RIPE NCC Survey 2023

Prepared by:

Survey Matters

August 2023

Contents

survey matters.

Introduction and Methodology

The RIPE NCC is one of five Regional Internet Registries (RIRs) across the world. It supports the infrastructure of the Internet through Internet resource allocations, registration services, technical coordination and other activities across the 75 countries in its service region. The RIPE NCC Survey is conducted every three years and is in its eighth iteration.

The RIPE NCC Survey 2023 was conducted from 22 May to 30 June 2023 to obtain feedback from members and others in the community about the current environment – how well the RIPE NCC is performing against its strategic objectives, the challenges members face, and how the RIPE NCC can assist. The survey also serves to track members' experiences about the RIPE NCCs performance against key criteria.

The survey is a useful tool for the RIPE NCC to understand the needs and wishes of the community and guides decision making about future priorities and activities. The RIPE NCC places a high degree of importance on this survey as a source of guidance for strategy and planning.

As with the 2019 survey, the 2023 survey was conducted by Survey Matters, a research agency specialising in research for member-based organisations. The RIPE NCC commissioned Survey Matters to ensure the anonymity of respondents and the impartial analysis of results.

Individual responses are not identified throughout this report; results are provided at an aggregate level only. To further protect participant anonymity, no organisations or individuals are noted in this report.

This report provides the full feedback from the online survey. Where appropriate, it also references results from the RIPE NCC Survey 2019.

Survey Design

The quantitative survey was designed by Survey Matters and the RIPE NCC.

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

Questionnaire

To enable comparison to the 2019 survey results, several key questions, particularly around the performance of the RIPE NCC in its primary functions, were kept in the 2023 survey.

However, in recognition of global events in the intervening time since 2019, such as the coronavirus pandemic and geo-political instability, particularly in Europe, several new questions were included, while other existing questions were removed as they were no longer relevant.

The survey covered the following topics:

- Satisfaction with the RIPE NCC's performance
- Internet Governance
- Communication and training programs
- Challenges
- Information Security
- IPv4 Issues, IPv6 and RPKI Deployment
- The RIPE NCC measurement tools and use of technologies

Translation

In 2019 the RIPE NCC survey was translated into eight languages (Arabic, Farsi, French, Italian, Polish, Russian, Spanish and Turkish), and 44% of completed responses were received in a language other than English.

This practice was continued in 2023, and with the addition of the Ukrainian language, the survey was available in nine languages other than English.

A total of 2,046 responses were completed in languages other than English, 52% of survey responses. A breakdown of non-English language survey completions is provided on page 9.

Completion of the survey by over half of the total respondents in a language other than English reinforces the value this offers members, and it is seen as a significant step in improving accessibility to the RIPE NCC.

Response Rates and Sample

Following a comprehensive communication and survey distribution program carried out by the RIPE NCC, a total of 4,043 responses were received. After data cleansing, 3,899 responses remained. While slightly lower than the 4,161 responses received in 2019, this response provides 95% confidence the actual results are with a +/- 5% margin of error.

Consistent with 2019, of the responses received 90% were received from RIPE NCC members. Most responses (97%) were received from respondents in regions served by the RIPE NCC. The remaining 3% came from members or stakeholders in countries outside the RIPE NCC service region.

The composition of the sample was largely the same as in 2019, with 55% of responses received from respondents in Western Europe. The Eurasia region made up 18% of the remainder, 11% were from the Middle East, 7% came from Central Europe and 6% from South-East Europe.

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.

The full breakdown of responses, including comparisons to the 2019 sample is provided on pages 6 – 8 of this report.

Communication and Distribution

The survey was designed as an anonymous online instrument, hosted by Survey Matters. Promotion of the survey was done by the RIPE NCC.

Several prizes were offered throughout the communication period to encourage responses at different stages of the fieldwork. Survey Matters randomly drew prize winners and provided the RIPE NCC with contact details so that the prize could be forwarded to winners.

Survey Analysis

When analysing the survey data, results have been cross-tabulated by the RIPE NCC region where the respondent resides.

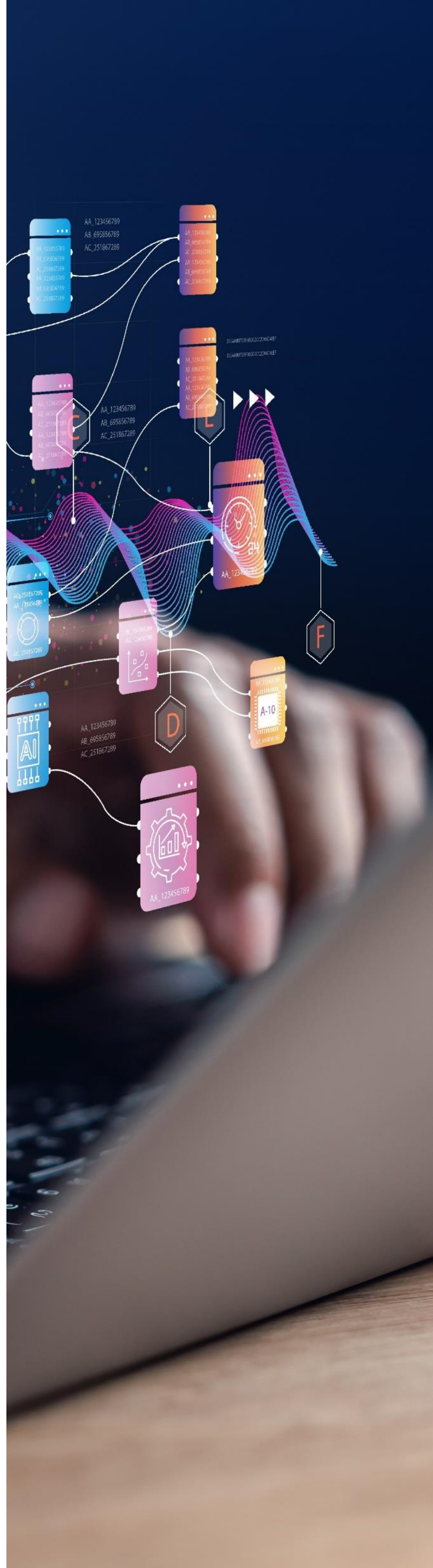
These are Central Europe, Eurasia, Middle East, South-East Europe, Western Europe and 'Other'. Regional differences in the opinions and behaviours of respondents are highlighted and discussed throughout the report.

The results of the survey are presented as the proportion of respondents who selected a particular option. Where appropriate, full frequency distributions are provided. Comparisons to the 2019 survey are also made where possible.

Top 2 Ratings

Where ‘top 2’ ratings are provided, these indicate the proportion of respondents who have provided a score of 6 or 7. Top 2 ratings are always calculated after the removal of any ‘don’t know’ responses, so that proportions are based only on those able to answer the question.

This tends to increase top 2 ratings where the proportion of ‘don’t know’ is high. Please note that in these instances it means that the effective sample (sample n) for each question may be somewhat lower than the base sample (base n) presented. Where this occurs, we have labelled the sample as ‘base sample’ or ‘base n’.



Country	2019		2023	
Central Europe	**Count**	**%**	**Count**	**%**
Czech Republic	82	2%	68	2%
Hungary	33	1%	23	1%
Poland	135	3%	144	4%
Slovakia	23	1%	24	1%
Sub-Total	**273**	**7%**	**259**	**7%**
Eurasia				
Armenia	17	0%	20	1%
Azerbaijan	10	0%	5	0%
Belarus	15	0%	21	1%
Estonia	13	0%	18	0%
Georgia	22	1%	20	1%
Kazakhstan	34	1%	38	1%
Kyrgyzstan	7	0%	11	0%
Latvia	17	0%	11	0%
Lithuania	20	0%	29	1%
Republic Of Moldova	15	0%	8	0%
Russian Federation	444	11%	417	11%
Tajikistan	14	0%	9	0%
Turkmenistan	2	0%	1	0%
Ukraine	79	2%	95	2%
Uzbekistan	14	0%	10	0%
Sub-Total	**723**	**17%**	**713**	**18%**
Middle East				
Bahrain	11	0%	10	0%
Iran	141	3%	110	3%
Iraq	13	0%	22	1%
Israel	25	1%	12	0%
Jordan	8	0%	14	0%
Kuwait	11	0%	11	0%
Lebanon	39	1%	25	1%
Oman	9	0%	7	0%
Palestine	14	0%	17	0%
Qatar	4	0%	3	0%
Saudi Arabia	29	1%	26	1%
Syrian Arab Republic	8	0%	8	0%
Turkey	175	4%	160	4%
United Arab Emirates	15	0%	13	0%
Yemen	3	0%	7	0%
Sub-Total	**505**	**12%**	**445**	**11%**

Country	2019		2023	
South-East Europe	**Count**	**%**	**Count**	**%**
Albania	29	1%	29	1%
Bosnia And Herzegovina	16	0%	16	0%
Bulgaria	53	1%	35	1%
Croatia	19	0%	20	1%
Greece	36	1%	44	1%
Republic of North Macedonia	10	0%	12	0%
Montenegro	3	0%	2	0%
Romania	56	1%	32	1%
Serbia	56	1%	22	1%
Slovenia	26	1%	20	1%
Sub-Total	**304**	**7%**	**232**	**6%**

Western Europe				
Aland Islands	0	0%	1	0%
Andorra	2	0%	0	0%
Austria	62	1%	61	2%
Belgium	52	1%	62	2%
Cyprus	24	1%	24	1%
Denmark	49	1%	41	1%
Faroe Islands	1	0%	3	0%
Finland	47	1%	38	1%
France	220	5%	276	7%
Germany	410	10%	307	8%
Gibraltar	0	0%	1	0%
Greenland	0	0%	3	0%
Holy See	2	0%	1	0%
Iceland	12	0%	12	0%
Ireland	42	1%	35	1%
Isle Of Man	3	0%	2	0%
Italy	295	7%	429	11%
Jersey	1	0%	1	0%
Liechtenstein	1	0%	7	0%
Luxembourg	28	1%	16	0%
Malta	2	0%	4	0%
Monaco	0	0%	1	0%
Netherlands	203	5%	163	4%
Norway	63	2%	45	1%
Portugal	33	1%	16	0%
San Marino	2	0%	1	0%
Spain	190	5%	237	6%
Sweden	78	2%	65	2%
Switzerland	106	3%	136	3%
United Kingdom	244	6%	155	4%
Sub-Total	**2172**	**52%**	**2143**	**55%**

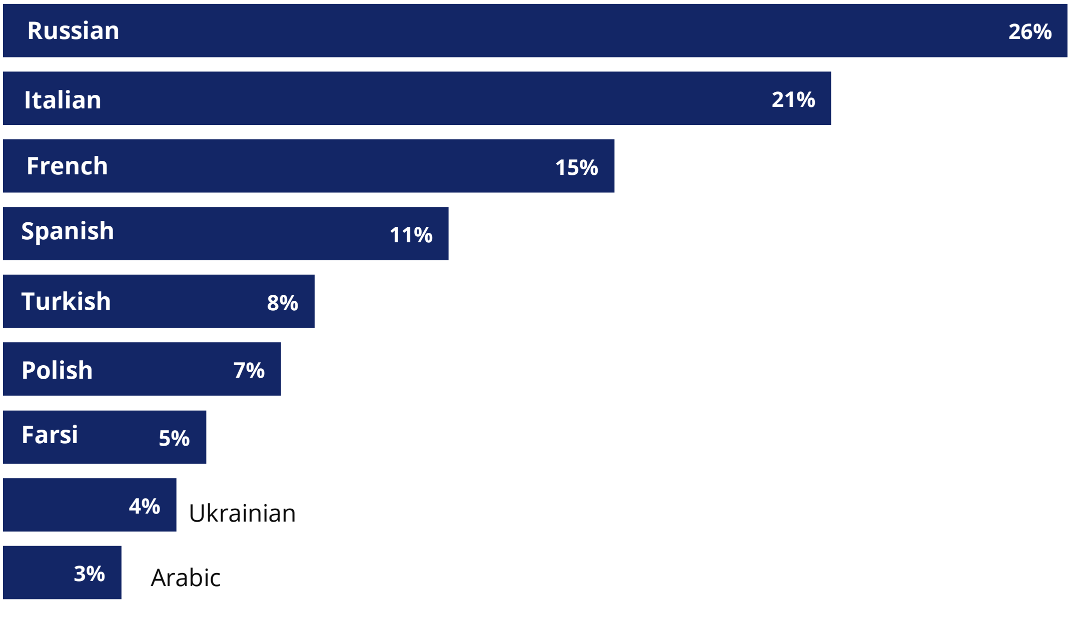
Country	2019		2023	
Other	**Count**	**%**	**Count**	**%**
Angola	0	0%	1	0%
Argentina	3	0%	2	0%
Australia	9	0%	2	0%
Bangladesh	3	0%	1	0%
Brazil	2	0%	2	0%
Canada	11	0%	6	0%
Chile	3	0%	1	0%
China	5	0%	3	0%
Egypt	2	0%	1	0%
Guadeloupe	0	0%	1	0%
Hong Kong	8	0%	0	0%
India	14	0%	7	0%
Japan	4	0%	1	0%
Kenya	1	0%	0	0%
Mauritius	2	0%	6	0%
Morocco	2	0%	0	0%
New Zealand	2	0%	1	0%
Pakistan	3	0%	0	0%
Panama	0	0%	1	0%
Reunion	1	0%	1	0%
Seychelles	0	0%	1	0%
Singapore	0	0%	4	0%
South Africa	2	0%	3	0%
Taiwan Province Of China	3	0%	0	0%
Tunisia	2	0%	0	0%
United States	82	2%	47	1%
Sub-Total	**164**	**4%**	**92**	**2%**
Total Member Economies	**4141**		**3884**	
Non-Member Economy	**20**		**15**	**0%**
TOTAL RESPONSES	**4161**	**100%**	**3899**	**100%**

Language Completions

Compared with 2019, a higher proportion of surveys in 2023 were completed in a language other than English (52%, up from 44%). However, the language profile of respondents is broadly consistent with 2019, with Russian, Italian and French continuing to be the three most used non-English languages.

Of the 2,046 responses received in a language other the English, a little over one quarter were completed in Russian (26%), with a further 21% in Italian and 15% in French. This equates to 14%, 11% and 7% of all responses received, respectively. In addition, 11% of non-English speaking responses in 2023 are in Spanish, equating to 6% of responses overall, up from 4% in 2019.

% Responses completed by language other than English



	2019		2023	
Language	**Count**	**%**	**Count**	**%**
Arabic	42	1%	60	1%
Farsi	140	3%	103	3%
French	246	6%	310	7%
Italian	282	7%	420	11%
Polish	129	3%	141	4%
Russian	634	15%	540	14%
Spanish	176	4%	226	6%
Turkish	176	4%	158	4%
Ukrainian	-	-	88	2%
Total	**1825**	**44%**	**2046**	**52%**

Industry and Role

The industry profile of the sample is broadly consistent with 2019. Just under a third (32%) of respondents were telecommunications or mobile operators, while 27% represent IT services or consultancies and 9% are from hosting companies.

Similarly, just over a third (36%) of responses came from those in network or technical operation roles, with 21% from IT or ICT Management positions. Company owners, or C-suite roles make up another 33% of the sample.

	2019		2023	
Industry	**Count**	**%**	**Count**	**%**
Telecommunications/Mobile Operator	1417	34%	1263	32%
IT Services/IT Consultancy	896	22%	1065	27%
Hosting Company	505	12%	360	9%
Government/Regulator/Municipality	167	4%	179	5%
Academic/Research	242	6%	166	4%
Banking/Financial	121	3%	149	4%
Enterprise/Manufacturing/Retail	104	2%	139	4%
Software Vendor	94	2%	71	2%
Non-Profit/NGO/Internet Community	95	2%	61	2%
Internet Exchange Point (IXP)	74	2%	59	2%
Media/Entertainment	89	2%	59	2%
Infrastructure (Transport, Hospital)	38	1%	52	1%
DNS/ccTLD/gTLD	69	2%	48	1%
Industrial (Construction, Mining, Oil)	43	1%	39	1%
Hardware Vendor	22	1%	15	0%
NREN	32	1%	11	0%
Other	153	4%	163	4%
Total	**4161**	**100%**	**3899**	**100%**

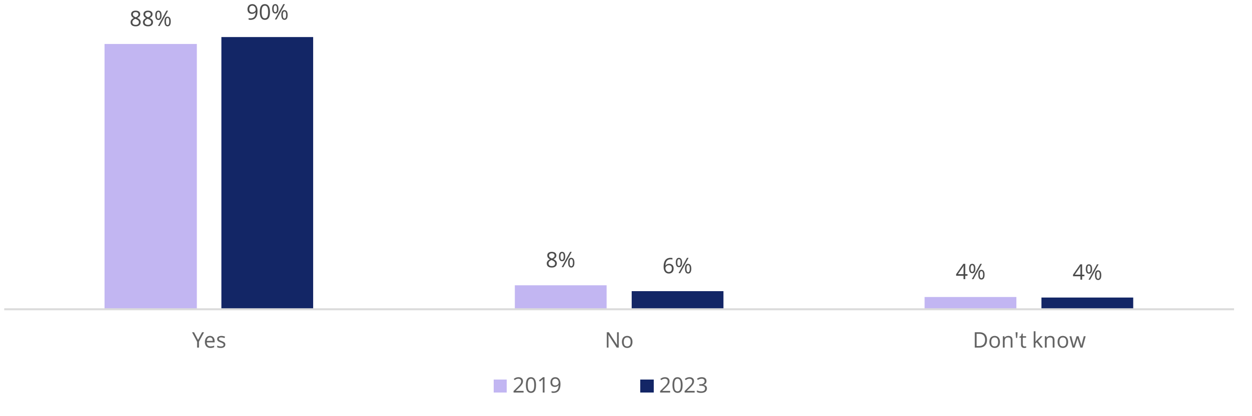
	2019		2023	
Role	**Count**	**%**	**Count**	**%**
Network/Technical operations	1303	31%	1397	36%
IT/ICT Manager or equivalent	1000	24%	802	21%
Company owner	725	17%	690	18%
Executive Director, Managing Director, CEO/CFO/CTO or equivalent	629	15%	604	15%
Administration	138	3%	140	4%
Software development	65	2%	46	1%
Commercial operations	38	1%	38	1%
Business development	54	1%	17	0%
Other	209	5%	165	4%
Total	**4161**	**100%**	**3899**	**100%**

Membership and Interaction

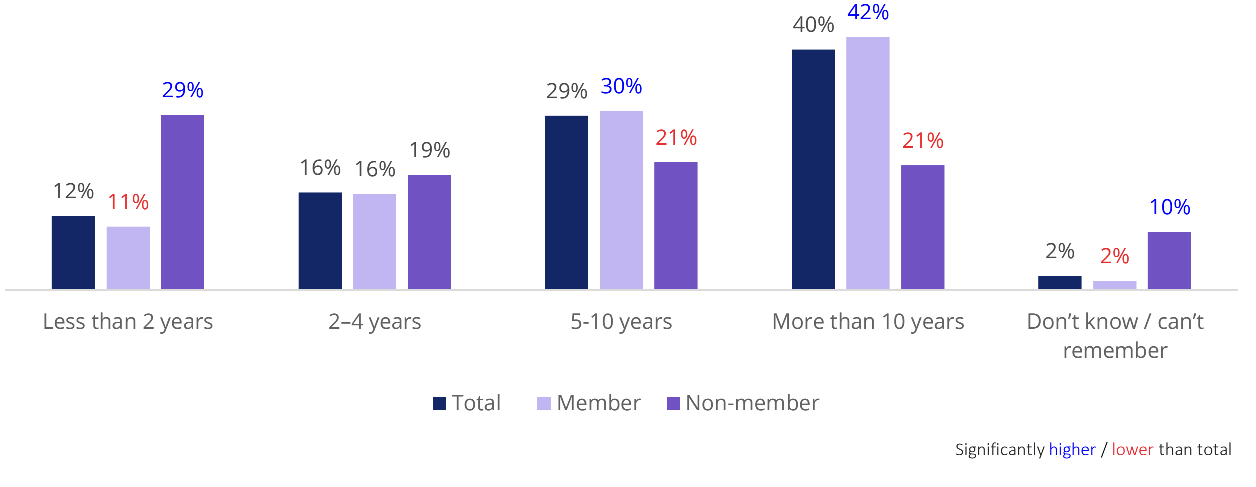
In 2023, nine in ten responses were from RIPE NCC members, relatively consistent with 88% in 2019. A little under three-quarters (72%) of members have been interacting with RIPE NCC for over five years, up from 59% in 2019. Of note, over two in five (42%) have been interacting with RIPE NCC for over 10 years, up from 31% in 2019.

Among non-members, participation continues to be strongest among those who have been interacting with RIPE NCC for less than two years, with one in three (29% up from 23%) having interacted with the RIPE NCC for less than 2 years.

Q: Is your organisation a RIPE NCC member?
n=3899



Q: From a personal perspective, how long have you been interacting with the RIPE NCC?
n=3899



Executive Summary

In the period between the last RIPE NCC survey with members and the wider Internet community in 2019 and now, the world has experienced events that have had a profound impact on the way we live and work.

The global pandemic from 2020 through to 2022 saw a considerable acceleration of the use of technology and altered perceptions of the working environment. A rise in geopolitical tensions, not the least of which the ongoing conflict between Russia and the Ukraine, have had an acute impact, particularly for those in Europe. More frequent and severe natural disasters, including earthquakes, floods, and fires, have also contributed to global and economic uncertainty. Rapidly rising interest rates, inflationary pressures, supply chain issues and skills shortages are further exacerbating the global economic outlook.

It is against this backdrop the RIPE NCC conducted its latest member survey, seeking to understand not only perceptions of its performance over the past four years, but also how these events have impacted the Internet community and what the RIPE NCC, within its remit, can do to assist.

The RIPE NCC member survey was conducted in June 2023, and received 3,899 completed responses from members and others in the Internet community., This provides 95% confidence the actual results are within a +/- 5% margin of error. A majority of responses (90%) were received from RIPE NCC members in its service region.

Overall, satisfaction with the RIPE NCC's performance across a range of measures is high.

Largely unchanged since 2019, over nine in ten respondents rate the quality of the RIPE NCC's service delivery as good or excellent.

Satisfaction with resource registration services is strong, at 90%, up slightly from 87% in 2019. There has also been an increase in satisfaction with both the quality and speed of interactions with the RIPE NCC's customer service (88% and 86% respectively).

Overall satisfaction with the Executive Boards' leadership of the RIPE NCC and its engagement with members remains relatively high at 75% and 74% respectively. This is down slightly since 2019, when it was 77% and 79% respectively.

Members in Central and Western Europe are less satisfied with the RIPE NCC's engagement with its members.

Despite some falls in satisfaction across core performance, the RIPE NCC's Net Promoter Score (NPS) is very high, at +43. Over half of respondents (54%) are likely to speak highly of the RIPE NCC to others.

While respondents rate the quality of the RIPE NCC's service delivery, resource registration services, and customer interaction highly, there has been a fall in satisfaction with value for money and use of member funds, with calls for it to focus on core registry activities to reduce costs and lower membership fees.

Down from 76% in 2019, 69% of respondents rate the value for money from the membership fee they pay as good or excellent. This drops to just 55% of respondents in Central Europe.

Satisfaction with the RIPE NCC's use of membership funds has also fallen, from 76% in 2019 to 66% this year. Respondents in Central Europe (58%) and Western Europe (64%) are significantly less likely to be satisfied with the RIPE NCC's use of member funds than those in other service regions.

Verbatim comments reflect this, with many of those who provided lower satisfaction ratings calling for the RIPE NCC to reduce its focus to only core registry activities to reduce expenditure and lower membership fees.

The survey also sought to understand how effectively members think the RIPE NCC is working to meet its strategic objectives.

From more than 3,000 comments, it seems a majority of respondents are satisfied with the RIPE NCC's effectiveness in meeting its strategic objectives.

The general consensus is that the RIPE NCC is highly competent in managing a secure registry and IP transfer processes. Remarks that "the RIPE NCC is pretty well effective operating secure registry and IP transfer processes" and "we believe that RIPE is doing a good job of achieving this" are common among the free text.

However, there are a few who hold a more critical view, with some again suggesting that the RIPE NCC is overreaching beyond its primary role as a number registry and should focus on minimising operational costs. Of those who had a less positive perspective, comments included that the RIPE NCC is "doing too much outside of the core field of being a number registry" or that it should "reduce cost of operation to do standard services of managing IP addresses".

While the provision of information services is seen as the RIPE NCC's most important function outside core registry functions, working to defend the global Internet registry system is also seen as a critical activity by many.

Three in five respondents (60%) believe the most important activity the RIPE NCC performs outside core registry functions is the provision of information services (RIPE Atlas, RIPEstat, RIS and RIPE IPmap).

Interestingly, working to defend the global Internet registry system (49%) is rated the second most important activity, despite calls from some respondents for the RIPE NCC to focus more on its own core registry functions.

Members in Eurasia (56%) are significantly more likely to say working to defend the global Internet registry system is important than those in other service regions.

At 28%, the third most important activity is K-root and DNS services. Educational services are also valuable, with over three in five respondents including either webinars, workshops and training courses (24%), the RIPE NCC Academy (22%), and Certified Professional exams and certifications (17%), as important activities. These services are particularly important to members in network and technical operation roles.

Information and cyber security concerns, government influence, geopolitical issues and Internet neutrality are seen as the main challenges to maintaining a stable, open and secure Internet.

Respondents were asked to describe in their own words the challenges to maintaining a stable Internet in the context of the wider Internet governance model. In response, more than 2,300 comments were provided by the RIPE community.

Paramount among the challenges identified are concerns about information and cyber security threats. Comments that “the rapid growth of the Internet has led to an increase in cybersecurity threats” and the need to “protect against hacking, malware, and data breaches” are prevalent.

Others lament that the concept of an open and secure Internet is not possible, saying “while the Internet is open, it's certainly not secure” and that “achieving a secure Internet while allowing maximum freedom” is challenging.

A perceived rise in government influence, both democratic and authoritarian, and geopolitical tensions that threaten Internet neutrality are also seen as a challenge to Internet stability by many. Many comments indicated that “threats from governments (very much including the EU) to control the Internet” will lead to “fragmentation due to differing regulations, censorship, and geopolitical tensions”.

Respondents are also concerned about rising corporate influence, with suggestions the large, mainly US-based, Internet conglomerates are “so big and controlling” they can “unilaterally change how things work on the Internet”.

Closely aligned with the main challenge of maintaining an open, secure and stable Internet globally, when asked about Internet-related challenges within their own organisations, information security remains the primary concern.

As in 2019, information security is the main challenge facing member organisations, with over two in five respondents concerned about security.

Scarcity of IPv4 addresses also remains an issue, with 34% of members including this among their top 3 issues, unchanged from 2019. As reported in the last survey, deployment of IPv6 in member networks remains a challenge for three in ten respondents.

Given the profound changes across the world since 2019, the impact of skills shortages, supply chain issues, managing impacts of sanctions and meeting environmental sustainability goals were also tested. And while the latter three are less of an issue, at 33%, skills shortages rank as the third most pressing challenge for respondents.

There has also been an increase in concern about the costs of operations, (29%, up from 20% in 2019), rising to 41% of company owners and 44% of respondents in Central Europe.

Looking at specific information security issues, and again consistent with 2019, DDoS attacks and phishing, spam, malware and ransomware remain the biggest concerns (53% and 50% respectively).

When asked how the RIPE NCC can help with their challenges, most comments focussed on the scarcity of IPv4 and challenges with IPv6 adoption.

Many respondents believe that IPv4 addresses are being unfairly distributed, and that there are LIRs “hoarding” unused addresses. There is a strong sentiment that “organisations with more than 16k unused IPv4 addresses” should be forced to “release their unused IPv4 space back to their RIR”.

Others want the RIPE NCC to provide more education and information about transitioning to IPv6, calling for “use cases for IPv6 migration (that show) how to deploy with minimal costs”.

Reflecting earlier comments about the cost of membership fees, and possibly also challenges about the costs of operations, respondents want the RIPE NCC to “reduce costs to members”. Those in sanctioned countries also want the RIPE NCC to “find a payment method for participants from countries with restrictions”.

Just under half of respondents have deployed IPv6 in their networks, with a desire to ensure readiness for future demands driving adoption.

As well as understanding the current state of IPv6 deployment in respondent's own networks, the survey also canvassed reasons why members decided to implement it.

Forty nine percent (49%) of members have deployed IPv6, rising to 57% of those in Central Europe and 53% in both South-East and Western Europe.

Future readiness is the most common reason for implementation of IPv6, with 66% saying they want to be ready to meet future demands. Almost three in five also want to gain experience with IPv6, while a third had to adopt IPv6 as it was a requirement of their customers or partners.

Only 13% deployed IPv6 because they had no more IPv4 addresses available, although this rises to 20% of respondents in the Middle East.

Adding feature parity between IPv4 and IPv6 and changing the IPv4 mindset were the primary issues faced during deployment of IPv6.

To provide the RIPE NCC with information about members’ experiences in deploying IPv6, the survey also asked about the main implementation challenges.

Over two in five respondents found the most challenging aspects of deployment were adding feature parity between IPv4 and IPv6 (46%) and changing the IPv4 mindset within their organisation (41%).

Amassing knowledge about specific implementations and establishing a good level of security were also issues for 38% and 31% respectively.

Possibly dispelling the myth that organisational management hinders adoption, only 9% indicate convincing management of the need for change was a key challenge. While this rises to 13% of those in technical or network operation roles, it remains a small proportion.

As in 2019, the main reasons for not having adopted IPv6 are a lack of time, and not having a business need or requirement (both 39%).

A lack of knowledge also impedes organisations from starting the implementation journey (36%), while one in five do not have the infrastructure to support IPv6.

A majority of respondents agree the RIPE NCC operates in a secure, compliant manner and is transparent about security compliance.

While some respondents do not know enough to comment on the RIPE NCC's security, those who do agree it operates in a secure and compliant manner (89%) and is transparent about how it manages security compliance (83%).

Three quarters of respondents also agree the RIPE NCC communicates well about security incidents.

Respondents in technical or network operations roles are significantly more likely to agree the RIPE NCC operates in a secure, compliant manner, is transparent about security compliance and communicates well about security incidents than either company owners or those in C-suite roles.

Use of third-party technologies to provide services to the RIPE community is supported by half of respondents. However, feedback also reveals concern about use of US-based Internet corporations, and caution about over-reliance on third-party vendors.

Just over half (51%) of members support the RIPE NCC's use of third-party technologies to deliver services to the community if it determines this provides value. While those in Eurasia and South-East Europe (both 58%) and the Middle East (57%) are supportive, respondents in Central and Western Europe are less so (42 and 47% respectively).

A further 16% have no opinion, or do not care what technologies the RIPE NCC uses.

When asked to comment about the technologies used by the RIPE NCC to deliver its services, many want to see a shift to more in-house, or at least European-based, technologies.

Comments also highlighted concerns about "over-reliance" on third-party vendors, particularly the "large, US-based cloud resources", with some members instead wanting the RIPE NCC to make "greater use of open-source software to avoid being associated with commercial conglomerates".

Ratings of the RIPE NCC's various communication channels and information platforms is high.

Overall respondents are satisfied with the RIPE NCC communication channels and information platforms, with over four in five rating the website, email and mailing lists, RIPE Labs and the RIPE NCC Academy as good or excellent.

Interestingly, while less than half of members (41%) have used the Translations Platform, those who have rate it reasonably highly (71%). This suggests the RIPE NCC could focus on building greater awareness of the platform to encourage usage. Verbatim comments reflect this, with many calls for the website and portal interfaces to be available in multiple languages.

Despite high satisfaction with the mailing lists, there are some who say they are "super old-fashioned and confusing" and have the "same people commenting all the time".

There are also suggestions for the RIPE NCC to adopt a "more interactive approach, such as regular webinars and Q&A sessions".

Reflecting members' biggest challenges, the most valuable training topics the RIPE NCC can offer relate to cyber and information security.

Around three in five respondents say cyber and DNS security topics will provide value to them, and 54% indicate network automation will be useful.

ICT/IT managers in particular want training on cyber and DNS security (66% and 63% respectively), while those in technical and network operations prefer network automation (64%) or segment routing (43%).

.

Conclusion

After a difficult four years navigating disruptive global and localised events, the RIPE NCC can be proud of its performance in supporting members and the wider Internet community in its service region.

Most ratings of the RIPE NCC's performance remain high; either largely unchanged or increasing since 2019. The RIPE NCC's NPS is a healthy +43, with more than half of respondents speaking very highly of it to others.

It is clear from the many verbatim comments in the survey, however, that members are feeling the effects of the global pandemic, geopolitical volatility, natural disasters and the subsequent economic instability. Many are concerned about the cost of membership fees, with satisfaction with value for money and the RIPE NCC's use of member funds the only two performance measures to have declined substantially since 2019.

While some favour a reduction in non-core activities by the RIPE NCC to reduce member fees, others are of the opinion that the membership fee structure overall is unfair and needs adjusting.

Respondents also remain very concerned about information, network and cyber security, both in the context of the wider Internet governance model and within their own organisations. Training, education, case studies and knowledge sharing are seen as the best way the RIPE NCC can assist members with their challenges combatting information and cyber security threats.

Government influence and interference, and geopolitical concerns are also worrying, and respondents perceive this is a threat to Internet neutrality. Ensuring the Internet remains "independent" and "neutral" are top of mind for many, and there are calls for the RIPE NCC to work with governments and authorities to educate about the importance of a stable, open and secure Internet.

IPv4 scarcity and the slow adoption of IPv6 are also concerning the community. Aligned with the overall cost of membership, many believe IPv4 addresses are being unfairly allocated, and that LIRs are either "hoarding" addresses or seeking to make financial gain from them. As well as calls for the RIPE NCC to intervene and reclaim unused IPv4 address space, members also want more education, training and knowledge-sharing on how to deploy IPv6.

The introduction of several new questions in the survey this year indicate many in the community are concerned about the current state of the Internet, and the wider Internet governance model. As a result, while members are united in the view that information services remain the RIPE NCC's most important function outside registry services, working to defend the global Internet registry system is also seen as a critical function of the RIPE NCC.

Key Findings

1. Overall Performance

Satisfaction with the quality of the RIPE NCC's service delivery and resources, customer services and billing remain high.

Over nine in ten respondents rate the RIPE NCC's quality of service delivery as good or excellent, consistent with 2019. Satisfaction with the quality of resources registration services, interactions with customer services and the speed of responses have all increased slightly since 2019, to 90%, 88% and 86% respectively. Ratings of satisfaction for the invoicing and billing process is also high, at 83%.

The RIPE NCC's Net Promoter Score (NPS) is strong.

The NPS score is +43. Over half of respondents (54%) are classified as "promoters", meaning they are enthusiastic supporters who will speak highly of the RIPE NCC to others. Respondents in Eurasia are the most likely to provide positive endorsement, with an NPS of +60, while those in Central Europe are significantly less likely to do so, with a score of +16.

IT/ICT Managers or those in network or technical operations are significantly more likely than company owners or C-suite executives to speak highly of the RIPE NCC to others.

Perceptions of value for money and satisfaction with the RIPE NCC's use of member funds have fallen.

Respondents are much less satisfied with the value for money they obtain from their service fees and the RIPE NCC's use of member funds than in 2019. Ratings of value for money have dropped 6 percentage points to 69%, while satisfaction with the RIPE NCC's use of member funds has fallen 10 percentage points to 66%. These are largely due to considerable falls in both Central and Western Europe.

Comments suggest there are concerns about the appropriateness of the annual budget, and a lack of transparency in the budget allocation. The changes to the charging scheme, including a lack of sufficient consultation with members, were also frequently mentioned, with some indicating it disproportionately affects smaller members, and favours long-standing, much larger RIPE NCC members.

Satisfaction with the RIPE NCC's engagement with members is lower than in 2019.

Satisfaction with the RIPE NCC's engagement with members on important issues is 74%, down from 79% in 2019. Again, those in Central and Western Europe are significantly less satisfied.

Respondents mention a lack of engagement with "ordinary" members by the Board and the RIPE NCC executive, leading to the belief that "the Board's objectives are not completely in line with what members strive for". Members would like opportunities to meet and talk with the RIPE NCC Board members and Executives more informally and frequently than the current General Meeting allows.

2. Strategic Findings

Outside of the RIPE NCC's Registry services, the provision of information services and working to defend the global Internet registry system are the most important RIPE NCC activities.

Across all regions the provision of information services is seen as one of the most important functions of the RIPE NCC by three in five respondents. This is followed by working to defend the global Internet registry system (49%).

These results offer an interesting perspective for the RIPE NCC. While Registry and core information services are always likely to be the most important of the RIPE NCC's activities, from a broader perspective working to maintain the goal of an open, stable and secure Internet for all is more important than some other services provided by the RIPE NCC.

Concerns about information and cyber security, government influence and Internet neutrality are top of mind.

When asked to describe in their own words the challenges of maintaining a stable, open and secure Internet globally, concerns about cyber security and the threats posed by cyber-attacks are paramount. Comments that "malicious actors continuously develop sophisticated techniques to exploit vulnerabilities in networks, systems, and applications" were common.

Numerous comments also expressed concerns about governments attempting to exert control over the Internet, which is perceived as a threat to global Internet neutrality. Many respondents mentioned "keeping the internet free of governmental influence," as among the key challenges of maintaining and open, secure and stable Internet.

Information security, IPv4 scarcity and a lack of qualified technical people are the top three challenges facing member organisations.

Four in ten respondents indicate that information security remains one of the main challenges to their organisation's provision of their Internet-related services, products and activities. A third of respondents also include IPv4 scarcity among the issues confronting their organisation. This is unchanged from 2019.

Perhaps unsurprisingly, skills shortages and a lack of suitably qualified technical people is a new challenge confronting organisations in 2023. A third (33%) of members, rising to 38% of ICT/IT managers, rate skills shortages among the top three challenges for their organisation. The cost of operations is also a greater issue for respondents than in 2019.

Encouraging IPv6 adoption and reclaiming unused IPv4 addresses are the main suggestion to help the community overcome the challenges it is facing.

There appears to be a perception among respondents that IPv4 is either being unfairly distributed, or "hoarded" by some LIRs. Calls for "better management of IPv4 resources by the RIPE NCC" are frequent, with suggestions that "RIPE should reclaim unused legacy IPv4 and redistribute it to members where the original holders are no longer valid".

Concentration on IPv6 deployment through education, promotion and dialogue with authorities and governments are seen as the primary way to overcome IPv4 issues. There were many comments that "find[ing] more ways to encourage local service providers to offer IPv6" and that "more education on IPv6 preferably as integration guides with simple maps" are the best ways the RIPE NCC can assist its members.

3. Technical Findings

Almost half of respondents have deployed IPv6 in their networks, with future readiness driving uptake.

Almost half of respondents (49%) have already deployed IPv6 in their networks, with those in Central, South-East and Western Europe most likely to have done so.

Of the primary drivers for IPv6 adoption, two thirds wanted to be ready for future IPv6 demands, with 58% wanting to gain experience with IPv6. Although lower, a third of respondents had deployed IPv6 because it was required by partners and/or customers. Interestingly, only 13% adopted IPv6 because they had no more IPv4 resources available.

Financial considerations are more likely to have driven company owners to adopt IPv6, with one in five saying they do not want finance people making money from IPv4 scarcity, or they were forced to deploy it because IPv4 resources were too expensive.

The biggest issues during IPv6 deployment are adding feature parity between IPv4 and IPv6 and changing the IPv4 mindset within their organisation.

Adding feature parity between IPv4 and IPv6 was the biggest IPv6 implementation issue for almost half of respondents, particularly for those in Eurasia. Managing misconceptions about IPv6 and changing the organisation's IPv4 mindset was a challenge for around two in five members.

Obtaining information on specific implementations and establishing a good level of security for IPv6 are other common challenges respondents face during implementation. ICT/IT Managers are significantly more likely than other roles to include these issues among their biggest challenges.

Possibly dispelling the myth that management hampers IPv6 adoption, only 9% indicate that convincing management was an issue during implementation.

Most respondents believe the RIPE NCC operates in a secure, compliant manner and is transparent about how it manages security compliance.

Almost nine in ten respondents agree the RIPE NCC operates in a secure and compliant manner, with 83% also agreeing it is transparent about how it manages security compliance. Although slightly lower, three quarters also agree the RIPE NCC communicates well about security incidents.

Respondents in technical or network operations roles are significantly more likely to agree the RIPE NCC operates in a secure, compliant manner, is transparent about security compliance and communicates well about security incidents than either company owners or those in C-suite roles.

The use of third-party technologies to deliver services to the RIPE community is supported by half of respondents.

While 51% of all respondents support the RIPE NCC using third-party technologies to provide services if it considers they would provide value to members and the community, respondents in Central and Western Europe are significantly less likely to agree.

While only 9% do not support the use of third-party technologies, around a quarter are unsure. This sentiment is echoed in direct comments from respondents, which indicate there is apprehension about dependency on third-party vendors, especially major US-based corporations, and a preference that the RIPE NCC steer clear of these conventional cloud solutions. Instead, respondents urge the RIPE NCC to employ more open-source technologies or favour European-based vendors.

Overall Performance

In summary, the survey found:

- Ratings of satisfaction have remained largely unchanged from 2019, with 92% continuing to rate the quality of the RIPE NCC's service delivery as either good or excellent.
- Perceptions of value for money have dropped (down from 76% to 69%), particularly in the Central Europe. Positively, there has been increase in perceptions of value among those in the Middle East.
- Satisfaction with the RIPE NCC's resource registration services have increased (90%, up from 87%). There have also been increases in satisfaction with both the quality and speed of interactions with the RIPE NCC customer services. In addition, 83% of respondents are satisfied with the RIPE NCC's invoicing and billing processes.
- Of the 80% of respondents who used the RIPE Database over the last two years, the majority feel the information is accurate (86%, up from 77%) and useful (89%, up from 80%). The RIPE Database is also seen as having a good User Interface (UI) and being easy to use.
- In total, 86% of respondents rate their overall experience of the LIR Portal as good or excellent, with 78% satisfied with the UI and ease of requesting, managing and transferring resources.
- Around three-quarters are satisfied with the RIPE NCC's Executive Board leadership, engagement with members, general meetings and information.
- Only two-thirds (66%) are satisfied with the use of membership funds, down from 76% in 2019.
- The Net Promoter Score (NPS) is a score between -100 and +100 that gives an indication of how well people speak about an organisation. The NPS for the RIPE NCC is +43. This is a very positive score, with results showing that over half of respondents (54%) are extremely likely to speak highly of the RIPE NCC to others.

Service Delivery and Value for Money

At an overall level, respondents continue to be satisfied with RIPE NCC's service delivery, with 92% rating it as either good or excellent.

While ratings have remained consistent across most regions, there has been a drop in satisfaction among respondents in Central Europe since 2019 (87%, down from 95%), making them significantly less satisfied than other regions in 2023.

Interestingly, respondents working in general, commercial sectors (96%), ICT/IT Managers and network and technical operations roles (94% and 95% respectively) are the most positive about the quality of the RIPE NCC's service delivery.

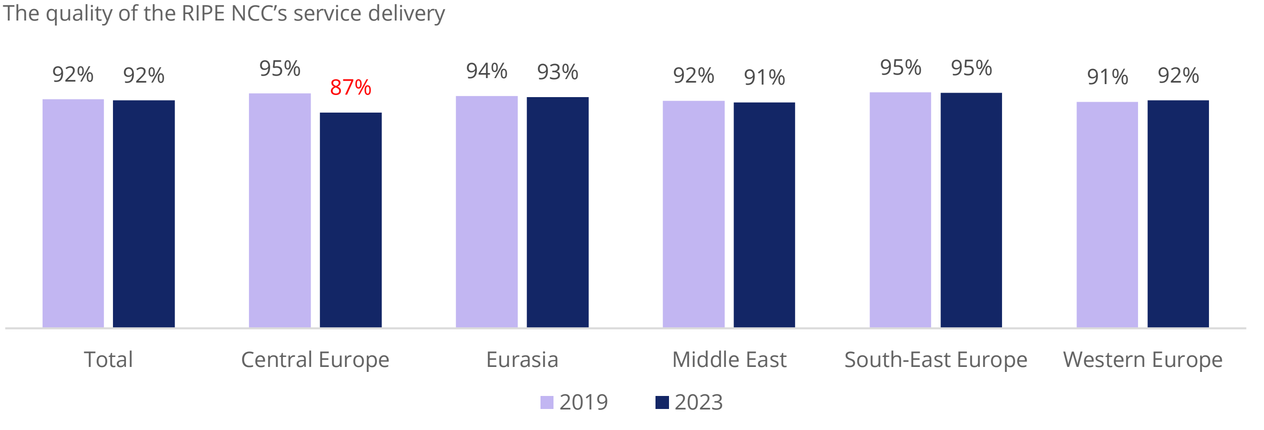
Perceptions of value for money continue to be lower, with results dropping from 76% in 2019 to just under seven in ten (69%) in 2023.

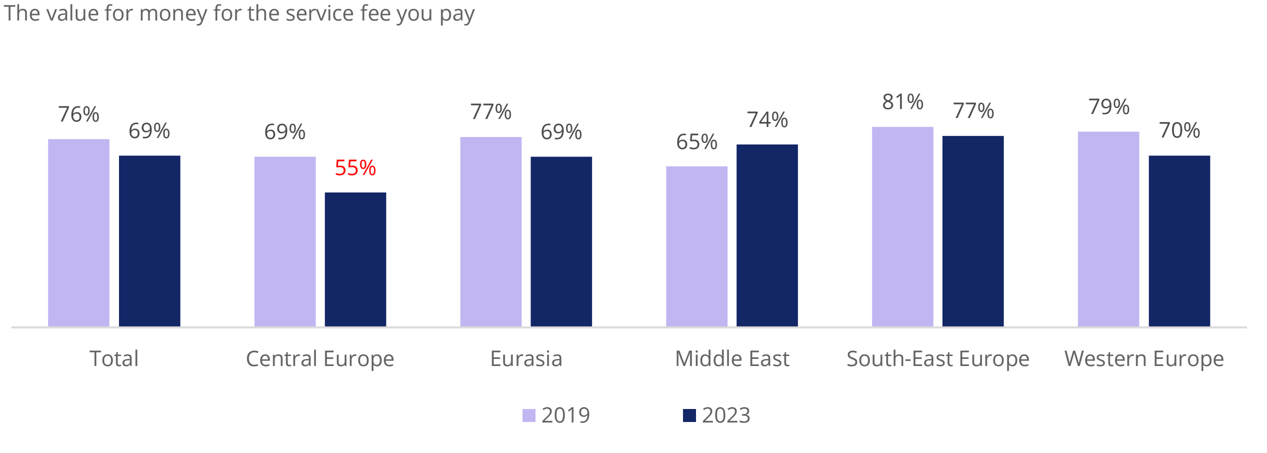
Perceptions of value for money have declined across all regions except the Middle East, with Central Europe recording the largest fall (down from 69% to 55%). This appears to be driven by responses from Poland, where only half rated the RIPE NCC's value for money as good or excellent.

Interestingly, perceptions of value for money increased in the Middle East, rising from 65% in 2019 to 74% in 2023—the second highest rating provided.

As with overall quality, perceptions of value for money tend to be higher among general, commercial sectors (84%) and those in network and technical operations roles (79%). Hosting companies (61%), company owners (46%) and C-suite executives (62%) are significantly less likely than others to rate the value for money for their membership as good or excellent.

Q: Overall, how would you rate:
base n=3518. Excludes "don't know" responses. Members only





Top 2 % calculated after exclusion of 'Don't Know' responses

Significantly higher / lower than total

Suggested Improvements to Service Quality and Value

Respondents who rated the RIPE NCC's service delivery as average or below were asked for suggestions to improve the quality of service and value for money.

A total of 387 comments were received.

The main themes from these verbatim comments are for a greater focus on core services and improving efficiency, the cost of membership, improvements to service delivery and the ticketing system, and a fairer distribution of scarce IPv4 resources.

1. Greater focus on core services, reduction in non-essential activities, improve efficiencies and streamline processes.

- *"I would like RIPE to strip back on the services it offers. Many are a far stretch from the requirements of most LIR members and it's likely that a lot of money goes towards non-essentials."* - Ukraine
- *"Try to reduce cost of operation so membership cost for next years will be less."* - Serbia
- *"Make less stuff, concentrate on the core stuff and let community do things like research and tools..."* - Austria

2. Cost and membership fees

- *"Everything is fine, just the membership fee which is way too high for a simple AS + /24 IPv4 + /29 IPv6"* - Belgium
- *"Reduce costs for smaller members, if needed increase costs for bigger members. To get more to a model like a fixed member fee + a fee per /24 IPv4 (or some other amount)."* - Netherlands
- *"More fair payment, scaling per IP range per size, per ASN etc. and better multiplied for a factor, that represent the commercial power per industry, per segment country and per company size..."* - Switzerland

3. Improvements to service delivery and ticketing

- *"Communicate updates to the customer on a regular basis on tickets that are not processed further. Maybe even a portal where tickets can be tracked and escalated."* - Germany
- *"I expect the support team to respond more quickly. Also, the response emails seem to consist of standard copy-paste texts. Providing more specific answers, even if they are short, instead of avoiding the issue will improve the quality of support services."* - Turkey
- *"Resolving tickets sometimes becomes tedious and depends a lot on who is on the other side for its resolution, even in similar cases."* - Spain

4. Fairer distribution of IPv4 resources

- *"Do not allow actors to create massive LIRs to acquire IP resources for speculative purposes. Recover idle IP ranges held by brokers for speculation purposes."* - France
- *"Speed up the provision of IPv4 to new members and remove subnets from LIRs that don't use them."* - Italy
- *"Fair distribution of addresses, meaning high fees for large ISPs/companies that have a large number of addresses. Often, these addresses are wasted or unfairly distributed to end users."* - Poland

Q: Do you have any suggestions to improve the RIPE NCC's service delivery?
n=387 verbatim comments. Please note, only offered to those who rated service delivery as average or lower.

Resources, Service and Billing

Satisfaction with resource registration and customer service have increased since 2019, with increases across all regions.

In 2023, nine in ten respondents (up from 87%) are satisfied with the overall quality of the resource registration services, and a further 88% (up from 84%) are satisfied with the quality of their interactions with the RIPE NCC's customer service.

By region, as in 2019, Central Europe remains the least satisfied with the RIPE NCC's resources, services and billing, although it should be noted their satisfaction ratings have increased since 2019. Conversely, satisfaction with the speed of responses from the RIPE NCC increased the most in the Central Europe region, up from 74% in 2019 to 83% in 2023.

Respondents in technical roles, including network and technical operations, and IT/ICT managers are significantly more satisfied with the RIPE NCC's registration services (93% and 94% respectively), the speed of responses (89% and 90% respectively), and their interactions with customer services (both 91%) than those in other roles.

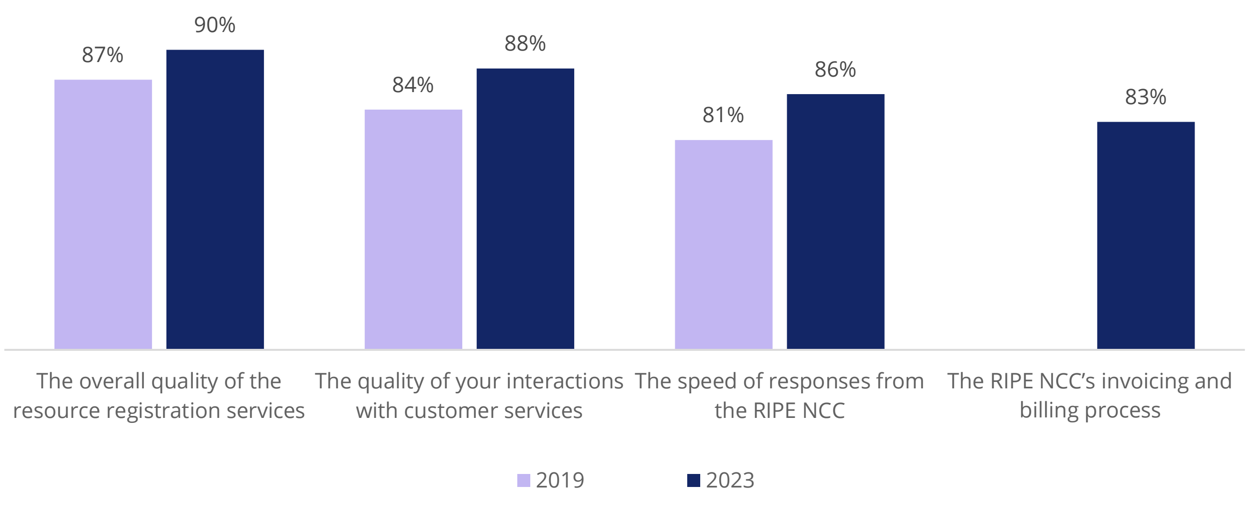
Overall, 83% of respondents are satisfied with the RIPE NCC's invoicing and billing process, dropping to 75% of those in Central Europe.

Satisfaction with the invoice and billing process is significantly lower for company owners (74%) than for other roles.

This is reinforced in the verbatim comments, where calls for accessibility and more timely invoices are prominent, as well as more flexibility in payment options.

Q: Please rate your overall satisfaction with:
base n=3518. Excludes "don't know" responses. Members only.

Top 2 Rating
% Satisfied / Extremely satisfied



Top 2: % Satisfied / Extremely satisfied	Total		Central Europe		Eurasia		Middle East		South-East Europe		Western Europe	
Year	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023
Base n	3647	3518	246	241	653	685	460	412	241	179	1956	1931
The overall quality of the resource registration services	87%	90%	81%	83%	91%	92%	83%	90%	91%	95%	86%	90%
The quality of interactions with customer services	84%	88%	76%	80%	87%	92%	80%	88%	88%	92%	85%	88%
The speed of responses from the RIPE NCC	81%	86%	74%	83%	79%	87%	78%	85%	85%	93%	82%	85%
The RIPE NCC's invoicing and billing process		83%		75%		84%		82%		89%		83%

Top 2 % calculated after exclusion of 'Don't Know' responses

Significantly higher / lower than total

Suggested Improvements to Resource Registration and Customer Service

Respondents who rated aspects of the RIPE NCC's customer service, resource registration and/or billing processes as average or below were asked for suggestions for improvement.

A total of just 211 comments were received.

The core themes from the verbatim comments are for more accessible invoices, better timeliness and greater flexibility in invoicing and payments, improved responsiveness from customer service teams, and more streamlined processes or automation to assist with registration services.

1. More accessible and timely invoices

- *"All invoices should be immediately accessible at the LIR portal."* - Czech Republic
- *"Before an invoice is issued, a reminder should be sent to afford a company time to issue a PO. Once the PO is issued, the number should be included in the invoice by RIPE."* - Ireland
- *"Yes. I think I should receive the invoice for attending the Peering Meetings at the time of payment, not months later."* - Spain

2. Greater flexibility in payments

- *"Allow payment on local currency. Paying in Euros is difficult for us."* - United Kingdom
- *"The customer should have the option to choose how they will pay for RIPE services. Services can be long-term with quarterly, annual, or multi-year payment options, such as 2 or 3 year."* - Russian Federation
- *"Having additional flexibility in payment would be beneficial for our organization as we have rigid processes that can cause delays. Being able to anticipate the payment amount before the due date would help us initiate the internal Purchase offer process."* - France

3. Improved responsiveness from customer service

- *"... sometimes it's a growing challenge to explain the growing diversity in members, and for customer service to understand members business cases or priorities."* - Netherlands
- *"Always strive for more responsiveness. The forms could also be reviewed to ask more questions, reducing the need for multiple back-and-forths with RIPE teams..."* - France
- *"Customer support requires more qualified employees, especially for the Chat service. Responses to inquiries should be faster."* - Ukraine

4. Streamlined processes and automation

- *"Interactions and processes should be transparent from the beginning, with clear communication and approximate timelines. The lack of transparency in RIPE NCC's resource registration process leads to dissatisfaction..."* - Iran
- *"Yes! Response speed. RIPE takes a very long time to respond. Automate interaction processes, add more APIs. Implement a Telegram channel and publish news there."* - Germany
- *"Training videos on the registration system should be available in different languages and explained in a simpler manner. The structure on your website has remained the same for a long time, and it needs to be automated to adapt to the present day registration processes."* - Turkey

Q: Do you have any suggestions to improve resource registration services, customer service or the invoice and billing process?
n=211 verbatim comments. Please note, only offered to those who rated aspects as average or lower.

RIPE Database and LIR Portal

Over nine in ten respondents have either used the RIPE Database, the LIR Portal, or both over the past two years.

Four in five respondents used the RIPE Database over the past two years, with those in Central Europe (87%), Eurasia (83%) and Western Europe (81%) most likely to have done so. By contrast, only 67% of those in the Middle East used the RIPE Database.

Overall, 82% used the LIR Portal over the last two years, rising to 90% of those in the Eurasia region. Fewer respondents (76%) in South-East Europe have accessed the LIR Portal.

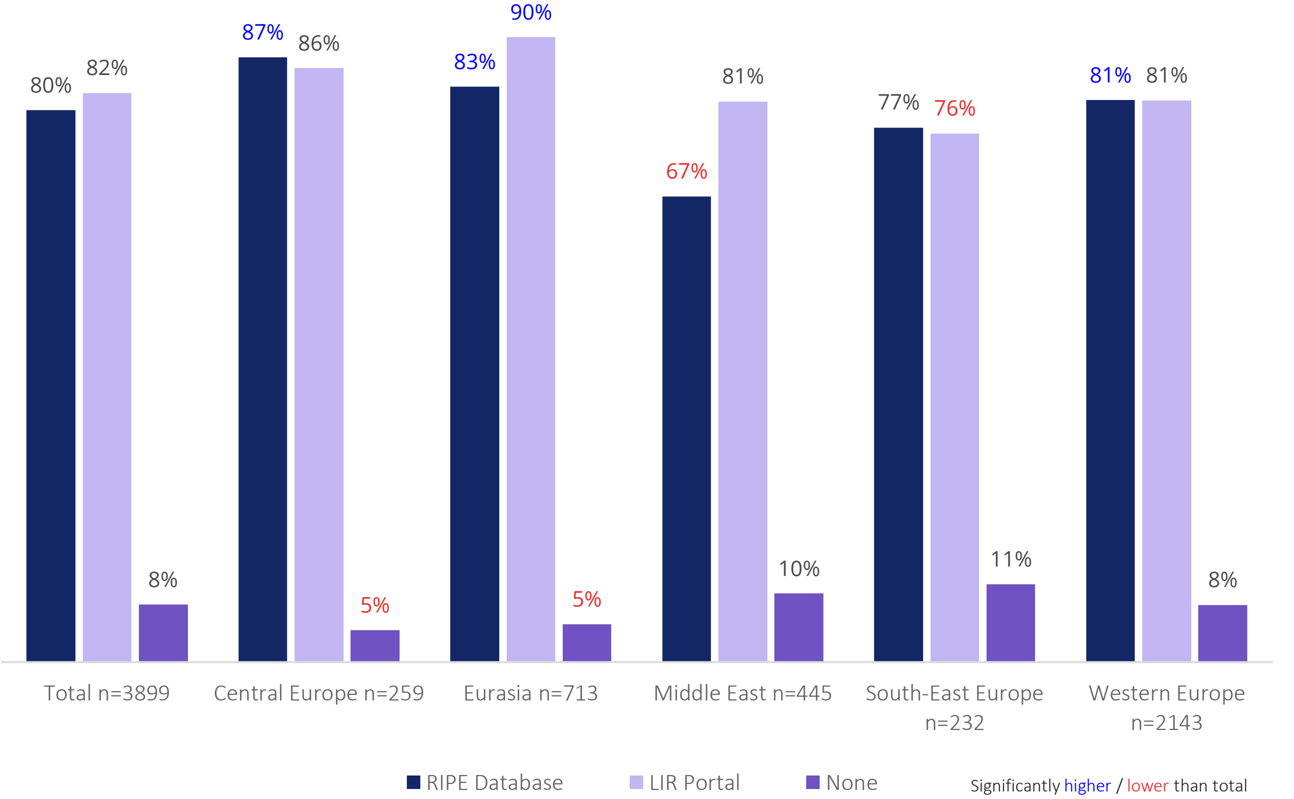
Telecommunication/mobile operators and hosting companies are significantly more likely than other industry sectors to have accessed both the RIPE Database (82% and 88% respectively) and the LIR Portal (87% and 89% respectively).

Only 8% of respondents had used neither service in the last two years, rising to 21% of those in an administrative or other support role, and 16% of those working in the government, NFP or education industries.

92%

of respondents have either used the RIPE Database or the LIR Portal, or both, in the past two years.

Q: Over the past two years, which of the following RIPE NCC registry services have you used:
n=3899



RIPE Database

Overall ratings of the usefulness and accuracy of the information in the RIPE Database in 2023 have increased from 80% and 77% in 2019 to 89% and 86% respectively.

Perceptions of the accuracy and usefulness of the RIPE Database show particularly strong improvement in the Middle East, rising by over 15 percentage points each since 2019.

Ratings of the ease of use (73%) and User Interface (UI) (72%) of the RIPE Database are lower, with a little under three-quarters of respondents rating these as good or excellent.

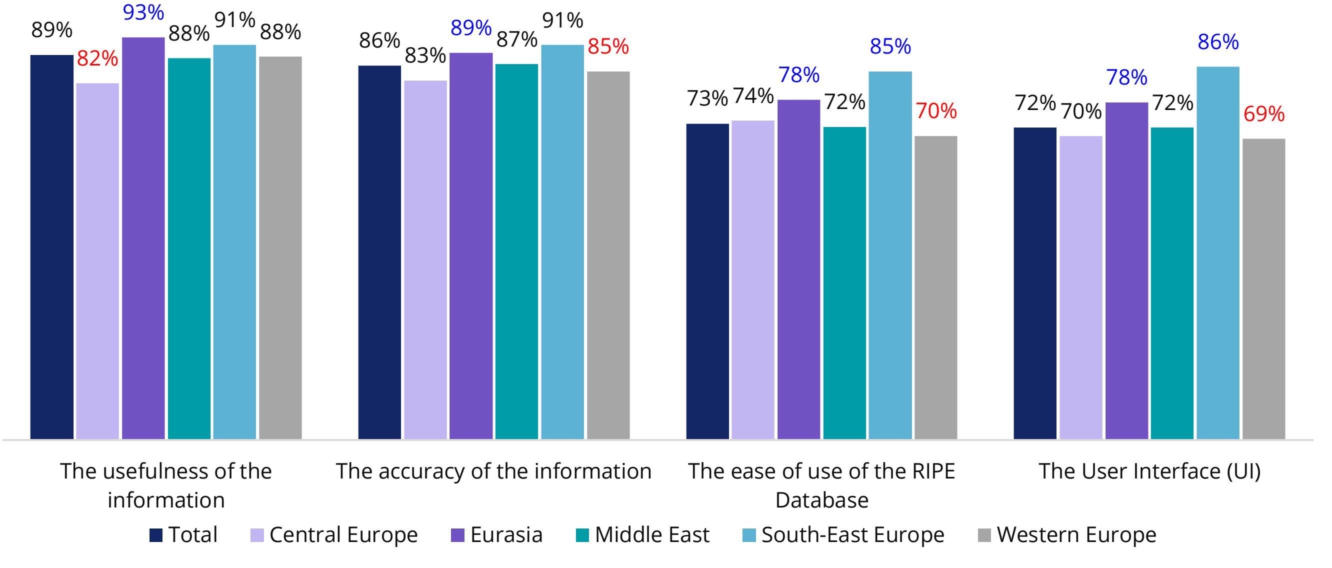
Respondents in Eurasia provide the highest ratings of the RIPE Database compared to other regions. Those in Western Europe (particularly Germany and the Netherlands) are generally less satisfied with the RIPE Database.

Respondents working in network and technical operations are significantly more likely to have used the RIPE Database (85%) than other roles. These respondents are also more likely to rate the usefulness (92%), and accuracy (88%) of the RIPE Database higher than other position types.

By sector, respondents working in the general, commercial sector are most likely to rate the information as being useful (94%). Interestingly, those in IT consultancies are the least satisfied with the user interface (68%) or ease of use (67%) of the RIPE Database.

Q: Thinking about the RIPE Database, how would you rate the following?
base n=3106

Top 2 Rating = % Good / Excellent



Top 2: % Good / Excellent	Total		Central Europe		Eurasia		Middle East		South-East Europe		Western Europe	
Year	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023
Base sample	4161	3106	273	226	722	592	505	299	304	179	2172	1738
The usefulness of the information	80%	89%	83%	82%	86%	93%	69%	88%	89%	91%	79%	88%
The accuracy of the information	77%	86%	82%	83%	79%	89%	71%	87%	84%	91%	77%	85%
Ease of use of the RIPE Database	70%	73%	73%	74%	78%	78%	61%	72%	84%	85%	67%	70%
The User Interface (UI)		72%		70%		78%		72%		86%		69%

Top 2 % calculated after exclusion of 'Don't Know' responses

Significantly higher / lower than total

LIR Portal

Overall, most respondents rate the experience of using the LIR Portal as good or excellent (86%).

Respondents in the South-East Europe region are significantly more likely than others to rate their experience as good or excellent (95%), with ratings of the overall experience otherwise consistent across all other regions.

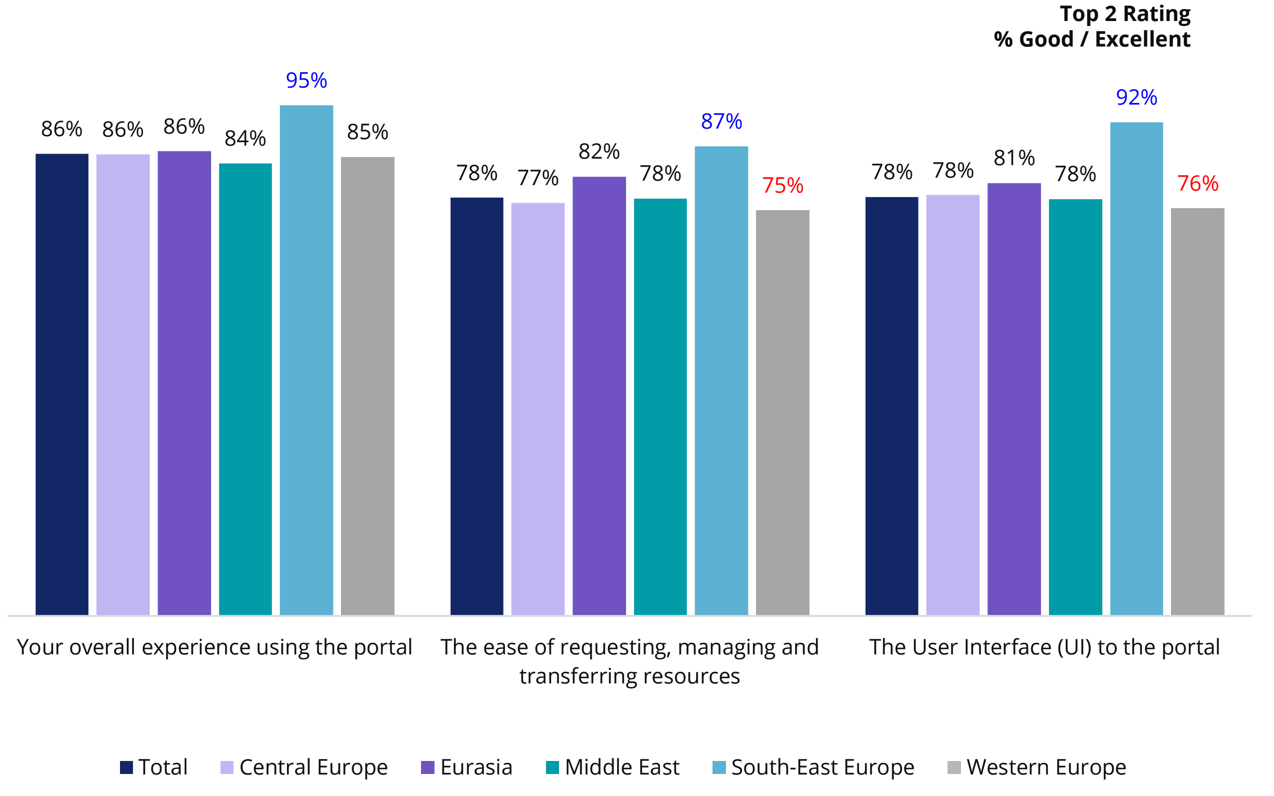
As with the RIPE Database, ratings of the ease of requesting, managing and transferring resources (78%) and the User Interface (UI) of the LIR Portal (78%) tend to be lower than ratings of overall experience using the portal.

Those in the South-East Europe region are again the most likely to provide positive ratings, with 95% satisfied with their overall experience using the portal. They are also more likely to provide positive ratings for the ease of requesting, managing and transferring resources (87%) and the User Interface (92%) than their regional counterparts.

Those in Western Europe are significantly less likely than others to consider the user interface or ease of requesting, managing and transferring resources as good or excellent (76% and 75% respectively).

While a higher proportion of Executives (88%) and company owners (87%) used the LIR portal than network and technical operations roles (82%), these technical personnel are significantly more likely to provide higher ratings for their overall experience using the portal (90%) than their managerial counterparts (81%).

Q: Thinking about the LIR Portal, how would you rate the following?
base n=3072



Top 2 % calculated after exclusion of 'Don't Know' responses

Significantly higher / lower than total

Improvements to the RIPE Database and the LIR Portal

Respondents who rated aspects of the RIPE Database and LIR Portal as average or below were asked for suggestions for improvement. A total of 308 comments were received for improvements to the RIPE Database, while 169 comments were received about the LIR Portal.

The core themes for the RIPE Database largely centre around user interface and experience improvements, and the need for better documentation and tutorials about how to use the database.

Comments about the overall "useability" of the LIR Portal and the need for it to be accessible across different devices are apparent.

RIPE Database

1. User interface and experience

- *"Reduce some of the complexity of the user interface, especially in the database section, and make it more user-friendly. Sometimes, creating a simple object or editing it requires going through unnecessary steps, which may not necessarily lead to the desired result."* - Iran
- *"Make the system simpler and clearer. People who manage interconnections or IPs don't necessarily have technical knowledge (unlike 20 years ago), but the ease of use of the RIPE Database has remained almost unchanged during the same period."* - France

2. Improve documentation and tutorials

- *"Context-sensitive assistance for each element, graphical navigation rather than just text, improved ease of use and documentation."* - Spain
- *"Better quality and understandable documents can be written for ease of use."* - Turkey
- *"Improve the help documentation."* - Italy
- *"More documentation/hints with forms. Practical examples of how to fill out the forms."* - Poland

LIR Portal

1. Improve usability

- *"The portal might benefit from a speed improvement (in terms of full page load speeds) as well as benefit from a better structured UI, as sometimes it is unclear where to go to do/see specific stuff."* - Netherlands
- *"Navigation is not super intuitive. Infrequent users like me have to do a bit of digging around, in different menus, to find the right service/page."* - Sweden
- *"The user interfaces could be significantly improved in some areas to enhance clarity and ease of use."* - Finland

2. Accessibility and compatibility

- *"The portal design is not very good on mobile or smaller laptop screens."* - Switzerland
- *"LIR portal really represents the core reason RIPE exists. And yet, it doesn't have its own menu item on the RIPE website..."* - United Kingdom
- *"Make it mobile friendly, right now it is unusable on smaller devices."* - Germany

Q: Do you have any suggestions or ideas to improve the RIPE Database? n=308 comments
Please note, only presented to respondents rating the RIPE Database as average or lower.
Q: Do you have any suggestions or ideas to improve the LIR Portal? n=169 comments
Please note, only presented to respondents rating the LIR Portal as average or lower.

Leadership, Governance and Information

Around three in ten respondents do not have sufficient knowledge of the Executive Board's leadership of the RIPE NCC to provide a rating of its performance, instead opting for a 'Don't know' response.

Twenty eight percent (28%) of respondent feel they could not provide a rating of the performance of the Executive Board's leadership.

Another 30% could not rate the RIPE NCC's General Meeting, most likely because they have not attended. Over one in five did not provide ratings on the use of membership funds or governance information.

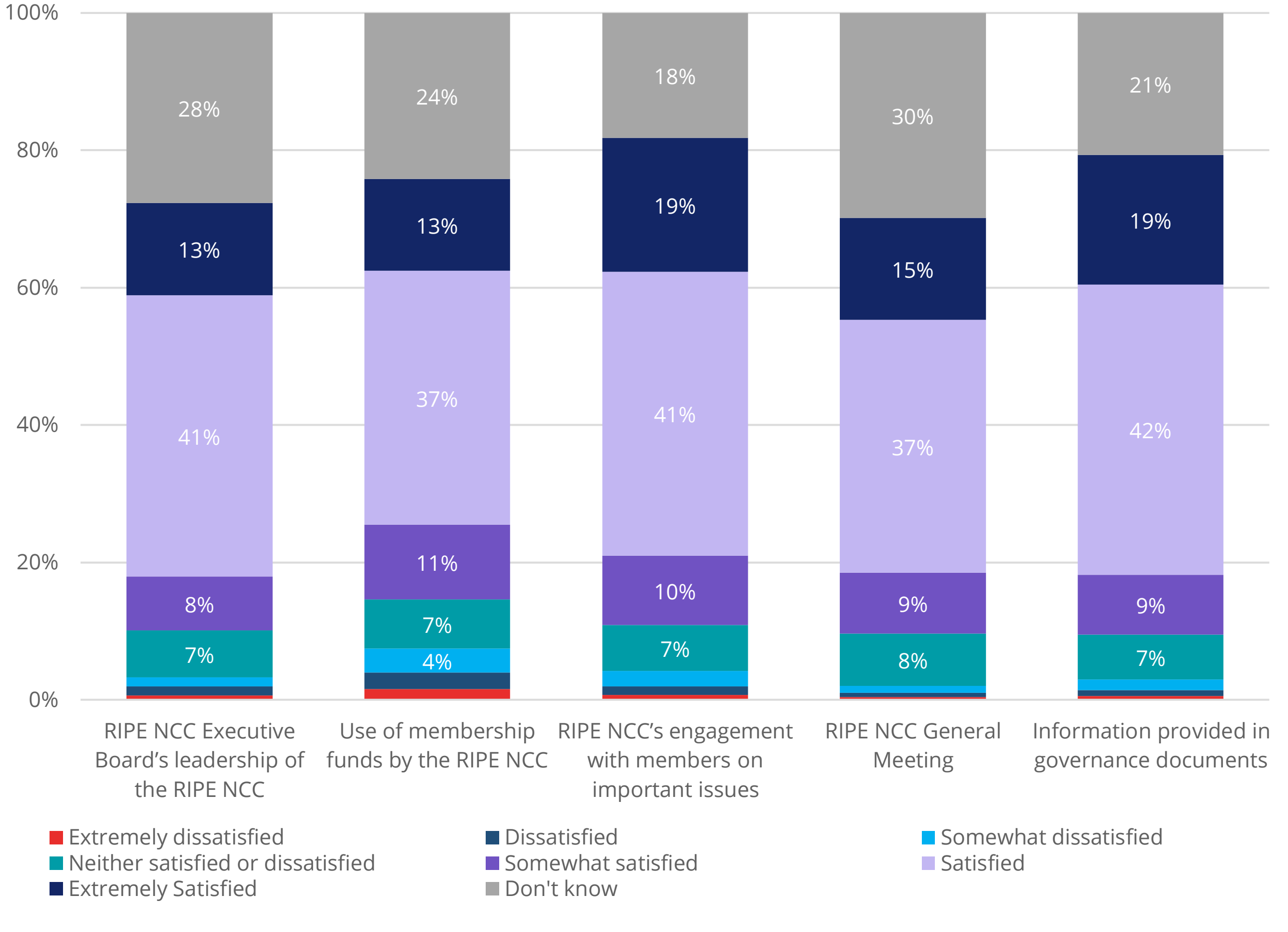
In general, respondents in Western Europe, particularly France, Poland and Switzerland are the most likely to provide a 'don't know' response to each of the statements about the RIPE NCC's leadership, governance and information.

Respondents in the Middle East are generally more likely to provide an opinion, particularly those from Iran.

By role, company owners and those in the C-suite are more likely to provide a rating than respondents working in network and technical operations roles. This is most likely driven by greater familiarity with the RIPE NCC's activities in governance, while technical personnel are more concerned with operational aspects of services and service delivery.

Despite those who felt unable to provide a rating of the RIPE NCC's governance, very few are dissatisfied. In total, only 8% are dissatisfied with the use of member funds, and less than 5% are dissatisfied with other aspects of leadership and governance.

Q: Please rate your overall satisfaction with:
n=3518



Satisfaction with the RIPE NCC's use of member funds has fallen from 76% in 2019, to 66% in 2023.

This is largely driven by respondents in Central and Western Europe. Satisfaction with the use of member funds in Western Europe has fallen from 78% in 2019 to 64% in 2023, and while those in Central Europe were also less satisfied with the use of member funds in 2019 (64%), this has fallen to 58% this year.

This result reflects the lower satisfaction ratings for overall value for money, and the verbatim comments offered by respondents, where there are many calls for a reduction in member fees, and a return to focussing on the registry's core functions.

By industry sector, respondents in hosting companies (55%) are the least satisfied with the RIPE NCC's use of member funds.

Around three-quarters of respondents who could provide a rating are satisfied with the Executive Board's leadership of the RIPE NCC (75%), which is in line with the 2019 results.

Ratings of the RIPE NCC's engagement with members also decreased from 2019, falling from 79% to 74%, largely reflecting a fall in satisfaction in Central Europe, (64%, down from 71% in 2019).

Examining satisfaction with leadership and governance by role or position, respondents in network or technical operational roles are generally more satisfied. However, fewer respondents in these roles felt able to offer an opinion, with the proportion of 'don't know' responses high for these questions.

Company owners and those in executive management are significantly less satisfied with the RIPE NCC's leadership and governance than all other roles.

Only half of company owners (51%) and just under six in ten (59%) of executive management are satisfied or extremely satisfied with the RIPE NCC's use of member funds. Similarly, these roles are less satisfied with the Executive Board's leadership of the RIPE NCC, at 64% and 69% respectively, and the RIPE NCC's engagement with members on important issues (62% and 66% respectively).

Again, these ratings are reflected in the verbatim comments, with calls for greater transparency and better communication with members, and a return of focus on members, and the activities that members most benefit from.

Around three quarters of respondents are satisfied with the RIPE NCC General Meeting (74%) and information in governance documents (77%), however, again, there is a high proportion of respondents who had insufficient knowledge to offer an opinion.

Q: Please rate your overall satisfaction with:
base n=3518

Top 2: % Satisfied / Extremely satisfied (Don't know excluded)	**Total**		**Central Europe**		**Eurasia**		**Middle East**		**South-East Europe**		**Western Europe**		**Other**	
Year	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023
Base sample	3647	3518	246	241	653	685	450	412	241	179	1956	1931	97	63
Executive Board Leadership	77%	75%	74%	68%	79%	80%	75%	81%	78%	76%	78%	72%	78%	75%
Use of Member Funds	76%	66%	64%	58%	78%	69%	66%	74%	79%	72%	78%	64%	81%	75%
Engagement with Members	79%	74%	71%	64%	81%	78%	74%	78%	84%	81%	80%	72%	80%	80%
RIPE NCC General Meeting		74%		62%		79%		77%		84%		70%		83%
Governance Documents		77%		69%		79%		80%		84%		76%		82%

Top 2 % calculated after exclusion of 'Don't Know' responses

Significantly higher / lower than total

Suggested Improvements to Governance Processes

Respondents who rated aspects of the RIPE NCC's governance processes as average or below were asked for suggestions for improvement.

A total of 348 comments were received.

The central themes include a focus more on core activities, reducing expenditure and member fees. There are also comments around transparency in communication with members, particularly in respect to changes to the charging scheme.

1. Focus more on core activities

- *"I feel the scope of the organisation extends into grey areas where it could be argued that whilst coming from a good place, elements might be beyond the remit of core activates."* - United Kingdom
- *"The RIPE NCC engages in some activities that don't relate directly to its objectives, and some 'cleaning up' could be useful, and could possibly cut down the budget a bit."* - Sweden
- *"Spending too much money on unnecessary services other than the registry leading to higher than strictly required member fees."* - Romania

2. Reduce expenditure and member fees

- *"Costs are too high. In past couple years membership fee was even lowered for unspent money. In last invoices we can see that costs are increased. We wish to optimize and reduce costs as much as possible and to operate only important activities."* - Serbia
- *"I believe more can be done to reduce what members pay. As I mentioned before, it's one of the most important issues... Our companies survive as best as we can, and the less we pay, the better."* - Spain
- *"The increase in the annual fee is significant and is becoming a barrier to entry for individual LIRs..."* - France

3. Better communication and transparency

- *"Missing some transparency in budget allocation, staff funding decisions."* Italy
- *"Overall, I am satisfied, but I think there is a lack of communication about the governance activities of the RIPE NCC."* - France
- *"Basically all was said in the lengthy discussion about the charging scheme. Communication from NCC should have been more open and engaging, it seemed more defensive. And if something seems defensive to me, I'm starting to think against what or whom it could be."* - Germany

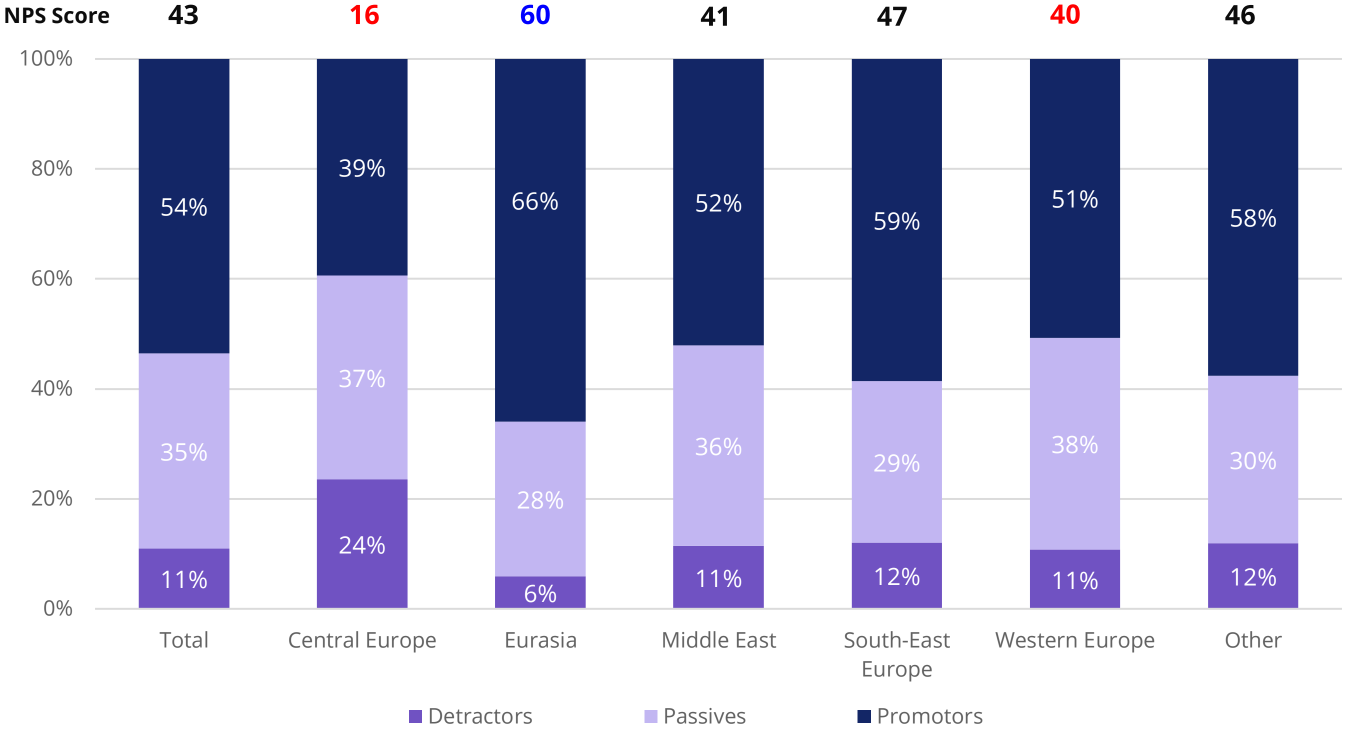
4. General governance concerns

- *"Overall, I am satisfied, but I think there is a lack of communication about the governance activities of the RIPE NCC."* - France
- *"From what I've seen, it seems to me that the board's objectives are not completely in line with what members strive for. Therefore, trying to get feedback from the members directly like via this survey is a very welcome step in the right direction."* - Germany
- *"Information on the company's performance should be provided in advance of general meetings in order to prepare any questions and/or observations."* - Italy

Q: Can you please tell us why you are not satisfied with some of the RIPE NCC governance activities?
n=348 verbatim comments
Please note, only presented to respondents rating their satisfaction as average or lower

Endorsement

Q: On a scale of 0-10 how likely are you to speak highly of the RIPE NCC to others in the Internet community?
n=3899



Significantly higher / lower than total
NB: Small differences due to rounding

As well as seeking to understand satisfaction with the RIPE NCC's services and membership experience, the survey asked respondents how likely they are to speak highly of the RIPE NCC to others in the Internet community.

- Those who provide a rating of 9-10 can be said to be promoters and are likely to proactively promote the RIPE NCC.
- Ratings of 7-8 are considered passive. They may speak well, but do not proactively promote the RIPE NCC in discussions with others.
- Those who provide ratings of 0-6 are considered detractors. These people are unlikely to speak well, if at all, about the RIPE NCC.

By subtracting the proportion of detractors from the proportion of promoters, we can determine the Net Promoter Score (NPS) for the RIPE NCC. NPS scores can range from -100 to +100.

The NPS for the RIPE NCC in 2023 is +43. This is a very positive result, with over half (54%) of respondents indicating they speak highly of the RIPE NCC to others.

The highest NPS obtained is from respondents in Eurasia (+60), who are significantly more likely to speak highly of the RIPE NCC than those in other regions.

At +16, the lowest NPS score is from Central Europe. Only 39% of respondents in this region speak highly of the RIPE NCC to others, with around one in four (24%) providing a rating of 6 or less.

Reflecting lower satisfaction with overall performance, company owners (+32) and C-suite executives (+38) are less likely to speak highly of the RIPE NCC to others.

The opposite is true of IT/ICT managers and network and technical operations roles, with both position types significantly more likely to speak well of the RIPE NCC to others (+48 and +47 respectively).

Strategy and Strategic Activities

This section of the report examines respondent opinions about how effectively the RIPE NCC is working to meet its strategic objectives, as well as the activities members believe are most important.

It also looks at the challenges to maintaining a stable, open and secure Internet in the context of the wider Internet governance model, and satisfaction with the RIPE NCC's support for members affected by adverse circumstances and sanctions compliance.

In summary, the survey found:

- A majority of comments about the RIPE NCC's effectiveness in meeting its strategic objectives are positive.
- The most important activity carried out by the RIPE NCC is providing registry and information services.
- Interestingly, working to defend the global Internet registry system is rated the second most important activity, despite earlier calls for the RIPE NCC to focus more on its own core registry functions.
- Paramount among the issues raised by respondents about the challenges to maintaining an open, stable and secure Internet are concerns about information, network and cyber security. Governments' influence, geopolitical instability and Internet neutrality are also frequently mentioned as challenging the wider Internet governance model.
- Over one quarter of respondents feel they do not know enough about the RIPE NCC's support for members affected by negative circumstances, such as natural disasters and geopolitical instability, nor the RIPE NCC's compliance with sanctions, to rate them.
- 75% of respondents aware of the RIPE NCC's efforts are satisfied with the support they provide to members affected by negative circumstances
- Over two-thirds of aware respondents are satisfied with the RIPE NCC's compliance to sanctions.

The RIPE NCC's Key Strategic Objectives

The RIPE NCC Strategy 2022-2026 outlines the following key strategic objectives for the organisation:

- Support an open, inclusive, and engaged RIPE community
- Operate a trusted, efficient, accurate and resilient Registry
- Enable our members and community to operate one secure, stable and resilient global Internet
- Maintain a stable organisation with a robust governance structure

The survey asked respondents to provide their opinions about how effectively the RIPE NCC is working to meet these objectives. A total of 3,107 comments were provided by respondents, with a majority of these showing members are largely satisfied with how the RIPE NCC is working to meet its strategic objectives and providing positive responses.

Of those that had a different perspective, costs of membership, communication and transparency were frequently mentioned, along with IPv4 scarcity and misuse.

Effectively working to meet the objectives

"RIPE is working steadily to meet these objectives and shows great commitment" - Lebanon

"We greatly appreciate the work that RIPE is carrying out on all topics related to IP resource allocation, training in new tools, and process improvement." - Spain

"I think RIPE NCC is great at meeting these objectives." - Denmark

"I'd say that RIPE NCC do a pretty good job." Serbia

"I think RIPE is a well structure organization which insists on a secure trusted information in all communication with them." - Israel

"Overall impression is undoubtedly positive. RIPE NCC has achieved significant results in managing the Registry and creating a stable and well-managed organization..."- Russia

"From my point of view, focusing mainly on support and engagement of community, and services like stat/Atlas/RIS and educational material, I think that RIPE NCC meets these objectives very efficiently." - Greece

"Sufficiently effective to provide a stable and convenient service." - Kazakhstan

"RIPE NCC is doing a good job, especially when compared to other RIRs. Of course there's always room to complain, but taken into context they are doing well..." - Germany

Suggestions for improvement

"RIPE is getting overly bloated and doing too much outside of the core field of being a number registry. Supporting projects like RPKI or Atlas but we shoud look into a leaner more focused RIPE." - Germany

"The goals are not being achieved, RIPE's policy is not stable, changes are profit-oriented rather than solely focused on sustainability." - Poland

"Despite RIPE NCC clearly working in line with these objectives, there are no public measures of effectiveness. The lack of transparency and clarity in decision-making and execution could be improved" - Netherlands

"You should regulate the IPv4 market. It's absurd to have to search for them on the black market..." - Italy

"They can do much more; decision-making and policy formation in RIPE are not transparent enough for the community and do not always align with the interests of Internet development." - Germany

"Little investment in the community aspect. Also, little work done to help ensure a secure, stable, and resilient global Internet." - France

"Transparency could use some work, trust is good. Providing what the community wants needs to be offset against the financial implications of it." – Netherlands

Q: What is your overall impression of how effectively the RIPE NCC is working to meet these objectives?
n=3,107 verbatim comments

Most Important RIPE NCC Activities

The RIPE NCC wanted to understand the services and activities outside the Registry function that were most important to respondents.

When asked to identify the most important RIPE NCC activities outside the Registry function, three in five (60%) respondents said information services, many of which are frequently used, are important to them.

Interestingly, just under half (49%) include working to defend the global Internet registry system as one of the most important activities for the RIPE NCC. This is despite comments suggesting the RIPE NCC needs to pare its activities back to core registry functions.

These results offer an interesting perspective for the RIPE NCC. Core information services offered are very important to members, likely because they enable them to provide their own products and services effectively. But, from a more holistic perspective, working to defend the global Internet registry system to maintain the goal of an open, stable and secure Internet for all, is clearly more important than some other activities provided by the RIPE NCC.

While differences exist across the RIPE NCC service region and the various roles respondents are in, these two activities are more important than any others carried out.

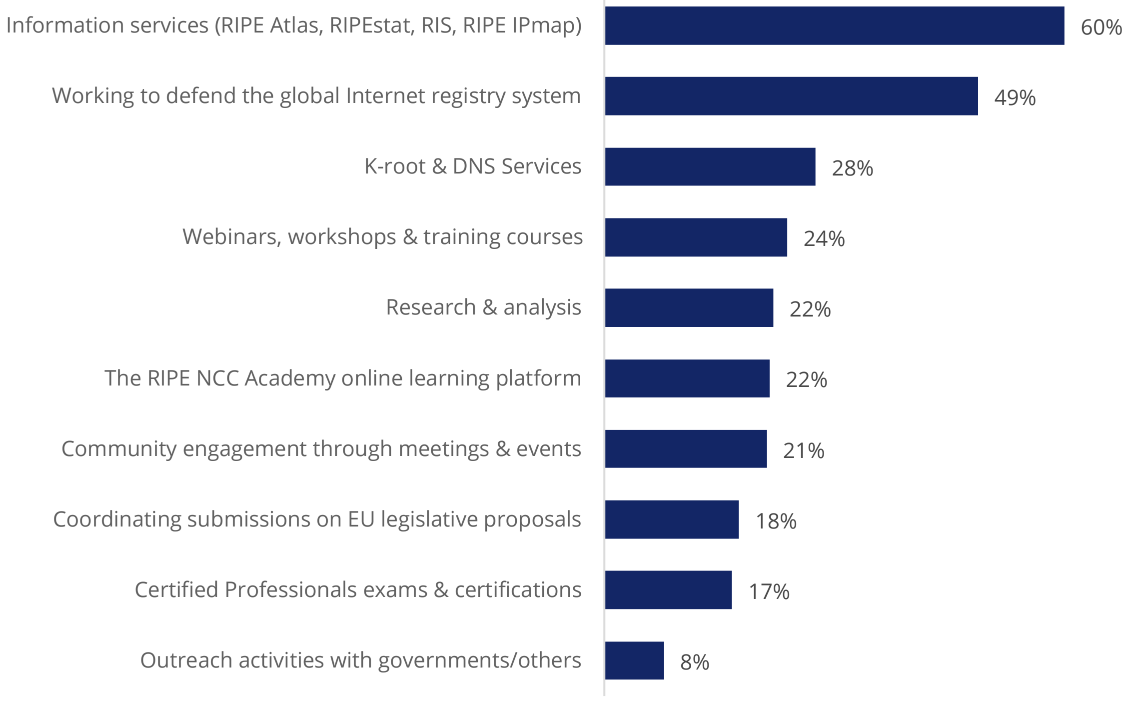
Educational services are also important, with a combined three in five respondents including either webinars, workshops and training courses (24%), the RIPE NCC Academy (22%), and Certified Professional exams and certifications (17%), in their top three most important activities.

Webinars, workshops and training courses (27%) and the RIPE NCC Academy (26%) are of greater importance to those working in network or technical operations. IT/ICT Managers, however, place greater importance on the Certified Professionals program (21%) than others.

K-root and DNS services are important for 28% of respondents, increasing to 36% of those in hosting companies.

Engagement at meetings and events (21%) and outreach with governments/others (8%) are of a somewhat lower level of importance. While just 18% consider it important for the RIPE NCC to coordinate submissions on EU legislative proposals, much of this work is related to working to defend the global Internet registry system.

Q: Which of these activities carried out by the RIPE NCC are important for you?
n=3899



Up to three (3) responses permitted

Q: Which of these activities carried out by the RIPE NCC are important for you?
n=3899

	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	3899	259	713	445	232	2143	92
Information services (RIPE Atlas, RIPEstat, RIS, RIPE IPmap)	60%	64%	64%	50%	58%	61%	61%
Working to defend the global Internet registry system	49%	47%	56%	36%	39%	51%	50%
K-root & DNS Services	28%	33%	29%	26%	20%	28%	26%
Webinars, workshops & training courses	24%	23%	21%	33%	38%	22%	22%
Research & analysis	22%	21%	23%	23%	22%	21%	33%
RIPE NCC Academy online learning platform	22%	17%	17%	33%	24%	21%	23%
Community engagement, meetings & events	21%	11%	25%	26%	27%	20%	15%
Coordinating submissions on EU legislative proposals	18%	21%	13%	6%	14%	22%	11%
Certified Professionals exams	17%	15%	11%	31%	21%	15%	17%
Outreach activities	8%	4%	5%	9%	5%	9%	11%

Up to three (3) responses permitted

Significantly higher / lower than total

Information services and defending the global Internet registry system are the most important activities outside the Registry function across all regions. While these are of slightly lower importance to respondents in the Middle East and South-East Europe in comparison to other regions, they remain the top two most important activities overall for respondents in these regions.

Respondents in Turkey (39%) or Iran (40%) consider it less important to defend the global Internet registry system than other countries. Perhaps unsurprisingly however, those in Russia (59%) and the Ukraine (65%) are much more likely to include defending the global registry system as an important activity for the RIPE NCC. Respondents in Eurasia (56%) also consider this an important function for the RIPE NCC.

Respondents from the Middle East are generally more likely than their counterparts in other regions to place high importance on education activities, such as webinars, workshops and training courses (33%), the RIPE NCC Academy (33%) and certifications (31%). Webinars, workshops and training courses are also significantly more important to respondents in South-East Europe (38%), with this cohort placing lower importance on K-root and DNS services (20%).

Those in Western Europe are more concerned than other regions about coordinating submissions on EU legislative proposals.

In general, respondents in the Eurasia region are significantly less likely than their counterparts to place importance on the RIPE NCC Academy (17%), certification (11%), coordinating EU submissions (13%) and outreach activities at meetings and events (5%).

While information services and defending the global Internet registry system are the most important activities across all service regions, the importance of other activities depends on where members are located.

Main Challenges to Maintain a Stable Internet

Respondents were asked in their own words the main challenges to maintaining a stable, open and secure Internet in the context of the wider Internet governance model. More than 2,300 separate comments were provided by the RIPE community.

Reflecting that this is a complex and multi-faceted issue, many comments identified several different issues. However, there are four common concerns, and these are summarised below.

Information and cyber security concerns

Paramount among the issues discussed are concerns about cyber security and threats, such as cyberattacks, malware, and phishing. Specific issues like BGP hijacking, routing attacks, compromised IP addresses, and the misuse of IP addresses highlight the challenges in maintaining secure Internet operations.

There are mentions of securing key protocols (BGP, DNSSEC) to help mitigate cyberattacks, while some comments discussed other technical security measures, like using IPv4 NAT, promoting firewalls for IPv6, and preventing IP address spoofing.

- *"With the increasing reliance on the Internet and digital technologies, cyber threats are becoming more serious. Cybercriminals can attack networks, compromise user accounts, steal personal data, and more. This poses challenges to Internet security and trust."* - Tajikistan
- *"Cyber-attacks such as malware, DDoS attacks, and data breaches can disrupt services and compromise user privacy and security. It is essential to develop robust defence mechanisms, promote security awareness, and foster collaboration among stakeholders to address these threats."* - Italy
- *"Cyberattacks pose a constant threat to the stability and security of the Internet... It is essential to promote international cooperation in cybersecurity and develop effective measures to address these threats."* - Spain
- *"Protection against DDoS attacks and awareness-raising activities for resource administrators."* - Ukraine

Government influence, geopolitical concerns and Internet neutrality

There are numerous comments expressing concerns about governments trying to exert control over the Internet. These include fears that different governments are introducing laws that can restrict Internet freedom and security, and an apprehension about the role of governments, both authoritarian and democratic, in influencing and limiting the free and open nature of the Internet.

In addition, ensuring the Internet remains "independent" and "neutral" is top of mind for many, with mentions that "independence from the politics of individual states and structures" and "keeping the Internet decentralized" are challenges to maintaining an open, stable and secure Internet.

Many call for greater education of governments around the world about the nature of the Internet, and the benefits in maintaining Internet governance separate and independent from the geopolitical landscape.

- *"Government control and regulation of the Internet sector: Slow progress - strict surveillance affecting freedoms and content - low speeds and therefore low quality - high prices despite insufficient infrastructure - monopolization of services by certain operators..."* - Yemen
- *"The threats from governments (very much including the EU) to control the Internet, which will lead to 'compartmentalisation'."* - Sweden
- *"Increasing government regulations make it more difficult for members to operate." Switzerland*
- *"Fending off government, NGO and commercial interference and keep the 'open Internet and RFC world' alive. Educate people about the importance of this openness."*- Germany

Q: Thinking about the wider Internet governance model, what do you believe are the main challenges to maintaining a stable, open and secure Internet?
n=2,351 Verbatim comments

Corporate influence and economic interests

Another common theme is the influence of large, multi-national organisations and their economic interests on the Internet structure and governance. There are concerns that the corporate and monetary interests of the largest companies (Google, Apple, Facebook (Meta), AWS, and Microsoft) provides them the ability to control and influence the Internet globally.

There is a sentiment that the Internet should not be dominated by a few big players but should instead serve the broader community's interests, with mentions it is “crucial to fight for a decentralized Internet, free from the control of major players”.

- *“Centralisation (e.g. too much control/data with google/amazon/microsoft/apple/etc). Government overreach (e.g using magical thinking with respect to end-to-end encryption). Carpetbaggers (e.g. ip brokers trying to capture membership organisations).”* - United Kingdom
- *“Ensuring that the Internet remains an open place everyone can join, not lead only by a few big tech companies.”* - Germany
- *“Take control back from big tech, they closed parts of the open free Internet for their own profits. Move away from the cloud, to host your own services (again) to get control back over your infrastructure and data (privacy).”* - Netherlands
- *“I would say preserving the uniqueness of the model and its independence (or neutrality) from major players in the industry, including GAFAM.”* - France

Accessibility and digital divide

Reflecting other comments about government and corporate influence, and neutrality, on maintaining a stable, open and secure Internet, many respondents are concerned about fair access to the Internet for all and the existence of a “Digital Divide” across the globe. There remain not only technical limitations to Internet accessibility, but also other human-induced restrictions that make access to the Internet “difficult or impossible” for regions and / or certain groups of people.

Although almost universally acknowledged as difficult to achieve, respondents call for a better balance in the interests and rights of different stakeholders, to ensure representation and to reduce the digital divide.

- *“Bridging the digital divide remains a significant challenge in ensuring an open and inclusive Internet. Disparities in access to affordable and reliable Internet connectivity, particularly in underserved regions and marginalized communities, limit opportunities for education, economic participation, and social development.”* - Republic of North Macedonia
- *“Unequal distribution of Internet infrastructure worldwide can contribute to digital inequality. Insufficient network access, low bandwidth, and high costs are still problematic in some regions.”* - Turkey
- *“Having Internet as global service, not falling apart into islands. Internet as a 'human right', like water, and being careful that the Internet stays 'for everybody'”* - Slovenia

“Internet governance involves collaboration among multiple stakeholders, such as governments, businesses, non-profit organizations, and civil society.

The challenge lies in achieving inclusive, transparent, and participatory governance, where all stakeholders have a voice in decision-making and their concerns can be addressed equitably…”

Spain

Q: Thinking about the wider Internet governance model, what do you believe are the main challenges to maintaining a stable, open and secure Internet?
n=2,351 Verbatim comments

Support in Difficult Situations and Sanctions Compliance

Despite around a quarter of respondents not having sufficient knowledge about the RIPE NCC's support for those affected by negative circumstances, or how it is complying to sanctions, to provide an opinion, satisfaction with these activities is reasonably high.

Of those respondents who provided a rating, overall, 75% are satisfied with the support provided to members in adverse circumstances, and 68% are satisfied with the RIPE NCC's sanctions compliance.

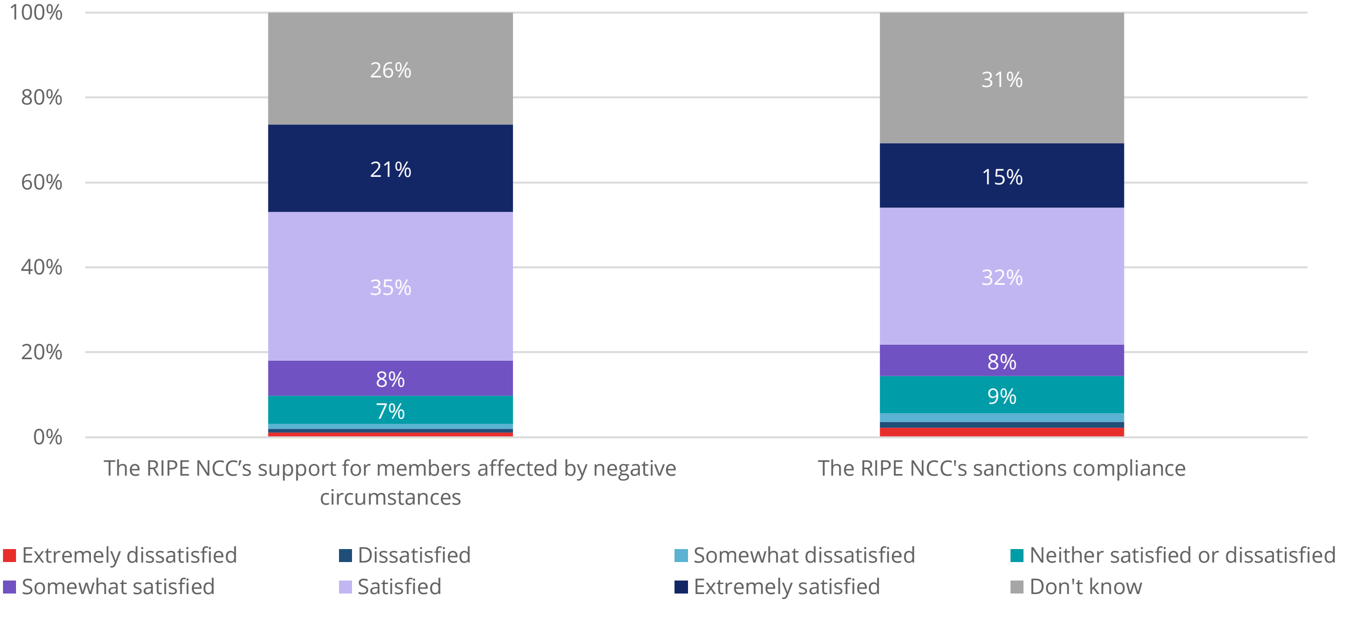
Possibly as a result of being in the most negatively affected regions, those in Eurasia and Central Europe regions are less satisfied with the support provided by the RIPE NCC to members facing negative circumstances than other service regions. By country, members in the Ukraine (56%) and the Russian Federation (69%) are the least satisfied.

Two in three respondents (68%) who provided a rating are satisfied with the RIPE NCC's sanctions compliance.

Again, and possibly unsurprising, those in Eurasia (53%) are the least satisfied with the RIPE NCC's compliance to sanctions, particularly those from the Ukraine (32%) and Russia (52%).

In general, respondents in Western Europe (62%) are significantly more likely than other regions to provide a 'don't know' response to both the support offered or sanctions compliance.

Q: Overall, thinking about the RIPE NCC, how satisfied are you with?
n=3899



Top 2: % Satisfied / Extremely satisfied **(Don't know excluded)**	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Base sample	3899	259	713	445	232	2143	92
Support for members affected by negative circumstances	75%	65%	69%	77%	75%	78%	89%
Sanctions compliance	68%	61%	53%	73%	74%	73%	87%

Top 2 % calculated after exclusion of 'Don't Know' responses

Significantly higher / lower than total

Assistance for Members in Adverse Situations, and Sanctions Compliance

Respondents were asked how the RIPE NCC could assist members in difficult or adverse situations, or to ensure sanctions compliance. In total, 1,233 comments were received.

Many respondents commented they did not know enough about what the RIPE NCC is doing, particularly regarding sanctions, to provide a comment. Of those who did provide suggestions, the recurrent themes were for the RIPE NCC to remain neutral and try to find a way to support all LIRs across the region.

There are also suggestions the RIPE NCC could offer assistance with membership fees, improving its services, and more tailored responses to individual country's needs. Some want the RIPE NCC to provide information, education, guidelines and resources, and to facilitate better collaboration between members.

1. Not familiar enough to provide a suggestion

- *"None specifically, this is not really our center of expertise."* - Switzerland
- *"No suggestions on sanctions compliance."* - Kuwait
- *"I'm not in a position to judge what members in difficult decisions need mostly and I don't know enough about sanction compliance to have an informed opinion or suggestions..."* - Germany

2. Maintain neutrality and independence

- *"RIPE should remain neutral so as not to affect any of its members, some of whom may be in those countries and have no relation to the difficult event or situation"* - Spain
- *"RIPE NCC must defend the right to a network connection as a fundamental right that cannot be challenged by sanctions."* - France
- *"This is a difficult question. On the one hand, the application of sanctions is correct, but on the other hand, it contradicts ensuring free Internet access for everyone."* - Kazakhstan
- *"I'm from a sanctioned country and I believe that you, like medicine, should be outside of politics and governmental activities"* - Russia

3. Member fees and other forms of support

- *"Annual fees should be postponed or divided into suitable instalments."* - Turkey
- *"Help them on the security side with subsidies."* - France
- *"One of the most important forms of assistance could be providing resources and supports, such as consulting services, for people like us who are under sanctions..."* - Iran
- *"Perhaps providing cloud-based routers as a backup for infrastructure that gets damaged as a result of some catastrophe or war."* - Czech Republic

4. Collaboration and information

- *"Facilitate a platform for members to share experiences, challenges, and best practices ... This can be achieved through forums, discussion groups, or dedicated online communities where members can engage with each other and learn from their peers..."* - Palestine
- *"More direct outreach. I assume the voices heard are the ones who are the loudest. Ask smaller partners for feedback."* - Belgium
- *"The RIPE NCC can organize workshops, webinars, or conferences where members can share their experiences and best practices in overcoming challenges. This would enable members to learn from each other and foster a supportive community."* - Cyprus

Q: Do you have any suggestions on how the RIPE NCC can help members in difficult situations or to ensure sanctions compliance?
n=1,233 Verbatim comments

Member Challenges

A key focus of the RIPE NCC Survey in 2023 was to understand the challenges facing members, how these have changed since 2019, and to seek ideas on how the RIPE NCC can assist.

To provide a deeper understanding of the information security issues faced, the survey also asked respondents to identify the security-related challenges facing their organisations.

In summary, the survey found:

- Overall, information security continues to be the main challenge facing organisations in the Internet community. While there is a decline in the proportion of respondents who rate this as their primary challenge, this is likely the result of the addition of other issues in 2023, namely skills shortages.

- As in 2019, IPv4 scarcity and the deployment of IPv6 in their networks remain problematic for many respondents in 2023.

- Given the profound changes across the world since 2019, four new potential challenges for the RIPE NCC's community were added in 2023; skills shortages, supply chain issues, managing impacts of sanctions and meeting environmental sustainability goals. While the latter three are less of an issue, at 33%, skills shortages ranks as the third most pressing challenge for respondents.

- There has been an increase in concerns about the costs of operations, up from 20% in 2019, to 29% this year.

- Consistent with 2019, DDoS attacks, phishing, spam, malware and ransomware, and intrusion and other breaches continue to be the main security challenges facing organisations.

- There has been a drop in concerns about blacklisting of RIPE NCC-allocated IP addresses (18%, down from 26%).

- While still relatively low compared with other challenges, concerns about third-party data breaches are increasing, up from 8% in 2019 to 15% in 2023.

- Key issues relating to IPv4 scarcity continue to be a dependency on IPv4 and deployment of IPv6, with just over three in ten including these in their main challenges. The cost of IPv4 addresses rounds out the top 3 issues. These three issues remain unchanged from 2019.

- The survey also asked respondents what the RIPE NCC should do in relation to IPv4 transfers. Around one in three respondents want the RIPE NCC to provide clear guidance on IPv4 transfer policies and procedures, to streamline the IPv4 transfer process and facilitate connections between buyers and sellers.

Internet-related Challenges

As with 2019, information security remains the predominant issue for respondents. While there has been a decline in the proportion of respondents who rate this as a main challenge (42%, down from 51%), this is likely because of the inclusion of skills shortages among the list of challenges in 2023.

Interestingly, while IT/ ICT managers are very concerned about information security (51%), this is significantly less important to company owners (28%).

IPv4 scarcity is another key challenge facing the community, particularly those in Eurasia (39%) and the Middle East (45%), where it is the most important challenge.

Company owners (52%) and Executive Managers (41%), and respondents working in telecommunications (44%) and hosting companies (45%) are also significantly more concerned about IPv4 scarcity than those in other roles or industry sectors.

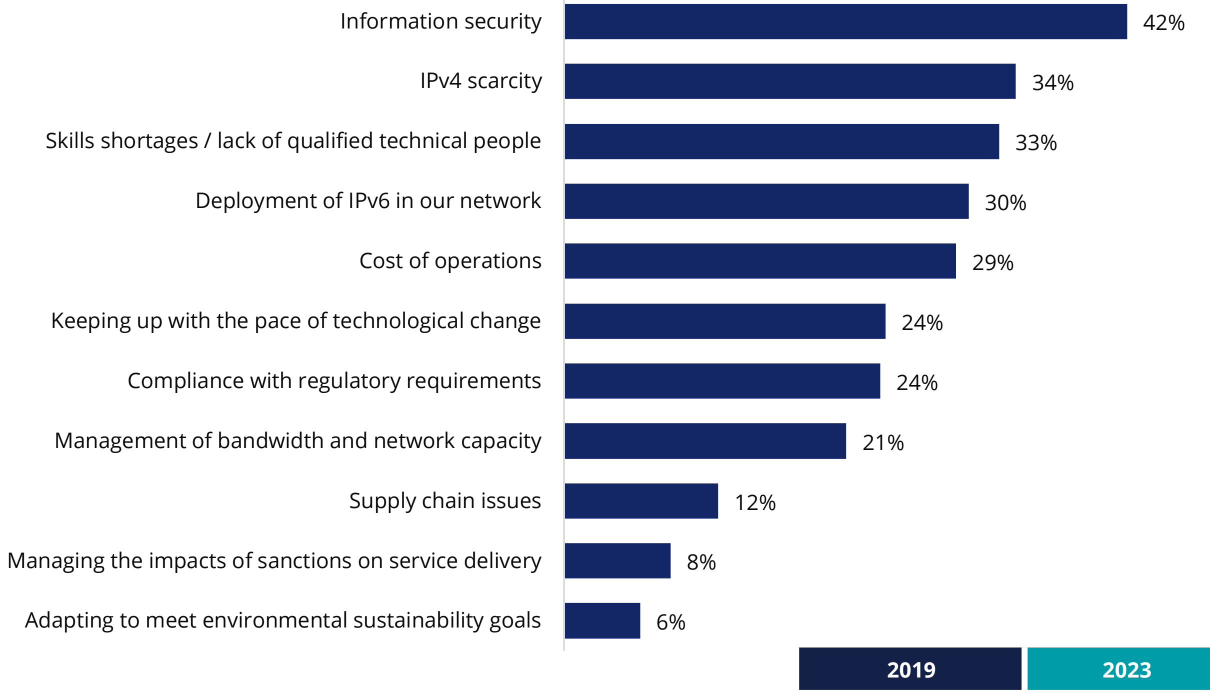
Concerns about skill shortages and a lack of qualified technical people (33%) rounds out the top three challenges in 2023. IT/ICT Managers (38%) are more likely to say this is a challenge than respondents in other roles.

Possibly because of the global pandemic and global economic instability, resulting in skills shortages, supply chain issues, and high inflation, the cost of operations is a challenge for more respondents in 2023 (29%) than it was in 2019 (20%).

Operational costs are also the biggest challenge for those in Central Europe (44%), for company owners (41%), and hosting companies (41%).

The deployment of IPv6 in their networks is among the top three challenges facing telecommunications and mobile operators, with over a third (34%) including IPv6 deployment in their top 3 challenges.

Q: Thinking about your Internet-related services, products or activities, what are the MAIN challenges facing your organisation?
n=3899



	2019	2023
Base sample	4161	3899
Information security	51%	42%
IPv4 scarcity	33%	34%
Skills shortage / lack of qualified technical people	Not asked	33%

Up to three (3) responses permitted

Q: Thinking about your Internet-related services, products or activities, what are the MAIN challenges facing your organisation?
n=3899

	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	3899	259	713	445	232	2143	92
Information security	42%	42%	39%	37%	45%	44%	36%
IPv4 scarcity	34%	34%	39%	45%	28%	31%	33%
Skills shortages / lack of suitably qualified people	33%	27%	27%	29%	39%	35%	34%
Deployment of IPv6 in our network	30%	31%	28%	29%	25%	32%	22%
Cost of operations	29%	44%	21%	34%	33%	29%	33%
Keeping up with the pace of technological change	24%	17%	19%	22%	23%	27%	25%
Compliance with regulatory requirements	24%	30%	27%	17%	16%	24%	20%
Management of bandwidth and network capacity	21%	22%	21%	20%	25%	21%	20%
Supply chain issues	12%	9%	19%	8%	10%	11%	10%
Managing the impacts of sanctions on service delivery	8%	3%	22%	19%	4%	2%	5%
Adapting our organisation to meet environmental sustainability goals	6%	2%	3%	5%	7%	7%	8%

Up to three (3) responses permitted

Significantly higher / lower than total

	Total	Company Owner	Executive	IT/ICT Manager	Software development	Technical operations	Admin / Commercial
Sample	3899	690	604	802	46	1397	360
Information security	42%	28%	41%	51%	46%	44%	44%
IPv4 scarcity	34%	52%	41%	29%	17%	28%	21%
Skills shortages / lack of suitably qualified people	33%	24%	34%	38%	28%	34%	28%
Deployment of IPv6 in our network	30%	32%	30%	29%	17%	32%	26%
Cost of operations	29%	41%	30%	26%	22%	26%	28%
Keeping up with the pace of technological change	24%	18%	19%	29%	22%	26%	24%
Compliance with regulatory requirements	24%	23%	28%	25%	28%	22%	18%
Management of bandwidth and network capacity	21%	20%	19%	20%	13%	24%	19%
Supply chain issues	12%	9%	11%	10%	9%	15%	7%
Managing the impacts of sanctions on service delivery	8%	8%	9%	7%	4%	9%	6%
Adapting our organisation to meet environmental sustainability goals	6%	4%	5%	6%	15%	6%	8%

Up to three (3) responses permitted

Significantly higher / lower than total

Ways the RIPE NCC Can Assist with the Challenges

To assist the RIPE NCC understand what it can do to help mitigate the challenges facing members, respondents were asked to provide suggestions in their own words. In total, 1,416 respondents provided comments

Most of the verbatim comments focussed on the scarcity of IPv4 and challenges with IPv6 adoption. The provision of education, training, information and knowledge sharing is also a prominent theme, as is assistance with payment of fees.

Despite this, around a third of the comments from respondents indicate there is either nothing the RIPE NCC can do beyond what it is already doing to assist, or they don't know how the RIPE NCC could help.

IPv4 scarcity and deployment of IPv6

Prevalent in the suggestions is the perception that IPv4 address are either being unfairly distributed, or that there are LIRs "hoarding" unused addresses. There is a strong sentiment that organisations holding large portions of unused IPv4 addresses should return or redistribute them.

The slow adoption of IPv6 and the difficulties in deploying it are also frequently mentioned. Respondents call for more education on IPv6 deployment and for the RIPE NCC to devise strategies or solutions that would make the transition more straightforward and appealing to organisations.

IPv4

- *"Unused blocks that are being exploited for unfair gain should be reclaimed and allocated to members who need them."* - Turkey
- *"I think maybe you could find a way for real LIR's that only have one /22 get maybe at least one more /24. It was heavily abused in the past years the fact that people would register LIR's just to get IP's and then sell them, while real companies that have a need for some more IPs can't get any."* - Greece
- *"The main problem is the shortage of IPv4 addresses. I believe RIPE should not have allowed IPv4 address transfers. It seems like this resource was supposed to be shared, but a large portion of it was distributed unfairly and irresponsibly, and now these resources can be sold for significant profit."* - Kyrgyzstan
- *"Better management of IPv4 resources, many resources obtained practically for free are not being used and are traded. If someone is not conducting business or has disproportionately large IP resources compared to their operations, these resources should be reclaimed."* - Poland
- *"Free up more IPv4 from organisations that are hoarding"* - United Kingdom
- *"Find a way to recover unused IPv4 addresses."* - France

IPv6

- *"The transition to IPv6 is too slow for the community in general."* - Spain
- *"Yes, provide use cases for IPv6 migration for SMEs, etc. How to evolve a network with minimal cost and provide ideas and plans for IPv6 migration."* - Belgium
- *"Help all the members to adopt IPv6 rather sooner than later. Including negative incentives on using IPv4."* - Czech Republic
- *"… We are service providers, clients, and integrators of operators. IPv6 deployment … for us: there is no backward compatibility, and it requires reworking the entire infrastructure. It requires allocating resources without any benefits."* - France
- *"For IPv6, define/encourage a single policy for transporting IPv4 over IPv6, phase-out of the double stack (if possible), and related DNS management aspects. Increase the adoption of RPKI and techniques like RTBH."* – Italy
- *"Assist national security authorities in implementing IPv6 to reduce their concerns about IPv6 deployment. Also, provide support to companies in terms of IPv6 security through training and information…"* - Iran

Q: Thinking about the challenges facing your organisation, are there ways the RIPE NCC could help?
n=1416 verbatim comments

Education, training, and knowledge sharing

Another common theme is for more assistance by the RIPE NCC through the provision of more training and education, and offering case studies and knowledge sharing, particularly about the deployment of IPv6, and combatting cyber abuse.

- *"Promote the adoption of Internet Protocol version 6 (IPv6) by disseminating more educational materials related to IPv6."* - Iraq
- *"Yes, provide use cases for IPv6 migration for SMEs, etc. How to evolve a network with minimal cost and provide ideas and plans for IPv6 migration."* - Belgium
- *"Continuation and potential expansion of training courses, hackathons and public outreach for best practices and implementation strategies."* - Germany
- *"White paper or document summarizing best practices for the management of public IP addresses and their announcement on networks (similar to what ANSSI does). Example configurations for Cisco/Arista routers. Best practices in the context of BCP/DRP, multiple operators. Best practices for the DNS part (with example configurations)"* - France
- *"Yes, by organizing and financing various events, conferences, training, ie through capacity building and networking."* - Serbia
- *"Increase the frequency of informative conferences and provide language support for these conferences."* - Turkey

Assistance with fees and fee structure

Respondents also commented on the high cost of fees and called for a focus on core services to achieve cost reductions.

There are also many calls for flexibility in the payment schedule, fee assistance for countries in difficult circumstances, and allowing payments in different currencies.

- *"It would be wonderful if RIPE NCC considered finding a payment method for membership fees for participants from countries with restrictions in international interbank transactions."* - Russia
- *"We voted to adopt a member pricing model that would favour everyone based on their resources assigned. This was downvoted in favour of the existing pricing scheme, likely by the very people that such policy would affect the hardest. If the minority have a slither of pie but a majority take a huge slice, it isn't right to bill everyone the same. It's not a buffet, for we can't just pop over to the stall and fill our plates with more IPs and ASNs. Fair is fair."* - United Kingdom
- *"As explained before, I don't think RIPE NCC should be expanding their business activities and fund them with growing membership fees."* - Ireland
- *"RIPE NCC could help by reducing the membership fee."* - Oman
- *"So far, I am very grateful for the constructive interaction with RIPE and not cancelling membership due to sanctions. Finding a solution to pay the annual membership fee directly or indirectly can be a positive step."* - Iran
- *"It would be good to offer the option of paying for services in instalments and/or providing discounts.."* - Ukraine
- *"Referring to the discussion on the mailing lists; costs for large ISPs (with lots of unused ranges) have to go up, to push them to deploy or make them available. Smaller parties are currently being seriously disadvantaged."* - Netherlands
- *"Focus on only core registry services, reducing costs to members. Split off the other activities into a separate entity, which can source its own funding and be supported by those who use the services."* - United Kingdom

Q: Thinking about the challenges facing your organisation, are there ways the RIPE NCC could help?
n=1416 verbatim comments

Information Security Challenges

Consistent with 2019, the two main information security-related challenges facing organisations are concerns about DDoS attacks (53%) and issues with phishing, spam, malware and ransomware (50%).

DDoS attacks are particularly concerning to respondents from Central Europe (63%) and Eurasia (61%), and those in telecommunication and mobile sectors (61%) or hosting companies (66%).

By role, company owners (52%), C-suite (56%) and those in technical or network operations (56%) are more concerned about DDoS attacks than other roles or positions.

Phishing, spam, malware and ransomware is a bigger concern for those working in general commercial sectors (60%) than those in Internet-related sectors.

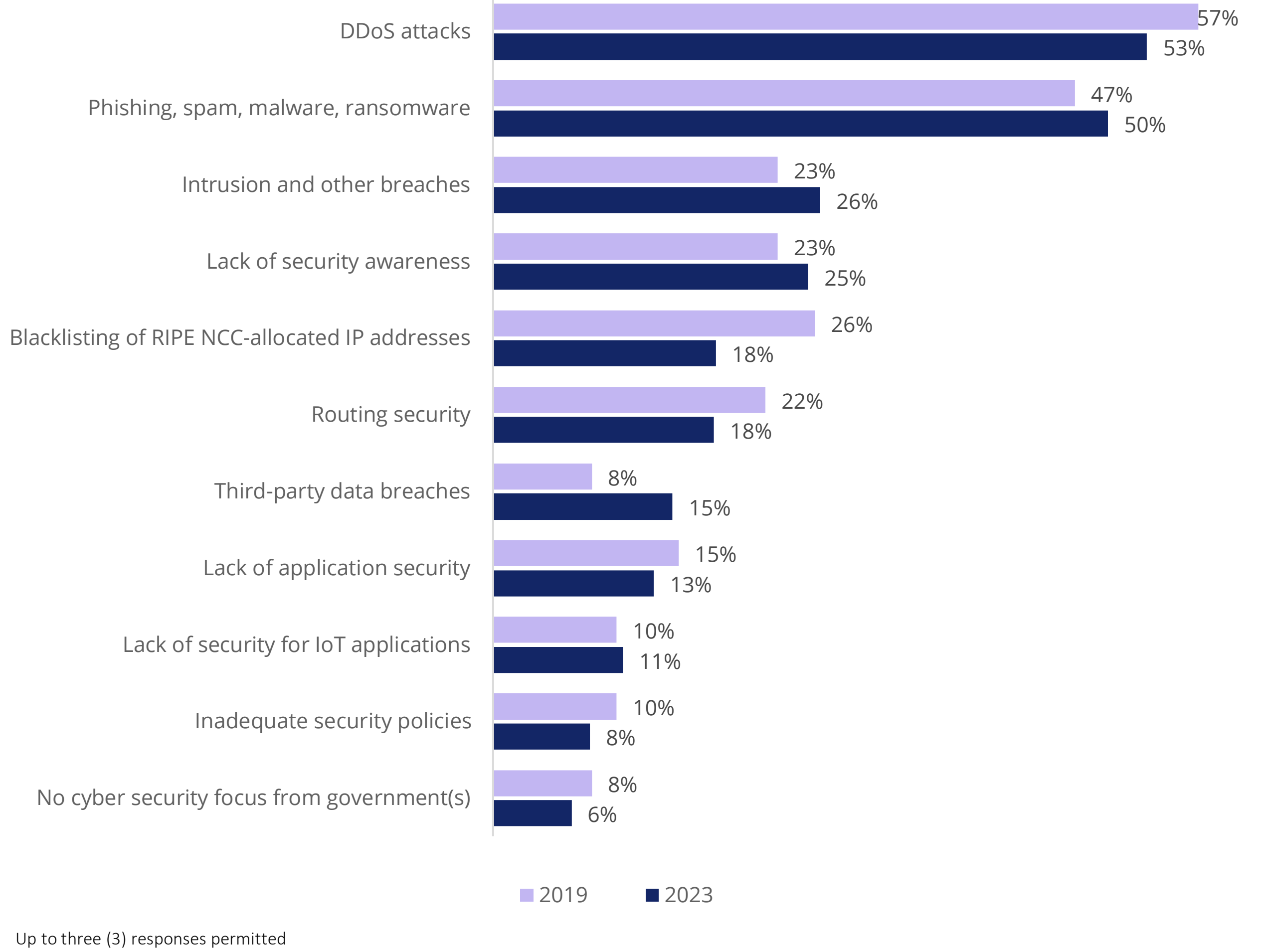
This extends to IT/ICT Managers (55%) and those in Western Europe (53%), who also rank phishing, spam, malware and ransomware a bigger issue than other regions or roles.

Around one in four continue to be concerned about intrusion and other breaches (26%) and a lack of security awareness (25%), with the latter particularly concerning for respondents in government or education sectors (34%), IT/ICT Managers (32%) and those in the Middle East (31%).

The proportion of respondents who are concerned about blacklisting of RIPE NCC-allocated IP addresses has declined from 26% in 2019 to 18% in 2023. However, company owners (23%) are more likely than others to include this among their main challenges, as are respondents in Eurasia (27%) and the Middle East (26%)

There has also been an increase in the proportion concerned about third-party data breaches (15%, up from 8%), with C-suite executives and those in Eurasia significantly more concerned than others (both 19%).

Q: Thinking about information security, what are the MAIN challenges facing your organisation?
n=3899



Up to three (3) responses permitted

Q: Thinking about information security, what are the MAIN challenges facing your organisation?
n=3899

	Total		Central Europe		Eurasia		Middle East		South-East Europe		Western Europe	
Year	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023
Sample	4161	3899	273	259	722	713	505	445	304	232	2172	2143
DDoS attacks	57%	53%	70%	63%	59%	61%	64%	54%	58%	48%	54%	49%
Phishing, spam, malware, ransomware	47%	50%	49%	51%	49%	44%	43%	44%	52%	54%	46%	53%
Intrusion and other breaches	23%	26%	16%	22%	17%	25%	15%	27%	23%	18%	28%	28%
Lack of security awareness	23%	25%	25%	17%	26%	16%	28%	31%	24%	28%	20%	28%
Blacklisting of RIPE NCC-allocated IP addresses	26%	18%	33%	20%	34%	27%	36%	26%	28%	15%	20%	14%
Routing security	22%	18%	29%	21%	16%	19%	15%	16%	18%	18%	24%	17%
Third-party data breaches	8%	15%	8%	12%	8%	19%	8%	13%	9%	12%	9%	14%
Lack of application security	15%	13%	10%	10%	14%	9%	13%	14%	11%	11%	17%	15%
Lack of security for IoT applications	10%	11%	9%	10%	7%	7%	7%	12%	10%	12%	11%	11%
Inadequate security policies	10%	8%	9%	5%	7%	6%	12%	10%	10%	9%	10%	8%
No cyber security focus from government(s)	8%	6%	4%	7%	6%	4%	17%	11%	13%	10%	7%	6%

Up to three (3) responses permitted

Significantly higher / lower than total

	Total		Company owner		Executive Leadership		IT/ICT Manager		Software development		Technical operations		Admin & Commercial	
Year	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023
Sample	4161	3899	725	690	629	604	1000	802	65	46	1303	1397	439	360
DDoS attacks	57%	53%	60%	52%	60%	56%	57%	52%	28%	39%	59%	56%	45%	39%
Phishing, spam, malware, ransomware	47%	50%	47%	46%	49%	47%	51%	55%	23%	50%	46%	51%	38%	46%
Intrusion and other breaches	23%	26%	24%	27%	25%	25%	24%	29%	26%	24%	23%	26%	18%	23%
Lack of security awareness	23%	25%	13%	16%	18%	22%	28%	32%	20%	26%	26%	27%	27%	26%
Blacklisting of RIPE NCC-allocated IP addresses	26%	18%	35%	23%	26%	19%	26%	15%	12%	17%	24%	18%	18%	14%
Routing security	22%	18%	19%	17%	22%	21%	18%	16%	26%	11%	25%	18%	25%	18%
Third-party data breaches	8%	15%	10%	15%	9%	19%	8%	12%	11%	20%	7%	14%	6%	14%
Lack of application security	15%	13%	13%	11%	13%	10%	15%	16%	22%	15%	15%	15%	16%	9%
Lack of security for IoT applications	10%	11%	8%	9%	9%	8%	9%	16%	14%	20%	11%	9%	12%	11%
Inadequate security policies	10%	8%	6%	5%	9%	6%	11%	9%	17%	2%	11%	10%	12%	7%
No cyber security focus from government(s)	8%	6%	10%	8%	10%	8%	9%	7%	12%	4%	6%	5%	9%	7%

Up to three (3) responses permitted

Significantly higher / lower than total

IPv4 Address Scarcity

While deploying IPv6 and the cost of buying IPv4 continue to be key issues for around three in ten respondents, there has been a slight decline in the proportion concerned about the dependence on IPv4 (from 35% in 2019 to 31%).

Results otherwise remain largely unchanged over the last four years, with a little under one in four (23%) stating that the scarcity of IPv4 is not an issue for them.

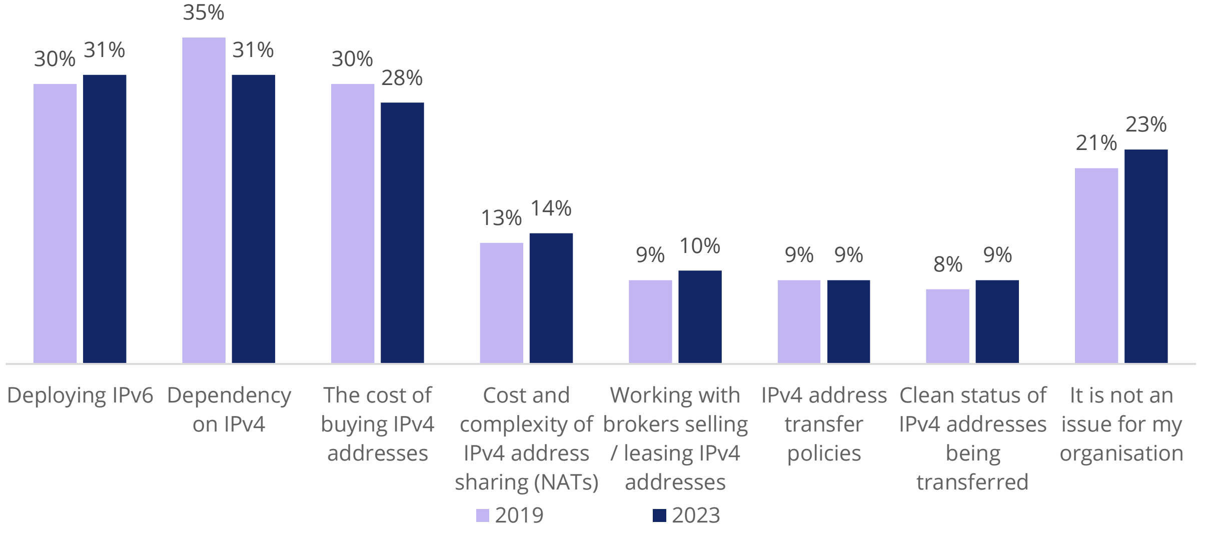
The dependence on IPv4 and IPv6 deployment are bigger challenges for respondents in technical roles, with company owners and executives instead more concerned about the cost of buying IPv4 addresses.

At 45%, hosting companies are the most concerned about the cost of buying IPv4 addresses.

By region, respondents in Western Europe are significantly more likely than others to either be concerned about deploying IPv6 (34%) or to say that the scarcity of IPv4 addresses is not an issue for their organisation (25%).

They are also less likely to be concerned about the cost of buying IPv4 addresses (25%). By contrast, respondents in the Middle East are most concerned about the cost of buying IPv4 addresses (35%) and are far more concerned about working with brokers (21%) than their counterparts in other service regions.

Q: Thinking about the scarcity of IPv4 addresses, what are the main challenges facing your organisation?
n=3518



	Total		Central Europe		Eurasia		Middle East		South-East Europe		Western Europe		Other	
Year	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023
Sample	3647	3518	246	241	653	685	450	412	241	179	1956	1931	97	63
Deploying IPv6	30%	31%	31%	31%	30%	28%	29%	26%	33%	30%	31%	34%	22%	22%
Dependency on IPv4	35%	31%	42%	32%	39%	32%	30%	29%	29%	27%	35%	31%	30%	25%
The cost of buying IPv4 addresses	30%	28%	32%	32%	39%	32%	35%	35%	32%	31%	24%	25%	35%	33%
Cost / complexity of address sharing	13%	14%	17%	17%	11%	12%	14%	17%	13%	16%	13%	14%	5%	16%
Working with brokers	9%	10%	6%	10%	9%	11%	16%	21%	8%	9%	8%	8%	14%	8%
Clean status of IPv4 addresses	8%	9%	4%	7%	6%	11%	7%	10%	11%	9%	8%	9%	8%	8%
IPv4 address transfer policies	9%	9%	11%	15%	8%	8%	13%	13%	11%	9%	8%	7%	21%	22%
It is not an issue for my organisation	21%	23%	18%	17%	16%	22%	16%	14%	21%	21%	25%	25%	16%	21%

Up to three (3) responses permitted

Significantly higher / lower than total

IPv4 Transfers

To assist with IPv4 transfers, around three in ten respondents want clear guidance on the transfer policies and procedures, streamlined processes to minimise delays and overheads, and for the RIPE NCC to facilitate connections between buyers and sellers.

Guidance on IPv4 transfer policies is favoured by 32% of all respondents, with no differences across the service regions. Streamlining the IPv4 transfer process is also preferred by 30% of members, rising to 41% of those in the Middle East. A similar proportion (29%) want the RIPE NCC to facilitate connections between buyers and sellers of IPv4 address space.

A little under one-quarter of respondents want the RIPE NCC to improve the IPv4 transfer policies between the RIRs, with those in Middle East (31%) significantly more likely to favour this approach than other service regions.

Almost a quarter of respondents (23%) believe that no new activities are needed in order to assist with IPv4 transfers. This increases to 27% of people in network and technical operations.

By industry sector, those working in the general, commercial sector or education and government-related sectors are more likely to believe no new activities are needed in relation to IPV4 transfers (31% and 32% respectively).

Q: What, if anything, should the RIPE NCC do in relation to IPv4 transfers?
n=3518

	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	3518	241	685	412	179	1931	63
Guidance on IPv4 transfer policies and procedures	32%	34%	33%	32%	31%	32%	33%
Streamline the IPv4 transfer process	30%	29%	29%	41%	22%	28%	33%
Facilitate connections between buyers and sellers	29%	22%	27%	39%	27%	28%	29%
Improve the IPv4 transfer policies between RIRs	22%	18%	22%	31%	25%	20%	33%
Statistics and information on transfers	19%	17%	18%	20%	25%	20%	16%
Engage with community to review / update policies	18%	21%	17%	22%	20%	17%	25%
Provide dispute resolution services or assistance	15%	14%	17%	20%	12%	14%	11%
No new activities are needed	23%	25%	25%	13%	23%	25%	19%

Up to three (3) responses permitted

Significantly higher / lower than total

IPv6 & RPKI Deployment

To understand IPv6 deployment and RPKI implementations across the region, the survey also canvassed the reasons for deployment of IPv6, and the challenges those who have implemented it in their networks faced during deployment. The outcomes from these questions provide the RIPE NCC with valuable information it can use to assist the uptake of IPv6 adoption in other networks.

Deployment of RPKI was also canvassed among respondents.

In summary, the survey found:

- Just under half of all respondents have deployed IPv6 (49%).
- Most commonly, around three in five respondents deployed IPv6 to be ready for future demands or to gain experience using IPv6. Interestingly, a third of respondents deployed IPv6 because it was required by their customers or partners, possibly indicating greater demand from other Internet-related businesses.
- Almost half (46%) of respondents found the main challenges with IPv6 deployment was adding feature parity between IPv4 and IPv6. A similar proportion had issues with changing the IPv4 mindset within their organisation when implementing IPv6.
- Possibly dispelling the idea that management within organisations hinders deployment of IPv6, only 9% indicated convincing management to change was a key challenge. While this rises to 13% of those in technical or network operations, it remains a very small proportion of the issues encountered in deployment.
- The most common reasons for not deploying IPv6 remain a lack of time, or seeing no pressing business need to use it. A lack of knowledge or expertise are also barriers to deployment.
- One in four respondents have implemented RPKI (signed ROAs and deployed ROV), unchanged from 2019. A further 17% have signed ROAs, but not yet deployed ROV.
- The main reason for not implementing RPKI is not knowing what it is or how it works.

IPv6 Deployment Status

Across all regions, just under half of respondents indicated they have deployed IPv6 (49%).

The question about IPv6 deployment was worded differently in 2023 than in 2019, making it difficult to compare full deployment between the two surveys. In 2019, 22% of respondents indicated they had fully deployed IPv6, with a further 30% saying they were either in testing or had just commenced deployment.

Respondents in the Central Europe region are the most likely to have deployed IPv6 (57%), followed by the South-East and Western Europe regions (both 53%).

However, less than half of those in Eurasia (43%) have deployed IPv6, as has only one-third (34%) of respondents from the Middle East, and one-quarter of those working in other industry sectors (24%).

Possibly indicating demands from customers or Internet-related partners, those working in hosting companies (65%), IXP, hardware and software vendors (63%), and the telecommunications sector (53%) are significantly more likely to have deployed IPv6 than those in other industry types.

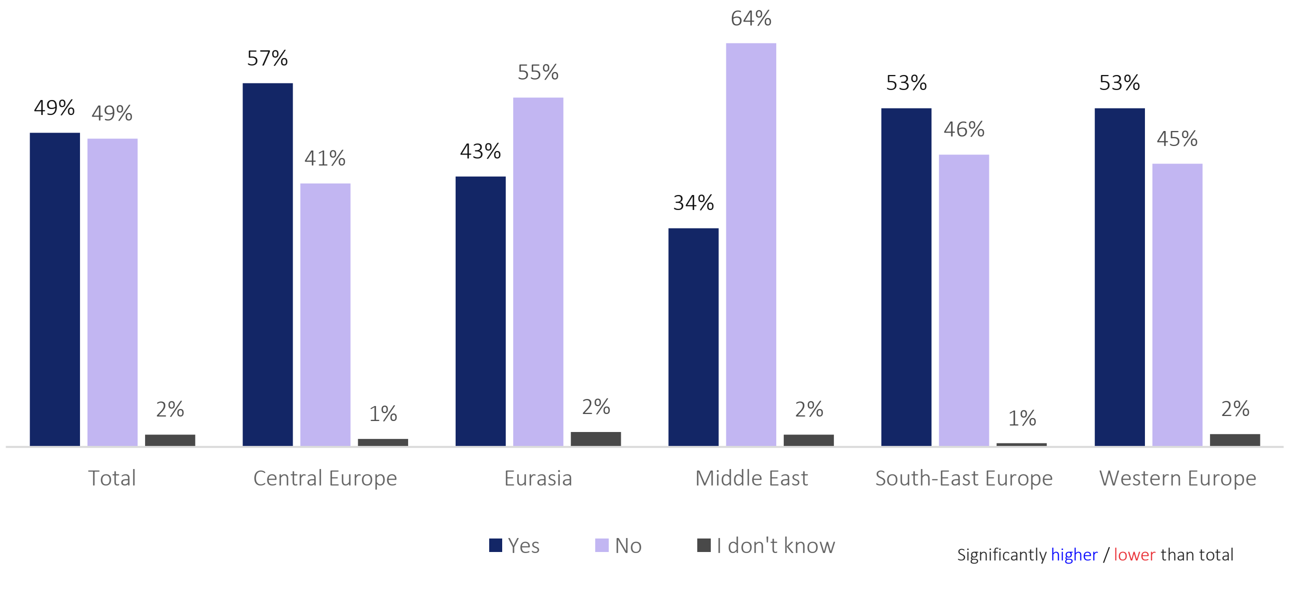
When looking at different countries, Romania (80%), Germany (79%), Sweden (78%), Switzerland (73%), and the Netherlands (63%) are the most likely to have fully deployed IPv6. By contrast, Iran (29%), Spain (31%), Italy, (35%), Turkey (35%) and Russia (37%) the least likely to have done so.

This suggests more development and training assistance is needed, particularly in the Middle East and Eurasia, to help organisations deploy IPv6 in their own networks.

49%

of all respondents have deployed IPv6 in their networks, with those in Central, South-East and Western Europe most likely to have done so.

Q: Have you deployed IPv6?
n=3518



Drivers of IPv6 Adoption

Future readiness is the most common reason organisations have deployed IPv6 (66%). Respondents also indicate they wanted to gain experience with IPv6 (58%), and 28% wanted to test the deployment of it.

These are particularly important reasons to implement IPv6 for respondents in Eurasia, with 65% deploying IPv6 to gain experience and 35% to test deployment – both significantly higher than all other regions.

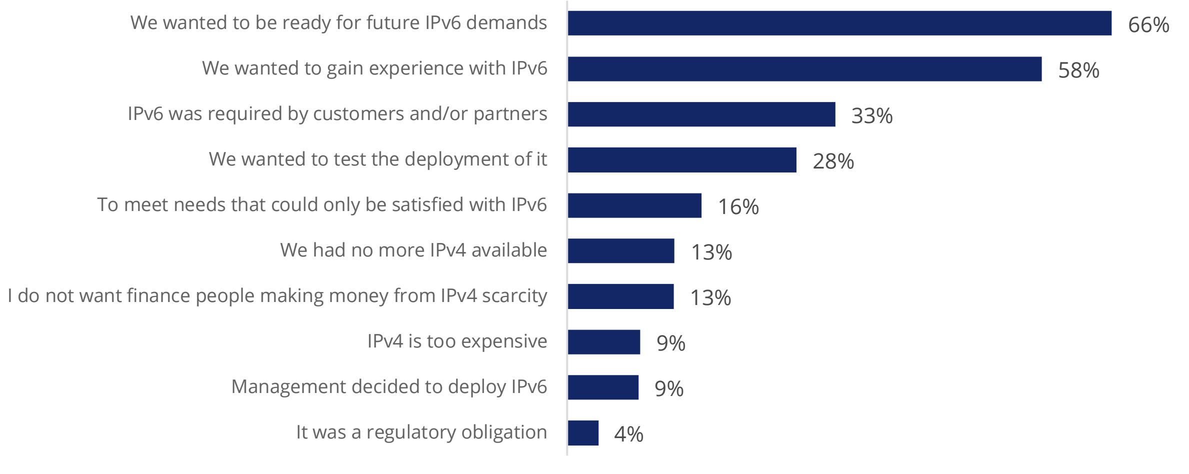
One in three respondents implemented IPv6 because it was required by customers or partners (33%), increasing to 45% of those working in a hosting company.

A further 16% had needs that could only be satisfied by IPv6.

Interestingly, only 13% have deployed IPv6 because they had no more IPv4 available, with this most common in the Middle East (20%). Given this region is also the least likely to have deployed IPv6, it suggests a more reactive approach to IPv6 deployment in this region than other service regions.

Financial considerations are particularly important to company owners, with this cohort more likely than average to have deployed IPv6 to prevent finance people making money from IPv4 scarcity (20%), or because IPv4 is too expensive (17%). They are also more likely than other position types to indicate they were forced to adopt IPv6, as they had no more IPv4 available (18%).

Q: What were the main reasons you decided to deploy IPv6 in your organisation?
n=3518



	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	1740	138	292	142	95	1031	41
To be ready for future IPv6 demands	66%	60%	63%	61%	56%	70%	56%
To gain experience with IPv6	58%	58%	65%	60%	55%	57%	32%
IPv6 required by customers and/or partners	33%	39%	31%	29%	28%	33%	32%
We wanted to test the deployment of it	28%	33%	35%	28%	29%	25%	24%
To meet needs that could only be satisfied with IPv6	16%	15%	22%	17%	20%	14%	29%
We had no more IPv4 available	13%	12%	15%	20%	18%	11%	15%
Don't want people making money from IPv4	13%	12%	8%	8%	7%	15%	17%
IPv4 is too expensive	9%	7%	11%	13%	12%	8%	10%
Management decided to deploy IPv6	9%	2%	8%	13%	8%	9%	17%
It was a regulatory obligation	4%	5%	4%	8%	2%	3%	7%

Up to three (3) responses permitted

Significantly higher / lower than total

Main Challenges Deploying IPv6

Ensuring feature parity between IPv4 and IPv6 is the primary issue when implementing IPv6 for 46% of respondents overall, rising to over half of those in Central Europe (54%) and Eurasia (56%).

Managing misconceptions is also a common problem, with 41% of respondents indicating they needed to change the IPv4 mindset within the organisation, particularly in Germany (56%) and Poland (61%).

A little under two in five (38%) also found it challenging to gather knowledge on specific implementations to assist their deployment, suggesting that more information and/or education is required.

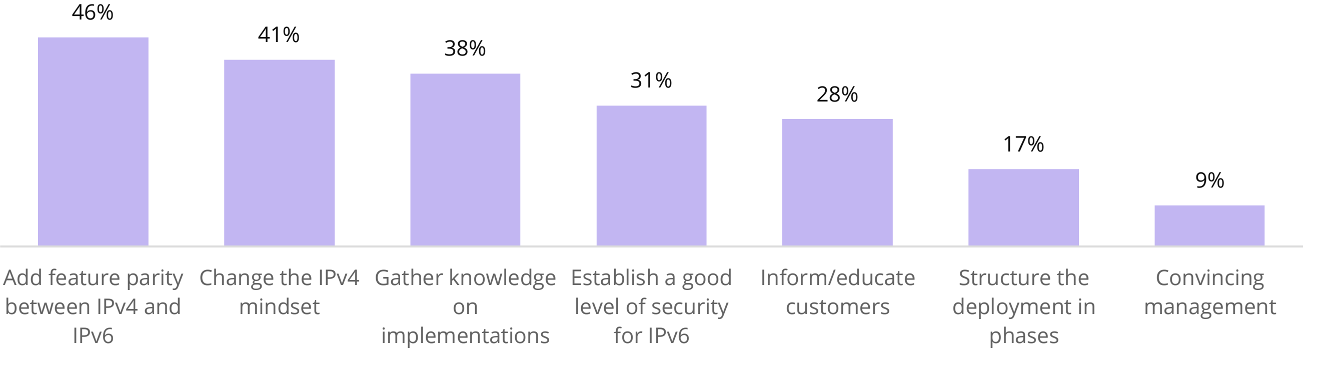
Finding information about IPv6 implementation is an issue for 38% of respondents overall, and this rises to 46% of ICT/IT managers. This cohort also report establishing a good level of security for IPv6 (40%) was a challenge in deployment.

Possibly dispelling the idea that management within organisations hinder adoption of IPv6, only 9% indicate convincing management to change was a key challenge. While this rises to 13% of those in technical or network operations, it remains a very small proportion of the issues encountered in deployment.

41%

of respondents had issues changing the IPv4 mindset during their deployment of IPv6.

Q: What were the main challenges during IPv6 deployment?
n=1740



	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	1740	138	292	142	95	1031	41
To add feature parity between IPv4 and IPv6	46%	54%	56%	46%	39%	43%	49%
To change the IPv4 mindset	41%	45%	37%	38%	38%	43%	39%
To gather knowledge on specific implementations	38%	45%	30%	36%	45%	40%	27%
To establish a good level of security for IPv6	31%	33%	31%	35%	40%	30%	24%
To inform/educate customers	28%	21%	30%	34%	34%	27%	20%
To structure the deployment in phases	17%	12%	19%	27%	13%	16%	15%
To convince management	9%	7%	8%	12%	4%	9%	7%

Up to three (3) responses permitted

Significantly higher / lower than total

Barriers to IPv6 Adoption

The most common reasons for not having implemented IPv6 remain a lack of time, no pressing business need and a lack of knowledge and expertise in their organisation.

A lack of time remains the common barrier to IPv6 adoption, up from 35% in 2019; 39% cite time pressures as their primary challenge.

While no business need or requirement to implement IPv6 in their networks remains the second biggest barrier, positively, there has been a significant decline in the proportion of respondents who cite this as an issue compared to 2019. This is particularly evident in Eurasia (28%, down from 55%), Central Europe (41%, down from 62%), and the Middle East (21%, down from 38%).

This suggests demand from Internet-related partners or customers, or IPv4 scarcity, along with resulting costs and difficulty acquiring more IPv4, is driving acceptance that adoption of IPv6 is, or will be, necessary in the future.

Reflecting this, respondents from general commercial sectors like financial, manufacturing and construction (51%) are significantly more likely than their Internet-related counterparts to cite no business need as a reason for not adopting IPv6.

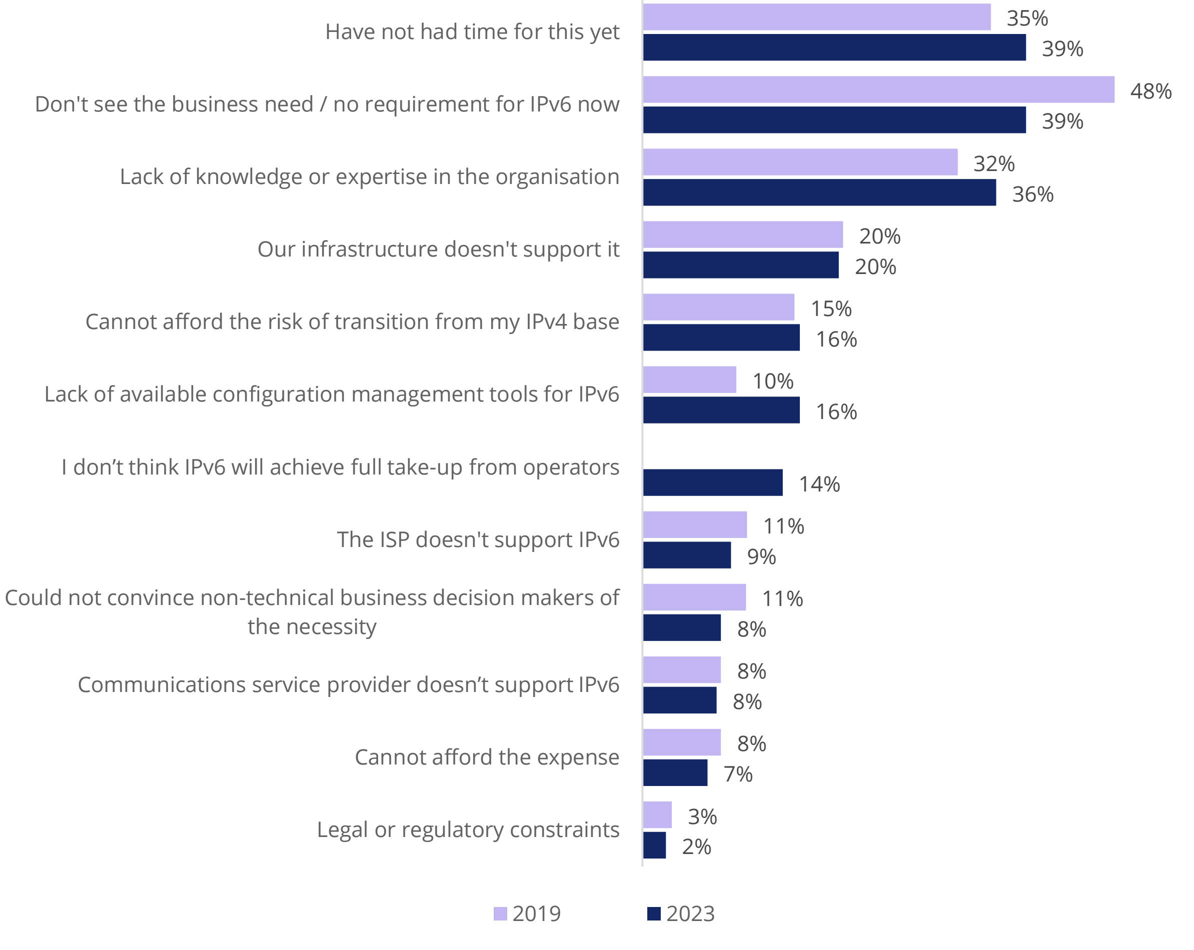
Infrastructure-related concerns remain a concern for one in five respondents.

These respondents have not deployed IPv6 because it is not supported by their current infrastructure (20%), their ISP (9%), or their communications service provider (8%). In addition, 16% do not have the configuration management tools required for IPv6.

Respondents in hosting companies are more likely than those in other sectors to be hampered by their ISP not supporting IPv6 (17%).

A smaller group of respondents are concerned about risks of transitioning (16%), with a further 14% believing that it won't achieve full take-up from operators.

Q: What were the main reasons for your decision not to deploy IPv6?
n=1709



Up to three (3) responses permitted

Reasons for Not Deploying IPv6

Q: What were the main reasons for your decision not to deploy IPv6?
n=1709

	Total		Central Europe		Eurasia		Middle East		South-East Europe		Western Europe	
Year	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023	2019	2023
Sample	827	1709	34*	100	139	377	172	262	56	82	406	861
Have not had time for this yet	35%	39%	35%	49%	29%	45%	19%	35%	36%	43%	44%	36%
Don't see the business need / no requirement for IPv6 now	48%	39%	62%	41%	55%	28%	38%	21%	43%	39%	50%	48%
Lack of knowledge or expertise in the organisation	32%	36%	29%	27%	29%	28%	24%	24%	32%	33%	36%	43%
Our infrastructure doesn't support it	20%	20%	26%	13%	29%	29%	27%	27%	16%	23%	15%	15%
Cannot afford the risk of transition from my IPv4 base	15%	16%	18%	12%	20%	15%	16%	23%	13%	12%	14%	15%
Lack of available configuration management tools for IPv6	10%	16%	18%	22%	11%	14%	13%	24%	11%	20%	7%	13%
I don't think IPv6 will achieve full take-up from operators		14%		17%		22%		14%		13%		11%
The ISP doesn't support IPv6	11%	9%	0%	9%	12%	9%	26%	25%	7%	7%	5%	5%
Could not convince decision makers	11%	8%	12%	15%	6%	5%	8%	7%	20%	5%	12%	10%
Communications service provider doesn't support IPv6	8%	8%	6%	7%	4%	7%	20%	18%	9%	5%	4%	5%
Cannot afford the expense	8%	7%	6%	10%	16%	11%	3%	6%	7%	6%	8%	5%
Legal or regulatory constraints	3%	2%	0%	1%	5%	3%	6%	6%	4%	1%	1%	1%

Up to three (3) responses permitted

Significantly higher / lower than total

Across all regions except Western Europe, there has been an increase from 2019 in the proportion of respondents who cite time pressures as a reason for having not implemented IPv6. This is especially prevalent in Eurasia, where 45% indicate they had not had time to implement IPv6, up from only 29% in 2019.

Those in Western Europe are more likely to have no business need or requirement for IPv6 (48%) or are hindered by a lack of knowledge or expertise within their organisation (43%).

Respondents in network and technical operations are not only more likely than company owners or executives to believe there is no business need for IPv6 (44%, compared to 30%), they are also more likely to note that they could not convince non-technical business decision makers of the necessity (13%, compared to 4%).

Legacy infrastructure that does not support IPv6 is more challenging for those in Eurasia (29%) and the Middle East (27%) than other regions. A continued lack of IPv6 support from ISPs and communications service providers (25% and 18% respectively) also hinder respondents in the Middle East from implementing IPv6.

Interestingly, respondents in Eurasia are significantly more likely to believe that IPv6 will not achieve full take-up from operators (22%) than others, suggesting this region may require assistance from the RIPE NCC to champion and promote IPv6 adoption, and its benefits.

Interestingly, respondents in network or technical operation roles are significantly more likely to believe there is no business need for IPv6 than company owners or C-suite executives.

RPKI Implementation

Consistent with 2019, one-quarter of respondents have implemented RPKI. In total, almost half of all respondents have signed Route Origin Authorisations (ROAs) (42%), with 17% having signed ROAs, but not yet deployed Route Origin Validation (ROV). However, two in five respondents (38%) have done neither.

Hosting companies (36%) and IXPs (59%) are significantly more likely to have implemented RPKI than those in other industry sectors.

By region, respondents in the Middle East (32%) and South-East Europe (34%) are also more likely to have fully implemented RPKI.

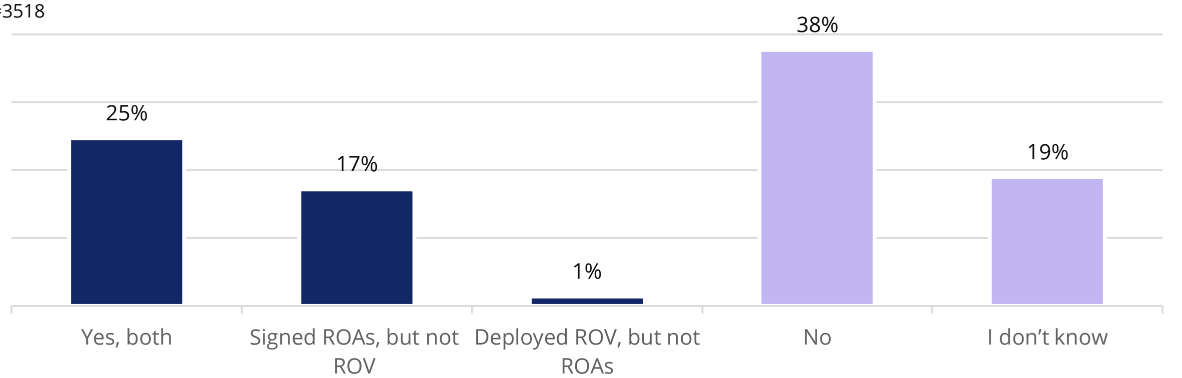
A significantly higher proportion of respondents working in telecommunications (21%) or South-East Europe (25%) have signed ROAs, but not yet deployed ROV than others.

Respondents in Eurasia (46%) and those working in the government and education (44%) or the general commercial sectors (52%) are significantly less likely to have implemented RPKI.

The most common reason for not implementing RPKI is a lack of knowledge about it and how it works (58%).

A further 11% indicate decision makers don't see the value, with this rising to 18% of those working in general commercial sectors. In addition, 7% don't know how, or find it difficult to install validators.

Q: Has your organisation implemented RPKI?
n=3518



	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe
Sample	3518	241	685	412	179	1931
Signed ROAs and ROV	25%	25%	15%	32%	34%	25%
Signed ROAs, but not ROV	17%	17%	19%	13%	25%	17%
Deployed ROV, but not signed ROAs	1%	2%	2%	2%	1%	1%
Not implemented RPKI	38%	35%	46%	31%	23%	38%
I don't know	19%	21%	19%	22%	17%	19%

Q: Can you please tell us the MAIN reason you have not implemented RPKI?
n=1326

	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe
Sample	1326	84	314	129	42	735
Don't know RPKI, what it is and how it works	58%	55%	60%	62%	52%	58%
Decision makers don't allow / don't see value	11%	15%	13%	12%	10%	10%
Don't know how / difficult to install validators	7%	7%	7%	10%	7%	7%
Not interested in routing security	5%	6%	7%	9%	7%	3%
Other	18%	17%	14%	8%	24%	21%

Significantly higher / lower than total

Reasons for Not Deploying ROV or Signing ROAs

Around one in five respondents who have not deployed ROV are worried it might affect their routing (22%) or are finding it difficult to install validators (20%).

Concern about dropping invalids immediately, or affecting routing is particularly worrying for respondents in Eurasia (40%), although they are less concerned than others about installing validators (12%).

Over a third of respondents in the Middle East (36%) and 28% of company owners do not know what ROV is or how to deploy it, higher than the average of only 19%.

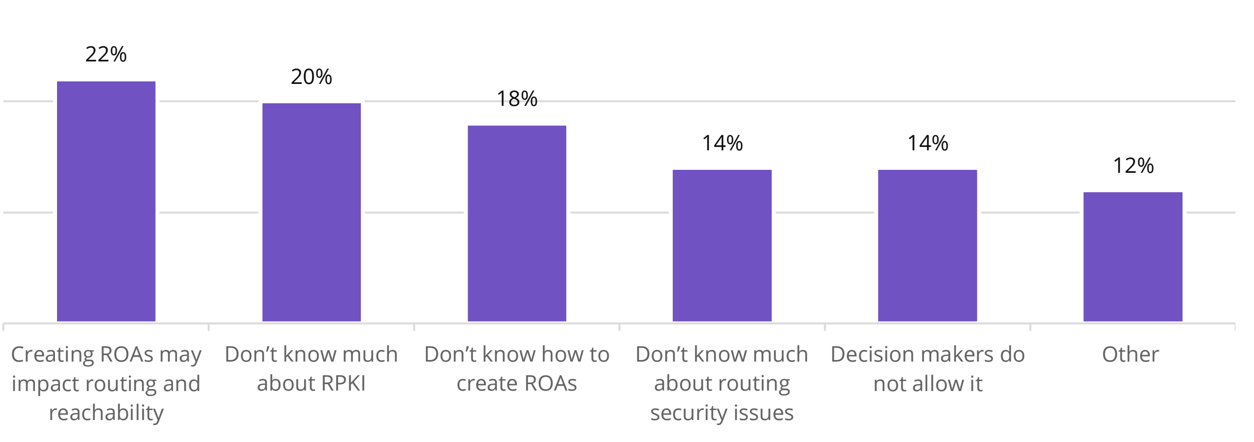
Q: Can you please tell us the MAIN reason you have not deployed ROV?
n=605

Reason ROV not deployed	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe
Sample	605	41	129	53	44	325
I worry about dropping invalids immediately, or might affect my routing	22%	32%	40%	28%	27%	11%
Difficult to install validators / how to run it	20%	15%	12%	21%	25%	24%
I don't know what it is and how to do it	19%	17%	16%	36%	20%	18%
Decision makers don't allow / don't see value	11%	10%	13%	6%	18%	9%
Other	28%	27%	19%	9%	9%	38%

Significantly higher / lower than total

Among the few respondents who have not signed ROAs, reasons were mixed, with around one in five concerned about the impact on routing and reachability (22%), not knowing enough about RPKI (20%) or not knowing how to create ROAs (18%).

Q: Can you please tell us the MAIN reason you have not signed your ROAs?
n=50. NB Sample too small to display regions



RIPE NCC Security

This year, the RIPE NCC was interested in understanding respondents’ opinions about its own security, as well as the level of support for it using third-party technologies to provide support for members.

In summary, the survey found:

- A majority of respondents agree the RIPE NCC operates in a secure, compliant manner, is transparent about its security compliance, and communicates well about security incidents.
- Just over half of respondents (51%) support the use of third-party technologies to provide services to the community if the RIPE NCC deems this provides value for members and the community.
- A third of respondents, however, are either unsure or do not support the use of third-party technologies. The verbatim comments indicate there are concerns about a reliance on third-party vendors, including the use of US-based organisations to help deliver services. There are calls for the RIPE NCC to consider either European based organisations, or open-source technologies as an alternative.
- Other suggestions were for greater use of open-source software, instead of relying on third-party vendors

RIPE NCC Security

Consistent across all regions, there is a strong belief the RIPE NCC operates in a secure and compliant manner and is transparent in how it manages security compliance.

Of those who felt they could provide an informed rating, almost nine in ten (89%) agree that the RIPE NCC operates in a secure and compliant manner. Eighty three percent (83%) also agree it is transparent about how it manages security compliance.

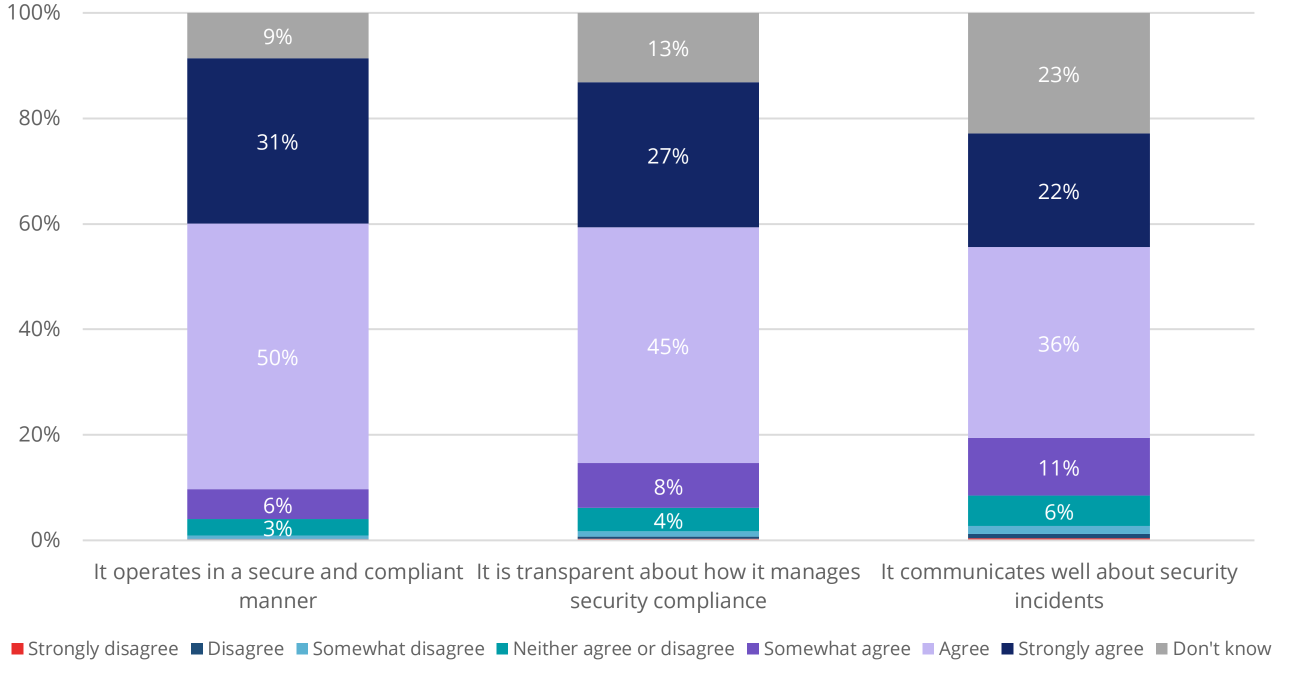
By region, those in Western Europe (91%) are significantly more likely to agree the RIPE NCC operates in a secure and compliant manner than other regions.

Three quarters of all respondents also agree the RIPE NCC communicates well about security incidents, although those in Eurasia are significantly less likely to agree than other regions.

Respondents working in network and technical operations are significantly more likely to agree with each statement than company owners or C-suite executives.

Although a majority of respondents felt informed enough to provide an opinion about the RIPE NCC security and compliance and transparency in how it manages security compliance, it should be noted 23% could not offer their opinion about how well the RIPE NCC communicates about its security incidents.

Q: Overall, thinking about the RIPE NCC, how much do you agree with the following?
n=3518



Top 2: % Agree / Strongly agree (Don't know removed)	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Base sample	3518	241	685	412	179	1931	63
Operates in a secure and compliant manner	89%	87%	85%	89%	92%	91%	93%
Transparent about security compliance	83%	82%	81%	83%	87%	83%	85%
Communicates well about security incidents	75%	73%	67%	75%	81%	77%	80%

Top 2 % calculated after exclusion of 'Don't know' responses

Significantly higher / lower than total

Improvements to Communication and Security Processes

Respondents who rated aspects of the RIPE NCC's security as average or below were asked for suggestions for improvement. At 106 comments in total, there were fewer responses for this question, as most respondents either rated the RIPE NCC's security processes higher than average or didn't know enough to provide a rating.

However, there are some common themes from the free text. Members want more information about security and incident reporting, calling for greater transparency in how security processes are managed and documented, and more information about the RIPE NCC's security operations.

There are also calls for the RIPE NCC to better inform members about its operations and decisions. Comments suggest some members believe the RIPE NCC could improve its information channels and engage better with members about security information.

1. Security and incident reporting

- *"I would like to receive an email/sms notification as soon as a security incident has been reported by RIPE, that would make it easier to put additional security controls in place."* - France
- *"Share more information on what RIPE NCC is doing for itself, to lead by example and provide technical leadership to all members of the community. This can be network, application, device security, etc. "* - Switzerland
- *" Due to security and confidentiality, more security-related meetings should be held within each country for members."* - Sweden
- *"I don't recall any communication regarding security incidents."* - France

2. Communication and transparency

- *"At least we need information if RIPE is ISO 27001 compliant (ISO certificate)... an audit according to SOC2 / ISAE 3402 Type2 with audit report enables a high transparency to prove the stability of the organisation and its processes to us members..."* - Germany
- *"I've never seen a document about how the NCC does it's security processes"* - United Kingdom
- *"Have certain, clear, proactive, and real-time responsive communication channels (I also think of one or more Telegram channels, for example)."* - Italy
- *"More detailed and accessible information. The information received focuses on events and meeting outcomes, but I am more interested in network security information and protection mechanisms or services proposed by RIPE."* - Spain

Q: What could the RIPE NCC do to improve its communication, transparency, or your level of trust in its security processes and policies?
n=106 verbatim comments

Support for Use of Third-party Technologies

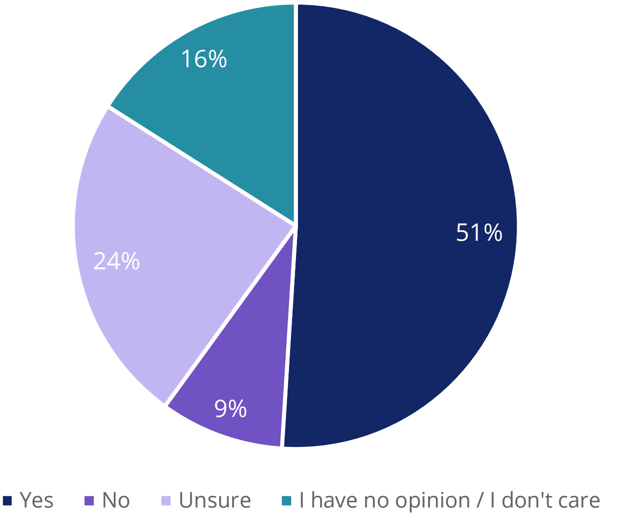
Use of third-party technologies to deliver services to the RIPE NCC community is supported by half of respondents, with 16% having no opinion or not caring.

The RIPE NCC's use of third-party technologies to provide services is supported by over half of the members in the Middle East (57%), Eurasia and South-East Europe (both 58%) and countries outside of the RIPE NCC service area (68%).

Conversely, respondents in both the Central (15%) and Western (11%) Europe regions are instead more likely to indicate they do not support this approach. Company owners (16%), and those working in IT services or consultancies (13%) and hosting companies (15%) are also significantly less likely to support the use of third-party technologies than their counterparts.

Verbatim comments, however, reveal some level of hesitancy, particularly with the reliance on third-party vendors and/or global conglomerates like Google, Apple, Meta, Amazon and Microsoft.

Instead, those members favour use of European-based companies, or open-source software where possible.



Q: Do you support the RIPE NCCs use of 3rd party technologies to provide services to the community if it determines this provides value for membership and the community?
n=3899

	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	3899	259	713	445	232	2143	92
Yes	51%	42%	58%	57%	58%	47%	68%
No	9%	15%	6%	7%	6%	11%	5%
Unsure	24%	26%	21%	24%	25%	24%	13%
I have no opinion / I don't care	16%	17%	14%	11%	10%	18%	13%

Significantly higher / lower than total

Use of Technology to Deliver Services

When asked to provide additional comments about the use of technologies used by the RIPE NCC to deliver its services, 365 respondents provided a response.

Most respondents are satisfied with the current technologies used by the RIPE NCC to deliver services; however some would like to see a shift towards more in-house, or European-based technologies.

There are also some concerns about over-reliance on third-party cloud-based technologies, with some wanting the RIPE NCC to manage its own infrastructure.

Reliance on third-party vendors

Comments express concerns about using services provided by large tech companies such as Google, Apple, Facebook, Amazon, and Microsoft.

- *"Prefer not using large US-based cloud resources (Google/Amazon/Microsoft/Oracle/IBM etc)."* - Netherlands
- *"No public cloud for Ripe. Ripe should not depend on big tech players. It will get vendor locked in."* - Romania
- *"Stop using vendor-lock-in cloud platforms like AWS! They are expensive. Use cloud services by your own members inside the service region, there is OVH, there is Deutsche Telekom, there are others. Or run the systems simply yourself."* - Germany
- *"No use of cloud or non-European services should be the rule for RIPE NCC"* - France

Use of open-source technologies

Some respondents want the RIPE NCC to adopt open-source technologies as opposed to large conglomerates.

- *"Use as much free and open source software (FOSS) as possible and communicate what you are using (interesting for members to find tools they may not know), use as little cloud services as possible (for desktop services in administration, eg. Microsoft 365) but please not in network management / security / core)."* - Germany
- *"I suggest using open-source software to avoid being associated with commercial conglomerates."* - Poland
- *"I would prefer self-hosted open-source technology."* - Ireland
- *"Use open source model as much as possible. All tools and systems should be open and free to inspect or run by any interested party."* - Estonia

Data security and privacy

There is a concern about data security and privacy.

- *"That means no security on where your data is stored, what kind of data and what they do with it. We work with highly confidential information and need to provide security."* - Luxembourg
- *"Like everybody else, you need to always think about information leak to global companies. It's tricky to use third party products which collect more information than it is agreed upon."* - Sweden
- *"I'm suspicious of third parties providing services while at the same time they are under obligations of foreign government to provide data for intelligence gathering."* - Germany
- *"Don't use cloud services, as you cannot guarantee what happens with the data. 'There is no cloud. There is only someone else's computer.' Cloud services also help concentrating compute resources, which leads to centralisation, which is not how the Internet was designed. Cloud services are inherently bad for the Internet."* - Sweden

Q: Do you have any comments about the technologies used by the RIPE NCC to deliver its services?
n=365 verbatim comments

Communication and Training

As with any member-based organisation, being able to communicate effectively, and provide accurate and clear information and training resources to members, is essential for the success of both the organisation and its members and stakeholders.

This section of the report seeks to understand how members view the quality of the communication, information and educational resources provided by the RIPE NCC.

In summary, the survey found:

- Satisfaction tends to be higher among activities used by more members—training courses, RIPE meetings and RIPE NCC-organised events.
- While satisfaction is lower than for other for activities, around two-thirds are satisfied with online open houses, hackathons and member lunches.
- In general, respondents are satisfied with the RIPE NCC's communication, rating their experiences with most communication channels and information platforms as either good or excellent, particularly the website, RIPE Labs and the RIPE NCC Academy.
- Fewer respondents use the RIPE NCC's social media channels (44%) or translations platform (42%).
- Cyber security, DNS / DNS security, and network automation are the most valuable training topics the RIPE NCC can offer.
- Overall, 43% of respondents have used, or intend to use, the Certified Professionals Programme. A further 30% believe that it is valuable, but not relevant to them personally. Only 7% believe there is no need to offer the programme.

Training, Meetings and Events

Satisfaction with training, events and meetings organised by the RIPE NCC is relatively high, particularly for training courses, RIPE Meetings and organised events.

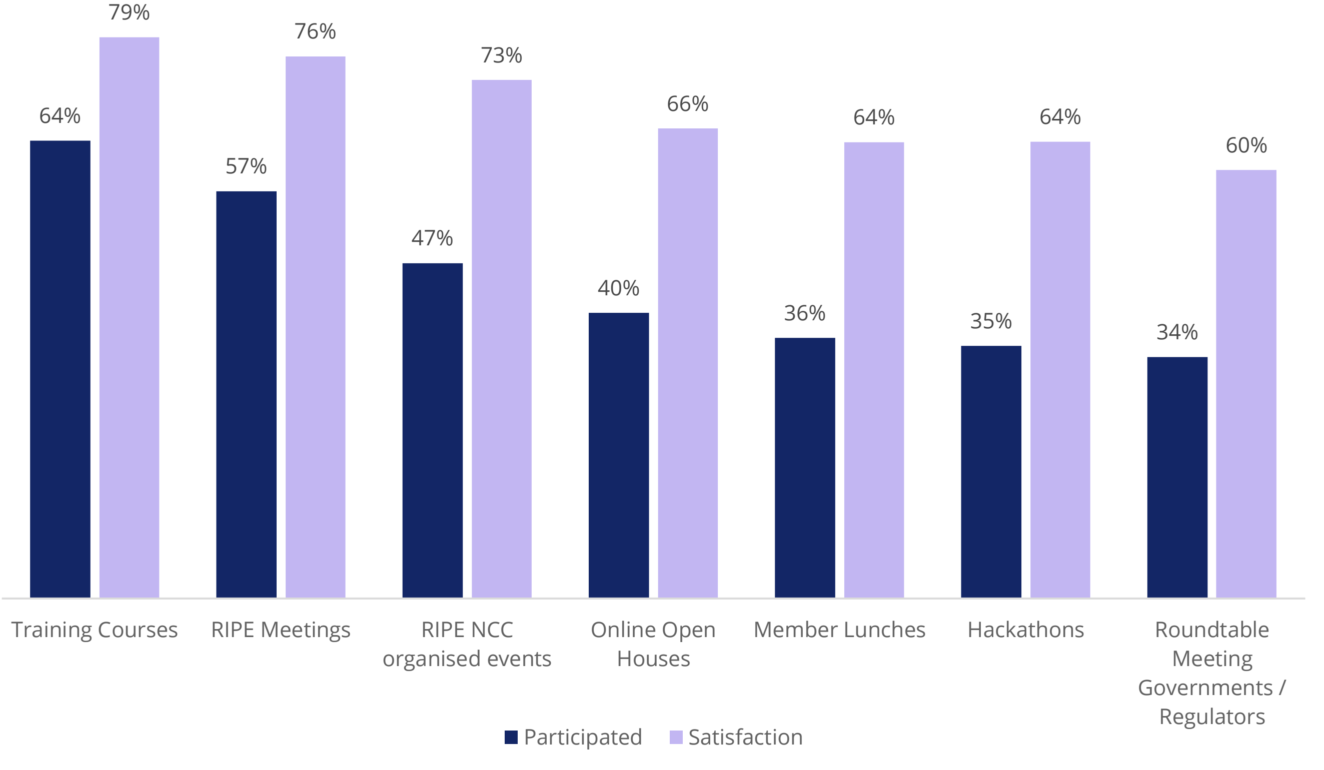
Overall, over half of all members attended a training course (64%) or RIPE Meeting (57%), with a little under half attending an event organised by the RIPE NCC (47%). Fewer respondents indicated they attended an online open house (40%), a member lunch (36%), a hackathon (35%) or roundtable meetings (34%) organised by the RIPE NCC.

Satisfaction is highest with training courses (79%), RIPE meetings (76%) and RIPE NCC-organised events (73%). A further two-thirds are satisfied with the online open houses (66%), hackathons (64%), member lunches (64%) or roundtable meetings (60%).

Given the higher satisfaction, and relatively low use, of some of these activities, the RIPE NCC could look to increase attendance at Hackathons, Member Lunches, Online Open Houses, Roundtables and other RIPE NCC-organised events.

.

Q: How would you rate your experience with the following activities?
n=3899



Q: How would you rate your experience with the following activities?
base n=3899

Use: Participated in activity Satisfaction: Top 2 % Satisfied / Extremely satisfied (Not used excluded from satisfaction)	Total		Central Europe		Eurasia		Middle East		South-East Europe		Western Europe		Other	
	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat
Base sample	3899		259		713		445		232		2143		92	
Training Courses	64%	79%	63%	67%	58%	79%	82%	74%	78%	90%	61%	80%	55%	84%
RIPE Meetings	57%	76%	56%	64%	54%	77%	79%	73%	78%	88%	51%	76%	62%	82%
RIPE NCC organised events	47%	73%	49%	60%	47%	76%	78%	74%	75%	86%	37%	70%	50%	72%
Online Open Houses	40%	66%	41%	50%	37%	70%	71%	71%	54%	83%	33%	61%	40%	73%
Member Lunches	36%	64%	38%	47%	36%	68%	63%	65%	56%	81%	29%	61%	35%	78%
Hackathons	35%	64%	39%	49%	33%	70%	61%	68%	48%	79%	29%	58%	45%	75%
Roundtable Meeting for Governments and Regulators	34%	60%	34%	45%	34%	63%	58%	60%	47%	71%	27%	58%	35%	78%

Satisfaction Top 2 % calculated after exclusion of 'I have not used this' responses

Significantly higher / lower than total

Respondents from the Middle East and South-East Europe are significantly more likely to have participated in all activities, with over three quarters of respondents from these areas having attended training courses (78%), RIPE Meetings (78%) and RIPE NCC-organised events (75%) Those in Western Europe are the least likely to have participated in activities – particularly member lunches (29%), hackathons (29%) and roundtable meetings (27%).

Interestingly, non-members are the most likely to have attended a hackathon or roundtable meeting (67% for each).

While respondents in technical roles are most likely to have attended training courses (68%), and administrative and support staff are most likely to have attended RIPE meetings (65%), executives are most likely to have participated in other RIPE NCC activities.

Respondents from South-East Europe are the most satisfied with the activities they have taken part in, with satisfaction ratings ranging from 71% to 90%. By contrast, the least satisfied respondents across each aspect are those from Central Europe, with less than half of these members satisfied with the hackathons (49%), member lunches (47%) or roundtable meetings (45%).

Suggestions for improving the RIPE NCC's engagement activities with the Internet community include:

- Conducting meetings and events in different countries and / or regions. Many feel that meetings are currently "just focused on Western Europe".
- Offer training and events in multiple languages, to ensure they are open to everyone, and not a barrier to those who "don't understand English well."
- Offer targeted training courses, not just general courses. These could be courses specifically for newer members or focusing on particular topics of interest.
- Look at adopting a method of increasing member connection and community that is less reliant on email – for example use a social media platform, rather than the member lists. Members want to be able to connect more meaningfully with both the RIPE NCC and others.

> "Increase online participation for those who have limited ability to travel due to budget or time constraints."
>
> Italy

Q: Do you have any suggestions to improve our engagement activities with the Internet community?
n=188 verbatim comments

Communication and Information

While a very high proportion of respondents have accessed the RIPE NCC website or read or participated in email and mailing lists, other communications channels and information platforms are less likely to have been used or accessed.

Ninety four percent (94%) have used the RIPE NCC website, and 84% have read or participated in emails and Mailing Lists.

Around three in five have used RIPE Labs (64%), the RIPE NCC Academy (61%) or RIPE NCC Forum (58%). Fewer have engaged with the RIPE NCC's social media platforms (44%) or the RIPE NCC Translations Platform (42%).

Of those who had used the communication channels and information platforms, satisfaction is largely high, with most respondents rating the platforms or channels either good or excellent.

Over four in five are satisfied with the RIPE NCC website, RIPE Labs and RIPE NCC Academy. In addition, around three-quarters rate the RIPE NCC forum and email and mailing lists (both 76%) and the Translations Platform (71%) as good or excellent.

Verbatim suggestions include wanting the RIPE NCC to interact more with respondents in their local language. However, as use of the Translations Platform is low, this indicates many are unaware of what is available to them already. Building awareness of this platform may improve use.

Ratings for social media channels are somewhat lower than other channels or platforms, with two-thirds of respondents (65%) rating this as good or excellent.

As with questions about other RIPE NCC activities and services, it has been assumed that respondents who provided a 'don't know' response did not use the respective channel or information platform.

Q: How would you rate the quality of your experience with the RIPE NCC's communication channels and information platforms?
n=3899

Q: How would you rate the quality of your experience with the RIPE NCC's communication channels and information platforms?
base n=3899

Use: Used channel / platform Satisfaction: Top 2 % Good / Excellent (Don't know excluded from satisfaction)	**Total**		**Central Europe**		**Eurasia**		**Middle East**		**South-East Europe**		**Western Europe**		**Other**	
	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat
Base sample	3899		259		713		445		232		2143		92	
RIPE NCC website	94%	83%	95%	79%	95%	88%	97%	85%	98%	91%	93%	81%	91%	85%
Email and Mailing Lists	84%	76%	82%	65%	88%	83%	92%	78%	88%	87%	81%	73%	85%	77%
RIPE Labs	64%	82%	64%	78%	59%	84%	78%	79%	75%	90%	61%	82%	68%	89%
RIPE NCC Academy	61%	80%	63%	74%	53%	82%	82%	79%	72%	89%	57%	78%	60%	80%
RIPE NCC Forum	58%	76%	60%	66%	56%	79%	83%	79%	65%	83%	52%	75%	68%	73%
Social Media	44%	65%	45%	60%	41%	69%	76%	63%	54%	77%	38%	62%	47%	70%
RIPE NCC Translations Platform	42%	71%	41%	56%	46%	77%	74%	69%	45%	82%	35%	70%	36%	82%

Satisfaction Top 2 % calculated after exclusion of 'Don't know' responses

Significantly higher / lower than total

In general, respondents in the Middle East and South-East Europe regions are significantly more likely than others to have used the RIPE NCC communication channels and information platforms.

Conversely, respondents in Western Europe are significantly less likely to have used any of the RIPE NCC communication channels or information platforms than other regions, although usage of the website and email and mailing lists are still high at 93% and 81% respectively.

Respondents in South-East Europe are significantly more likely than their counterparts in other regions to rate their experience with the RIPE NCC website, RIPE Labs and RIPE NCC Academy highly.

Fewer than one in three respondents from the Central Europe region are satisfied with the RIPE NCC Forum, email and mailing lists and Translations Platform—significantly lower than respondents in other regions. Interestingly, those in Eurasia (83%) and South-East Europe (87%) are significantly more likely than others to rate the email and mailing lists highly.

IT/ICT Managers and those in network or technical operations generally provide significantly higher ratings across all communication channels and information platforms than those in other roles, particularly the RIPE website (both 88%) and RIPE Labs (both 87%).

Improvements to Communication Channels and Information Platforms

Respondents who rated the RIPE NCC's communication channels and information platforms as average or below were asked for suggestions for improvement.

In total, 245 respondents provided a comment.

There are suggestions the RIPE NCC could provide more information in local languages, with some also calling for more localised content relevant to the country or region.

Despite reasonably high ratings of the mailing lists, there are also a few comments that it is confusing and old fashioned, and more generally, respondents suggest the RIPE NCC could improve the user experience of its digital platforms.

1. Language

- *"Use multilingualism in the website and portal interfaces and communicate in correspondence in the language your client prefers. Thank you for the Ukrainian language"* - Ukraine
- *"The possibility to choose the language of one's country of origin and communicate with RIPE support in the same language."* - Italy
- *"Supporting the Persian language in meetings and classes at various locations worldwide."* - Iran
- *"Communication in the Polish language."* - Poland
- *"Offer multilingual services or at least translate the RIPE NCC website into the main languages of the region."* - France

2. Platform usability and communication methods

- *"Send 1 email monthly or 1 email every 2 months about activities, trends etc to members."* - UAE
- *"Mailing list (ripe-list) is very inconsistent in the amount of emails, and inconsistent in usability of the (sometimes) opinions shared in the mailings."* - Netherlands
- *"Mailing list participation could be managed better and with less 'spam'."* - Germany
- *"Improve the user experience on the website and other digital platforms for easier navigation and access to information"* - Croatia
- *"The information mails are getting longer and longer. I would suggest to cut them down to just a few important topics and redirect for specific information to the ripe website."* - Switzerland
- *"Mailing lists are super old-fashioned and confusing. I think it would be better to make a forum out of it."* Netherlands

3. Content

- *"Clear and open communication, not 1000's of documents, but the essence. If someone reads the summary and is interested in details, they can read the details."* - Poland
- *"Identify and understand your audience, make data-based decisions on what information they might benefit from, and focus your efforts. The RIPE NCC's communication often feels like the voice of a stern teacher telling children what they should care about."* - Netherlands

Q: Do you have any suggestions about how the RIPE NCC's communications can be improved?
n=245 verbatim comments

Valuable Training Topics

Reflecting the biggest challenges faced, the most valuable training topics are related to security, such as cyber security and DNS / DNS security.

Over three in five respondents (62%) believe cyber security training will provide the most value, closely followed by courses in DNS / DNS security (59%).

Network automation is valuable to over half of members (54%).

All regions include these in their top three most valuable topics, with Eurasia placing greater emphasis on network automation (59%) than security, when compared to other regions.

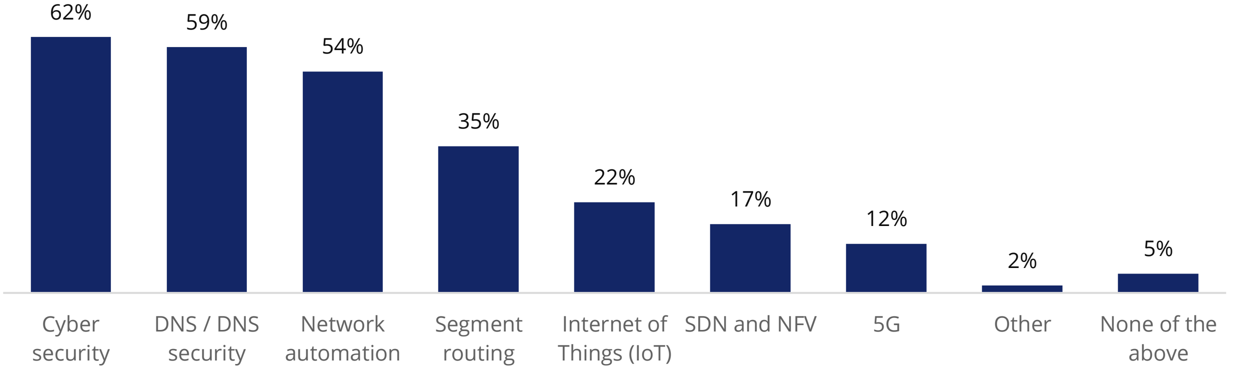
Segment routing would provide value to 35% of all respondents. Again, it is more valuable to those in Eurasia (47%).

By comparison, respondents in the Middle East are significantly more likely than their counterparts in other regions to value training on the Internet of Things (32%), SDN and NFV (22%) and 5G (17%). Fewer than one in four respondents from other service regions include these in their top three most valuable topics.

Respondents in network and technical operations most value training on network automation (64%), segment routing (43%) and SDN and NFV (19%).

While there were generally few differences across industry sectors, those working in telecommunications are more likely to value training courses on network automation (57%) and segment routing (41%). This cohort is less likely than others to include training on DNS / DNS security (54%) in their most valuable topics.

Q: Which of the following training topics would provide the most value to you?
n=3518



	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	3518	241	685	412	179	1931	63
Cyber security	62%	61%	55%	69%	65%	62%	63%
DNS / DNS security	59%	63%	54%	61%	54%	61%	56%
Network automation	54%	56%	59%	51%	55%	52%	54%
Segment routing	35%	41%	47%	28%	34%	32%	40%
Internet of Things (IoT)	22%	19%	19%	32%	23%	21%	14%
SDN and NFV	17%	10%	15%	22%	16%	17%	13%
5G	12%	7%	13%	17%	11%	11%	10%
Other	2%	2%	1%	2%	1%	2%	3%
None of the above	5%	4%	7%	2%	4%	5%	5%

Up to three (3) responses permitted

Significantly higher / lower than total

Certified Professionals Programme

Opinions about the Certified Professionals Programme are very positive, with around three in four having either used, or intend to use it, or valuing the programme, despite it not being personally relevant.

Overall, 73% of members believe the Certified Professionals Programme is valuable, with 43% either using or intending to use it, and three in ten saying while it is not relevant to them personally, the programme is valuable for others in their organisation.

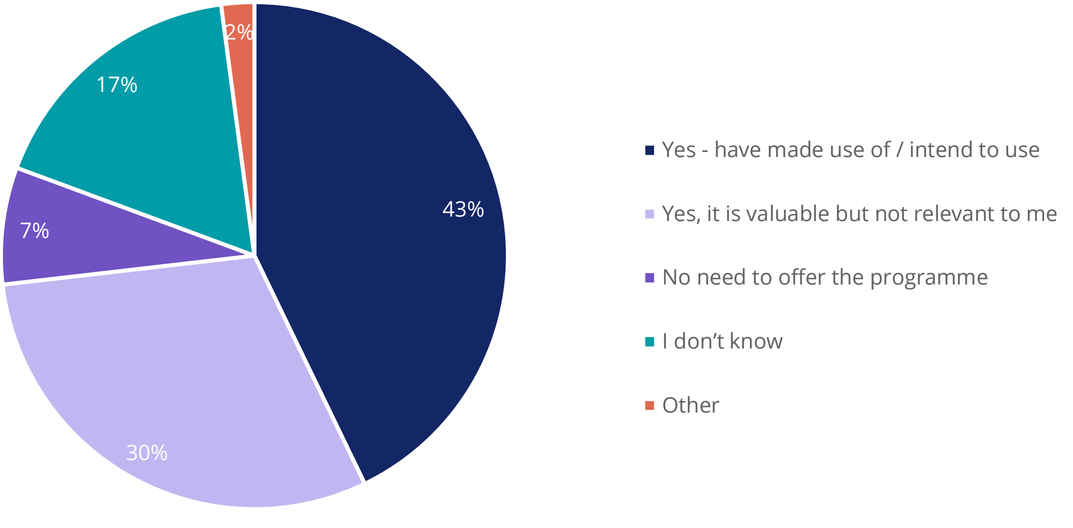
Over half of those in network or technical operations (52%) either use or intend to use the Certified Professionals Programme. Respondents from the Middle East (58%) are also more likely than other regions to have either made use of the programme already or intend to use it.

Only around a third of respondents from Central Europe (32%) and Eurasia (35%) regions currently use or intend to use the programme.

Positively, decision makers such as Executive management and ICT/IT Managers are more likely to indicate the programme is valuable, but not necessarily relevant to them (35% and 34% respectively).

Only 7% of respondents overall feel that there is no need to offer the programme at all, with this sentiment significantly stronger in Central Europe (14%) than other service regions.

Q: Do you believe the Certified Professionals Programme can benefit people and organisations in the RIPE NCC service region?
n=3899



	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	3899	259	713	445	232	2143	92
Yes - have made use of / intend to use	43%	32%	35%	58%	46%	43%	41%
Yes, it is valuable but not relevant to me	30%	31%	38%	20%	31%	30%	37%
No need to offer the programme	7%	14%	5%	4%	5%	8%	9%
I don't know	17%	20%	20%	16%	16%	17%	11%
Other	2%	2%	2%	2%	3%	2%	2%

Significantly higher / lower than total

Measurement Tools

This final section of the report seeks to understand respondents' experiences with RIPE NCC measurement tools. It also looks at the perceived value of other potential tools and insights.

In summary, the survey found:

- Satisfaction tends to be highest among tools used more often – RIPE Atlas, RIPEstat and RIS.
- Around three-quarters of respondents do consider K-Root, RIPE IPmap and DNSMON to be either good or excellent as well.
- Other measurements tools likely to provide the most value generally relate to security: routing information on security and new information about security incidents and threats.
- There is also value in Internet infrastructure and topology data.

RIPE NCC Measurement Tools

Use of RIPE Atlas, RIPEstat and RIS is high, with most who have used these tools satisfied with the quality of their experience with these tools.

Overall, two in three respondents have used RIPE Atlas and RIPEstat (both 68%), or RIS (63%). However, less than half of respondents have used K-Root (47%), RIPE IPmap (47%) or DNSMON (44%).

Respondents in the Middle East and South-East Europe are significantly more likely to have used the range of RIPE NCC measurement tools than other regions.

Those working in general commercial sectors or based in Western Europe are generally less likely to have used any RIPE NCC measurement tools.

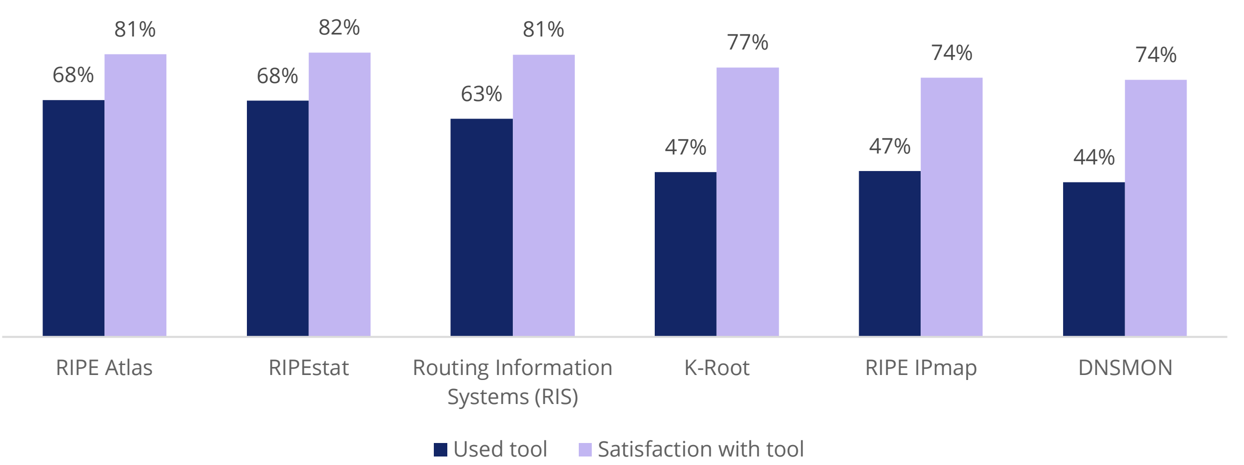
The most used tools tend to rate higher, with over four in five rating RIPEstat (82%), RIPE Atlas (81%) or RIS (81%) as either good or excellent.

DNSMON (74%), RIPE IPmap (74%) or K-Root (77%) are also highly regarded among respondents who have used them.

Unsurprisingly, respondents working in network or technical operations are significantly more likely to rate the tools highly than those in other roles.

By region, respondents in South-East Europe are significantly more likely to provide positive ratings for the measurement tools than other those in other RIPE NCC service regions. Conversely, those in the Central Europe region are significantly less likely to rate the measurement tools highly.

Q: How would you rate the quality of your experience with the following RIPE NCC measurement tools?
n=3899



Use: Used Tool Satisfaction: Top 2 % Good / Excellent (Don't know excluded from satisfaction)	Total		Central Europe		Eurasia		Middle East		South-East Europe		Western Europe		Other	
	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat	Use	Sat
Base sample	3899		259		713		445		232		2143		92	
RIPE Atlas	68%	81%	73%	65%	60%	78%	74%	78%	78%	92%	67%	83%	73%	91%
RIPEstat	68%	82%	76%	70%	64%	82%	75%	79%	76%	94%	66%	82%	71%	82%
Routing Information System (RIS)	63%	81%	67%	63%	62%	82%	73%	79%	74%	92%	59%	82%	68%	86%
K-Root	47%	77%	51%	58%	45%	76%	63%	75%	56%	89%	43%	79%	53%	87%
RIPE IPmap	47%	74%	54%	59%	45%	75%	66%	73%	56%	84%	43%	75%	53%	70%
DNSMON	44%	74%	49%	57%	45%	76%	65%	73%	53%	85%	38%	73%	60%	79%

Top 2 % calculated after exclusion of 'Don't know' responses

Significantly higher / lower than total

Improvements to Measurement Tools

Respondents who rated the RIPE NCC's measurement tools as average or below were asked for suggestions to improve their quality, with just 135 respondents providing a comment.

The core themes from the verbatim comments centred around improving the accessibility and interfaces of RIPEStat and RIPE Atlas, as well as a desire for training on how to use the different measurement tools.

1. Improve RIPEStat and RIPE Atlas interfaces

"RIPEstat and RIPE Atlas have convoluted interfaces that make it difficult to do stuff fast." - Belgium

"I'm pretty happy with what the NCC provides and basically use Atlas and RIPEstat all the time, just keep it up and working." - Germany

"Make the new RIPEstat web interface more responsive, less slow etc. The older web interface provided much more information quickly and on one screen without clicking/expanding widgets..." - Germany

2. Improve accessibility

"Development in software and the possibility of converting it into applications that work on operating systems such as Android and others for ease of use." - Yemen

"They should be made multilingual." - Iran

"Sometimes ripe atlas measurements can take quite long because of nodes that are not responding, maybe check if they're online before listing them as available." - Netherlands

3. Improve specific issues, especially in RIPE Atlas

"Regarding RIPE Atlas, there are quite a few false positives, which is not a big issue, but more and more customers can use the reported information, and explaining false positives can be time-consuming. Additionally, the documentation may not be straightforward to implement." - France

"Tracking of shipments with Atlas is needed." - Kazakhstan

"Atlas could be more stable, at times it takes incredibly long for measurements to start arriving, extremely long to download results etc." - Czech Republic

4. Provide better training on how to use the measurement tools

"Guidelines on how to use the tools." - Italy

"Provide thematic threads individually, e.g., through social media, describing tools and examples of their applications." - Poland

"Provide more information with installation examples of measurement tools." - Kazakhstan

Q: Do you have any suggestions about how the RIPE NCC's measurement tools could be improved?
n=135 verbatim comments

Other Measurement Tools

Over half of respondents indicate routing information on BGP security, RPKI and address hijacking would provide them with value.

New information about security incidents (45%) and Internet infrastructure and topology data (34%) are also valuable to respondents.

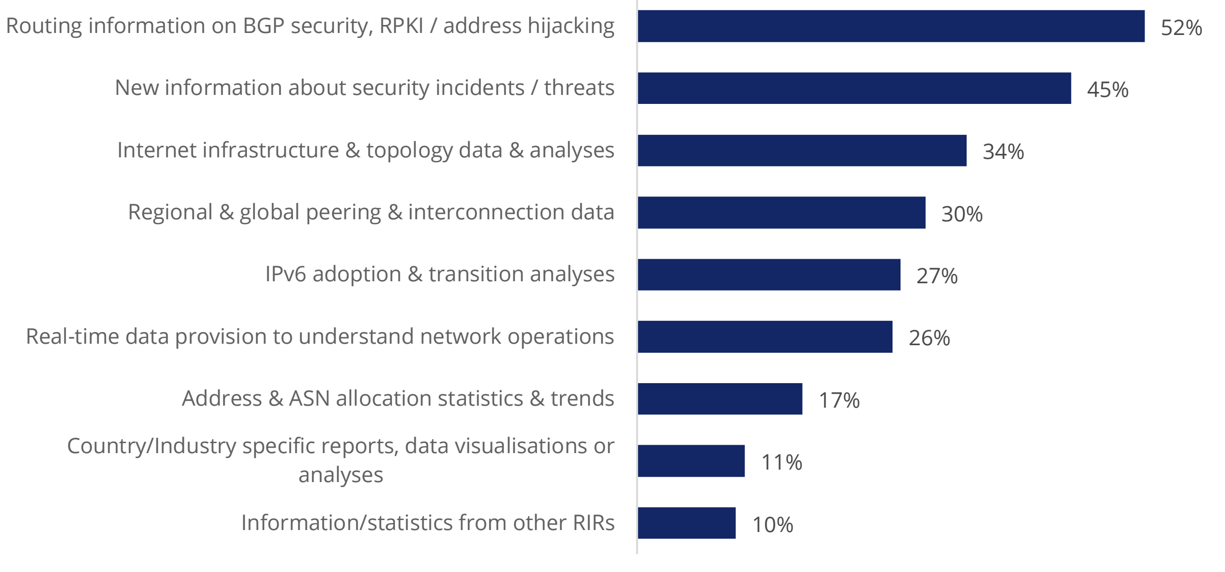
While respondents in general commercial sectors are less interested in routing information (45%), they are more interested in information on security threats (53%) than others.

Unsurprisingly, members outside the RIPE NCC service region are significantly more likely to value regional and global peering and interconnection data measurement tools (42%) than members within the region. Tools offering regional and global peering and interconnection data are also more valuable to those in IXPs, and hardware and software vendors (41%).

Real-time data provision is seen as particularly useful to respondents in Eurasia (31%) and telecommunication operators (29%), dropping to only 19% of those in the Middle East.

One in four respondents in hosting companies would value address and ASN allocation statistics (23%).

Q: Which of the following insights / measurements could provide value to you?
n=3899



	Total	Central Europe	Eurasia	Middle East	South-East Europe	Western Europe	Other
Sample	3899	259	713	445	232	2143	92
Routing information on BGP security, RPKI or address hijacking	52%	54%	50%	50%	50%	53%	63%
New information on security incidents & threats	45%	49%	44%	44%	46%	45%	32%
Internet infrastructure & topology data & analyses	34%	30%	34%	40%	36%	33%	30%
Regional & global peering & interconnection data	30%	24%	30%	25%	33%	30%	42%
IPv6 adoption and transition analyses	27%	30%	28%	28%	23%	27%	18%
Real-time data provision to understand network operations	26%	29%	31%	19%	22%	27%	23%
Address and ASN allocation statistics and trends	17%	15%	18%	23%	17%	15%	25%
Country/industry-specific reports, etc.	11%	8%	9%	17%	19%	10%	16%
Information/statistics from other RIRs	10%	7%	9%	16%	13%	9%	13%

Up to three (3) responses permitted

Significantly higher / lower than total


AA_123456789
AB_695856789
AC_251867289
A-10
AI
F
D
AA_123456789

Appendix

RIPE NCC Definitions of Regions

Central Europe
Czech Republic
Hungary
Poland
Slovakia

Eurasia
Armenia
Azerbaijan
Belarus
Estonia
Georgia
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Republic of Moldova
Russian Federation
Tajikistan
Turkmenistan
Ukraine
Uzbekistan

Middle East
Bahrain
Iran
Iraq
Israel
Jordan
Kuwait
Lebanon
Oman
Palestine
Qatar
Saudi Arabia
Turkey
UAE
Yemen

South-East Europe
Albania
Bosnia & Herzegovina
Bulgaria
Croatia
Greece
Republic of North Macedonia
Montenegro
Romania
Serbia
Slovenia

Western Europe
Aland Islands
Andorra
Belgium
Cyprus
Denmark
Faroe Islands
Finland
France
Germany
Gibraltar
Greenland
Guernsey
Holy See
Iceland
Ireland
Isle of Man
Italy
Jersey
Liechtenstein
Luxembourg
Malta
Monaco
Netherlands
Norway
Portugal
San Marino
Spain
Svalbard & Jan Mayen
Sweden
Switzerland
United Kingdom

Acknowledgement

In conclusion, we would like to take the opportunity to thank all respondents for participating in the 2023 Survey. Your input is extremely valuable.

The robust sample size of 3,899 provides the RIPE NCC with clear direction on the preferences and opinions of the RIPE NCC membership and RIPE community.

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

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

About Survey Matters

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

Survey Matters have helped a wide range of organisations understand their value proposition - what is important to their members, how the organisation can help and how satisfied they are with their performance.

We also work with the sector to generate and build industry data and knowledge to support advocacy, promotion, industry development and marketing activities.

For further information, please contact:

Brenda Mainland
Managing Director
Survey Matters

bmainland@surveymatters.com.au
T: 61 3 9452 0101

Rebecca Sullivan
Research Director
Survey Matters

E: rsullivan@surveymatters.com.au
T: 61 3 9452 0101