

2018 APNIC Survey Report

Prepared by:

Rebecca Sullivan & Brenda Mainland
Survey Matters
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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 a National Internet Registry (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 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 (31%) 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 the Appendix.

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 positively 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. However, a small number of responses 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 years ¹, 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.

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

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.



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 (13%) 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.

Regions



South Asia

29%

East Asia

27%

South East Asia

21%

Oceania

20%

Non-APNIC Regions

3%

Economies



LDEs

24%

Developing

54%

Developed

19%

Organisation Relationship



Members

73%

Stakeholders

27%

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%

* 2016 Response subtotal for Non-APNIC Region includes responses from economies not listed as no responses were received in 2018

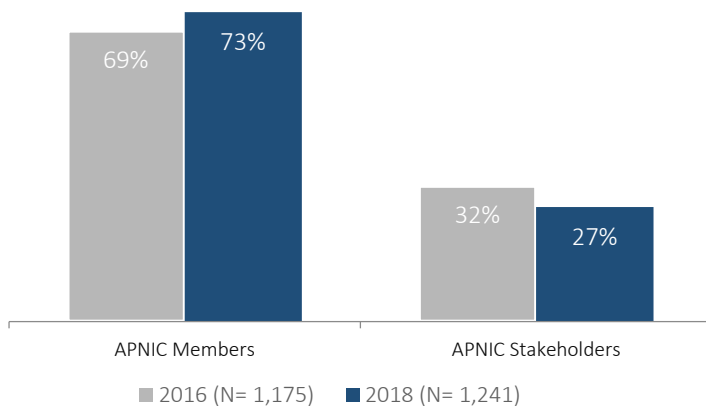
Translated surveys completed

Code	Language	Count
BD	Bangladesh (Bengali)	41
CN	Chinese Simplified	101
CN	Chinese Traditional	56
ID	Indonesian	43
JP	Japanese	60
KR	Korean	9
MN	Mongolian	49
TH	Thai	30
Total		389

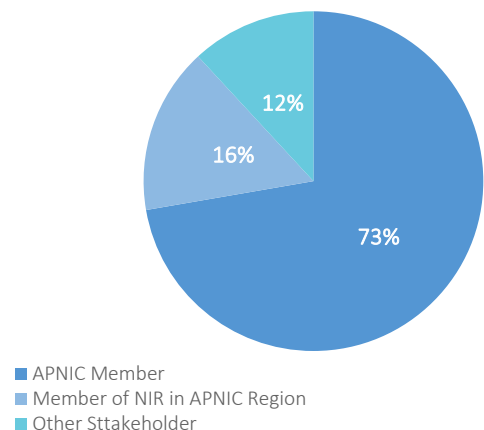
	2016	2018
Q. 3 - Organisation Type		
Sample Size	1,169	1,241
Internet Service Provider (ISP)	32%	34%
Telecommunications / Mobile Operator	11%	13%
Hosting / Data Centre	11%	7%
Academic/Educational/Research	9%	11%
Other	7%	7%
Banking/Financial	6%	5%
Government/Regulator/Municipality	5%	6%
Non-profit/NGO/Internet 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.

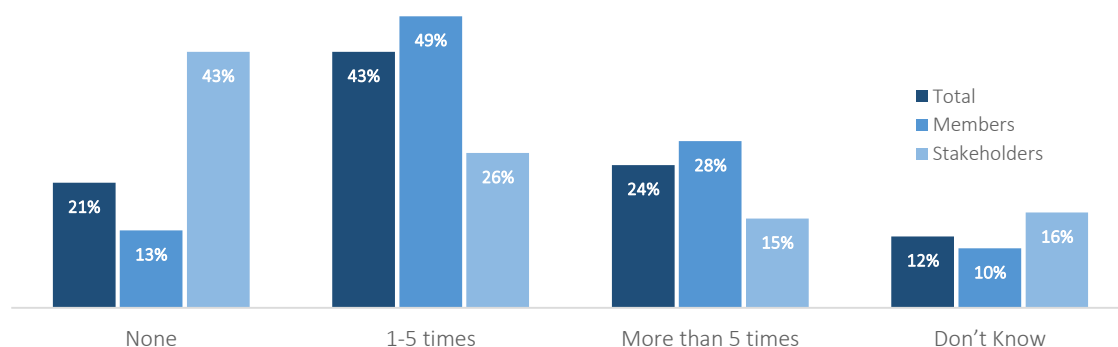
Respondents from Oceania were the most likely to have interacted with APNIC, with 81% indicating they had contact with APNIC at least once. This is broadly consistent with 2016.

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 which 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	980	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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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.

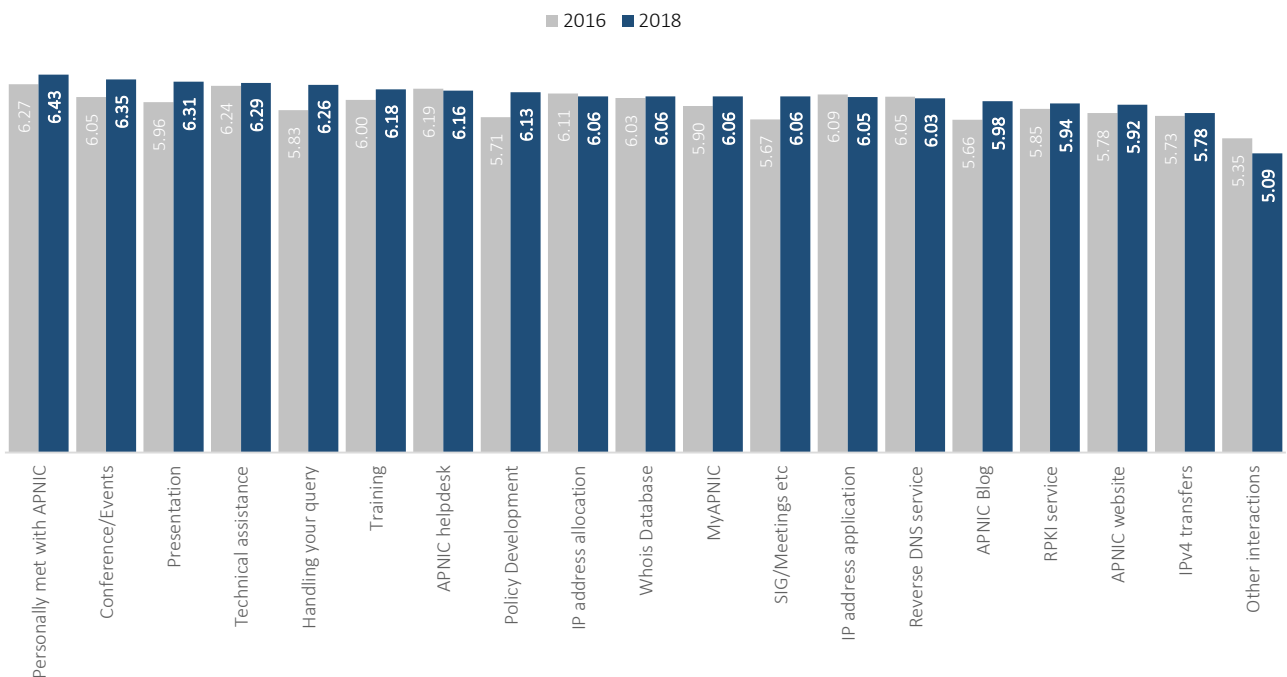
Over 90% of respondents also rated the service provided by the Technical Assistance Team and the APNIC helpdesk very highly (94% and 93% respectively).

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.

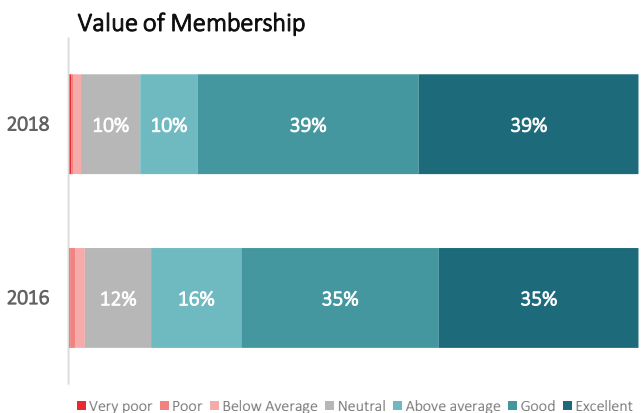
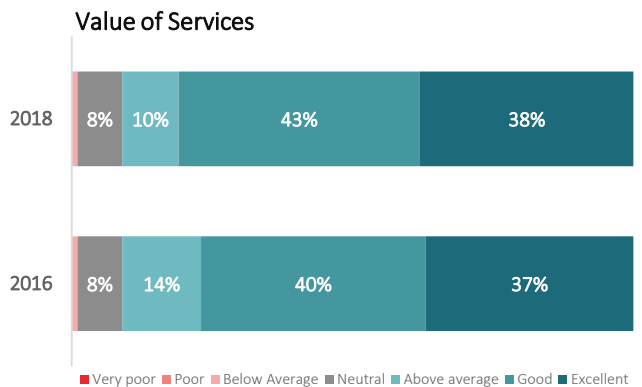
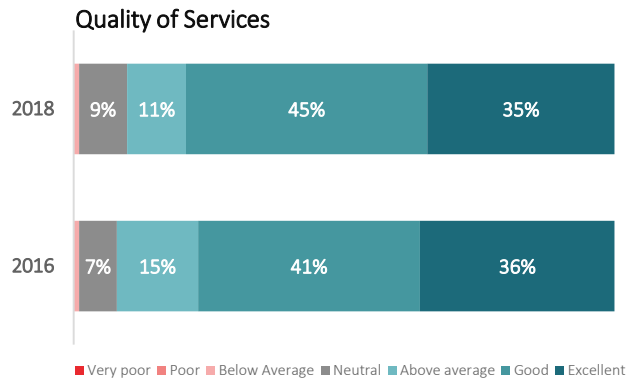
Across all dimensions, respondents in South Asia are the most satisfied, with 97% rating service quality and value positively. Ratings for APNIC service quality and value from respondents in South East Asia (91% and 94% respectively) were also positive.

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.

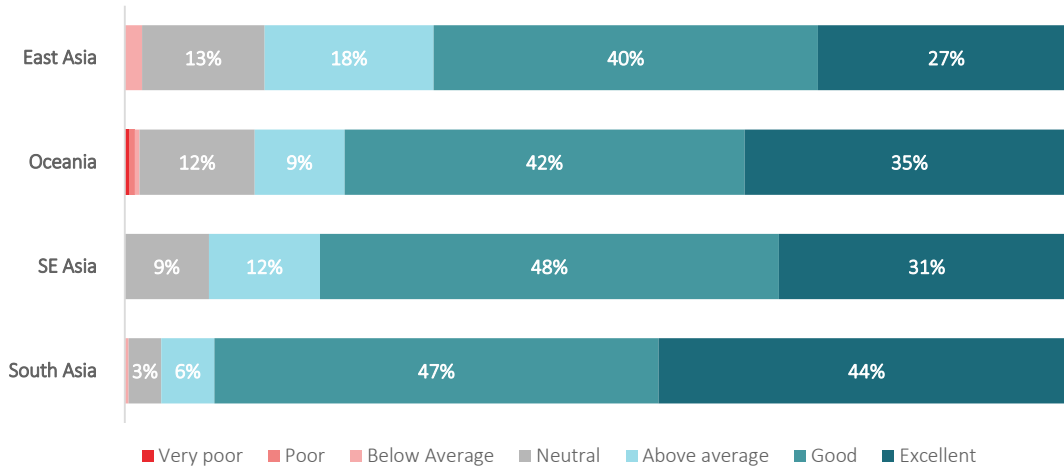
South and South East Asia respondents were also significantly more likely to be satisfied with the overall value provided by their Membership than respondents from the other two sub-regions. Ninety-four percent (94%) of respondents from South Asia and 91% of those from South East Asia rated the value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

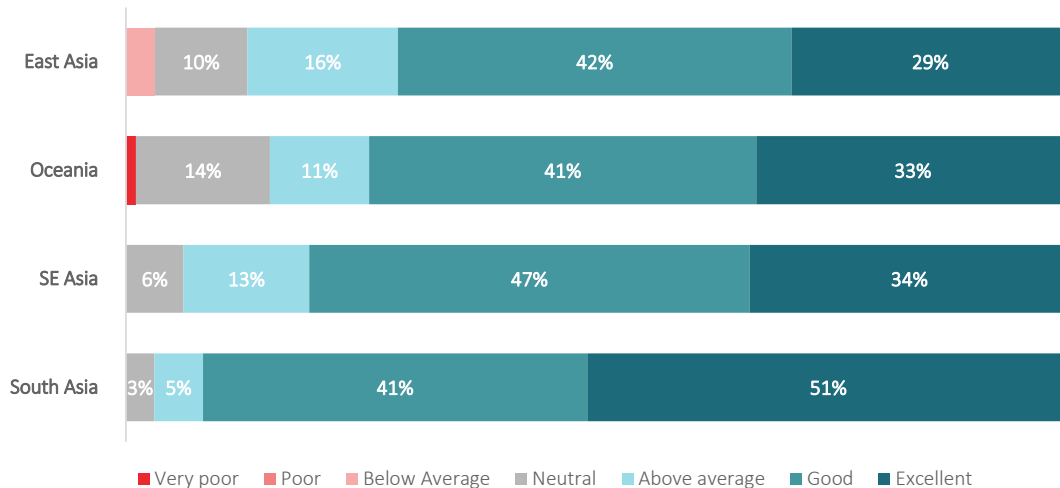


Overall satisfaction by sub-region

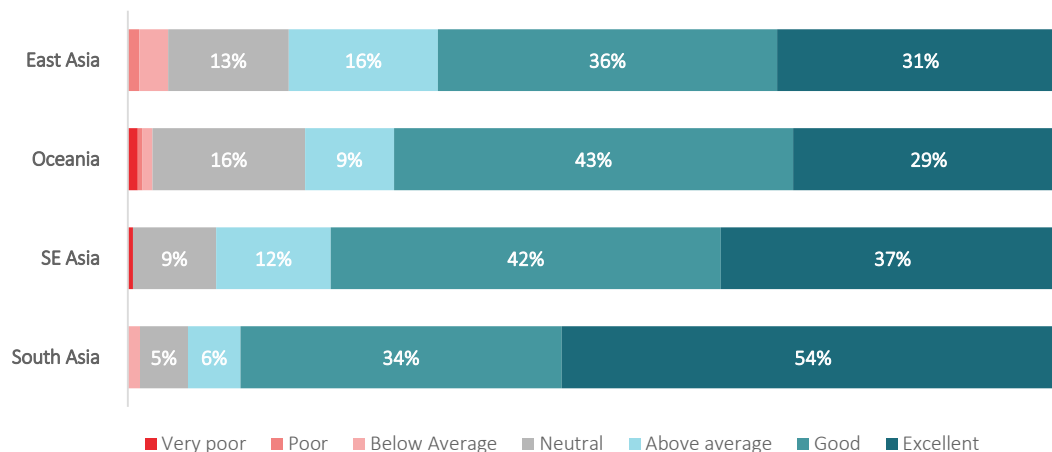
Quality of Service Delivery



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.

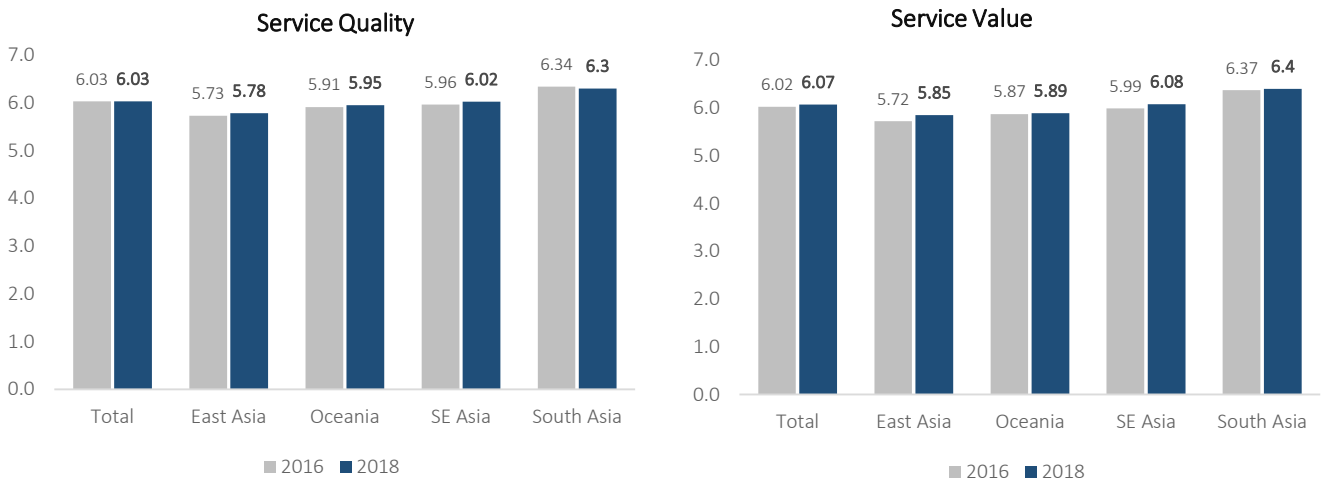
Mean ratings for the value of APNIC services has improved in all regions.

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.

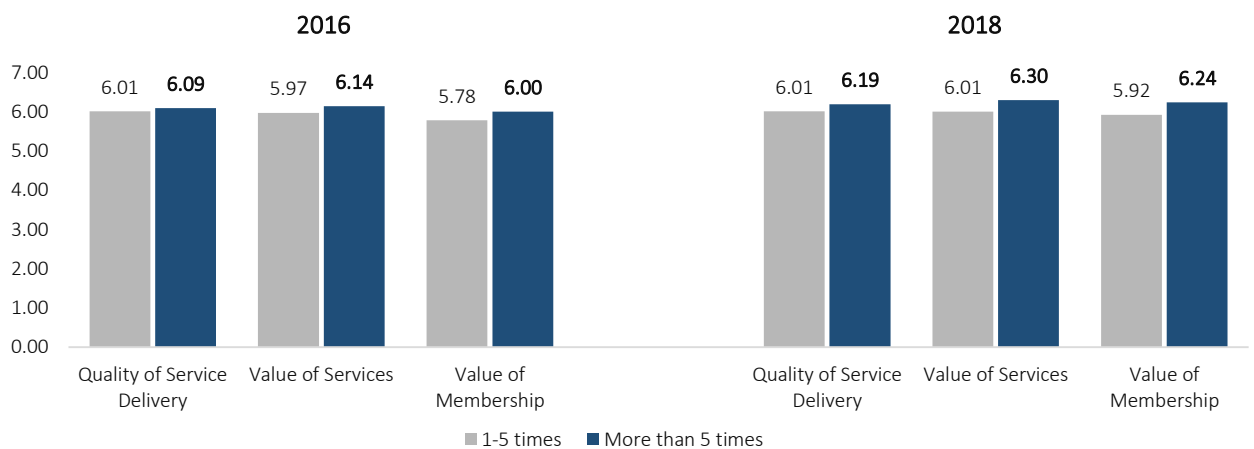
Q8. Respondents ratings of the quality and value of APNIC services compared to 2016.

(Mean scores of Members who have used APNIC services only: 2016: n=733, 2018: 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 who have used APNIC services only: 2016 n=733; 2018 n= 788)



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.

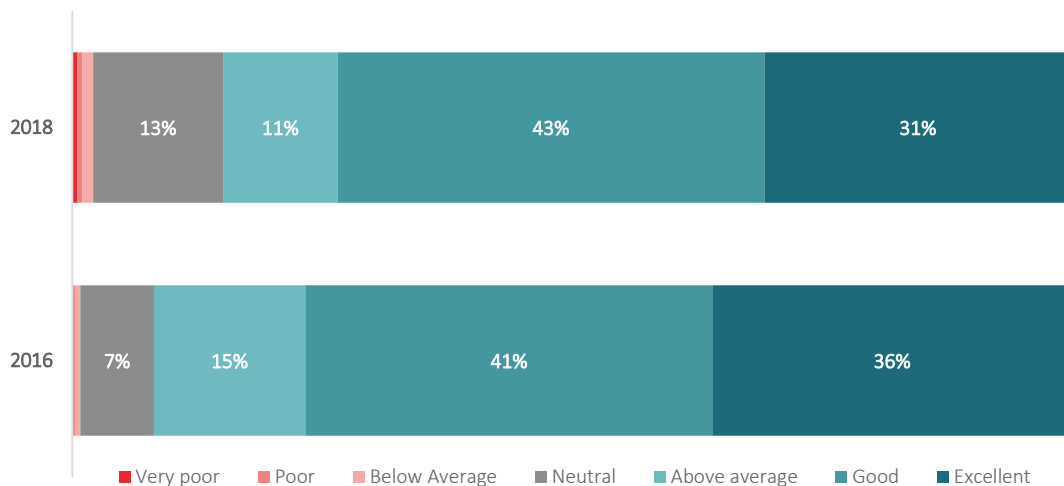
Respondents in South East Asia provided the most positive feedback, with 94% rating their experience dealing with APNIC as above average, good or excellent. This is up significantly from 74% in 2016.

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 who have used APNIC services 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.

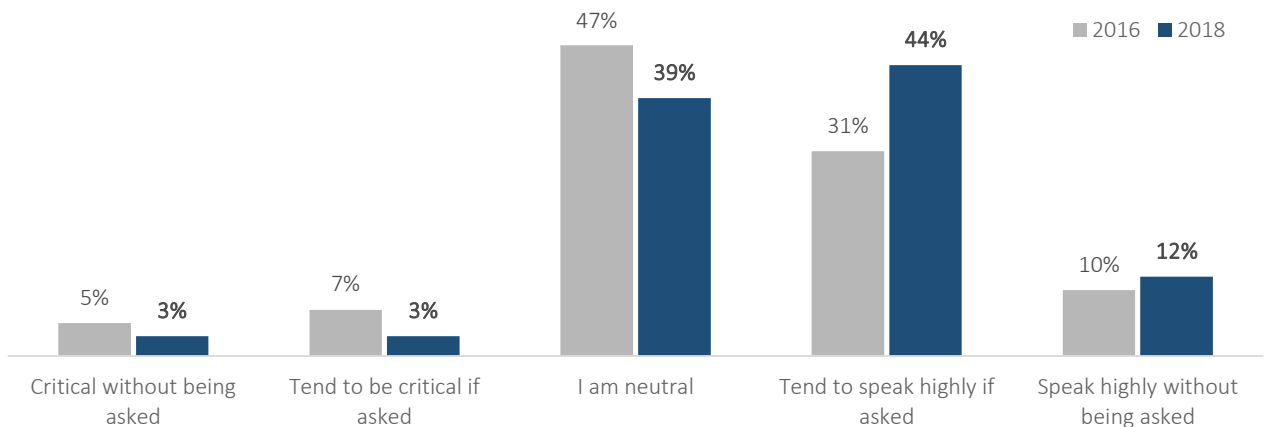
Like in 2016, respondents from LDEs are the most likely to speak highly of APNIC – 18% speak highly without being asked and 51% provide positive feedback when asked. By comparison, only 5% of respondents in developed economies would provide positive feedback without being asked.

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: n=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

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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, n=1,241)

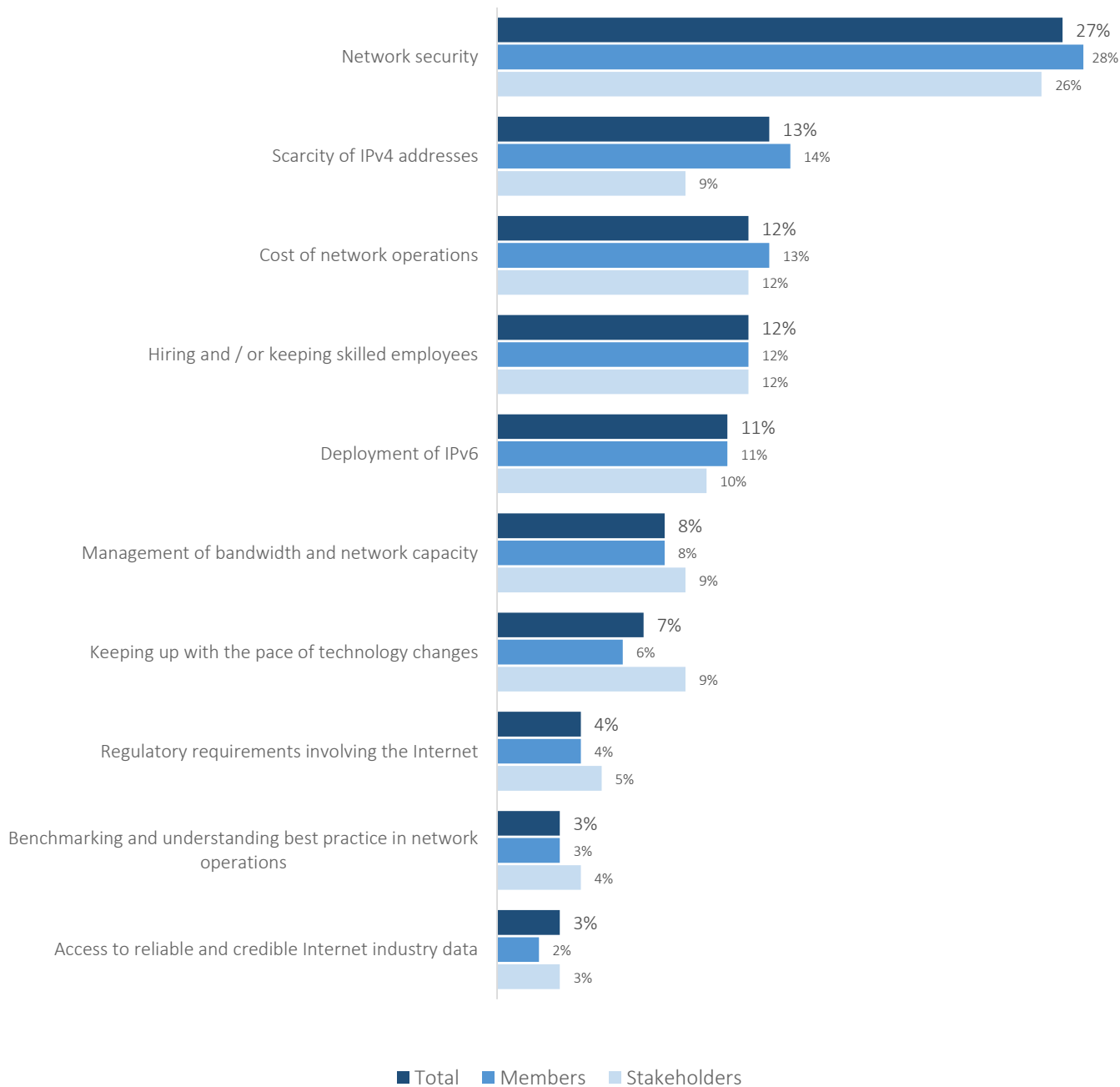
	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	1241	337	251	259	356	294	672	237
Network security	27%	28%	34%	22%	26%	28%	25%	31%
Scarcity of IPv4 addresses	13%	13%	9%	14%	14%	11%	13%	12%
Cost of network operations	12%	10%	14%	17%	11%	13%	13%	11%
Hiring and / or keeping 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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

Significance tests not performed on ranking questions

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.

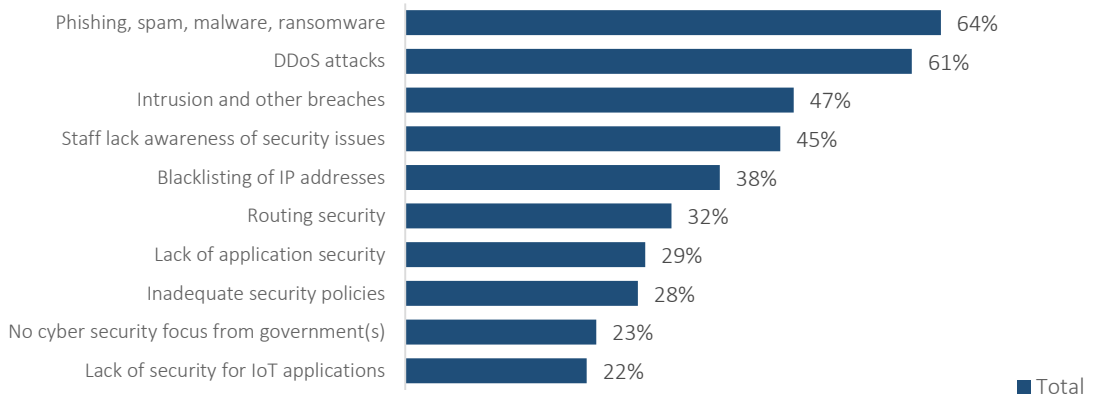
A strong theme in the focus group discussions, blacklisting of IP addresses was identified as a challenge with many reports that thorough testing is needed before deployment. This was confirmed by the Survey with 38% of respondents, particularly those in LDE's with 49% rating it amongst their main challenges.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



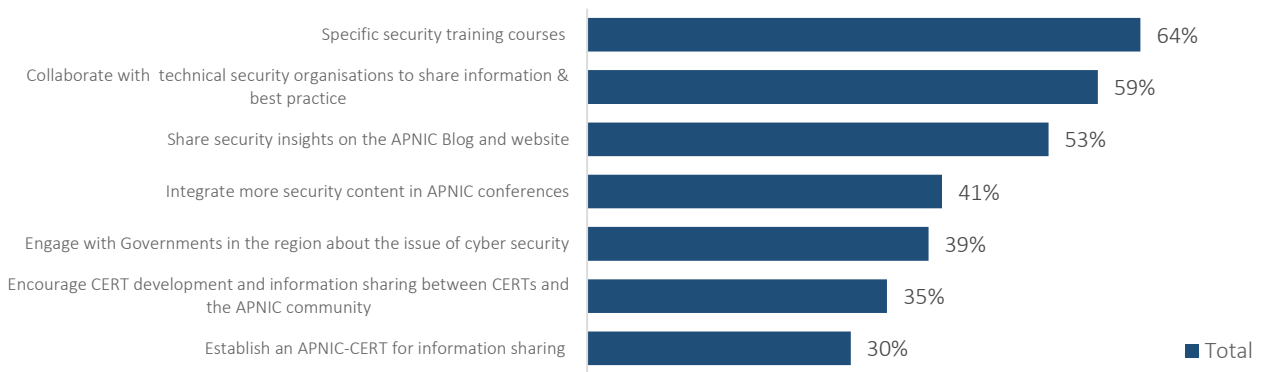
	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	338	337	251	259	356	294	672	237
Phishing, spam, malware, ransomware	65%	62%	58%	63%	74%	64%	66%	63%	65%
DDoS attacks	65%	48%	65%	45%	70%	61%	58%	64%	54%
Intrusion and other breaches	47%	47%	58%	55%	46%	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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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.

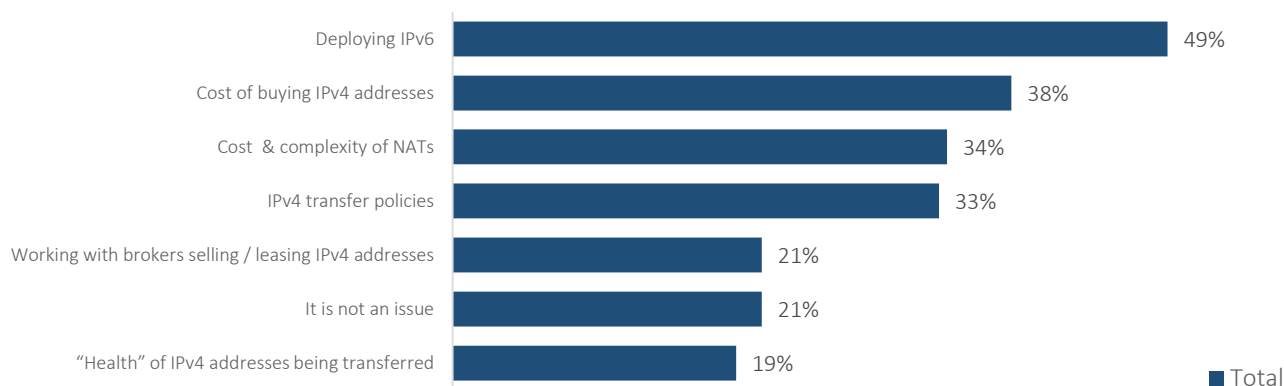
Also reflecting focus group discussion that described the recent policy restricting transfers as ‘problematic’, transfer policies were identified as an issue for 33% of respondents. Again, they appear to be less of an issue for respondents in developed economies, notably Oceania.

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)



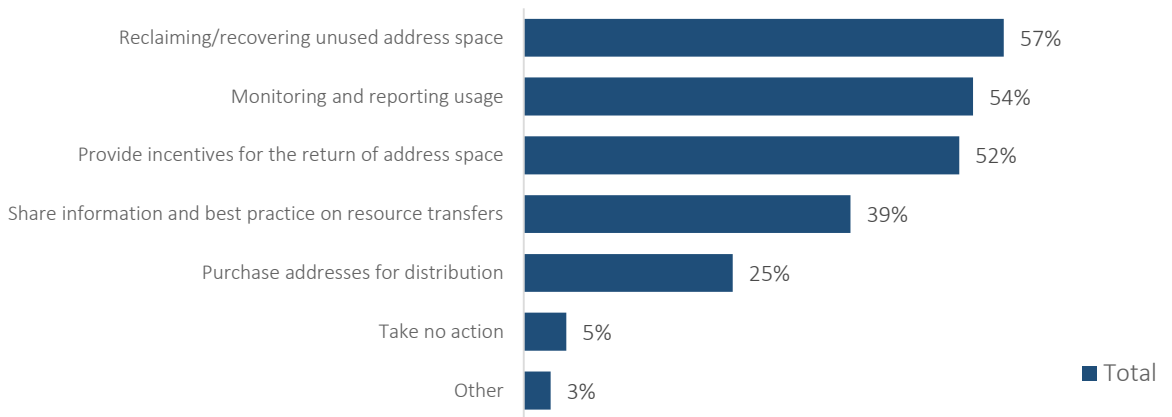
	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	199	206	207	268	238	455	187
Deploying IPv6	49%	54%	33%	55%	54%	55%	52%	35%
The cost of buying IPv4 addresses	38%	44%	26%	42%	41%	40%	41%	29%
Cost and complexity of NATs	34%	34%	22%	43%	37%	40%	36%	20%
IPv4 address transfer 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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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)



	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	199	206	207	268	238	455	187
Reclaiming/recovering unused address space	57%	59%	55%	58%	57%	53%	60%	56%
Monitoring and reporting usage	54%	52%	43%	56%	63%	63%	56%	39%
Provide incentives for the return of address space	52%	55%	58%	45%	51%	52%	52%	54%
Share information and best practice on resource transfers	39%	41%	30%	46%	42%	46%	43%	24%
Purchase addresses for distribution	25%	28%	17%	26%	28%	29%	25%	19%
Take no action	5%	4%	8%	3%	5%	3%	4%	10%
Other	3%	3%	6%	2%	2%	2%	2%	6%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

Significantly higher / lower than total

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.

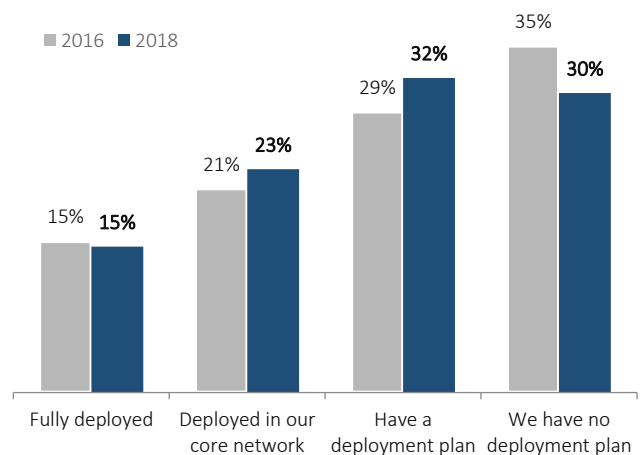
Respondents from South East Asia (20%) are again the region most likely to indicate that their organisation has IPv6 fully deployed. Seventeen percent (17%) of respondents from East Asia also indicate that their organisation has fully deployed IPv6. Only 14% of respondents from Oceania and 8% from South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

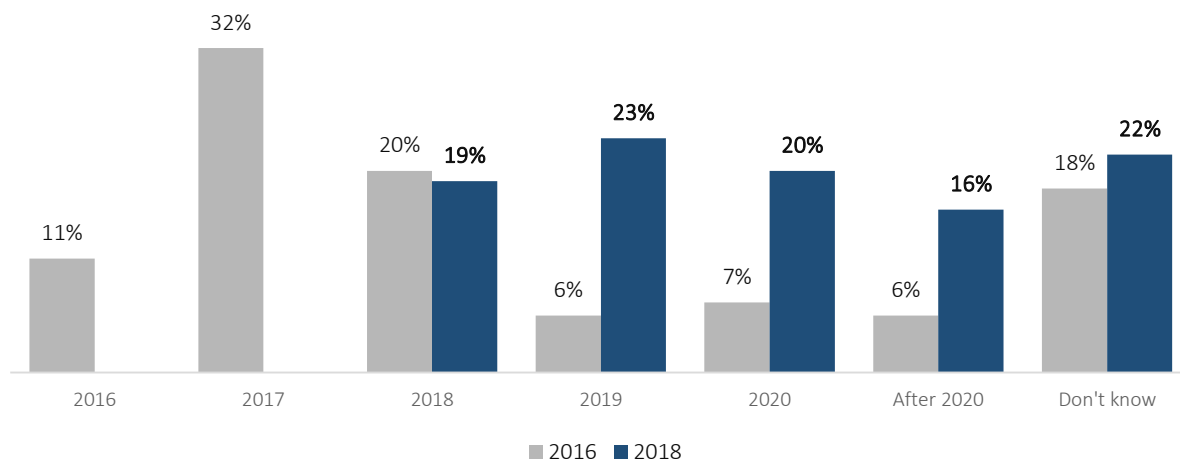
	Total	East Asia	Oceania	SE Asia	South Asia	LDEs	Developing	Developed
Sample size	903	199	206	207	268	238	455	187
Fully deployed	15%	17%	14%	20%	8%	7%	17%	17%
Deployed in our core network	23%	24%	20%	26%	24%	23%	24%	21%
Have a deployment plan	32%	38%	17%	29%	43%	43%	33%	16%
We do not have any IPv6 deployment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

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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 (60%) 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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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

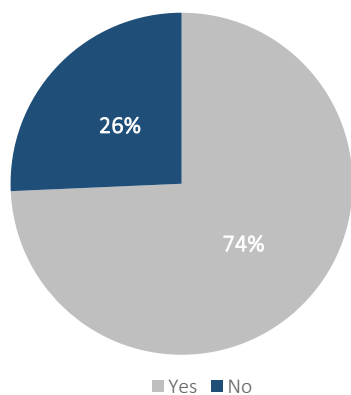
Fewer respondents are aware of the APNIC Academy, launched in April 2017. While 36% of respondents have used the APNIC Academy, and a further 10% have heard of it, 54% have not heard of the APNIC Academy.

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.

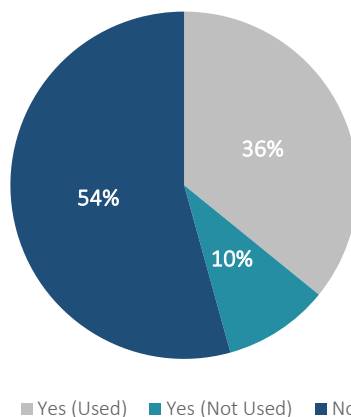
Q 19 – Are you aware that APNIC provides Technical Training Services?

(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	238	455	187
Aware of APNIC Technical Training Services	74%	-	65%	71%	80%	79%	86%	73%	64%
Sample size	965	903	216	219	220	286	246	506	189
Aware of APNIC Academy	44%	66%	38%	32%	49%	61%	63%	47%	21%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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.

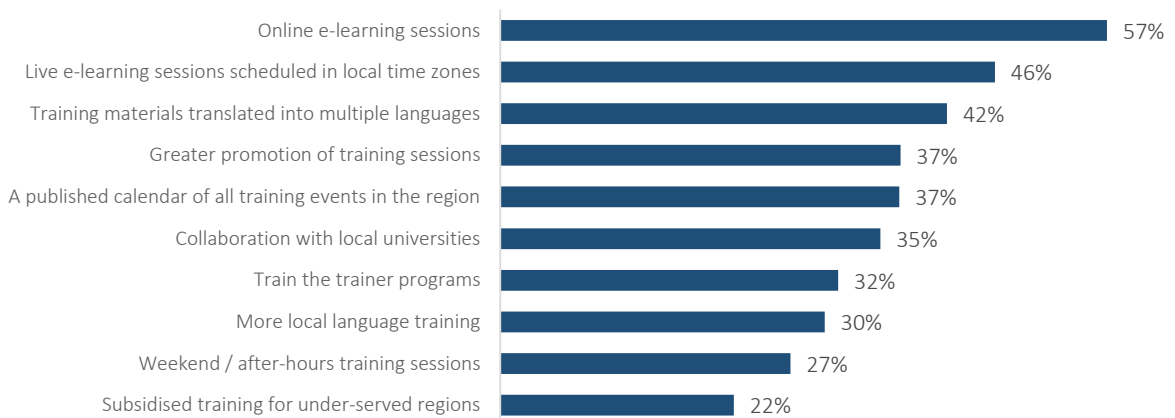
Training that caters to respondents in their local language and time zones is also valued. Forty-six percent (46%) of respondents, and 53% in South Asia, consider live e-learning sessions in local time zones the most valuable form of training that APNIC could provide. A further 42% place value on training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

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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”.

Network security was also frequently mentioned. Fifty-one percent (51%) of respondents indicated that they would like APNIC to make training available on network security.

Training focused on routing protocols (e.g. BGP, OSPF/IS-IS) was suggested by 16% of respondents, while 12% suggested training on new technologies such as SDN, NFV, SDWAN. Respondents in South East Asia were more likely to mention routing protocols as a useful training topic.

Focus group participants suggested that more hands on training and a clear progression to advanced topics would be of benefit. Verbatim survey feedback supports this, with some respondents indicating they would value certified APNIC online courses “that allow them to do an online exams and use this as basis to give them reference for further specialised training in institutions ... (that) provides a path to a more professional certification”.

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%
Virtualisation 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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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 MNOG.” – *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

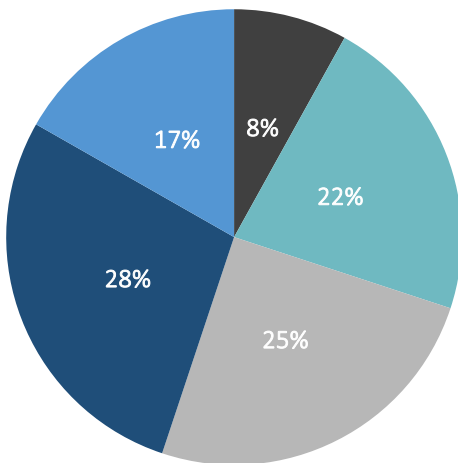
Network troubleshooting is the main reason respondents use the Whois Database. Sixty-two percent (62%) indicated that they use Whois for network troubleshooting. Respondents in Oceania are significantly more likely to use Whois for network troubleshooting (67%) than those in South Asia (58%)

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?

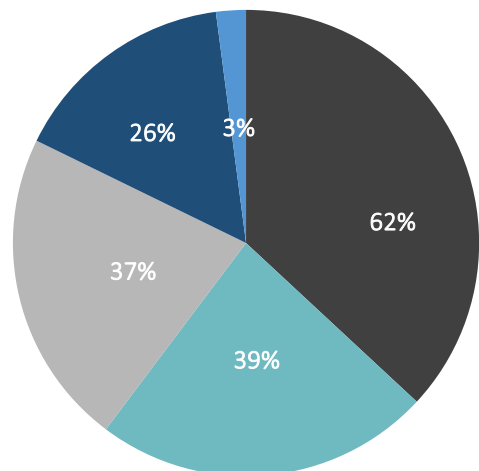
(All respondents: n=1241)



- 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.

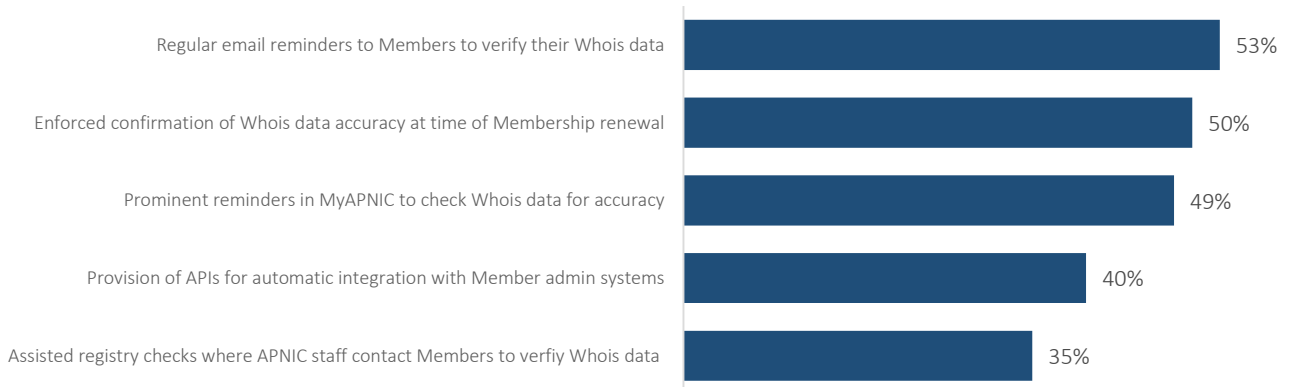
Prominent reminders in MyAPNIC to check for data accuracy were thought most effective by 49% of respondents. Those from South Asia (59%) were significantly more likely than respondents from Oceania (39%) to believe reminders in MyAPNIC would be effective.

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	160	179	178	234	196	385	170
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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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.

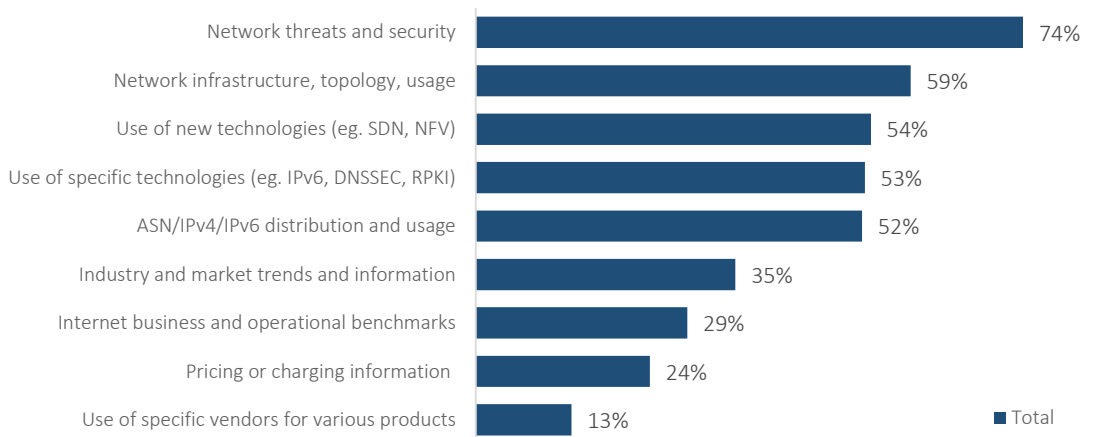
Data about network threats and security, such as routing anomalies, intrusion detection and security alerts, was selected as the most useful information by a majority (74%) of respondents. This was consistently the most frequently selected topic across all regions.

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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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.

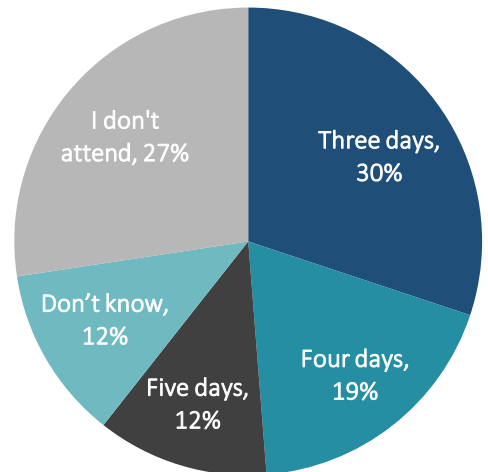
Analysis of preferences by region and development status is also revealing, with those respondents most likely to make the time to attend the conference also more likely to favour a longer event.

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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

Significantly higher / lower than total

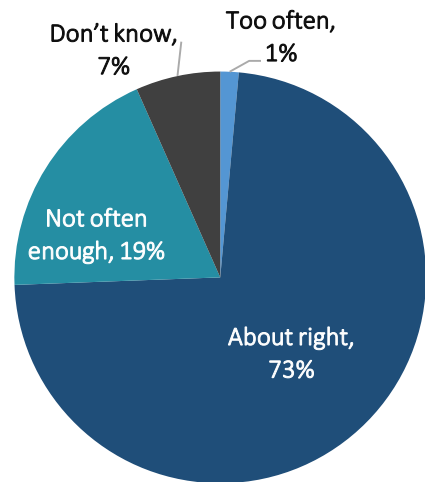
APNIC Survey

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	238	455	187
Too often	1%	1%	0%	2%	3%	4%	1%	0%
About right	73%	68%	76%	75%	72%	71%	73%	74%
Not often enough	19%	22%	18%	18%	19%	18%	20%	18%
Don't know	7%	9%	6%	5%	6%	6%	6%	7%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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.

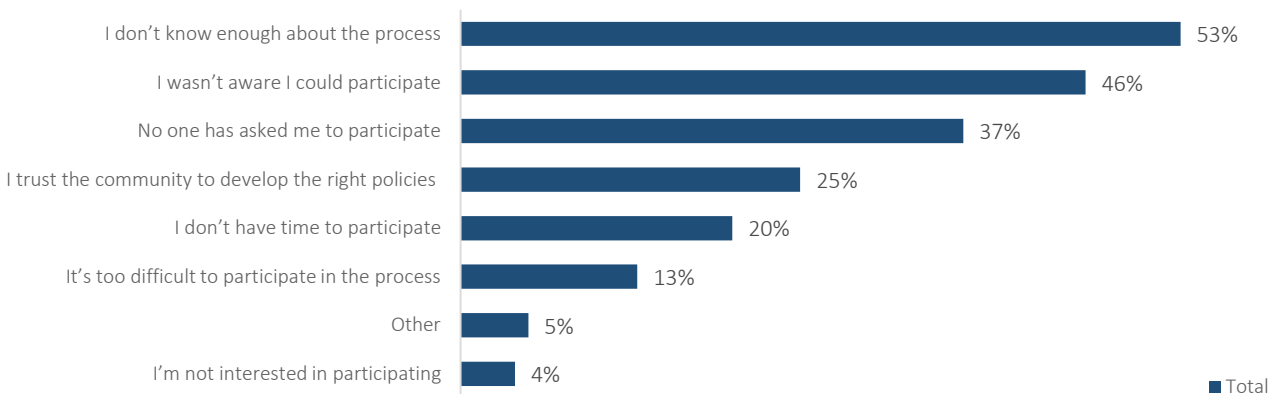
Many free text comments about what APNIC could do to encourage greater participation in the process focussed on awareness building, with many suggestions that APNIC should “make more information available about the process” and provide “notification and reminders to participate in the policy development 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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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

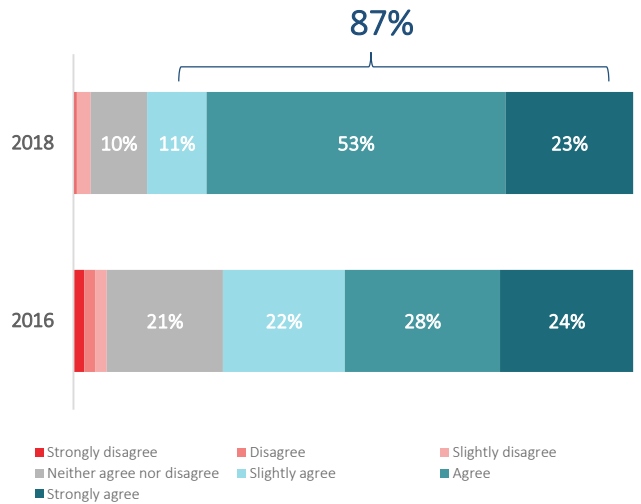
Transparency is one of APNIC’s declared values, and since 2014 the APNIC Survey has tested respondents satisfaction that APNIC is sufficiently open and transparent in its activities.

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	238	455	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%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

Significantly higher / lower than total

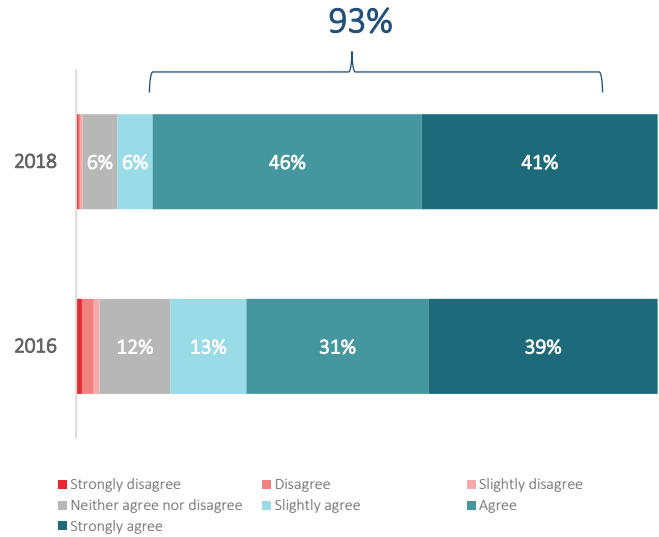
2 | Respect

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 2014.

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	238	455	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%	3%	6%	10%
Slightly Agree	6%	9%	6%	9%	2%	3%	7%	9%
Agree	46%	48%	54%	54%	35%	37%	49%	53%
Strongly Agree	41%	30%	33%	32%	60%	57%	38%	26%
Top 3	93%	87%	93%	95%	97%	96%	94%	88%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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.

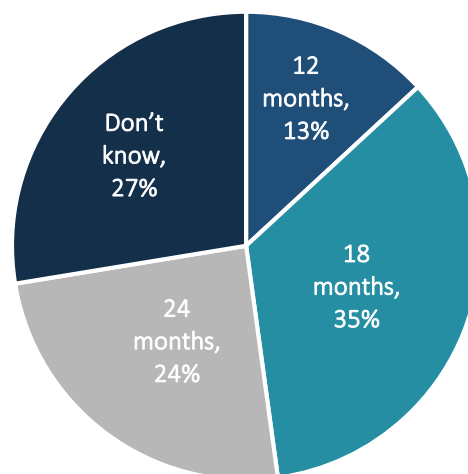
To test Member satisfaction with the adequacy of the target, the Survey asked respondents to indicate how many months of operating expenses APNIC should hold in reserve.

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	238	455	187
12 months	13%	11%	8%	17%	16%	18%	13%	6%
18 months	35%	35%	43%	33%	29%	31%	34%	41%
24 months	24%	24%	21%	22%	29%	28%	23%	23%
Other	0%	1%	0%	1%	0%	0%	0%	1%
Don't Know	27%	29%	29%	27%	26%	22%	30%	29%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'

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*

Q 34. Do you have any suggestions or ideas about APNIC governance?

Free text comments (n=111)

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.

For further information, please contact:

Rebecca Sullivan
Research Director
Survey Matters
E: rsullivan@surveymatters.com.au
T: 03 9452 0101

Brenda Mainland
Managing Director
Survey Matters
bmainland@surveymatters.com.au
T: 03 9452 0101



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.

