=230; 2018 n=495)



Q 16 - IPv6 deployment completion by classification and region for 2018.

(Respondents who have an IPv6 deployment plan: n=495)

	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	495	123	77	112	177	157	264	68
2018	19%	20%	21%	12%	23%	18%	20%	18%
2019	23%	21%	26%	23%	23%	22%	23%	24%
2020	20%	24%	14%	15%	23%	20%	21%	18%
After 2020	16%	20%	6%	20%	15%	18%	17%	7%
Don't know	22%	15%	32%	30%	16%	22%	19%	34%

Significantly higher / lower than total

Respondents with a deployment plan were next asked when they expect the deployment to be complete.

While 32% of respondents with a plan expected deployment to be completed in their organisation by 2017, this has only translated into an additional 3% of respondents reporting that their organisations has IPv6 deployed in their core network in 2018.

Consistent with 2016, 19% expect deployment to be completed this year. A further 23% expect to deploy by 2019 and 20% by 2020.

Deployment planning varies little by region, although slightly longer timeframes are anticipated in South East Asia. Over sixty percent of respondents expect deployment to be completed by 2020 in South Asia (69%), East Asia (65%) and Oceania (61%). Half (50%) of respondents from South East Asia expect deployment to be completed by 2020.

Reflecting focus group feedback suggesting antipathy towards IPv6 deployment, the proportion of respondents who indicated that deployment of IPv6 in their organisation was not anticipated until after 2020 increased from 6% in 2016 to 16% in 2018.

Overall, 22% of respondents do not know when deployment may be completed, with those in Oceania (32%) and developed economies (34%) most likely to indicate they don't know when IPv6 will be deployed. This may be because they either have enough IPv4 resources at their disposal or have developed more sophisticated methods of using IPv4.

IPv6 Deployment Challenges

1 | Lack of Customer Readiness

Lack of customer readiness and demand are the main challenges affecting organisations’ deployment of IPv6. Over half (55%) of respondents indicated that their customers are not ready for IPv6 and 48% that there is no demand for IPv6 from customers.

ISPs were significantly more likely than many other respondent groups to indicate that customer readiness (69%) and demand (55%) presented challenges to their IPv6 deployment. A higher proportion of software vendors (65%) and telecommunications / mobile operators (59%) also indicated that their customers were not ready for IPv6.

Focus group feedback also suggested that “customers are not asking for IPv6, they had no interest in the larger address space or end to end transparency, it is still perceived by customers as operationally too difficult to work with, customers have too much legacy equipment and many associated IPv6 with performance issues”.

2 | Lack of Organisational Expertise

A lack of skills and expertise within the organisation was the next most cited challenge affecting deployment of IPv6.

While not prominent amongst focus group discussions, 46% of survey respondents indicated that skills deficiencies are one of the top three challenges affecting their organisations ability to deploy IPv6. This rises to 59% of respondents in LDEs and 53% in South East Asia. It was also selected more frequently by respondents representing academic / educational institutions (54%).

A further 33% of respondents indicated that a lack of available training was making IPv6 deployment difficult for their organisation. Again, those in academic / educational institutions (46%) were more likely to indicate that a lack of training was a challenge affecting their organisation’s deployment of IPv6.

3 | Lack of Perceived Benefit

Reflecting focus group discussions, over a third (35%) of respondents suggested that there is no clear business or technical advantage or reason to adopt IPv6. This falls to 28% of ISPs and 22% of software vendors. It is higher amongst academic/educational institutions universities (45%), banking / financial institutions (44%) and hosting / data centres (43%).

A lack of applications that can run on IPv6 (35%) and organisational legacy systems that do not support IPv6 (22%) also present challenges in relation to deployment of IPv6. Thirty-nine percent (39%) of ISPs and telecommunications / mobile operators indicated that the lack of applications that run on IPv6 is a challenge for their organisation’s IPv6 deployment. Legacy systems appear more problematic for software vendors (43%), banking / financial institutions (30%) and telecommunications / mobile providers (26%).

Focus group participants suggested that content, hosting and cloud providers are key to driving IPv6 deployment.

Q 17 – What are or were the MAIN challenges affecting your organisation’s deployment of IPv6?

(Members only: n=903)



Q 17 – IPv6 deployment challenges by classification and region for 2018.

(Members only: n=903; Total mentions: 2999)

	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	199	206	207	268	238	455	187
Our customers are not ready for IPv6	55%	53%	41%	58%	66%	67%	57%	36%
There is no demand for IPv6 from customers	48%	34%	54%	46%	56%	56%	43%	51%
Lack of skills and expertise within our organisation	46%	40%	43%	53%	49%	59%	43%	39%
No clear advantages or reasons to adopt IPv6	35%	37%	39%	38%	28%	31%	36%	39%
Lack of applications that can run on IPv6	35%	41%	19%	40%	42%	38%	41%	20%
Lack of available training	33%	29%	17%	37%	47%	49%	35%	12%
My organisation's legacy systems do not support IPv6	22%	23%	21%	24%	19%	18%	23%	22%
Our upstream providers do not support IPv6	17%	20%	17%	13%	19%	21%	16%	15%
Cost of IPv6 deployment is too high	16%	22%	11%	15%	16%	18%	16%	14%
The risks of deploying IPv6 are too high	13%	12%	10%	18%	13%	14%	15%	10%
Other	6%	6%	13%	4%	2%	2%	5%	12%
None of the above	5%	6%	8%	3%	4%	3%	5%	8%

Significantly higher / lower than total

- Customer readiness is impacting organisations in LDEs (67%) and developing economies (57%) more than those in developed economies (36%).
- While 66% of respondents in South Asia indicated that their customers are not ready for IPv6, this falls to 41% of respondents from Oceania.
- Lack of customer demand was mentioned by more respondents in South Asia (56%) and Oceania (54%) than in South East Asia (46%) and East Asia (34%).
- Fewer respondents from Oceania (19%) indicated that a lack of applications that run on IPv6 is hindering their IPv6 deployment plans. This compares to approximately 40% of respondents in East Asia (41%), South East Asia (40%) and South Asia (42%).
- Lack of skills and expertise is one of the main challenges impacting IPv6 deployment for more respondents in LDEs (59%) than in developing (43%) or developed economies (39%).
- While only a challenge for 12% of respondents in developed economies, a lack of available training is an impediment to IPv6 deployment for nearly half of respondents in LDEs (49%).
- Lack of training options appears most pronounced in South Asia (47%). Only 17% of respondents from Oceania cite lack of training as a challenge affecting their organisations deployment of IPv6.

Encouraging IPv6 Deployment

1 | Training & Information Sharing

Of the seven potential activities suggested to encourage IPv6 deployment, 62% of respondents indicated that providing basic and advanced training and sharing case studies and best practices about IPv6 are the most important ways APNIC can encourage IPv6 adoption in the region.

Demand for IPv6 training appears to be correlated with development status, with respondents in LDEs (71%) the most likely to believe training is one of the most important ways APNIC can help the region transition to IPv6. This compares to 62% of respondents in developing economies and 53% in developed economies. Respondents in South Asia were the most likely to believe training is the key activity APNIC should undertake in this area.

Support for APNIC to share case studies and best practices about IPv6 is evident across all regions, although it is slightly lower in developed economies (53%) than in LDEs or developing economies (64%).

2 | Promotion of IPv6

Many respondents also believe that APNIC can best aid the transition to IPv6 by promoting it to various stakeholders. Fifty percent (50%) believe that promotion of IPv6 to hardware, software and/or content providers is most important. Focus group feedback supports this, with content and cloud providers perceived as key to driving IPv6 deployment.

Just over 40% of respondents also believe it is important that APNIC promote IPv6 to management and decision makers (44%) and government organisations (42%). Promoting the importance of IPv6 to government organisations is perceived as important by more respondents in LDEs (54%) than in developing (42%) and developed economies (32%).

Much of the verbatim feedback around IPv6 also focused on the need for promotion. Respondents called for APNIC to “actively promote upstream operators to deploy IPv6 networks”, to “encourage ISPs to provide IPv6 support” and “show the importance of IPv6 to policy makers (government)”.

Q 18 – Which of the following APNIC activities do you believe are the most important to encouraging IPv6 adoption in the APNIC region?

(Members only: n= 903; Total mentions: 2825)

	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	199	206	207	268	238	455	187
Providing training in IPv6	62%	51%	57%	65%	72%	71%	62%	53%
Sharing case studies and best current practices about IPv6	62%	60%	56%	65%	63%	64%	64%	53%
Promoting IPv6 to hardware, software and/or content providers	50%	59%	41%	51%	50%	49%	54%	43%
Knowledge sharing on IPv6 deployment experiences	49%	50%	44%	50%	53%	54%	51%	40%
Promoting IPv6 to management / decision makers	44%	44%	41%	47%	45%	46%	46%	36%
Promoting IPv6 to government organisations	42%	46%	34%	42%	49%	54%	42%	32%
APNIC should take no action	2%	1%	2%	3%	2%	2%	2%	2%
Other	2%	1%	2%	1%	1%	2%	1%	2%

Significantly higher / lower than total



Training

The provision of training and educational opportunities that helps improve the technical knowledge and skills of the Internet community is one of the key objectives of APNIC.

To understand current awareness and preferences around training services, and validate feedback received in focus groups, the Survey asked about:

- Awareness of APNIC Technical Training Services and the APNIC Academy
- Preferences for new training activities
- The training topics that would be of most value to organisations
- Suggested improvements to APNICs current training offering.

Training Awareness

1 | APNIC Technical Training Services

With nearly three-quarters of respondents (74%) aware that APNIC provides Technical Training Services, awareness is reasonably high. Twenty-seven percent (27%) of respondents overall have attended APNIC training, up from 22% in 2016.

Respondents in LDEs (86%) are the most likely to be aware that APNIC provides Technical Training Services. This compares to 73% of respondents in developing economies and 64% in developed economies.

Awareness is highest in South East Asia (80%), followed by South Asia (79%), Oceania (71%) and East Asia (65%).

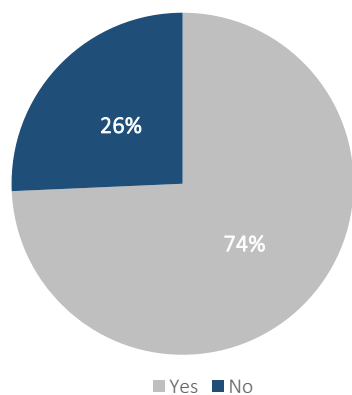
2 | APNIC Academy

Fewer respondents are aware of the APNIC Academy, launched in April 2017. While 36% of respondents have used the APNIC Academy, and a further 10% have heard of it, 54% have not heard of the APNIC Academy.

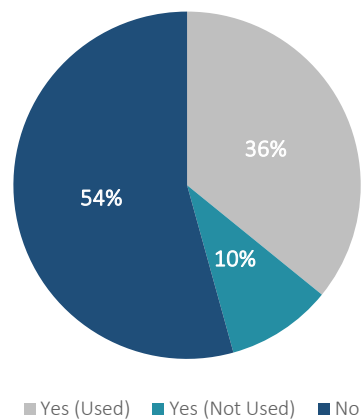
Again, respondents in LDEs are the most likely to have heard of (46%) and used (17%) the APNIC Academy. This compares to 9% and 3% of respondents in developing and developed economies respectively indicating they have used the APNIC Academy.

Awareness is highest in South Asia, where 19% of respondents have used the APNIC Academy. This compares to 7% in South East Asia and Oceania, and 5% in East Asia.

Q 19 – Are you aware that APNIC provides Technical Training Services?
(Members only: n=903)



Q 22– Have you heard of the APNIC Academy?
(Members and Stakeholders who have completed training: n=965)



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	-	199	206	207	268	246	506	187
Aware of APNIC Technical Training Services	74%	-	65%	71%	80%	79%	86%	73%	64%
Aware of APNIC Academy	44%	66%	38%	32%	49%	61%	63%	47%	21%

Significantly higher / lower than total

Training preferences

To understand how the APNIC training offer may be improved, respondents were presented with a list of ten options and asked to indicate up to five of the potential activities presented that would be of most value to their organisation.

Of those, online e-learning sessions are the most popular form of training activity. Over half (57%) of respondents indicated that online e-learning sessions would provide the most value to their organisation, with those in Oceania (68%) most likely to favour this form of training activity.

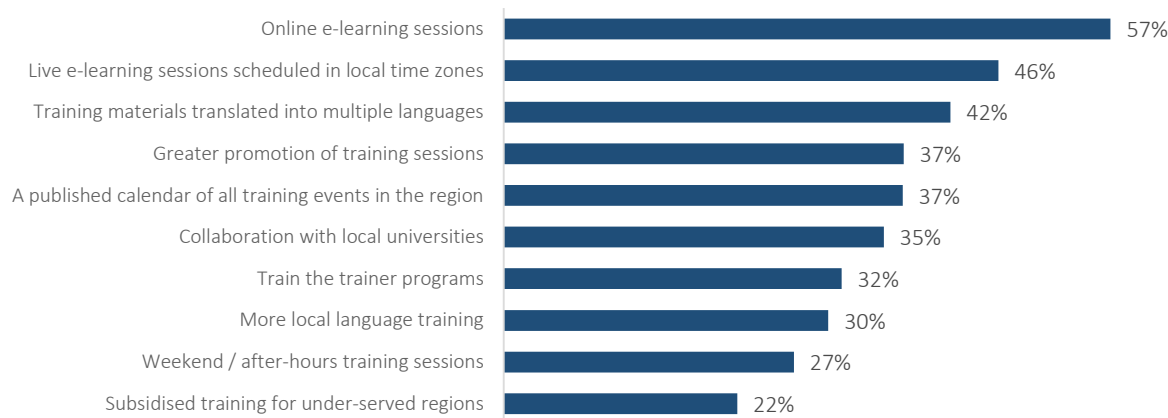
Training that caters to respondents in their local language and time zones is also valued. Forty-six percent (46%) of respondents, and 53% in South Asia, consider live e-learning sessions in local time zones the most valuable form of training that APNIC could provide. A further 42% place value on training materials being translated into multiple languages. This increases to 50% of respondents in South East Asia, and 47% in East Asia.

This aligns with focus group feedback that language and time zones are a barrier to use of APNIC training services, and that local language training would improve offerings and increase access. Many verbatim comments provided by Survey respondents also suggested that “training by local trainer” and “training materials in the local language” would improve APNIC training. Others suggested that “there should be training at the local level in each country.”

Reflecting feedback from focus groups that a more predictable face to face training schedule would be helpful, promotion and awareness of training activities is also important. Thirty-seven percent (37%) of survey respondents indicated it is important that there is greater promotion of training activities and that the (existing) published calendar of all training events in the region is promoted. Verbatim feedback also suggested increasing awareness and that APNIC should be “sharing updates and training schedules”.

Q 20- Which of the following training activities would be of MOST value to your organisation?

(Members and Stakeholders who have completed training: Select up to 5. n=965; Total mentions: 3563)



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	62	216	219	220	286	246	506	189
Online e-learning sessions	57%	44%	59%	68%	51%	51%	52%	56%	67%
Live e-learning sessions scheduled in local time zones	46%	45%	42%	42%	47%	53%	51%	46%	41%
Training materials translated into multiple languages	42%	39%	47%	26%	50%	44%	44%	47%	24%
Greater promotion of training sessions	37%	44%	31%	37%	47%	35%	37%	40%	32%
A published calendar of all training events in the region	37%	34%	27%	45%	36%	40%	38%	37%	38%
Collaboration with local universities	35%	45%	29%	24%	43%	45%	46%	38%	19%
Train the trainer programs	30%	56%	27%	21%	35%	40%	37%	34%	17%
More local language training	30%	37%	46%	5%	38%	34%	39%	34%	11%
Weekend / after-hours training sessions	26%	37%	24%	22%	24%	36%	35%	27%	19%
Subsidised training for under-served regions	21%	29%	15%	17%	23%	30%	34%	22%	8%

Significantly higher / lower than total

Training topics

The next question was about the training topics that would be of most value to Member organisations. Unlike in 2016 when respondents were presented with a list of potential topics, this year respondents were able to indicate in their own words the training that they would like APNIC to make available.

While direct comparison is not possible due to the change in the question structure, the top three preferences for training topics APNIC could make available remain network security, IPv6 deployment planning and routing protocols.

The most frequently mentioned topic for potential APNIC training in 2018 was IPv6 deployment training. More than half (54%) of the comments indicated that training focused on IPv6 deployment planning would help their organisation. Demand for IPv6 training is particularly strong in South Asia (62%). It was less frequently mentioned in Oceania (42%).

Respondents suggested that APNIC could make available training on “IPv6 planning recommendations and deployment scenarios”, “IPv6 deployment best practices and case studies” and “IPv6 deployment in Access network”.

Q 20- What training topics would you like APNIC to make available?

Free text coded responses.

	Total	East Asia	Oceania	SE Asia	South Asia
Sample size	571	119	92	133	224
IPv6 deployment planning	54%	49%	43%	52%	62%
Network security	51%	35%	51%	51%	58%
Routing protocols (e.g. BGP, OSPF/IS-IS)	16%	10%	17%	23%	16%
New technologies (e.g. SDN, NFD, SDWAN	12%	14%	4%	15%	13%
Other	6%	13%	10%	2%	4%
Optimising network architecture	5%	3%	9%	4%	5%
DNS and DNSSEC	5%	3%	9%	4%	5%
Best practices for inter-domain routing	5%	4%	7%	5%	4%
IoT	4%	2%	2%	3%	6%
QoS	4%	5%	5%	2%	3%
MPLS	3%	0%	1%	1%	6%
Cloud technology	2%	2%	4%	2%	2%
RPKI	2%	3%	2%	0%	2%
Virtulisation of network functions and/or services	1%	1%	2%	0%	1%
Whois / APNIC databases and policies	1%	1%	0%	0%	1%
Training of trainers in any of topics listed here	1%	2%	0%	0%	1%

Do you have any other comments or suggestions about how APNIC training could be improved?

1 | Collaborate with external organisations to arrange local trainers

- “Coordination with Local Authority/Organisations for training efforts” – *Member, South Asia*
- “Training by Local trainer.” – *Member, South Asia*
- “There should be training at the local level in each country.” – *Member, South East Asia (Translated)*

2 | Deliver training and training materials in local languages

- “Please extend the training materials in the local language.” – *Member, East Asia (Translated)*
- “Adapt more to the local language environment, focusing on cutting-edge technology.” – *Stakeholder, East Asia (Translated)*
- “I would prefer to arrange training in my locality in my language.” – *Member, South Asia*

3 | Deliver more online and offline courses

- “Create more online Video training and online practices lessons.” – *Member, East Asia*
- “E-learning is the next wave. But first we need to address connectivity to ensure it works. Depending on culture, it is best to have face to face training.” – *Member, South East Asia*
- “Add more online courses.” – *Member, East Asia*

4 | Develop hands on workshops and practical case studies

- “Remote lab practice environment.” – *Stakeholder, East Asia (Translated)*
- “Hands-on lab training demonstration may be incorporated to the training sessions....Practical / semi-practical case study may also be included.” – *Member, South Asia*
- “Provide labs for interested candidates to log-into and practice technical concepts.” – *Member, South Asia*

5 | Increase training awareness and frequency

- “I would suggest APNIC have their videos on YouTube channel and promote it, as most of the users are not aware of the APNIC online training and surfing YouTube is easier to applicants.” – *Stakeholder, South Asia*
- “Increase the frequency of trainings in Mongolia and work with MNNOG.” – *Member, East Asia (Translated)*
- “Advertise it more so that we may know such activities are in APNIC.” – *Member, South Asia*

6 | Recognise training by providing a formal certification

- “If students online want to be certified APNIC should allow them to do an online exams and use this as basis to give them reference for further specialised training in institutions. Like the cisco online training where students sit exams. This will motivate students and give them a path to a more professional certification.” – *Member, Oceania*
- “APNIC develop short-courses (on-credit basis) or certification programs which will give advantages for skill development and acceptance for recruiter as well.” – *Member, South Asia*

Q 23 – Do you have any other comments or suggestions about how APNIC training could be improved?

Free text comments (n=244)



APNIC Services

Member and Stakeholder usage, preferences and improvements to various other APNIC services were canvassed in the next section of the survey, including:

- The use of Whois, along with ways in which the currency and accuracy of registry data might be best maintained.
- Respondent feedback about potential new industry trend and benchmarking information.
- Preferences around conference length and survey frequency.
- An understanding of the reasons for non-participation in the Policy Development Process for Internet Number Resource Policies.

Whois Database

1 | Usage Frequency

The Whois Database is frequently used by many respondents, with 8% using it daily and 22% indicating that they access it at least once a week. A further 25% used it at least once a month.

Respondents from South East Asia are the most frequent users, with 10% accessing Whois daily and 26% at least once a week. Eight percent (8%) of respondents in South and East Asia also use the service daily.

Respondents in LDEs are the least likely to use the Whois Database, with 21% indicating that they never use the service. This compares to 18% of respondents in developing economies and 8% in developed economies.

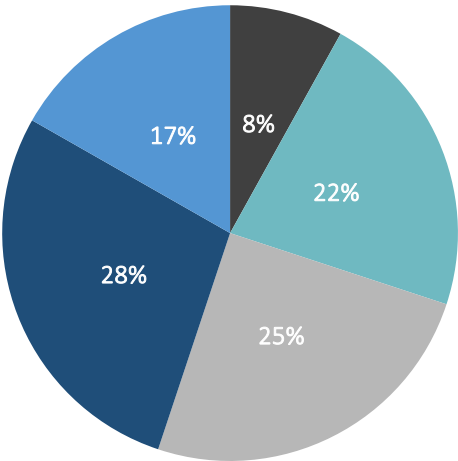
2 | Usage Drivers

Network troubleshooting is the main reason respondents use the Whois Database. Sixty-two percent (62%) indicated that they use Whois for network troubleshooting. Respondents in Oceania are significantly more likely to use Whois for network troubleshooting (67%) than those in South Asia (58%)

Locating abuse contacts (39%) was the next most common reason respondents gave for using the service. Use of Whois for this purpose is most common in South East Asia (45%) and South Asia (42%).

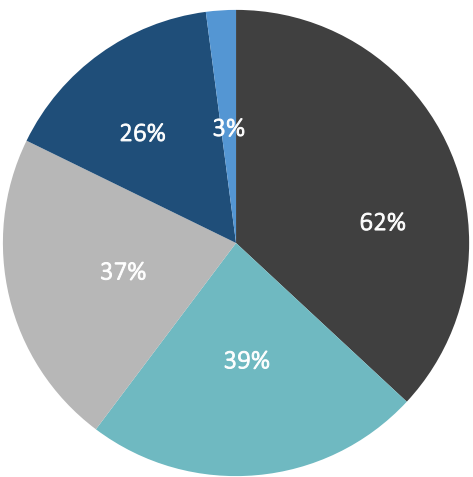
Thirty-seven percent (37%) of respondents use it for geo-location purposes. This rises to 44% of respondents in East Asia and 40% in South Asia.

Q 24. How often do you use the APNIC Whois database?
(All respondents: n=1241)



- Daily
- At least once a week
- At least once a month
- Less than once a month
- Never

Q 26. What do you use the APNIC Whois database for?
(Respondents who use the Whois database: n=1035; Total mentions: 1739)



- Network troubleshooting
- Locating abuse contacts
- Geolocation
- Research purposes
- Other

Registry accuracy was raised as a challenge by several participants in the focus groups, and suggestions were made that APNIC should increase its efforts to improve the accuracy of Whois.

To this end respondents were asked to indicate how APNIC could help Members keep Whois information accurate and up to date. From a list of 5 options, Members were asked to indicate the 3 they thought would be most effective.

Regular reminder emails were thought to be the most effective way of encouraging Members to keep their details up to date by 53% of respondents, increasing to 62% in South Asia. Fifty percent (50%) of respondents believe that enforced confirmation of data accuracy at the time of Membership renewal would be the most effective way to keep Whois information accurate and up to date.

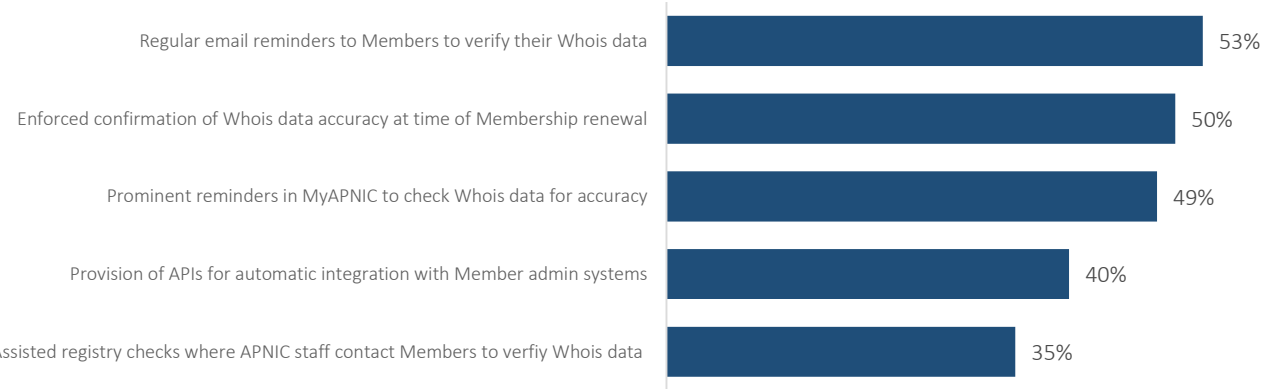
Prominent reminders in MyAPNIC to check for data accuracy were thought most effective by 49% of respondents. Those from South Asia (59%) were significantly more likely than respondents from Oceania (39%) to believe reminders in MyAPNIC would be effective.

Support for the provision of APIs for automatic integration with Member admin systems was slightly lower (40%), although it was supported by 43% of respondents in LDEs.

While only 35% of respondents believe assisted registry checks with APNIC staff would be effective, this increases to 42% of respondents in South East Asia. Few in developed economies (21%) support assisted registry checks.

Q 27. Thinking about how APNIC could help Members keep Whois information accurate and up to date, which of the following do you think would be most effective?

(APNIC Members Only. n=771; Total mentions: 1753)



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	771	341	361	420	591	196	385	323
Regular email reminders to Members to verify their Whois data	53%	44%	48%	54%	62%	62%	51%	48%
Enforces confirmation of Whois data accuracy at time of Membership renewal	50%	47%	51%	49%	53%	53%	48%	52%
Prominent reminders in MyAPNIC to check Whois data for accuracy	49%	45%	39%	49%	59%	60%	51%	32%
Provision of APIs for automatic integration with Member admin systems	40%	42%	36%	40%	41%	43%	40%	35%
Assisted registry checks where APNIC staff contact Members to verify data	35%	34%	26%	42%	37%	37%	40%	21%

Significantly higher / lower than total

Regional Industry Data

APNIC has received suggestions that it could assist with the collection of data on trends and benchmarks for regional Internet, infrastructure and related technical and business activities.

In 2016, 43% of respondents expressed an interest in being involved and contributing data to build regional trend and benchmark information. There was mention that the initiative would “bring the sharing of best practices into the forefront of APNIC Member services”.

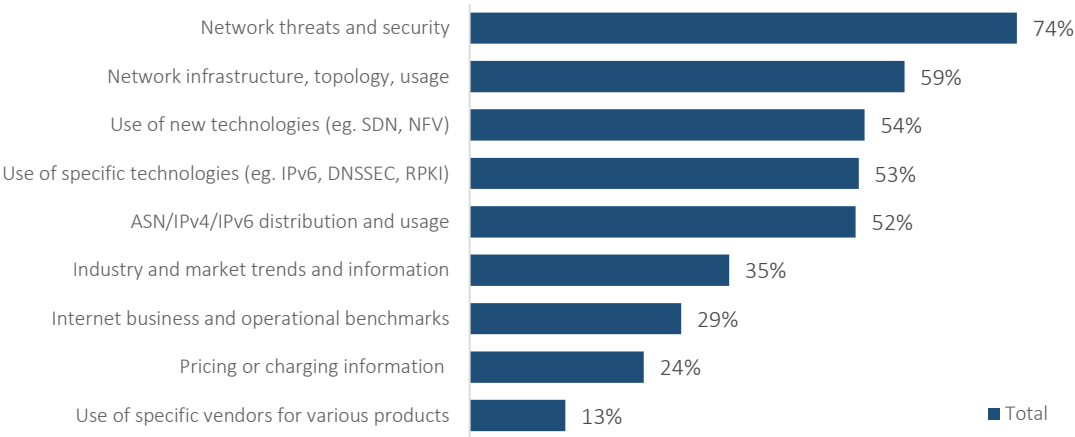
To build on this, the 2018 Survey asked respondents to indicate what type of information would be of most use to their organisation. A list of nine suggested topics were provided, and respondents were also given an opportunity to provide additional suggestions.

Data about network threats and security, such as routing anomalies, intrusion detection and security alerts, was selected as the most useful information by a majority (74%) of respondents. This was consistently the most frequently selected topic across all regions.

Information about network infrastructure was the next most frequently selected option, with 59% of respondents suggesting that data about network infrastructure, topology and usage would be of use to their organisation.

Over half of respondents also indicated that information about the use of new technologies (54%), use of specific technologies (53%) and ASN/IPv4/IPv6 distribution and usage (52%) would be valuable.

Q 28. The APNIC community is discussing the development of Internet trend and benchmarking data services. What information would be of most use to your organisation?
(All respondents: n=1241; Total mentions: 4896)



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	338	337	251	259	356	294	672	237
Network threats and security	73%	77%	70%	76%	76%	77%	76%	74%	74%
Network infrastructure, topology, usage	60%	57%	51%	57%	62%	67%	68%	58%	51%
Use of new technologies	53%	55%	56%	48%	51%	58%	53%	58%	44%
Use of specific technologies	53%	52%	52%	54%	52%	53%	53%	53%	51%
ASN/IPv4/IPv6 distribution and usage	55%	45%	54%	44%	55%	56%	57%	54%	44%
Industry and market trends and information	35%	35%	36%	33%	38%	35%	35%	38%	29%
Internet business and operational benchmarks	27%	33%	26%	22%	36%	31%	30%	33%	16%
Pricing or charging information	24%	22%	15%	23%	29%	28%	29%	24%	15%
Use of specific vendors for various products	13%	12%	11%	16%	12%	14%	18%	13%	8%

Significantly higher / lower than total

APNIC Conference

To aid operational planning, the Survey asked respondents to indicate how long they believe the APNIC conferences should be.

Overall, 30% of respondents believe three days is the ideal length for conferences. Three days is preferred by 37% of respondents in East Asia and 35% in South East Asia.

Nineteen percent (19%) of respondents thought that a conference length of four days is preferable. Respondents in South Asia (26%) and South East Asia (23%) are more likely to favour a longer event.

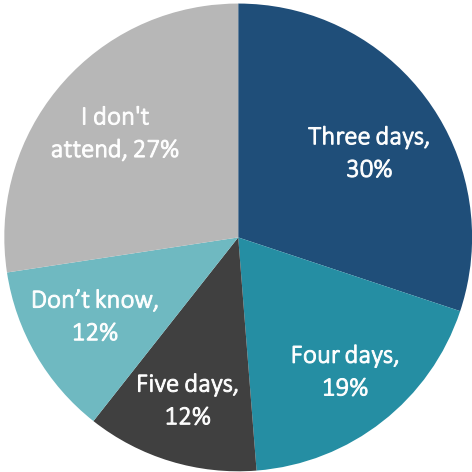
While fewer (12%) respondents are in favour of a five day conference, their preferences for a longer event suggests that 31% of respondents prefer a conference of longer than three days.

Analysis of preferences by region and development status is also revealing, with those respondents most likely to make the time to attend the conference also more likely to favour a longer event.

Reflecting less access to expertise and greater need, respondents from LDEs and developing economies are the most likely to attend APNIC events (84% and 78% respectively). This compares to only 47% of respondents from developed economies.

As well as being more likely to attend APNIC events respondents from LDEs are the most likely to favour a longer event, with 45% expressing a preference for an event of four days or more. A third of respondents (33%) from developing economies also indicated that a conference of four or five days would be ideal. Again, this compares to only 9% of respondents from developed economies.

Q 30. What do you believe is the ideal length for the APNIC conferences?
(Members and Stakeholders who have attended conference: n=960)



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	960	215	213	218	290	248	499	189
Three days	30%	37%	18%	35%	29%	31%	33%	20%
Four days	19%	14%	10%	23%	26%	24%	21%	7%
Five days	12%	8%	9%	9%	20%	21%	12%	2%
Don't know	12%	16%	15%	11%	9%	8%	12%	17%
I don't attend	27%	24%	47%	23%	17%	16%	22%	53%

Significantly higher / lower than total

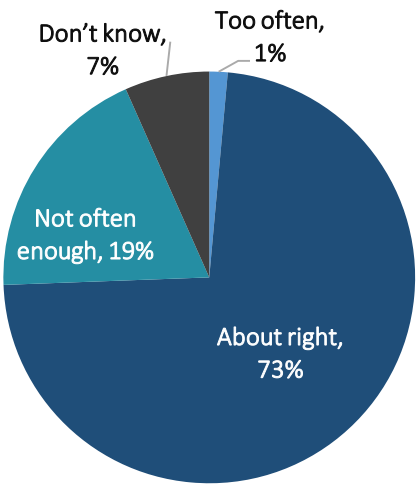
APNIC Survey

The APNIC Member and Stakeholder Survey helps the APNIC EC and Secretariat understand the needs of the community and guides decisions on future priorities and services. The Survey is conducted every two years to gather feedback from Members and Stakeholders about APNIC services, the challenges facing the Internet community and how APNIC can assist.

Seventy three percent (73%) of respondents believe that the frequency of the APNIC Survey is about right. This reflects the outcomes of the 2014 Survey, in which respondents indicated they believe they have enough opportunity to provide feedback into APNIC activities.

Nineteen percent (19%) of respondents believe that the Survey could be conducted more frequently. This increases to 22% of respondents in East Asia. Only 1% of respondents believe the Survey is conducted too frequently.

Q 31. Do you think the frequency of the APNIC survey is:
(Members only: n=903)



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	903	199	206	207	268	290	403	187
Too often	1%	1%	0%	2%	3%	3%	1%	0%
About right	73%	68%	76%	75%	72%	70%	74%	74%
Not often enough	19%	22%	18%	18%	19%	19%	19%	18%
Don't know	7%	9%	6%	5%	6%	7%	6%	7%

Significantly higher / lower than total

Policy Development Process for Internet Number Resource Policies

Consistent with 2016, only 6% of respondents indicated that they had participated in APNIC’s Policy Development Process for Internet Number Resource policies over the last two years.

To understand why participation remains so low, the Survey asked respondents to identify the main reason why they have not participated in the Policy Development Process.

Once again, lack of awareness was the main reason for non-participation, suggesting promotion of the process may lead to higher participation. Up 9% from 2016, 53% of respondents indicated that they have not participated because they don’t know enough about the process, a further 46% weren’t aware they could participate and 38% indicated that no-one had asked them to participate. Awareness appears lowest in LDEs with 63% indicating they don’t know enough about the process and 55% not aware they could participate.

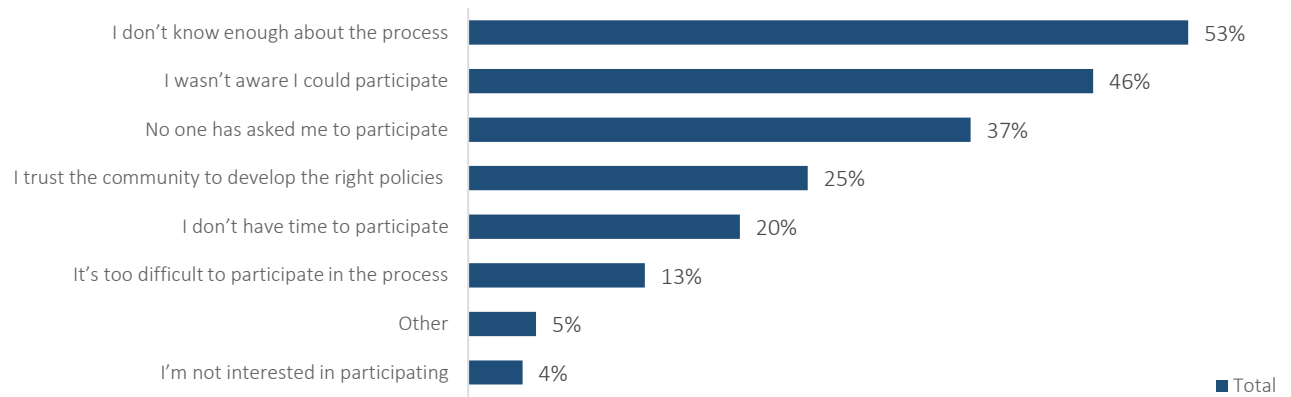
Many free text comments about what APNIC could do to encourage greater participation in the process focussed on awareness building, with many suggestions that APNIC should “make more information available about the process” and provide “notification and reminders to participate in the policy development process”. There were many suggestions that APNIC should “share information about it via email”, while several also thought that APNIC should issue “an invitation to join the Policy Development Process”.

Focus group feedback also suggests that recent changes to restrict address transfers for five years has stimulated interest in participating in the policy development processes.

A quarter (25%) of respondents indicated that they trust the community to develop the right policies, 20% don’t have time to participate and 13% believe it is too difficult. Only 4% are not interested in participating in the process.

Q 33. Can you tell us the MAIN reason why you have not participated in APNIC’s Policy Development Process for Internet Number Resource policies?

(Respondents who have not participated in policy development n=893; Total mentions: 1810)



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	718	175	227	210	173	258	182	357	177
I don't know enough about the process	54%	48%	47%	47%	57%	61%	63%	57%	39%
I wasn't aware I could participate	46%	47%	50%	40%	45%	53%	55%	50%	31%
No one has asked me to participate	38%	29%	38%	34%	35%	40%	46%	42%	26%
I trust the community to develop the right policies	26%	19%	16%	24%	29%	29%	34%	24%	19%
I don't have time to participate	22%	11%	18%	28%	23%	10%	13%	19%	34%
It's too difficult to participate in the process	15%	7%	8%	9%	17%	19%	25%	13%	7%
Other	6%	4%	5%	5%	6%	5%	5%	6%	5%
I'm not interested in participating	4%	3%	5%	7%	2%	3%	3%	3%	9%

Significantly higher / lower than total

What could APNIC do to encourage you to participate (or participate more) in the Policy Development Process for Internet Number Resource policies?

1 | Develop awareness campaigns to educate and inform individuals of the participation process

- “APNIC should explain widely the importance of each individual opinion in participating in the Policy Development Process. APNIC's blogs is a very effective communication method.” – *Stakeholder, South East Asia*
- “Distribute information about your activities.” – *Member, East Asia (Translated)*
- “I was not aware that I can participate in the Policy Development Process for Internet Number Resource Policies....I am not a Member of APNIC so it was not mentioned that you can participate publicly” – *Stakeholder, South Asia*
- “It would be much better if APNIC could conduct awareness sessions in each and every country by their representatives or Members. Most don't know how to get involved in this process and contribute.” – *Stakeholder, South Asia*
- “More publicity that such a thing exists and how-to information explaining the procedure to participate.” – *Member, South Asia*
- “Provide information on how I can participate and what the process is.” – *Member, Oceania*

2 | Formally invite potential participants

- “Provide resources that I can read so I am familiar with the process and how to participate, invitation to participate.” – *Stakeholder, South East Asia*
- “Send official mail to member organizations.” – *Member, East Asia (Translated)*
- “Send out an invitation.” – *Stakeholder, East Asia*
- “To invite me through email.” – *Stakeholder, South Asia*

3 | Encourage policy development socialisation or engage individuals with updates on policy issues

- “APNIC should inform the details about the Policy Development Process for Internet Number Resource policies and should inform about the importance of this issue.” – *Member, South Asia*
- “Provide many socialization activities.” – *Stakeholder, South East Asia (Translated)*
- “Interactive meetings during APNIC conferences, provide study material and understand the issues in their country and environment so that they (participants) can take interest and engage in the policy development process.” – *Stakeholder, South Asia*

4 | Several individuals feel unqualified to participate.

- “I don't think I have enough knowledge to contribute.” – *Member, South Asia*
- “I have not studied this sufficiently to offer useful input.” – *Member, Oceania*
- “I am not technical.” – *Member, Oceania*



Governance

The final section of the Survey looked at APNIC Governance processes. Respondents were asked to indicate whether they believe APNIC is sufficiently open and transparent and whether it is respected in the Internet community. Satisfaction with capital reserve targets set by the APNIC EC was also tested. Respondents were also asked if they had any further comments or suggestions about APNIC Governance processes.

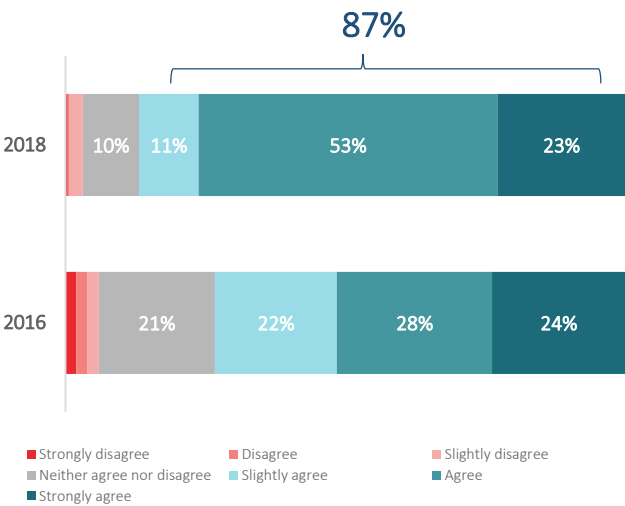
1 | Transparency

Transparency is one of APNIC’s declared values, and since 2014 the APNIC Survey has tested respondents satisfaction that APNIC is sufficiently open and transparent in its activities.

As in past years, there was majority agreement that APNIC is sufficiently open and transparent in its activities. Eighty-seven percent (87%) of respondents are satisfied (in the top three) with APNIC’s openness and transparency. While this reflects an increase of 13% since 2016, it is unknown if a slight change to the question wording accounts for any of this change.

Like in 2016, respondents in LDEs (94%) and South Asia (94%) were the most likely to agree that APNIC is sufficiently open and transparent. Respondents in developed economies (74%) were the least likely to report satisfaction with APNIC’s transparency.

Q 35. APNIC is sufficiently open and transparent in its activities?
(Members only: n=903)



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	903	199	206	207	268	290	403	187
Strongly Disagree	0%	1%	0%	1%	0%	1%	0%	0%
Disagree	0%	1%	0%	0%	0%	0%	0%	1%
Slightly Disagree	2%	2%	4%	3%	1%	1%	2%	5%
Neutral	10%	14%	15%	9%	4%	5%	8%	20%
Slightly Agree	11%	14%	9%	10%	10%	8%	12%	11%
Agree	53%	50%	60%	53%	51%	52%	54%	54%
Strongly Agree	23%	20%	12%	24%	33%	34%	23%	9%
Top 3	87%	83%	81%	87%	94%	94%	89%	74%

Significantly higher / lower than total

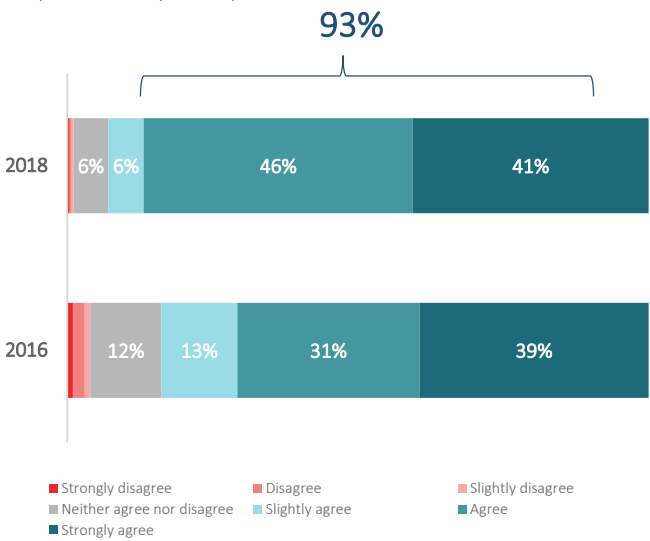
2 | Respect

Feedback from the focus groups indicated that “APNIC is regarded as a ‘friendly’ organisation with an important technical role”. APNIC’s neutrality and impartiality were also regarded as extremely important attributes conferring trust and respect.

This feedback is supported by Survey findings that indicate a majority (93%) of respondents agree that APNIC is respected in the Internet community. This is up from 83% in 2016.

Respondents in LDEs (95%) and developing economies (94%), as well as those in South Asia (97%) and South East Asia (95%), were the most likely to agree that APNIC is respected.

Q 35. APNIC is respected in the Internet community?
(Members only: n=903)



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	903	199	206	207	268	290	403	187
Strongly Disagree	0%	1%	0%	0%	0%	1%	0%	1%
Disagree	0%	0%	0%	0%	0%	0%	0%	1%
Slightly Disagree	0%	1%	0%	0%	1%	0%	0%	1%
Neutral	6%	12%	6%	5%	2%	4%	6%	10%
Slightly Agree	6%	9%	6%	9%	2%	3%	7%	9%
Agree	46%	48%	54%	54%	35%	39%	49%	53%
Strongly Agree	41%	30%	33%	32%	60%	53%	38%	26%
Top 3	93%	87%	93%	95%	97%	95%	94%	88%

Significantly higher / lower than total

3 | Capital Reserves

The APNIC EC has set a target of capital reserves for APNIC which is equal to 18 months of operating expenses, to ensure stability and safeguard against unforeseen circumstances.

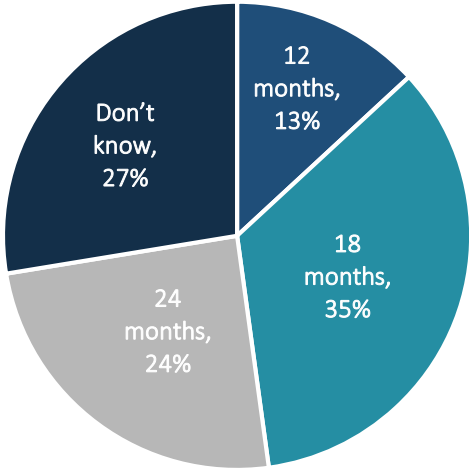
To test Member satisfaction with the adequacy of the target, the Survey asked respondents to indicate how many months of operating expenses APNIC should hold in reserve.

Overall, 35% of respondents agree that 18 months operating expenses is an appropriate target for capital reserves. A further 24% believe APNIC should hold 24 months operating expenses in reserve. Only 13% believe that 12 months would be sufficient, suggesting a bias towards a longer period of reserves.

Respondents from Oceania (43%) were the most likely to agree that 18 months operating expenses is an appropriate target for capital reserves. While only 8% of respondents from Oceania believe that a lower target of 12 months, this was deemed sufficient by more respondents from South East Asia (17%) and South Asia (16%).

Over a quarter (27%) of respondents did not offer an opinion.

Q 36. In your opinion, how many months of operating expenses should APNIC hold in reserve?
(Members only: n=903)



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	903	199	206	207	268	290	403	187
12 months	13%	11%	8%	17%	16%	19%	12%	6%
18 months	35%	35%	43%	33%	29%	31%	34%	41%
24 months	24%	24%	21%	22%	29%	25%	25%	23%
Other	0%	1%	0%	1%	0%	0%	0%	1%
Don't Know	27%	29%	29%	27%	26%	25%	29%	29%

Significantly higher / lower than total

Do you have any suggestions or ideas about APNIC governance?

1 | Transparency

- “Transparency in finance where possible.” – *Member, South East Asia (Translated)*
- “APNIC should be transparent and should have easy access to all interested person who have capability not only to limited known personnel in the IT industry.” – *Member, South Asia*
- “The APNIC governance is transparent and open.” – *Member, South East Asia*
- “Ensuring transparency is kept all the time.” – *Member, South East Asia*
- “APNIC should work more community empowerment and transparency on various APNIC committee.” – *Member, South Asia*

2 | Collaboration

- “APNIC should need to create the strong local community in each region or more specifically for each Member country. Then it will help to create a more robust organization.” – *Member, South Asia*
- “If we can have an APNIC offices in other countries apart from Australia, then many more Members of other countries can actively participate in governance and other APNIC activities.” – *Member, South Asia*
- “By involving all the stakeholders/ISPs.” – *Member, South Asia*
- “Not yet available. But in my opinion, one person from each country can work more comprehensively .” – *Member, East Asia (Translated)*
- “Collect great minds and collaborate certain goal for having the maximum level of success in APNIC governance.” – *Member, South Asia*

3 | Awareness and Information Sharing

- “Successful information and media solutions must be rooted in local culture, values and capacities. In all corners of the world, Inter-news works with local partners to develop and implement programs that make a positive impact.” – *Member, South Asia*
- “Host more forums and training.” – *Member, East Asia (Translated)*
- “Awareness program.” – *Member, South Asia*
- “Events should be held with concerned stakeholder in local level.” – *Member, South Asia*

While many suggested they were satisfied with APNIC's overall performance, there were suggestions and ideas for improvement put forward for consideration.

1 | Increase training, conferences, activities, events and fellowships

- “Please provide more technical online training about IPv6 and network security.” — *Stakeholder, South East Asia*
- “More fellowships and sub-region specific programs will help the Internet community a lot.” — *Stakeholder, South Asia*
- “APNIC should increase their events.” — *Member, South Asia*

2 | Create local opportunities and deliver multi-lingual experiences

- “Introduce and increase APNIC's existence in developing countries. Give special attention and focus to small Island nations and countries which are more vulnerable.” — *Stakeholder, South Asia*
- “APNIC's services and activities are good but the activities should be done not only in the developed region but also in the developing region as well.” — *Member, South Asia*
- “More local language services.” — *Member, East Asia*
- “Establish APNIC local contact in Member countries.” — *Stakeholder, Oceania*

3 | Increase support, information and resources

- “APNIC is regarded as Parent of Internet in Asia Pacific, so in my opinion, APNIC should not only be technical oriented but some what provide support and guidance for Internet as business as well...” — *Member, South Asia*
- “The support should be quick and APNIC should consider to improve their turn around time” — *Member, South Asia*
- “I think APNIC also should write more about cloud fundamentals/technologies and migration steps from old infrastructure to new infrastructure.” — *Member, South Asia*

4 | Increase awareness, participation and promotion of APNIC services

- “APNIC should create awareness about APNIC activities to APNIC Members..” — *Member, South Asia*
- “I want to contribute more to communities but I just do not know how i can get more involved.” — *Member, South East Asia*
- “Launch a Channel for network information awareness, current issues, their resolution, latest developments etc.” — *Member, South Asia*

Q 39. If you have any other comments on APNIC's services and activities, or any suggestions or ideas for the APNIC EC to consider, please provide them here:

Free text comments (n=201)

Appendix



APNIC Definitions of Sub-regions

East Asia	
CN	China
KP	Democratic People’s Republic of Korea
HK	Hong Kong Special Administrative Region of China
JP	Japan
KR	Republic of Korea
MN	Mongolia
MO	Macao Special Administrative Region of China
TW	Taiwan

South Asia	
AF	Afghanistan
BD	Bangladesh
BT	Bhutan
IN	India
IO	British Indian Ocean Territory
LK	Sri Lanka
MV	Maldives
NP	Nepal
PK	Pakistan

South-East Asia	
BN	Brunei Darussalam
CX	Christmas Island
ID	Indonesia
KH	Cambodia
LA	Lao People’s Democratic Republic
MM	Myanmar
MY	Malaysia
PH	Philippines
SG	Singapore
TH	Thailand
TL	Timor-Leste
VN	Vietnam

Oceania	
AS	American Samoa
AU	Australia
CK	Cook Islands
FJ	Fiji
PF	French Polynesia
FM	Federated States of Micronesia
GU	Guam
KI	Kiribati
MH	Marshall Islands
MP	Northern Mariana Islands
NC	New Caledonia
NF	Norfolk Island
NR	Nauru
NU	Niue
NZ	New Zealand
PF	French Polynesia
PG	Papua New Guinea
PW	Palau
SB	Solomon Islands
TK	Tokelau
TO	Tonga
TV	Tuvalu
VU	Vanuatu
WF	Wallis & Fortuna Islands
WS	Samoa

APNIC Definitions of Economies

Developed Economies	
JP	Japan
AU	Australia
NZ	New Zealand

Developing Economies	
AS	American Samoa
IO	British Indian Ocean Territory
BN	Brunei Darussalam
CN	China
CX	Christmas Island
CC	Cocos and Keeling Islands
CK	Cook Islands
KP	Democratic People’s Republic of Korea
FJ	Fiji
PF	French Polynesia
TF	French Southern Territories
GU	Guam
HK	Hong Kong Special Administrative Region of China
IN	India
ID	Indonesia
MO	Macao Special Administrative Region of China
MY	Malaysia
MV	Maldives
MH	Marshall Islands
FM	Federated States of Micronesia
MN	Mongolia
NR	Nauru
NC	New Caledonia
NU	Niue
NF	Norfolk Island
MP	Northern Mariana Islands
PK	Pakistan
PW	Palau
PG	Papua New Guinea
PH	Philippines
PN	Pitcairn
KR	Republic of Korea
WS	Samoa
SG	Singapore
LK	Sri Lanka
TW	Taiwan
TH	Thailand
TK	Tokelau
TO	Tonga
VN	Vietnam
WF	Wallis and Fortuna Islands

Least Developed Economies	
AF	Afghanistan
BD	Bangladesh
BT	Bhutan
KH	Cambodia
KI	Kiribati
LA	Lao People’s Democratic Republic
MM	Myanmar
NP	Nepal
SB	Solomon Islands
TL	Timor-Leste
TV	Tuvalu
VU	Vanuatu

United Nations Classifications of Economies can be found at <http://unstats.un.org/unsd/methods/m49/m49regin.htm>

About Survey Matters

Survey Matters specialise in providing services to the Member-based and not for profit sector.

Survey Matters have helped a wide range of organisations understand their value proposition - what is important to respondents, how the organisation can help and how satisfied they are with their performance. We also work with the sector to generate and build industry data and knowledge to support advocacy, promotion, industry development and marketing activities.

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ACKNOWLEDGEMENTS

In conclusion, we would like to take the opportunity to thank all APNIC respondents for participating in the 2018 Survey. Your input is extremely valuable.

The robust sample size of 1,241 provides APNIC with clear direction on the preferences and opinions of the Internet community.

The 2018 Survey highlighted many of the challenges facing the Internet community, and provided many suggestions for ways in which APNIC can assist Members and other community Stakeholders.

We trust this information forms a solid basis upon which APNIC can craft their strategic plans and service delivery for the coming two years.

If there are any questions about this report, please do not hesitate to contact Survey Matters.

APNIC 2018 Survey Appendix B

Survey Data Tables & Segmentation by Region & Classification of Economies

Overview

This Appendix B provides the full results for all questions asked in the 2018 APNIC Survey.

These are presented as full frequency and / or mean scores. When analysing the survey data, the data has been cross tabulated the results by respondents' relationship with APNIC (Member or Stakeholder), APNIC sub-region (East Asia, Oceania, South East Asia and South Asia) and Classification of Economies (Developed, Developing and Least Developed Economies (LDEs)) based on the UN classifications referenced in Appendix A.

Questions marked with an asterix (*) were asked only of APNIC Members.

Individual responses from economies associated with non-APNIC regions were excluded.

Q2. What type of organization do you work for?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	38	294	672	237
Internet service provider (ISP)	34%	39%	21%	28%	20%	42%	46%	11%	47%	34%	23%
Telecommunications/Mobile operator	13%	16%	7%	20%	14%	12%	8%	8%	11%	16%	9%
Academic/Educational/Research	11%	9%	18%	12%	9%	11%	13%	8%	10%	11%	14%
Hosting/Data centre	7%	7%	7%	8%	12%	7%	3%	3%	2%	7%	14%
Other	7%	6%	8%	5%	8%	6%	6%	24%	6%	6%	8%
Government/Regulator/Municipality	6%	5%	8%	3%	16%	3%	4%	0%	7%	5%	7%
Banking/Financial	5%	5%	4%	4%	5%	4%	6%	11%	7%	4%	3%
Non-profit/NGO/Internet community	4%	1%	9%	4%	2%	3%	4%	13%	3%	3%	4%
Enterprise/Manufacturing/Retail	3%	3%	4%	4%	5%	2%	3%	8%	2%	2%	7%
Software vendor	3%	3%	4%	4%	4%	2%	1%	3%	0%	3%	6%
Media/Entertainment	2%	1%	2%	2%	2%	1%	1%	3%	0%	2%	3%
Domain name registry/Registrar	1%	1%	1%	3%	1%	0%	0%	5%	0%	2%	1%
Internet exchange point (IXP)	1%	1%	1%	1%	0%	3%	2%	0%	1%	2%	0%
NREN/Research network	1%	1%	1%	1%	0%	1%	2%	3%	2%	1%	0%
Infrastructure (transport/hospital)	1%	1%	1%	1%	1%	2%	0%	0%	0%	1%	0%
Hardware vendor	1%	1%	1%	1%	0%	1%	0%	3%	0%	1%	0%
Industrial (construction, mining, oil)	1%	0%	2%	1%	0%	1%	1%	0%	1%	1%	0%

Q3. What is your organisation's relationship with APNIC?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	38	294	672	237
APNIC Member/Account Holder	73%	100%	0%	59%	82%	80%	75%	61%	81%	68%	79%
Member of an NIR in APNIC Region	16%	0%	57%	27%	6%	14%	13%	13%	6%	22%	11%
Other Stakeholder	12%	0%	43%	14%	12%	6%	12%	26%	13%	11%	10%

Q4. How many times have you used an APNIC service, contacted or interacted with APNIC in the past two (2) years?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	38	294	672	237
None	21%	13%	43%	32%	12%	19%	19%	21%	21%	21%	22%
1-5 times	43%	49%	26%	38%	56%	46%	37%	37%	37%	43%	51%
More than 5 times	24%	28%	15%	19%	25%	25%	28%	32%	24%	26%	20%
Don't know/I can't remember	12%	10%	16%	12%	7%	10%	17%	11%	18%	11%	7%

Q5. Over the past 2 years have you?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	980	788	192	223	433	129	90	110	736	39
Total Mentions	4,721	4,088	633	1,028	2,148	623	489	599	3,538	185
Visited the website	76%	77%	70%	75%	77%	74%	84%	79%	76%	79%
* Used MyAPNIC	62%	62%	-	53%	75%	58%	61%	62%	57%	76%
Used the Whois Database	56%	56%	54%	59%	55%	44%	61%	51%	55%	67%
* Received IP addresses	45%	45%	-	36%	41%	49%	51%	48%	44%	43%
Read the blog	44%	43%	48%	35%	51%	36%	54%	60%	43%	41%
* Applied for IP addresses	41%	41%	-	37%	36%	46%	42%	42%	41%	38%
* Contacted the helpdesk	38%	38%	-	29%	35%	40%	46%	38%	39%	36%
Attended training	27%	26%	32%	15%	30%	37%	34%	38%	27%	8%
Attend conference/event	25%	24%	30%	15%	26%	28%	48%	50%	23%	5%
Personally met with APNIC	21%	21%	23%	10%	23%	27%	37%	37%	20%	8%
* Used reverse DNS	20%	20%	-	21%	24%	14%	20%	20%	17%	27%
Attended presentation	18%	16%	23%	10%	19%	21%	30%	33%	17%	5%
** Contacted APNIC	16%	-	16%	15%	22%	6%	20%	9%	18%	17%
* Technical assistance	13%	13%	-	15%	6%	13%	18%	13%	17%	5%
* Transferred IPv4 addresses	13%	13%	-	17%	11%	17%	9%	10%	15%	13%
* Used RPKI services	10%	10%	-	12%	5%	11%	11%	13%	10%	5%
Participate SIGs/Meetings	9%	7%	14%	5%	10%	9%	12%	13%	9%	3%
Policy Development	6%	5%	9%	2%	8%	3%	9%	8%	5%	3%
None of these	3%	1%	7%	3%	3%	2%	0%	0%	3%	3%
Other	1%	1%	2%	0%	1%	3%	1%	3%	1%	0%

* Option not offered to Stakeholder respondents

** Option not offered to Member respondents

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
APNIC website	744	609	135	162	176	152	232	22	181	398	143
Very Poor	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	1%
2	0%	0%	1%	1%	0%	0%	0%	9%	0%	0%	0%
3	1%	1%	1%	2%	0%	0%	1%	0%	0%	1%	1%
Neutral	8%	8%	9%	11%	13%	7%	3%	18%	3%	7%	18%
5	15%	15%	13%	22%	11%	18%	9%	23%	12%	17%	13%
6	46%	45%	51%	38%	47%	51%	49%	41%	49%	44%	49%
Excellent	29%	30%	26%	25%	28%	24%	38%	9%	36%	31%	17%
Top 3	90%	90%	90%	86%	86%	93%	96%	73%	97%	92%	79%
Mean	5.92	5.92	5.90	5.71	5.85	5.92	6.18	5.14	6.18	5.96	5.57
Std. Dev.	0.99	1.00	0.96	1.08	1.09	0.83	0.82	1.36	0.76	0.94	1.15

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
MyAPNIC	488	488	-	87	142	104	143	12	123	226	127
Very Poor	1%	1%	-	1%	1%	0%	0%	0%	0%	0%	2%
2	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
3	1%	1%	-	2%	1%	0%	1%	0%	2%	0%	3%
Neutral	6%	6%	-	13%	9%	2%	1%	8%	2%	5%	11%
5	12%	12%	-	13%	13%	16%	7%	25%	9%	13%	13%
6	44%	44%	-	41%	49%	44%	41%	42%	42%	40%	52%
Excellent	36%	36%	-	30%	27%	38%	50%	25%	46%	41%	20%
Top 3	92%	92%	-	84%	88%	98%	97%	92%	97%	94%	84%
Mean	6.06	6.06	-	5.79	5.85	6.17	6.36	5.83	6.28	6.15	5.68
Std. Dev.	0.99	0.99	-	1.18	1.11	0.77	0.79	0.94	0.83	0.92	1.16

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Whois database	545	440	105	127	132	115	152	19	121	290	115
Very Poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	1%	0%	1%	0%	1%	0%	0%	11%	0%	0%	1%
3	1%	2%	0%	2%	0%	2%	1%	0%	1%	2%	0%
Neutral	7%	7%	9%	10%	9%	6%	3%	21%	1%	7%	12%
5	9%	9%	11%	15%	8%	11%	4%	11%	2%	11%	11%
6	46%	45%	49%	43%	48%	50%	43%	42%	41%	45%	52%
Excellent	36%	37%	30%	30%	34%	31%	49%	16%	55%	34%	23%
Top 3	91%	91%	90%	87%	90%	92%	96%	68%	98%	91%	87%
Mean	6.06	6.08	5.98	5.87	6.05	6.03	6.36	5.21	6.48	6.02	5.84
Std. Dev.	0.97	0.98	0.96	1.03	0.96	0.91	0.79	1.51	0.67	0.97	0.98

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
IP address/AS number resource allocations	351	351	-	58	77	88	118	10	95	174	72
Very Poor	1%	1%	-	2%	1%	0%	0%	0%	0%	1%	1%
2	0%	0%	-	2%	0%	0%	0%	0%	0%	1%	0%
3	1%	1%	-	2%	1%	0%	2%	10%	2%	1%	1%
Neutral	9%	9%	-	12%	16%	7%	5%	0%	3%	10%	15%
5	9%	9%	-	12%	9%	13%	4%	10%	4%	10%	11%
6	39%	39%	-	40%	36%	42%	38%	50%	39%	39%	39%
Excellent	41%	41%	-	31%	36%	39%	51%	30%	52%	39%	32%
Top 3	89%	89%	-	83%	82%	93%	93%	90%	95%	89%	82%
Mean	6.06	6.06	-	5.74	5.86	6.13	6.31	5.90	6.35	6.02	5.79
Std. Dev.	1.08	1.08	-	1.32	1.23	0.88	0.90	1.20	0.87	1.09	1.22

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
APNIC Blog	428	336	92	84	91	80	160	13	126	223	66
Very Poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	1%	1%	1%	2%	0%	1%	0%	8%	0%	1%	2%
Neutral	9%	9%	10%	11%	13%	8%	5%	23%	3%	9%	17%
5	12%	13%	11%	19%	9%	14%	11%	8%	14%	12%	12%
6	47%	48%	43%	37%	49%	51%	49%	31%	52%	44%	48%
Excellent	31%	30%	35%	31%	29%	26%	35%	31%	31%	34%	21%
Top 3	90%	90%	89%	87%	87%	91%	95%	69%	97%	90%	82%
Mean	5.98	5.97	6.01	5.83	5.93	5.94	6.14	5.54	6.10	6.02	5.71
Std. Dev.	0.94	0.93	0.98	1.06	0.95	0.90	0.80	1.39	0.76	0.95	1.03

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
IP address/AS number resource applications	320	320	-	61	69	83	99	8	83	165	64
Very Poor	0%	0%	-	0%	1%	0%	0%	0%	0%	0%	2%
2	0%	0%	-	0%	1%	0%	0%	0%	0%	0%	2%
3	2%	2%	-	3%	4%	0%	0%	13%	0%	1%	5%
Neutral	8%	8%	-	15%	10%	5%	4%	0%	4%	8%	11%
5	12%	12%	-	25%	10%	14%	2%	25%	1%	16%	13%
6	38%	38%	-	36%	38%	45%	33%	50%	40%	36%	41%
Excellent	40%	40%	-	21%	35%	36%	61%	13%	55%	38%	28%
Top 3	90%	90%	-	82%	83%	95%	96%	88%	96%	90%	81%
Mean	6.05	6.05	-	5.57	5.78	6.12	6.51	5.50	6.47	6.01	5.66
Std. Dev.	1.06	1.06	-	1.09	1.35	0.83	0.73	1.20	0.70	1.00	1.35

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
APNIC helpdesk	301	301	-	48	66	72	108	7	76	157	61
Very Poor	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
2	1%	1%	-	2%	2%	0%	1%	0%	1%	0%	3%
3	1%	1%	-	0%	3%	0%	2%	0%	0%	1%	3%
Neutral	5%	5%	-	4%	9%	3%	4%	0%	4%	3%	10%
5	10%	10%	-	8%	9%	15%	6%	43%	7%	11%	7%
6	40%	40%	-	42%	35%	39%	43%	29%	43%	39%	36%
Excellent	44%	44%	-	44%	42%	43%	45%	29%	45%	45%	41%
Top 3	93%	93%	-	94%	86%	97%	94%	100%	95%	96%	84%
Mean	6.16	6.16	-	6.19	6.00	6.22	6.23	5.86	6.25	6.23	5.92
Std. Dev.	0.99	0.99	-	1.00	1.19	0.81	0.96	0.90	0.91	0.87	1.31

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
APNIC Training	266	204	62	56	49	70	90	1	85	164	16
Very Poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	1%	1%	0%	2%	4%	0%	0%	0%	0%	1%	13%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Neutral	5%	4%	6%	4%	4%	6%	4%	0%	5%	4%	6%
5	8%	8%	8%	9%	12%	7%	7%	0%	9%	7%	13%
6	46%	48%	42%	52%	31%	51%	47%	100%	51%	44%	44%
Excellent	40%	39%	44%	34%	49%	36%	42%	0%	35%	44%	25%
Top 3	94%	95%	94%	95%	92%	94%	96%	100%	95%	95%	81%
Mean	6.18	6.17	6.23	6.11	6.12	6.17	6.27	6.00	6.16	6.26	5.50
Std. Dev.	0.90	0.92	0.86	0.93	1.20	0.80	0.78	-	0.78	0.85	1.59

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Conferences/events	248	191	57	53	28	62	100	5	86	142	15
Very Poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	1%	0%	0%	4%	0%	0%	0%	0%	0%	7%
Neutral	2%	2%	2%	8%	0%	2%	0%	0%	0%	4%	0%
5	8%	8%	7%	11%	7%	10%	6%	0%	9%	8%	0%
6	41%	41%	40%	38%	39%	47%	40%	40%	38%	42%	53%
Excellent	48%	48%	51%	43%	50%	42%	54%	60%	52%	46%	40%
Top 3	98%	97%	98%	92%	96%	98%	100%	100%	100%	96%	93%
Mean	6.35	6.34	6.40	6.17	6.32	6.29	6.48	6.60	6.43	6.31	6.20
Std. Dev.	0.75	0.76	0.70	0.91	0.90	0.71	0.61	0.55	0.66	0.77	1.01

	Total	APNIC Members	APNIC Stakeholders	East Asia	Oceania	South East Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Meeting a representative	207	163	44	41	31	51	80	4	67	124	12
Very Poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	1%	0%	0%	3%	0%	0%	0%	0%	0%	8%
Neutral	2%	3%	0%	2%	0%	4%	3%	0%	3%	2%	0%
5	5%	5%	7%	0%	6%	6%	8%	0%	6%	5%	8%
6	38%	40%	27%	44%	26%	45%	35%	25%	43%	35%	42%
Excellent	54%	51%	66%	54%	65%	45%	55%	75%	48%	58%	42%
Top 3	97%	96%	100%	98%	97%	96%	98%	100%	97%	98%	92%
Mean	6.43	6.38	6.59	6.49	6.48	6.31	6.43	6.75	6.36	6.48	6.08
Std. Dev.	0.75	0.77	0.62	0.64	0.89	0.76	0.74	0.50	0.73	0.70	1.16

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Reverse DNS	156	156	-	34	45	25	46	6	39	66	45
Very Poor	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
3	1%	1%	-	3%	2%	0%	0%	0%	0%	2%	2%
Neutral	8%	8%	-	18%	9%	8%	0%	0%	0%	11%	11%
5	13%	13%	-	15%	20%	16%	0%	50%	0%	15%	18%
6	42%	42%	-	32%	47%	40%	48%	33%	46%	35%	51%
Excellent	35%	35%	-	32%	22%	36%	52%	17%	54%	38%	18%
Top 3	91%	91%	-	79%	89%	92%	100%	100%	100%	88%	87%
Mean	6.03	6.03	-	5.74	5.78	6.04	6.52	5.67	6.54	5.97	5.71
Std. Dev.	0.96	0.96	-	1.19	0.97	0.93	0.51	0.82	0.51	1.05	0.97

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Public presentation	173	128	45	32	28	42	66	5	56	100	12
Very Poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Neutral	3%	4%	2%	6%	4%	5%	2%	0%	2%	4%	8%
5	11%	12%	9%	13%	11%	10%	11%	20%	9%	10%	25%
6	37%	38%	36%	34%	21%	38%	45%	20%	46%	35%	17%
Excellent	49%	47%	53%	47%	64%	48%	42%	60%	43%	51%	50%
Top 3	97%	96%	98%	94%	96%	95%	98%	100%	98%	96%	92%
Mean	6.31	6.27	6.40	6.22	6.46	6.29	6.29	6.40	6.30	6.33	6.08
Std. Dev.	0.80	0.82	0.75	0.91	0.84	0.83	0.72	0.89	0.71	0.82	1.08

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Handling of your query	31	-	31	10	7	2	11	1	3	24	3
Very Poor	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	3%	-	3%	0%	14%	0%	0%	0%	33%	0%	0%
Neutral	6%	-	6%	10%	0%	0%	0%	100%	0%	4%	0%
5	6%	-	6%	0%	14%	50%	0%	0%	33%	4%	0%
6	29%	-	29%	30%	29%	0%	36%	0%	0%	25%	100%
Excellent	55%	-	55%	60%	43%	50%	64%	0%	33%	67%	0%
Top 3	90%	-	90%	90%	86%	100%	100%	0%	67%	96%	100%
Mean	6.26	-	6.26	6.40	5.86	6.00	6.64	4.00	5.00	6.54	6.00
Std. Dev.	1.06	-	1.06	0.97	1.46	1.41	0.50	-	2.00	0.78	0.00

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Technical assistance	104	104	-	25	12	23	41	3	26	66	9
Very Poor	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
3	1%	1%	-	0%	0%	0%	2%	0%	4%	0%	0%
Neutral	5%	5%	-	12%	0%	0%	2%	33%	4%	3%	11%
5	8%	8%	-	20%	0%	13%	0%	0%	0%	12%	0%
6	38%	38%	-	20%	50%	39%	44%	33%	46%	33%	44%
Excellent	49%	49%	-	48%	50%	48%	51%	33%	46%	52%	44%
Top 3	94%	94%	-	88%	100%	100%	95%	67%	92%	97%	89%
Mean	6.29	6.29	-	6.04	6.50	6.35	6.39	5.67	6.27	6.33	6.22
Std. Dev.	0.88	0.88	-	1.10	0.52	0.71	0.83	1.53	0.96	0.81	0.97

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
IPv4 address transfers	103	103	-	28	20	30	21	4	19	58	22
Very Poor	2%	2%	-	4%	5%	0%	0%	0%	0%	0%	9%
2	1%	1%	-	0%	5%	0%	0%	0%	0%	0%	5%
3	1%	1%	-	4%	0%	0%	0%	0%	0%	0%	5%
Neutral	10%	10%	-	11%	20%	3%	10%	0%	16%	5%	18%
5	17%	17%	-	29%	10%	13%	10%	25%	11%	19%	14%
6	40%	40%	-	21%	40%	50%	43%	75%	47%	36%	36%
Excellent	30%	30%	-	32%	20%	33%	38%	0%	26%	40%	14%
Top 3	86%	86%	-	82%	70%	97%	90%	100%	84%	95%	64%
Mean	5.78	5.78	-	5.54	5.25	6.13	6.10	5.75	5.84	6.10	4.86
Std. Dev.	1.24	1.24	-	1.45	1.65	0.78	0.94	0.50	1.01	0.89	1.81

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Resource certification (RPKI)	79	79	-	20	10	19	26	4	26	40	9
Very Poor	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
3	1%	1%	-	5%	0%	0%	0%	0%	0%	3%	0%
Neutral	10%	10%	-	10%	10%	16%	4%	25%	0%	15%	11%
5	13%	13%	-	15%	10%	11%	12%	25%	12%	13%	11%
6	46%	46%	-	45%	40%	42%	50%	50%	58%	38%	44%
Excellent	30%	30%	-	25%	40%	32%	35%	0%	31%	33%	33%
Top 3	89%	89%	-	85%	90%	84%	96%	75%	100%	83%	89%
Mean	5.94	5.94	-	5.75	6.10	5.89	6.15	5.25	6.19	5.83	6.00
Std. Dev.	0.98	0.98	-	1.12	0.99	1.05	0.78	0.96	0.63	1.13	1.00

Q6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
SIGs, meeting or mailing list	86	59	27	17	13	18	36	2	25	50	9
Very Poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	1%	2%	0%	0%	0%	0%	3%	0%	4%	0%	0%
Neutral	2%	3%	0%	0%	8%	0%	3%	0%	8%	0%	0%
5	15%	15%	15%	18%	23%	6%	17%	0%	16%	14%	22%
6	52%	49%	59%	35%	46%	67%	56%	50%	56%	54%	33%
Excellent	29%	31%	26%	47%	23%	28%	22%	50%	16%	32%	44%
Top 3	97%	95%	100%	100%	92%	100%	94%	100%	88%	100%	100%
Mean	6.06	6.03	6.11	6.29	5.85	6.22	5.92	6.50	5.72	6.18	6.22
Std. Dev.	0.80	0.87	0.64	0.77	0.90	0.55	0.87	0.71	0.98	0.66	0.83

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Policy development	56	38	18	13	3	8	29	3	16	33	4
Very Poor	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	2%	0%	6%	0%	0%	0%	0%	33%	0%	0%	0%
Neutral	4%	5%	0%	0%	0%	13%	3%	0%	6%	3%	0%
5	13%	11%	17%	15%	33%	0%	10%	33%	6%	9%	50%
6	45%	47%	39%	38%	33%	38%	52%	33%	50%	45%	25%
Excellent	38%	37%	39%	46%	33%	50%	34%	0%	38%	42%	25%
Top 3	95%	95%	94%	100%	100%	88%	97%	67%	94%	97%	100%
Mean	6.13	6.16	6.06	6.31	6.00	6.25	6.17	4.67	6.19	6.27	5.75
Std. Dev.	0.90	0.82	1.06	0.75	1.00	1.04	0.76	1.53	0.83	0.76	0.96

Q8. *Thinking about APNIC overall, how would you rate:



	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Quality of Service	788	788	-	163	190	180	233	22	198	400	168
Very Poor	0%	0%	-	0%	1%	0%	0%	0%	0%	0%	1%
2	0%	0%	-	0%	1%	0%	0%	0%	0%	0%	1%
3	1%	1%	-	2%	1%	0%	0%	0%	1%	1%	1%
Neutral	9%	9%	-	13%	12%	9%	3%	14%	4%	9%	15%
5	11%	11%	-	18%	9%	12%	6%	9%	7%	14%	8%
6	45%	45%	-	40%	42%	48%	47%	50%	49%	42%	45%
Excellent	35%	35%	-	27%	35%	31%	44%	27%	40%	35%	29%
Top 3	90%	90%	-	85%	86%	91%	96%	86%	96%	91%	82%
Mean	6.03	6.03	-	5.78	5.95	6.02	6.30	5.91	6.25	6.03	5.81
Std. Dev.	0.96	0.96	-	1.04	1.09	0.89	0.76	0.97	0.77	0.94	1.15
Value of services	788	788	-	163	190	180	233	22	198	400	168
Very Poor	0%	0%	-	0%	1%	0%	0%	5%	0%	0%	1%
2	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%
3	1%	1%	-	3%	0%	0%	0%	0%	0%	1%	1%
Neutral	8%	8%	-	10%	14%	6%	3%	14%	3%	7%	18%
5	10%	10%	-	16%	11%	13%	5%	0%	5%	14%	10%
6	43%	43%	-	42%	41%	47%	41%	50%	44%	41%	44%
Excellent	38%	38%	-	29%	33%	34%	51%	32%	49%	37%	27%
Top 3	91%	91%	-	87%	85%	94%	97%	82%	97%	93%	80%
Mean	6.07	6.07	-	5.85	5.89	6.08	6.40	5.82	6.39	6.07	5.74
Std. Dev.	0.98	0.98	-	1.05	1.12	0.84	0.72	1.44	0.70	0.93	1.17
Value of membership	788	788	-	163	190	180	233	22	198	400	168
Very Poor	1%	1%	-	0%	1%	1%	0%	5%	0%	0%	1%
2	0%	0%	-	1%	1%	0%	0%	0%	0%	1%	1%
3	1%	1%	-	3%	1%	0%	1%	0%	2%	1%	2%
Neutral	10%	10%	-	13%	16%	9%	5%	9%	5%	9%	21%
5	10%	10%	-	16%	9%	12%	6%	0%	8%	13%	8%
6	39%	39%	-	36%	43%	42%	34%	50%	32%	39%	45%
Excellent	39%	39%	-	31%	29%	37%	54%	36%	54%	38%	22%
Top 3	87%	87%	-	83%	81%	91%	94%	86%	94%	90%	75%
Mean	6.00	6.00	-	5.75	5.76	6.04	6.34	5.95	6.33	6.02	5.57
Std. Dev.	1.10	1.10	-	1.18	1.20	0.99	0.90	1.40	0.91	1.04	1.24

Q8. Thinking about APNIC overall, how would you rate:



	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Value of membership	192	-	192	66	32	31	55	8	33	133	18
Very Poor	1%	-	1%	2%	0%	0%	0%	0%	0%	1%	0%
2	1%	-	1%	0%	0%	0%	2%	0%	3%	0%	0%
3	1%	-	1%	3%	0%	0%	0%	0%	0%	2%	0%
Neutral	13%	-	13%	15%	13%	6%	13%	25%	12%	13%	11%
5	11%	-	11%	20%	3%	10%	7%	13%	6%	11%	22%
6	43%	-	43%	35%	41%	71%	36%	50%	45%	41%	50%
Excellent	31%	-	31%	26%	44%	13%	42%	13%	33%	33%	17%
Top 3	85%	-	85%	80%	88%	94%	85%	75%	85%	85%	89%
Mean	5.85	-	5.85	5.59	6.16	5.90	6.02	5.50	5.91	5.88	5.72
Std. Dev.	1.11	-	1.11	1.25	0.99	0.70	1.15	1.07	1.18	1.13	0.89

Q9. Thinking about your Internet-related services, products or activities, what are the MAIN operational challenges facing your organisation? (Top Rank)

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	294	672	237
Network security	27%	28%	26%	28%	34%	22%	26%	28%	25%	31%
Scarcity of IPv4 addresses	13%	14%	9%	13%	9%	14%	14%	9%	15%	12%
Cost of network operations	12%	13%	12%	10%	14%	17%	11%	15%	13%	11%
Hiring and/or keeping skilled employees	12%	12%	12%	12%	12%	13%	10%	10%	11%	16%
Deployment of IPv6	11%	11%	10%	9%	8%	8%	17%	9%	10%	7%
Management of bandwidth and network capacity	8%	8%	9%	9%	9%	9%	8%	7%	8%	8%
Keeping up with the pace of technology changes	7%	6%	9%	10%	5%	7%	6%	4%	8%	4%
Regulatory requirements involving the Internet	4%	4%	5%	4%	6%	4%	3%	3%	4%	5%
Benchmarking and understanding best practice in network operations	3%	3%	4%	4%	2%	3%	3%	4%	3%	3%
Access to reliable and credible Internet industry data	3%	2%	3%	3%	1%	4%	3%	12%	2%	2%
Other	0%	0%	0%	0%	1%	0%	0%	0%	0%	1%

Q10. Thinking about network security, what are the MAIN challenges facing your organisation?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	38	294	672	237
Total Mentions	4,857	3,567	1,290	1,258	958	1,053	1,452	136	1,250	2,625	846
Phishing, spam, malware, ransomware	64%	65%	62%	58%	63%	74%	64%	61%	66%	63%	65%
DDoS attacks	61%	65%	48%	65%	45%	70%	61%	58%	58%	64%	54%
Intrusion and other breaches	47%	47%	47%	58%	55%	46%	30%	45%	31%	51%	54%
Staff lack awareness of security issues	45%	44%	48%	40%	50%	49%	46%	21%	50%	44%	43%
Blacklisting of our IP addresses	38%	40%	30%	30%	27%	47%	47%	26%	49%	38%	24%
Routing security	32%	31%	33%	36%	26%	29%	33%	47%	32%	33%	27%
Lack of application security	29%	28%	30%	23%	31%	29%	32%	32%	35%	27%	27%
Inadequate security policies	28%	26%	32%	25%	35%	22%	32%	11%	39%	25%	25%
No cyber security focus from government(s)	23%	21%	27%	14%	20%	21%	35%	21%	41%	20%	8%
Lack of security for IoT applications	22%	22%	21%	21%	23%	17%	24%	26%	22%	21%	22%
None of these	2%	2%	3%	2%	3%	1%	3%	8%	1%	2%	3%
Other	2%	2%	2%	1%	3%	2%	1%	3%	0%	2%	3%

Q11. How might APNIC best assist you or others with network security challenges?



	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,212	884	328	330	243	257	347	35	290	656	231
Total Mentions	3,932	2,865	1,067	998	719	885	1,232	98	1,041	2,185	608
Specific-security Training courses	64%	64%	63%	59%	52%	75%	72%	31%	73%	70%	42%
Collaborate with other technical and security organisations to share information and best practice	59%	59%	59%	56%	61%	61%	60%	51%	60%	60%	57%
Sharing of security insights with the community on the APNIC Blog and website	53%	55%	49%	44%	50%	60%	59%	54%	57%	53%	49%
Integrate more security content in APNIC conferences	41%	42%	38%	42%	22%	45%	52%	29%	56%	44%	17%
Engagement with Governments in the region about the issues of cyber security	39%	37%	45%	35%	40%	33%	48%	46%	47%	38%	35%
Encourage CERT development and information sharing between CERTs and the APNIC community	35%	33%	39%	34%	37%	37%	30%	49%	32%	36%	33%
Establish an APNIC-CERT for information sharing among the community	30%	30%	30%	28%	30%	31%	34%	14%	34%	32%	24%
None of the above	3%	3%	2%	4%	4%	2%	1%	6%	1%	2%	6%

Q13.*Thinking about the scarcity of IPv4 addresses, what are the MAIN challenges facing your organisation?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Total Mentions	2,032	2,032	-	475	350	518	642	47	589	1,081	315
Deploying IPv6	49%	49%	-	54%	33%	55%	54%	52%	55%	52%	35%
The cost of buying IPv4 addresses	38%	38%	-	44%	26%	42%	41%	35%	40%	41%	29%
Cost and complexity of NATs	34%	34%	-	34%	22%	43%	37%	35%	40%	36%	20%
IPv4 address transfer policies	33%	33%	-	40%	17%	38%	38%	26%	41%	36%	18%
Working with brokers selling / leasing IPv4 addresses	21%	21%	-	22%	12%	24%	26%	17%	29%	21%	12%
It is not an issue for my organization	21%	21%	-	13%	37%	17%	19%	17%	19%	18%	33%
"Health" of IPv4 addresses being transferred	19%	19%	-	28%	12%	26%	15%	17%	15%	25%	11%
Don't know	5%	5%	-	2%	5%	4%	7%	4%	6%	4%	4%
Other	3%	3%	-	3%	6%	3%	2%	0%	3%	3%	5%

Q14. *Thinking about the scarcity of IPv4 addresses, which, if any, of the following IPv4 activities do you think APNIC should undertake?



	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Reclaiming/recovering unused address space	57%	57%	-	59%	55%	58%	57%	61%	53%	60%	56%
Monitoring and reporting usage of IPv4 addresses	54%	54%	-	52%	43%	56%	63%	30%	63%	56%	39%
Providing incentives to network operators for the return of IPv4 address space	52%	52%	-	55%	58%	45%	51%	43%	52%	52%	54%
Sharing more information and best practice on resource transfers	39%	39%	-	41%	30%	46%	42%	9%	46%	43%	24%
Purchasing IPv4 addresses for distribution to Members	25%	25%	-	28%	17%	26%	28%	22%	29%	25%	19%
APNIC should take no action to address the IPv4 shortage	5%	5%	-	4%	8%	3%	5%	17%	3%	4%	10%
Other	3%	3%	-	3%	6%	2%	2%	4%	2%	2%	6%

Q15. *Has your organisation already deployed or are you ready for deployment of IPv6?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Yes, IPv6 is fully deployed	15%	15%	-	17%	14%	20%	8%	35%	7%	17%	17%
Yes, IPv6 is deployed in our core network	23%	23%	-	24%	20%	26%	24%	0%	23%	24%	21%
Have a deployment plan	32%	32%	-	38%	17%	29%	43%	26%	43%	33%	16%
No	30%	30%	-	22%	49%	26%	26%	39%	27%	25%	47%

Q16. *When do you expect the deployment to be completed?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	495	495	-	123	77	112	177	6	157	264	68
This year	19%	19%	-	20%	21%	12%	23%	17%	18%	20%	18%
In 2019	23%	23%	-	21%	26%	23%	23%	33%	22%	23%	24%
In 2020	20%	20%	-	24%	14%	15%	23%	17%	20%	21%	18%
Sometime after 2020	16%	16%	-	20%	6%	20%	15%	33%	18%	17%	7%
Don't know	22%	22%	-	15%	32%	30%	16%	0%	22%	19%	34%

Q17. *What are the MAIN challenges that are affecting your organisation's deployment of IPv6?



	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Total Mentions	2,999	2,999	-	640	604	726	964	65	896	1,517	521
Our customers are not ready for IPv6	55%	55%	-	53%	41%	58%	66%	39%	67%	57%	36%
There is no demand for IPv6 from customers	48%	48%	-	34%	54%	46%	56%	39%	56%	43%	51%
Lack of skills and expertise within our organisation	46%	46%	-	40%	43%	53%	49%	35%	59%	43%	39%
There are no clear business/technical advantages or reasons to adopt IPv6	35%	35%	-	37%	39%	38%	28%	39%	31%	36%	39%
Lack of applications that can run on IPv6	35%	35%	-	41%	19%	40%	42%	17%	38%	41%	20%
Lack of available training	33%	33%	-	29%	17%	37%	47%	26%	49%	35%	12%
My organisation's legacy systems do not support IPv6	22%	22%	-	23%	21%	24%	19%	26%	18%	23%	22%
Our upstream providers do not support IPv6	17%	17%	-	20%	17%	13%	19%	13%	21%	16%	15%
Cost of IPv6 deployment is too high	16%	16%	-	22%	11%	15%	16%	17%	18%	16%	14%
The risks of deploying IPv6 are too high	13%	13%	-	12%	10%	18%	13%	9%	14%	15%	10%
Other	6%	6%	-	6%	13%	4%	2%	4%	2%	5%	12%
None of the above	5%	5%	-	6%	8%	3%	4%	17%	3%	5%	8%

Q18. *Which of the following APNIC activities do you believe are the most important to encouraging IPv6 adoption in the APNIC region?



	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Total Mentions	2,825	2,825	-	619	572	669	901	64	811	1,462	488
Providing basic and advanced training in IPv6	62%	62%	-	51%	57%	65%	72%	61%	71%	62%	53%
Sharing deployment case studies and best current practices about IPv6	62%	62%	-	60%	56%	65%	63%	65%	64%	64%	53%
Promoting IPv6 to hardware, software and/or content providers	50%	50%	-	59%	41%	51%	50%	48%	49%	54%	43%
Facilitating knowledge sharing between member organisations on IPv6 deployment experiences	49%	49%	-	50%	44%	50%	53%	39%	54%	51%	40%
Promoting IPv6 to management and/or decision makers	44%	44%	-	44%	41%	47%	45%	39%	46%	46%	36%
Promoting IPv6 to government and related organisations	42%	42%	-	46%	34%	42%	49%	17%	54%	42%	32%
APNIC should take no action to promote or assist with the deployment of IPv6	2%	2%	-	1%	2%	3%	2%	0%	2%	2%	2%
Other	2%	2%	-	1%	2%	1%	1%	9%	2%	1%	2%

Q19. *Are you aware that APNIC provides Technical Training Services?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Yes	74%	74%	-	65%	71%	80%	79%	70%	86%	73%	64%
No	26%	26%	-	35%	29%	20%	21%	30%	14%	27%	36%

Q20. Which of the following training activities would be of MOST value to your organisation?

	Total	Members	Stakeholders*	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	965	903	62	216	219	220	286	24	246	506	189
Total Mentions	3,563	3,309	254	754	694	875	1,172	68	1,020	1,935	540
On demand online e-learning sessions	57%	57%	44%	59%	68%	51%	51%	46%	52%	56%	67%
Live e-learning sessions scheduled for local time zones	46%	46%	45%	42%	42%	47%	53%	29%	51%	46%	41%
Published training materials, translated into multiple languages	42%	42%	39%	47%	26%	50%	44%	38%	44%	47%	24%
Greater promotion of up-coming / scheduled training sessions	37%	37%	44%	31%	37%	47%	35%	29%	37%	40%	32%
A published calendar of all training events in the region	37%	37%	34%	27%	45%	36%	40%	38%	38%	37%	38%
Collaboration with local universities to train the next generation of engineers	35%	35%	45%	29%	24%	43%	45%	13%	46%	38%	19%
Train the trainer programs	32%	30%	56%	27%	21%	35%	40%	29%	37%	34%	17%
More local language training	30%	30%	37%	46%	5%	38%	34%	13%	39%	34%	11%
Weekend / after-hours training sessions	27%	26%	37%	24%	22%	24%	36%	25%	35%	27%	19%
Subsidised training for under-served regions	22%	21%	29%	15%	17%	23%	30%	8%	34%	22%	8%
None of the above	4%	4%	0%	1%	8%	2%	1%	17%	1%	2%	10%
Other	1%	1%	0%	0%	1%	1%	0%	0%	1%	1%	2%

*Asked of stakeholders who have used training

Q22. APNIC has established the APNIC Academy, an online learning portal for the community. Have you heard of the APNIC Academy?



	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	965	903	62	216	219	220	286	24	246	506	189
Yes, I've heard of it but haven't used it	36%	35%	44%	33%	24%	42%	42%	29%	46%	38%	19%
Yes, I've heard of it and have used it for training	10%	9%	23%	5%	7%	7%	19%	4%	17%	9%	3%
No, I wasn't aware of the APNIC Academy until now	54%	56%	34%	62%	68%	51%	39%	67%	37%	53%	79%

Q24. How often do you use the APNIC Whois database?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	38	294	672	237
Daily	8%	8%	9%	8%	6%	10%	8%	11%	6%	10%	5%
At least once a week	22%	22%	21%	19%	20%	26%	25%	16%	26%	21%	21%
At least once a month	25%	26%	23%	22%	25%	24%	28%	37%	25%	24%	26%
Less than once a month	28%	29%	25%	31%	34%	27%	23%	21%	21%	28%	39%
I don't use the Whois database	17%	15%	22%	20%	16%	14%	17%	16%	21%	18%	8%

Q26. What do you use the APNIC Whois database for?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,035	772	263	269	212	224	298	32	233	553	217
Total Mentions	1,739	1,312	427	435	357	381	512	54	397	934	354
Network troubleshooting	62%	65%	53%	62%	67%	63%	58%	53%	62%	60%	68%
Locating abuse contacts	39%	38%	43%	30%	39%	45%	42%	50%	38%	41%	35%
Geolocation	37%	38%	34%	44%	31%	33%	40%	16%	38%	41%	30%
Research purposes	26%	26%	29%	20%	28%	26%	29%	50%	30%	24%	25%
Other	3%	3%	4%	5%	4%	3%	3%	0%	3%	4%	5%

Q27. *Thinking about how APNIC could help Members keep Whois information accurate and up-to-date, which of the following do you think would be the MOST effective?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	771	771	-	160	179	178	234	20	196	385	170
Total Mentions	1,753	1,753	-	341	361	420	591	40	501	889	323
Regular email reminders to Members to verify their Whois data	53%	53%	-	44%	48%	54%	62%	50%	62%	51%	48%
Enforced confirmation of Whois data accuracy at time of Membership renewal	50%	50%	-	47%	51%	49%	53%	50%	53%	48%	52%
Prominent reminders in MyAPNIC to check Whois data for accuracy	49%	49%	-	45%	39%	49%	59%	40%	60%	51%	32%
Provision of APIs for automatic integration with Member admin systems	40%	40%	-	42%	36%	40%	41%	40%	43%	40%	35%
Assisted registry checks where APNIC staff contact Members to verify Whois data	35%	35%	-	34%	26%	42%	37%	20%	37%	40%	21%
Other	1%	1%	-	1%	2%	2%	1%	0%	1%	1%	2%

Q28. The APNIC community is discussing the development of Internet trend and benchmarking data services. What information would be of MOST USE to your organization?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	38	294	672	237
Total Mentions	4,896	3,576	1,320	1,257	946	1,070	1,499	124	1,240	2,735	797
Network threats and security	74%	73%	77%	70%	76%	76%	77%	58%	76%	74%	74%
Network infrastructure, topology, usage	59%	60%	57%	51%	57%	62%	67%	45%	68%	58%	51%
Use of new technologies (eg. SDN, NFV)	54%	53%	55%	56%	48%	51%	58%	42%	53%	58%	44%
Use of specific technologies (eg. IPv6, DNSSEC, RPKI)	53%	53%	52%	52%	54%	52%	53%	55%	53%	53%	51%
ASN/IPv4/IPv6 distribution and usage	52%	55%	45%	54%	44%	55%	56%	45%	57%	54%	44%
Industry and market trends and information	35%	35%	35%	36%	33%	38%	35%	24%	35%	38%	29%
Internet business and operational benchmarks	29%	27%	33%	26%	22%	36%	31%	26%	30%	33%	16%
Pricing or charging information (for customer and/or infrastructure services)	24%	24%	22%	15%	23%	29%	28%	21%	29%	24%	15%
Use of specific vendors for various products	13%	13%	12%	11%	16%	12%	14%	3%	18%	13%	8%
None of the above	2%	2%	2%	1%	3%	1%	1%	8%	1%	1%	4%
Other	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Q30. Currently, the duration of APNIC's February conference (held with APRICOT) is four days and the duration of APNIC's September conference is three days. What do you believe is the best length of time for APNIC conferences?

	Total	Members	Stakeholders*	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	960	903	57	215	213	218	290	24	248	499	189
Three days	30%	29%	40%	37%	18%	35%	29%	42%	31%	33%	20%
Four days	19%	17%	44%	14%	10%	23%	26%	13%	24%	21%	7%
Five days	12%	12%	16%	8%	9%	9%	20%	0%	21%	12%	2%
Don't know	12%	13%	0%	16%	15%	11%	9%	0%	8%	12%	17%
I do not attend APNIC conferences	27%	29%	0%	24%	47%	23%	17%	46%	16%	22%	53%

*Asked of stakeholders who attend conferences

Q31. *This APNIC Survey is an important and regular part of the APNIC strategic planning process, conducted every two (2) years. Do you think the frequency of the APNIC survey is:

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Too often	1%	1%	-	1%	0%	2%	3%	0%	4%	1%	0%
About right	73%	73%	-	68%	76%	75%	72%	78%	71%	73%	74%
Not often enough	19%	19%	-	22%	18%	18%	19%	13%	18%	20%	18%
Don't know	7%	7%	-	9%	6%	5%	6%	9%	6%	6%	7%

Q32. *Have you participated in APNIC's Internet number resource Policy Development Process for Internet Number Resource policies in the last two (2) years?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Yes	8%	8%	-	6%	3%	11%	11%	9%	12%	8%	4%
No	79%	79%	-	82%	86%	69%	79%	87%	76%	78%	85%
Don't know	13%	13%	-	12%	11%	20%	10%	4%	12%	14%	11%

Q33. *Can you tell us the MAIN reasons why you have not participated in APNIC's Policy Development Process for Internet Number Resource policies?

	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample size	718	175	227	210	173	258	20	182	357	177
I don't know enough about the process	54%	48%	47%	47%	57%	61%	40%	63%	57%	39%
I wasn't aware I could participate	46%	47%	50%	40%	45%	53%	10%	55%	50%	31%
No one has asked me to participate	38%	29%	38%	34%	35%	40%	15%	46%	42%	26%
I trust the community to develop the right policies	26%	19%	16%	24%	29%	29%	30%	34%	24%	19%
I don't have time to participate	22%	11%	18%	28%	23%	10%	45%	13%	19%	34%
It's too difficult to participate in the process	15%	7%	8%	9%	17%	19%	15%	25%	13%	7%
Other	6%	4%	5%	5%	6%	5%	15%	5%	6%	5%
I'm not interested in participating	4%	3%	5%	7%	2%	3%	0%	3%	3%	9%

Q35. *Thinking about your membership of APNIC, please indicate how much you AGREE with the following:

APNIC is sufficiently open and transparent in its activities	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Strongly disagree	0%	0%	-	1%	0%	1%	0%	0%	1%	0%	0%
2	0%	0%	-	1%	0%	0%	0%	0%	0%	0%	1%
3	2%	2%	-	2%	4%	3%	1%	0%	1%	2%	5%
Neutral	10%	10%	-	14%	15%	9%	4%	22%	5%	8%	20%
5	11%	11%	-	14%	9%	10%	10%	13%	8%	12%	11%
6	53%	53%	-	50%	60%	53%	51%	52%	52%	54%	54%
Strongly agree	23%	23%	-	20%	12%	24%	33%	13%	34%	23%	9%
Top 3	87%	87%	-	83%	81%	87%	94%	78%	94%	89%	74%
Mean	5.82	5.82	-	5.69	5.60	5.83	6.09	5.57	6.09	5.86	5.40
Std. Dev.	1.03	1.03	-	1.08	1.03	1.08	0.90	0.99	0.94	1.00	1.10

APNIC is respected in the Internet community	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
Strongly disagree	0%	0%	-	1%	0%	0%	0%	0%	1%	0%	1%
2	0%	0%	-	0%	0%	0%	0%	4%	0%	0%	1%
3	0%	0%	-	1%	0%	0%	1%	0%	0%	0%	1%
Neutral	6%	6%	-	12%	6%	5%	2%	9%	3%	6%	10%
5	6%	6%	-	9%	6%	9%	2%	9%	3%	7%	9%
6	46%	46%	-	48%	54%	54%	35%	35%	37%	49%	53%
Strongly agree	41%	41%	-	30%	33%	32%	60%	43%	57%	38%	26%
Top 3	93%	93%	-	87%	93%	95%	97%	87%	96%	94%	88%
Mean	6.18	6.18	-	5.93	6.10	6.12	6.50	6.00	6.44	6.17	5.90
Std. Dev.	0.93	0.93	-	1.02	0.93	0.85	0.79	1.28	0.87	0.86	1.02

Q36. *The APNIC EC has set a target capital reserve for APNIC which is equal to 18 months of operating expenses to ensure stability and safeguard against unforeseen circumstances. In your opinion, how many months of operating expenses should APNIC hold in reserve?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	903	903	-	199	206	207	268	23	238	455	187
12 months	13%	13%	-	11%	8%	17%	16%	13%	18%	13%	6%
18 months	35%	35%	-	35%	43%	33%	29%	35%	31%	34%	41%
24 months	24%	24%	-	24%	21%	22%	29%	26%	28%	23%	23%
Other	0%	0%	-	1%	0%	1%	0%	0%	0%	0%	1%
Don't know	27%	27%	-	29%	29%	27%	26%	26%	22%	30%	29%

Q38. Which of these phrases best describes the way you speak about APNIC to others?

	Total	APNIC	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	38	294	672	237
I am critical of APNIC without being asked	3%	2%	5%	7%	0%	2%	2%	3%	2%	4%	0%
I tend to be critical of APNIC if I am asked	3%	3%	2%	2%	2%	4%	2%	3%	3%	3%	3%
I am neutral	39%	36%	47%	50%	32%	48%	26%	39%	27%	40%	49%
I speak well about APNIC if I am asked	44%	48%	32%	33%	49%	39%	53%	47%	51%	40%	43%
I speak highly of APNIC without being asked	12%	12%	14%	9%	16%	7%	17%	8%	18%	13%	5%
Top 3	95%	95%	93%	91%	97%	94%	96%	95%	96%	93%	97%
Mean	3.60	3.64	3.49	3.35	3.77	3.46	3.82	3.55	3.80	3.54	3.52
Std. Dev.	0.84	0.80	0.93	0.91	0.75	0.76	0.80	0.80	0.82	0.90	0.64

Q40. What is your role within the organisation?

	Total	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	Non APNIC Regions	LDEs	Developing	Developed
Sample Size	1,241	903	338	337	251	259	356	38	294	672	237
IT/ICT Manager or equivalent	33%	34%	30%	31%	32%	37%	32%	24%	35%	32%	34%
Technical operations	32%	33%	28%	35%	32%	33%	27%	34%	29%	33%	31%
Executive Director, Managing Director, CEO/CFO/CTO or equivalent	18%	19%	16%	10%	25%	15%	24%	21%	18%	17%	23%
Other	8%	6%	14%	9%	5%	7%	9%	11%	10%	7%	6%
Administration	4%	3%	5%	4%	1%	4%	4%	5%	3%	5%	0%
Software development	2%	1%	4%	3%	2%	1%	2%	3%	2%	2%	2%
Business development	2%	2%	2%	2%	2%	2%	1%	3%	2%	2%	1%
Commercial operations	2%	2%	2%	4%	0%	1%	1%	0%	1%	2%	2%



APNIC Survey 2018

Appendix C: Survey Instrument



Welcome to the **2018 APNIC Survey**.

This survey is run every two years to gather feedback from Members and stakeholders about APNIC services, the challenges facing the Internet community, and how APNIC can assist.

The survey helps the APNIC EC and Secretariat to understand the needs and wishes of the community and to guide decisions on future priorities and services. The APNIC EC places a high degree of importance on this survey as a source of guidance for strategy and planning.

The APNIC EC has commissioned Survey Matters to conduct this survey so you can be sure that your answers will remain confidential. Individual responses will not be identified and we encourage you to provide honest and objective feedback. Please note, however, that any free text comments you write will be provided to APNIC unedited (so if you identify yourself by name or otherwise in the free text comments these will be visible). You can view Survey Matters' [terms of use](#) at the bottom of each page of the survey.

To access the survey please click **"next"** below. You can check your progress from the "% Completed" listed at the top of each page. Depending on your responses, the survey should take around 15 minutes to complete for Members and Account Holders, and much less for other stakeholders in the APNIC community.

Completed responses will be eligible to enter a draw for a chance to win prizes including a Microsoft Surface Pro tablet (128GB / Intel Core m3 / 4GB RAM) and an Apple Watch Sport (42mm).

If you have any questions in relation to this survey, please contact Survey Matters at support@survey matters.com.au or on +61 3 9452 0101.

Thank you for your participation. Your views are important and APNIC values your feedback.



APNIC Account Holder and Member Questionnaire

About you

1. Where do you live?

<Economy list selection – all countries>

2. What type of organization do you work for?

	Academic/Educational/Research
	Banking/Financial
	Domain name registry/Registrar
	Enterprise/Manufacturing/Retail
	Government/Regulator/Municipality
	Hardware vendor
	Hosting/Data centre
	Industrial (construction, mining, oil)
	Infrastructure (transport/hospital)
	Internet exchange point (IXP)
	Internet service provider (ISP)
	Media/Entertainment
	NREN/Research network
	Non-profit/NGO/Internet community
	Software vendor
	Telecommunications/Mobile operator
	Other (please specify)

3. What is your organisation's relationship with APNIC?

	My organisation is an APNIC Member or Account Holder [Go to Member Survey]
	My organisation is a member of an NIR in the APNIC region [Go to Stakeholder Survey]
	Other stakeholder (Please specify) [Go to Stakeholder Survey]

4. How many times have you used an APNIC service, contacted or interacted with APNIC in the past two (2) years?

	None [Go to Q9]
	1-5 times
	More than 5 times
	Don't know/can't remember



Participation

5. Over the past two (2) years, have you:

(Not presented to participants who selected "None" at Q4) (Select all that apply) (Randomise)

<input type="checkbox"/>	Attended an APNIC training course or online training
<input type="checkbox"/>	Attended the APNIC Conference, APRICOT or another APNIC event
<input type="checkbox"/>	Read the APNIC blog
<input type="checkbox"/>	Applied for IP addresses and/or AS number resources from APNIC
<input type="checkbox"/>	Received IP addresses and/or AS number resources from APNIC
<input type="checkbox"/>	Visited the APNIC website
<input type="checkbox"/>	Contacted the APNIC helpdesk for support
<input type="checkbox"/>	Used the APNIC Whois database service
<input type="checkbox"/>	Used MyAPNIC
<input type="checkbox"/>	Transferred IPv4 addresses (as source or recipient)
<input type="checkbox"/>	Used APNIC reverse DNS services (as address holder)
<input type="checkbox"/>	Used APNIC resource certification (RPKI) services
<input type="checkbox"/>	Participated in Special Interest Groups (SIGs), face-to-face meetings or mailing list
<input type="checkbox"/>	Participated in APNIC's Policy Development Process for Internet Number Resource policies
<input type="checkbox"/>	Personally met with an APNIC representative
<input type="checkbox"/>	Attended a public presentation by an APNIC representative
<input type="checkbox"/>	Used the APNIC technical assistance service
<input type="checkbox"/>	Other (please specify)
<input type="checkbox"/>	None of these (exclusive) (Go to Q8)

6. Thinking about the APNIC services and activities you have used or undertaken, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	1 = Poor		4 = Neutral		7 = Excellent		
APNIC training courses and/or online training	1	2	3	4	5	6	7
APNIC Conference, APRICOT or other APNIC events	1	2	3	4	5	6	7
APNIC blog	1	2	3	4	5	6	7
APNIC IP address and AS number resource applications	1	2	3	4	5	6	7
APNIC IP address and AS number resource allocations	1	2	3	4	5	6	7
APNIC website	1	2	3	4	5	6	7
APNIC helpdesk	1	2	3	4	5	6	7
The APNIC Whois database service	1	2	3	4	5	6	7
MyAPNIC	1	2	3	4	5	6	7
IPv4 address transfers	1	2	3	4	5	6	7
APNIC reverse DNS services	1	2	3	4	5	6	7
APNIC resource certification (RPKI) services	1	2	3	4	5	6	7
APNIC Special Interest Group (SIG), face-to-face meeting or mailing list	1	2	3	4	5	6	7
The APNIC Policy Development Process	1	2	3	4	5	6	7
Meeting with an APNIC representative	1	2	3	4	5	6	7
APNIC public presentation	1	2	3	4	5	6	7
APNIC technical assistance service	1	2	3	4	5	6	7
Other interactions with APNIC (presented if selected "Other" above)	1	2	3	4	5	6	7



7. Please tell us why some of your experiences were not as good as you expected?

(Only asked if selected 1, 2 or 3 in Q6)

8. *Thinking about APNIC overall, how would you rate:

(Not asked if selected None at Q 4)

	1 = Poor		4 = Neutral		7 =Excellent		
The quality of APNIC service delivery	1	2	3	4	5	6	7
The value of APNIC services	1	2	3	4	5	6	7
The value of APNIC membership	1	2	3	4	5	6	7

Network Operations

9. Thinking about your Internet-related services, products or activities, what are the MAIN operational challenges facing your organisation?

Please rank these in order of priority, where 1 is the greatest challenge.

(Please rank at least three (3) challenges in order of their priority to your organisation) (Randomise)

	Network security
	Scarcity of IPv4 addresses
	Deployment of IPv6
	Hiring and / or keeping skilled employees
	Management of bandwidth and network capacity
	Keeping up with the pace of technology changes (e.g. SDN, NFV, blockchain)
	Regulatory requirements involving the Internet
	Cost of network operations
	Benchmarking and understanding best practices in network operations
	Access to reliable and credible Internet Industry data
	Other



Network Security

10. Thinking about network security, what are the MAIN challenges facing your organisation?

(Select up to three (3) responses only) (Randomise)

	DDoS attacks
	Routing security
	Intrusion and other breaches
	Phishing, spam, malware, ransomware
	Blacklisting of our IP addresses
	Lack of application security
	Lack of security for IoT applications
	Staff lack awareness of security issues
	No cyber security focus from government(s)
	Inadequate security policies
	Other (Please specify)

11. How might APNIC best assist you or others with network security challenges?

(Select up to two (2) of the most important) (Randomise)

	Collaborate with other technical security organisations to share information and best practice
	Engagement with Governments in the region about the issues of cyber security
	Sharing of security insights with the community on the APNIC Blog and website
	Specific-security Training courses (DDoS prevention, Security policy development etc.)
	Integrate more security content in APNIC conferences
	Encourage CERT development and information sharing between CERTs and the APNIC community
	Establish an APNIC-CERT for information sharing among the community
	None of these (Exclusive)

12. Do you have any other ideas about how APNIC can help the region deal with network security challenges?

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IPv4 Scarcity

13. Thinking about the scarcity of IPv4 addresses, what are the MAIN challenges facing your organisation?

(Select up to two (2) responses only) (Randomise)

	Working with brokers selling / leasing IPv4 addresses
	The cost of buying IPv4 addresses
	IPv4 address transfer policies
	“Health” of IPv4 addresses being transferred
	Cost and complexity of NATs
	Deploying IPv6
	Other (Please specify)
	Don’t know
	It is not an issue for my organization (Skip to 15) (Exclusive)

14. Thinking about the scarcity of IPv4 addresses, which, if any, of the following IPv4 activities do you think APNIC should undertake?

(Select up to two (2) of the most important)

	Monitoring and reporting usage of IPv4 addresses
	Reclaiming/recovering unused address space
	Providing incentives to network operators for the return of IPv4 address space
	Purchasing IPv4 addresses for distribution to Members
	Sharing more information and best practice on resource transfers
	Other (Please provide suggestions)
	APNIC should take no action to address the IPv4 shortage (Exclusive)



IPv6 Deployment

15. Has your organisation already deployed or are you ready for deployment of IPv6?

	Yes, IPv6 is fully deployed in our networks and customer services (Skip to Q17)
	Yes, IPv6 is deployed in our core network(s) but not in access or other networks
	We have an IPv6 deployment plan
	We do not have any IPv6 deployment plans (Skip to Q17)

16. When do you expect the deployment to be completed?

	This year
	In 2019
	In 2020
	Sometime after 2020
	Don't know

17. What are or were the MAIN challenges affecting your organisation's deployment of IPv6?

(Select up to three (3) responses only) (Randomise)

	Lack of skills and expertise within our organisation
	Lack of available training
	Our customers are not ready for IPv6
	Lack of applications that can run on IPv6
	There is no demand for IPv6 from customers
	My organisation's legacy systems do not support IPv6
	Our upstream providers do not support IPv6
	There are no clear business/technical advantages or reasons to adopt IPv6
	The risks of deploying IPv6 are too high
	Cost of IPv6 deployment is too high
	Other (Please specify)
	None of the above (Exclusive)

18. Which of the following APNIC activities do you believe are the most important to encouraging IPv6 adoption in the APNIC region?

(Select up to two (2) of the most important) (Randomise)

	Promoting IPv6 to management and/or decision makers
	Promoting IPv6 to government and related organisations
	Promoting IPv6 to hardware, software and/or content providers
	Sharing deployment case studies and best current practices about IPv6
	Providing basic and advanced training in IPv6
	Facilitating knowledge sharing between member organisations on IPv6 deployment experiences
	Other (Please provide suggestions)
	APNIC should take no action to promote or assist with the deployment of IPv6 (Exclusive)



Training

19. Are you aware that APNIC provides Technical Training Services?

	Yes
	No

20. Which of the following training activities would be of MOST value to your organisation?

(Select up to three (3) responses only) (Randomise)

	More local language training
	Train the trainer programs
	Live e-learning sessions scheduled for local time zones
	On demand online e-learning sessions
	Weekend / after-hours training sessions
	Published training materials, translated into multiple languages
	Greater promotion of up-coming / scheduled training sessions
	Collaboration with local universities to train the next generation of engineers
	Subsidised training for under-served regions
	A published calendar of all training events in the region
	Other (Please specify)
	None of the above (Exclusive)

21. What training topics you would like APNIC to make available?

--

22. APNIC has established the APNIC Academy, an online learning portal for the community. Have you heard of the APNIC Academy?

	Yes, I've heard of it but haven't used it
	Yes, I've heard of it and have used it for training
	No, I wasn't aware of the APNIC Academy until now.

23. Do you have any other comments or suggestions about how APNIC training could be improved?

--



Whois database

24. How often do you use the APNIC Whois database?

	Daily
	At least once a week
	At least once a month
	Less than once a month
	I don't use the Whois database (Skip to 26)

25. What do you use the APNIC Whois database for?

(Select up to two (2) responses only) Randomise)

	Network troubleshooting
	Locating abuse contacts
	Geolocation
	Research purposes
	Other (please specify)

26. Thinking about how APNIC could help Members keep Whois information accurate and up-to-date, which of the following do you think would be the MOST effective?

(Select up to two (2) responses only) (Randomise)

	Prominent reminders in MyAPNIC to check Whois data for accuracy
	Regular email reminders to Members to verify their Whois data
	Assisted registry checks where APNIC staff contact Members to verify Whois data
	Provision of APIs for automatic integration with Member admin systems
	Enforced confirmation of Whois data accuracy at time of Membership renewal
	Other (please provide suggestions)

Information Services

27. The APNIC community is discussing the development of Internet trend and benchmarking data services. What information would be of MOST USE to your organization?

(Select up to three (3) responses only) (Randomise)

	ASN/IPv4/IPv6 distribution and usage
	Network infrastructure, topology, usage
	Network threats and security (eg. Routing anomalies, intrusion detection, security alerts)
	Use of specific technologies (eg. IPv6, DNSSEC, RPKI)



	Use of new technologies (eg. SDN, NFV)
	Use of specific vendors for various products
	Pricing or charging information (for customer and/or infrastructure services)
	Industry and market trends and information
	Internet business and operational benchmarks
	Other (Please specify)
	None of the above (Exclusive)

28. Is there any other Internet trend and benchmark information that would be of value to your organisation?

--



Participation

29. Currently, the duration of APNIC's February conference (held with APRICOT) is four days and the duration of APNIC's September conference is three days. What do you believe is the best length of time for APNIC conferences?

	Three days
	Four days
	Five days
	Don't know
	I do not attend APNIC conferences

30. This APNIC Survey is an important and regular part of the APNIC strategic planning process, conducted every two (2) years. Do you think the frequency of the APNIC survey is:

	Too often
	About right
	Not often enough
	Don't know

31. Have you participated in APNIC's Internet number resource Policy Development Process for Internet Number Resource policies in the last two (2) years?

	Yes (Skip to Q33)
	No
	Not sure (Skip to Q34)

32. Can you tell us the MAIN reasons why you have not participated in APNIC's Policy Development Process for Internet Number Resource policies?

(Asked if selected No at Q31) (Select up to two (2) reasons only)

	I trust the community to develop the right policies
	I wasn't aware I could participate
	I don't know enough about the process
	It's too difficult to participate in the process
	No-one has asked me to participate
	I don't have time to participate
	Other (Please specify)
	I'm not interested in participating (Exclusive) (Go to Q34)

33. What could APNIC do to encourage you to participate (or to participate more) in the Policy Development Process for Internet Number Resource policies?

--



Governance

34. Thinking about your membership of APNIC, please indicate how much you AGREE with the following:

1 = Strongly disagree 4 = Neutral 7 = Strongly agree

APNIC is sufficiently open and transparent in its activities	1	2	3	4	5	6	7
APNIC is respected in the Internet community	1	2	3	4	5	6	7

35. The APNIC EC has set a target capital reserve for APNIC which is equal to 18 months of operating expenses to ensure stability and safeguard against unforeseen circumstances. In your opinion, how many months of operating expenses should APNIC hold in reserve?

	12 months
	18 months
	24 months
	Other (please specify)
	Don't know

36. Do you have any suggestions or ideas about APNIC governance?

--

Endorsement

37. Which of these phrases best describes the way you speak about APNIC to others?

	I am critical of APNIC without being asked
	I tend to be critical of APNIC if I am asked
	I am neutral
	I speak well about APNIC if I am asked
	I speak highly of APNIC without being asked

Other comments

38. If you have any other comments on APNIC's services and activities, or any suggestions or ideas for the APNIC EC to consider, please provide them here:

--



About Your Organisation

39. What is your role within the organisation?

	Executive Director, Managing Director, CEO/CFO/CTO or equivalent
	IT/ICT Manager or equivalent
	Software development
	Technical operations
	Administration
	Commercial operations
	Business development
	Other (please specify)



Prize Draw

Thank you for providing your feedback and participating in the **APNIC 2018 Survey**. There will be three prize draws during the survey, and prizes include a Microsoft Surface Pro tablet (128GB / Intel Core m3 / 4GB RAM) and one of two Apple Watches (Sport Series 3, 42mm).

Prize winners will be drawn at random by Survey Matters, using contact information provided here. Please note that your responses to all of the other questions in the survey will remain anonymous.

40. Would you like to go into the prize draw?

	Yes
	No (Go to second chance to win!)

41. Please enter your details below so we can contact you should you win (Note: your survey responses will remain anonymous and will not be linked to the prize draw):

(Presented if Yes selected at Q40)

Name	
Email Address	
Telephone Number	

Second chance to win!

Encourage others to take the APNIC Survey using Twitter or Facebook. Simply tweet or post the message below on Twitter or Facebook, and you will automatically be entered in a social media competition to win one of two Visa virtual gift cards valued at AUD \$200 each.

Twitter or Facebook message:

I've just completed the 2018 #apnicsurvey – visit survey.apnic.net to provide your thoughts.
You could win a prize!

Thank you for taking part. We appreciate your participation and value your feedback.



Stakeholder Questionnaire

1. How many times have you contacted or interacted with APNIC in the past two (2) years?

	None (Go to Q6)
	1-5 times
	More than 5 times
	Don't know/can't remember

Participation

2. Over the last 2 years, have you:

(Not presented to participants who selected "None" at Q1) (Select all that apply) (Randomise)

	Attended an APNIC training course or online training
	Attended the APNIC Conference, APRICOT or another APNIC event
	Read the APNIC blog
	Visited the APNIC website
	Used the Whois database service
	Participated in Special Interest Groups (SIGs), face-to-face meetings or mailing list
	Participated in APNIC's Policy Development Process for Internet Number Resource policies
	Contacted APNIC with a query
	Personally met with an APNIC representative
	Attended a public presentation by an APNIC representative
	Other (please specify)
	None of these (exclusive) (Go to Q5)

3. Thinking about these services and activities, how would you rate your experience?

(Only the specific services selected above will be presented for each respondent)

	1 = Poor			4 = Neutral			7 = Excellent		
APNIC training courses and/or online training	1	2	3	4	5	6	7		
APNIC Conference, APRICOT or other APNIC events	1	2	3	4	5	6	7		
APNIC blog	1	2	3	4	5	6	7		
APNIC website	1	2	3	4	5	6	7		
The Whois database service	1	2	3	4	5	6	7		
Special Interest Groups (SIGs), face-to-face meetings or mailing list	1	2	3	4	5	6	7		
The APNIC Policy Development Process	1	2	3	4	5	6	7		
APNIC's handling of your query	1	2	3	4	5	6	7		
Meeting with an APNIC representative	1	2	3	4	5	6	7		
APNIC public presentation	1	2	3	4	5	6	7		
The other interactions (presented if selected "Other" above)	1	2	3	4	5	6	7		



4. Please tell us why some experiences were not as good as you expected?

(Only asked if selected 1, 2 or 3 in Q3)

--

5. Overall, how would you rate your experience dealing with APNIC?

(Not asked if selected None at Q1)

1=Poor

4=Neutral

7=Excellent

1	2	3	4	5	6	7
---	---	---	---	---	---	---

6. Can you tell us the MAIN reasons why you have not participated in APNIC's Policy Development Process for Internet Number Resource policies?

(Asked of those who **did not** select this in Q2) (Select up to two (2) reasons)

	I trust the community to develop the right policies
	I wasn't aware I could participate
	I don't know enough about the process
	It's too difficult to participate in the process
	No-one has asked me to participate
	I don't have time to participate
	Other (please specify)
	I'm not interested in participating (Exclusive) (Go to Q8)

7. What could APNIC do to encourage you to participate in the Policy Development Process for Internet Number resource policies?

(Asked of those who **did not** select this in Q2)

--

Network Operation Challenges

8. Thinking about your Internet-related services, products or activities what are the MAIN challenges facing your organisation?

Please rank these in order of their priority, where 1 is the greatest challenge.

(Please rank at least three (3) challenges in order of their priority to your organisation) (Randomise)

	Network security
	Scarcity of IPv4 addresses
	Deployment of IPv6
	Hiring and / or keeping skilled employees
	Management of bandwidth and network capacity
	Keeping up with the pace of technology changes (e.g. SDN, NFV, blockchain)
	Regulatory requirements involving the Internet
	Cost of network operations
	Benchmarking and understanding best practices in network operations
	Access to reliable and credible Internet Industry data
	Other (Please specify)



Network Security

9. What are the MAIN network security challenges that are affecting your organisation?

(Select up to three (3) responses only) (Randomise)

<input type="checkbox"/>	DDoS attacks
<input type="checkbox"/>	Routing security
<input type="checkbox"/>	Intrusion and other breaches
<input type="checkbox"/>	Phishing, spam, malware, ransomware
<input type="checkbox"/>	Blacklisting of our IP addresses
<input type="checkbox"/>	Lack of application security
<input type="checkbox"/>	Lack of security for IoT applications
<input type="checkbox"/>	Staff lack awareness of security issues
<input type="checkbox"/>	No cyber security focus from government(s)
<input type="checkbox"/>	Inadequate security policies
<input type="checkbox"/>	Other (Please specify)

10. How might APNIC best assist you or others with network security challenges?

(Select up to two (2) of the most important) (Randomise)

<input type="checkbox"/>	Collaborate with other technical and security organisations to share information and best practice
<input type="checkbox"/>	Engagement with Governments in the region about the issues of cyber security
<input type="checkbox"/>	Sharing of security insights with the community on the APNIC Blog and website
<input type="checkbox"/>	Specific-security Training courses (DDoS prevention, Security policy development etc)
<input type="checkbox"/>	Integrate more security content in APNIC conferences
<input type="checkbox"/>	Encourage CERT development and information sharing between CERTs and the APNIC community
<input type="checkbox"/>	Establish an APNIC-CERT for information sharing among the community
<input type="checkbox"/>	None of the above (Exclusive)

11. Do you have any other ideas about how APNIC can help the region deal with the increasing challenge of network security?

--



12. Which of the following training activities would be of MOST value to your organisation?

(Select up to three (3) responses only) (Randomise)

	More local language training
	Train the trainer programs
	Live e-learning sessions scheduled for local time zones
	On demand online e-learning sessions
	Weekend / after-hours training sessions
	Published training materials, translated into multiple languages
	Greater promotion of up-coming / scheduled training sessions
	Collaboration with local universities to train the next generation of engineers
	Subsidised training for under-served regions
	A published calendar of all training events in the region
	Other (Please specify)
	None of the above (Exclusive)

13. What training topics you would like APNIC to make available?

14. APNIC has established the APNIC Academy, an online learning portal for the community. Have you heard of the APNIC Academy?

	Yes, I've heard of it but haven't used it
	Yes, I've heard of it and have used it for training
	No, I wasn't aware of the APNIC Academy until now.

15. Do you have any other comments or suggestions about how APNIC training could be improved?



Whois database

16. How often do you use the APNIC Whois database?

	Daily
	At least once a week
	At least once a month
	Less than once a month
	I don't use the Whois database (Skip to Q14)

17. What do you use the APNIC Whois database for?

(Select up to two (2) responses only) Randomise)

	Network troubleshooting
	Locating abuse contacts
	Geolocation
	Research purposes
	Other (Please specify)

Information Services

18. The APNIC community is discussing the development of Internet trend and benchmarking data services. What information would be of MOST USE to your organization?

(Select up to three (3) responses only) (Randomise)

	ASN/IPv4/IPv6 distribution and usage
	Network infrastructure, topology, usage
	Network threats and security (eg. Routing anomalies, intrusion detection, security alerts)
	Use of specific technologies (eg. IPv6, DNSSEC, RPKI)
	Use of new technologies (eg. SDN, NFV)
	Use of specific vendors for various products
	Pricing or charging information (for customer and/or infrastructure services)
	Industry and market trends and information
	Internet business and operational benchmarks
	Other (Please specify)
	None of the above (Exclusive)

19. Is there any other internet trend and benchmark data that would be of value to your organisation?

--



20. Currently, the duration of APNIC's February conference (held with APRICOT) is four days and the duration of APNIC's September conference is three days. What do you believe is the best length of time for APNIC conferences?
(Asked if selected "APNIC Conference, APRICOT or other APNIC events" at Q2)

	Three days
	Four days
	Five days
	Don't know
	I do not attend APNIC conferences

Endorsement

21. Which of these phrases best describe the way you speak about APNIC to others?

	I am critical of APNIC without being asked
	I tend to be critical of APNIC if I am asked
	I am neutral
	I speak well about APNIC if I am asked
	I speak highly of APNIC without being asked

Other comments

22. If you have any other comments on APNIC's services and activities, or any suggestions or ideas for the APNIC EC to consider, please provide them here:

--

About Your Organisation

23. What is your role within the organisation?

	Executive Director/ Managing Director/ CEO/CFO/CTO or equivalent
	I.T/ICT Manager or equivalent
	Software development
	Technical operations
	Administration
	Commercial operations
	Business development
	Other (please specify)



Prize Draw

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The winners will be drawn at random by Survey Matters, and your responses to all of the other questions in the survey will remain anonymous.

24. Would you like to go into the prize draw?

	Yes
	No (Go to Second chance to win)

25. Please enter your details below so we can contact you should you win (Note: your survey responses will remain anonymous and will not be linked to the prize draw):

(Presented if Yes selected at Q13)

Name	
Email Address	
Telephone Number	

Second chance to win!

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Twitter or Facebook message: I've just completed the 2018 #apnicsurvey – visit survey.apnic.net to provide your thoughts. You could win a prize!

Thank you for taking part. We appreciate your participation and value your feedback.

Agenda Item 10

Secretariat report

Policy proposals

For discussion at APNIC 46 Policy SIG



Overview

- Withdrawn proposals
- Revised proposal
- New proposals

Withdrawn proposals

- prop-119: Temporary transfers
 - Original author (David Hilario) uncontactable, and chairs have agreed for a new author (Lu Heng) to take it on
 - Withdrawn by Lu Heng due to lack of need for such a proposal anymore
- prop-120: Final /8 pool exhaustion plan
 - Withdrawn by the author (Tomohiro Fujisaki) who couldn't attend APNIC 46, and after consultation with the chairs
- prop-123: Modify 103/8 IPv4 transfer policy
 - Withdrawn by the author (Alex Yang) due to lack of support and contribution from the community

Revised proposal

- prop-118: No need policy in APNIC region
 - Originally authored by David Hilario who became non-contactable, and the chairs have agreed for Lu Heng to take over
 - Proposed change:
 - Simply copy the RIPE policy to solve the ARIN transfer incompatibility:
 - APNIC shall accept all transfers of Internet number resources to its service region, provided that they comply with the policies relating to transfers within its service region.
 - For transfers from RIR regions that require the receiving region to have needs-based policies, recipients must provide a plan to the APNIC for the use of at least 50% of the transferred resources within 5 years.
 - When transferring Internet number resources to another RIR, the APNIC will follow the transfer policies that apply within its own service region. The APNIC will also comply with the commitments imposed by the receiving RIR in order to facilitate the transfer.

New proposal

- prop-124: Clarification on IPv6 Sub-Assignments
- Proposed change:
 - 2.2.3. Assigned address space

Assigned address space is address space that is delegated to an LIR, or end-user, for specific use within the Internet infrastructure they operate. Assignments must only be made for specific, documented purposes and may not be sub-assigned.

< new text> The fact that a unique address or even a unique /64 prefix is non-permanently provided to third parties, on a link operated by the original receiver of the assignment, shall not be considered a sub-assignment. This includes, for example, guests or employees (devices or servers), hotspots, and point-to-point links or VPNs.

<new text> The provision of addressing for permanent connectivity or broadband services is still considered a sub-assignment. Only the addressing of the point-to-point link itself can be permanent and that addressing can't be used (neither directly or indirectly) for the actual communication.

New proposal

- prop-125: Validation of "abuse-mailbox" and other IRT emails
- Proposal:
 - abuse-mailbox, email, admin-c and tech-c must be validated by APNIC secretariat every 6 month
 - The email validation must be responded 'manually' (e.g. by entering a given value to a webpage with captcha) within 15 day
 - Failure to respond to validation will result in blocked access to MyAPNIC and more exhaustive follow-up
 - Publish IRT as abuse-c as well (to match other RIRs)
 - Recommend NIRs to do similar validation process

New proposal

- prop-126: PDP Update
- Proposal:
 - Shorten the proposal submission deadline from 4 week to 1 week before the OPM start
 - Remove the need to run consensus call at the APNIC AMM/AGM
 - Addition of an appeal process:
 - First level: Policy SIG chairs
 - Second level: APNIC EC (with 4 week decision deadline)

4 September 2018

APNIC Secretariat Report

to 31 July 2018

DRAFT 1.0
CONFIDENTIAL

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Introduction

This report is provided to the APNIC Executive Council (EC) for the quarterly face-to-face meeting in Nouméa, New Caledonia, on 10 September 2018. **It provides a summary of activities in Q1 and Q2 2018, and ‘to date’ in Q3, up to 31 July 2018.**

0.1 Executive Summary

This summary provides a list of all significant highlights since the closing date of the previous report, 6 May 2018.

Highlights:

- APNIC Service metrics continue to show high satisfaction and SLA results (2.1).
- The APNIC Blog reached a milestone in July 2018 by passing 1 million views since its creation in August 2014. Average monthly views in 2018 to date are 40,052 (2.3).
- [Confidential material redacted]
- Three new policy proposals were submitted to the Policy SIG and three previously discussed policy proposals were withdrawn by their authors, leaving four for discussion at APNIC 46 (6.1).
- The F-root was set up in Papua New Guinea in July (6.2).
- APNIC provided support and training for the establishment of PNG-IX and Fiji-IX; IXP workshops in Vanuatu and at Myanmar-IX; and ongoing technical support to MISPA IX, Kolkata IX, AMR-IX, TLIXP, and Bhutan IX (6.3).
- In May, APNIC conducted a workshop in Tonga to support CERT development in the Pacific, with attendance from seven Pacific economies. A second CERT event will be held in APNIC 46, with 13 sponsored participants joining the Network Security workshop and TIRST TC (6.6).
- A total of 68 fellows from 17 economies were selected for APNIC 46, from 442 applicants. Fifty-five of the fellows are from Pacific Island economies and 25 are female (7.2).
- The APNIC Foundation has appointed two new Board Members invited by the APNIC EC, bringing the total number of Board Members to five (8.2).
- APNIC serves as Chair of the NRO EC in 2018, and of Coordination Groups ECG, RSCG, and CCG. (9.1)
- APNIC and other RIRs completed community consultations during the first half of 2018, regarding the ASO Review. (9.1)
- From 1 January to 31 July, APNIC had 121 engagements. These included face-to-face trainings at 28% (34 so far), followed by security related engagements at 13% (16 so far) of which half were dedicated to the development of CERTs in the Pacific (9.3).

Notable project activities and developments:

- Automation of the IPv4 transfer listing and pre-approval renewal processes is underway and will enter testing in September (1.5).
- APNIC's quality management system underwent a successful surveillance audit at the end of July, which found that it complied with the AS ISO9001:2016 requirements (2.5).
- Single Sign-On (SSO) allows one "APNIC Login" credential for use with APNIC Academy and Internet Directory, with MyAPNIC deployment in testing. (2.6)

- After active communication and distribution, the APNIC Survey 2018 received 1,241 valid responses, the largest of any survey so far (2.8).
- All events and liaison activities are now managed on the CRM platform (SalesForce), with integration of membership, events and other systems currently underway (2.9).
- Work completed on reimplementation of the [Internet Directory](#), to be launched in September (6.2).
- The APNIC Academy has undergone a major upgrade and now includes many new features including new courses, virtual labs and third-party resources, launched in August (4.1)
- APNIC Training is continuing outreach to the Research & Education community through training and support at events in the region (7.6).
- APNIC Foundation received funding of AUD 750,000 for a project 'Enhancing National Cybersecurity and Network Quality of Service in Advance of Papua New Guinea's Hosting of APEC' (8.3).
- PNG project started with a detailed needs analysis involving 15 APNIC Member organisations (8.3).
- APNIC has coordinated/led NRO coordination group projects including ITHI, Whois accuracy, Resource transfer improvements, website and presentation redesign, RDAP review, RPKI standardisation, and statistical report developments (9.6).
- During 2018, APNIC Secretariat adopted a "Product Management" approach to development of systems and services (12.4).

Serving Members

1 Registration Services

1.1 IPv4, IPv6 and ASN delegation and registration services

Resources pool summary

The following table shows the status of all APNIC Internet number resource pools in the current reporting period.

	Total held (start)	From IANA	Transfers in	Transfers out	Total held (end)	Total allocated	Total free
IPv4 (/24s)	3,471,583	0	2,520	564	3,473,539	3,438,557 (98.99%)	34,982 (1.01%)
IPv6 (/48s millions)	69,926	0	n/a	n/a	69,926	3,546 (5.07%)	66,380 (94.93%)
ASNs	17,011	0	0	0	17,011	14,832 (87.19%)	2,179 (12.81%)

Table 1: Internet number resource summary

IPv4, IPv6 and ASN delegations

The following table shows the number of delegations for each resource type and the graphs below the table show the distribution of delegations by sub region.

Resources	Q1 2018	Q2 2018	Q3 2018
IPv4 (103 /8)	497	473	204
IPv4 (recycled space)	10	10	4
IPv6	324	337	146
ASNs	296	437	97

Table 2: Internet number resource delegations

IPv4 delegations

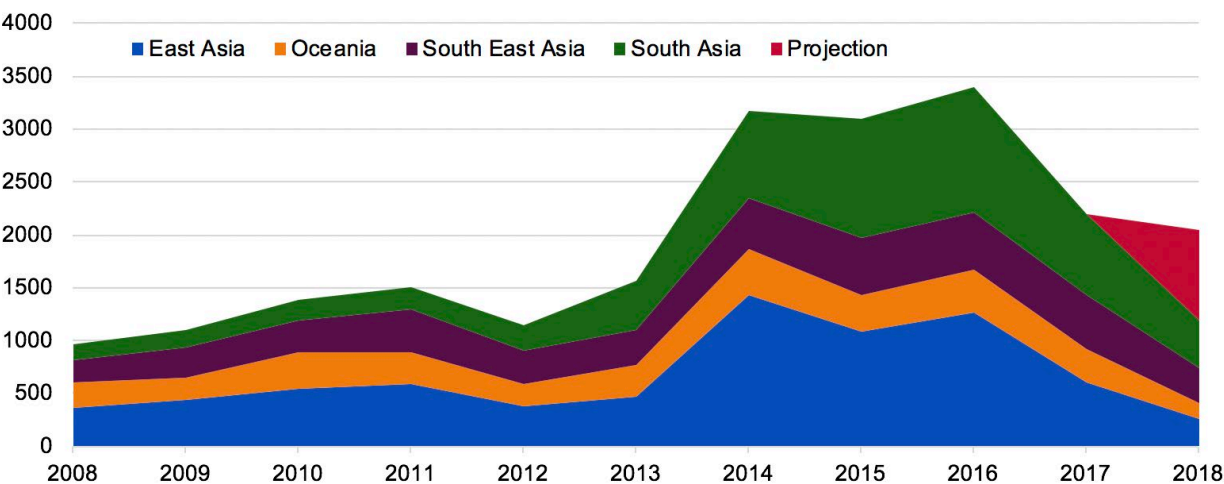


Figure 1: IPv4 delegations

IPv6 delegations

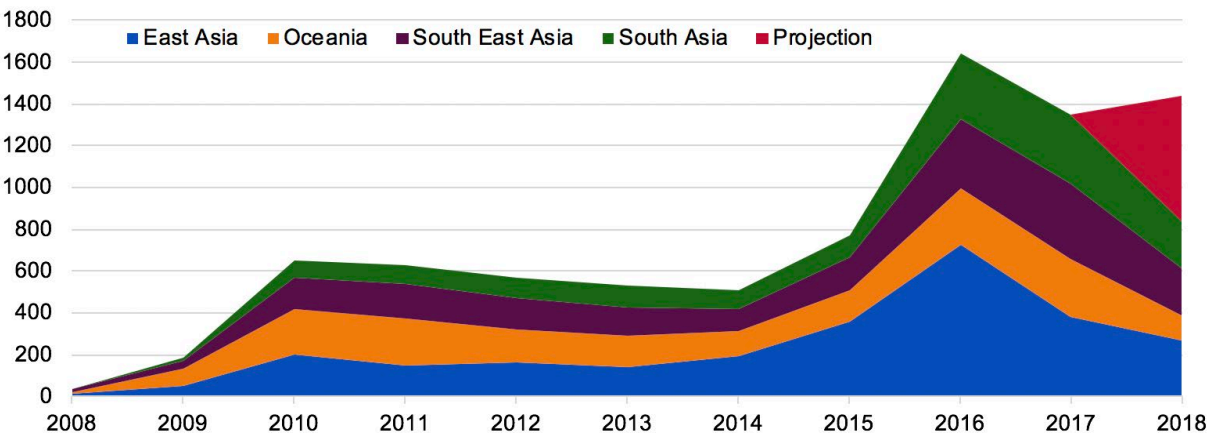


Figure 2: IPv6 delegations

ASN delegations

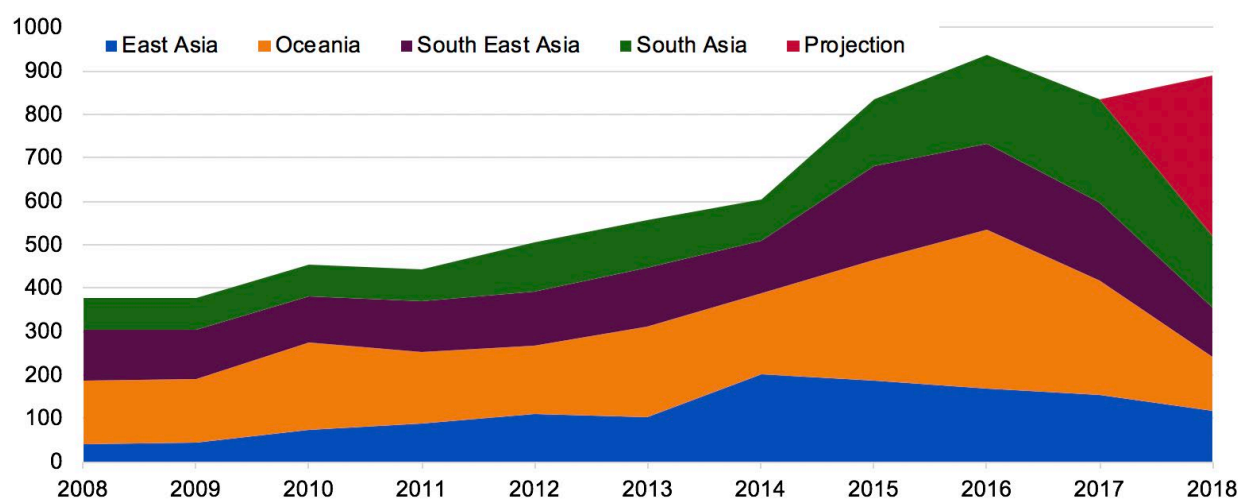


Figure 3: ASN delegations

Member resource type holdings

The proportion of Members holding specific resource types is as follows.

Resource type	Q1 2018	Q2 2018	Q3 2018
IPv4 (103/8)	72.04%	73.20%	73.43%
IPv4 (recycled space)	24.17%	23.40%	23.14%
IPv6	57.81%	59.34%	59.77%
ASNs	74.94%	75.37%	75.65%

Table 3: Member resource type holdings

Status of last /8 (103/8)

The following table shows the number of delegations and the usage of the last /8 (103/8).

Resources	Q1 2018	Q2 2018	Q3 2018
Delegations from 103/8 (/24s)	1,475	1,356	619
Remaining 103/8	31.05%	28.96%	28.02%

Table 4: Status of the last /8

Status of IPv4 recycled pool

Resources	Q1 2018	Q2 2018	Q3 2018
Delegations from recycled space (/24s)	45	60	28
Remaining recycled pool (/24s)	12	48	48

Table 5: Status of IPv4 recycled pool

Waiting list for IPv4 recycled space

Unmet requests for recycled IPv4 addresses are currently kept on a 'waiting list'. Each week, terminated address space is returned to the recycled pool (after 1 year in quarantine) and requests on the waiting list are fulfilled in order.

To date, there are 572 entries on the waiting list, for a total of 2,133 x /24 IPv4 blocks (approx /13 in total).

IPv4 transfers and returns

APNIC resource transfers result from mergers/acquisitions or market transactions. Market transfers may happen within the APNIC region, or to and from other RIRs (ARIN or RIPE NCC only).

Transfer type	Q1 2018		Q2 2018		Q3 2018	
	#	/24	#	/24	#	/24
Mergers/acquisition	19	1,711	50	1,098	34	760
Market transfers						
• Intra-RIR	54	1,774	54	2,516	23	1,740
• Inter-RIR	24	2,471	28	25,077	11	363
Total	78	4,245	82	27,593	34	2,103

Table 6: IPv4 transfers

RPKI

Usage of RPKI services has increased during this reporting period, as follows:

RPKI usage	Start of period	End of period
Members with RPKI certificates	13.3%	13.9%
Members with ROAs	7.7%	8.3%
IPv4 under ROAs	4.8%	5.0%
IPv6 under ROAs	1.2%	1.3%

Table 7: RPKI service usage

1.2 Registry operation and maintenance

- Switched to a cheaper GeoDNS provider for whois.apnic.net, which also supports more features and performs well globally.
- Encryption was strengthened with the addition of bcrypt to the whois server as a more up-to-date password hash algorithm. The deployment does not deprecate support for CRYPT-PW or MD5-PW at this time.
- Changes to the RDAP history server were made to allow that system to deliver current-state queries, significantly increasing the current-state query performance.
- Reengineering of the registry to a pool service with event sourcing is an ongoing project. This project is nearing completion ahead of final testing and deployment into the production environment.
- Performed DNSSEC signer software upgrade for the two servers and prepared for RDNS KSK rollover for 2018.
- Deployed an additional five DNS anycast nodes for ns2.apnic.net for a total of 10 nodes. This is to prepare decommissioning of the unicast DNS servers for the APNIC Reverse DNS zones.

Projects

1.3 Whois accuracy support

This project will help Members maintain accurate contacts with new contact update tools in MyAPNIC, and annual reminders for contact reviews in MyAPNIC.

Status:

- The project specification is completed and this project is currently in development.
- Internal testing will start in September, with user testing and demonstrations at APNIC 46.
- Deployment for this service is planned in Q4, subject to testing and acceptance.

1.4 RPKI 'anysign' service

This service will use RPKI certificates to generate signed statements about resources, for cryptographic verification by other parties. Potential applications include authorization of IRR transactions, automated provision requests to ISPs, or signing transfer documents.

Status:

- APNIC will submit a request for an IETF Object Identifier during IETF 103 in Bangkok.
- Proof of concept code will be developed in Q4.

1.5 Resource transfer process automation

This project removes manual steps from the resource transfer process, to improve efficiency and user experience. Specifically the project will automate the IPv4 transfer listing and pre-approval service, outgoing inter-RIR transfer fee invoicing, and whois updates for resources transferred.

Status:

- Automation of the IPv4 transfer listing and pre-approval renewal processes are currently in development. This project should enter testing late September.
- Closer analysis of the tasks required to automate the whois updates for transferred resources has shown this is a larger project than expected. Development is expected to proceed in Q4.
- The work priority to automate outgoing inter-RIR transfer fee invoicing is being reviewed.

2 Customer Service

2.1 Member Services/Helpdesk/Billing

SLA for service requests

The APNIC Services Area aims for a maximum two-working day turnaround to respond to external requests such as new Member applications, Member resource requests, IPv4 transfers, membership, and helpdesk support. The following chart shows the percentage of compliance with this SLA in 2018.

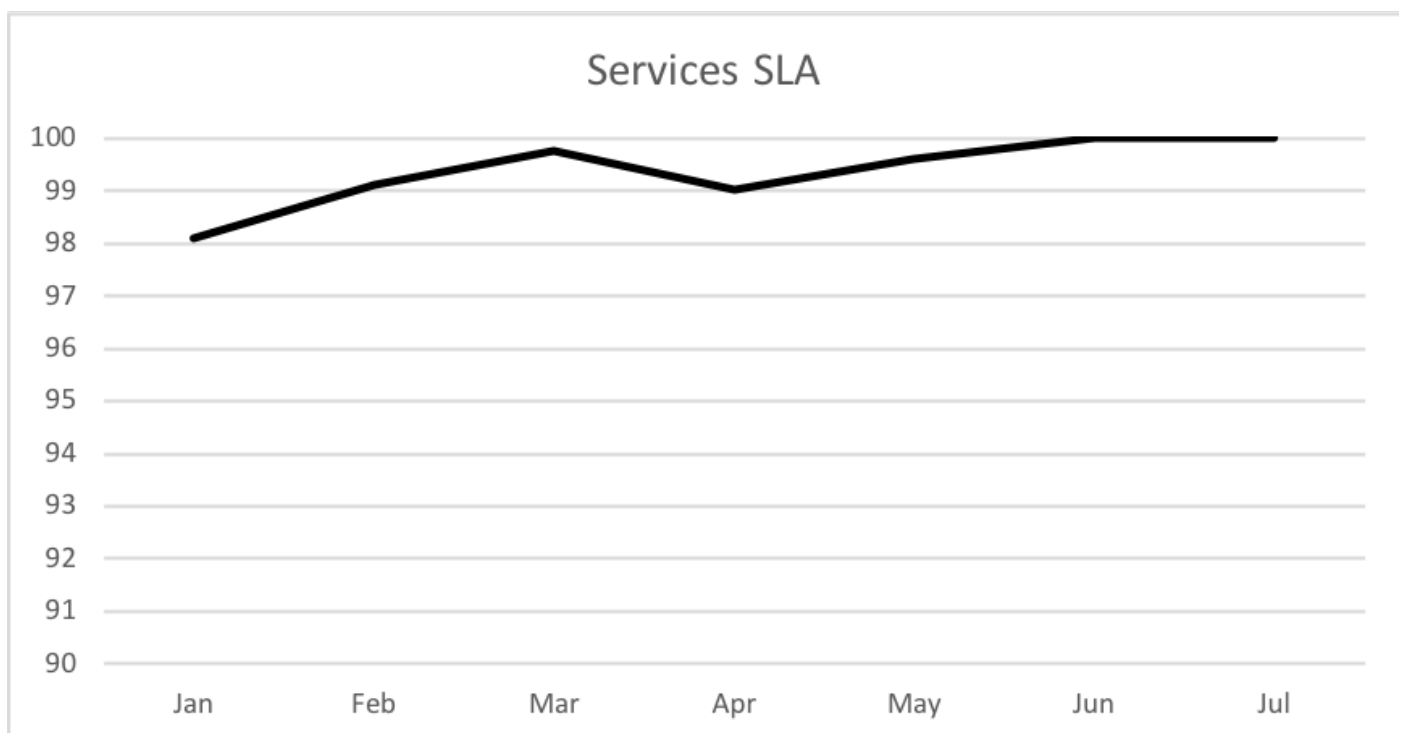


Figure 4: SLA compliance for requests

Services satisfaction ratings

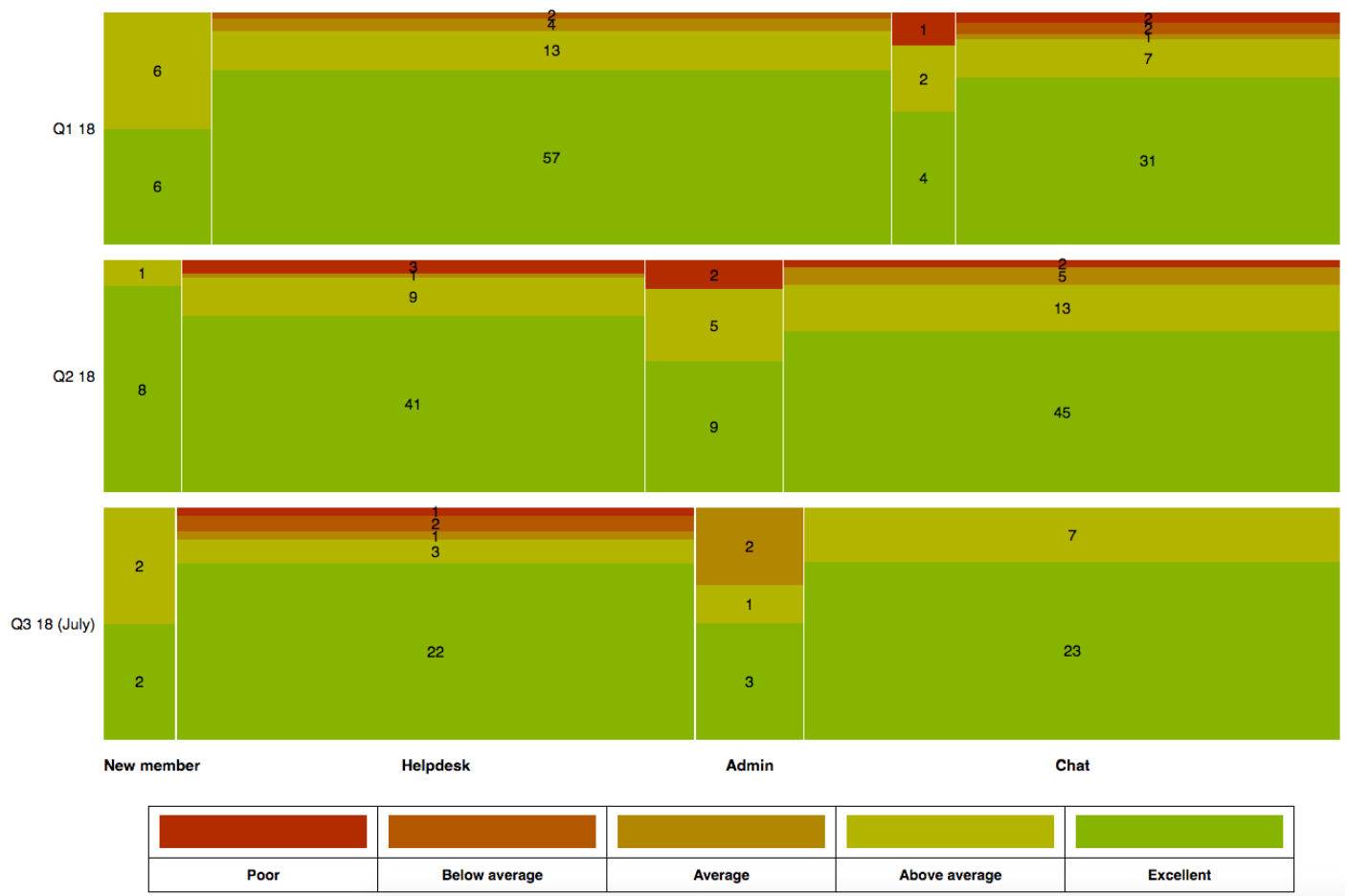


Figure 5: Satisfaction ratings

Services Area staff actively follow up on negative feedback received, to resolve outstanding issues and improve systems where possible.

Membership transactions

Transaction	Q1 2018	Q2 2018	Q3 2018
New Members	199	212	87
Closed Members	39	59	11
Reactivated Members	4	3	0
Total Members	6,735	6,868	6,947

Table 8: Membership transactions

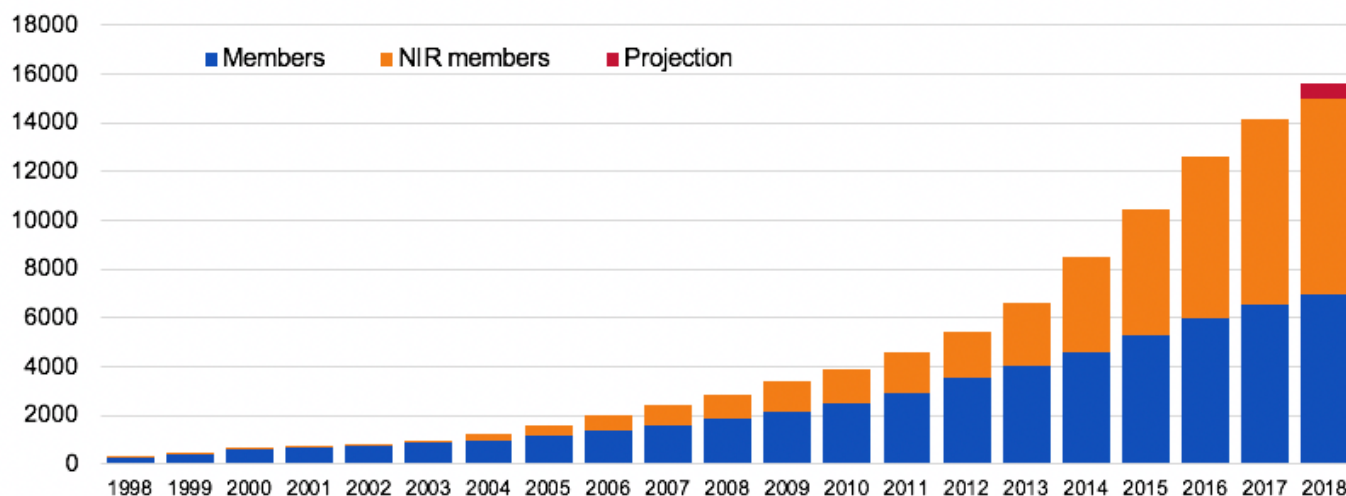


Figure 6: Membership growth

Membership industry type

APNIC Members are now classified according to industry type. We are working to extend this to members of NIRs.

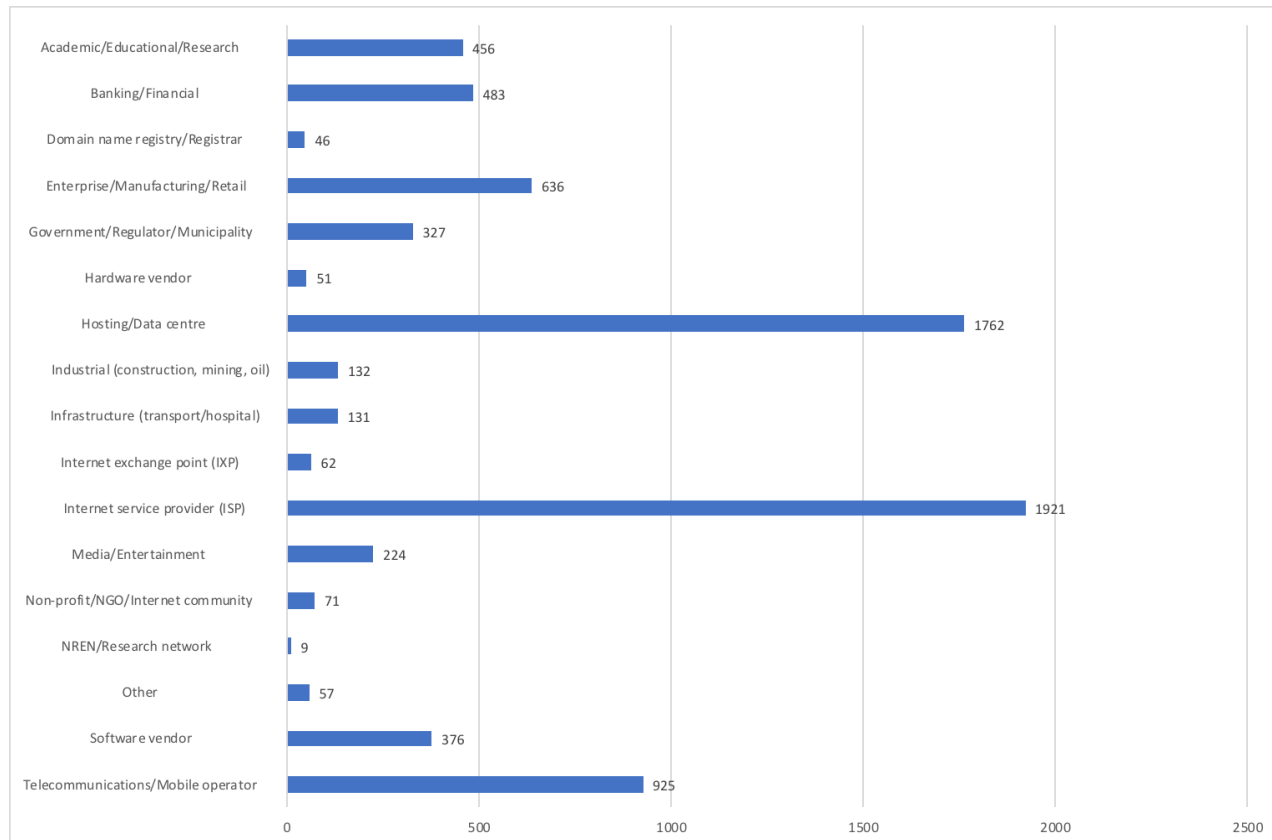


Figure 7: Member industry types

Fraud attempts

Instances of fraudulent applications and requests are summarized as follows.

Types of fraud	Q1 2018	Q2 2018	Q3 2018
Identity theft	0	0	0
Fabricated documents	1	1	0
Fabricated needs	1	0	0
Total fraud attempts	2	1	0

Table 9: Fraud attempts

2.2 MyAPNIC development and maintenance

MyAPNIC development in 2018 continues to focus on improving performance and usability.

- The MyAPNIC Product Team has reviewed a number of proposed changes and improvements to MyAPNIC's resource management. These include MyAPNIC performance improvements, an ASN management feature, listing service automation and whois and account contact updates.
- In Q2, APNIC dedicated significant resources to an analysis of performance metrics and began making a series of changes designed to improve response and page load times.
- These include fine-tuning of the application, consolidation of libraries, reduction of assets sizes, and streamlining the loading of data-heavy pages; all pending release at the time of writing.

2.3 APNIC Blog

	Q1 2018	Q2 2018	Q3 2018
Views	128,939	108,817	42,605
Posts	97	85	29

Table 10: APNIC Blog activity level

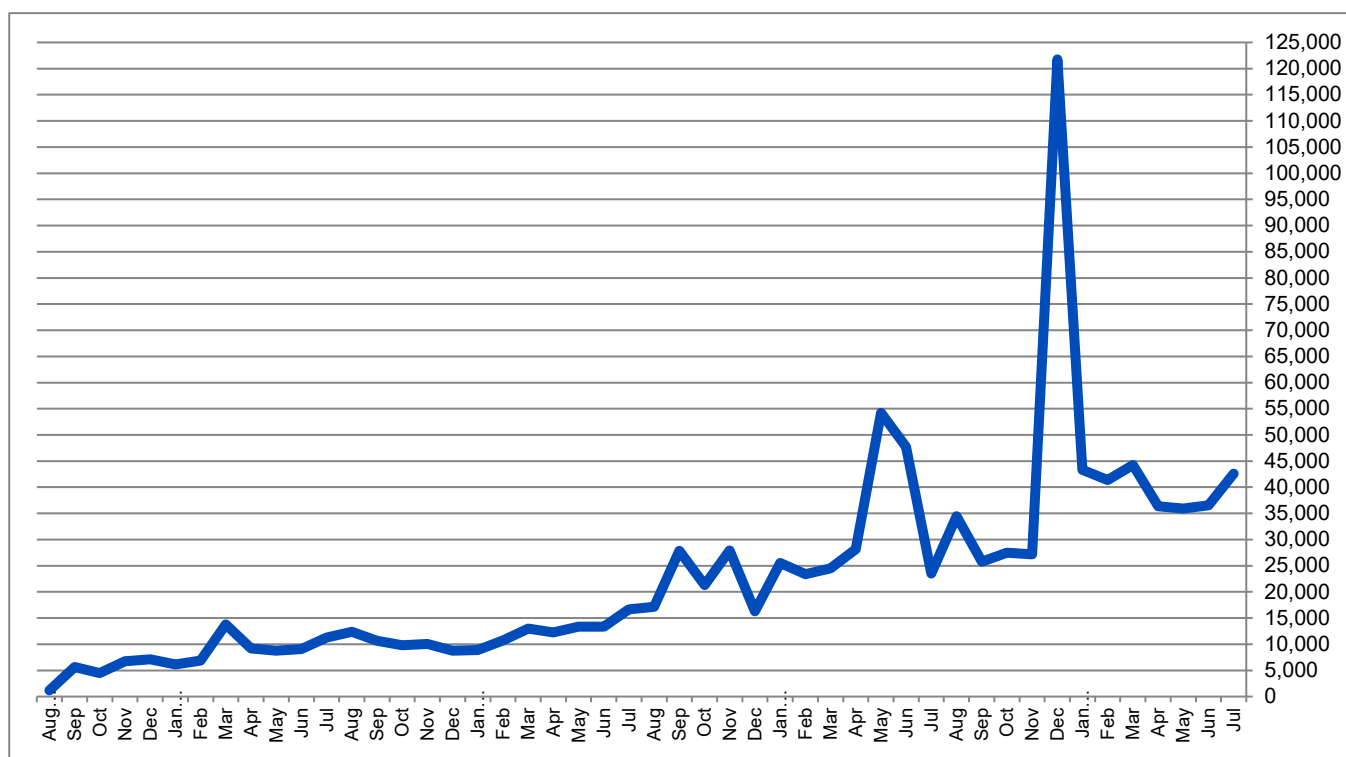


Figure 8: Monthly APNIC Blog views

APNIC Blog readership has averaged 40,052 views per month in 2018 to date, a 4% increase on 2017's monthly average of 38,643. The Blog reached a [milestone](#) in July 2018 by passing 1 million views since its creation in August 2014.

Popular posts to date have included:

- Vasileios Kotronis' Guest Post on a new BGP anomaly detection system, ARTEMIS.
- A Guest Post from Jan R  th explaining research findings on the usage of QUIC.
- A profile piece on Malaysian security expert, Raja Azrina Raja Othman.
- Geoff Huston's look at the QUIC 'spin bit' discussion at IETF 101.
- Paul Wilson's article on IPv4 exhaustion.
- A Guest Post from Tom Perrine about his gaming organization's IPv6 migration.

There have been 93 Guest Posts so far in 2018, representing 52% of total opinion posts, which is an increase on 2017's Guest Post ratio of 43%.

A Blog reader survey was conducted in February and March 2018 on future topics and reader habits. Eighty-seven readers completed the survey, with 62% responding that they read the blog at least once a week. The most popular topics for future posts were network security, case studies (IPv6 deployment, IXP or CERT creation), operational best practice, and IP addressing.

2.4 New membership outreach

APNIC provided information on membership at 20 events around the region during the first seven months of the year, including CommunicAsia (now part of ConnecTechAsia), Lao ICT Expo, APRICOT

2018, BankTech Asia Kuala Lumpur, and the 2018 Philippine Cable Television Association (PCTA) Convention, where APNIC also presented on the value of ASNs and IXPs to Cable TV providers.

Information to raise awareness of the referral application process (to those Members who have previously made address sub-allocations) was developed and sent to contacts in Singapore and Malaysia, with follow-up meetings held with Members at MyNOG and SGNOC.

The total number of new Members that have joined APNIC in 2018 is 498 (see 2.1).

2.5 Quality management

APNIC's quality management system underwent a successful surveillance audit at the end of July. The external auditor found that APNIC's quality system complied with the AS ISO9001:2016 requirements.

Projects

2.6 Improving online experience

This project aims to integrate APNIC's online services to provide a uniform experience for users of APNIC's services.

Status:

- Single Sign-on (SSO) has been deployed, allowing 'APNIC login' credential to access the APNIC Academy, Internet Directory, and then (later in 2018) MyAPNIC.
- Personalization of APNIC content to logged in users is under consideration, with user research planned at APNIC 46.

2.7 Service Partners

A new 'Service Partner' model is under trial, as a means to improve outreach to new APNIC Members according to local needs.

[Confidential material redacted]

2.8 2018 APNIC Survey

The APNIC Survey is run every two years and the 2018 APNIC Survey is the tenth iteration. For the second time, the survey was conducted in 2018 by Survey Matters, a research agency specializing in research for member-based organizations.

Status:

- The Focus Groups were selected to consider locations previously visited, size of membership, and key relationships. These were held in 15 economies, with a combination of face-to-face and online meetings during January and February 2018 in:
 - Japan, including JPNIC
 - China, including CNNIC
 - Taiwan, including TWNIC
 - Australia

- New Zealand
 - Pacific (Fiji and New Caledonia)
 - Malaysia
 - Philippines
 - Indonesia, including APJII
 - Timor-Leste
 - India, including IRINN
 - Pakistan
 - Bangladesh
 - Nepal
 - Afghanistan
- Findings from these Focus Group sessions were incorporated into the 2018 APNIC Survey form, which was reviewed by the EC prior to launch. The survey was open from 5 June to 2 July 2018.
 - Following a comprehensive communication and survey distribution program, the survey received 1,264 responses, and after data cleansing, 1,241 responses remained. The sample size provides 95% confidence that the results are within +/-3% of presented figures. Ninety-seven percent of responses were from the Asia Pacific.
 - The final survey report will be presented by Survey Matters at the EC meeting at APNIC 46 in Nouméa, and then to the community later during the conference.

2.9 Customer Relationship Management (CRM)

APNIC is now using Salesforce as its CRM, to coordinate external engagements and improve contact management across the organization.

Status:

- Transferred the legacy Yammer groups to Salesforce's Chatter collaboration groups for recording notes and other information about events and touchpoints.
- Implemented Member data daily synchronization from the registry database to allow interactions with Members at various events to be captured and reported in Salesforce.
- Added custom reporting and dashboards for events and engagements, and tracking of 'Event Series' such as APRICOT, IETF, PacNOG and so forth.
- Currently integrating other systems including Pardot (email management), NetSuite (ERP), calendaring, and others.

3 Infrastructure Services

3.1 APNIC infrastructure services

These activities include all technical support required to deliver services to APNIC Members and the Secretariat.

- The office telephony system migration to a hosted solution, in August 2018.

- A new production Kubernetes cluster with support for continuous integration and deployment was built. This will help the Software and WebOps teams to test and deploy SSO for the various applications that they are working on.

Projects

3.2 Data integration

An analysis in Q2 provided the basis for improving APNIC's data model for membership, contacts, and resources. This work will continue, to assist with data integration across multiple systems including ARMS, MyAPNIC, Salesforce, Netsuite, and events management.

The external consultant has delivered the interim report on APNIC's data dictionary, and is working on recommendations to improve long-term management of information and systems.

Status:

- Repeatable production methods for key information are being developed for regular reporting needs, for example, Secretariat and Annual Reports.
- An APNIC data dictionary of all key concepts.
- A roadmap for APNIC to improve information management processes.

3.3 Systems development

A range of system improvements are underway to ensure APNIC internal systems are managed efficiently and effectively. This includes software updates and security patches on all APNIC servers, reviewing APNIC's disaster recovery system and ensuring performance meets ISO 27001 standards.

Status:

- Server configuration management system (Puppet) upgrade and work is ongoing and is around 95% complete.
- A package management system (Pulp) has been deployed for security reporting and patching across all servers.
- Work is underway to upgrade the hardware security module for RPKI. The bulk of the work for this is now done, with the key migration to be scheduled for APNIC 46.

3.4 Network consolidation and enhancements

APNIC's network services are being consolidated and optimized to reduce costs and improve performance. This includes utilizing RFC 1918 address space in internal networks, completing firewall and intrusion detection, and investigating peering arrangements.

Status:

- 203.119.42.0/23 has been returned to the APNIC recovered pool.
- All peer connections have been relocated from core switches to edge switches.
- Implementation of the Cisco Firepower Firewall/IPS/IDS appliances is continuing using Active-Standby mode from testing to production.
- Initiated multilateral BGP peering with Megaport Brisbane IX and Megaport Sydney IX.

- Initiated direct peering with Google for testing service deployment in the cloud.
- APNIC will soon connect with AARNET for additional transit and more direct connectivity with the Research & Education community, including eduroam.

4 Member Training

4.1 Training services

- The 'Routing Basics' course was launched on the APNIC Academy in February 2018.
- A major upgrade of the APNIC Academy will be launched by APNIC 46, providing many new features such as vLabs (Virtual Labs) and support of third party resources.
- The training team delivered the following face-to-face and eLearning sessions:

	Face-to-Face	eLearning
Courses	36	43
Locations	26 cities in 22 economies	n/a
Participants	1,237	218
Training YouTube channel	40,341 views + 524 subscribers	

Table 11: Training delivery

- In 2018 to date 28% of APNIC external engagements (34 out of 121), have been face-to-face trainings.

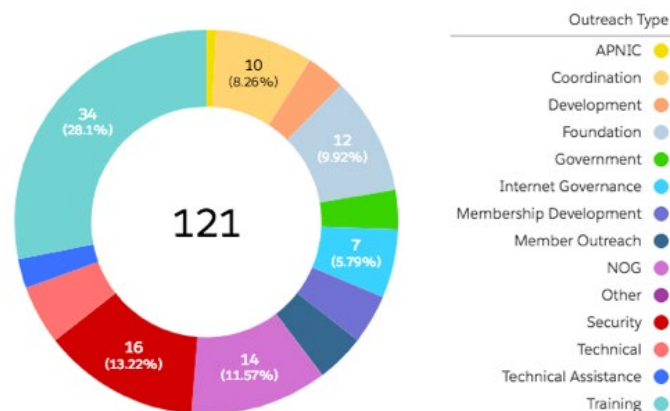


Figure 9: Types of engagement

- There were important training activities in Oceania, including New Caledonia, Vanuatu, Guam, Samoa, Tuvalu, Solomon Islands, New Zealand and for the very first time, in the remote location of Tokelau (see [blogpost](#)).
- Training activities in South-East Asia included Laos PDR, Indonesia, Philippines, Myanmar, Singapore, Malaysia, Thailand, and Viet Nam. The team also conducted IXP and Routing workshops in Vanuatu and Myanmar.
- APNIC conducted training for the first time at APAN 45 in Singapore, in March 2018.
- In March, APNIC established a new team to manage and develop the training curriculum and content, led by the new Training Curriculum Manager, Peter Blee.

- In April, Tashi Phuntsho was appointed the Acting Training Delivery Manager.

4.2 Technical assistance

During 2018 APNIC provided Technical Assistance (TA) in the following economies:

Economy	Assistance provided
Tokelau	IPv6 and Network Security
Mongolia (MobiCom)	Network architecture and design Network Security IXP support: setting up PoPs and connecting to regional hubs
Mongolia (Gemnet/MISPA-IXP)	Automating route server filter configuration (RPSL tools) Re-architecting of the route server (BIRD) routing table (PIPE protocol) RPKI implementation Best practices in operating an IXP
New Caledonia (OPT)	IPv6 deployment

Table 12: Technical Assistance summary

Regional Development

5 APNIC Conferences

5.1 APRICOT 2018

[APRICOT 2018](#) was held in Kathmandu, Nepal, from 19 to 28 February 2018, at The Yak and Yeti Hotel.

Conference statistics	
Total number of on-site delegates	752
Economies represented	64
APNIC Member organizations represented	247
Remote Participants – Adobe Connect	71
Remote Participants – YouTube	1,589 views; 12,998 minutes
#apricot2018 tweets	931
Total reach	1,069,458

Table 13: APRICOT 2018 summary

APNIC held its first ‘Hackathon’ at APRICOT 2018 with 24 participants (6 female, 18 male), focused on identifying and [resolving IPv6-related challenges](#).

APNIC supported several other events within APRICOT 2018, including an ICANN GAC Workshop, a FIRST TC, and APIX and AP* meetings.

5.2 APNIC 46

[APNIC 46](#) will be held in Nouméa, New Caledonia, from 6 to 13 September 2018. The conference will be held at Le Meridien Nouméa and the workshops will be held at OPT's training centre, Le Lys Rouge.

- The conference program has been finalized with all speakers confirmed, including keynote presenters Jonathan Brewer and Raja Azrina Raja Othman.
- Registration opened on 23 April 2018 and total registrations (excluding APNIC staff) stood at 280 as of 31 July.
- A total of AUD 250,821 in conference sponsorship has been secured.
- Partner organizations holding meetings at APNIC 46 include APIX, AP*, and FIRST.

Future conferences

- APNIC 47 will be held during APRICOT 2019 in Daejeon, Republic of Korea, from 19 February to 1 March 2019.
- APNIC 48 will be held in Chiang Mai, Thailand, from 5 to 12 September 2019.

6 Regional Technical Development

6.1 Policy development

APNIC 45

Four policy proposals were considered at the APNIC 45 Policy SIG.

Two proposals did not reach consensus and were returned to the mailing list for further discussion:

- [prop-123](#): Modify 103/8 IPv4 transfer policy
- [prop-120](#): Final /8 pool exhaustion plan

The author for the remaining two proposals was uncontactable and did not submit revised proposals:

- [prop-118](#): No need policy in APNIC region
- [prop-119](#): Temporary transfers

During the Policy SIG, consensus was reached to change the author of prop-118 and prop-119 to allow for revised proposals to be submitted.

There was also community discussion about remote participation for the SIG Chair/Co-Chair elections.

Policy SIG Co-Chair elections were held during APNIC 45, with Ching-Heng Ku and Bertrand Cherrier both re-elected as Co-Chairs for a two-year term.

APNIC 46

Four policy proposals will be considered at the APNIC 46 Policy SIG.

- [prop-118](#): No need policy in APNIC region
- [prop-124](#): Clarification on IPv6 sub-assignments
- [prop-125](#): Validation of “abuse-mailbox” and other IRT emails
- [prop-126](#): PDP Update

The following proposals were withdrawn by their authors:

- [prop-123](#): Modify 103/8 IPv4 transfer policy
- [prop-120](#): Final /8 pool exhaustion plan
- [prop-119](#): Temporary transfers

NIR OPMs

There were four Open Policy Meetings in the region between May and July — IRINN OPM, VNNIC OPM, IDNIC OPM and TWNIC OPM. APNIC attended all of these meetings.

6.2 Rootserver maintenance

USP F-root relocation

Since the F-root instance hosted at the University of South Pacific (online since 2007) is due for replacement and the university has been connecting to the IXP since June 2018, APNIC is in discussion with them for the replacement and relocation of the F-root instance to the IXP, to benefit more networks in Fiji.

PNG-IXP F-root installation

APNIC provided support for installation of an F-root instance at the PNG-IXP:

- Supplied a pair of SFP+ transceiver modules (server and switch side).
- Assisted the IXP team to reconfigure the route server to accommodate ISC's requirements.
- The root server was finally commissioned (peering with the route server) in July 2018.

TPIX K-root installation

This is supported by TWNIC. The contract between Chief Telecom and APNIC was finalized and signed. Equipment is being ordered.

6.3 Internet exchanges and measurement support

The following table summarizes APNIC's IXP support work during 2018:

Location/IXP	Type of support
Vanuatu	Two and a half-day workshop (Feb 2018) in collaboration with the Office of the Government Chief Information Officer; half-day session to discuss the benefits of an IXP and operational best practices
Myanmar	Three-day workshop (March 2018) in collaboration with MM-IX to discuss IXP best practices at traffic engineering
PNG-IXP	F-root installation and route leak support
Fiji IXP	Port security issues with USP connecting to the IXP
BKNIX	Sponsored the BKNIX Peering Forum, held in May 2018
MISPA-IXP, Mongolia	As part of TA, provided details on how to automate route server filters
IXP-DB and PeeringDB	Sponsored IXP-DB system development and PeeringDB service
APIX and Peering Asia	Sponsored and supported the APIX meeting at APNIC 45, and sponsored Peering Asia 2.0

Table 14: IXP support

6.4 Network Operator Group support

- APNIC has participated in 13 NOGs during 2018, and sponsored 12, as follows.

NOG	Region	Date	Sponsored
JANOG 41, 42	APNIC	Jan, Jul	✓
HKNOG 6.0	APNIC	Mar	✓
PhNOG 2018, Davao	APNIC	Mar, Jul	✓
CaribNOG 15	ARIN	Apr	
bdNOG 8	APNIC	May	✓
ThaiNOG 2018	APNIC	May	✓
btNOG 5	APNIC	Jun	✓
PacNOG 22	APNIC	Jun	
SGNOG 6	APNIC	Jul	✓
MyNOG 7	APNIC	Jul	✓
IDNOG 5	APNIC	Jul	✓

Table 15: NOG support and sponsorship

6.5 Security support

- An new Security section on the APNIC website was deployed in January 2018.
- APNIC supported the APCERT steering committee meeting during APRICOT 2018 in Nepal.
- APNIC hosted a FIRST Technical Colloquium (TC) Kathmandu as part of APRICOT 2018.
- In March, APNIC spoke at the FIRST TC in Osaka, Japan, and conducted LEA trainings in Hong Kong and Taiwan.
- In April, APNIC provided an instructor for the Annual CSIRT Training (APISC 2018), organized by the Korea Internet Security Agency (KISA) in Seoul, South Korea. APNIC also helped conduct a three-day security workshop with PITA in Guam.
- In June, APNIC helped Papua New Guinea to organize a workshop for APEC TEL and the SPSG, and conducted LEA training in Fiji for participants from several Pacific economies. APNIC also participated in the FIRST Conference in Kuala Lumpur, Malaysia, and assisted the ITU with a two-day workshop in Tonga focusing on Windows security.
- In July, APNIC conducted a Security workshop for MYREN members in Kuala Lumpur, Malaysia, to cover 'Practical Incident Response and Community Honeynet'.
- APNIC presented at the 'Asia Regional G7 24/7 High Tech Crime Network Point of Contact Workshop on Whois'. This was the first collaboration with the G7 High Tech Crimes network and a good opportunity to meet LEAs from ASEAN.

Projects

6.6 CERT development

APNIC is providing support for the development of security incident response capabilities in the Asia Pacific region with advice, technical training, and facilitating multistakeholder engagement.

Status:

- In January, APNIC attended the launch of PNG CERT in Port Moresby. APNIC also delivered a two-day technical workshop as part of the launch.
- In March, APNIC assisted GEANT to conduct TRANSITS-I (CERT/CSIRT Development) training at APAN 45 held in Singapore with funding from Asi@Connect/TEIN. This was the second time APNIC collaborated with GEANT and Asi@Connect on TRANSITS training.
- In April, a two-day CERT engagement session was organized in Samoa.
- In May, the APNIC Pacific CERT Workshop was conducted in Tonga with participants from multiple Pacific economies, to support CERT development in the Pacific.

6.7 Integrated information services

After Member Survey feedback (2016) we are testing options for gathering and providing aggregated operational and technical data from APNIC and the APNIC community.

Status:

- A Product Manager was appointed for the Information Services product family.
- The Data Gathering and Analysis BoF took place during APRICOT 2018 in Nepal, including the following presentations:
 - Creating better local Internet maps in the Asia Pacific region (BGP Data Collection project; Sofia Silva Berenguer, APNIC)
 - Isolario Project: tools and activities (Alessandro Improta, IIT CNR)
 - Data Collections & Benchmarking (Bijal Sanghani, Euro IX)
- A MoU is being developed between APNIC and IIT CNR for collaboration on the BGP Data Collection project.
- The Data Gathering and Analysis BoF at APNIC 46 is being organized.
 - Sofia Silva Berenguer (APNIC) will present an update on the Information Services products.
 - Philip Branch (Swinburne University of Technology) will present on 'Rapid detection of BGP anomalies' (which received an ISIF Asia grant).
 - Christian Teuschel (RIPE NCC) will present on RIPEstat and possible collaboration to help network operators in the APNIC community.
- Internet Directory
 - Work has been done on the reimplementation of the Internet Directory (at <https://stats.apnic.net>), for launch in September.
 - During APNIC 46, APNIC will be recruiting participants for user testing activities.
- Routing Information Tools:
 - Problem validation will be done during APNIC 46 with selected community members.
 - Options for deployment of a RIS collector at APNIC are being considered, to be used for APNIC's Routing Information Tools.

- Network Security Product:
 - Dean Pemberton (external consultant) and APNIC staff, Adli Wahid and Jamie Gillespie, assisted with problem validation.
 - Work has been done on processing honeynet data to identify holders of IP addresses originating malicious traffic. This data will be used in mockups for solution validation during APNIC 46.

7 Community Engagement

7.1 Community sponsorship

In addition to NOG sponsorships (see NOG Support), APNIC has committed to the following community event sponsorships in 2018:

- NPSIG 2018, Nepal
- APriGF 2018 and PacIGF 2018, Vanuatu
- APT Connectivity Workshop at APT PRFP-11, Western Samoa
- AINTEC 2018, Thailand

APNIC is also a sponsor of the Schools of Internet Governance (SIGs) through [APASA](#), a collaboration between APNIC, ICANN, DotAsia, and the Internet Society.

APNIC is also a paid member of PTC and the Internet Society in 2018.

7.2 Fellowship program

The [Fellowship committee](#) for APNIC 46 was recruited in April and [Fellowship](#) applications closed in June 2018 with 442 applications received from 29 economies.

A total of [68 Fellows](#) from 17 economies were selected for APNIC 46, including 25 females. The majority of Fellows (55) were from Pacific Island economies.

	Professional	Youth	Returning
Male	36	4	3
Female	18	2	5

Table 16: APNIC 46 Fellows

Sponsorship provided by OPT-NC and the APNIC Foundation allowed APNIC to expand the Fellowship program for APNIC 46 to help benefit the Pacific.

7.3 Government and sub-regional liaison

The second APT preparatory meeting for the ITU Plenipotentiary Conference was held in January 2018 in Hanoi, Viet Nam. Apart from engaging with governments of the Asia Pacific region, some clarity was reached on what Internet issues will be discussed at the Conference and what the likely governmental positions would be.

The third APT preparatory meeting for the Conference was held in July 2018 in Melbourne, Australia. APNIC and ISOC hosted a social event for the delegates. The Deputy Secretary General of the ITU and candidates for different ITU positions were present.

The annual IPv6 workshop with the ITU, in collaboration with the Thailand government and the TOT Academy, was held from 14 to 18 May 2018. This partnership with the ITU in developing capacity for IPv6 has been valuable for both ITU and APNIC Members. In addition to this annual workshop, there is direct country assistance being scheduled.

Positive engagements with the governments of East Timor, Mongolia, PNG, and Vanuatu occurred between January and April 2018.

APNIC participated at the APEC TEL 57 meeting in Port Moresby, Papua New Guinea, and presented on IoT security, and IPv6.

7.4 Community outreach

APNIC staff attended and shared information about APNIC's activities and initiatives at 34 community events across the region during the first seven months of 2018. This included an APNIC Member Gathering held in Ulaanbaatar, Mongolia, attended by 19 Member representatives.

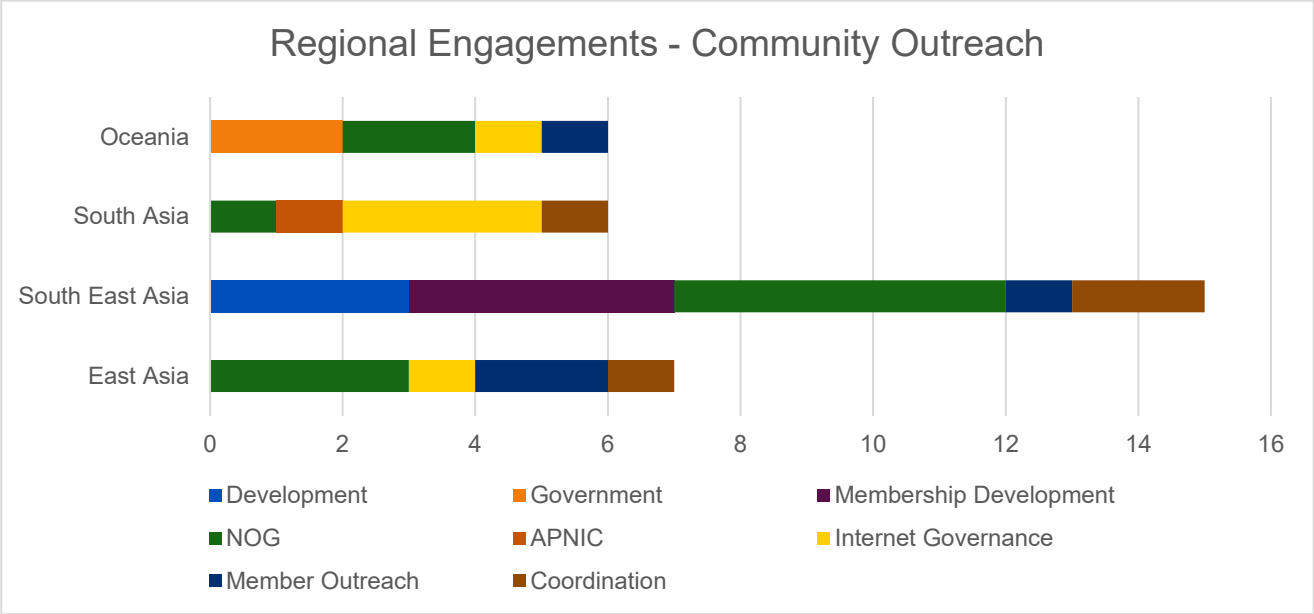


Figure 10: Community Outreach engagements

APNIC authors published 86 posts on the APNIC Blog during the period (see [section 2.3](#) for more details), with community engagement via APNIC's social media detailed below.

		Q1 2018	Q2 2018	Q3 2018
Facebook	Reach	139,688	78,839	55,936
	Likes	26,782	27,024	27,108
Twitter	Followers	8,491	8,942	9,044
	Engagement	2,711	3,337	1,174
YouTube	Views	12,252	6,955	2,380
	Minutes	82,037	39,129	13,639
Slideshare	Views	32,707	30,172	19,219
LinkedIn	Reach	29,321	11,943	9,274
	Followers	2,865	3,009	3,078

Table 17: APNIC Social Media activity

Cooperation SIG

The Cooperation SIG is a forum for discussion of technical and governance issues which require cooperation between the APNIC community and others.

The theme of the SIG at APNIC 45 was 'Whois accuracy: Present status and its challenges' and featured [presentations](#) from APNIC, RIPE NCC, ICANN GAC's Public Safety Working Group (PSWG), Nepal Police, and Hurricane Electric.

There was an election for the Cooperation SIG Co-Chair, with Bikram Shrestha elected as the SIG Co-Chair for a two-year term.

The theme of the SIG at APNIC 46 will be 'Whois: Challenges of data protection and privacy'.

NIR SIG

The NIR SIG shares information relating to the operations, policies, and procedures of NIRs, and promotes cooperation among the NIRs and across the APNIC community.

During the APNIC 45 NIR SIG session, CNNIC, VNNIC, TWNIC, IDNIC, IRINN and JPNIC provided update [presentations](#).

7.5 Internet governance

The Asia Pacific Regional Internet Governance Forum (APrIGF) will be held in Vanuatu in August 2018. APNIC will be supporting the event with sponsorship (for fellowships primarily), workshop proposals,

and attendance. Sylvia Cadena serves as Co-Chair of the APriGF Multistakeholder Steering Group (MSG). APNIC partnered with other organizations to submit four workshop proposals.

APNIC attended the first School of Internet Governance in Nepal (NPSIG), with 40+ participants from academia, technical, government, and other groups. APNIC facilitated the IPGO card game, an educational tool to explain IP addressing and network fundamentals.

APNIC supported the APNIC Foundation to participate in the WSIS Forum, an annual ITU event about Internet governance, where the ISIF Asia program was awarded a WSIS Champion prize (see 8.2).

The Internet Governance Forum (IGF) 2018 will be held in Paris, France, from 12 to 14 November 2018. APNIC is planning at least two workshop proposals. Sylvia is newly appointed to the Multistakeholder Advisory Group (MAG), attending her first meeting earlier this year.

Sylvia participated in the second IGF MAG meeting in Geneva. There are approx. 400 workshop proposals of which only 60 will be selected. During this meeting, the UN Secretary General announced and presented a new 'High Level Panel on Digital Cooperation', consisting of 20 members from industry, government, and civil society.

APNIC participated in the third edition of the Asia-Pacific Internet Governance Academy (APIGA), co-organized by KISA and ICANN, in Gwangju, Republic of Korea. APNIC presented a new and improved version of the IPGO card game, which was received positively by the participants.

APNIC participated in a planning meeting for a new Australian Internet Community Forum in Canberra, Australia, with around 60 members of the local Internet community.

Projects

7.6 Research & Education community outreach

In 2018 APNIC is working to build closer relations with the regional Research & Education (R&E) community.

- APAN 45, Singapore, March 2018
 - APNIC sponsored APAN 45 and conducted a [poster](#) session to attract membership.
 - APNIC conducted two one-day tutorials (SDN & Network/Internet Security) at APAN 45, the first trainings APNIC conducted directly at an APAN meeting.
 - We assisted GEANT to conduct TRANSITS-I (CERT/CSIRT Development) training at APAN 45 with funding from Asi@Connect/TEIN.
- APAN 46, New Zealand, August 2018
 - APNIC will provide sponsorship for APAN 46, and help to recruit APAN fellows from the Pacific.
 - The training team will conduct two one-day tutorials (DNS/DNSSEC and Network Security).
 - APNIC will again assist GEANT to conduct TRANSITS-I (CERT/CSIRT Development) training with funding support from Asi@Connect. This will be the third time APNIC has collaborated with GEANT.
- In July, APNIC conducted a Security Workshop for MYREN members in Kuala Lumpur, Malaysia, to cover 'Practical Incident Response and Community Honeynet'.
- APNIC will soon connect to AARNet for better connectivity to R&E networks, eduroam and other services.

- APNIC has been talking to the Australian Access Federation (AAF) about joining AAF, and through them, joining eduGAIN to tap into their large R&E user base for the APNIC Academy.
- APNIC is preparing to renew the MoU with TEIN*CC for closer collaboration.
- With support from the APNIC Foundation and the KDDI Foundation, APNIC will work with UCSY/mmREN on Advanced Network Security workshops in Yangon, Myanmar, in September and December 2018.

7.7 Increasing participation

APNIC is working to build Member participation in APNIC community processes, with a focus on the Policy Development Process (PDP).

Activities to date include:

- A [Facebook Live webinar](#) on policies to be discussed before the APNIC 45 Policy SIG session (attracting 353 views).
- A [blog post](#) preview of the APNIC 45 Policy SIG session.
- An summary of the four policies for discussion, translated into seven languages (Chinese – Simplified and Traditional, Japanese, Hindi, Bahasa Indonesian, Thai, and Vietnamese); and a translated summary of the Policy SIG outcomes.
- Online promotion to APRICOT delegates to encourage attendance at the Policy SIG.
- APNIC held a session at NPSIG 2018 to encourage engagement in APNIC activities including the PDP and Policy SIG at APNIC 45, as part of a pilot project which began in 2017. One third of the people contacted during the pilot project attended the conference.
- A policy engagement presentation was given at PacNOG 22, the TWNIC OPM and IRINN OPM, and is scheduled for both SANOG 32 and VNIX-NOG 2018.
- An APNIC Academy course on the PDP is scheduled to be launched in Q3.
- Six blog posts, looking back at policies that have made a significant impact, are scheduled for publication in Q3.

8 APNIC Foundation

8.1 Governance and administration

Board

Due diligence was completed on three new candidates for consideration by the EC at their meeting in Bhutan. Two new Board members have been confirmed for appointment: Mr. Danish Lakhani from Pakistan and Mr. Michael Malone from Australia (bringing the total to five, with two positions still vacant).

The Foundation's first Annual General Meeting (AGM) and Board meeting was held in Hong Kong on 17 May 2018. Resolutions approved audited financial statements; adopted a range of fraud, personnel and WHS policies; and elected Sylvia Sumarlin from Indonesia as the Chair.

The Board adopted its first Mission statement: 'To increase investment in Internet development in the Asia Pacific region, through education and training, human capacity building, community development, research, and related projects and activities'; and Vision statement: 'To have a global, open, stable and secure Internet that is affordable and accessible to the entire Asia Pacific community'.

8.2 ISIF Asia

WSIS Champion

ISIF Asia was one of four projects recognized as a Champion in the annual WSIS Prize contest (International and Regional Cooperation category). Sylvia travelled to the WSIS Forum to participate in the Champions ceremony in March 2018.

Grants and awards

The 2018 Call for Grant Proposals and Award Nominations closed on 15 May 2018, and winners are expected to be announced in August. USD 210,000 will be allocated to 10 projects (8 grants and 2 awards) across 4 funding categories: Network Operations Research; Cybersecurity; Community Networks; and Gender Empowerment and Innovation.

Four separate Selection Committees were established, including 16 subject-matter experts from the community. Funding for this round has been provided by the IDRC, the Internet Society, and APNIC.

8.3 Foundation activities

Projects

- The CERT project for the Pacific supported the establishment of a second CERT in the region, the PNG CERT in January.
- The project's first regional workshop was held in Tonga in May with CERT technical officers from the Cook Islands, Fiji, Papua New Guinea, Samoa, the Solomon Islands, Tonga, and Vanuatu attending.
- The second portion of funding (AUD 100,000 for 2018-19) was confirmed.

- The CERT project for the Pacific supported the continued development of a third CERT in the region. The Vanuatu CERT joins the CERTs in Papua New Guinea and Tonga.
- The project's first regional workshop was held in Tonga in May with CERT technical officers from seven island economies attending (the Cook Islands, Fiji, Papua New Guinea, Samoa, the Solomon Islands, Tonga, and Vanuatu).
- New project 'Enhancing National Cybersecurity and Network Quality of Service in Advance of Papua New Guinea's Hosting of APEC'. including:
 - Up to eight technical training workshops for APNIC Members and the Papua New Guinea community.
 - CERT training and development
 - IXP training and support
- A second regional workshop for CERTs will be held at APNIC 46.

Funding approved and fundraising

- Approved AUD 558,000 in funding for 'Enhancing National Cybersecurity and Network Quality of Service in Advance of Papua New Guinea's Hosting of APEC', via the San Francisco-based Asia Foundation with support from New Zealand and Australia. The funding will support:
 - Up to eight technical training workshops (approx. AUD 280,000)
 - CERT training and development (approx. AUD 108,500).
 - IXP training and support (approx. AUD 90,000).
- Approved AUD 108,000 in funding for a new project 'Combating Cybercrime 'Safe havens': Building a well informed and trained cyber law enforcement community in the Pacific'.
- Three proposals have been drafted and are under discussion with potential partners: SWITCH: Fostering women's leadership in the Internet industry in the Mekong region; Community Networks deployment in PNG; and a PhD/Master's scholarship program.
- Approved AUD 75,000 in funding for PNG CERT to support the development of the CERT in terms of hardware, software, and training.
- The Foundation achieved over AUD 1 million in funding in its first 18 months of operation, from donors including the Asia Foundation, the Internet Society and the governments of Australia, New Zealand, and Canada.

Community engagement

Duncan Macintosh and Sylvia Cadena participated at the following events during this period:

Event	Date	Activity	Staff member
JANOG	Jan	Participation	Duncan
Ministry of Communications, Japan	Jan	Meeting	Duncan
KDDI Foundation	Jan	Meetings	Duncan
JICA	Jan	Meetings	Duncan
APRICOT 2018	Feb	Participation (10th anniversary of ISIF Asia)	Duncan, Sylvia
Kadoorie Foundation	Feb	Meeting	Duncan
Asia Society	Feb	Meeting	Duncan
Australian Aid Conference	Feb	Participation	Duncan, Sylvia
DFAT	Feb	Meeting	Duncan, Sylvia
APrIGF prep	Feb	Site visit	Sylvia
Advisory Council meeting of the Partnership for Online Platforms and Sustainable Development (POPS)	Mar	Meeting	Duncan
WSIS Forum	Mar	MAG meeting, ISIF Asia WSIS Award	Sylvia
Australian Members of Asian Venture Philanthropy Network (AVPN)	Apr	Presentation on ISIF Asia experiences for health innovations	Sylvia
Digital ASEAN organized by the World Economic Forum	Apr	Workshop	Duncan
Foundation AGM	May	AGM, Board and strategy meetings	Duncan, Sylvia
Asian Development Bank	May	Meeting	Duncan
AVPN	Feb June	Meeting Participation at the Annual Meeting	Sylvia, Duncan
Foundation meeting	June	Meeting	Duncan, Sylvia
PNG IXP, PNG CERT, and PNG training	June	Project meeting to discuss events	Duncan

Table 18: APNIC Foundation engagement summary

Global Cooperation

9 Global Technical Community

9.1 RIR collaboration

APNIC serves as Chair of the NRO EC in 2018, and chairs the Engineering, Registration Services and Communications Coordination Groups (ECG, RSCG, CCG).

Three RIRs, APNIC, ARIN and LACNIC, held their first round of meetings in this period, with Paul Wilson participating as NRO EC Chair and presenting APNIC and NRO update reports. Two APNIC EC and four staff members participated at RIPE 76: Geoff Huston presented on IPv6, Measuring ATR, and TCP and BBR; Sofia Silva Berenguer engaged with the NREN community; and Pubudu Jayasinghe collaborated on membership and NOG engagements.

The major topic of consideration for the NRO in 2018 has been the ASO Review, and all RIRs held community consultation sessions during the first half of the year.

Prior to APNIC's consultation in February, APNIC held a webinar to provide information about the ASO review process. Two blog posts ([ASO Review discussions gaining momentum at APNIC 45](#); [ASO Review: Moving forward](#)) were published on the ASO Review. Another consultation session will be held during APNIC 46 in Noumea.

9.2 Collaboration with I* Organizations

ICANN 61 was held in San Juan, Puerto Rico. Paul Wilson spoke on behalf of the NRO during the Opening Ceremony, with more than 1,000 people attending. There were many engagements with governments and members of the ICANN community. Initial discussions about the ASO Review process were held with ICANN staff and its board. The NRO EC had a face-to-face meeting during this time.

The IETF held its 101 meeting in London in March 2018. APNIC gave presentations on IPv6 and measuring ATR.

ICANN 62 was held in Panama City and the most important topic for discussion was whois and data privacy. Paul Wilson wrote a [blogpost](#) on this subject and further discussions have been planned for APriGF, APNIC 46, and the IGF 2018.

During ICANN 62, the CEOs of the five RIRs met with the Chairman and CEO of ICANN to discuss their ongoing relationship via the ASO, and future collaboration.

9.3 Other forums

- During 2018 so far, APNIC had 121 engagements. Twenty-eight percent were face-to-face trainings (34 so far). The second category of engagements is related to security, 13% of the total, with 16 engagements, half of them dedicated to the development of CERTs in the Pacific.
- Support for CERTs in the Pacific continues, with the launch of two new CERTs in Papua New Guinea and Vanuatu. There were important engagements in Samoa and Tonga, some in collaboration with the ITU.

- Thirty-six percent of APNIC's engagements were in South-East Asia, with 17 face-to-face trainings, five NOG events (PhNOG, SGNOG, IDNOG, ThaiNOG and MyNOG) and two Open Policy Meetings (VNNIC and IDNIC).
- Twenty-four percent of APNIC's engagements were in Oceania, including two NOGs (NZNOG and PacNOG) and three intergovernmental meetings (APEC TEL, APT and an ASEAN), in addition to the CERT-related work.
- Thirteen percent of APNIC's engagements were outside the APNIC region, including four RIR meetings, two ICANN meetings, two IETF meetings, two intergovernmental meetings, and one FIRST.org meeting.

9.4 Engagement coordination

Below are some stats on events and engagements, noting that many events feature multiple engagements:

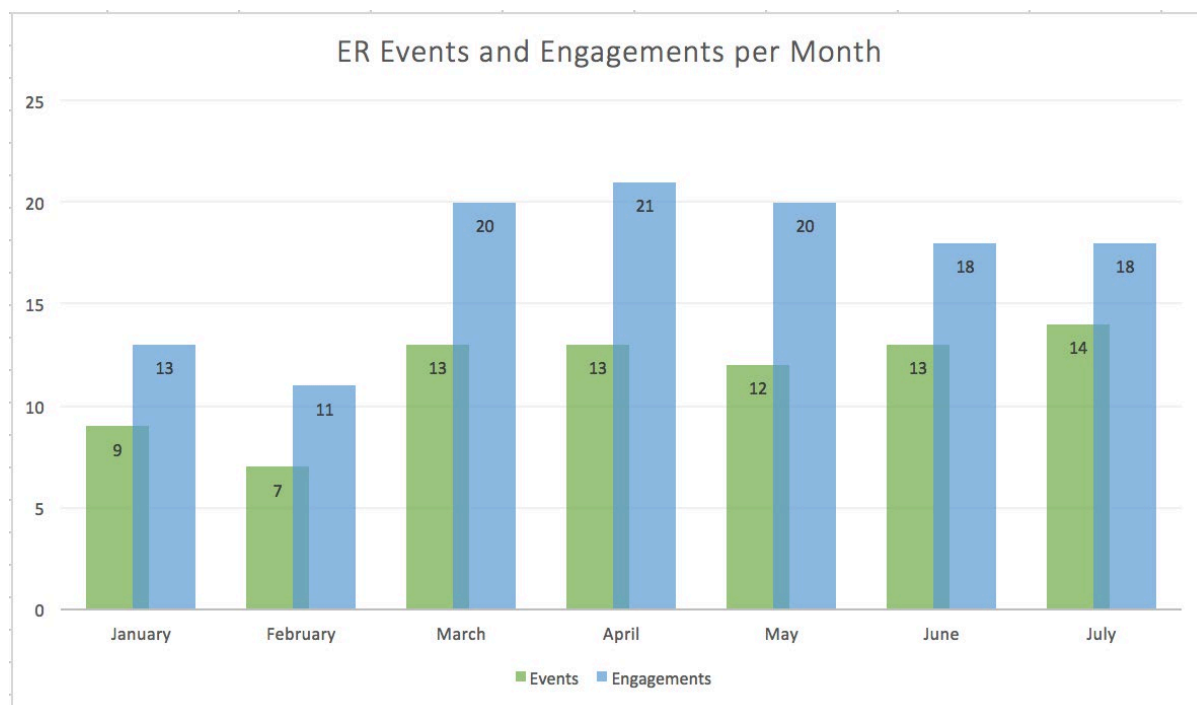


Figure 11: Engagements per month

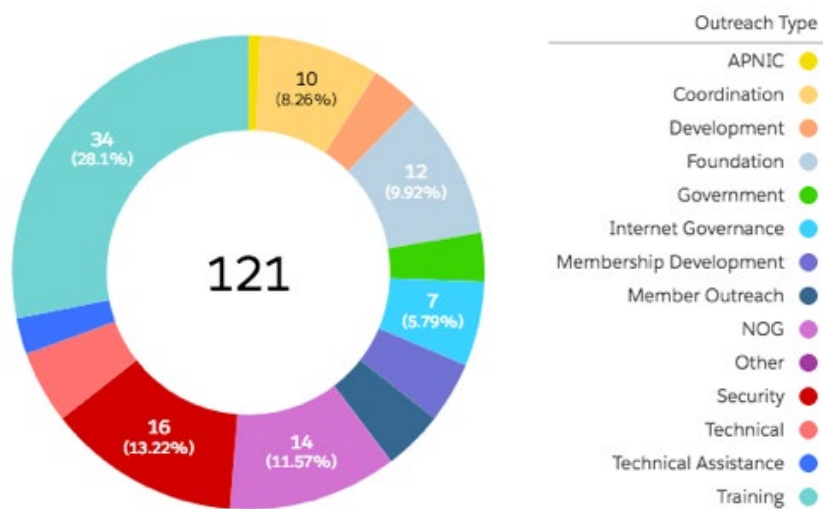


Figure 12: Engagements per category

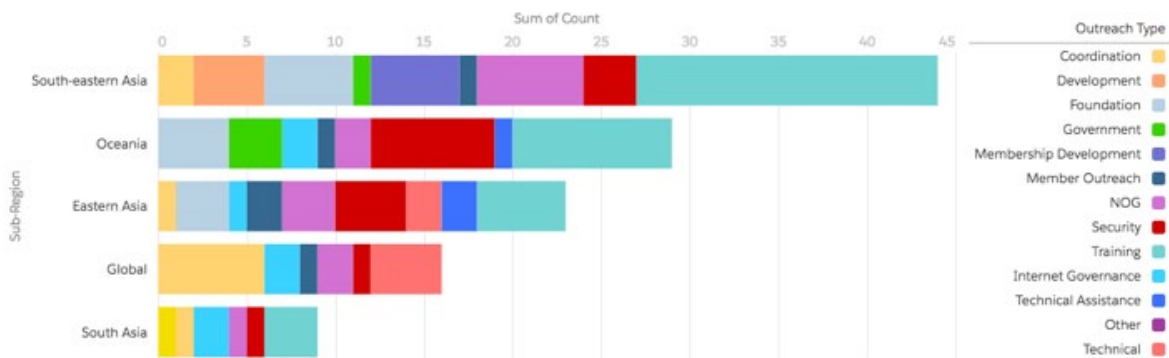


Figure 13: Engagements per subregion

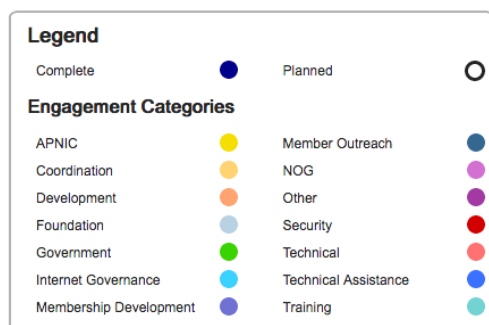


Figure 14: Engagement summary

Projects

9.5 NRO Chair

APNIC is the Chair of the NRO this year. The NRO EC, comprising the five RIR heads, holds a monthly teleconference, and face-to-face meetings as the opportunity arises. The agenda in this period have included:

- ASO Review – follow up of the review recommendations, in particular, the planning for community consultation across all the RIR communities on the future structure of the ASO.
- Discussion about email from an AFRINIC community member about board issues at AFRINIC, to which the NRO EC decided not to respond.
- [IANA Review Committee report](#) that recommends to the NRO EC that IANA has met the SLA during the period being reviewed (1 April to 31 December 2017).
- ICANN board seat #9 election.
- NRO 2017 expenses report review and approval of the 2018 budget.
- NRO contributions to other organizations for 2018 (ICANN, IGF).
- The progress of Coordination Group projects as reported in the next section.
- Paul chaired a face-to-face NRO EC meeting during ICANN 62.
- The NRO discussed and submitted a [reponse](#) to US government NTIA's notice of enquiry on the International Internet Policy Priorities stating that the IANA transition should not be unwound.
- A framework for personal data in the Internet Number Registry is under discussion.
- Concerns about representation of the Technical Community at the IGF MAG were raised with the MAG Chair.

9.6 NRO projects

The Coordination Groups include the Resource Services Coordination Group (RSCG), Engineering Coordination Group (ECG) and the Communications Coordination Group (CCG). The groups meet regularly via teleconference and face-to-face to discuss ongoing and project work.

RSCG Projects

Identifier Technology Health Indicators (ITHI) project

This ICANN project is developing metrics to measure the 'health' of identifier systems to improve their security, stability, and resilience. The NRO has agreed to contribute metrics in relation to Internet number resources, under RSCG coordination.

Status:

- Initial draft of metrics developed for Internet number resources.
- Community consultation on NRO website completed.
- Detailed measurement is currently being discussed and refined before more development work will be undertaken.
- Publication of metrics will start from 2019.

Registry and whois accuracy

The RSCG is considering initiatives to improve data accuracy and developing documentation on RIR requirements.

Status:

- A draft document containing data accuracy requirements by RIR's policies, agreements and operational practices for further review by the RSCG is underway.

Resource transfer improvements

The work undertaken by the RSCG is to review and document RIR practices and make recommendations for inter-RIR transfer improvements.

Status:

- All the RIRs are working on a presentation to share practices and document interaction procedures.

NRO resource statistics presentation

In collaboration with the CCG, new slide deck template and content is being developed, including RIR transfer statistics.

Status:

- Slide template is completed.
- Content development is underway, for launch in 2018.

CCG Project

NRO website redesign

The NRO website is undergoing a redesign to improve user experience and content management.

Status:

- The proposed new site design was approved by the NRO EC, and development work is progressing on the new site, for launch in September.

ECG Projects

RDAP

The ECG is analysing the RIRs' RDAP implementations for consistency and alignment.

Status:

- Initial RDAP compliance testing is being done.
- Feedback from the RIR's is being gathered, to be added to a formal repository.
- The ECG is planning to implement a mechanism to capture the feedback from the RIR communities.

- The ECG has generated an initial list of issues and is currently working on resolving these issues.

RPKI

The ECG continues to work on improving RPKI standards and implementations.

Status:

- The IETF proposal 'RPKI Validation Reconsidered' was approved and is documented under [RFC 8360](#). The deployment of this RFC will reduce the overall fragility of the RPKI.
- A deployment of this RFC was discussed at IETF 102 in July. This will be followed by a presentation of a deployment plan at the next IETF, to form the basis of implementing the RFC.

Unified reporting

The ECG is working on unifying RPKI and Statistics measurements across all the RIRs.

Status:

- The first drafts of both these metrics were reviewed.
- The RPKI draft specification was reviewed, and is being currently being implemented.
- The current Statistics measurements were reviewed and updated and is in production.

Standardized file format

The ECG is identifying opportunities for using standardized file formats to ensure interoperability.

Status:

- The Delegated Extended Statistics and Transfer Log file formats are in draft and will be documented in a revision-controlled repository.

10 Inter-governmental Outreach

10.1 Inter-governmental liaison

This is a year of the ITU Plenipotentiary Conference, which sets the strategies and objectives for the ITU for the next four years, to be held in Dubai in November 2018. Some of the issues that are more controversial are:

- Role of the ITU in the Internet and Internet governance.
- Prospect of having another WCIT (to reopen negotiations on the ITRs).
- Role of the ITU in the Digital Objects Architecture and supporting the Global Handle Registry.
- Role of the ITU in cybersecurity-related topics.

APNIC participates in the regional preparatory process for the ITU Plenipotentiary by the APT.

The annual IPv6 workshop with the ITU was held in Bangkok in May 2018, in collaboration with the Thailand government and the TOT Academy.

APNIC has supported the APNIC Foundation to participate at the WSIS Forum, the IGF MAG, and activities related with Co-Chairing the APriIGF MSG.

APNIC participated in the third APT regional preparatory meeting for the ITU Plenipotentiary Conference in Melbourne. APNIC, together with ISOC, hosted a social event that had 70 delegates from the APT meeting, including the Deputy Secretary General of the ITU and other senior officials.

APNIC also participated in APEC TEL 57, in Port Moresby, Papua New Guinea. Many preparations are underway for the hosting of the APEC Leaders Meeting in Papua New Guinea in November this year. Progress was made in the operationalization of the CERT in Papua New Guinea.

11 Global Research

11.1 Global research and measurements

Research topics conducted by Geoff Huston and Joao Damas during this period include:

- KSK rollover investigations, including resolver characterization and user impact measurement.
- Promoting the approach described in draft-huston-kskroll-sentinel as an alternative approach to testing the extent of user impact of a KSK roll.
- IPv6, Extension Headers and IPv6 Fragmentation.
- Measuring the extent of latent QUIC capability.
- DNS related research with ICANN (contract extended to 2018).
- Investigation into the dynamic behaviour of BBR (Google's new TCP flow control algorithm).
- Ongoing activity with the ICANN SSAC and SSR2 Committees.
- Investigation of DNSSEC and its role in NSEC caching.
- Open resolver collaboration with Cloudflare.
- DNS ATR measurement.
- ITHI DNS measurement (funded by ICANN).

11.2 Technical advocacy at global forums

Published articles and presentations during this period include:

Articles:

- DNS and DDOS
- Hiding the DNS
- Helping Resolvers to Help the DNS
- Network Neutrality – Again
- A Workshop on Internet Economics
- BGP in 2017
- Addressing 2017
- Peak DNSSEC?

- Crypto Zealots
- DNS OARC 28 report
- Just One Bit
- Stuff the Camel into the Bikeshed
- Measuring Root Zone Trust
- Measuring ATR
- What Drives IPv6 Deployment
- Another 10 Years Later
- The Uncertainty of Measuring the DNS
- An Update on Securing BGP from IETF 102

Presentations:

- TCP and BBR (Canberra Linux Users Group)
- IoT (ATSE)
- The Death of Transit and Beyond (IAB Tech Talk, HKNOW, Thousand Eyes)
- The Rise and Rise of Content Distribution Networks (CAIDA Workshop on Internet Economics)
- DDOS, DNS and DNSSEC (NZNOG 2018)
- Measuring DNS ATR (DNS OARC, IETF)
- TCP and BBR (REDIRIS.ES Conference, RIPE 76)
- Measuring ATR (RIPE 76)
- Reasons for IPv6 Deployment (RIPE 76)

Corporate

12 Human Resource Management

12.1 Secretariat staffing

Please refer to the HR Report.

12.2 Organizational development

Please refer to the HR Report.

12.3 Staff retention and development

Please refer to the HR Report.

12.4 Product Management

During 2018, APNIC adopted a formal “Product Management” approach to development of systems and services. This defines a process for developing and improving any APNIC products (including MyAPNIC, Registry services, APNIC Academy and others) and key steps in product lifecycle, including:

1. Idea/Problem validation: Starting with a new idea, and the problems it is intended to solve, validate that proposal with user interviews and research, to refine or reject the idea.
2. Solution validation: Validate that the proposed solution will address the problems as intended, by testing mockups or prototypes, and gathering feedback about user experience and interface design.
3. MVP: Build a “Minimum Viable Product” with features that represent the functionality of the product, and collect additional user feedback.
4. Build/launch/operate: Build, launch, and operate version 1.0 (or the next version) of the product.
5. Repeat: Repeat this process to maintain a prioritized list of features for subsequent product releases; until finally retiring the product when the problem/need no longer exists.

From 2018, APNIC is following this process, and increasing engagement with Members and other users in testing and overall “lifecycle management” of selected products (starting in APNIC 45 and 46). The prior Software Engineering team is now known as the APNIC Products Team, and specific product management responsibilities assigned to individual staff.

13 Finance and Administration

13.1 Financial management

Finance statistics to date

KPI Dashboard Finance Team YTD KPI (2018)					
Number of	Jul-18	Avg/Mnth	YTD	2017	2016
Phones Calls (Outward)	204	208	1456	3253	3500
RTs Received (Total)	2235	2140	14982	25444	21396
E-Bill Queue	1660	1570	10987	16379	15331
Finance Queue	140	137	962	1385	1328
Accounts Payable Queue	82	96	675	1241	1261
Bounce Queue	122	137	962	3908	1415
Inward Payment Queue	231	199	1396	2319	2061
Accounts Receivable					
APNIC Member Count	61	55	6932	6547	5994
New Members	74	69	481	844	1030
New Non-members	3	1	7	11	18
Receipts Processed	815	711	4978	8061	7514
Invoices issued	788	721	5046	8264	7537
Credit notes issued	24	30	210	550	529
Accounts Closed (Mem and Non-Mem)	13	17	117	332	322
Closure Notice sent	80	75	522	994	945
Reactivation Members	0	2	12	31	45
Reactivation fee waived	0	0	1	2	8
Refund Members (Duplicate and Over-payment)	15	6	45	73	68
Accounts Payable					
Asset Created	17	15	103	260	189
Asset Disposal	39	8	54	76	127
PO created by Finance	30	59	416	488	213
PO Billed	201	165	1152	1957	1947
Supplier EFT Payment	74	75	523	932	891
Nexonia Reimbursement Payments	32	33	229	429	386
Credit Card Payment	389	306	2143	3936	3377
Journals processed	69	89	621	833	888
Cash Advance Request	3	2	17	21	18
Vendor Request	8	5	35	97	141
Foundation Support Transactions	249	270	1892	2454	1046
NRO Support Transactions	9	24	167	756	537

Figure 15: Finance KPIs

13.2 Office management

A new visitor/contractor management system has been deployed at the APNIC office, ensuring all visitors are identified before entry, staff notified, and ID tags printed.

Business IT will also be working on multiple projects over the coming months to improve current solutions including Office 365 with more training for end users, and a review of Office 365 governance. This will also include selection of a granular backup solution that will provide off-site backups including email, SharePoint document storage, and OneDrive.

The Business IT Team is conducting a review of NetSuite and secure access methods. Multi-factor/SSO authentication solutions are being deployed for staff access to internal systems.

13.3 Travel management

Travel management statistics to date

Travel Statistics*

Sectors flown:

	YTD JUL 2018	YTD JUL 2017	Change %
Domestic	71	51	39%
International	775	570	36%
Trans Tasman	10	9	11%
	856	630	36%

Hotel room nights:

Domestic	32	10	220%
International	668	532	26%
Trans Tasman	10	18	-44%
	710	560	27%

*Booked through APNIC's Travel Management Company, excludes external bookings

Figure 16: Travel statistics

Travel review

A review of APNIC's end-to-end travel processes is underway with initial project scoping completed in April 2018. The project team will be formed in Q3 2018, with a report and recommendations completed by the end of the year.

During the last quarter, changes have been made to the travel process to improve the efficiency of processing. The treatment of travel allowances and tolls used to book travel and record travel expenses are being investigated, with any new approach to be implemented and tested by the end of 2018.

14 Legal and Governance

14.1 Legal counsel and business advisors

Maddocks Lawyers were engaged to review all of APNIC's employment and independent contractor agreements for consistency, completed in June 2018.

Maddocks Lawyers will serve as 'backup' for the General Counsel (Craig Ng) in legal matters.

Craig Ng has provided legal consultation to the Services area in relation to a number of requests for resource transfers.

14.2 Workplace health and safety compliance

Please refer to the HR Report.

15 Facilities

15.1 Building and office facilities

There were changes to desk configurations and relocation of staff to support organizational changes at the start of 2018.

During APNIC 46 there will be improvements to the media room and common room facilities. There will also be improvements to the front entrance with new tiles, new tactile indicators, and new safety nosings.

Plans to upgrade existing bathrooms on Level 1, and install bathroom facilities on Level 2, have been completed and are currently being costed for completion during 2018.

Secretariat Report

APNIC EC meeting
10 September 2018
Nouméa, New Caledonia

APNIC



*“A global, open,
stable and secure
Internet that serves
the entire Asia
Pacific community”*



Serving APNIC Members



Supporting Regional Internet
Development



Cooperating with the Global
Internet Community



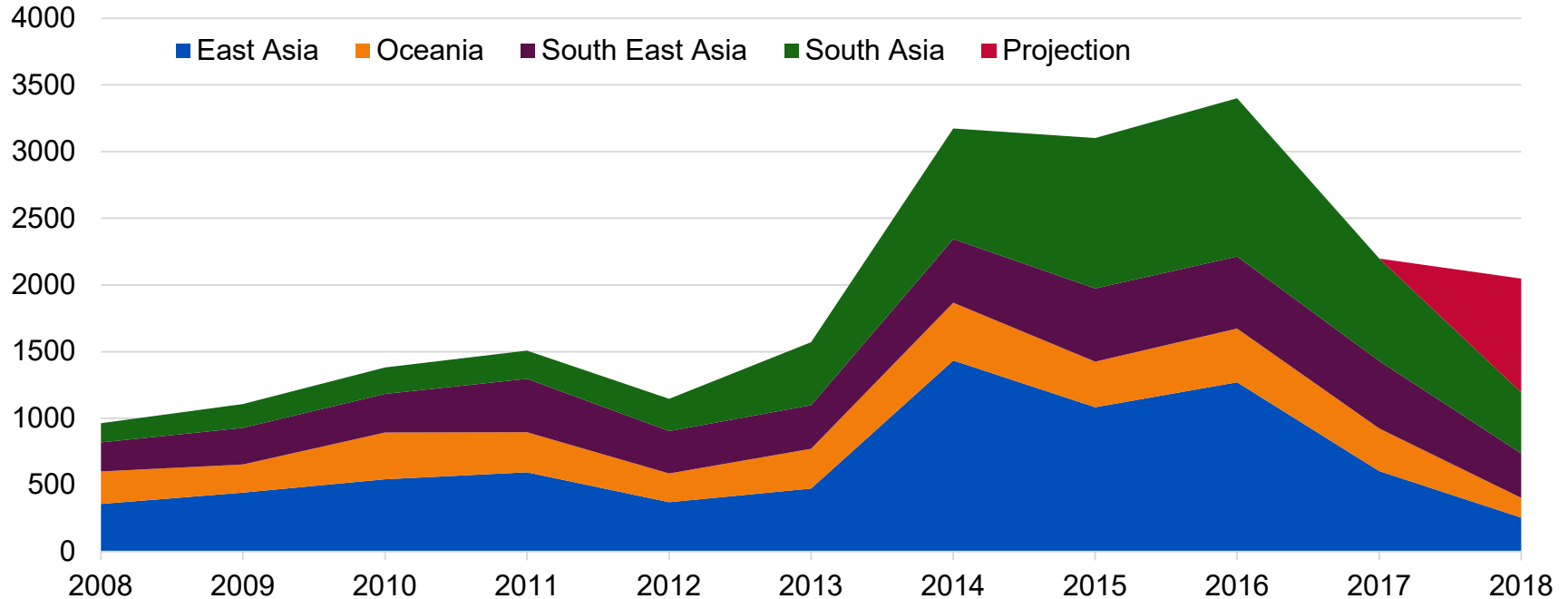
Maintaining a Strong Organization



1. Registration Services



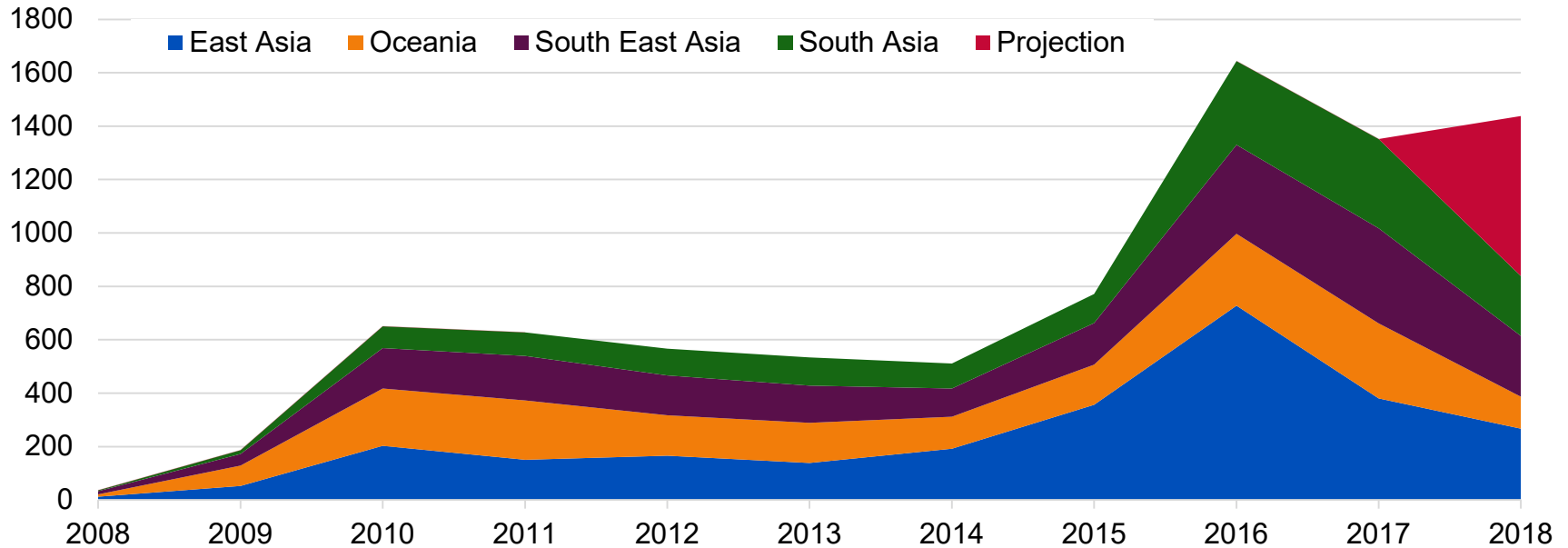
IPv4 Delegations



As at 31 Jul



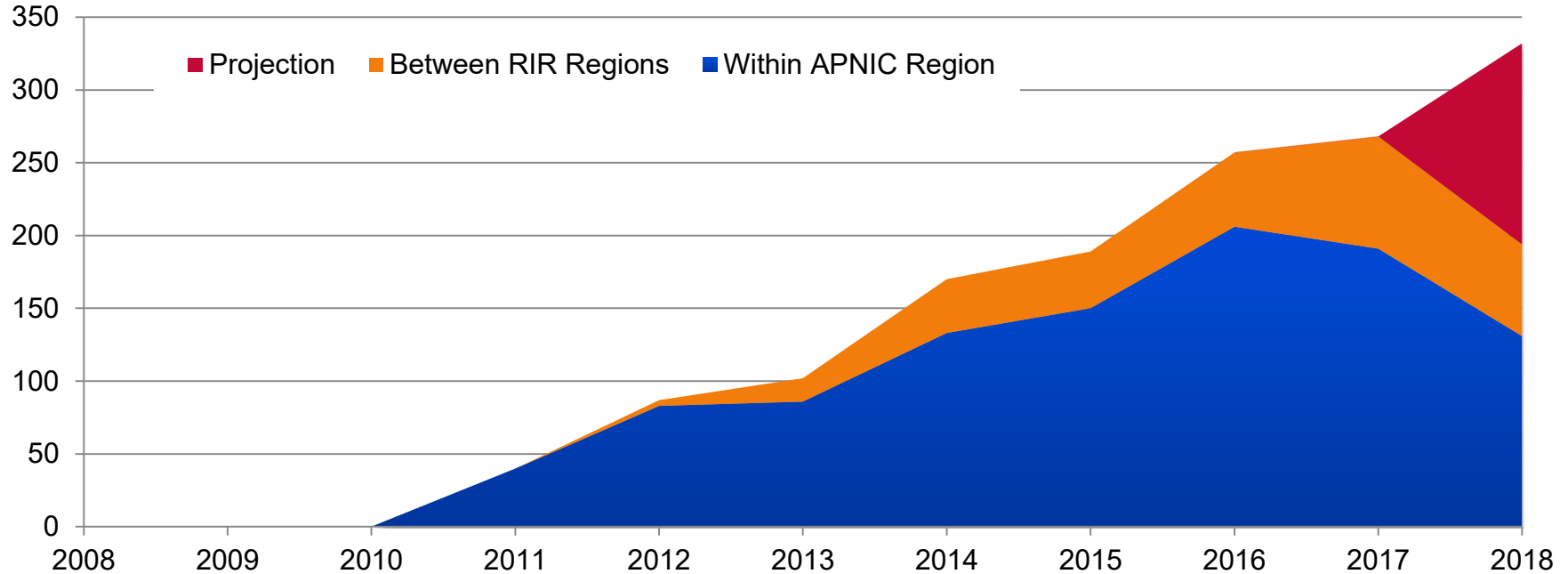
IPv6 Delegations



As at 31 Jul



IPv4 Transfers



As at 31 Jul



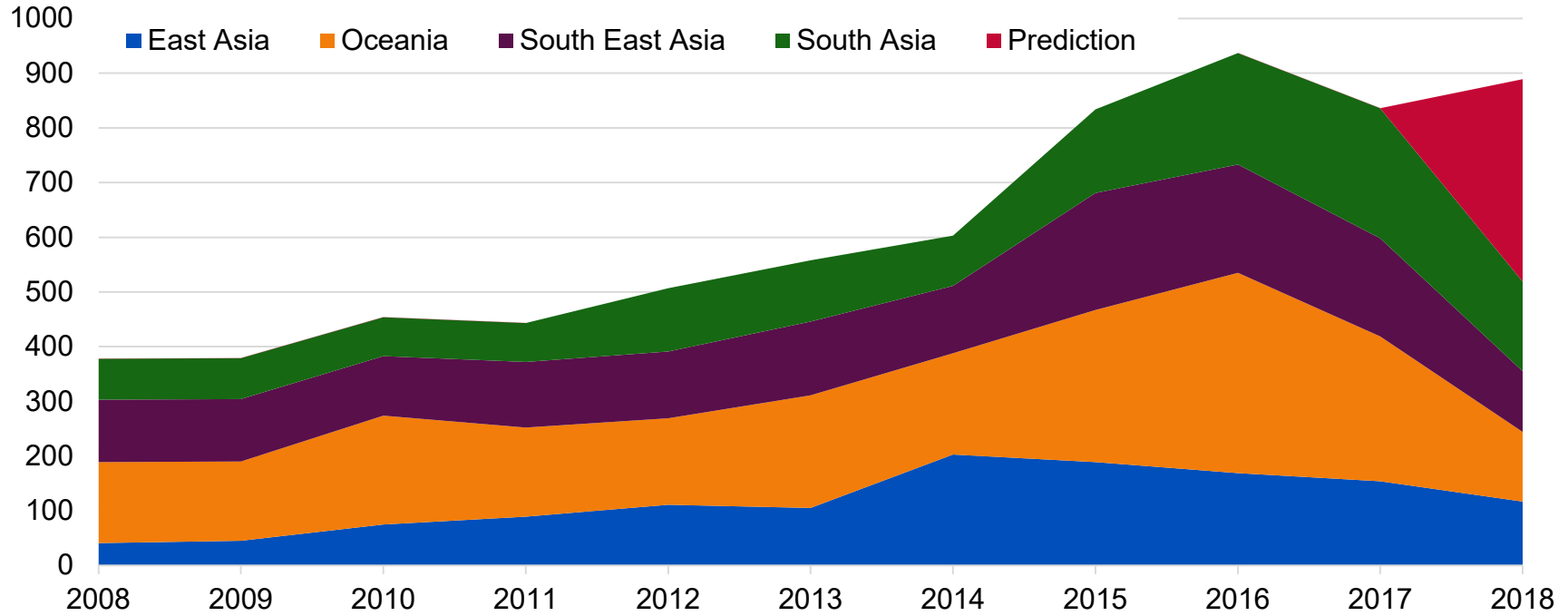
IPv4 Transfers

Transfer type	#	Q1 2018	#	Q2 2018	#	Q3 2018
		/24		/24		/24
Mergers/acquisition	19	1,711	50	1,098	34	760
Market transfers						
Intra-RIR	54	1,774	54	2,516	23	1,740
Inter-RIR	24	2,471	28	25,077	11	363
Total	78	4,245	82	27,593	34	2,103

Transfer type	Requests	/24s
ARIN to APNIC	239	65,129
RIPE to APNIC	22	4,610
APNIC to ARIN	21	444
APNIC to RIPE	18	1,059



ASN Delegations



As at 31 Jul



Resource Certification

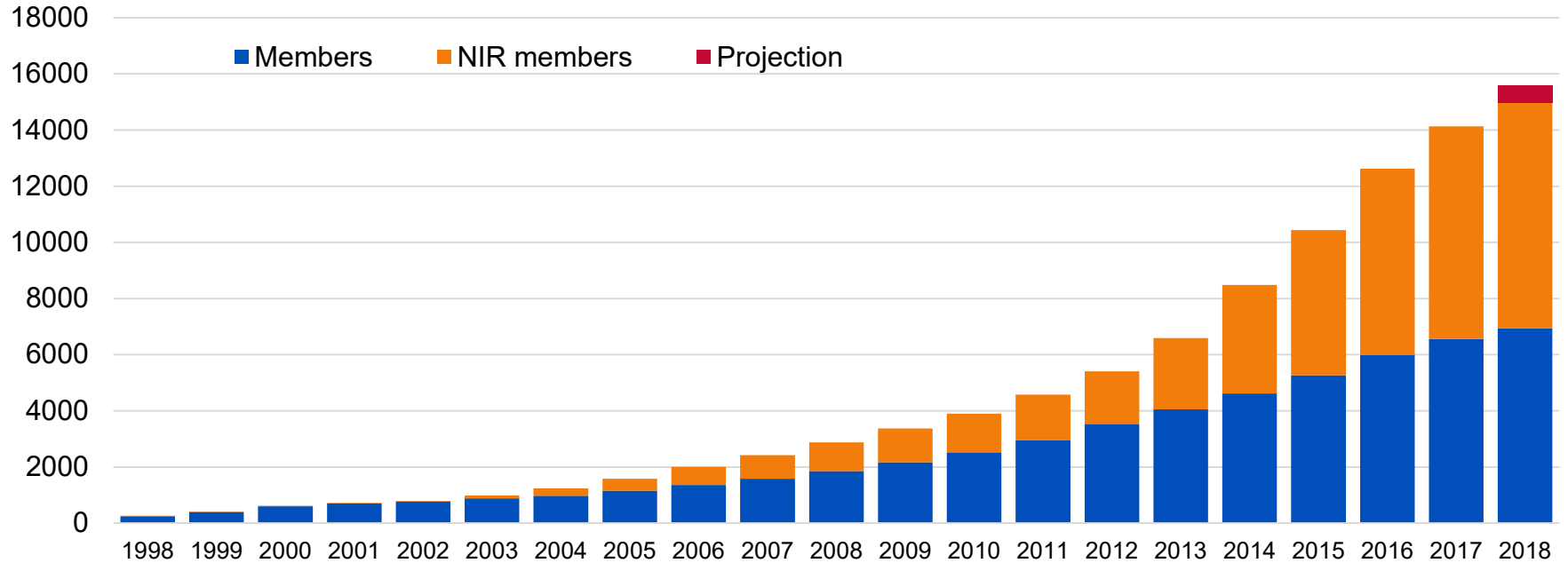
Resource Certification	1 Jan 2018	Current
Members created certificates	13.0%	13.9%
Members created ROAs	7.4%	8.3%
IPv4 under ROAs	3.3%	5.0%
IPv6 under ROAs	0.9%	1.3%



2. Customer Service



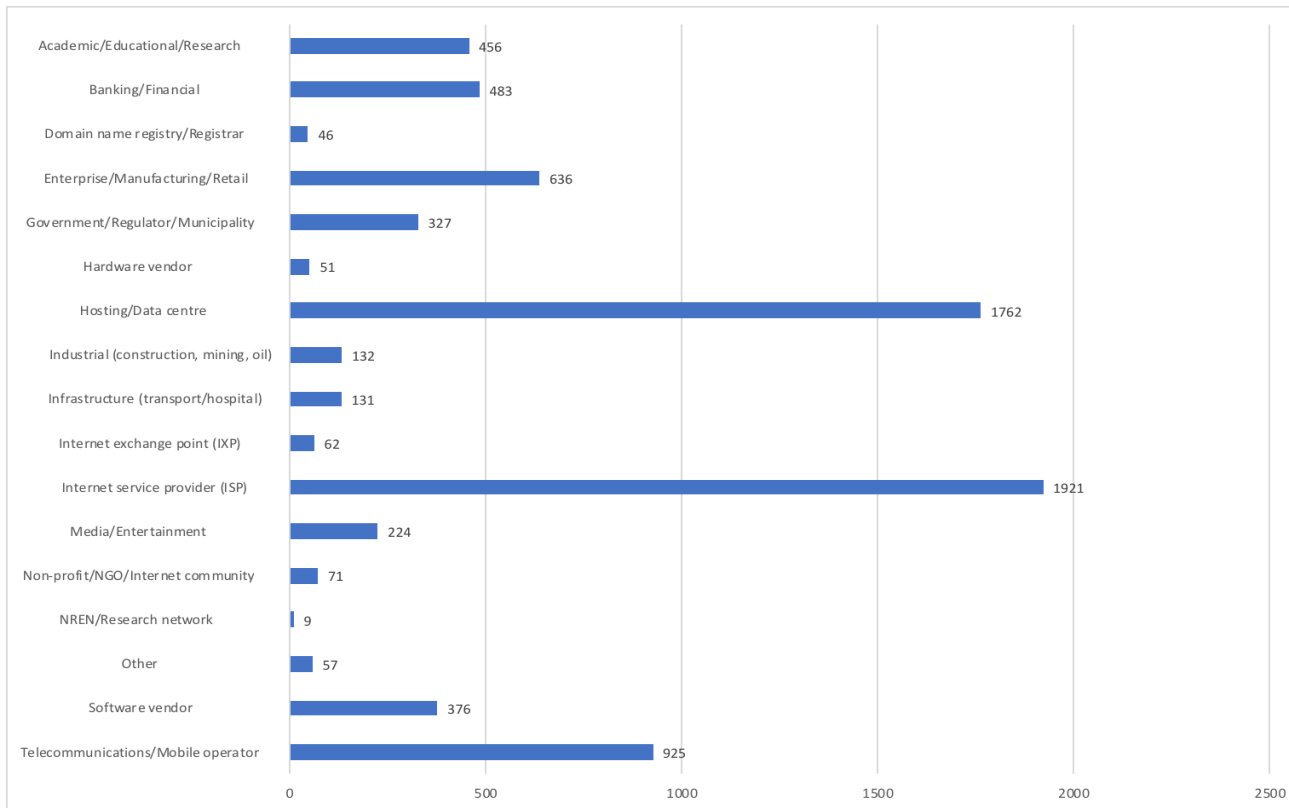
Membership



As at 31 Jul

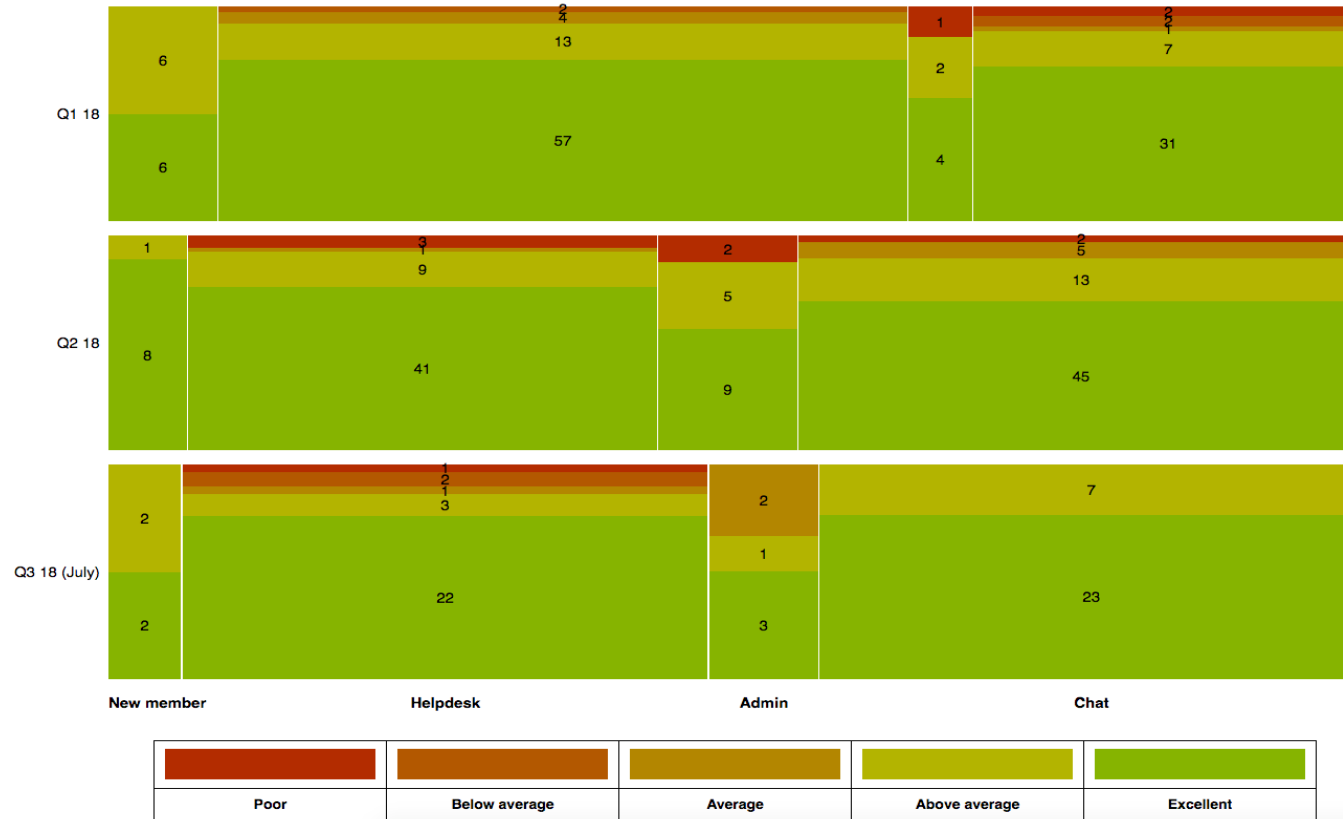


Member Industry Types





Service Satisfaction Ratings





Service Partners

- Trial to improve outreach to APNIC Members according to local needs
- [Confidential material redacted]

APNIC Survey 2018



Totals



Responses

1241

Non-English

387

Economies



LDEs

24%

Developing

54%

Developed

19%

Relationship



Members

73%

Stakeholders

27%

Geography



South Asia

29%

East Asia

27%

South East Asia

21%

Oceania

20%

Non-APNIC

3%

3. Technical Infrastructure Services



Technical Infrastructure Services

- Systems Development
 - ‘Puppet’ upgraded
 - ‘Pulp’ to improve package management
 - Upgrade of hardware security model for RPKI is underway
- Network Consolidation
 - 203.119.43.0/24 was freed from use; 203.119.42.0/23 is now unused and to be placed back into the recovered pool
 - Implementation of Cisco Firepower Firewall/IPS/IDS
 - Initiated peering with Megaport IX (Brisbane and Sydney)
 - Plan to sign up with AARNET for additional transit

4. Member Training



Training & TA

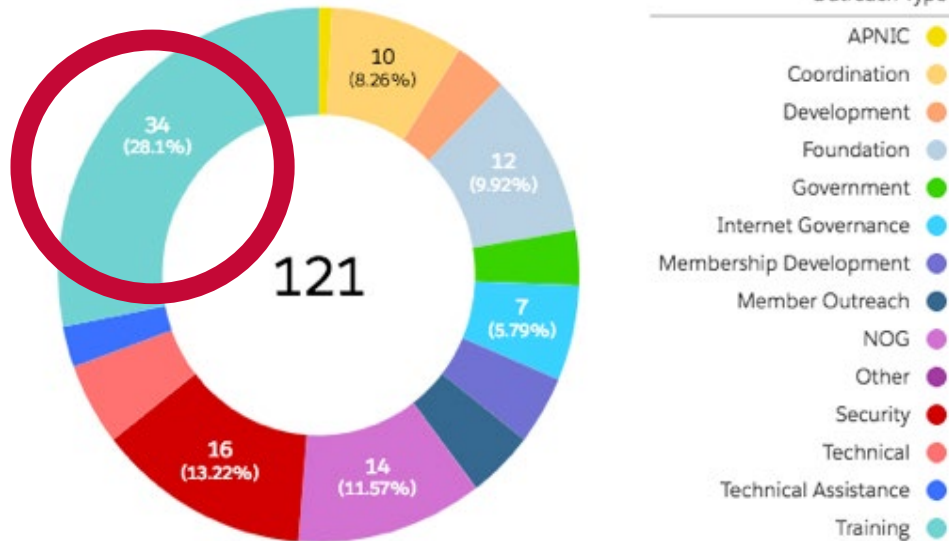


	2018
Face-to-face training Locations Trainees	36 26 economies 1,237
Community Trainers	11
eLearning Sessions Trainees	43 218
Training videos Views	129 577,135
Technical Assistance	4



Training

APNIC Engagements 2018



- 28% of engagements have been face-to-face training
- First training provided in Tokelau
- New training curriculum and content team
- 11 Community Trainers

APNIC Academy



<http://apnic.academy>

- Relunched August 2018
 - SSO via APNIC Login
 - Enrolled: 2,709
 - Certified: 551
- Courses:
 - CyberSecurity
 - IRM
 - Routing
- Coming:
 - Introduction to IPv6
 - Internet Routing Protocols
 - APNIC PDP
 - DNS Concepts



Technical Assistance

Economy	Assistance provided
Tokelau	<ul style="list-style-type: none">• IPv6 and Network Security
Mongolia (MobiCom)	<ul style="list-style-type: none">• Network architecture and design• Network Security• IXP support: setting up PoPs and connecting to regional hubs
Mongolia (Gemnet/MISPA-IXP)	<ul style="list-style-type: none">• Automating route server filter configuration (RPSL tools)• Re-architecting of the route server (BIRD) routing table (PIPE protocol)• RPKI implementation• Best practices of operating an IXP
New Caledonia	<ul style="list-style-type: none">• IPv6 deployment

5. APNIC Conferences

APRICOT 2018



- Kathmandu, Nepal
19 to 28 February 2018
- First Hackathon on IPv6
24 participants
- Other events included
ICANN GAC workshop,
FIRST TC, APIX and
APStar meetings

Conference statistics	
Total number of on-site delegates	752
Economies represented	64
APNIC Member organizations represented	247
Remote participants – Adobe Connect	71
Remote participants – YouTube	1,589 views; 12,998 minutes viewed
#apricot2018 tweets	931
Total people reached	1,069,458



NOUMEA, NEW CALEDONIA
6 - 13 September 2018

- Conference program finalized
 - Keynote presenters Jonathan Brewer and Raja Azrina Raja Othman
- Registration stood at 280 as at 31 July
- Secured around AUD 250k in sponsorship
- Other meetings being held include APIX, AP*, and FIRST

<https://conference.apnic.net/46>

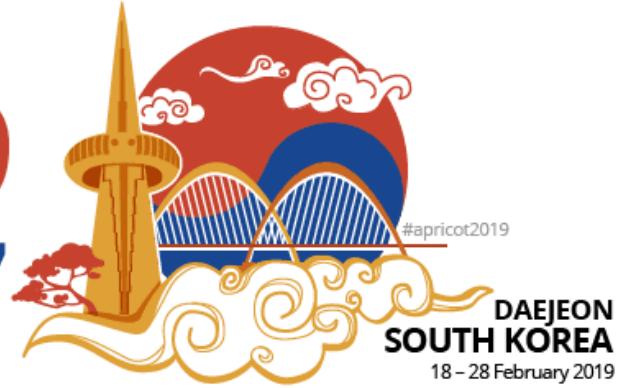


Next Conference



APRICOT 2019

APNIC 47



Registration will open soon

2019.apricot.net

6. Regional Technical Development

IP Address Policy

- Policy process activation
 - Increasing and maintaining participation
 - Webinars, mock policy SIG
 - APNIC Academy course coming soon
- Current focus areas
 - Need-based vs No-need IPv6 transfer policies
 - Restrictions on subsequent transfer: 5-year vs shorter
 - Registration/whois validation
 - PDP adjustment/streamlining



prop-118: No need policy

- **Proposal**

- Remove the requirement to demonstrate need when transferring IPv4 addresses into or within the APNIC region
 - Exception where resources are from an RIR region requiring needs-based policies, where recipients must provide a plan use of at least 50% of the resources within 5 years
- Would not apply to AS number transfers

- **Status**

- Initially discussed at APNIC 44
- No discussion at APNIC 45
- **Will be discussed at APNIC 46**

prop-124: Clarification of IPv6 sub-assignments

- **Proposal**

- Clarifies the definition of assigned address space for IPv6 delegations under section 2.2.3 of APNIC Internet Number Resource Policies document

- **Status**

- Will be discussed at APNIC 46

prop-125: Validation of “abuse mailbox” and other IRT emails

- **Proposal**

- To solve security issues in networks by means of a simple, periodic verification of IRT emails
- Establishes the basic rules for performing such verifications to avoid unnecessary costs to third parties who need to contact the people responsible for solving network abuse

- **Status**

- Will be discussed at APNIC 46

prop-126: PDP Update

- **Proposal**

- Proposes updates to section 4 of APNIC Policy Development Process document.

- **Status**

- Will be discussed at APNIC 46



prop-119: Temporary transfers

- **Proposal**

- To allow temporary transfers of IPv4 space
- Essentially the same as a normal transfer, but with an end-date, after which the registration will revert to the original holder

- **Status**

- Initially discussed at APNIC 44
- No progress at APNIC 45
- Withdrawn by author



prop-120: Final /8 pool exhaustion

- **Proposal**

- Provides refinement guidance for 103/8 pool exhaustion:
 - Once a request cannot be fulfilled from the Final 103/8 pool, a waiting list will be established
- APNIC to manage two waiting list pools, the recovered pool and the 103/8 pool

- **Status**

- Initially discussed at APNIC 44
- Revised version discussed at APNIC 45
- Did not reach consensus; returned to mailing list for further discussion by the community
- Withdrawn by author

prop-123: Modify 103/8 IPv4 transfer policy



- **Proposal**

- Allows the transfer of 103/8 addresses without the 5- year restriction for delegations made before 14 September 2017

- **Status**

- Discussed at APNIC 45
- Did not reach consensus; returned to author for further consideration and submission of a revised version
- Withdrawn by author



IXP Measurement and Support

Locations/IXP	Type of support
Vanuatu	Two and a half-day workshop (Feb 2018) in collaboration with the Office of the Government Chief Information Officer; half-day session to discuss the benefits of an IXP and operational best practices
Myanmar	Three-day workshop (March 2018) in collaboration with MM-IX to discuss IXP best practices at traffic engineering
PNG-IXP	F-root installation and route leak support
Fiji IXP	Port security issues with USP connecting to the IXP
BKNIX	Sponsored the BKNIX Peering Forum, held in May 2018
MISPA-IXP, Mongolia	As part of TA, provided details on how to automate route server filters
IXP-DB	Sponsored IXP-DB system development and PeeringDB service
APIX and Peering Asia	Sponsored and supported the APIX meeting at APNIC 45, and sponsored Peering Asia 2.0

NOG Support

- 13 NOGs in 2018
 - Sponsorship, presentations, training, member services

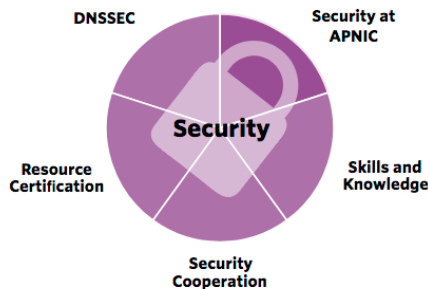


NOGs	Region	Date
JANOG 41, 42	APNIC	Jan, Jul
HKNOG 6.0	APNIC	Mar
PhNOG 2018, Davao	APNIC	Mar, Jul
CaribNOG 15	ARIN	Apr
bdNOG 8	APNIC	May
ThaiNOG 2018	APNIC	May
btNOG 5	APNIC	Jun
PacNOG 22	APNIC	Jun
SGNOG 6	APNIC	Jul
MyNOG 7	APNIC	Jul
IDNOG 5	APNIC	Jul

Security Support

- New section on the APNIC website completed and deployed in Jan 2018
- Supported the APCERT Steering Committee meeting during APRICOT 2018
- Hosted FIRST TC as part of APRICOT 2018 and participated in FIRST Conference in Malaysia
- Presented at the FIRST TC in Osaka, Japan
- Conducted LEA training in Hong Kong, Taiwan and Fiji
- Invited as an instructor at the APISC 2018 in Seoul, South Korea (organized by KISA)
- Helped organize workshop for APEC TEL SPSG
- Assisted ITU with workshop on Windows security
- Conducted Security workshop for MYREN
- Invited to present at G7 High Tech Crimes Network

Security at APNIC



Pacific CERT Development



- Supporting CERT development in the Pacific through mentoring, training, and technical assistance
- AUD 200K funding via APNIC Foundation (two years)
- Attended the launch of PNG CERT (Jan 2018) and delivered two-day technical workshop
- Attended a two-day CERT engagement session in Samoa (Apr 2018)
- Conducted CERT workshop in Tonga for 24 delegates from five economies (May 2018)



7. Community Engagement



Community Sponsorships

- To date, APNIC has committed to sponsor the following community events in 2018:
 - NPSIG 2018, Nepal
 - APrIGF 2018 and PacIGF 2018, Vanuatu
 - APT Connectivity Workshop at APT PRFP-11, Western Samoa
 - AINTEC 2018, Thailand
- APNIC also sponsors schools of Internet governance through APASA

Fellowship Program



- Fellowships for APNIC 46 opened on 7 May and closed 8 June 2018
- 68 Fellows from 17 economies selected, including 25 females
- Majority of Fellows drawn from Pacific Island economies

APNIC **46**

Fellowships

Applications open 7 May

<https://conference.apnic.net/46/fellowship>



	Professional	Youth	Returning
Male	36	4	3
Female	18	2	5

Government and Sub-Regional Liaison



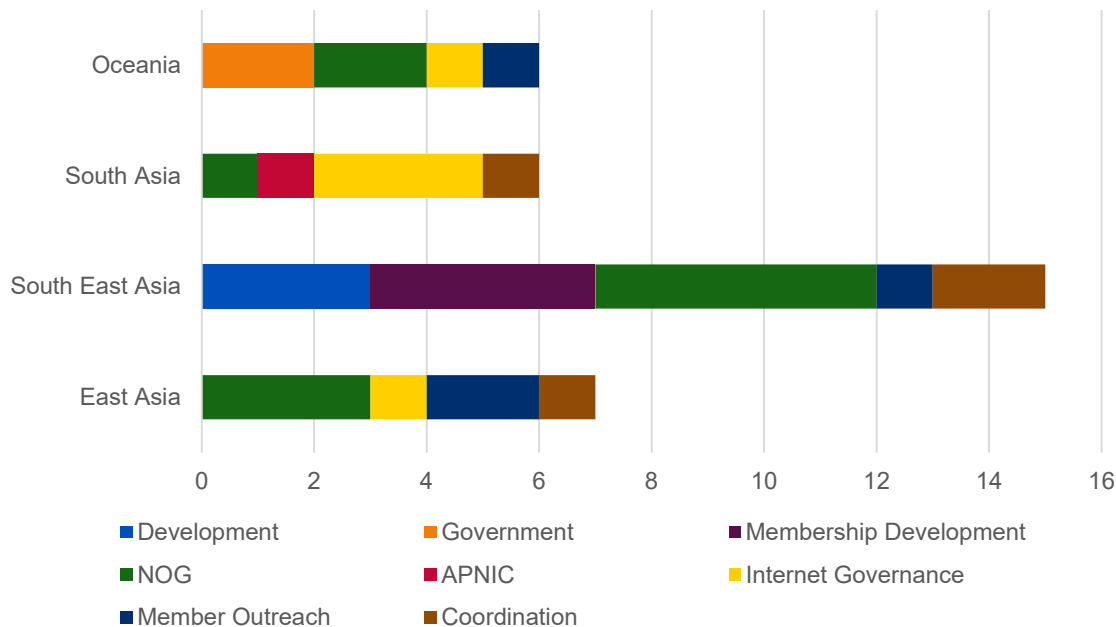
- APT preparatory meeting for ITU Plenipot (four prep meetings)
 - Jan 2018 in Viet Nam (second meeting)
 - July 2018 in Australia (third meeting)
- Annual IPv6 workshop with ITU, 14 to 18 May 2018
 - Partnership for IPv6 capacity building
 - Direct country assistance is also being scheduled
- Government engagements
 - East Timor, Mongolia, Papua New Guinea and Vanuatu
- APNIC participated at APEC Tel in PNG

Community outreach



- Participated at 34 community events, including a Member Gathering in Mongolia, attended by 19 Member representatives

Regional Engagements - Community Outreach





Social Media Activity

	Q1 2018	Q2 2018	Q3 2018
Facebook			
• Reach	139,688	20,810	55,936
• Likes	26,782	26,808	27,108
Twitter			
• Followers	8,491	8,678	9,044
• Engagement	2,711	648	1,174
YouTube			
• Views	12,252	2,320	2,380
• Minutes	82,037	14,190	13,639
Slideshare			
• Views	32,707	9,884	19,219
LinkedIn			
• Reach	29,155	2,939	9,274
• Followers	2,862	2,909	3,078



Internet Governance

- APriIGF will be held in Aug 2018 in Vanuatu
 - Preparation meetings are underway
 - Sylvia Cadena, Co-Chair of the MSG
 - APNIC sponsorship for fellowship program and four workshop proposals
- IGF 2018 will be held in Paris from 12 to 14 November
 - Sylvia Cadena appointed to the MAG
- First NPSIG was held with around 40+ participants from academia, technical, government and other stakeholder groups attending
- APNIC supported the APNIC Foundation to participate at the WSIS Forum
- APNIC participated in APIGA (3rd edition) and presented IPGO card game



R&E Community Outreach

- Building relationships with the R&E community
 - Universities, Research Institutes, NRENs
- Sponsorship for APAN 45 in Singapore (Mar 2018) and APNIC 46 (Aug 2018)
- Training
 - Two one-day tutorials (SDN and Network/Internet Security) at APAN 45
 - Will conduct two one-day tutorials (DNS/DNSSEC and Network Security) at APAN 46
 - Assisted GEANT at APAN 45 to conduct TRANSITS-I training with funding from Asi@Connect/TEIN and assist them again at APAN 46
 - Conducted Security Workshop for MyREN members
 - APNIC will provide Advanced Network Security Workshop in Myanmar in collaboration with ICSY/mmREN in Dec 2018
 - Discussing better R&E networks, eduroam and other services with AARNet



Increasing Participation

- Project to encourage Member participation in APNIC community processes, with a focus on the PDP
 - Facebook Live webinar previewing APNIC 45 Policy SIG session at APRICOT 2018 (attracting 353 views)
 - Summaries of policies for discussion / Policy SIG outcomes translated into seven languages
 - Session held at NPSIG 2018 to encourage engagement (final event as part of a pilot project in South Asia community)
 - Policy engagement presentation presented at PacNOG 22, and scheduled for SANOG 32 and VNIX-NOG
 - Blog post series on policies that have made a significant impact on the Internet scheduled for Q3 publication
 - APNIC Academy course on PDP scheduled for launch in Q3

8. APNIC Foundation

Governance and administration



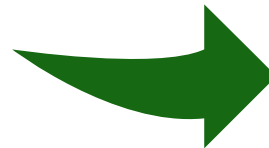
- Board selection process continues
- First AGM and Board meeting held in HK on 17 May; board adopted Vision and Mission, approved audited financial statements, adopted fraud, personnel and WHS policies, elected Sylvia Sumarlin as the Chair
- Participation in Australian Aid Conference, AVPN, JICA and Foreign Affairs, KDDI Foundation, Asia Development Bank
- Projects:
 - DFAT-CERT projects for Pacific with establishment of PNG CERT in Jan 2018 and Vanuatu CERT in June 2018
 - First regional workshop held in Tonga in May 2018 with participation from Cook Islands, Fiji, PNG, Samoa, Solomon Islands and Vanuatu; second workshop scheduled for APNIC 46
 - Second portion of funding (AUD 100k for second year 2018-19) was confirmed

APNIC Foundation – Funding



- Initial approval (Apr 2018); Approved (Jul 2018): AUD 558k for new project 'Enhancing National Cybersecurity and Network Quality of Service in Advance of Papua New Guinea's Hosting of APEC'
- Approved (Jul 2018): AUD 108k in funding for new project 'Combating Cybercrime - Safe Havens: Building a well informed and trained cyber law enforcement community in the Pacific'
- Approved (Jul 2018): AUD 75K funding for PNG CERT

Three proposals have been drafted and are under discussion with potential partners



APNIC
Foundation
achieves AUD 1
million in funding



WSIS Champions

- ISIF Asia was one of four projects recognized as a WSIS Champion in the International and Regional Cooperation category
- Sylvia Cadena participated in the Champions ceremony in Mar 2018

Grants and Awards

- 2018 Call for Grant Proposals and Award Nominations was launched on 25 February and closed on 15 May 2018
- USD 210k will be allocated across 10 projects (8 grants and 2 awards) across 4 funding categories: Network Operations Research, Cybersecurity, Community Networks, and Gender Empowerment and Innovations

9. Global Community

Collaboration



RIR

- Key topic of discussion was the ASO Review (see slides below)
- ARIN and LACNIC held small consultation sessions during their meetings
 - At ARIN, a staff summary suggested further engagement with ICANN (via the NRO)

ICANN, PTI, IETF, ISOC

- ICANN 61: Paul Wilson spoke at the Opening Ceremony; NRO EC had a face-to-face meeting
- ICANN 62: Paul wrote a blogpost on whois data and privacy; NRO EC had a face-to-face meeting and met with CEO and Chairman of ICANN on relationship via ASO
- APNIC staff presented on IPv6 and measuring ATR at IETF 101 in Mar 2018

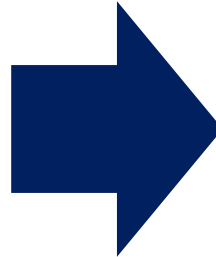
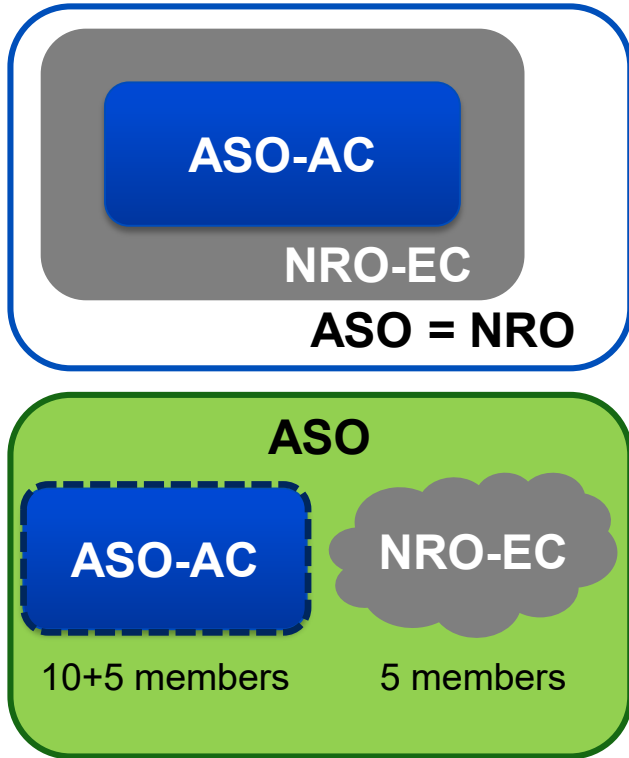
ASO Review consultation #2 (Feb 2018)



- Strawman proposal
 - From WG chairs, after discussion on the mailing list
 - Based on Option 3 (two-house model) of the ASO Review report and discussions of the ASO Review Working Group
- Strong support to a two-house ASO structure
 - Policy Council and Registry Council replace ASO AC and NRO EC
 - But no consensus on the number of members or the selection mechanism
- Members of the APNIC community continue to participate in the wg-aso-review mailing list



ASO Strawman Proposal





NRO Projects

- APNIC is the Chair of the NRO in 2018
- Discussion topics include the ASO Review, AFRINIC Board issues, IANA Review Committee report, ICANN Board seat #9 election
- NRO submitted response to NTIA's notice of enquiry on International Internet Policy Priorities stating that IANA transition should not be unwound
- Framework for person data in the Internet number registry under discussion
- Coordination group projects include:
 - RSCG: ITHI, registry and whois accuracy, resource transfer improvements, slide template improvements
 - CCG: Website redesign, IGF participation
 - ECG: RDAP, RPKI, Unified Reporting

11. Global Research

Global Research and Measurements



Research topics

- KSK rollover investigations, including resolver characterization and user impact measurement
- Promoting the approach described in draft-huston-kskroll-sentinel as an alternative approach to testing the extent of user impact of a KSK roll
- IPv6, Extension Headers and IPv6 Fragmentation
- Measuring the extent of latent QUIC capability
- DNS related research with ICANN (contract extended to 2018)
- Investigation into the dynamic behaviour of BBR (Google's new TCP flow control algorithm)
- Ongoing activity with the ICANN SSAC and SSR2 Committees
- Investigation of DNSSEC and its role in NSEC caching
- Open resolver collaboration with Cloudflare
- DNS ATR measurement
- ITHI DNS measurement (funded by ICANN)

Articles

- DNS and DDOS
- Hiding the DNS
- Helping Resolvers to help the DNS
- Network Neutrality – Again
- A Workshop on Internet Economics
- BGP in 2017
- Addressing 2017
- Peak DNSSEC?
- Crypto Zealots
- DNS OARC 28 report
- Just One Bit
- Stuff the Camel into the Bikeshed
- Measuring Root Zone Trust
- Measuring ATR
- What Drives IPv6 Deployment
- Another 10 Years Later
- The Uncertainty of Measuring the DNS
- An Update on Securing BGP from IETF 102

Presentations

- TCP and BBR (Canberra Linux Users Group)
- IoT (ATSE)
- The Death of Transit and Beyond (IAB Tech Talk, HKNOG)
- The Rise and Rise of Content Distribution Networks (CAIDA Workshop on Internet Economics)
- DDOS, DNS and DNSSEC (NZNOG 2018)
- Measuring DNS ATR (DNS OARC, IETF)
- TCP and BBR (REDIRIS.ES Conference, RIPE 76)
- Measuring ATR (RIPE 76)
- Reasons for IPv6 Deployment (RIPE 76)

12. Human Resources Management

Product Management

- Product Management approach adopted to develop systems and services
- Defines process of developing and improving APNIC products, including:
 - Idea/problem validation
 - Solution validation
 - MVP
 - Build/launch/operate
 - Repeat

13. Finance and Administration

Legal Counsel and Business Advisors



- Maddocks lawyers are currently reviewing all of APNIC's employment and independent contractor agreements for consistency
- There has been significant activity in finalizing the Foundation's financial and audit report
- Legal advice provided to a number of requests for resource transfers



Workplace Health and Safety

- Incidents/Hazards
 - Quarterly WHS Committee Meeting held April 2018
- Compliance activity
 - All staff and EC members completed:
 - Prevention of Bullying and Sexual Harassment
 - Anti-discrimination
 - Equal Opportunity Employment
 - Fraud awareness
- First Aid recertification training in June for all Area Wardens and any other staff volunteers
- Risk assessments and WHS due diligence completed before APRICOT 2018

66

AMM 1

*Tentative agenda

Time	Topic	Speaker
14:00	EC Chair welcome, introductions, and opening remarks	Gaurab Raj Upadhaya
14:05	APNIC Secretariat Report	Paul Wilson
14:25	APNIC EC Treasurer report	Kenny Huang
14:35	APNIC EC Report	Gaurab Raj Upadhaya
14:50	Open Mic	
15:00	NRO NC Election Results	Election Chair
15:10	APNIC 2018 Survey Results	Brenda Mainland
15:25	Open Mic	

AMM 2

*Tentative agenda

16:00	NRO EC Report	Paul Wilson
16:10	ASO Review Report	Aftab Siddiqui
16:20	Policy SIG Report	Sumon Sabir
16:30	NIR SIG Report	Shyam Nair / Zhen Yu
16:40	Cooperation SIG Report	Dr Govind
16:50	IPv6 Readiness Measurement Report	Kenny Huang
17:00	Women in ICT update	Shaila Sharmin
17:10	Open Mic	
17:20	APRICOT 2019 Update	TBC - KISTI
17:30	Welcome to APNIC 48	Dr. Photchanan
17:40	Vote of Thanks	Paul Wilson
17:50	EC final Remarks and Close	Gaurab Raj Upadhaya

Agenda Item 13

APNIC Foundation update

Foundation update



Contents

1. New Board members
2. New funding and projects
3. ISIF Asia

Board selection – third round

Two new Board members confirmed:

- **Australia:** Michael Malone (Internet entrepreneur)
 - **Pakistan:** Mr. Danish Lakhani (Cybernet CEO)
- (Appointment/regulatory processes underway)

[Confidential material redacted]

Board selection - next steps

1. EC invited to propose names for remaining one/two positions at next EC meeting
2. Research also underway for possible candidates
3. Focus on fund raising expertise: East Asia, Pacific regions, and women

Next Board meeting

Informal discussions underway for second Board meeting before the end of the year

Strategic planning session

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

Mission: To increase investment in Internet development in the Asia Pacific region, through education and training, human capacity building, community development, research, and related projects and activities.

New funding 1

1. Previous funding of AUD 558,000 increased to USD 558,000 with the New Zealand government providing USD 175,000 — for technical training, security and IXP in Papua New Guinea (PNG).
2. Received from the San Francisco-based Asia Foundation (TAF) in a partnership with Australia's Department for Foreign Affairs (DFAT) and now the New Zealand government.
3. Largest single grant so far. Support PNG's plans to host the APEC leaders' summit in November this year.

New funding 2

- AUD 75,000 to support the development of PNG CERT
- **Indirect support**
 - Japan's KDDI Foundation is providing airfares and accommodation for one APNIC trainer to provide training for university networks in Myanmar
- Proposals under development with JICA (APNIC Academy); Asia Foundation (cybersecurity); Google (community networks)

Funding (AUD)

Year	Donor	Project	Amount	Total
2018	TAF	PNG training, IXP and CERT	770,000	
2018	DFAT	Pacific LEA training	108,000	
2018	DFAT	PNG CERT	75,000	
2018	DFAT	Pacific CERT (2 nd phase)	100,000	1,053,000
2017	DFAT	Pacific CERT (1st phase)	100,000	
2017	IDRC	ISIF Asia	103,000	
2017	ISOC	ISIF Asia	44,000	247,000
Total				1,300,000

ISIF Asia

For 2018, 219 grant proposals from 28 economies (for the first time from Laos, Macau, Taiwan and Hong Kong)

- 53 proposals for Community Networks (ISOC – AUD 70,000)
- 27 proposals for Cybersecurity (APNIC - AUD 60,000)
- 17 proposals for Internet Network Operations Research (APNIC - AUD 60,000)
- 122 proposals for Gender empowerment and innovation (IDRC - AUD 70,200)

17 award nominations from 7 economies (14 for community networks and 3 for gender empowerment)

ISIF Asia

- Winners are expected to be announced in September 2018 after a comprehensive selection process and due diligence
- USD 210,000 will be allocated across 10 projects (8 grants and 2 awards) for the four funding categories

Agenda Item 14

NRO NC Election procedures



2018 NRO Number Council (NC) Election



2018 NRO NC Election

- One vacant seat on NRO NC
 - Two-year term from 1 January 2019 to 31 December 2020
- Call for nominations: 7 June to 8 August 2018
- Online and on-site voting available
 - <https://conference.apnic.net/46/elections>

Online Voting via MyAPNIC

- For APNIC Members only
- Voting period
 - Started: Tuesday, 28 August 2018
 - Ended: 9:00 (UTC +11) Tuesday, 11 September 2018

On-site Voting

- Each registered APNIC 46 attendee is entitled to one vote, as an individual
- Voting period
 - Starts: As announced by the Election Chair
 - Ends: 14:00 (UTC +11) Thursday, 13 September 2018
- Ballot Box
 - The ballot box is placed at the Voting desk after the Election Chair announces the opening of on-site voting

Voting Ballot Paper

Declaration of Results

- Election results will be announced at 15:00 (UTC +11) today, 13 September 2018
- The Election Chair will also disclose:
 - Notice of any disputes and resolutions
 - Disclosure of any communication from the Election Scrutineers regarding any anomaly or issue

Declaration of Results

APNIC 46

2018 APNIC NRO NC Election – 13 September 2018

Declaration of results

Total valid paper ballots	220	
Total invalid paper ballots	0	
Total paper ballots counted	220	
Total on-site votes	220	
Total online votes	100	
Total votes counted	320	
Total vote counts for each nominee (combined online and onsite votes)	Candidate 1	116
	Candidate 2	73
	Candidate 3	30
	Candidate 4	19
	Candidate 5	18
	Candidate 6	14
	Candidate 7	9
	Candidate 8	9
	Candidate 9	8
	Candidate 10	7
	Candidate 11	5
	Candidate 12	4
	Candidate 13	2
	Candidate 14	2
	Candidate 15	2
	Candidate 16	1
	Candidate 17	1
Total votes counted	320	

Signature of tellers: _____

Name of tellers: George Kuo, Connie Chan, Tom Do, Elly Tawhai

Date: 13 September 2018

2018 NRO NC Election

- Perrine D'Halluin as Election Chair (appointed by EC)
- George Kuo and Connie Chan as Election Officers (appointed by EC)
- Jake Flint and Tom Do as Election Tellers (appointed by EC)
- Xxxxx and xxxxx as Election Scrutineers (appointed by Election Chair)

Notice of Dispute

- Any complaint regarding the conduct of the election must be lodged in writing with the Election Chair at the conference and be lodged no later than one hour before the scheduled Declaration of the Election
- Notices may only be lodged by Nominees or Members through their authorized voting representatives
- The Election Chair shall resolve the dispute at his discretion

Nominees for 2018 NRO NC Election



Nominees for 2018 NRO NC Election

- KH. Ahmad Nadeem
- Solomon Wesley Sua
- Ahsan Habib Bhuiyan Rumi
- Conie Borres Mercader
- Jyuma Yamamoto
- Manoj Adhikari
- Md. Mawdud Ahmed
- Minh Lay
- Mubashar Shahzad
- Md. Zakirul Islam
- Tashi Phuntsho
- Anwar Ahmed
- Sanaullah Soomro
- Md. Mahabub Ujjaman
- Vicente Calag
- Brajesh Jain

Nominees for 2018 NRO NC Election



2:00

On-site Voting

- Opening of the ballot box
- The ballot box will be moved to the Voting desk after the opening of on-site voting is announced
- The ballot box is supervised by the Election Tellers at all times
- Voting period
 - Starts: Now
 - Ends: 14:00 (UTC +11) Thursday, 13 September 2018

Any questions?

