



# 2024 APNIC Survey Report

Prepared by Survey Matters August 2024



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# Introduction & Methodology

Commissioned by the APNIC Executive Council (EC) and conducted every two years, the APNIC Survey is a valuable feedback tool, with results of the biennial Survey forming an integral part of APNIC's strategy and planning. It is used to guide decisions about where to focus efforts to provide maximum benefit to Members and the Internet community in the Asia Pacific region. This is the thirteenth iteration of the APNIC Survey program.

The survey is a comprehensive process, with consultations in the form of qualitative discussions with Members and Stakeholders conducted first, followed by an online quantitative survey which is open for anyone with an interest in the Internet community to participate.

In 2024, the consultations were held via a mixture of face-to-face and video conference during February and March. In addition to these interviews, three focus groups were held with different segments of the community to gain further insight. The online survey was open for participation by APNIC Members and other Stakeholders (Members of NIRs or others involved in the Internet community) from 12 June to 8 July 2024.

A slight change in methodology was introduced to the online survey in 2024. In addition to an anonymous survey link distributed to Members and Stakeholders, APNIC Members were sent personal email invitations with individual links to the survey. Non-responding Members were also followed up with targeted reminders.

Survey Matters were again commissioned by the APNIC EC to conduct the survey, to ensure anonymity of responses and impartial evaluation of the results. Individual responses are not identified in this report; results are provided at an aggregate level only. To further protect participant anonymity, no organizations or locations are noted against the verbatim comments provided in this report. No identifying data has been provided to APNIC.

This report provides the full feedback from the online survey, and also draws on the feedback from the individual consultations. These consultations, along with the substantial verbatim comments provided within the online survey, add richness and depth to the quantitative findings.

# Response Rates and Sample

Following a comprehensive communication and survey distribution program, 1,220 responses were received. After data cleansing, 1,173 responses remained. The sample size provides 95% confidence that results are within +/- 3% of presented figures.

Of the responses received, 69% were received from APNIC Members or Account Holders, 11% from Members of NIRs in the region, and the remaining 20% from other Stakeholders.

As in previous years, most responses (95%) were from the Asia Pacific economies served by APNIC, with 5% from economies outside the region.

The composition of the sub-region sample has shifted somewhat from 2022, with 13% of responses from East Asia in 2024 (down from 17%), and 21% from Oceania (up from 17%). The proportion of responses from South East Asia (28%) and South Asia (33%) has remained largely consistent with 2022.

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.

#### Interviews

Conducting qualitative research 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.

In 2024 Individual Depth Interviews (IDIs) were conducted by a mixture of face-to-face interviews and video conference. A total of 28 IDIs and three focus groups were conducted, with a total of 48 participants and spanning 25 economies. A majority of the Interviews were conducted with APNIC Members or Account Holders, with five conducted with Stakeholders within the region. All seven of the APNIC NIR Members were also consulted.

Focus groups were conducted with community trainers, technical representatives from South East Asia and those involved with the APNIC Foundation SWITCH! initiative.

# Online Survey

The quantitative survey was designed by Survey Matters in collaboration with APNIC and approved by the APNIC EC.

It was based on the feedback from the IDIs, and also included tracking or benchmarking questions to monitor APNIC performance over time.

The survey questionnaire also asked several new questions in 2024. To inform future activities, participants were asked about the value provided by APNIC beyond registry services

in the region, and about their participation in APNIC community activities. A statement was also added to test attitudes about APNIC's responsiveness to Member and community feedback. Finally, the impacts of IPv4 scarcity, business confidence and considerations for training were also canvassed.

The 2024 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.

#### Translation

The survey questionnaire was translated into 10 languages in 2024, as was the case in 2022, based on responses in languages other than English in the 2020 survey.

The languages offered in the online survey were Bengali (Bangladesh), Chinese (Simplified and Traditional), Indonesian, Japanese, Korean, Mongolian, Burmese (Myanmar), Thai, and Vietnamese.

A total of 347 surveys were completed in a language other than English, down from 568 in 2020 and 441 in 2022. However, this still represents three in ten (30%) of all surveys completed.

Non-English verbatim feedback was translated back to English using ChatGPT, 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 19.

#### Communication and Distribution

The survey was designed as both an anonymous online instrument, and an invitational survey for Members, both hosted by Survey Matters. Promotion of the anonymous survey was done by the APNIC Secretariat. For the invitational survey, Members were sent an invitation via email with a unique link to their survey. Non-responders were followed up with email reminders throughout the fieldwork period.

Several prizes were offered throughout the communication schedule to encourage responses at different stages of the survey period.

# **Data Cleansing**

At the conclusion of the online survey, Survey Matters undertook data cleansing. A total of 1,220 responses were reviewed and after interrogation, 47 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 where the information regarding the prize draw was the same.
- Removal of responses where the free text responses were the same, including grammar and wording, and phrases.

In addition, some respondents had used AI to generate some of their free text responses. Where their responses to other questions still appeared to be legitimate, these respondents only had their generated free text removed prior to analysis.

# Survey Analysis

When analysing the survey data, results have been cross-tabulated by respondents' relationship with APNIC (Member or Stakeholder), the 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 current UN classifications.

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.

Differences in opinions have also been examined by organization type, organization size and role or position within the organization. While not presented for every question, where there are significant differences in the findings based on these groups, these are written in the report.

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 positive option. Where possible and appropriate, a full frequency distribution is shown. Comparisons to the 2020 and 2022 surveys 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
- Score of 4 out of 7 is neutral
- · Scores of 1, 2 and 3 out of 7 are negative

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

# Executive Summary and Key Findings



# **Executive Summary**

As well as testing the Internet-related challenges facing the community and overall experiences dealing with APNIC, the 2024 APNIC Member Survey sought to establish the value provided to Members and the wider Internet community beyond its core function as a Regional Internet Registry (RIR).

In addition, the survey examined engagement with APNIC Internet-community activities, including barriers preventing more participation, how Members are managing the issue of IPv4 scarcity and attitudes about recognized training certification or qualification on completion of APNIC Academy training courses.

This focus marks a shift in the biennial Member surveys, to examine more strategic matters to provide APNIC a more holistic view of the Internet community in the region, and where it can target activities that provide benefit.

In the two years since the last APNIC Survey, geopolitical instability and unfavourable economic conditions are on-going, and continue to impact almost all facets of business and personal life.

Against this background however, Members and Stakeholders continue to obtain value from the services, products and activities provided by APNIC and rate their overall satisfaction with their experiences and interactions highly.

## Contact and Engagement

Although reported interactions with APNIC have risen, usage of specific services, products and activities is mixed.

Up from 71% in 2022, 77% of survey participants have had at least one interaction with APNIC in the past two years, with Members more likely to have engaged than Stakeholders.

Among the most used services, products and activities, usage is mixed. Up 9% from 2022, 61% of respondents have visited the website, although Stakeholders (70%) report significantly higher use of the website than Members (59%).

Possibly as a response to changes to APNIC By-laws, voting in APNIC EC elections also increased, from 16% in 2022 to 21% this year, while the proportion who have attended APNIC conferences, APRICOT or other events also increased 4% to 27%. Members, however, are significantly less likely to have attended an APNIC facilitated event than Stakeholders (24% and 38, respectively).

In contrast, survey participants report lower use of the Helpdesk and the APNIC Whois Database, and fewer respondents have read the APNIC Blog. Contact with the APNIC Helpdesk fell 6 percentage points to 28% in 2024, although at 34%, those in South Asia have much higher interaction with the Helpdesk than other regions.

APNIC's own statistics show that readership of the APNIC Blog is increasing, however less than a quarter (23%) of respondents to this years' APNIC Survey indicate they have read an APNIC Blog post. Consistent with previous surveys, Stakeholders (33%) are more likely to report reading a blog post than Members (21%).

Use of the APNIC Whois Database also fell 5 percentage points to 42%. The exception is respondents from Oceania, and those in developed or developing economies, with 52% and 47% respectively using whois over the past two years.

#### Satisfaction with Contact and Engagement

Despite mixed use of the various APNIC services, products and activities, satisfaction remains very high, with little change in positive ratings across all services offered by APNIC compared to previous years.

More than nine in ten (95%) participants rate their experience using the APNIC website as above average, good or excellent, up from 93% in 2022. The same proportion rate APNIC conferences, APRICOT or other events highly (95%), and 92% are satisfied with their participation in the APNIC EC elections.

Despite lower readership, satisfaction with the APNIC Blog increased to 98% in 2024, up from 94% in the 2022 APNIC Survey.

Satisfaction with the APNIC Whois Database also remains high, with 93% rating this as above average, good or excellent, the same proportion as 2022.

Similarly, 92% of those who have contacted the APNIC Helpdesk are satisfied with their interaction, although those in Oceania (79%) are significantly less satisfied with the Helpdesk than their regional counterparts, particularly those in South Asia (98%).

#### Quality and Value of Services and Membership

Ratings for the quality and value of services and the value of membership remain high, and consistent with 2022

In 2022, there was a significant increase in the proportion of respondents providing an excellent rating for the quality of services (54%) and value of membership (51%), and this remains the same this year. Although the excellent rating of value of services is high, at 50%, this has fallen slightly from 54% in 2022.

In a pattern that emerges across most of these results, Members in Oceania are significantly less likely to rate the quality and value of services, and value of membership highly than the other regions, particularly Members in South Asia, who rate service quality and membership value extremely highly.

In a new statement added this year to test perceptions of APNIC's responsiveness to Member and community feedback, 93% rated this as above average, good or excellent, with 47% providing an excellent rating.

#### **Governance and Endorsement**

Agreement that APNIC is open and transparent, responsive and respected in the Internet community remains high, however there are significant differences in opinions across the regions.

Overall, 88% of respondents agree that APNIC is open and transparent in its activities, down slightly from 90% in 2022, while 87% believe APNIC is responsive to the changing needs of the community. Agreement that APNIC is respected within the Internet community also remains very high at 92%.

However, when examined across the four APNIC regions, significant differences are apparent.

Responding Members in Oceania are significantly less likely to agree APNIC is open and transparent (80%), responsive to community needs (77%) and respected in the Internet community (87%).

Although not directly linked, among the free text provided there are comments from survey respondents in Australia

and New Zealand about the treatment of historical resources.

Between the 2022 and 2024 APNIC Surveys, APNIC introduced changes related to historical IPv4 resources that were delegated before the establishment of APNIC1. The changes were designed to improve the fairness of APNIC's fee structure, and to help identify unused resources and return them to the free pool of addresses for reallocation. As a result, these resources holders, primarily from Australia and New Zealand, were required to pay a fee for their resources. To test agreement that historical addresses should be subject to the same fees as current resources allocated by APNIC, this was canvassed in the 2022 APNIC Survey, with responding Members largely in favour of the changes, including those in Oceania.

However, suggestions in this survey that APNIC should "remove the cost of keeping our Historical Class-C IP Addresses which we have had for over 20 years before APNIC" and for "cheaper IP registration for our historical IP addresses", seem to indicate some Australian and New Zealand respondents are unhappy with the outcome of the changes.

Positively, respondents continue to speak highly of APNIC.

A large majority of Members and Stakeholders (63%) speak positively about APNIC, with 19% doing so without being asked. This remains unchanged from the 2020 and 2022 surveys, and there are no significant differences in these opinions between different sub-regions or economy types.

# Value Beyond Registry Services

This year, the survey canvassed Members and Stakeholders' perceptions of the value provided by APNIC outside its core activities. This was asked in the qualitative interviews and the online survey.

Beyond managing and administering resource allocations, participants value training and technical support, and the community engagement and networking facilitated by APNIC.

When asked about the activities that offer value to respondents outside of registry services, over two thirds (68%) say that building technical knowledge and capacity through the APNIC Academy training provides benefits to the region.

Encouraging Members to share knowledge (43%) and improving Internet infrastructure through deployment support (42%) also offer value, while working to defend the global Internet registry system is important to 38% of respondents.

Possibly due to the different levels of economic development across the Asia Pacific, respondents from South Asia are significantly more likely than others to indicate building technical capacity (74%) and encouraging knowledge sharing across the Internet community (52%) are valuable to them. In contrast, supporting CERTs and online security activities (37%) and advocacy (33%) are of more value to those in Oceania.

More respondents from East Asia and Oceania also say that working to defend the global Internet registry system is an important activity outside of resource allocation (46% and 44%, respectively).

Verbatim comments in the online survey, and discussion in the qualitative interviews support these findings, with training and capacity building and community engagement and networking frequently mentioned as activities that offer valuable benefits. Comments that APNIC facilitates "knowledge building, IT capacity building through the periodic training" and "APNIC does a great job of bringing people together and then letting them talk about what's important to them" are frequent.

#### **Engagement in Community Activities**

Participation in APNIC Internet community activities varies, with South Asia and LDEs significantly more likely to indicate they are actively involved than their counterparts.

Overall, only 15% of survey participants say they are actively involved in APNIC community activities, although two in five (40%) are aware of the activities and participate occasionally. Active involvement rises to 27% of LDEs and 24% of those in South Asia.

While time and cost are the primary barriers to participation in the APNIC community, a lack of awareness of both the activities and how to become involved is also apparent.

Almost half of all respondents cite cost and budget (49%) as the biggest barrier, with time constraints the issue for two in five (40%). Although they participate the most, cost and budget prevents respondents in LDEs (67%) and South Asia (63%) from being more involved in community activities.

A quarter of respondents (24%) don't know much about APNIC community activities, suggesting greater promotion of the opportunities available to take part in may encourage involvement.

When asked how APNIC can make it easier to participate, offering virtual or hybrid events and improving communication and outreach were frequently suggested. Respondents commented that "offering hybrid and virtual events makes participation more accessible regardless of location" and "regular updates on activities, events and opportunities can keep Members actively involved."

# **Business Confidence**

In the 2022 APNIC Survey, and in the wake of the coronavirus pandemic, APNIC tested Members and Stakeholders' confidence in their business continuity and growth for the future. The question was repeated this year, to gauge any changes in confidence, and the reasons for their outlook.

While most respondents are confident about overall business performance in the coming two years, levels of optimism are lower than in 2022.

In 2022, 47% of survey participants were very confident about their business outlook. This has fallen to 38% this year, with two in five (40%) saying they are somewhat confident about the future.

Optimism is highest in South Asia, where 47% are very confident, compared to 32% in South East Asia and only 27% in East Asia.

Only 2% have no confidence at all, and 11% indicate they are unsure about the future of business in the coming two years.

# Internet-related Challenges

Reflecting the levels of confidence about overall business performance, in 2024 one of the biggest strategic challenges facing respondents in executive positions is the cost control of hardware, software and network investments.

In 2022, attracting and retaining skilled personnel was the most pressing issue for company executives and business owners.

This year, Internet security risks (16%) and controlling the costs of products (15%) are the two biggest concerns, up from 12% and 9% respectively in 2022. When examined across the top three challenges, more than two in five (41%) executives rank the costs of hardware, software and networks among the three biggest challenges.

While hiring and keeping appropriately skilled staff remains a concern, with over a quarter of executives (27%) ranking this among their top three issues, it is clear that Internet security risks and economic conditions are top of mind for many in 2024.

These issues are also the biggest operational challenges facing respondents. Internet security is the primary concern for three in ten (30%), while the cost of systems, network operations and security are the biggest challenge for 17% of respondents.

Verbatim comments mirror these findings, with Members commenting "protecting user data from cyber threats such as hacking, malware, and data theft is a major challenge" and "high fixed costs increasing day by day".

# IPv4 Scarcity and Mitigation Strategies

Issues with IPv4 scarcity and transition to IPv6 was also frequently mentioned as a challenging.

With IPv4 address space running out, organizations are having to look for alternative strategies to mitigate against the scarcity to allow them to continue to run their businesses and serve their customers. This year the survey examined how Members were dealing with the shortages.

A majority of Members are either deploying NAT (45%) or IPv6 (40%) or finding more efficient ways to use IPv4 in their networks (42%) to overcome IPv4 scarcity. A further 15% have either purchased or leased IPv4 addresses, with Members from East Asia (27%) most likely to be leasing addresses than others.

While another 15% of Members indicate this is not an issue for their organization because they have enough IPv4 address space, this rises to a third (33%) of Members in Oceania, particularly those in Australia and New Zealand. As a result, these Members are also significantly less likely than others to be taking any mitigation action.

In the verbatim comments, there are calls for better resource allocation management, and for APNIC to play a stronger role in encouraging IPv6 adoption, particularly in economies who are well resourced, both financially and technically. Many mention that "those big players with loads of historic v4 space aren't encouraged to be aggressive with their migrations to v6".

In contrast, comments from economies where IPv4 address shortages are not an issue are complaining about "the high cost of maintaining our Historical IP addresses..." and that "I want my IP addresses for free like in the past...".

Of the 15% of responding Members who indicate they are leasing IPv4 addresses from another organization, 43% pay less than USD 5,000 per year for these, although 27% of Members in East Asia who are leasing addresses indicate they are paying between USD 10,000 and 49,000 for their address space.

For the few Members leasing address space, the ongoing cost of the leased addresses and worry that they will need the addresses for longer than the lease term are concerning for over two thirds of respondents and 63% are worried about routing issues caused by address reputation.

## **IPv6 Adoption**

More than half of Members have deployed IPv6 in their networks, with many believing it will benefit their operations.

In the 2020 APNIC Survey, 43% of Members had either fully deployed IPv6 or implemented it in their networks. This year 52% have deployed IPv6 in their network, with Members from East Asia (64%) significantly more likely to have done so than other regions, particularly in Oceania, where only 37% have implemented IPv6.

While increasing demand for Internet services and products and technology advancements contribute to levels of optimism, those more cautious are concerned about the current economic environment and the rising costs to deliver their services.

Deployment of IPv6 in Oceania, largely driven by responses from Australia and New Zealand, appears to be stagnating. In 2020, 33% of Members had IPv6 deployed, four years later, this has increased by just 12%. Across South East Asia, South Asia and LDEs, IPv6 deployment has increased by around 33% since 2020.

More than half (53%) say the main reason they implemented IPv6 is because they believe it would benefit their operations, and two in five (40%) wanted to take advantage of the technological capabilities.

For those who have not deployed IPv6 yet, 39% do not see the business need to implement it, with respondents in Oceania (55%), again driven by those in Australia and New Zealand, significantly more likely to say they have no requirement for IPv6.

Lack of technical skills or expertise is also a factor in non-deployment for 37% of Members, particularly those in South Asia (43%) and LDEs (46%).

Just over a quarter of respondents (26%) say a lack of available configuration management tools hampers IPv6 deployment, with Members in South Asia (34%) significantly more likely to cite this than other regions. In Oceania, just 7% indicate this prevents them from implementing IPv6.

#### **Training Considerations**

The relevance of the course content in meeting specific training needs is the most important factor when choosing training for a third of respondents, followed by the cost to attend training.

When asked to rank the primary factors respondents consider when choosing technical training, 33% say the relevance of the course content is their most important consideration, rising to half (50%) of respondents in Oceania. The costs of the training is the primary factor for 26% of survey participants.

Training that provides a recognized qualification, and that is certified by a reputable institution or organization, is the most important consideration for a quarter of respondents (25%). Over half (53%) indicate training leading to an industry-recognized qualification is their preferred type of training.

Opinions are mixed when asked the type of organization that would deliver the best quality technical training if APNIC Academy training was offered by other organizations. Half of respondents (50%) say regional or global Internet organizations would deliver the best quality training, while almost two in five (39%) believe independent local training companies would offer the best quality.

## Conclusion

The 2024 APNIC Member Survey reveals a nuanced landscape of engagement and satisfaction among its Members and Stakeholders across the Asia Pacific region.

While the overall satisfaction with APNIC's services, products and activities remains high, the survey uncovers significant regional differences in opinion about the overall quality and value of services and membership and governance activities. In particular, the findings highlight a contrast between South Asia, where engagement is strong and satisfaction levels are consistently high, and Oceania, where Members express much lower levels of satisfaction and engagement.

The survey also points to broader strategic challenges facing the Internet community in the region, particularly in the context of a challenging economic environment and an evolving technological landscape. While Members value APNIC's work beyond its core registry functions, particularly in areas like training and technical support, there is a clear demand for these activities to be more closely aligned with the practical needs and constraints faced by Members in different regions.

Members want a continued focus by APNIC on technical training, particularly in cybersecurity and IPv6 deployment. Many also want greater oversight of IPv4 address allocations in the wake of address scarcity and more efforts to encourage IPv6 adoption, particularly among economies who already have enough legacy IPv4 addresses, and therefore are not investing in IPv6.

They are also calling for broader engagement with the Internet ecosystem by APNIC to further assist Members with their business growth plans.

Continuing to focus on these activities will help to cement APNIC's value beyond registry services.

# Key Findings

# 01

Overall satisfaction with quality, value, and governance is high, with most Members speaking highly of APNIC.

Overall satisfaction with the quality and value of services and membership has been consistently high across all surveys, and this is maintained in 2024. Members largely agree that APNIC is open and transparent and well respected in the Internet community. Changes to the governance structure have been well received by Members, who mostly believe these changes have improved the APNIC EC election process.

# 02

Building technical knowledge and capacity and community engagement and networking are valuable activities beyond registry services.

It is clear participants see value outside of APNIC's core registry function. Participants cite technical training and capacity building as an important activity to support the region to grow the knowledge and expertise of the Internet community. Facilitating networking and engaging the community to share best practice is also valuable to Members and Stakeholders.

# 03

Business confidence is lower, with Members concerned about Internet security risks and the costs of business operations.

While confidence in their business operations in the next two years is relatively high, it is lower than in 2022. Those who are optimistic cite increasing demand for Internet services and products and technology advances as the primary factors in their confidence. However, those more circumspect say the increasing costs to deliver Internet services, including hardware, software and network infrastructure are concerning, along with increasing security risks. These factors are also the two biggest challenges facing Members and Stakeholders in 2024.

# 04

IPv4 address run-out is an issue for many respondents, although not in Australia or New Zealand.

IPv4 scarcity remains a challenge for many respondents, with frequent comments about a shortage of IPv4 and issues transitioning to IPv6. To overcome the scarcity, Members are deploying NAT or finding more efficient ways to use IPv4 in their networks or implementing IPv6. However, many Members from Australia and New Zealand report they already have enough IPv4, therefore it is not an issue for them. Interestingly, adoption of IPv6 in Oceania is also the lowest across the regions.



# 05

A quarter of respondents rank training leading to a recognized certificate or qualification as the most important factor when considering technical training.

While the relevance of the course content in meeting specific technical training needs is the most important factor most respondents consider when choosing training, training that provides a certificate or recognized qualification on completion is valuable. There were mentions that certification programs would be of significant benefit if offered. However, with cost of training also an important factor for a quarter of respondents this will also need to be considered in any decisions to develop or offer certification or qualifications on course completion.

# 06

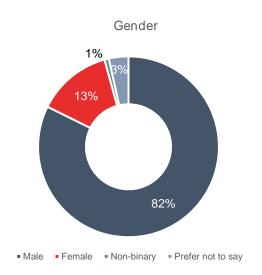
Members in Oceania are significantly less satisfied with APNIC than other regions.

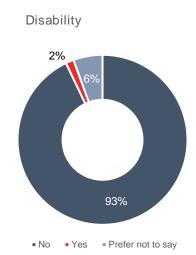
Driven largely by respondents from Australia, Members in Oceania report significantly lower ratings of satisfaction with APNIC overall than their regional counterparts. This may in part be due to the changes to treatment of historical address holders, with comments about historical addresses and complaints about the cost noted in the free text questions. There are also calls for APNIC to focus solely on registry services and resource allocation and reduce the costs of membership.

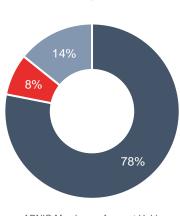
# Sample



# Sample

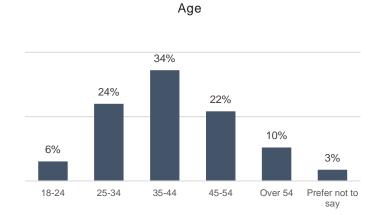






Membership Status

- APNIC Member or Account Holder
- Member of NIR in APNIC region
- Other stakeholder



English Proficiency	Count	%
I am fluent in English	540	46%
I can understand most English and have English conversations comfortably	347	30%
I can understand some English and have basic English conversations	232	20%
I understand little English and need assistance	54	5%

	18%		160/		19%		
13%			16%	12%			
		10%		12 /6		10%	
							2%
1 - 10	11 - 50	51 - 100	101 - 500	501 -	1,000 -	10,000+	Don't

1,000

10,000

Know

Organizational Size

Region	Count	%
East Asia	151	13%
Oceania	243	21%
South East Asia	331	28%
South Asia	388	33%
Non-APNIC Region	60	5%

Economic Development Status	Count	%
Least Developed Economy (LDEs)	338	29%
Other (Developed or Developing)	775	66%

			2020		20	2022		24
Code	Name	Economic Classification	Count	%	Count	%	Count	%
East Asia								
CN	China	Developing	68	4%	58	4%	28	2%
HK	Hong Kong Special Administrative Region of China	Developing	25	2%	38	2%	28	2%
JP	Japan	Developed	50	3%	61	4%	15	1%
KR	Republic of Korea	Developing	10	1%	12	1%	5	0%
MN	Mongolia	Developing	50	3%	53	3%	44	4%
MO	Macao Special Administrative Region of China	Developing	6	0%	3	0%	2	0%
TW	Taiwan	Developing	46	3%	44	3%	29	2%
Sub-total			255	16%	269	17%	151	13%
Oceania								
AS	American Samoa	Developing	-	-	3	0%	-	-
AU	Australia	Developed	136	8%	128	8%	118	10%
CK	Cook Islands	Developing	2	0%	2	0%	-	-
FJ	Fiji	Developing	23	1%	26	2%	4	0%
GU	Guam	Developing	6	0%	2	0%	28	2%
KI	Kiribati	LDE	2	0%	-	-	1	0%
MH	Marshall Islands	Developing	2	0%	-	-	-	-
MP	Northern Mariana Islands	Developing	-	-	-	-	1	0%
NC	New Caledonia	Developing	4	0%	3	0%	1	0%
NR	Nauru	Developing	1	0%	-	-	-	-
NU	Niue	Developing	-	-	-	-	1	0%
NZ	New Zealand	Developed	58	4%	49	3%	42	4%
PG	Papua New Guinea	Developing	30	2%	30	2%	26	2%
PW	Palau	Developing	-	-	1	0%	1	%
SB	Solomon Islands	LDE	6	0%	10	1%	4	0%
TO	Tonga	Developing	7	0%	10	1%	8	1%
TV	Tuvalu	LDE	1	0%	_	-	1	0%
VU	Vanuatu	LDE	5	0%	3	0%	4	0%
WS	Samoa	Developing	13	1%	8	0%	3	0%
Sub-total	Camou	Bovoloping	296	17%	275	17%	243	21%
SE Asia			290	17 /0	213	17 /0	243	2170
BN	Brunei Darussalam	Developing	5	0%	3	0%	2	0%
ID	Indonesia	Developing	74	5%	85	5%	46	4%
KH	Cambodia	LDE	18	1%	31	2%	29	2%
LA	Lao People's Democratic Republic	LDE	4	0%	8	0%	17	1%
MM	Myanmar	LDE	111	7%	55	3%	28	2%
MY	Malaysia	Developing	35	2%	41	3%	35	3%
PH	Philippines	Developing	114	7%	118	7%	84	7%
SG	Singapore	Developing	20	1%	40	2%	20	2%
TH	Thailand	Developing	39	2%	42	3%	41	3%
TL	Timor-Leste	LDE	4	0%	9	1%	14	1%
VN				1%	22	1%		
	Viet Nam	Developing	15				15	1%
Sub-total			439	27%	454	28%	331	28%

			2020		2022	2	2024		
Code	Name	Economic Classification	Count	%	Count	%	Count	%	
South Asia	a								
AF	Afghanistan	LDE	9	1%	13	1%	31	3%	
BD	Bangladesh	LDE	298	18%	199	12%	152	13%	
BT	Bhutan	LDE	19	1%	23	1%	18	2%	
IN	India	Developing	109	7%	123	8%	73	6%	
Ю	British Indian Ocean Territory	Developing	-	-	1	0%	-	-	
LK	Sri Lanka	Developing	28	2%	40	2%	31	3%	
MV	Maldives	Developing	3	0%	5	0%	7	1%	
NP	Nepal	LDE	60	4%	44	3%	39	3%	
PK	Pakistan	Developing	36	2%	38	2%	37	3%	
Sub- total			562	35%	486	30%	388	33%	
Non-APNI	C Region								
	Aland Islands		-	-	1	0%	-	-	
	Albania		-	-	1	0%	-	-	
	Algeria		1	0%	1	0%	-	-	
	Argentina		-	-	2	0%	-	-	
	Austria		-	-	1	0%	1	0%	
	Belgium		-	-	2	0%	-	-	
	Benin		2	0%	2	0%	-	-	
	Brazil		-	-	5	0%	1	0%	
	Cameroon		-	-	1	0%	-	-	
	Canada		3	0%	14	1%	7	1%	
	Chile		-	-	1	0%	-	-	
	Colombia		-	-	1	0%	-	-	
	Croatia		1	0%	-	-	-	-	
	Cyprus		-	-	1	0%	-	-	
	Democratic Republic of Congo		2	0%	-	-	-	-	
	Denmark		2	0%	1	0%	1	0%	
	Egypt		1	0%	-	-	-	-	
	Ecuador		-	-	2	0%	-	-	
	Estonia		-	-	1	0%	-	-	
	Ethiopia		1	0%	-	-	-	-	
	European Union		-	-	-	-	1	0%	
	Finland		-	-	1	0%	2	0%	
	France		1	0%	1	0%	3	0%	
	Georgia		-	-	1	0%	-	-	
	Germany		6	0%	2	0%	6	1%	
	Ghana		-	-	2	0%	1	0%	
	Greece		-	-	1	0%	-	-	
	Haiti		1	0%	-	-	-	-	
	Iran		-	-	2	0%	-	-	
	Ireland		1	0%	-	-	-	-	
	Israel		1	0%	-	-	1	0%	
	Italy		1	0%	4	0%	2	0%	
	Kenya		-	-	3	0%	1	0%	
	Kyrgyzstan		-	-	1	0%	-	-	

			2020		20	22	2024	
Code	Name	Economic Classification	Count	%	Count	%	Count	%
Non-APNI	C Region (cont.)							
	Madagascar		-	-	1	0%	•	-
	Malawi		-	-	1	0%	1	0%
	Mauritius		-	-	-	-	1	0%
	Mexico		3	0%	2	0%	-	-
	Morocco		-	-	1	0%	1	0%
	Netherlands		3	0%	5	0%	4	0%
	Nicaragua		1	0%	-	-	-	-
	Niger		1	0%	-	-	-	-
	Nigeria		1	0%	2	0%	-	-
	Norway		-	-	-	-	1	0%
	Oman		1	0%	-	-	-	-
	Panama		1	0%	-	-	-	-
	Poland		1	0%	1	0%	-	-
	Qatar		-	-	1	0%	-	-
	Romania		-	-	1	0%	1	0%
	Russian Federation		-	-	2	0%	-	-
	Saudi Arabia		2	0%	2	0%	1	0%
	Slovakia		-	-	1	0%	-	-
	Slovenia		1	0%	-	-	1	0%
	South Africa		-	-	1	0%	-	-
	Spain		-	-	4	0%	1	0%
	Sweden		1	0%	1	0%	1	0%
	Switzerland		-	-	1	0%	1	0%
	Trinidad and Tobago		-	-	1	0%	-	-
	Uganda		-	-	1	0%	1	0%
	United Arab Emirates		1	0%	1	0%	-	-
	United Kingdom		3	0%	4	0%	1	0%
	United States of America		26	2%	46	3%	16	1%
	Zambia		1	0%	2	0%		
	Zimbabwe		-	-	-	-	1	0%
Subtotal			73	4%	137	8%	60	5%
Total			1,624	100%	1,621	100%	1,173	100%

	2020	2022	2024
Language			
Bangladesh (Bengali)	157	53	91
Chinese Simplified	75	73	30
Chinese Traditional	59	54	43
Indonesian	62	74	50
Indian (Hindi)	3	-	-
Japanese	45	55	14
Korean	8	14	6
Mongolian	39	38	42
Malaysian	4	-	-
Myanmar (Burmese)	52	22	18
Nepali	10	-	-
Philippines (Tagalog)	7		-
Thai	29	38	39
Urdu	4		-
Vietnamese	14	20	14
Total	568	441	347

	2020	2022	2024
Organization Type			
Sample Size	1,624	1,622	1,173
Internet Service Provider (ISP)	34%	28%	30%
Academic/Educational/Research	15%	17%	17%
Telecommunications / Mobile Operator	11%	11%	12%
Government/Regulator/Municipality	6%	7%	7%
Hosting / Data Centre	5%	6%	5%
Banking/Financial	4%	5%	5%
Non-profit/NGO/Internet community	3%	4%	4%
Software Vendor	3%	4%	4%
Enterprise/Manufacturing/Retail	4%	5%	3%
Internet Exchange Point (IXP)	1%	1%	2%
NREN/Research network	1%	1%	1%
Domain Name Registry / Registrar	1%	1%	1%
Hardware Vendor	1%	1%	1%
Industrial (construction, mining, oil)	1%	1%	1%
Infrastructure (transport/hospital)	1%	1%	1%
Media / Entertainment	2%	1%	1%
Other	7%	7%	7%

	2020	2022	2024
Position			
Sample Size	1,624	1,622	1,173
Network/Systems Operations Engineer/Manager	39%	35%	38%
Network/Systems Planning Engineer/Manager	26%	28%	31%
IT Support	16%	19%	16%
Manager	13%	14%	14%
CEO/COO/CFO	9%	9%	10%
Academic/Research	11%	10%	9%
CTO/CIO	8%	8%	8%
Product/Peering/Interconnect Engineer/Manager	6%	8%	8%
Project Manager	5%	6%	5%
Trainer	4%	5%	5%
Student	5%	3%	4%
Software Engineer	3%	4%	4%
Applications Developer	2%	2%	3%
Sales / Marketing	2%	3%	2%
Other	4%	7%	8%



# **Detailed Results**

# Key Performance Indicators





# Service Usage and Satisfaction

To understand levels of engagement with APNIC and the services, products and initiatives provided, the survey asked respondents to indicate how often they had interacted with APNIC over the last two years, which of the services, products or initiatives they had used or taken part in over the past two years, and how satisfied they were with their experience.

# **APNIC Contact Frequency**

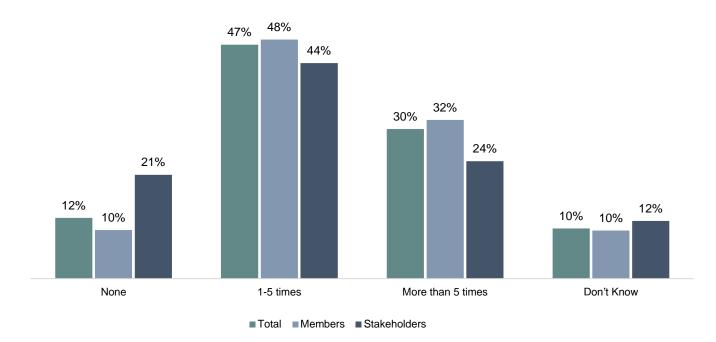
Contact with APNIC increased compared to 2022 and 2020, with almost four in five indicating they had used an APNIC service or interacted with APNIC in the last two years.

Overall, 77% of survey participants have had involvements with APNIC over the past two years,

compared to 71% in both 2022 and 2020. Three in ten respondents engaged in some way with APNIC more than five times, while 47% had some interaction between one and five times in the past two years.

As in previous surveys, Members (80%) are more likely to have engaged with APNIC than Stakeholders (68%).

### Contact with APNIC in the last two years



	2020	2022	2024	East Asia	Oceania	SE Asia	South Asia	LDEs	Others
Sample Size	1,624	1,622	1,173	151	243	331	388	338	775
None	15%	14%	12%	13%	16%	10%	11%	14%	11%
1-5 times	42%	41%	47%	43%	50%	50%	44%	41%	49%
More than 5 times	29%	30%	30%	36%	26%	31%	32%	29%	31%
Don't know	14%	15%	10%	7%	8%	9%	14%	16%	8%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year

# Service Usage

While more participants have visited the website, met an APNIC representative or attended a presentation, and voted in an APNIC EC election in the past two years, fewer had contact with the APNIC Helpdesk, accessed whois or read the APNIC blog.

Compared to 2022, usage of specific services is mixed, with more participants indicating they had visited the website, met an APNIC representative or attended a presentation, and voted in an APNIC EC election in the past two years.

Over three in five (61%) respondents visited the APNIC website, significantly higher than in 2022 where just over half indicated they had used the website. Stakeholders (70%) are significantly more likely to have visited the APNIC website than Members (59%).

MyAPNIC (60%) and APNIC Academy training (45%) use remained relatively consistent with 2022. Possibly as a result of a return to in-person activities since COVID-19, more Members and Stakeholders have also either met with an APNIC representative (17%) or seen a presentation by APNIC (18%) than in 2022 (10% and 12%, respectively).

Members are also significantly more likely to have voted in the APNIC EC Election (21%) than in 2022 (16%). Members from South Asia are much more likely to have

voted in an APNIC EC Election (32%) compared to only 13% of Members from South East Asia and 14% of Members in Oceania.

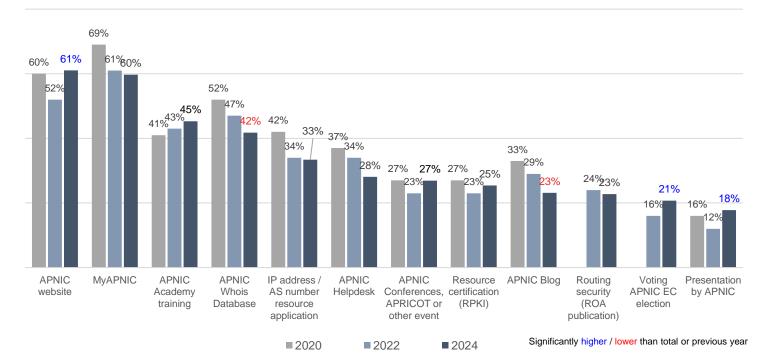
Conversely, fewer have accessed the Whois Database, contacted the Helpdesk, or read the APNIC Blog.

Fewer respondents have accessed the APNIC Whois Database than in 2022, down from 47% to 42%, although Members in Oceania report higher usage of MyAPNIC (70%) and the APNIC Whois Database (52%) than those in other regions.

Similarly, developed and developing economies are significantly more likely to have accessed whois (47%) than LDEs (30%).

Contact with the APNIC Helpdesk has fallen from 34% in 2022 to 28% this year. Members from South Asia 34% are more likely to have contacted the helpdesk than other regions. Readership of the APNIC Blog has also declined significantly from 29% to 23% this year.

#### Top 12 Most Used Services



# 2024 Usage and Satisfaction

		Use %	Satisfaction %
	MyAPNIC	60%	93%
Member Services and Membership Products	APNIC Helpdesk	28%	92%
	Voting in an APNIC EC election	21%	92%
	New membership application	18%	86%
	APNIC Annual Report or Activity Plan	6%	88%
		Use %	Satisfaction %
	APNIC Whois Database	42%	93%
	IP address or AS number resource application	33%	94%
	Resource certification (RPKI)	25%	96%
Registration Services, Registry	Routing security (ROA publication)	23%	96%
Products, and Policy Development	IPv4 address transfer (as source or recipient)	16%	90%
	APNIC reverse DNS service (as address holder)	16%	90%
	APNIC Policy Development Process	6%	86%
	APNIC RDAP service	2%	100%*
		Use %	Satisfaction %
	APNIC Academy training	45%	97%
	APNIC Conferences, APRICOT or another online APNIC event	27%	95%
Internet Development	Contacted APNIC with a query	20%	94%
	Presentation by APNIC representative	18%	96%
	Meeting with an APNIC representative	17%	96%
	Special Interest Groups (SIGs)	3%	88%
		Use %	Satisfaction %
	APNIC website	61%	95%
	APNIC Blog	23%	98%
	APNIC Labs reports and/or measurement statistics	11%	96%
Information Products, Research	APNIC Mailing lists (Orbit)	11%	88%
& Analysis	DASH (Dashboard for AS Health)	10%	93%
	NetOX (Network Operators' Toolbox)	6%	92%
	PING Podcast	3%	94%*
	REx (Resource Explorer)	3%	94%*

<sup>\*</sup> Note - Small Sample

# Satisfaction with Services

Survey participants remain highly satisfied with their interactions and usage of the various APNIC services and products.

Overall, satisfaction ratings with the most used services remains high when compared to 2022.

Up from 93% in 2022, 95% of participants rate the APNIC website as above average, good or excellent. Similarly, 94% are satisfied with their experience with the IP address or AS number allocation application process, up from 89% in 2022.

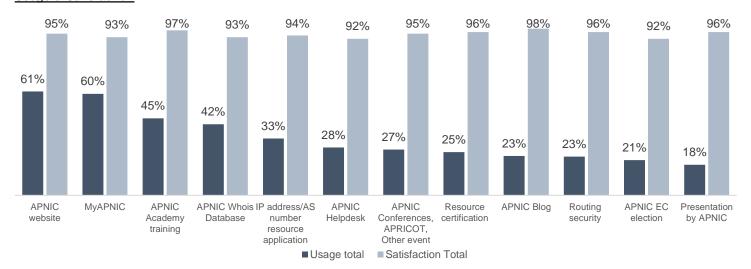
Ratings of satisfaction for APNIC Academy training (97%) and the APNIC Whois Database (93%) remain unchanged from 2022, while experience with MyAPNIC rose 1 percentage point to 93% in this survey.

While only 6% of respondents in this survey had taken part in the Policy Development Process, fewer rate their experience highly (86%, compared to 94% in 2022).

There are few significant differences in ratings of satisfaction between the different APNIC regions, however those in East Asia (83%) and Oceania (87%) are significantly less satisfied with MyAPNIC than those in South Asia (98%)

Members from Oceania also provide significantly lower satisfaction ratings for the APNIC Helpdesk (79%), reverse DNS service (73%) and IP address transfer (70%) than Members in other APNIC regions.

#### **Usage & Satisfaction**



	Eas	st Asia	Oceania		South East Asia		South Asia		LDEs		Other	
	Use	Satisfaction	Use	Satisfaction	Use	Satisfaction	Use	Satisfaction	Use	Satisfaction	Use	Satisfaction
APNIC website	63%	90%	62%	90%	58%	97%	62%	97%	56%	96%	63%	94%
MyAPNIC *	56%	83%	70%	87%	54%	96%	60%	98%	58%	97%	60%	91%
APNIC Academy training	38%	96%	41%	98%	50%	99%	47%	96%	42%	95%	47%	98%
APNIC Whois Database	49%	88%	52%	90%	39%	96%	36%	96%	30%	98%	47%	92%
IP address/AS number application *	33%	91%	26%	91%	34%	94%	38%	95%	36%	93%	33%	94%
APNIC Helpdesk *	26%	92%	28%	79%	23%	91%	34%	98%	29%	99%	28%	89%
Conferences, APRICOT / events	34%	95%	23%	96%	26%	96%	28%	93%	26%	93%	28%	95%
Resource certification (RPKI) *	24%	91%	21%	92%	23%	96%	29%	99%	27%	100%	24%	94%
APNIC Blog	29%	97%	24%	98%	20%	97%	21%	99%	20%	97%	23%	98%
Routing security (ROA) *	21%	85%	21%	92%	19%	98%	29%	99%	26%	100%	22%	93%
APNIC EC election *	22%	90%	14%	84%	13%	94%	32%	95%	31%	93%	17%	91%
Presentation by APNIC	21%	93%	22%	93%	14%	98%	17%	98%	13%	97%	19%	95%

<sup>\*</sup> Option not offered to Stakeholder respondents

Significantly higher / lower than Total



# Reasons for Low Ratings

# Website Usability and Functionality Issues

Some expressed dissatisfaction with the usability and functionality of the APNIC website. Some report finding the site complicated and not user-friendly.

- · "APNIC web is not user-friendly. Info update is incomprehensible." South East Asia
- "It is the most complicated website and nothing is simple to find or use. It shouldn't be this hard." Oceania
- "The web interaction experience of APNIC whois is not as good as RIPE NCC's webupdate." East Asia

# Complicated Application and Resource Allocation Processes

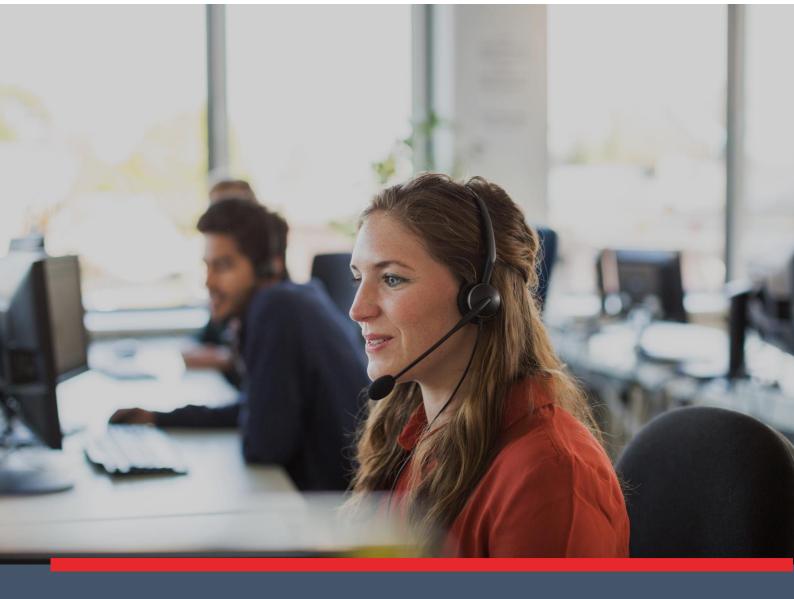
Some found the application and resource allocation processes overly complex and difficult to navigate.

- "The membership application process is too complicated. We have fully demonstrated the necessity of needing resources. However, we still have not received approval." East Asia
- "The charge for historical IPv4 address space is disgracefully high and the process that APNIC has made up is unnecessary and a significant identity theft risk." Oceania

## Inefficiency in Support and Response Time

There were comments about APNIC's support services, including slow response times and inefficiency in addressing queries

- "I have sent emails several times to the helpdesk to correct my name on the APNIC online certificate, but until today I
  have not received a reply" South East Asia
- "I had to contact the helpdesk several times when I added some new route objects. They told me that they had some
  issues in the system." South Asia



# Quality and Value of Services

After rating their experience using individual APNIC services, respondents were also asked to rate the overall quality and value of APNIC services and membership. These key indicators have been tracked since the survey's inception and allow APNIC to track its overall performance over time.

# Quality and Value of Services and Membership

Members continue to rate the quality and value of APNIC services highly, particularly in South Asia.

Overall, 95% of Members rate the quality of APNIC services as above average, good or excellent, up slightly from 94% in 2022.

Similarly, Members continue to provide positive ratings about the value of the services and their membership.

In 2022, there was a significant increase in the 'excellent' ratings for quality of service (54%) and the value of membership (51%). This has been continued in 2024, with 54% rating the quality of service as excellent, while 50% provided an 'excellent' rating for the value of membership. Excellent ratings for the value of services, however, is down slightly, from 54% in 2022, to 48% in 2024, with ratings of 'good' increasing from 33% in 2022 to 39%.

A new statement was added in this survey seeking opinions on APNIC's responsiveness to Member and community feedback. Overall, 93% are satisfied with APNIC's responsiveness, with 47% rating it as 'excellent'.

There are significant differences between regions in ratings of quality and value.

As in 2022, Members in South Asia report the highest satisfaction ratings. Almost all Members from South Asia (99%) are satisfied with the quality of APNIC services and products, with 96% indicating APNIC's services and products offer value and 97% rating membership value highly.

In contrast, Members in Oceania report significantly lower satisfaction than others with the value of services (80%) and of membership (75%) this year. Further, satisfaction among Oceania respondents with the value of services and membership has declined compared to 2022, when 88% were satisfied with the value of the services and 83% satisfied with the value of membership.

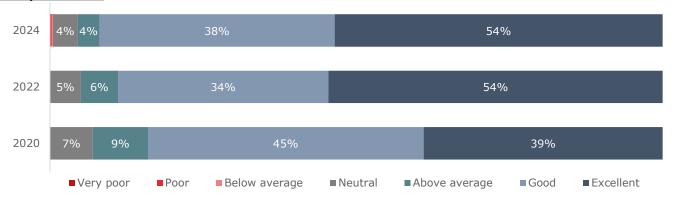
# Quality and Value of Services & Membership

Top 3 Box Scores Excludes "Don't know"	2022	2024	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size		817	96	173	243	280	239	553
Quality of Service	94%	95%	93%	88%	97%	99%	99%	94%
Value of Services	94%	93%	93%	80%	97%	96%	94%	91%
Value of Membership*	91%	91%	91%	75%	94%	97%	96%	89%
Responsiveness to Feedback	-	92%	93%	82%	95%	96%	95%	91%

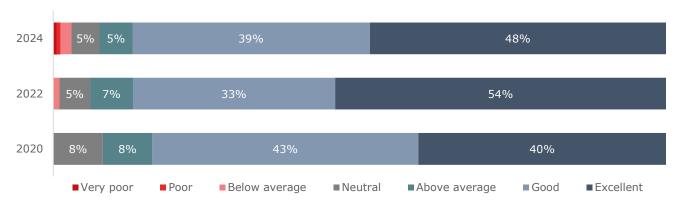
Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous years Note: Number may not sum to 100 due to rounding

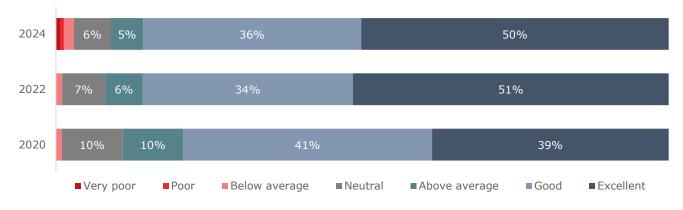
# **Quality of Services**



# Value of Services



# Value of Membership



# **APNIC's Responsiveness to Feedback**



# Stakeholder Satisfaction

# Stakeholder satisfaction with their interactions with APNIC has increased compared to 2022.

Stakeholder satisfaction with their experiences dealing with APNIC has increased, up from 89% in 2022 to 94% this year.

Stakeholders in South Asia (96%) provide the most positive feedback, whereas those in Oceania are significantly less satisfied at 89%.

Up from 50% in 2022, 54% of Stakeholders in South Asia rate their experience dealing with APNIC as excellent.

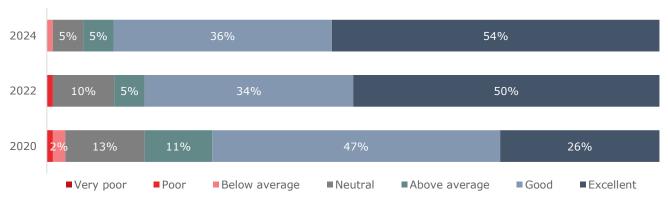
In a new statement added in the 2024 APNIC Survey,

Stakeholders were asked to rate APNIC's responsiveness to Member and community feedback.

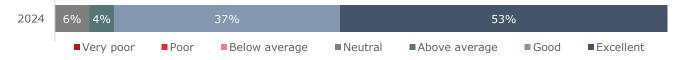
Overall, 94% of Stakeholders provided above average, good or excellent ratings, with more than half (53%) rating APNIC's responsiveness as 'excellent'.

Stakeholders from South Asia provide the most positive ratings at 94%, with more than half of these rating responsiveness to Member and community feedback as excellent. Conversely, Stakeholders in Oceania are less satisfied with APNIC's receptiveness to feedback at 83%.

## **Experience Dealing with APNIC**



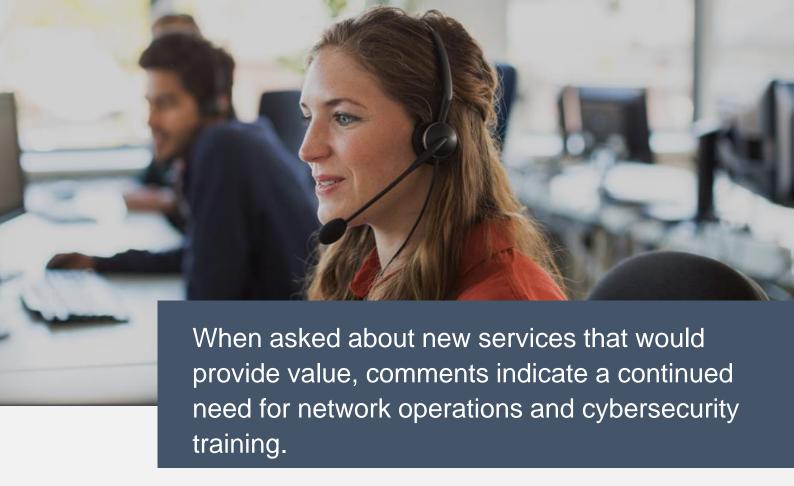
## **APNIC's Responsiveness to Feedback**



Top 3 Box Scores Excludes "Don't know"	2024	East Asia	Oceania	SE Asia	South Asia	LDEs	Others
Sample Size	198	33	29	54	57	46	132
Experience dealing with APNIC	95%	91%	89%	98%	96%	95%	94%
Responsiveness to Feedback	94%	94%	83%	98%	94%	93%	95%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous years Note: Numbers may not sum to 100 due to rounding



# Ideas for New Products and Services

In both the qualitative interviews and the online survey, participants were asked for ideas and suggestions for new or different activities APNIC could offer to provide more value, and common themes are apparent across these activities.

As in previous surveys, there remains a strong demand for enhanced training, especially in advanced cybersecurity and network operations. Some also specifically suggested APNIC could offer certification programs in network operations and security in particular. Members also called for more localized and accessible training opportunities, enhanced technical support and resources, and initiatives to facilitate better information sharing and collaboration within the community.

#### 1. Training and Certification Programs

There were many suggestions for APNIC to offer more comprehensive and advanced training programs, particularly on cybersecurity, network operations, and emerging technologies. Certification that could validate professional skills in these areas were also mentioned by some respondents.

### 2. More Accessible Training Options

Training, available both in the local language and conducted within economies, would also provide value to many. Others suggested that more accessible online training options would provide benefit.

## 3. Improved Technical Support and Resources

Members also mentioned the value of enhanced technical support and resources to help them manage and secure their networks more effectively, including better access to tools, consultancy services, and support for specific technical challenges.

## 4. Information Sharing and Collaboration Initiatives

The importance of initiatives that facilitate better information sharing and collaboration within the community was also mentioned in both the qualitative interviews and the survey comments. With the proliferation of the Internet, rapid advances in technology, and increasing threats to sovereignty, Members want to stay informed about developments and collaborate with one another to share knowledge.

# Advanced Training and Certification



Comprehensive and advanced training programs would be valuable to many.

"Advanced Cybersecurity course, DNS security." South East Asia

"A coherent set of training courses that enable a certification certificate." Oceania

"Cybersecurity and new technological training." South Asia

"How to improve the network safety, we need more knowledge." East Asia

"Introducing more specialized cybersecurity training and consulting services to help organizations stay ahead of emerging threats and enhance their defensive capabilities." South Asia

# More Accessible Training Options



Training in local language, and conducted locally, or online was often mentioned.

"More offline or online training regarding Networking, router configuration, advanced level training in [local] language." South Asia

"Offering localized training programs, advanced networking courses. Hosting regional events and creating online community platforms." South Asia

"As a student from a rural area, I would benefit from more accessible online training courses, especially in areas like Internet technologies and cybersecurity." South East Asia

"

"localized Training Programs and Advanced Technical Workshops." South Asia

# Improved Technical Support



Enhanced technical support and resources to help Members manage and secure their networks more effectively.

"Advanced training, custom consulting, and appoint an ambassador in each country for university and company events to represent APNIC actively." South Asia

"Provide API access for creating RPKI resources." Oceania

"Developing resources and services specifically designed to support small and medium-sized enterprises..." South Asia

"Develop more tools, provide server support, or host some mature services. Such as BGPWatch platform, it would be great if APNIC would like to provide the support." East Asia

## Information and Collaboration



Initiatives that facilitate better information sharing and collaboration within the community would be welcomed.

"Regularly organize programs for Members to share experiences and exchange information." South Asia

"Organize online competitions to increase and activate the knowledge and skills of engineers and technical staff (IP Networking Problem solving)." South Asia

"Organize the APNOG, which is similar to NANOG, for the operators and vendors to discuss the problem, solutions and trends of the network technologies. There is no influential NOG within the Asia-Pacific region now." East Asia





# GG

"Peering and interconnectivity support (help organisations optimise their network interconnectivity with other networks in the region). Customised training for advanced network topologies (i.e., more tailored training sessions that focus on advanced topics like automation, advanced BGP configuration, IPv6 adoption strategies, and security for next gen networks). Hackathons/regional network challenges for Members.

How about a vendor neutral industry certification?"

Oceania



# Governance and Endorsement

As an open, member-driven organization, it is important that APNIC is transparent in its operations, responsive to the needs of its community and well regarded by the Internet community both regionally and around the world. The APNIC Member Surveys always includes questions to test perspectives on its standing in the community, and how Members and stakeholders speak about APNIC to others.

This year, as a result of governance structure changes in 2023, new questions were included in this section of the survey to test attitudes about the changes.

In addition, a question last asked in 2018 was included to seek feedback on APNIC's capital reserve target.

# Governance

Satisfaction with APNIC governance processes remains high, although there are differences across regions.

Agreement that APNIC is open and transparent, responsive to changing needs and respected in the Internet community remains high, however there are differences across APNIC regions.

Satisfaction with APNIC's openness and transparency over the past three surveys has remained high, albeit with a slight decline from 90% in 2020 to 88% this year. Agreement that APNIC is responsive to community needs also remains consistent across 2022 and 2024,

There is strong agreement that APNIC is respected in the Internet community, with a large majority (94%) of Members and Stakeholders agreeing APNIC is well regarded in the Asia Pacific region.

There are significant differences across the APNIC regions, with South East and South Asia

respondents more likely to provide positive ratings than those in East Asia and Oceania.

South East Asia and South Asia (92% and 91%, respectively) are more likely to agree APNIC is open and transparent in its activities than either East Asia (85%) or Oceania (81%).

More than nine in ten Members in South East Asia (93%) and South Asia (91%) also agree that APNIC is responsive to the changing needs of the community, significantly higher than Members in Oceania (78%).

A similar pattern emerges when asked how well APNIC is respected in the Internet community. Members in South Asia (97%) and South East Asia (96%) are more likely to agree APNIC is well regarded than those in Oceania (88%).

#### Governance

Top 3 Box Score - % Somewhat agree, Agree, Strongly agree	2020	2022	2024	East Asia	Oceania	SE Asia	South Asia	LDEs	Others
Sample Size	1,118	1,061	916	110	202	260	317	276	613
Open and transparent	90%	89%	88%	85%	81%	92%	91%	91%	87%
Responsive to changing needs	88%	87%	87%	82%	78%	93%	91%	92%	85%
Respected in the Internet community	93%	93%	94%	89%	88%	96%	97%	96%	92%

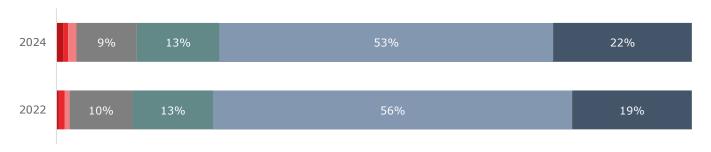
Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly **higher / lower** than total or previous years Note: Numbers may not sum to 100 due to rounding

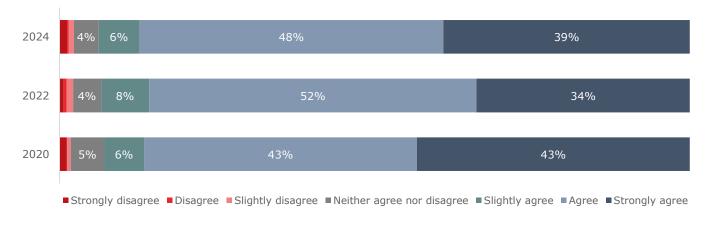
#### Open and Transparent



#### Responsive to Changing Needs



#### Respected in the Internet Community



# New Governance Structure

Four in five Members are satisfied with the new governance structure and believe the election process was improved as a result.

In 2023, APNIC made changes to its governance structure which appointed all EC Members as Directors of APNIC Pty Ltd. The single share in APNIC was transferred to a trustee company with the EC as Directors.

Five by-laws reforms were also passed by a vote of Members to make changes to EC Election processes.

To test Members' satisfaction with the new structure and if it helped improve the APNIC EC election process, two new statements were included in the 2024 APNIC Survey.

Of Members who are aware of the APNIC By-law changes, around four in five are satisfied with the new structure and believe the election process has improved as a result.

Overall, 82% are satisfied with the new governance structure, rising to 88% of those in South East Asia and 87% in South Asia.

However, Members in East Asia (73%) and Oceania (67%) are significantly less satisfied with the governance structure changes.

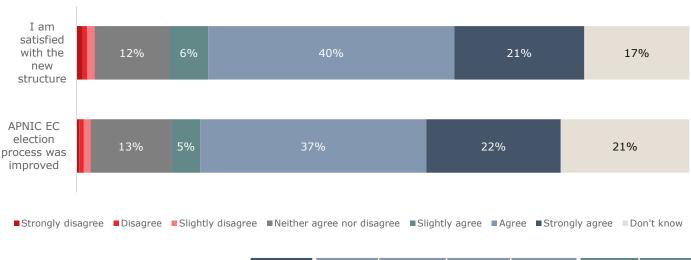
Four in five also agree the APNIC EC election process was improved as a result of the changes.

Members from South East Asia (88%) and South Asia (87%) are significantly more likely to believe the process has improved than those in East Asia and Oceania (68% and 65%, respectively).

Similarly, Members in LDEs are significantly more likely to be satisfied with the new governance structure (87%) and that it improved the election process (88%) than developed or developing economies (79% and 76%, respectively).

It is worth noting that 17% of Members provided a 'Don't Know' response when asked about their satisfaction with the new governance process, and 21% did not know if the APNIC EC election process was improved as a result of the changes.

#### Satisfaction with New Structure and EC Election



Top 3 Box Score - % Slightly agree, Agree, Strongly agree (Don't know excluded)	2024	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	110	202	260	317	276	613
I am satisfied with APNIC's new governance structure	82%	73%	67%	88%	87%	87%	79%
The APNIC EC election process was improved by the 2023 By-law reforms	80%	68%	65%	86%	87%	88%	76%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year

# Capital Reserves

A third of Members believe APNIC should increase its capital reserves target to 24 months to protect against unforeseen circumstances.

In 2018, 35% of Members agreed that APNIC's capital reserves should be equal to 18 months operating expenses, to ensure stability and safeguard against unforeseen circumstances.

Possibly as a result of the global coronavirus pandemic and subsequent disruptions and economic uncertainty, when this question was asked again this year, a third of Members (33%) now believe APNIC's capital reserve target should be 24 months.

A further 29% think that 18 months operating expenses is an appropriate target for capital reserves.

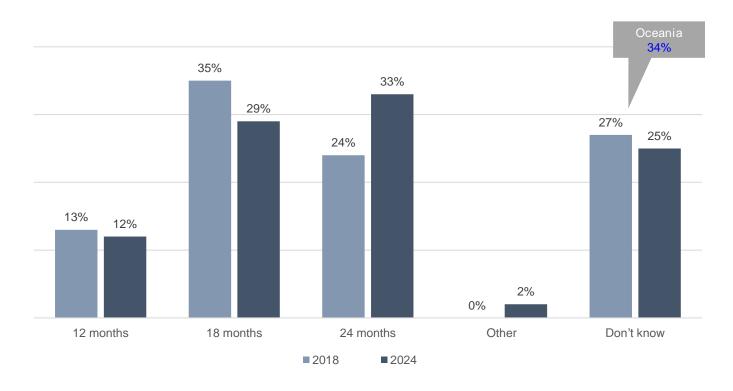
Although not significant, Members in East Asia are more

likely to indicate APNIC's capital reserves should remain at 18 months, with almost two in five (39%) preferring this

Members in South East (36%) and South Asia (38%) are more inclined to believe APNIC should hold 24 months or operating expenses in reserve.

Around a quarter of Members did not know what target capital reserve target APNIC should set, rising to over a third (34%) of respondents from Oceania.

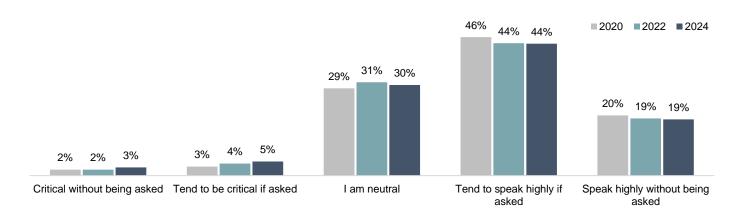
#### Suggested Months of Operating Expenses Held in Reserve





# Word of Mouth

Positively, respondents continue speak highly of APNIC either without being asked or when asked. A large majority of Members and Stakeholders (63%) speak positively about APNIC, with 19% doing so without being asked, the same as in 2022.



	Members	Stakeholders	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	257	151	243	331	388	338	775
Critical without being asked	3%	2%	1%	2%	3%	4%	5%	2%
Tend to be critical if asked	5%	4%	4%	5%	5%	5%	5%	5%
I am neutral	30%	29%	32%	33%	38%	20%	25%	33%
Tend to speak highly if asked	45%	41%	42%	41%	40%	49%	48%	42%
Speak highly without being asked	17%	25%	21%	20%	13%	21%	17%	19%
Mean Score	3.68	3.83	3.79	3.72	3.56	3.78	3.68	3.71
Standard Deviation	0.9	0.9	0.8	0.9	0.9	1.0	1.0	0.9

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly  $\ensuremath{\text{higher}}$  /  $\ensuremath{\text{lower}}$  than total or previous year

# The APNIC Value Proposition





# Value Beyond Registry Services

In 2024, the APNIC Survey sought to establish the value provided to Members and the wider Internet community in the region beyond its core function as a Regional Internet Registry (RIR).

This marks a shift in focus for the biennial APNIC Surveys; moving from opinions on transaction-related activities to concentrate more on strategic matters, as these provide APNIC a more rounded view of the community and where to target activities to support Members and Stakeholders in the region.

# Value Beyond Registry Services

Building technical capacity is the most valued activity beyond Registry Services among the APNIC community.

To better understand APNIC's value proposition aside from resource allocation and its role as an RIR, survey participants were first asked to describe in their own words the value they believed APNIC offered, and then to select the five most valuable activities from a list of ten.

Responses indicate a strong preference for activities that enhance technical knowledge and capacity, with almost seven in ten (68%) saying technical training through the APNIC Academy is valuable.

Encouraging knowledge sharing and collaboration through conferences, mailing lists and the blog is favoured by 43% of survey participants, while 42% say practical assistance such as improving Internet infrastructure through deployment support is important.

Working to defend the global Internet registry system and keeping Members informed of trends and latest research (both 38%) is of benefit, as is the assistance provided to the technical community via events like NOGs and Peering Forums.

#### Most Valuable Activities

Building technical knowledge and capacity through APNIC Academy training

Encouraging Members to share knowledge via APNIC Conferences, APNIC Blog and mailing lists 43% Improving Internet infrastructure (IXPs, Root Servers etc) through deployment support 42% Working to defend the global Internet registry system 38% Informing Members of the latest research and industry trends 38% Supporting NOGs, Peering Forums and the technical community 37% Providing fellowships and encouraging diversity and the next generation 36% Supporting CERTs/CSIRTs and the online security community 26% Advocating for the APNIC community 25%

Representing the technical community at Internet Governance forums and events

25%

# Value Proposition

Differences are apparent among respondents regarding the activities that offer value aside from Registry Services.

Overall, building technical capacity is the most valuable service, however when examined across respondent type, APNIC regions and economy classifications, there are differences in opinion about the activities that provide value.

APNIC Members place greater value on improving Internet infrastructure through deployment support activities (44%) than Stakeholders (35%). However, they are less likely to place value on providing fellowships and encouraging diversity (33%) or advocacy for the APNIC community (23%) than Stakeholders (46% and 33% respectively).

Possibly as a result of the responses from Australia and New Zealand, who are less reliant on APNIC for technical knowledge and information, respondents from Oceania are significantly less likely than others to indicate building technical knowledge (61%) and encouraging knowledge sharing (31%) are of value to them.

In Oceania, greater value is placed on supporting CERTs/CSIRTs and online security (37%) and advocating for the APNIC community (33%) than the other regions.

Those in East Asia are slightly more likely to value APNIC working to defend the global Internet registry system (46%) than their regional counterparts.

At 76%, survey participants from LDEs are also more likely to value building technical knowledge and capacity than others. Not surprising, LDEs also place greater value on APNIC's provision of fellowships and encouraging diversity than other economy types (47% and 32%, respectively).

#### **Most Valuable Activities**

	Total	Member	Stake- holder	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	1,173	916	257	151	243	331	388	338	775
Build technical knowledge and capacity	68%	66%	73%	60%	61%	73%	74%	76%	66%
Encourage knowledge sharing	43%	42%	46%	41%	31%	44%	52%	48%	41%
Improve Internet infrastructure	42%	44%	35%	40%	40%	47%	43%	45%	42%
Defend the global Internet registry system	38%	40%	33%	46%	44%	30%	38%	36%	39%
Inform Members of the latest research	38%	39%	34%	36%	33%	39%	41%	37%	38%
Support NOGs & Peering Forums	37%	36%	40%	43%	34%	41%	35%	38%	37%
Provide fellowships & encourage diversity	36%	33%	46%	33%	23%	38%	45%	47%	32%
Support CERTs/CSIRTs and online security	26%	26%	26%	18%	37%	26%	25%	24%	28%
Advocacy	25%	23%	33%	24%	33%	27%	20%	23%	26%
Representing the community	25%	24%	27%	32%	28%	19%	23%	23%	25%
Other	1%	1%	0%	0%	1%	0%	1%	1%	1%
None of these	3%	3%	2%	3%	6%	2%	1%	1%	3%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year



# Value Beyond Registry

The comments indicate that APNIC contributes considerably to the Internet community through activities such as training and capacity-building programs, fostering community engagement and networking opportunities, advocating for fair and transparent Internet governance, and supporting research and development initiatives.

Most Members and Stakeholders appreciate these additional activities in helping to improve the region's technical capabilities, promote collaboration, and ensure the stable and secure growth of the Internet.

Four primary themes emerged from the comments and discussions:

#### 1. Training and Capacity Building

Training programs and capacity-building initiatives that enhance the technical skills and knowledge of the Internet are highly valued by respondents, who highlight the importance of these initiatives in their own professional development and the overall improvement of the Internet.

#### Community Engagement and Networking

Many believe APNIC plays a key role in fostering community engagement and networking opportunities for the Internet community. These activities are seen as important for the continuous improvement of the Internet in the region.

#### 3. Policy Development and Advocacy

Guiding policy development and advocating and promoting fair and transparent Internet governance is also appreciated, with respondents valuing APNIC's role in shaping Internet policies and advocating for the region's interests.

#### 4. Infrastructure Development

Supporting technology deployments that enhance Internet penetration and infrastructure, and assistance with the challenges in Internet operations and security are also valued by respondents.

#### Training and capacity building



Most frequently mentioned by respondents is APNIC's contributions to capacity building.

"Training and capacity building via NOGs, direct technical support and consultancy to network operators and ISPs" South East Asia

"APNIC conducts trainings across the region to improve overall Internet performance." South Asia

"Aside from registry support and resource management APNIC provide like technical assistance and support, capacity building and training and research and development." South Asia



"Promotes BGP Security. Runs training courses to upskill network engineers."

Oceania

## Community engagement and networking



Facilitating networking and community engagement assist in building knowledge across the community.

"The conferences organized by APNIC provide a great opportunity for researchers, lecturers, and technical experts to meet, network, and seek cooperation opportunities." South East Asia

"APNIC provides an avenue to discuss, receive inputs and comments on the enhancement of Internet governance." South Asia

"Apnic provides a good platform to learn and implement anything in the field of Internet and networking." South Asia



"Organize events and networking opportunities." South East Asia

## Policy development and advocacy



Contributing to policy development and promoting an open, stable Internet is important to many.

"APNIC also provide an avenue to discuss, receive inputs and comments on the enhancement of Internet governance. They encourage everyone especially young minds to participate in policy making and alike." South Asia

"... provides high quality education materials for beginners to understand the basics of Internet infrastructure, which helps promotion of policy awareness." East Asia

"APNIC plays an important part in policy development." South Asia

#### Infrastructure development



Support and assistance in developing Internet infrastructure is the region is another valuable aspect of APNIC's activities.

"Provides a central source of infrastructure information on the Internet in the Asia-Pacific region." Oceania

"Coordinating the overall Internet infrastructure, engaging the other Stakeholders for better Internet Coordination..." East Asia

"Apnic helps develop the regional Internet community and infrastructure in a sustainable way." Oceania



"Helps develop knowledge and information related to network and security infrastructure which is very useful in the current digital transformation." South East Asia



# GG

"APNIC's training, capacity building, and community engagement, including sponsorships, fellowships and other Internet community events, is such an important part of the APAC Internet ecosystem and strengthening the regional community."

East Asia



# Engagement with the APNIC Community

Forming part of the APNIC 2024 – 2027 Strategic Plan, Engagement is one of the Strategic Pillars. APNIC is committed to encouraging and supporting diverse community cooperation in building an open and stable Internet. APNIC aims to increase awareness and participation in processes, events, and activities, with a focus on the next generation.

To understand participation in APNIC community activities, the 2024 APNIC Survey asked respondents their level of involvement in these activities, and the barriers to participation engagement.

# **Engagement in the APNIC Community**

Engagement in APNIC community activities varies across regions and economic classification.

Participation in APNIC Internet community activities varies across respondents, with South Asia and LDEs significantly more likely to indicate they are actively involved than their counterparts.

Overall, 15% of respondents are actively involved in community activities, with Stakeholders (20%) more likely to participate than Members (14%). Another two in five (40%) are also aware of APNIC Internet community activities and take part occasionally.

Over a quarter of Members (27%) know about the APNIC Internet community, but don't take part, significantly higher than Stakeholders, where 15% indicate they are aware of the activities, but take no part

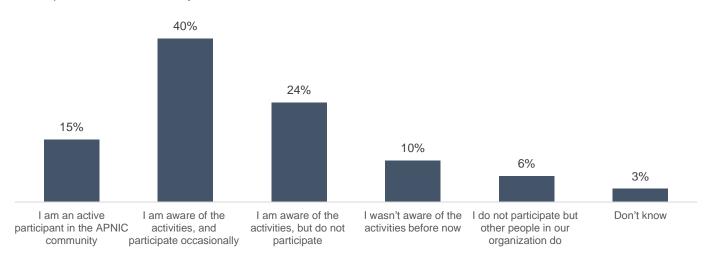
in these.

Respondents in South Asia (24%) are significantly more likely than other regions to actively participate in APNIC community activities, while those in Oceania are the least likely to take any active part at just 7%.

Similarly, LDEs (27%) are more actively involved than developed or developing economies (12%).

Almost one in ten (9%) were unaware of the activities of the APNIC community before they completed the survey, while 7% say others in their organization take part.

#### Participation in the Community



	Member	Stake- holder	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	257	151	243	331	388	338	775
I am an active participant	14%	20%	10%	7%	16%	24%	27%	12%
I am aware and participate occasionally	40%	40%	40%	36%	44%	41%	39%	41%
I am aware, but do not participate	27%	15%	25%	34%	20%	19%	17%	26%
I wasn't aware of the activities before now	9%	14%	13%	11%	10%	9%	7%	11%
Other people in our organization participate	7%	5%	8%	9%	6%	4%	6%	7%
Don't know	3%	5%	4%	3%	3%	3%	4%	3%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year

# **Barriers to Participation**

While time and cost are the primary barriers to participation, a lack of awareness of APNIC community activities is also apparent.

Respondents who indicated they are not active participants in the APNIC community cite time and cost as the primary barriers, however, a lack of awareness of APNIC community activities is also apparent.

Almost half of all respondents (49%) cited cost and budget as one of the primary barriers, with a lack of time also a factor for two in five survey respondents.

These barriers are noted across all APNIC regions, with South Asia (63%) significantly more likely to say cost is an impediment to increased participation, while those in Oceania are more likely to cite a lack of time as their biggest barrier (50%), indicating widespread challenges in allocating resources and time for APNIC community involvement.

However, almost a quarter of respondents (24%) report that they have limited knowledge about APNIC's

community activities, suggesting a need for greater outreach and education efforts.

Technical challenges, such as difficulties with remote participation and concerns about their level of technical knowledge also prevent more participation.

Around one in five respondents (21%) indicate technical challenges prevent them from more active engagement, particularly for respondents in South East Asia (30%) and South Asia(31%). Those in South East Asia also indicate their level of technical knowledge is a factor (28%).

These issues highlight the need for improved technical support and training to facilitate greater engagement.

While language challenges prevent more involvement for 14% of respondents overall, this rises to over a third (36%) in East Asia and 20% in South East Asia.

#### **Barriers to Participation**

	Total 2024	Member	Stake- holder	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	993	786	207	136	226	277	295	248	686
Cost and budget factors	49%	48%	53%	39%	38%	53%	63%	67%	44%
I don't have enough time	40%	42%	35%	49%	50%	41%	27%	25%	45%
I don't know much about the activities	24%	23%	25%	25%	25%	22%	26%	27%	23%
Technical challenges with remote participation	21%	20%	24%	8%	8%	30%	31%	35%	17%
My level of technical knowledge	20%	19%	25%	21%	17%	28%	17%	23%	20%
Language challenges	14%	14%	15%	36%	0%	20%	10%	20%	12%
I don't think I am the right person to participate	8%	8%	9%	10%	9%	9%	5%	4%	9%
I don't think they are relevant to me	5%	6%	3%	3%	11%	4%	4%	2%	7%
I have no interest in participating	2%	4%	0%	2%	4%	2%	0%	0%	3%
Gender, accessibility/disability, age-related	1%	1%	2%	1%	0%	2%	2%	3%	1%
Other	4%	2%	6%	2%	5%	2%	5%	4%	3%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year



# Making it Easier to Engage

Respondents were asked how APNIC could make it easier to take part in community activities. Common themes included increasing virtual and hybrid events, enhancing communication and outreach, and providing financial support and incentives.

#### 1. Virtual or Hybrid Events

Many mentioned the need for more virtual and hybrid events to make participation more accessible regardless of location. They suggested webinars and virtual networking events may help to accommodate busy schedules and overcome geographic barriers.

#### 2. Improving Communication and Outreach

Respondents also called for improved communication and outreach methods, including more frequent and diverse announcements through various channels such as email, social media, and messaging apps like WhatsApp. They also suggested clearer guidelines and information about how to engage in community activities.

#### 3. Financial Support and Incentives

Financial constraints are a major barrier to participation. There were calls for APNIC to offer more fellowships, and consider sponsorships or subsidies for travel, accommodation, and event registration fees to support wider participation.

#### Lack of Interest or Time

Some respondents, however, commented either that they were not interested in increasing their participation, or that a lack of time prevents further involvement.

#### Virtual or Hybrid Events



Facilitating virtual or hybrid events is seen as a good way to increase participation and overcome geographic barriers.

"APNIC can enhance community engagement by offering more virtual and hybrid events, making participation accessible regardless of location" South Asia

"Run a virtual and local beer and pizza sessions so we can make time to meet up and interact with APNIC" Oceania

"APNIC can facilitate easier engagement by offering virtual participation options for community activities... and creating dedicated online platforms for networking and collaboration among community Members." South Asia

"Online Class or group meeting for knowledge sharing. At least one group meeting every month" East Asia

## Improve Communication and Outreach



Greater promotion of the activities the community can take part in was suggested by many, indicating they may be unaware of the opportunities available.

"Utilise various platforms such as social media, forums, and newsletters to keep the community informed and engaged. Regular updates on activities, events, and opportunities can keep Members actively involved." South Asia

"Slack/discord channels?" Oceania

"I would love to know more about the community activities offered. Thank you" South Asia



"More outreach to organizational leaders, so they can share with their internal communities about what is offered and what can be useful to them." Oceania

## Financial Support and Incentives



Many participants, particularly from LDEs and South Asia indicated that the costs to participate prevent them from being more involved.

"Consider providing partial or full sponsorship for participating in some of the activities." Non-APNIC region

"Due to financial constraints, I try to participate in all APNIC events in my country but cannot attend events outside the country." South Asia

"Provision of financial support (transportation and accommodation) to attend community activities." South East Asia

"Support financially and Speak to my boss on sending the right people to the right training." Oceania

#### Lack of Time or Interest



Some feel there are enough opportunities to engage already and have no interest in increasing their participation. Others simply lack the time to be involved.

"APNIC doesn't need to do more. Most economies now have their own NOGs, and most are home grown and self-supporting, with sponsorship (including by APNIC)."

Oceania

"Time flexibility and to provide clear and accessible information about community activities." South Asia

"Time zone and lack of time is a big problem, it's hard to choose a proper time." East Asia



"You are doing well but I am currently busy with other life involvements." South Asia

# Business Confidence and Future Focus





# **Business Confidence and Investment Plans**

In the 2020 APNIC Survey, and in the wake of the coronavirus pandemic, APNIC tested Members and Stakeholders' confidence in their business continuity and growth for the future. The question was repeated this year, to gauge any changes in levels of optimism, and the reasons for their outlook.

The survey also canvassed Members and Stakeholders business plans in the next two years, including investment in their businesses, and if the investments will be in current business operations or new business opportunities

# **Business Confidence**

Business confidence remains relatively strong, although it has fallen compared to the outlook in 2022.

Most respondents are either somewhat or very confident about business in the next two years, however levels of optimism are lower than previously.

Overall, respondents are either very confident (38%) or somewhat confident (40%) about business performance in the next two years, with APNIC Members significantly more likely to be very confident (41%) than Stakeholders (31%).

However, fewer participants are very confident this year than in 2022, when 47% indicated they had a very confident business outlook.

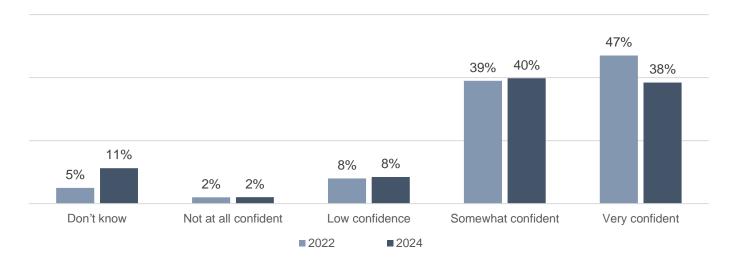
Differences in confidence levels are evident across APNIC regions, with those in South Asia (47%) significantly more

likely to be very optimistic about their business than others, particularly South East Asia (32%) and East Asia (27%). Despite this, even in South Asia, levels of optimism in this survey are lower than they were in in 2022, where 57% of respondents were very confident about business continuity and growth.

In addition, Members in East Asia (15%) are more likely to report low confidence than other regions

More participants this year indicated they did not know or were unsure about their business performance over the next two years (11%) in 2024, compared to only 5% of respondents in 2022.

#### **Levels of Confidence**



	Members	Stake- holders	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	257	151	243	331	388	338	775
Very confident	41%	31%	27%	40%	32%	47%	38%	38%
Somewhat confident	41%	37%	42%	40%	48%	33%	38%	41%
Low confidence	8%	11%	15%	7%	7%	8%	10%	8%
Not at all confident	2%	3%	5%	1%	2%	2%	2%	2%
Don't know	9%	18%	11%	11%	11%	11%	12%	11%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year



## Reasons for Positive Outlook

Respondents who are very confident about their overall business performance in the next two years commonly cite the increasing demand for Internet services, technological advancements, and strategic organizational strengths as the reasons for their optimism.

#### **Increasing Demand**

Many respondents are confident due to the rising demand for Internet services. This trend is driven by the essential role of the Internet in everyday life and business operations, leading to a growing customer base and new market opportunities.

- "Every day, new customers are increasing, new opportunities are being created, Internet demand is increasing." South Asia
- · "With the rapid increase in Internet usage, the ISP business will be relatively good" South East Asia
- "Increased demand for high speed Internet after covid-19" South Asia

#### **Technology Advancements**

New technologies such as AI, 5G, and digital transformation initiatives are seen as opportunities to improve services, enhance efficiency, and stay competitive in the market.

- "We want to leverage the 5G SA as we are the only telco with that technology currently in our country." South Asia
- "We are applying for new technology and new equipment to develop many kinds of services and enhance service quality... we are confident that business performance will improve" South East Asia
- "Our company is evolving rapidly with advancements in technologies like 5G and increased demand for reliable Internet services." Oceania

#### Organizational Strategies

Some respondents believe their businesses ability to adapt, innovate, and execute well-planned business strategies as key factors for their confidence.

- "We have a strong corporate strategy that is well understood across the business." Oceania
- "Management is very positive on the future technologies and digital transformation." South Asia

# Reasons for Negative Outlook

Conversely, the primary reasons for lower confidence are economic instability, government policies, and competition.

Those who are more cautious in their level of optimism about their businesses commonly mention the impacts of the current economic environment, which create an uncertain future. Others, particularly in South Asia, are concerned about the effects of government policy and regulations which are viewed as unsupportive to business operations and growth.

Competition, both locally and globally, are an issue for others, who feel that they are at a disadvantage compared to larger, more established companies.

#### **Economic Conditions**

Concerns about the prevailing economic conditions, citing issues such as inflation, market downturns, and overall economic uncertainty are apparent in many comments.

- "Lost many customers due to the pandemic. Other customers are feeling uncertain about the state of the economy."
   Oceania
- · "Economic condition of the country and competitiveness." South Asia
- "The global economy is sluggish, and the impact of geopolitics is becoming increasingly prominent. Regional conflicts are intensifying." East Asia
- · "The economy is unstable" East Asia
- · "Market sentiment, stagflationary market performance, clients migrating to large scale offshore platforms." Oceania

#### **Government Policy and Regulation**

Many are concerned about government policies and regulations. Issues such as restrictive policies, lack of government assistance, and political instability in certain regions contribute to a lack of confidence.

- "Various policies of the [economy] government are extremely threatening to small businesses." South Asia
- "Due to some political unrest in [economy], I cannot expect what things will be happening next year." South Asia
- "Red tape, politics, budget. The desire of the staff and the vision is there, but I can't say the same for the higher-ups."
   Oceania
- "There is a change of president, which may also mean a change of minister, and this drives policy changes in our business." South East Asia
- "Global politics has been very volatile since the pandemic, and no signs of improvement any time soon." Oceania

#### Competitive Environment

Increased competition both locally and from global organizations are issues for some respondents.

- "Competition is high in [economy]." South Asia
- "The Internet market is up to the limit, it is not easy to increase the number of new customers." South East Asia
- · "Competition from huge offshore corporates, and poor economic conditions." Oceania
- · "Competition with multinational telecom providers." South Asia

# **Business Investment**

Around two in five respondents are planning to invest in current operations or expand their businesses.

When asked about their business focus in the next two years, more than half of survey participants are unsure about their organization plans.

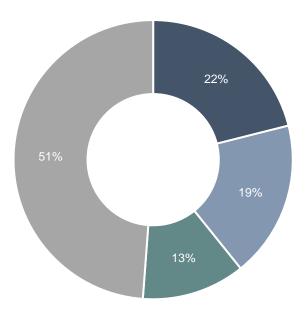
However, when examined by position, those in C-Suite roles and IT Managers are more likely to indicate they are considering investment in existing operations or expanding their business.

Overall, 22% of survey respondents are planning to invest in their current business activities. This rises to 33% of those in IT Manager roles and 29% of C-suite executives. A further 19% are planning to invest in new business opportunities, increasing to 27% of Managers and 19% of CEO, CFO or COO roles.

When examined by organization type, Internet Service Providers (ISPs) (28%) are more likely to be planning to invest in current business activities than others, while telecommunications or mobile providers (32%) will look to expand into new business opportunities.

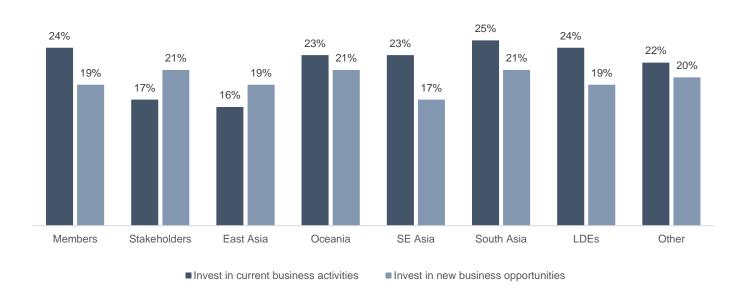
A majority, however, are either not sure about business investment plans (51%) or do not plan any expansion (13%).

While there are no significant differences between the regions, respondents in East Asia (58%) are more likely to say they are unsure about their organizations' plans or business focus over the next two years.



- Invest in current business activities
- Invest in new business opportunities
- Neither
- Don't know / Unsure

#### **Investment Plans**



58

#### Investment in Current Business

The primary areas for investment in current business operations are focused on enhancing security measures, expanding and upgrading their networks, adopting and optimizing cloud computing, and automating processes to improve efficiency.

#### Cybersecurity

Many respondents planning to invest in enhancing their security infrastructure. The focus is on protecting networks from increasing threats, developing human resources in cybersecurity, and integrating advanced security solutions.

- · "Expand security training and education." East Asia
- "Cybersecurity infrastructure." South Asia
- "Develop human resources capable in the field of cyber security." South East Asia
- "Invest in network expansion and implementation of security tools to make the network robust." South Asia

#### Network Infrastructure

Upgrading and expanding their network infrastructure to increase bandwidth, improve network resilience, and expand coverage to meet the growing demand for reliable Internet services is also planned.

- "Expand our transmission network. Upgrade our existing routing switch equipment and upgrade backbone capacity from 10G to 100G" South Asia
- "Network capacity, resilience and coverage upgrades." Oceania
- "Expansion of coverage area and increase of backbone capacity." South East Asia

#### **Cloud Services**

Others plan to enhance cloud infrastructure, increase cloud service offerings, and migrate more services to the cloud, to improve scalability, flexibility, and cost-effectiveness.

- "Cloud infrastructure deployment project." South East Asia
- "Increase more Cloud Services with more Servers and with networks." South Asia
- "Our organization plans to invest in upgrading technological infrastructure, enhancing cybersecurity measures, and expanding cloud computing capabilities to improve operational efficiency." South East Asia
- "Further cloud migrations, replacement of major applications." Oceania

#### **Automation**

Automation is another prominent theme, with respondents highlighting the need to automate various processes to improve efficiency and reduce operational costs

- "FTTx, Automation, passive network monitoring." South East Asia
- "Automation of domain registry." Oceania
- "Expansion of coverage area and increase of backbone capacity." South East Asia
- · "Operations and infrastructure automation." Oceania

# Investment in New Business Opportunities

Some of the investment in new business opportunities overlap with those planned for current operations, with respondents including cybersecurity and cloud services or data centres in their expansion plans. However, the most frequently mentioned areas of investment are in AI and automation, and 5G networks.

#### Al and Automation

Many respondents plan to leverage AI for a variety of applications, from AI-driven products to automation in network services.

- "Al and automation." South Asia
- "Al driven products." South East Asia
- · "AI and SAAS." South East Asia
- "IoT, possibly AI and hoping to work with OneWeb." Oceania

#### <u>5G</u>

Investment in 5G networks is another common theme, with respondents focusing on expanding or upgrading their network infrastructure to support 5G.

- "5G and expansion in 4G current footprint" South Asia
- · "Public Cloud, 5G ,FTTH." South Asia
- "5G, IPT, IPLC." South East Asia

#### Cybersecurity

Similar to planned investment in current operations, respondents who indicate they will invest in new opportunities also mentioned cybersecurity as a focus.

- "Develop products and services that can be used by the public to enhance the cyber security of related institutions."
   South East Asia
- "Security Testing/QA." South Asia
- · "Network Core Devices, Network Security Devices." South Asia
- "Expand Netsafe services Pacific version in context of PIC." Oceania

#### **Cloud Services and Data Centres**

Reflecting the growing demand for scalable and efficient storage and processing solutions, cloud computing and data center services are also mentioned as areas of investment.

- · "We are planning to make our own private cloud and offer it in [economy] education sector"." South Asia
- "Cloud based service and products." South East Asia
- · "Possibly becoming a data center service." South East Asia
- "Establish a Tier 2 data center and expand infrastructure." South East Asia

# Internet-related Challenges





# Strategic and Operational Challenges

To understand how APNIC can best support the Internet community, the survey always includes a section about the strategic and operational challenges respondents face in providing their Internet services, products and activities.

Survey participants were asked to rank in order of importance the main factors that are concerning, and how APNIC can best assist with their challenges.



# Main Challenges

Respondents were first asked to articulate the primary challenges they face in delivering their Internet-related services and products to customers in their own words. While these vary across different economies, there are recurring themes across the comments provided.

#### 1. Costs to Provide Services

A major concern is the high costs of infrastructure, operations, and regulatory compliance in the current economic environment. Many organizations are struggling to balance the need for technological upgrades and the increasing demand for services with limited budgets. This financial pressure is exacerbated by fluctuating currency exchange rates in some economies and the high costs associated with maintaining legacy systems and acquiring necessary resources, such as IPv4 addresses.

#### 2. IPv4 Run-out and IPv6 Transition

Another significant challenge is the depletion of IPv4 addresses and the slow transition to IPv6. Organizations are dealing with the scarcity of IPv4 resources, and, while the need to transition to IPv6 is widely recognized, the process is often hindered by technical complexities, shortage of expertise and the lack of compatibility with devices, particularly among end-users.

#### 3. Security Concerns

Cybersecurity remains another concern, with respondents highlighting the increasing frequency and sophistication of cyber threats. Ensuring robust security measures to protect data and maintain service reliability is a top priority but remains challenging due to the evolving threat landscape.

#### 4. Skills Gaps with Rapid Pace of Change

Additionally, the rapid pace of technological change and the scarcity of skilled professionals in areas like network management and cybersecurity are creating skill gaps, making it difficult for organizations to keep up with the latest advancements.

#### Costs to Provide Services



The costs of delivering services and products, and rising costs of hardware, software, and network infrastructure are issues.

"As Internet usage increases, expanding leased line capacity results in additional costs." South East Asia

"Bandwidth costs for access to content primarily based on the east coast..." Oceania

"Decrease in profit per user. As various useroriented services are delivered over the Internet, the transmission cost increases, but sales do not necessarily increase, leading to reduced profits." East Asia

"The main challenge for ISP in our country is budgeting to expand services to cover remote areas. Due to the local currency inflation, high exchange rates, it is difficult for us to expand network for services." South East Asia

#### IPv4 Run-out and IPv6 Transition



Insufficient IPv4 addresses to meet demand, and complexities and costs associated with IPv6 adoption are a concern.

"Adequate IPv4 Resources and existing policy is a barrier to avail more IPv4 blocks, currently we are depending on leased IPv4 from multiple sources which are vulnerable and risky for future as no guarantee from suppliers'." South Asia

"IPv4 is running out while not many are using IPv6, and IPv6 implementation is still perceived as difficult." South East Asia

"

"We have a limited number of ipv4 addresses and we do not have enough knowledge to implement ipv6 in our network." South East Asia

"The lack of IPv4 address resources and the low support rate for IPv6." East Asia

## Cybersecurity



The growing complexity and frequency of cybersecurity threats and ensuring robust security infrastructure to overcome these are frequently mentioned.

"Security. Trying to keep an open network that allows users ability to work, research, and enjoy content is becoming more at odds with trying to protect the users." Non-APNIC Region

"Security, because here in [economy] very less people know the risk of Internet threats and how to become safe." South Asia

"In a word - security. like most, we're moving from everything being in-house to a hybrid mix on on-prem and SaaS. Providing access securely is a challenge many face." Oceania

"Staying on top of cybersecurity developments and deploying latest good practice." East Asia

## Skill shortages and Training



The need for ongoing training and the scarcity of skilled professionals in network management and cybersecurity are mentioned by many.

"The number of new generation of network engineers is getting low since more and more is into IT/AI programming." South Asia

"Engineering skills and time to upskill."
Oceania

"Technical knowledge, the ability to flexibly configure systems." South East Asia

"...limited access to resources and training opportunities in my rural area, which makes it harder to develop the skills needed for Internet-related services and activities..."

South East Asia





# GG

"Bandwidth cost. [Economy] mainly blames the terrain for high data and Internet surcharges.

Lack of a learned and experienced work force and high prices and taxes in import of equipment."

South Asia

# Strategic Challenges

# Internet security remains the biggest challenge for executives.

To understand how APNIC can best support the Internet community, the survey seeks to understand the strategic challenges facing those in executive positions. Respondents were asked to rank their biggest issues from a list of 12 statements.

Overall, Internet security remains the biggest challenge, with 16% of those in executive roles ranking this as their number one issue, up from 12% in 2022. Two in five (40%) respondents rank Internet security among their top three issues.

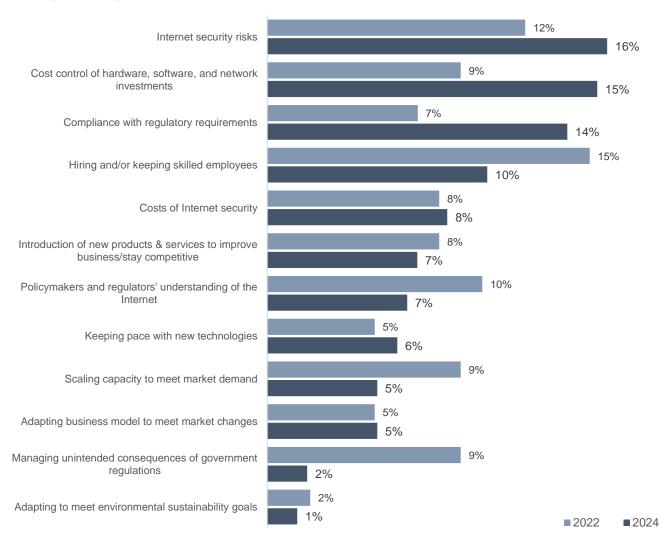
Reflected in the verbatim comments provided by respondents, cost control of hardware, software and network investments is another significant concern, with 15% of Members and Stakeholders ranking this as their primary challenge, up from just 9% in 2022.

When examined in the context of the three most concerning issues for executives, costs of managing and delivering products and services has also increased from 31% in 2022 to 41% in 2024.

Issues around compliance with regulatory requirements has also risen significantly compared to 2022, up 7 percentage points to 14% in 2024. However, when viewed across the top three challenges, the same proportion of respondents as in 2022 selected this in their three most concerning issues in 2024 (20% and 21%, respectively).

Similarly, while attracting and retaining suitably qualified technical employees has fallen as the main challenges from 15% in 2022 to 10% this year, more than a quarter of all respondents (27%) ranked staffing among their top three issues this year.

#### Strategic Challenges - Top Rank



Statement ranked number 1	Member	Stake- holder	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	192	23	27	47	42	89	86	119
Internet security risks	16%	17%	15%	17%	17%	16%	12%	19%
Cost control of hardware, software, and network	15%	17%	22%	6%	19%	16%	19%	13%
Compliance with regulatory requirements	14%	13%	15%	11%	12%	16%	13%	14%
Hiring and/or keeping skilled employees	9%	17%	11%	17%	10%	8%	6%	14%
Costs of Internet security	9%	0%	19%	6%	2%	9%	8%	8%
Improve our business and stay competitive	7%	4%	4%	6%	5%	9%	9%	5%
Policymakers/regulators' understanding of the Internet	7%	4%	7%	6%	12%	4%	8%	6%
Keeping pace with new technologies	6%	4%	0%	11%	10%	4%	6%	7%
Scaling capacity to meet market demand	4%	17%	0%	4%	5%	6%	5%	4%
Adapting business model to meet market changes	5%	4%	4%	11%	2%	3%	2%	7%
Unintended consequences of government regulations	2%	0%	4%	2%	2%	1%	2%	2%
Adapting to meet environmental sustainability goals	2%	0%	0%	2%	0%	2%	2%	1%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year

Concerns about Internet security risks are consistent across all APNIC regions with around 15% ranking this as the biggest challenge.

When examined across the top three ranked challenges, respondents in Oceania appear significantly more concerned, with almost three in five (57%) including Internet security risks among their three biggest issues, compared to 37% in East Asia, 43% in South East Asia and 35% in South Asia.

Cost of hardware, software and network investments is a particularly pressing issue in East Asia (22%) and South East Asia (19%), whereas in Oceania just 6% of respondents rank cost as their number one challenge.

Further, for LDEs challenges with costs outweigh concerns about Internet security, with almost one in five ranking cost control of hardware, software and network investments as their biggest problem.

Compliance with regulatory requirements is slightly more concerning for those in South Asia (16%) than for other sub-regions. Interestingly, Oceania is also more concerned about attracting and retaining skilled employees, with 17% rating this their top challenge, compared to 8% of South Asia respondents. However, this rises to three in ten (30%) in South Asia who include hiring and keeping skilled staff in their top three concerns.

The biggest challenges facing the APNIC community are consistent across Member type, subregions and economic development classification.

# **Operational Challenges**

Internet security also remains the biggest operational challenge in delivery of Internet-related products and services.

As well as understanding senior executives' primary strategic challenges, all respondents were asked to rank their biggest operational issues in delivering Internet related services, products or activities from a list of ten potential challenges.

Compared to 2022, little has changed across the operational challenges Members and Stakeholders are dealing with.

Internet security remains the dominant problem, with three in ten (30%) of respondents ranking this as their number one challenge, the same as in 2022. Internet security is also the primary challenge across all Members and Stakeholders, APNIC regions and economy types.

Managing the costs of systems, network operations and security is of major concern for a further 17% of respondents, up slightly from 14% in 2022. Although not

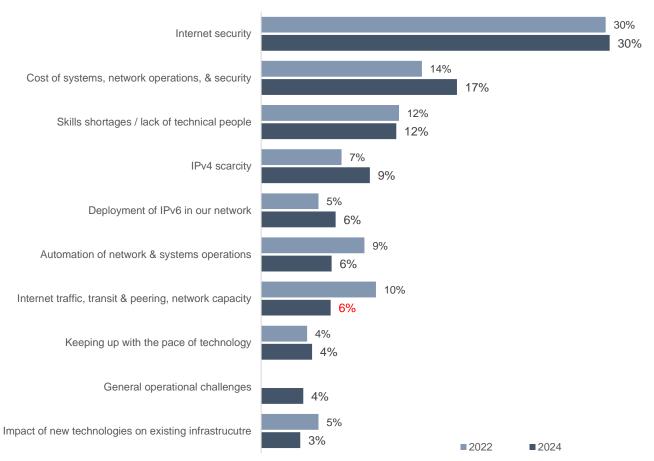
significant, those in Oceania are more likely to rank the cost of operations as their biggest issue, with 23% indicating these costs are concerning.

Skills shortages and a lack of technical expertise remains the third biggest challenge, with 12% ranking issues attracting and retaining the relevant technical experience as their biggest issue.

Slightly higher than in 2022, 9% of respondents are concerned about IPv4 scarcity, compared to 7% in the previous APNIC Survey.

There are no significant differences in the ranking of these issues across regions or economic classification, or role / position type.

#### Operational Challenges - Top Rank



Significantly higher / lower than total or previous year



# Other Suggestions to Assist with Challenges

As in previous surveys, when asked how APNIC can assist with their challenges, overwhelmingly Members talk about continued provision of training and education.

The four primary themes from the comments include the need for enhanced training and education, better technical assistance and support, increased advocacy and policy development, and improved resource management. Respondents emphasise the importance of the APNIC's role in providing resources and opportunities that are practical, accessible, and relevant to their specific needs.

#### 1. Training and Education

Many respondents call for more comprehensive and accessible training programs. Training that covers a wide range of topics, including cybersecurity, IPv6 deployment, and even emerging technologies such as AI were mentioned as the best assistance APNIC can offer. Additionally, recognizing the issues with keeping skills up to date, there is a call for training programs to be tailored to different levels of expertise.

#### 2. Technical Assistance and Support

The provision of technical assistance is also seen as important for respondents in maintaining robust and secure Internet services. There are suggestions that APNIC could offer specialized tools and resources to help address specific technical challenges in network management and cybersecurity.

#### 3. Advocacy and Policy Development

Many respondents believe APNIC should take an active role in influencing government policies and regulations that directly impact the Internet industry. This includes supporting policies that promote Internet security and working to reduce regulatory burdens on small and medium-sized enterprises.

#### 4. Resource Management

Lastly, resource management is a recurring theme, particularly around the allocation and management of IPv4 addresses. Members expressed concerns about the scarcity of IPv4 resources and suggest APNIC could help by reclaiming unused addresses and ensuring fair distribution to those who need them.

#### Training and Education



Common suggestions for assistance are training opportunities, particularly focused on cybersecurity or IPv6 deployment.

"APNIC can conduct automation workshops as well as add relevant network security and automation-related courses on the portal."

South Asia

"IPv6 implementation training with various brands of devices and using inexpensive equipment." South East Asia

"Internet security: Technical Assistance and Advice & Research and Publications. APNIC can assist in Training and Workshops in Automation of network and operation." Oceania

"Develop training modules and resources that cater to different levels of expertise and specific regional needs." South East Asia

## Technical Assistance and Support



Similar to training and education, many respondents mentioned technical assistance as means to assist.

"Technical assistance, consultation, and guidance are needed to cope with these issues." South Asia

"APNIC can have the technical assistance sessions so that the community people can consult their technical issues..." South East Asia

"Offer direct consultation and technical support to help Members troubleshoot issues and optimize their network infrastructure." South Asia



"Providing resource and technical support in capacity building." Oceania

## Advocacy and Policy Development



Taking a more active role in advocacy, particularly in influencing government policies and regulations that affect the Internet industry was suggested by some.

"Engage with local regulators and influence regulatory board policies to address challenges" South East Asia

"APNIC needs to advocate for supportive policies and help in policy change to allocate new IPv4 resources." East Asia

"APNIC talk to government policy change & providing more IPv4." South Asia

"Developed countries can work with less developed or developing countries at the government level to ensure proper Internet policies and other services." South Asia

#### Resource Management



More efficient and fair allocation of resources, particularly IPv4 addresses was also a common refrain from respondents.

"Better inspect whether allocated resources are being misused, resold on the secondary market, or whether too many ASNs are being used by useless organizations." East Asia

"Better quality of registry data helps in Internet security. More availability of IPv4 address in running services." South East Asia

"Some large operators are holding huge amounts of unused IPv4 resources and they are leasing those resources, there should be a policy to get back unused resources from large operators, that can be allocated to others." South Asia





# Internet Security Issues

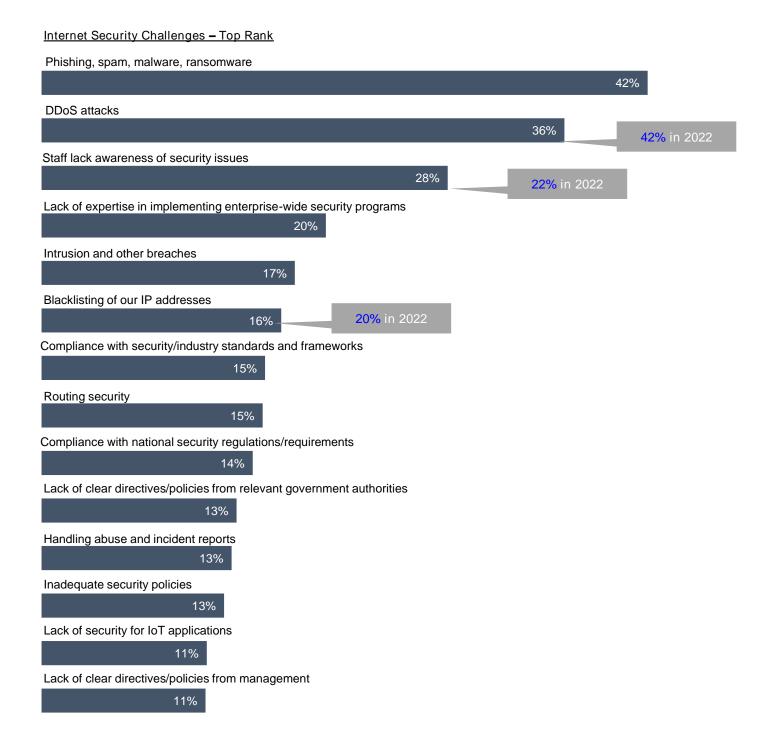
With Internet security risks the most challenging issue in both the strategic and operational business functions, the survey examines different types of security issues Members and Stakeholders are facing.

It also asked the best ways that APNIC can assist with their Internet security issues.

# Internet Security Challenges

Overall, there is little change in the Internet security issues facing respondents from the 2022 APNIC Survey.

Consistent with 2020 and 2022, phishing, spam, malware and ransomware remain the biggest issues. However, although DDoS attacks are still concerning, fewer respondents than in 2020 or 2022 include this as a major concern.



## Phishing, spam, malware and ransomware and DDoS attacks remain the biggest Internet security issues survey participants are dealing with.

Phishing, spam, malware and ransomware affects over two in five respondents (42%). It is of particular concern for those in Oceania, with over half (51%) of respondents including this in their biggest issues.

DDoS attacks are also significant, with 40% of Members citing this as a key issue, though this concern is much lower among Stakeholders (21%).

Among the regions, those in East Asia and South Asia (both 44%) are significantly more likely to indicate DDoS attacks present issues for them than their Oceania counterparts (15%). Similarly, this is also much more challenging for LDEs (49%) than other economy types (31%).

Staff awareness of Internet security issues is also concerning.

More than a quarter of Members (26%) say a lack of

awareness of security issues among employees are of concern, rising to 34% of Stakeholders. Across the regions, a lack of awareness of security by staff is an issue for around a quarter of respondents from East Asia, Oceania and South East Asia, increasing to 31% for South

LDEs (33%) also cite staff lacking awareness of security issues as a major challenge compared to 26% of developed or developing economies.

While overall, blacklisting of IP addresses has declined in this survey to 16%, it is significantly more concerning for South Asia (26%) and LDE (21%) respondents. Interestingly, it is also of greater concern to Members (18%) than Stakeholders (10%)

#### Internet Security Challenges - Top Rank

	Members	Stake- holders	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	257	151	243	331	388	338	775
Phishing, spam, malware, ransomware	42%	42%	37%	51%	42%	39%	40%	43%
DDoS attacks	40%	21%	44%	15%	40%	44%	49%	31%
Staff lack awareness of security issues	26%	34%	25%	28%	26%	31%	33%	26%
Lack of expertise implementing security programs	18%	24%	21%	18%	24%	18%	20%	20%
Intrusion and other breaches	18%	16%	17%	21%	14%	17%	13%	19%
Blacklisting of our IP addresses	18%	10%	15%	8%	13%	26%	21%	15%
Compliance with security/industry standards	15%	18%	13%	25%	14%	11%	10%	17%
Routing security	16%	12%	14%	8%	21%	14%	17%	14%
Compliance with national security regulations	16%	11%	15%	20%	14%	12%	13%	15%
Lack of clear directives/policies from government	13%	14%	12%	14%	12%	16%	18%	12%
Handling abuse and incident reports	12%	17%	16%	9%	17%	10%	10%	14%
Inadequate security policies	12%	16%	13%	15%	11%	12%	13%	12%
Lack of security for IoT devices/applications	10%	14%	11%	10%	10%	13%	11%	11%
Lack of clear directives from management	10%	16%	15%	12%	8%	12%	11%	11%
Other	3%	4%	2%	7%	2%	3%	1%	5%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

### Assistance with Internet Security Issues

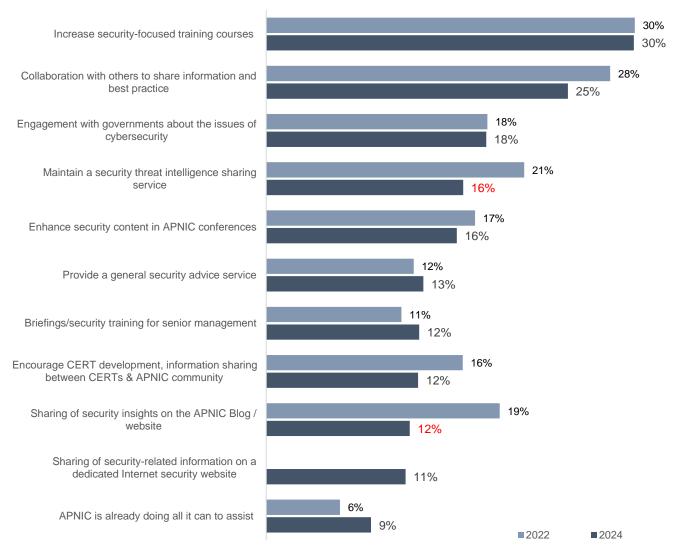
Security-focused training courses are the best way APNIC can assist Members and Stakeholders with Internet security challenges.

When asked to select the best way for APNIC to assist with Internet security challenges from a list of 11 potential activities, three in ten respondents say increased security-focused training courses would provide benefit.

In fact, there is little difference in the responses between 2022 and this survey, although support for APNIC to maintain a security threat intelligence sharing service has declined significantly from 21% in 2022 to 16% in 2024.

Possibly reflecting the addition of a new statement in 2024 around a different way to share security-related information, sharing security insights and information on the APNIC Blog or website has also fallen significantly in 2024, down 7% to 12%. Instead, respondents appear to favour sharing of this information on a dedicated Internet security website (11%).

#### Best Form of Assistance from APNIC



	Members	Stake- holders	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	257	151	243	331	388	338	775
Increase security-focused training courses	31%	25%	25%	21%	30%	39%	38%	27%
Collaboration with other technical security organizations	24%	27%	27%	22%	28%	22%	24%	25%
Engagement with governments in the region	17%	20%	17%	16%	18%	20%	20%	18%
Maintain a security threat intelligence sharing service	17%	13%	23%	20%	13%	14%	12%	18%
Enhance security content in APNIC conferences	15%	18%	17%	12%	14%	20%	22%	13%
Provide a general security advice service	13%	11%	13%	11%	14%	13%	14%	12%
Briefings/security training for management	13%	12%	11%	12%	13%	13%	13%	13%
Development/information sharing b/t CERTs and APNIC	12%	14%	12%	12%	13%	13%	12%	13%
Sharing of security insights APNIC Blog and website	12%	10%	9%	10%	17%	9%	11%	12%
Sharing security information on a dedicated website	12%	10%	12%	10%	12%	11%	12%	11%
APNIC is already doing all it can to assist	8%	11%	9%	10%	8%	6%	6%	9%
None of these	4%	3%	1%	12%	2%	1%	0%	5%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year

Increasing the frequency and number of security-focused training courses is more likely to be preferred in South Asia (39%) and LDEs (38%) than for their counterparts, particularly Oceania where only one in five (21%) respondents indicate security-focused training is the best form of assistance.

Around a quarter of Members and 27% of Stakeholders want APNIC to collaborate with other organizations to share information and best practice to help with their Internet security challenges.

South Asia (20%) and LDEs (22%) are also more likely to choose enhanced security content at APNIC conferences than other regions or economies, whereas those in East Asia (23%) and Oceania (20%) indicate that maintaining a security threat intelligence sharing service would provide them with benefit. Developed or developing economies (18%) are also significantly more likely to prioritize a security threat intelligence service than those in LDEs (12%).

In contrast, 8% of Members believe APNIC is already doing all it can to assist with Internet security issues, rising to 11% of Stakeholders, and 10% of those in Oceania. A further 12% of survey participants in Oceania say none of the options provide assistance.

"[By] facilitating greater collaboration between network operators and security experts through forums and partnerships."

South East Asia

### Ideas to assist with Network and Internet Security Issues

Free text suggestions from respondents about how APNIC can assist with network and security challenges show three common themes, training and education, greater collaboration and information sharing, and localized support.

#### 1. Education and Training

Throughout the verbatim survey responses and qualitative interviews, the appeal for continued and increased education and training opportunities is prevalent.

"Expand training programs to include advanced security certifications, equipping network operators and administrators with the latest skills and knowledge." South East Asia

"APNIC should arrange network security awareness program more frequently not only for providers but also for users." South Asia

"Security training for specific services, such as DNS and RPKI security training." East Asia

#### 2. Collaboration and Information Sharing

Facilitating greater collaboration among Members and with external organizations was also frequently mentioned. This includes fostering partnerships between network operators, governments, and security experts.

"APNIC can become a central platform where AP users can share security issues and submit suggestions of such, a security solution library you may say." South Asia

"Increase forums and collaborations with security researchers to provide practical explanations and prevention methods for network security threats." South East Asia

"More collaboration and support with other cybersecurity related organizations and communities to bring the APNIC and security communities together..." East Asia

#### 3. Localized, Tailored Support

There is also a call for tailored, localized approaches to meet the specific needs of diverse regions and economies within the Asia Pacific region.

"Consider putting funding towards an exchange of skills program between Pacific island organizations to enhance capacity in the different Pacific island countries." Oceania

"Need to arrange all training with Local Language." South-Asia

"APNIC Certified and trained local experts, handholding, in-house training." South East Asia

"Implement an information exchange platform to share resources, IOC, and other information used in cyber-attacks. Encourage Members to regularly upload cyber-attack information, and if possible, mandate it to create opportunities for urgent measures against cyber threats."

South East Asia



## IPv4 Scarcity and Mitigation Strategies

With IPv4 address space running out, organizations around the world are having to look for alternative strategies to mitigate against the scarcity to allow them to continue to run their businesses and serve their customers.

To determine what APNIC Members are doing to alleviate IPv4 scarcity, this year the survey canvassed the actions Members are taking to help them overcome the shortage. For those leasing IPv4 address space, the survey also sought to understand the costs to lease these, and the concerns Members have about leasing arrangements.

### The Challenge of IPv4 Scarcity

Using IPv4 more efficiently, or deploying NAT or IPv6, are the most common strategies to overcome IPv4 shortages.

A majority of Members are either deploying NAT (45%) or IPv6 (40%) or finding more efficient ways to use their IPv4 in their networks (42%).

A further 15% have purchased IPv4 on the transfer market or are leasing additional IPv4 address space, while another 15% already have enough IPv4, so strategies to manage shortages are not an issue.

Most APNIC Members have either deployed NAT (45%) or IPv6 (40%) or implemented a network plan that uses their IPv4 more efficiently (42%).

The exception is Members in Oceania (33%), and more particularly, Australia and New Zealand, who are significantly more likely to indicate they have enough

IPv4 addresses, therefore scarcity is not an issue for them (38% and 35%, respectively). As a result, these Members are also significantly less likely than others to have taken any other action to overcome the issue of IPv4 scarcity.

In contrast, Members in East Asia (27%) are significantly more likely to say they lease IPv4 addresses to overcome the scarcity than other regions, while LDEs are more likely to have bought IPv4 on the transfer market (21%) than other economy types (13%).

#### Strategies Undertaken to Overcome IPv4 Scarcity

### Deployed NAT 45% Implemented a network plan that uses IPv4 more efficiently 42% Deployed IPv6 40% It's not an issue for my organization - we have enough IPv4 Oceania 15% 33% Purchased IPv4 on the transfer market 15% Leased IPv4 addresses East Asia 15% Received our final delegation from the APNIC IPv4 address pool 11% Don't know 7%

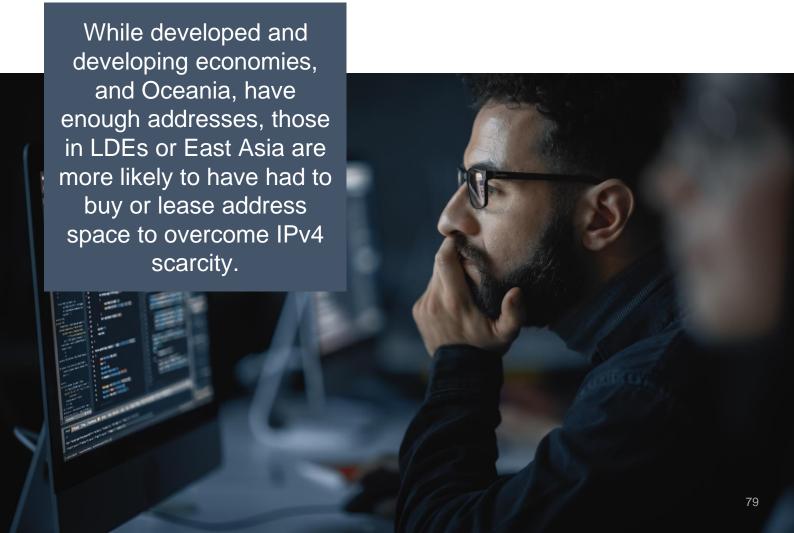
## Members in East Asia and LDEs are the most likely to have leased or purchased IPv4 addresses.

	2024	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	110	202	260	317	276	613
Deployed NAT	45%	40%	33%	50%	50%	49%	43%
Using IPv4 more efficiently in networks	42%	37%	32%	45%	46%	47%	39%
Deployed IPv6	40%	42%	24%	45%	46%	43%	39%
It is not an issue, we have enough IPv4	15%	10%	33%	10%	10%	10%	18%
Purchased IPv4 on the transfer market	15%	17%	6%	20%	16%	21%	13%
Leased IPv4 addresses	15%	27%	6%	16%	16%	18%	14%
Received our final delegation from APNIC	11%	16%	7%	12%	10%	12%	10%
Other	2%	1%	3%	1%	2%	1%	2%
Don't know	7%	5%	10%	5%	8%	7%	7%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

Significantly higher / lower than total or previous year

Q24. Thinking about the availability of IPv4 addresses, what action has your organization taken to overcome IPv4 scarcity? (Members: Base n=916)



### Cost of Leased IPv4 Addresses

## Responding Members who lease IPv4 address space spend less than USD 5,000 per annum on these.

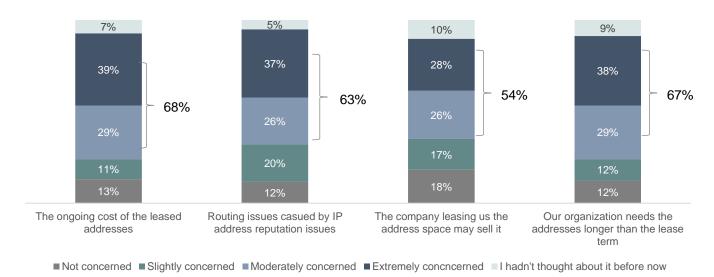
Of the 15% of respondents leasing address space, 43% indicate they spend less than USD 5,000 per annum for the address space, with another 15% spending between USD 5,000 and 9,999 per year.

However, 17% of say they are paying over USD 10,000 per annum on leasing IPv4 address space, with over a quarter of Members in East Asia (27%) significantly more likely to indicate they pay between USD 10,000 and 49,999 per annum for their leased address space.

Amount per Annum	%	
Less than USD 5,000 per year	43%	
USD 5,000 – 9,999 per year	15%	
USD 10,000 – 49,999 per year	11%	East Asia 27%
USD 50,000 – 99,999 per year	1%	
USD 100,000 – 249,000 per year	1%	
More than USD 250,000 per year	4%	
Don't know	24%	

Members who are leasing address space are moderately or extremely concerned about the various consequences of this strategy. Almost seven in ten (68%) are worried about the ongoing cost of the leased addresses, and 67% are concerned that their organization will need the address space for longer than their current lease term, meaning they may either have to renegotiate the terms, or worse, lose access to the addresses.

#### Levels of Concern Leasing IPv4



# Technology Adoption





## IPv6 Adoption in the Region

The APNIC Survey last canvassed the deployment status of IPv6 in Member organizations in 2020.

With scarcity of IPv4 address space an increasing issue for many in the APNIC Internet community, IPv6 deployment status was included in the survey this year, along with the reasons why Members have, or have not, deployed IPv6. As with previous surveys, Members were also asked what APNIC can do to encourage adoption of IPv6 in the region.

## Deployment of IPv6

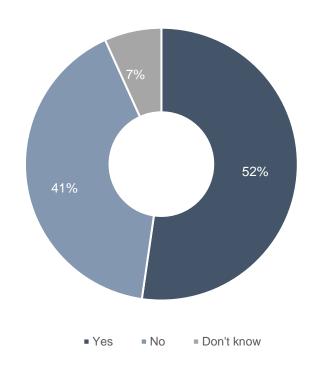
Just over half of APNIC Members indicate they have deployed IPv6 in their networks.

Positively, in 2024, over half of Members say they have deployed IPv6 in their networks.

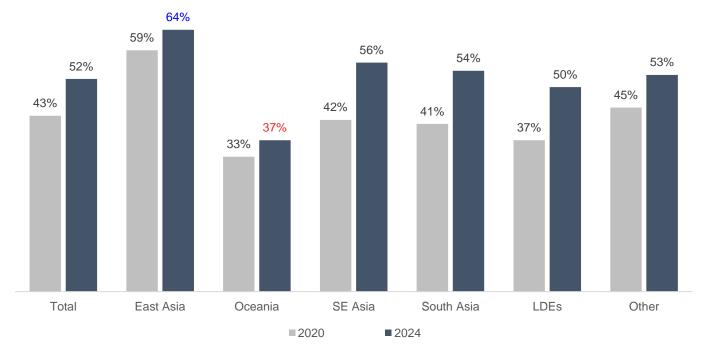
In the 2020 APNIC Survey, 43% of Members indicated they had either fully deployed IPv6, or that it was deployed in their networks. This year, 52% of respondents have deployed IPv6, with around two in five (41%) yet to implement it in their networks.

Possibly as a result of the scarcity of IPv4 address space, and that leasing addresses is the most common way to mitigate these shortages, Members in East Asia (64%) are significantly more likely to have IPv6 deployed in their networks than other regions. However, growth in IPv6 deployment between 2020 and 2024 is highest in South East and South Asia and in LDEs, who show increases of approximately a third in their deployment status.

Lagging behind, those in Oceania, driven by Members in Australia and New Zealand, are significantly less likely than their regional counterparts to have implemented IPv6 in their networks, likely because Members indicate they have access to enough IPv4. In 2020, 33% of Members had IPv6 either fully or deployed or had IPv6 implemented in their networks, and in 2024, this has only risen to 37%, an increase of just 12%.



#### IPv6 Deployment Status



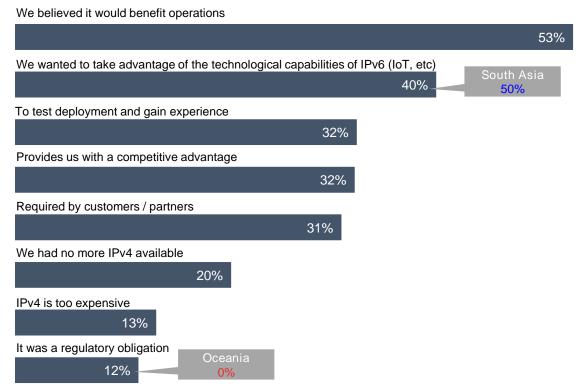
NOTE: 2020 = % Fully deployed + Deployed in Core Network 'Other' segment includes developed and developing economies in the APNIC region



The primary reason for deploying IPv6 is because Members believe it will benefit their operations (53%), while two in five (40%) wanted to take advantage of the technological capabilities, rising to half (50%) of Members in South Asia.

Around a third wanted to test deployment and gain experience with IPv6 or believed that it would offer a competitive advantage (both 32%), and 31% say it was a requirement of their customers or other business partners. Just 20% indicate the reason they implemented IPv6 was because they had no more IPv4 address space.

#### Reasons for Deployment



Overall, the main issue preventing deployment of IPv6 for Members is they have no requirement, or no business need, to implement it at the moment.

Almost two in five Member respondents (39%) who have not deployed IPv6 in their networks don't see a business need or have no requirement for it yet.

This is particularly true for Members from Oceania, or more specifically, Australia and New Zealand where 59% and 68% (respectively) indicate they have no business need or requirement to deploy IPv6 now. This is perhaps unsurprising as these Members also indicated they have enough IPv4 addresses and therefore are not facing the same issues as their regional counterparts are in providing their services.

A lack of expertise also plays a major part in not having implemented IPv6.

Overall, 37% of Members indicate a lack of appropriate skills in their organization is a contributing factor in not having deployed IPv6 yet, rising to 43% of Members in South Asia and 46% in LDEs.

A lack of available configuration management tools prevents deployment for some.

Over a quarter of Members (26%) indicate a lack of

configuration management tools prevents deployment, rising to 34% of Members in South Asia, who are significantly more likely to say this hinders deployment than those in Oceania (7%).

Time constraints are a factor in deployment

A lack of time to plan and deploy IPv6 in the network continues to be the issue for 22% of Members, with those in Australia (39%) significantly more likely to indicate this prevents them from implementing it than other regions.

Infrastructure barriers and a lack of support for IPv6 from service providers prevent deployment

Overall, 16% of Members suggest either their infrastructure doesn't support IPv6, or their service providers do not support it.

A quarter of respondents from South East Asia lack the appropriate infrastructure to support deployment, while the same proportion of LDEs indicate their service providers do not support IPv6 yet.

Reasons for Not Deploying IPv6							
reasons for Not Deploying it vo	2024	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	378	32	111	95	132	122	248
Don't see the business need / no requirement	39%	47%	55%	33%	30%	33%	43%
Lack of knowledge or expertise in the organization	37%	28%	30%	39%	43%	46%	32%
Lack of available configuration management tools	26%	19%	7%	36%	34%	34%	21%
Have not had time for this yet	22%	19%	32%	22%	15%	19%	24%
Our infrastructure doesn't support it	16%	22%	8%	25%	13%	14%	16%
Our service providers don't support IPv6	16%	22%	8%	16%	20%	25%	11%
Could not convince non-technical decision makers	13%	16%	10%	13%	15%	13%	13%
Cannot afford the expense	11%	6%	10%	8%	17%	15%	10%
I don't think IPv6 will achieve full take-up	9%	16%	8%	8%	8%	6%	10%
Legal or regulatory constraints	4%	0%	4%	5%	5%	7%	3%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

### Assistance with IPv6 Deployment

More training and technical assistance from APNIC will assist to encourage IPv6 deployment.

When asked how APNIC can assist with encouraging IPv6 adoption in the region, basic and advanced training and technical assistance on IPv6 deployment are the most preferred activities.

Up from 29% in 2022, 44% of respondents indicate that basic and advanced training on IPv6 would help encourage adoption. Almost two in five (39%) also indicate technical assistance and support from APNIC would be beneficial.

Sharing case studies and best practice information (30%) and facilitating knowledge sharing between Member organizations about their deployment experiences (23%) are also ways Members believe APNIC can encourage IPV6 uptake in the region.

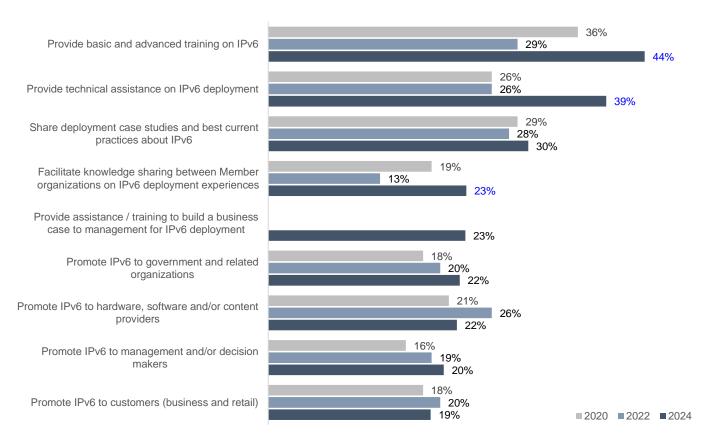
These four activities are also reflected in other parts of

the survey, most notably when asked about APNIC's value to the Internet community beyond registry activities.

There are few differences in these results between regions and economy types, however, and reflecting their reasons for non-deployment, Members in South Asia (28%) and LDEs (29%) are more likely to indicate APNIC should promote the benefits of IPv6 adoption to hardware, software and content providers than their counterparts.

LDEs are also more likely to call for technical assistance from APNIC (46%) to help them make the transition to IPv6 than other economy types.

#### Strategies to Encourage IPv6 Adoption



NOTE: In 2020 and 2022 respondents could only select up to two (2) options, in 2024, they were able to choose up to three (3) options



## RPKI, ROA and ROV Implementation

Deployment of RPKI, including Route Origin Authorization (ROAs) and Route Origin Validation (ROV) was first canvassed in the 2020 APNIC Survey, and sought to understand awareness of the technologies and implementation status.

With network and cybersecurity top of mind for many Members, the 2024 APNIC Survey again asked about implementation of RPKI in their networks, as well as those who are publishing ROAs but have not deployed ROV and vice versa.

In addition, Members were asked the main reasons they have not published ROAs and/or deployed ROV .

### **RPKI** Implementation

### Almost a third of Members have implemented RPKI.

Almost a third of APNIC Members have implemented RPKI, up from just over a quarter in 2020. However, many respondents do not know if this is implemented in their organization.

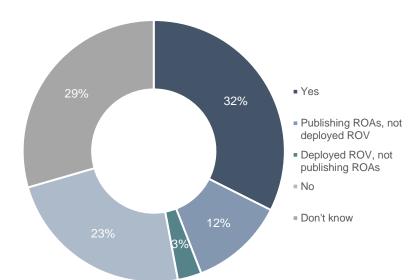
Overall, 32% of APNIC Members are publishing their ROAs and have deployed ROV.

LDEs (42%) and Members in South Asia (38%) are significantly more likely to have implemented RPKI in full than their counterparts, particularly those in Oceania, with just 18% of respondents indicating they have RPKI deployed.

Twelve percent (12%) are publishing ROAs, but are yet to deploy ROV, while a further 3% have deployed ROV but are not publishing ROAs.

Almost a quarter (23%) have not implemented RPKI, with Members from Oceania significantly more likely to indicate they have not deployed RPKI than other regions. Similarly, more Members in developed and developing economies have not implemented RPKI (27%) compared to LDEs (16%).

Almost three in ten Members (29%) don't know if their organization has implemented RPKI.



#### **RPKI** implementation Status

	2024	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	110	202	260	317	276	613
Yes	32%	38%	18%	32%	38%	42%	27%
Yes, publishing ROAs, but not ROV	12%	9%	12%	10%	13%	12%	12%
Yes, deployed ROV, but not ROAs	3%	3%	4%	3%	2%	3%	3%
No, we have not implemented RPKI	23%	25%	35%	22%	17%	16%	27%
l don't know	29%	25%	31%	33%	28%	27%	31%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

## A lack of knowledge about ROAs and ROV prevents deployment for many Members.

#### Barriers to Publishing ROAs

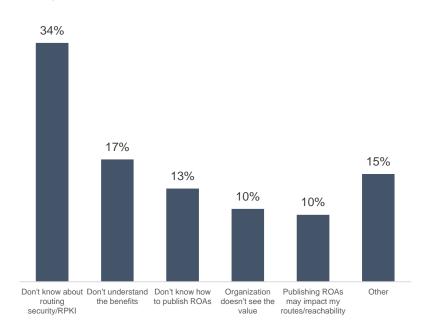
For Members who have not published ROAs for their BGP routes, just over a third indicate it is because they don't know very much about routing security and RPKI.

A further 17% do not understand the benefits it will provide them or their organization, indicating APNIC could promote the advantages of implementation more heavily to Members to encourage adoption.

Technical concerns are also barriers to implementation, with 13% saying they do not know how to publish ROAs, while one in ten are concerned that publishing their ROAs could impact their routes and reachability.

Of those who have other reasons for not publishing ROAs (15%), the majority indicate either a lack of time, or higher priorities. Comments that it was "another thing on the list" or that it is "currently in the pipeline, however there are more pressing operational challenges at this current point in time" are prevalent.

#### Not published ROAs for BGP Routes



#### Barriers to Enabling ROV

A lack of awareness about what ROV is or how to enable it is also the primary reason just over a third of Members have not enabled it.

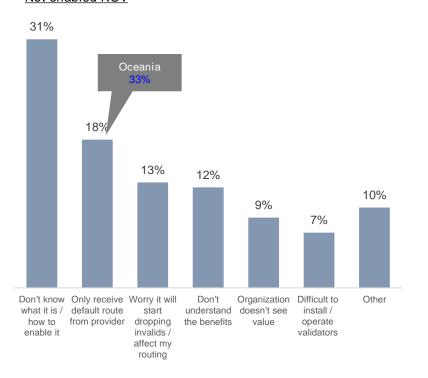
A lack of understanding about the benefits (12%) and that the business doesn't see the value (9%) also contribute to not having enabled ROV.

Some Members (18%) only receive a default route from their upstream service provider, with this reason much more prevalent for Members in Oceania (33%) than for other regions.

Concern that ROV will start dropping invalids immediately and could affect routing prevents enabling ROV for 13% of respondents, while 7% find it difficult to install and operate validators.

As with the other reasons for not publishing ROAs, a lack of time and other priorities are barriers to enabling ROV, with mentions "it is in the queue of projects..." or that "time constraints - we have a testing environment that has not entered production."

#### Not enabled ROV



# APNIC Academy Training





## Training Considerations and Preferences

To understand the elements of technical training programs that are most important to the Internet community, and to inform APNIC about the value of courses that offering a recognized certification or qualification upon successful completion, the survey asked respondents to rank the factors that are most important when choosing training.

It also examined the types of technical training that are preferred among respondents, if they have a choice, and who they believe would provide the best quality technical training in their economy if APNIC Academy training was delivered by other organizations.

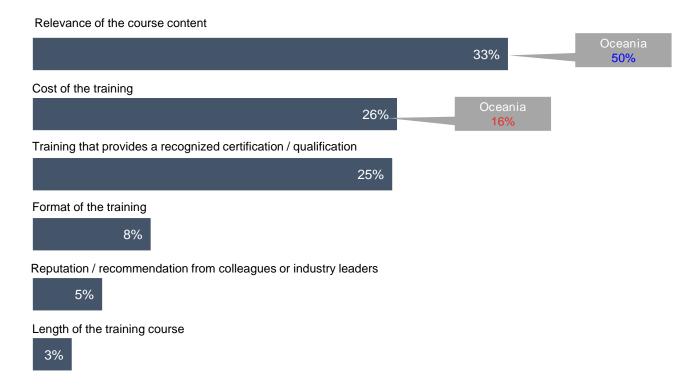


### **Technical Training Considerations**

The relevance of the course content in meeting specific training needs is the most important factor when choosing training for a third of respondents. The costs to attend technical training is a priority for another 26% of survey respondents, while a quarter (25%) indicate that training that leads to a certification or qualification on completion is most important to them.

Factors like the format, recommendations from colleagues or industry leaders and the length of the course are much less important when choosing technical training.

#### **Drivers of Technical Training Choice**



% Ranked Option # 1

## The relevance of the course content is the most important consideration for a third of respondents.

Overall, the relevance of the course content is the most important factor for a third of survey participants, however there are differences across the APNIC regions.

Course relevance is significantly more important to respondents in Oceania (50%) and developed or developing economies (39%), compared to South Asia (24%) or LDEs (18%).

The costs to attend training is the primary consideration for another 26% of survey participants. Perhaps unsurprisingly, the cost of the training is more important than content relevance for those in LDEs (30%), and South Asia (29%).

Another quarter of respondents (25%) indicate that training that provides a recognized qualification or certification upon passing the course is the most important consideration when choosing training. This is consistent across regions and economy classifications, although those in East Asia and LDEs (both 30%) are slightly more likely than others to prioritize a recognized qualification than others. Stakeholders (29%) are also slightly more likely to rank a recognized qualification the most important factor than APNIC Members (24%).

Consistent across regions and economy types, training that provides a recognized certification or qualification upon successful completion is the most important consideration for a quarter of respondents.

#### **Drivers of Technical Training Choice**

% Ranked Option Number 1	Members	Stake- holders	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	257	151	243	331	388	338	775
Relevance of the course content	34%	30%	32%	50%	30%	24%	18%	39%
Cost of the training	26%	23%	21%	16%	30%	29%	30%	24%
Training that provides a recognized certification / qualification	24%	29%	30%	20%	25%	28%	30%	24%
Format of the training	9%	7%	11%	6%	8%	9%	11%	7%
Reputation / recommendation from colleagues or industry leaders	4%	7%	6%	5%	4%	4%	5%	4%
Length of the training course	3%	4%	1%	2%	2%	5%	5%	2%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

### **Training Preferences**

If given a choice, training leading to an industry-recognized qualification is overwhelmingly preferred.

When asked their preference, a vast majority of respondents prefer training that leads to an industry-recognized qualification.

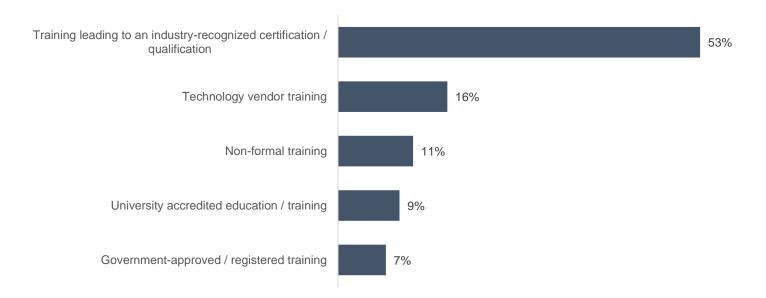
Over half of respondents (53%) indicate that industry-recognized certification is their personal preference if they have a choice, rising to 59% of those in South East Asia, and 56% of participants in developed or developing economies.

At 45%, respondents in Oceania are the anomaly, significantly less likely than others to prefer training that leads to an industry-recognized qualification.

Overall, 16% of survey participants preference technology vendor training. This rises to 22% of respondents in LDEs who prefer courses from technology vendors, possibly because there are bundled technical training options included when they purchase vendors' services or products. As evidenced elsewhere in the survey, cost is particularly pertinent to this cohort.

More respondents in Oceania would choose non-formal training (16%) or university accredited education (14%) than their regional counterparts.

#### **Training Preferences**



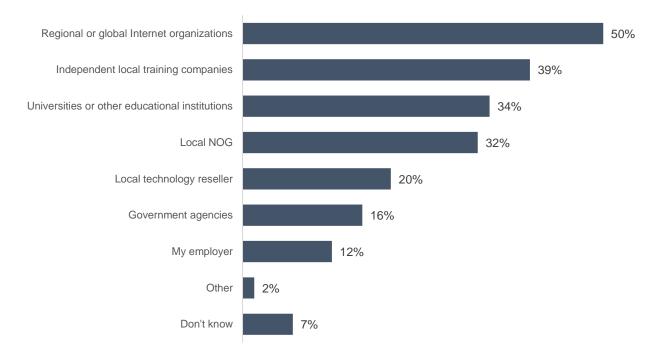
	Members	Stake- holders	East Asia	Oceania	SE Asia	South Asia	LDEs	Other
Sample Size	916	257	151	243	331	388	338	775
Training leading to a certification / qualification	53%	55%	61%	45%	59%	52%	48%	56%
Technology vendor training	17%	13%	17%	12%	15%	19%	22%	14%
Non-formal training	11%	9%	8%	16%	11%	7%	8%	11%
University accredited education / training	8%	13%	7%	14%	7%	8%	10%	9%
Government-approved / registered training	7%	7%	6%	4%	5%	11%	9%	7%
Other	1%	2%	1%	4%	1%	0%	0%	2%
None of these	3%	2%	0%	5%	2%	2%	3%	2%

Note: Segments exclude respondents from non-APNIC regions included in the 'Total'; 'Other' segment includes developed and developing economies in the APNIC region

### **Technical Training Providers**

Opinion is mixed regarding the type of organization that would deliver the best quality technical training.

#### Preferred Training Provider



To try to make APNIC Academy training more accessible to local communities, APNIC canvassed the types of organizations respondents believed would offer the best quality training if Academy training was outsourced.

Overall, half of respondents (50%) indicate that regional or global Internet organizations would provide the best quality training, rising to 55% of participants in South Asia. Again, those in Oceania (37%) are significantly less likely to believe Internet organizations would offer quality training than others.

At the opposite end of the scale, almost two in five (39%) think that local, independent training companies would offer quality training, although respondents in East Asia (26%) are significantly less likely to say these companies would provide the best quality training.

Stakeholders (43%) are significantly more likely to believe universities or other educational institutions are in a better position to offer APNIC Academy training than Members (31%).

Instead, 31% of Members think that local Network Operator Groups (NOGs) would provide quality technical training, rising to two in five (40%) survey participants from East Asia.

While half of respondents believe regional or global Internet organizations would deliver the best quality training, others think either local, independent companies, or universities would offer the best quality.



### **Training Suggestions**

Consistent with verbatim feedback throughout the survey, respondents call for technical training that is practical, accessible, and tailored to the needs of Members. Hands-on, interactive sessions including the use of case studies are also frequently mentioned. Many suggested the expansion of online and self-paced training to increase accessibility, especially for those in remote areas or with varying schedules. Additionally, there is mention of structured certification programs to provide pathways for skill advancement.

#### 1. Hands-on, Interactive Training

Many comments highlight the value of hands-on, practical training that goes beyond theoretical knowledge. Interactive labs, simulations, and real-world scenarios that help apply learning directly to their roles is frequently mentioned.

#### 2. Accessible and Flexible Training Options

Training options to cater to professionals with busy schedules or those located in remote areas is also suggested to help ensure as many as possible can participate in APNIC training. Respondents suggested more online courses, self-paced learning, and training in multiple languages would be a benefit.

#### 3. Certification Programs

Survey participants also suggested that structured certification programs would be valuable. Certifications are viewed as valuable benchmarks of skills and knowledge, providing career advancement and validating the expertise of participants.

#### 4. Regional and Local Training

Regional and local training programs tailored to the needs of different economies is also mentioned, with suggestions APNIC can collaborate with local experts, organizations, and institutions to deliver relevant training.

#### Interactive Training and Case Studies



Hands-on and interactive training is seen as important for skill development.

"Incorporate more hands-on labs and simulations into training sessions. Practical exercises help participants apply theoretical knowledge in real-world scenarios." Oceania

"Trainings should include labs for practical experience." South Asia

"Conduct interactive and hands-on training sessions. Use up-to-date content and real case studies." South East Asia

"Focus the training more on practical aspects and case studies that are often encountered in the field." South East Asia

#### Accessible, Flexible Options



There are calls for more accessible and flexible training options, including online courses, self-paced learning, and training in multiple languages.

"Provide training that is accessible to people in regional areas, using local languages and practical content." South East Asia

"Make it cheap, make it universally accessible online, make it bite sized for difficult topics."

Oceania

"Online training in Chinese." East Asia

"Online courses, and virtual labs, to provide flexible learning options that accommodate diverse schedules and geographic locations..." South East Asia



#### **Certification Programs**



Certification programs that offer clear pathways from foundational to advanced levels are also mentioned as valuable.

"Provide Technical Trainings and Certifications." South Asia

"APNIC needs to focus more on training specially the full course, self-paced ones with an option of certification after completion the training..." South East Asia

"Offer recognized certification programs that validate participants' expertise and provide them with credentials that can boost their careers." South East Asia

"Training courses should have assessments to grant certificates/certifications." South Asia

### Local Training



Partnering with local organizations to provide training is another way APNIC can deliver its courses.

"Partner with reseller to provider vendor neutral technology training, such as optical transport networking, etc." South East Asia

"...partner with regional NOGs to develop training programs that address local needs and challenges." South East Asia

"APNIC could provide trainings to people in my region who are already professionals in areas that APNIC covers, and then this people could be providing more trainings and awareness to others in our area consistently.." Oceania





## GG

"Conduct interactive and hands-on training sessions. Use up-to-date content and real case studies. Create online courses for easy access.

Provide opportunities for participants to exchange opinions and experiences and offer certification after training to validate knowledge and skills.

South East Asia

# 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
МО	Macao Special Administrative Region of China
TW	Taiwan

South As	ia
AF	Afghanistan
BD	Bangladesh
ВТ	Bhutan
IN	India
Ю	British Indian Ocean Territory
LK	Sri Lanka
MV	Maldives
NP	Nepal
PK	Pakistan

South Ea	st 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	Viet Nam

Oceania	
AS	American Samoa
AU	Australia
СК	Cook Islands
FJ	Fiji
PF	French Polynesia
FM	Federated States of Micronesia
GU	Guam
KI	Kiribati
МН	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
ТО	Tonga
TV	Tuvalu
VU	Vanuatu
WF	Wallis & Fortuna Islands
WS	Samoa

## **APNIC Definitions of Sub-regions**

	Developed / Developing Economies
AU	Australia
BN	Brunei Darussalam
CN	China
FJ	Fiji
GU	Guam
HK	Hong Kong Special Administrative Region of China
IN	India
ID	Indonesia
JP	Japan
МО	Macao Special Administrative Region of China
MY	Malaysia
MV	Maldives
MN	Mongolia
NC	New Caledonia
NZ	New Zealand
NU	Niue
PK	Pakistan
PW	Palau
PG	Papua New Guinea
PH	Philippines
KR	Republic of Korea
WS	Samoa
SG	Singapore
LK	Sri Lanka
TW	Taiwan
TH	Thailand
ТО	Tonga
VN	Viet Nam

Least Developed Economies	
AF	Afghanistan
BD	Bangladesh
ВТ	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

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



## Acknowledgements.

We would like to take the opportunity to thank all respondents for participating in the 2024 APNIC Survey. Your input is extremely valuable.

The robust sample size of 1,173 provides APNIC with clear direction on the preferences and opinions of the Internet community.

The 2024 APNIC Survey highlighted many of the challenges facing the Internet community. It also provides the APNIC EC and Secretariat with insights and information to continue to assist the Internet community in supporting a global, open, stable and secure Internet in the Asia Pacific region.

We trust this information forms a solid basis upon which the APNIC EC and Secretariat 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.

# About Survey Matters.

Specializing in membership and not-for-profit organizations, Survey Matters boasts a track record of success built over twelve years of industry leadership. Our deep understanding of the unique dynamics of associations truly sets us apart.

Our work goes beyond surface-level insights to unearth the core truths that drive organisational success. Our reputation has been built on consistently helping member-based and not-for-profit organisations drive their goals and mission further.

By leveraging our expertise in stakeholder engagement and evidence-based approaches, we empower leaders to make confident, informed decisions that result in tangible outcomes for their communities. Whether it's understanding retention rates, engagement levels, advocacy efforts, designing policy, raising awareness or changing behaviour, our insights serve as the cornerstone of meaningful impact and change.

What truly distinguishes Survey Matters is our relentless commitment to our clients' development. We don't just deliver reports; we forge enduring partnerships grounded in trust and reliability that grow and change as our client's do.

In a world where insights have the power to shape the future, choosing Survey Matters as a trusted research and insights partner will deliver the intel to fuel strategic growth and equip organisations with the understanding they need to chart their course with confidence.

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