RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Annual Report
2023

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WELCOME TO THE 2023 RIPE NCC ANNUAL REPORT

In 2023, our members sent us a clear signal by voting not to increase membership fees at the May 2023 General Meeting. This forced us to reconsider the way we do things and to optimise processes where necessary. We realigned ourselves with members' expectations and managed to spend only 37.3 million euros out of a budget of 40 million euros.

At the same time, we reorganised our technical departments, making us more agile, streamlining internal processes and improving response times. This year also saw significant changes in the management team, with Felipe Victolla Silveira becoming our new Chief Technology Officer and James Kennedy taking on parts of Felipe's former role as Chief Registry Officer.

We have also paid particular attention to strengthening our security processes by implementing a new architecture for RIPE NCC Access, improving the resilience of the Registry software and exploring ways to improve the overall resilience of RPKI. We also worked on a vulnerability management framework, improved cloud security and internal security awareness.

These efforts are part of the progress we've made in information security compliance and risk mitigation under ISO/IEC 27001.

In terms of outreach, we had the first year of fully face-to-face meetings since COVID started. We were able to organise RIPE 86 in Rotterdam and RIPE 87 in Rome, as well as four regional meetings bringing together more than two thousand members of the technical community, government officials and RIPE NCC members over the course of the year. The enthusiasm generated by the second CAPIF in Tashkent was heart-warming, as the local community appreciated our efforts to engage with them. We also set up local hubs for the last RIPE Meetings to include participants who could not come to the meeting in person (in addition to online participation).

We also worked to defend the Regional Internet Registry (RIR) system and the multi-stakeholder approach, organising multiple roundtables and bilateral meetings with governments and regulators to discuss Internet governance matters. In line with our belief that Internet number resources should not be subject to

political disputes, we have continued to work for a general exemption from sanctions. In this context, the Dutch authorities confirmed to us in April 2023 that an exemption introduced into EU sanctions Regulations applied to Internet number resources, which meant we could lift sanctions-related restrictions from a number of Russian members. At the same time, we supported our Ukrainian members by granting them payment extensions.

We also stepped up our data and information-gathering efforts by publishing new data-driven stories using our tools (RIPE Atlas, RIPEstat, RIS) on RIPE Labs via articles or podcasts. Topics covered so far include routing, interconnectivity and an in-depth look at the state of the Internet in specific countries. We also collaborated with external publications, such as Wired, by sharing our technical expertise, and we shared our data and analysis with various government officials and regulators to help them make informed decisions about technical policy.

Regarding Learning & Development, the key focus of our curriculum development team

HANS PETTER HOLEN
MANAGING DIRECTOR

ONDŘEJ FILIP
CHAIR OF THE
EXECUTIVE BOARD

was to improve the quality and user experience of our learning experiences, while keeping an eye on ensuring efficiency. We expanded our offering by increasing the number of in-person courses delivered and switched to a better and more widely available exam provider for our RIPE NCC Certified Professionals programme. With these efforts, we hope to better assist our members in developing their technical skills and knowledge to help them operate more resilient and secure networks.

In 2023, we also carried out the RIPE NCC Survey, taking place every four years, to collect feedback from our members, understand what works or not and help us improve our services. 3,899 people responded, and we were pleased to learn that 92% of members continue to rate the quality of the RIPE NCC's service delivery as either good or excellent and that three-quarters were satisfied with the RIPE NCC's Executive Board leadership, engagement with members, general meetings and information.

Despite the difficult international situation, with a number of wars and active conflicts in our service area at the time of writing, along with continuing difficult economic conditions due to rising costs, we are proud of what we achieved in 2023 and feel we are well-prepared for 2024. We're also pleased that we were able to stay within budget while keeping our most important asset intact - our dedicated

staff who are working with you to help shape the future of the Internet.

STRATEGIC OBJECTIVES/HIGHLIGHTS

Be resilient in the face of political, legislative and regulatory changes that have the potential to affect our operations

- Roundtables with governments in Belgium, Croatia, Montenegro and the UAE, as well as bilateral meetings engaging with policymakers and stakeholders about Internet governance.

- Continued to support members in Ukraine with payment extensions for members who needed them.

- Restored service level to many members in Russia who were subject to EU sanctions after clarifying the situation with the Dutch authorities. We continue to seek a blanket exemption from EU sanctions regulation for Internet number resources.

Secure Internet number resources by developing and operating a resilient, externally auditable and secure Resource Certification Trust Anchor and promote RPKI usage

- Explored ways to improve the overall resilience of RPKI.

- Achieved full coverage of the critical parts of our application with end-to-end and API tests.

- Deployed monitoring and fallback RRDP infrastructure outside AS3333.

Be a centre of excellence for data, measurements and tools that provide insight on the Internet and its Operations

- Increased focus on publishing data-driven stories on RIPE Labs to provide the community with insights into Internet-related topics.

Maintain necessary levels of security and compliance with best practices and applicable regulations

- Streamlined internal processes to improve response times.

- Completed the implementation of the new architecture for RIPE NCC Access (Keycloak). Reduced technical debt in LIR Portal tooling and made UI improvements.

- Enhanced the resilience and security of our main Registry software.

- Progress towards achieving compliance with the ISO/IEC 27001 framework.

- Developed a vulnerability management framework, made cloud security enhancements and ran an internal security awareness programme.

Maintain a healthy organisational culture with engaged staff aligned with the organisational values

- Internal reorganisation of technical departments made us a bit more agile and aligned.

- James joined as Chief Registry Officer and Felipe took over as Chief Technology Officer.

Other points

- **Charging Scheme Consultation**
  - 2024 Charging Schemes consultation. Voted to maintain the 2023 Charging Scheme. Saving money where possible (37.3M spent vs 40M budgeted).

- **RIPE NCC 2023 Survey**
  - 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.

  - The Net Promoter Score (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.

  - Around three-quarters are satisfied with the RIPE NCC's Executive Board leadership, engagement with members, general meetings and information.

- **Outreach**
  - Organised RIPE 86 in Rotterdam and RIPE 87 in Rome, as well as four regional meetings bringing together hundreds of technical community members, government officials, and NCC members. We also set up Local Hubs for RIPE 87 to include participants that could not attend physically (additionally to online participation).

- **Learning & Development**
  - New exam provider

  - Microlearnings

  - Expanded in-person training courses

RIPE NCC EXECUTIVE BOARD

FROM LEFT TO RIGHT: **JOB SNIJDERS** *(MEMBER)*, **ONDŘEJ FILIP** *(CHAIR)*, **RAYMOND JETTEN** *(TREASURER)*, **MARIA HÄLL** *(MEMBER)*, **REMCO VAN MOOK** *(MEMBER)*, **HARALD A. SUMMA** *(MEMBER)*, **PIOTR STRZYŻEWSKI** *(SECRETARY)*
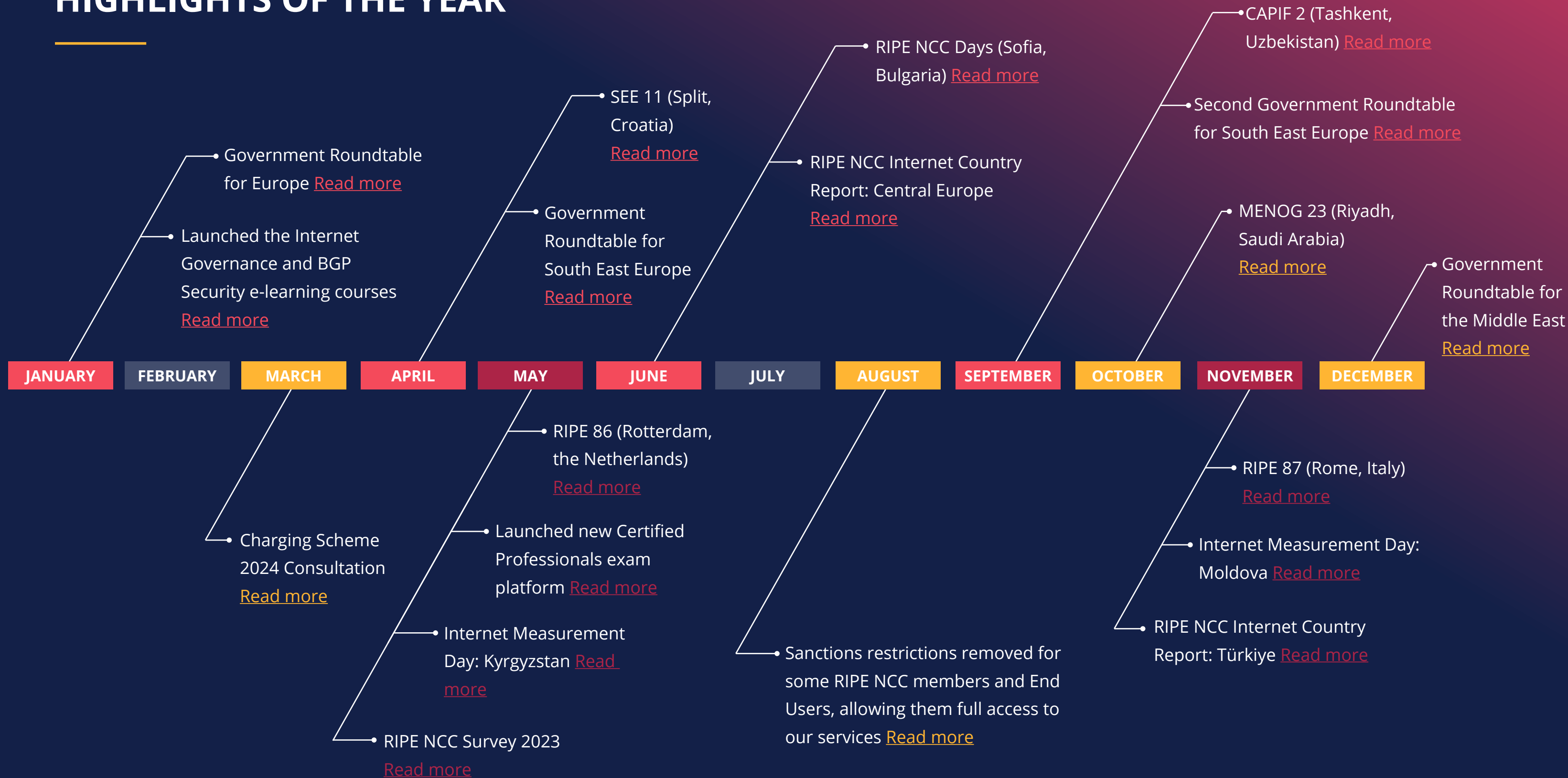
RIPE NCC MANAGEMENT

TOP ROW, FROM LEFT TO RIGHT: **SIMON-JAN HAYTINK** *(CHIEF FINANCIAL OFFICER)*, **ELEONORA PETRIDOU** *(CHIEF INFORMATION SECURITY OFFICER)*, **HISHAM IBRAHIM** *(CHIEF COMMUNITY OFFICER)*, **CAROLIEN VOS** *(CHIEF HUMAN RESOURCES OFFICER)*, **FELIPE VICTOLLA SILVEIRA** *(CHIEF TECHNOLOGY OFFICER)*

BOTTOM ROW, FROM LEFT TO RIGHT: **JAMES KENNEDY** *(CHIEF REGISTRY OFFICER)*, **ATHINA FRAGKOULI** *(CHIEF LEGAL OFFICER)*, **DANIELLA COUTINHO** *(SENIOR EXECUTIVE ASSISTANT TO THE MANAGING DIRECTOR)*, **HANS PETTER HOLEN** *(MANAGING DIRECTOR)*

HIGHLIGHTS OF THE YEAR

CAPIF 2 (Tashkent, Uzbekistan) Read more

RIPE NCC Days (Sofia, Bulgaria) Read more

Second Government Roundtable for South East Europe Read more

SEE 11 (Split, Croatia) Read more

Government Roundtable for Europe Read more

RIPE NCC Internet Country Report: Central Europe Read more

MENOG 23 (Riyadh, Saudi Arabia) Read more

Launched the Internet Governance and BGP Security e-learning courses Read more

Government Roundtable for South East Europe Read more

Government Roundtable for the Middle East Read more

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER

RIPE 86 (Rotterdam, the Netherlands) Read more

RIPE 87 (Rome, Italy) Read more

Charging Scheme 2024 Consultation Read more

Launched new Certified Professionals exam platform Read more

Internet Measurement Day: Moldova Read more

Internet Measurement Day: Kyrgyzstan Read more

Sanctions restrictions removed for some RIPE NCC members and End Users, allowing them full access to our services Read more

RIPE NCC Internet Country Report: Türkiye Read more

RIPE NCC Survey 2023 Read more

MEMBERSHIP OVERVIEW

All numbers are as of 31 December 2023. Please note that one member can hold more than one LIR.

20,077	**21,568**	**967**	**119**	**15,281**
Total number of active members	Total number of active LIRs	New LIRs	Member countries	Members with an IPv6 allocation

TOP 10	TOP 10	TOP 10
MEMBERS BY COUNTRY	**NEW MEMBERS BY COUNTRY**	**LIRS BY COUNTRY**

| MEMBERS BY COUNTRY		NEW MEMBERS BY COUNTRY		LIRS BY COUNTRY	
DE	2,220	GB	78	DE	2,325
GB	2,031	DE	65	GB	2,160
RU	1,489	IR	41	RU	1,671
FR	1,248	NL	41	FR	1,349
NL	1,151	RU	40	NL	1,258
IT	1,138	FR	38	IT	1,193
ES	954	IT	31	ES	1,009
CH	713	TR	27	CH	744
PL	676	ES	26	PL	711
TR	543	US	23	IR	639

The Registry

INTERNET NUMBER RESOURCES OVERVIEW

All numbers are as of 31 December 2023.

IPv4 /24 ALLOCATIONS BY COUNTRY

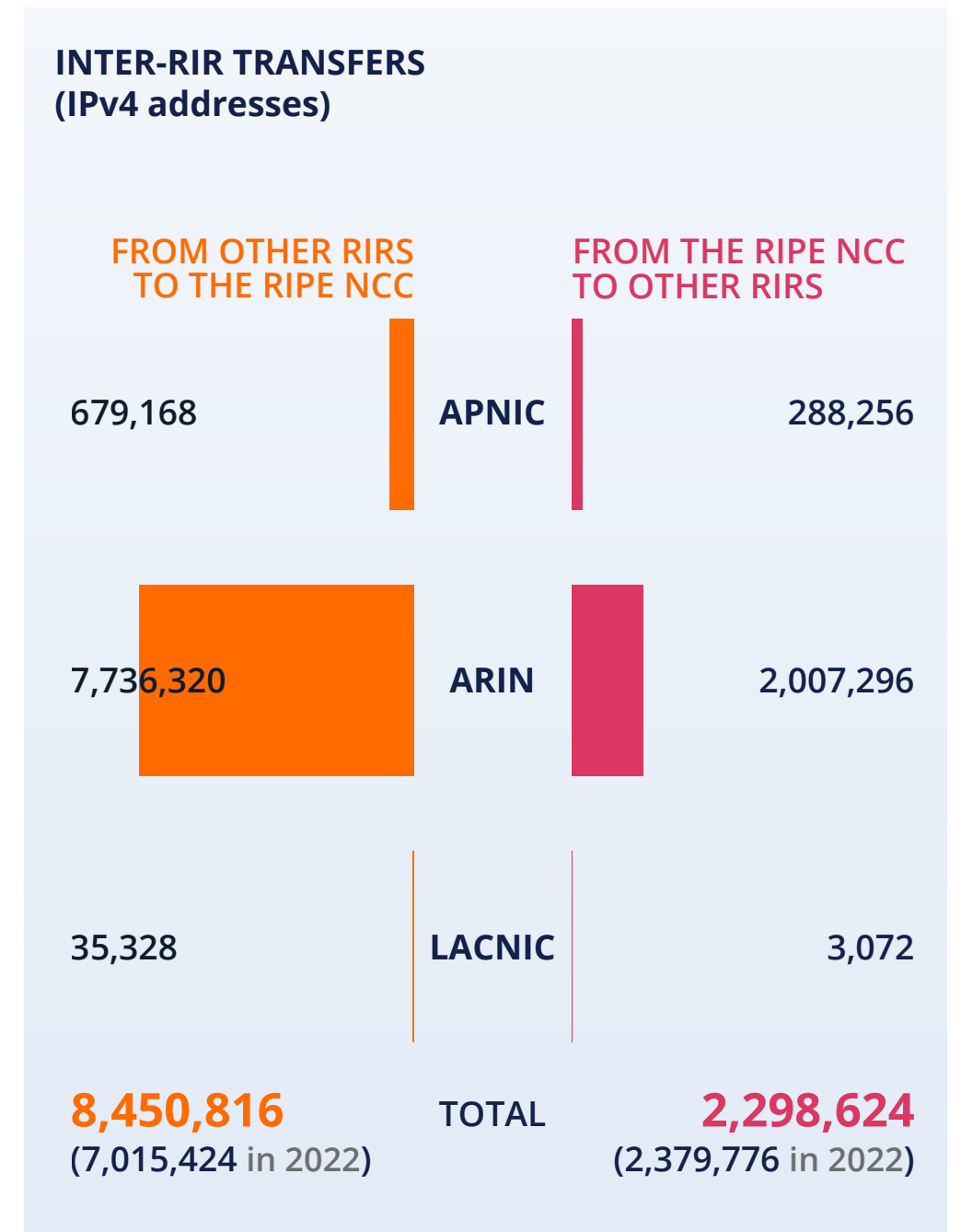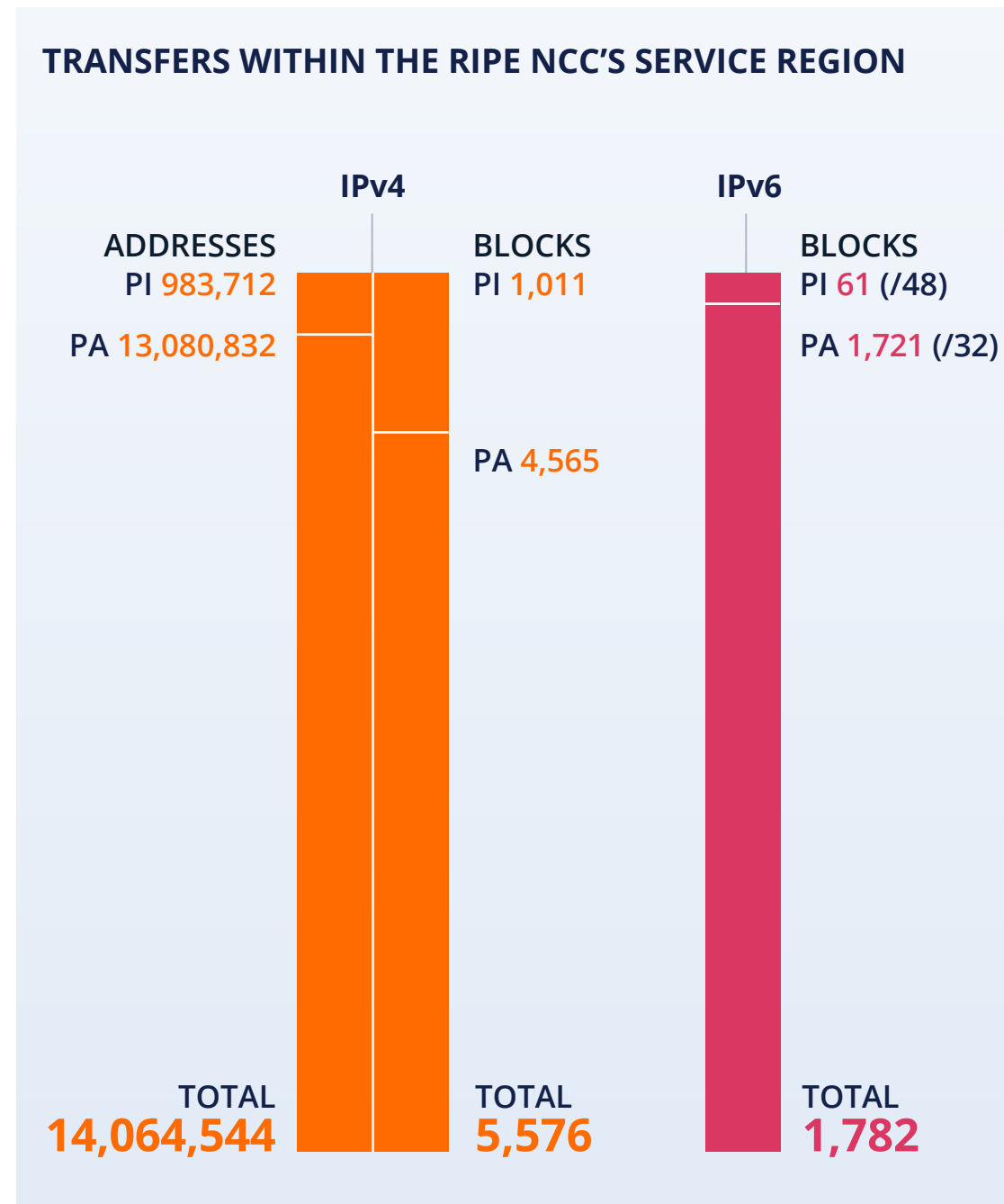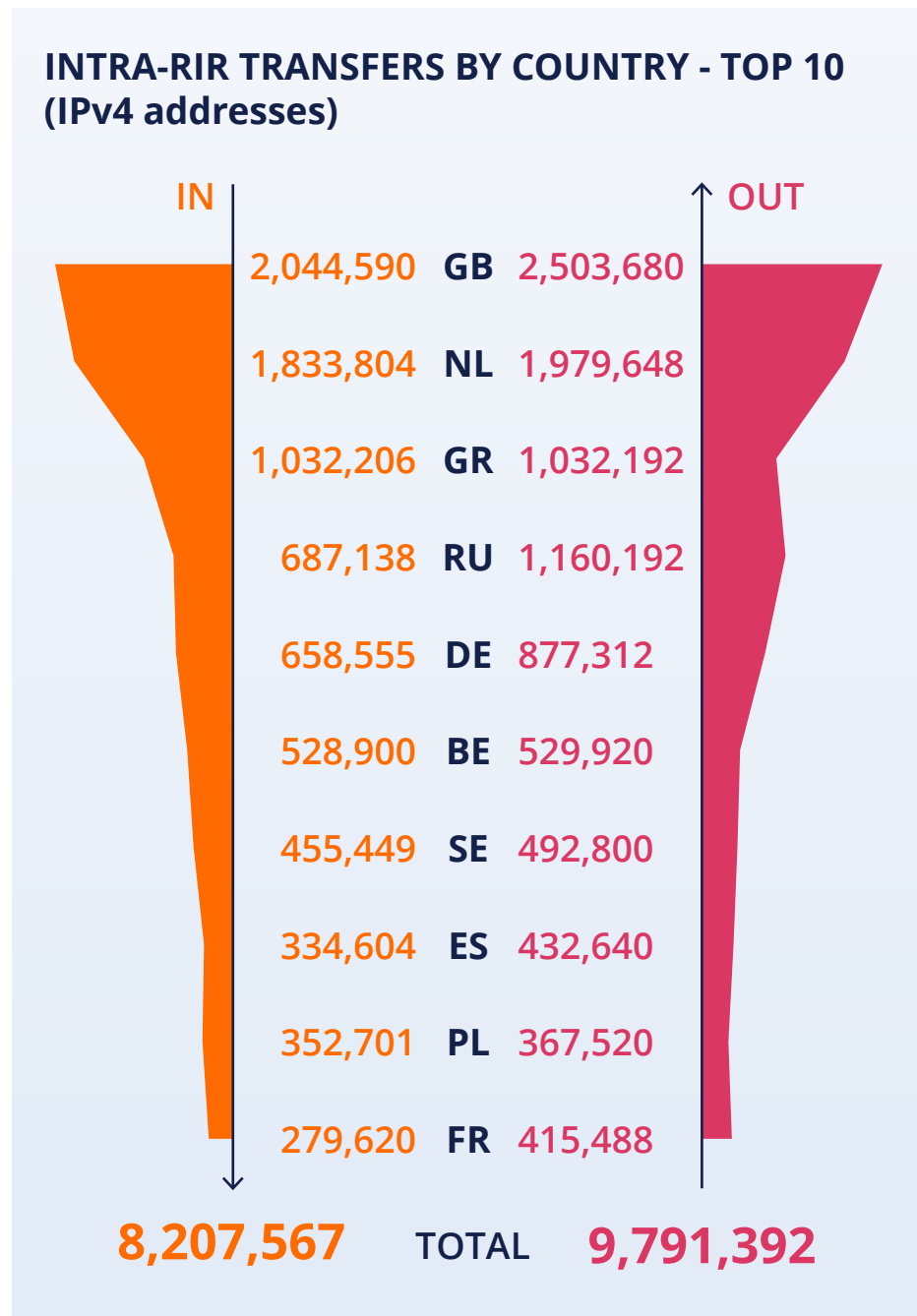|	
76	GB
64	RU
57	IR
56	DE
56	FR
47	NL
35	IT
35	RO
33	TR
292	Other
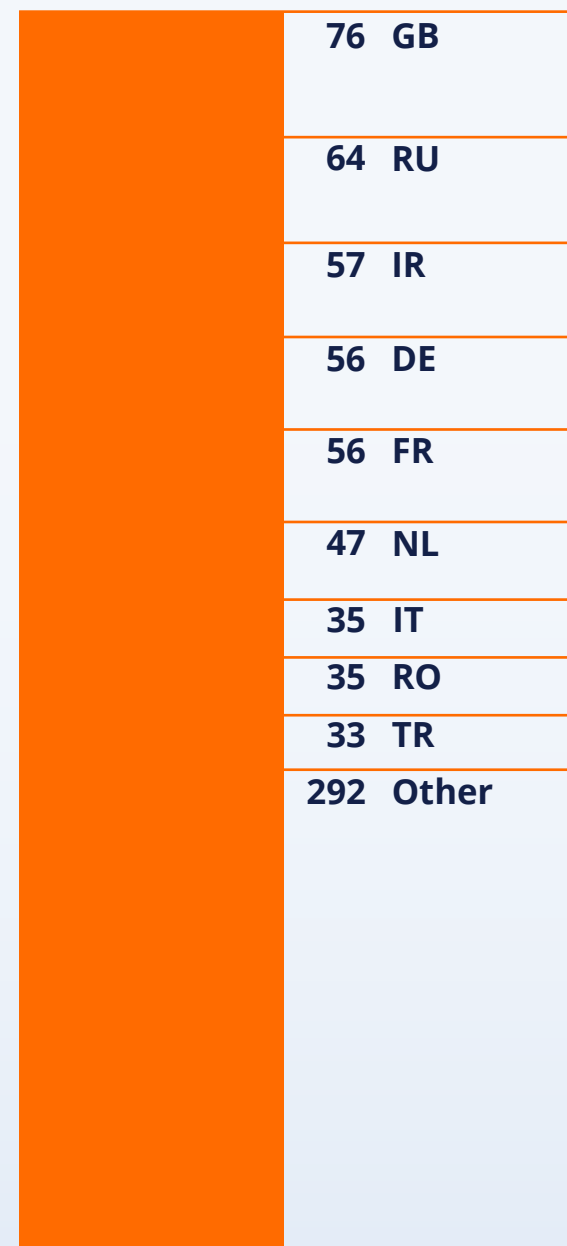
ALLOCATIONS AND ASSIGNMENTS

IPv6 1,219		
	0	IPv6 anycast assignments
	0	IPv6 temporary assignments
	25	IPv6 assignments to IXPs
	76	IPv6 allocation extensions
	227	IPv6 PI assignments
	891	IPv6 allocations

IPv4 795		
	13	IPv4 temporary assignments
	31	IPv4 assignments to IXPs
	751	/24 allocations

ASNs 2,309		
	0	temporary 32-bit assignments
	1	temporary 16-bit assignments
	446	16-bit assignments
	1,862	32-bit assignments

2022 813   **2023** 751

/24 IPv4 ALLOCATIONS

2022 208,128   **2023** 192,256

IPv4 ADDRESSES ALLOCATED
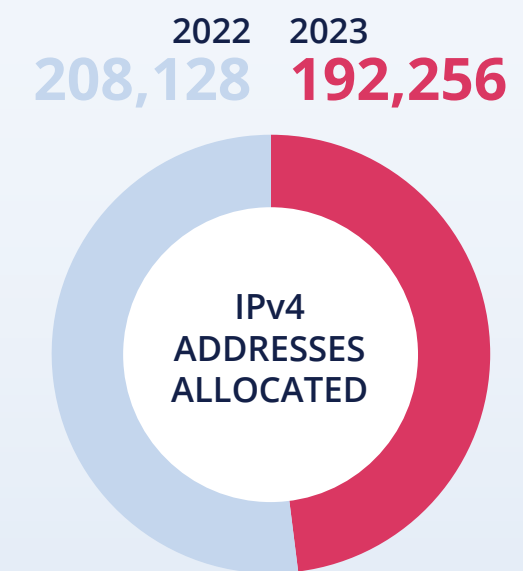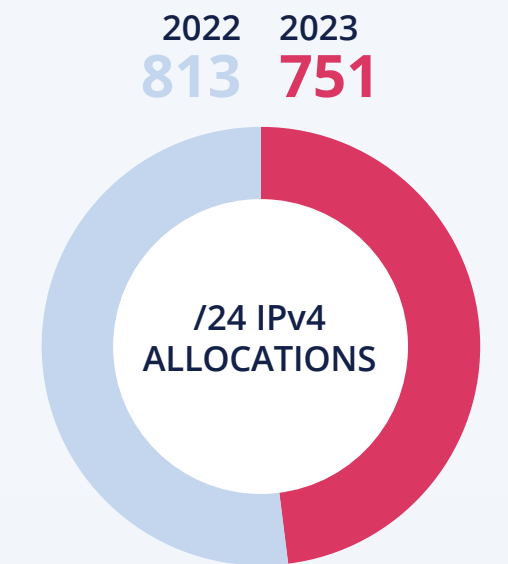
TRANSFERS OVERVIEW

Here is an overview of resource transfers between the RIPE NCC and other RIRs, and within the RIPE NCC service region. The figures below include policy transfers and other changes that move resources, such as mergers and acquisitions.

INTRA-RIR TRANSFERS BY COUNTRY - TOP 10 (IPv4 addresses)

IN		OUT
2,044,590	**GB**	2,503,680
1,833,804	**NL**	1,979,648
1,032,206	**GR**	1,032,192
687,138	**RU**	1,160,192
658,555	**DE**	877,312
528,900	**BE**	529,920
455,449	**SE**	492,800
334,604	**ES**	432,640
352,701	**PL**	367,520
279,620	**FR**	415,488

8,207,567 TOTAL **9,791,392**

TRANSFERS WITHIN THE RIPE NCC'S SERVICE REGION

IPv4

ADDRESSES
PI 983,712
PA 13,080,832

BLOCKS
PI 1,011

PA 4,565

TOTAL **14,064,544**
TOTAL **5,576**

IPv6

BLOCKS
PI 61 (/48)
PA 1,721 (/32)

TOTAL **1,782**

INTER-RIR TRANSFERS (IPv4 addresses)

FROM OTHER RIRS TO THE RIPE NCC		FROM THE RIPE NCC TO OTHER RIRS
679,168	**APNIC**	288,256
7,736,320	**ARIN**	2,007,296
35,328	**LACNIC**	3,072

8,450,816
(7,015,424 in 2022)
TOTAL
2,298,624
(2,379,776 in 2022)

RIPE REGISTRY ACCOUNTABILITY

ASSISTED REGISTRY CHECKS (ARCs)

Assisted Registry Checks are how we help members ensure their data is accurate and up to date. We provide personalised support over a call or in person at events to help members correct any inconsistencies. Our goal is to constantly strengthen the quality of data in the registry. During an ARC, among other things, we check an LIR's legal name, address and contacts, IPv4 and IPv6 resources registered, and whether their BGP announcements are consistent with the Routing Registry.

READ MORE

ABUSE-C: VALIDATION

In 2023, we continued to implement the Abuse Contact (abuse-c) management policy and validated 84,868 email addresses. 649 of those required manual intervention.

READ MORE

IN 2023

2,340 ARCs completed

149,228
abuse-c ROLE objects created and/or updated

84,868
email addresses validated

84,219
validated using automated process

649
required manual intervention

REPORTS AND INVESTIGATIONS

REPORTS RECEIVED VIA THE ABUSE FORM

TOTAL
416

ABUSE-C VALIDATION INVESTIGATIONS

TOTAL
2,503

910 LIR resources

853 LIR

740 End Users

SECURITY INCIDENTS

Security incidents are detected on the basis of audits performed, alerts from our network intrusion detection system and external reports.

INFORMATION SECURITY INCIDENTS

IN 2023

0 Crisis (Priority 1)

0 Major Incident (Priority 2)

2 Unexpected Incidents (Priority 3)

1 Incident (Priority 4)

INFORMATION SECURITY REPORTS

We encourage the reporting of vulnerabilities in line with our Responsible Disclosure Policy.

IN 2023

516 Security-related reports received

95 Reports were relevant

READ MORE

HIJACK INVESTIGATIONS

IN 2023

201 Hijack investigations

12 Due diligence warnings

8 Disputed transfers

RIPE DATABASE UPDATES

Here are some of the updates we made to the RIPE Database in 2023:

IMPLEMENTED

NWI-12 "NRTMv4" server-side

NWI-14 "Protecting References to Objects in the RIPE Database"

NWI-19 "AS-SET for RIPE-NONAUTH source"

Support of greylisted responses in abuse-c email validation

Support for HTTP basic authentication in Whois REST API

Support of Client Certificate Authentication in Whois REST API

IMPROVED

Removed NWI-13 prefix validation on "geofeed:" attribute

Made the RIPE Database web application open source

Migrated the RIPE Database documentation to its own website

Switched Full Text Search engine to Elasticsearch

Improved Full Text Search API and documentation

Unlocked resources (set default maintainer on 438 ASSIGNED PA and 13 LEGACY resources)

RDAP improvements

Cleanup of "remarks:" attributes

RPKI

RPKI is a certification system that network operators can use to establish that they are the legitimate holders of specific IP resources.

As such, it plays an important role in BGP security, since it allows network operators to determine the authenticity of BGP announcements and route accordingly. As a Certification Authority, the RIPE NCC issues these certificates to resource holders and guarantees their authenticity.

READ MORE

IN 2023

We achieved full coverage of the critical parts of our application with end-to-end and API tests.

We deployed monitoring and fallback RRDP infrastructure outside AS3333.

We increased our rsync capacity by building and deploying rsync infrastructure that uses RRDP as a source of truth.

We migrated all our virtual machine infrastructure to a newer operating system.

We built a new RPKI dashboard based on user feedback that is now undergoing user tests.

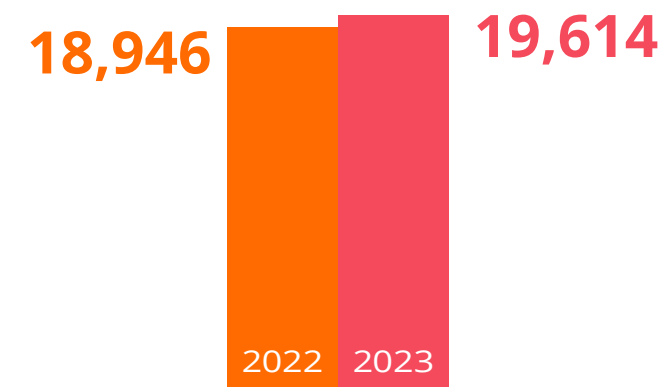We prepared and tested a migration to new online HSMs (to be deployed in Q1 2024).
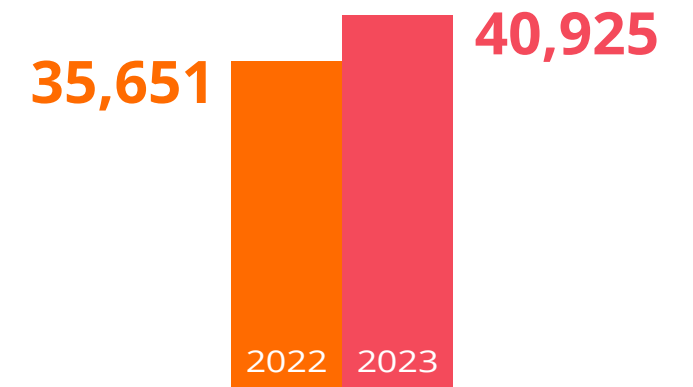
ROA COVERAGE - IPv4

58.54% 2022
65.53% 2023

ROA COVERAGE - IPv6

36.46% 2022
37.68% 2023

RPKI CERTIFICATES

18,946 2022
19,614 2023

ROAs

35,651 2022
40,925 2023
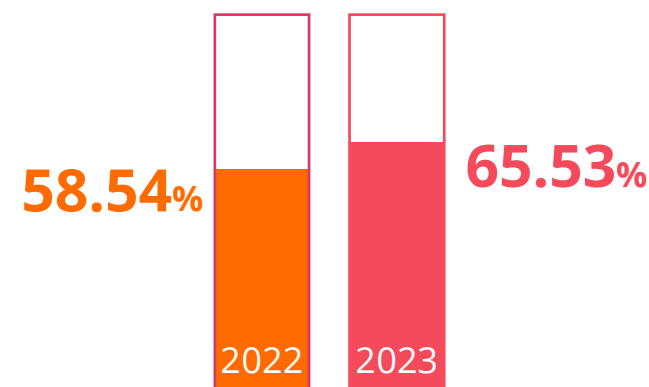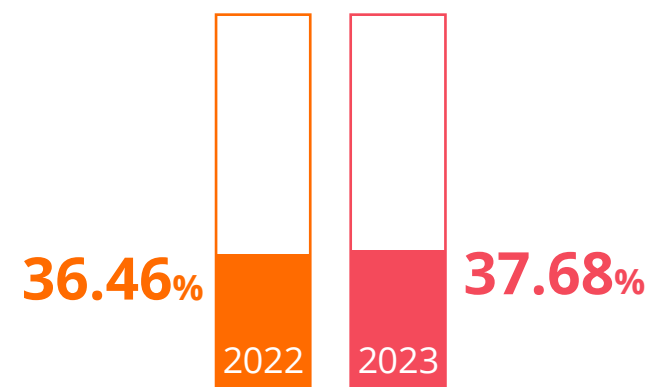
Information Services

RIPE ATLAS PROBES AND ANCHORS

	Probes connected	Probes shipped	Total anchors connected	Results collected per second	ASNs covered (IPv4)	ASNs covered (IPv6)	Countries covered
2023	~12,900	619	809	15,704	3,785	1,870	179
2022	~12,600	809	799	~14,000	~3,720	~1,760	169
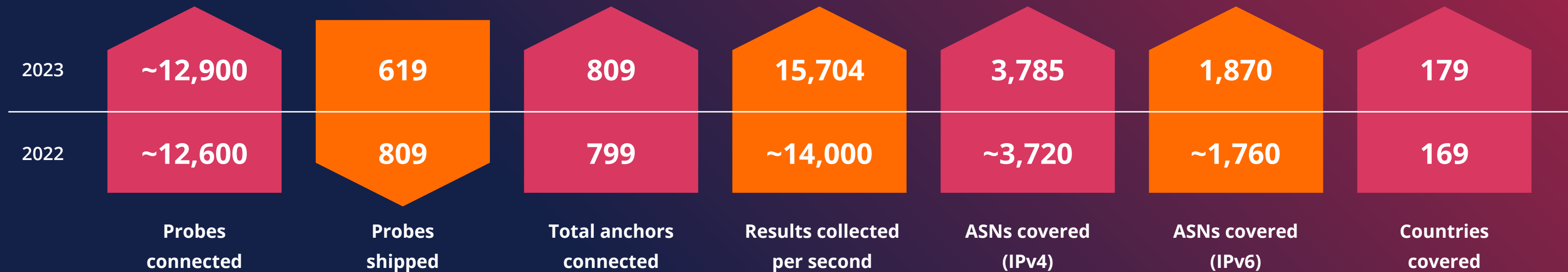
RIPE ATLAS

RIPE Atlas is a leading Internet active measurement network that collects unique data, providing both live and historical information about networks' reliability, reachability and connectivity.

In 2023, the network continued growing modestly with a combination of hardware and software probes, as well as increased coverage of ASNs and countries. Work on the probe firmware packaging, as well as on the infrastructure development efforts, continued throughout the year. In particular, we implemented a number of service quality improvements, and we made progress on stabilising and renewing the results storage backend. We expect this work to lead to a more stable and cost-effective system in 2024. The user interface went through a number of modernisations and visible changes, and we expect that further major improvements will be released throughout 2024 as well.

READ MORE

DNS AND K-ROOT

The RIPE NCC runs two independent and equally important DNS services.

The first is K-root, one of the 13 Internet root name servers. The K-root service is provided by a set of distributed nodes using IPv4 and IPv6 anycast. The second is a DNS service for RIPE NCC zones, reverse DNS and secondary DNS, which we refer to as AuthDNS.

We continue to improve resiliency and availability of both services by adding hosted nodes. Since 2022, we have been accepting applications to run these services on virtual servers, in addition to dedicated hardware. This allowed us to expand these services to areas that were less well-served previously.

In 2023, we brought up two new AuthDNS nodes, bringing the total number of nodes to 16. These serve zones for reverse delegations for RIPE NCC member allocations, country code Top-Level Domain (ccTLD) secondary services and RIPE NCC authoritative zones. In the K-root cluster, 17 instances were added, while one instance was decommissioned, bringing the total to 116.

Towards the end of 2023, we began upgrading our DNS servers with a more up-to-date operating system, as well as improving the configuration management and statistics gathering. We upgraded seven servers, with the rest to follow in 2024.

LEGEND

▲ AuthDNS　　　● Existing

● K-Root　　　● New

RIPEstat

RIPEstat provides users with essential information on IP address space and Autonomous System Numbers (ASNs) along with related statistics on specific hostnames and countries.

HIGHLIGHTS

Release of the updated Widget API

Return of the M-Lab widgets

End-to-end testing of classic UI

Improved service monitoring

READ MORE

RIS

Our Routing Information Service (RIS) uses a globally distributed set of Remote Route Collectors (RRCs), usually located at Internet Exchange Points, to collect and store Internet routing data.

IN 2023

We focused on adding peers in regions where we didn't have many to improve the results.

We improved the timeliness of MRT dump files by switching them to a new pipeline.

We revamped our beaconing set-up to allow users to build visualisations more easily and better expose insights.
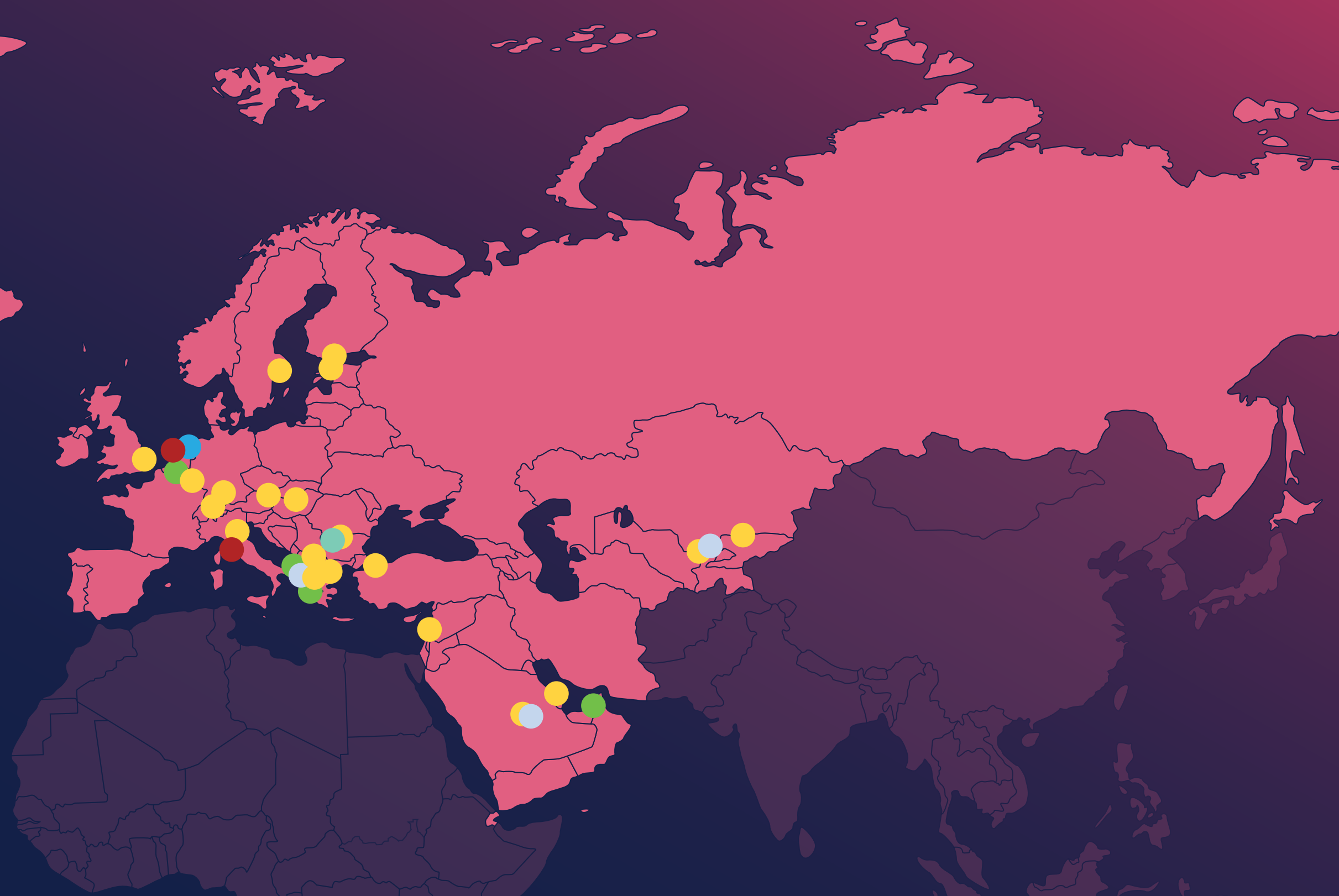
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READ MORE

Community and Engagement

OUR IN-PERSON EVENTS IN 2023

- ● Hackathon
- ● Regional Meeting
- ● RIPE Meeting
- ● RIPE NCC Days
- ● Training Course
- ● Roundtable Meeting

IN-PERSON TRAINING AND WEBINARS

In 2023, we increased the amount of in-person training courses to what is going to be the regular amount after the pandemic: around 40 courses in 20 locations. We also delivered the same amount of webinars, between 40 and 45.

We looked for ways to improve our learning experiences with our improved user feedback mechanisms and took action to make sure they stay relevant and useful. We also identified efficiencies in training delivery and costs, such as cost-sharing models for hosted workshops, something we will work to do more often in the future.

READ MORE

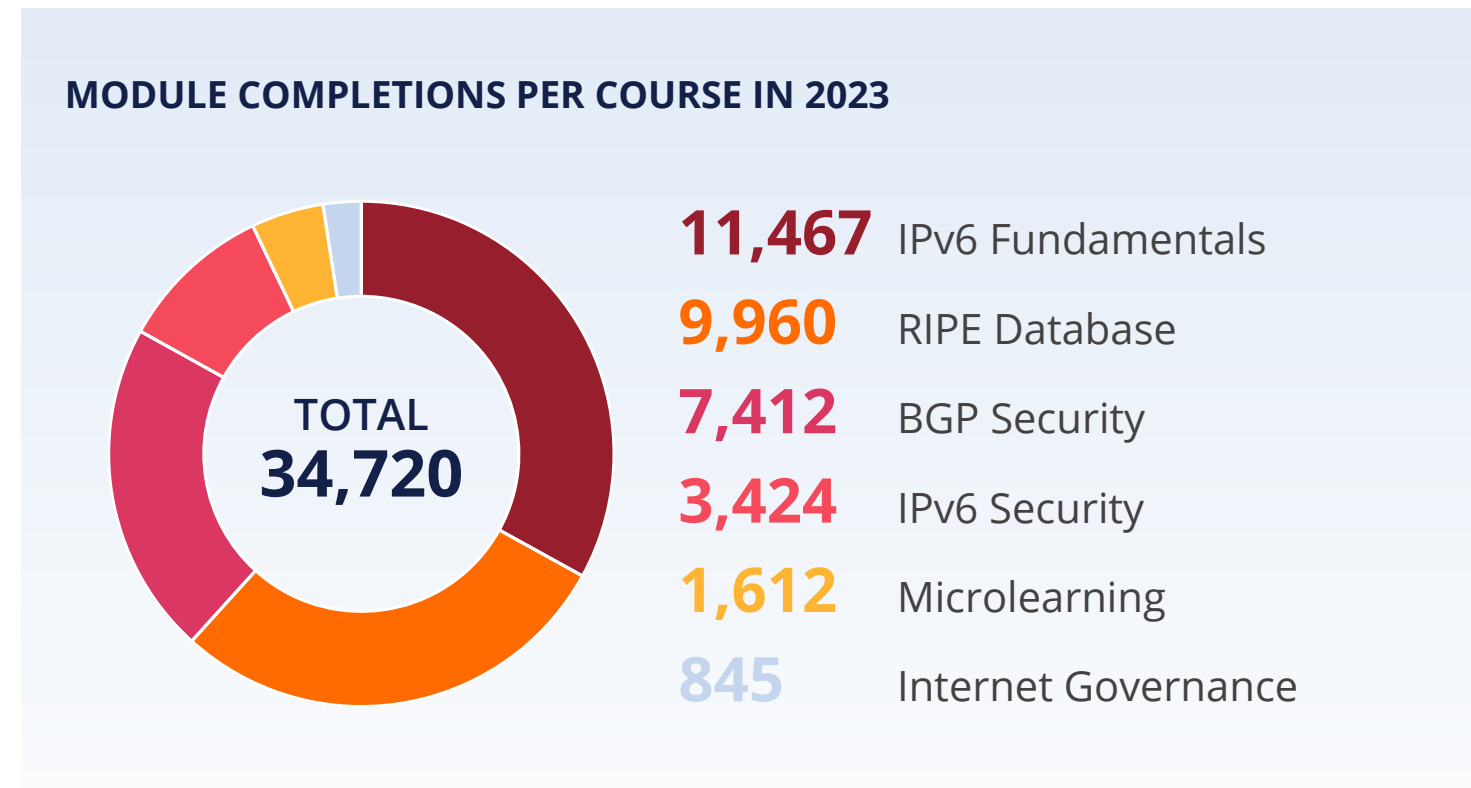|	In-person courses per topic	Webinars per topic	In-person participants per topic	Webinar participants per topic
BGP	12	8	251	148
Internet Registry	11	12	191	172
IPv6	16	17	316	385
Measurements & Tools	0	2	0	39
Network Security	0	5	0	133

RIPE NCC ACADEMY

The RIPE NCC Academy is our free online learning platform that offers self-paced e-learning courses to anyone who is interested. It now has over 100 e-learning modules on a diverse range of topics such as IPv6 Fundamentals, IPv6 Security, RIPE Database, BGP Security and Internet Governance.

In 2023, the key focus of our curriculum development team was to improve the quality and user experience of our learning experiences. We conducted assessment interviews, actively seeking input from RIPE NCC members and the community. This ensures that the content remains relevant, addressing the diverse needs of learners and contributing to the ongoing success of online learning initiatives.

READ MORE

TOTAL REGISTERED LEARNERS

13,705

NEWLY REGISTERED LEARNERS IN 2023

3,552

TOTAL ACTIVE LEARNERS 2023

5,801

MODULE COMPLETIONS PER COURSE IN 2023

TOTAL
34,720

11,467 IPv6 Fundamentals

9,960 RIPE Database

7,412 BGP Security

3,424 IPv6 Security

1,612 Microlearning
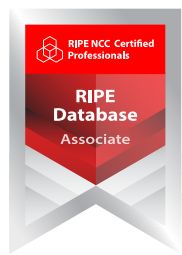
845 Internet Governance
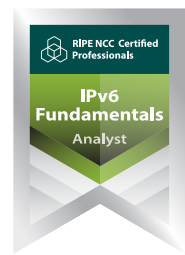
RIPE NCC CERTIFIED PROFESSIONALS

A RIPE NCC certification validates expertise in the fields of IP address management, IPv6 technologies and network security.

RIPE NCC Certified Professionals earn a digital badge that can easily be verified by any third party, like your employer or customers. We currently offer four certifications:
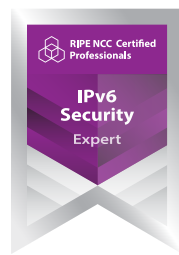
| RIPE Database Associate	IPv6 Fundamentals - Analyst	IPv6 Security Expert	BGP Security Associate

In 2023, we transferred our exam platform to a new provider. This improved the candidate experience by allowing us to make adjustments on the fly. It also made our platform accessible to all members in our service region. We also streamlined our onboarding and proctoring system, which is now managed and controlled by RIPE NCC staff. Finally, we worked on better integration between the Certified Professionals programme and the RIPE NCC Academy to better prepare candidates.

READ MORE

TOTAL EXAMS COMPLETED

954 (2022)
1,203 (2023)

TOTAL BADGES AWARDED

603 (2022)
838 (2023)

PER EXAM
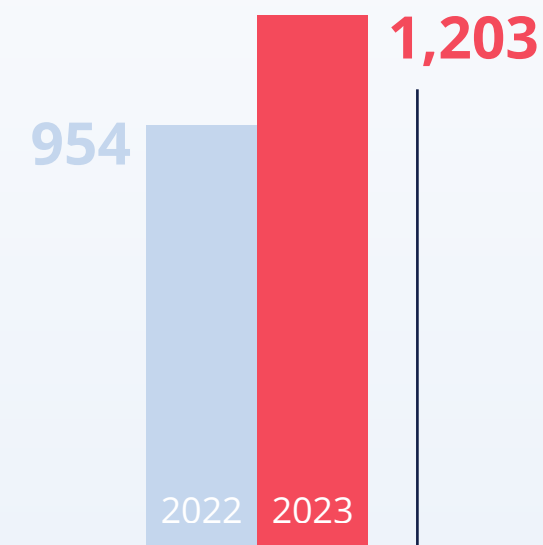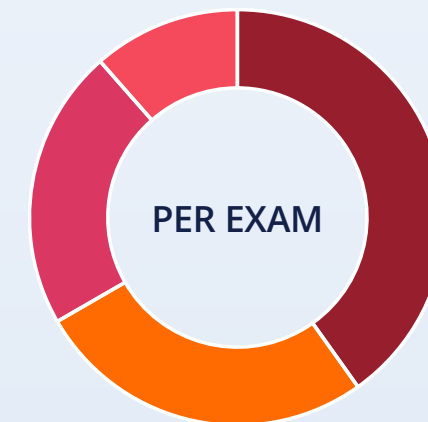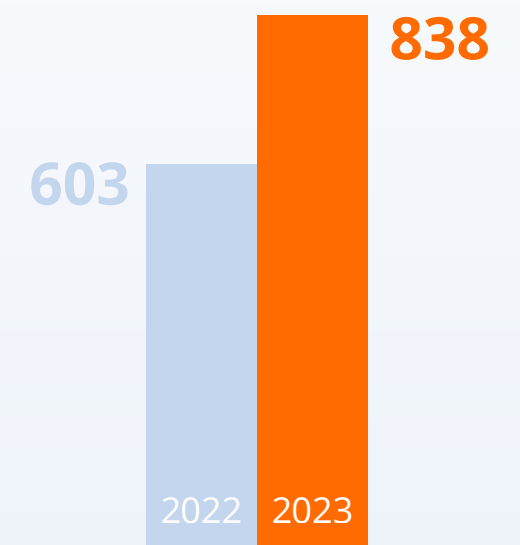
483 BGP Security
319 IPv6 Fundamentals
263 RIPE Database
138 IPv6 Security

POLICY DEVELOPMENT

Policies implemented by the RIPE NCC emerge from an open, transparent, community-led development process. Here is an overview of the policies discussed in 2023. The data shown reflects the status of that policy and participation as of 31 December 2023.

In 2023, four policy proposals were submitted. Three proposals were accepted following discussion:

- 2023-01 "Reducing IXP IPv4 assignment default size to a /26" (Address Policy Working Group) modified the default size of IPv4 assignments for IXPs from a /24 to a /26 and clarified the return of the assignments previously issued for their IXP peering LAN.

- 2023-02 "Minimum Size for IPv4 Temporary Assignments" (Address Policy Working Group) set the minimum size for a temporary IPv4 assignment to a /24 while still allowing for a smaller assignment if requested by the End User. It also allowed routing requirements to justify the request for more than a /24 for research purposes.

- 2023-03 "Voluntary Transfer Lock" (RIPE NCC Services Working Group) allowed the holders of resources registered with the RIPE NCC to inform the RIPE NCC which of these resources must not be transferred for a certain amount of time.

One proposal is still under discussion:

- 2023-04 "Add AGGREGATED-BY-LIR status for IPv4 PA assignments", submitted to the Address Policy Working Group, suggested introducing the AGGREGATED-BY-LIR status for IPv4 PA assignments to reduce LIR efforts in registration and maintenance. This status is already implemented in the IPv6 policy.

Following various discussions, RIPE community members volunteered to work on:

- Reviewing the RIPE IPv6 allocations and assignments policy.

READ MORE

HIGHLIGHTS

4 Policy proposals submitted for discussion

85+ People who participated in discussions

24 From how many countries

3 Policy proposals accepted

0 Policy proposals withdrawn

1 Ongoing proposals

PUBLIC AUTHORITY ENGAGEMENT

Our Roundtable Meetings offer governments and regulators the opportunity to discuss governance issues relevant to the RIPE NCC and the RIPE community while gaining a deeper understanding of complex technical topics.

In 2023, we held four Roundtable Meetings: one in Western Europe, one in the Middle East and two in South East Europe. Representatives attending these events discussed a variety of issues including developing digital infrastructure, creating sustainable Internet policies, upcoming digital policy and regulations, the effects of sanctions and the risk of Internet fragmentation. These meetings highlight the importance of digital cooperation between the technical community and the public sector.

In 2023, we sponsored several Internet governance events, including the global IGF and regional/national IGFs (EuroDIG, SEEDIG, CAIGF and those in Moldova, Kyrgyzstan, Serbia, Croatia, Kazakhstan, Armenia and Belarus).

PUBLIC POLICY CONSULTATIONS

We contribute to various consultations led by different governmental and inter-governmental organisations involved in Internet governance and public policymaking that have the potential to impact our operations or those of our members and the RIPE community. These organisations include the various individual governments and regulators throughout our service region, such as the European Commission as well as EU member states, the International Telecommunication Union (ITU) and ITU Arab Regional Office, the Internet Governance Forum (IGF), the Organisa-

tion for Economic Co-operation and Development (OECD), the Body of European Regulators for Electronic Communications (BEREC), the UN ESCAP Asia-Pacific Information Superhighway, the Regional Commonwealth in the Field of Communications (RCC), the IPv6 Council, the Eurasian Economic Commission, the League of Arab States, the Arab Information and Communication Technologies Organization (AICTO) and the UN Economic and Social Commission for Western Asia (ESCWA).

In 2023, we submitted a response to the European Commission's proposal for a Cyber Resilience Act (CRA) and sent a letter to the EU Parliament emphasising the RIPE community's concerns about the CRA's limited exemption for the development and making available of open-source software. We also submitted interventions on the UN's Global Digital Compact, specifically in the thematic deep dives on Internet governance and on digital inclusion and connectivity. During the UN consultation on the Global Digital Compact, we responded to their questionnaire highlighting key focus areas, namely: connecting all people to the Internet, including all schools; avoiding Internet fragmentation; the digital commons as a global public good; and Internet governance and participation. We shared our response to the GDC consultation with the RIPE community and with government representatives and regulators at our South East Europe Roundtable Meeting. We also responded to the Dutch Ministry of Foreign Affairs regarding their Pre-consultation about the Modernisation of the Dutch Sanctions System to share our concerns about the consequences of sanctions and compliance on our operations.

In August 2023, Russia enacted legislation forbidding participation for foreign NGOs that are not registered in a special registry. We have been investigating its potential impact on the RIPE NCC and our members and have been in touch with various stakeholders and experts to get their understanding on this law and its implications. This is crucial to us as we have a great number of members in Russia, including natural and legal persons, as well as state bodies.

In the Middle East, we contributed to initiatives such as the Arab Digital Agenda, the Arab Cybersecurity Strategy and the IPv6 Arab Council to help shape a future-ready Internet landscape. We maintain an active presence within the Arab Expert Group working on the Arab Digital Agenda and the Arab working group on Internet-related issues and routinely attend events such as the Arab IGF and Arab High-Level WSIS. In 2023, the Council of Arab Information and Communications Technology Ministers incorporated the outcomes of our government roundtable discussions into their recommendations, marking a significant milestone of successful collaboration. Regardless of the particular issue, our standpoint always champions a multistakeholder approach to Internet governance and is focused on protecting the Internet's core technical functions, the role of the global RIR system, and the technical community's role in operating the technical layers of the Internet.

READ MORE

SUPPORTING THE COMMUNITY

RIPE FELLOWSHIP

Through the RIPE Fellowship, we aim to increase diversity in the RIPE community by supporting those from underrepresented regions, minority backgrounds, or those who require funding to attend a RIPE Meeting. Fellowships are open to those living or working in the RIPE NCC service region, and studying or working in Internet technology or related topics of interest to the RIPE community.

- SEE 11:   **6** Fellowships awarded
- RIPE 86:   **15** Fellowships awarded
- CAPIF 2:   **15** Fellowships awarded
- MENOG 23:   **3** Fellowships awarded
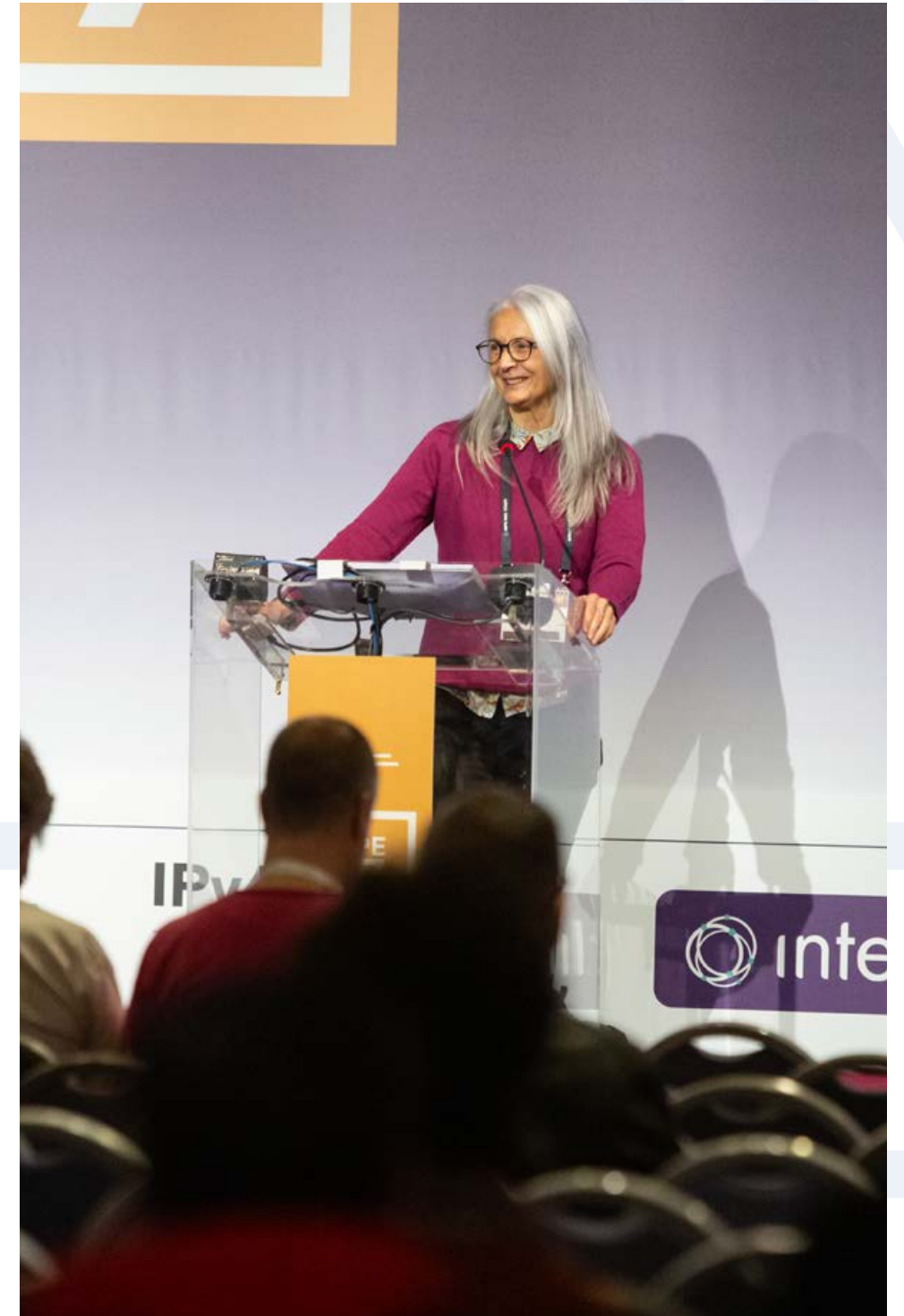- RIPE 87:   **6** Fellowships awarded

READ MORE

RACI

The RIPE Academic Cooperation Initiative helps members of the academic community connect with and present to the RIPE community at RIPE Meetings and RIPE NCC Regional Meetings.

- SEE 11:   **3** RACI attendees
- RIPE 86:   **8** RACI attendees
- RIPE NCC Days Sofia: **1** RACI attendee
- RIPE 87:   **6** RACI attendees

READ MORE

OPEN HOUSE EVENTS

An Open House event features a diverse array of engaging formats, including presentations, panel discussions, expert Q&A sessions, and open mic opportunities for participant interaction. These events, true to their name, are free to attend and open to anyone who is interested. Through a series of focused gatherings, we aim to provide in-depth insights into pressing topics, such as the state of the Internet in Ukraine.

Furthermore, we dedicate space for community involvement and feedback, such as through discussions on IPmap and our country reports. This year, we placed a special emphasis on the Community Projects Fund, fostering a collaborative environment for communal initiatives and development. Additionally, our sessions served as a platform to dissect and debate our Activity Plan and Budget and Charging Scheme, ensuring transparency and community-driven refinement.

For broader accessibility and future reference, we record these sessions and publish them online.

READ MORE

TOP 10 OPEN HOUSE SESSIONS OF 2023

Internet in Ukraine

Internet Country Report: Central Europe

RIPE IPmap and Infrastructure Geolocation

Community Projects Fund Recipient Updates Series

Internet in Norway

Meet the Executive Board Candidates

Internet in Poland

Draft Activity Plan and Budget 2024

Requirements and Expectations for Board Members and Candidates

Charging Scheme 2024 Consultation

NOGS AND REGIONAL EVENTS

In 2023, we presented at the following NOGs:

DKNOG BHNOG HRNOG KZNOG ITNOG CSNOG ESNOG NetMcr PLNOG SwiNOG nog.fi TJ-KOC

Baykal NOG SiNOG NLNOG RONOG NONOG UKNOF HUNOG GRNOG LUNOG RSNOG

Out-of-Region NOGs PhNOG IDNOG NANOG SAFNOG AONOG

■ Sponsored and Presented at ■ Presented at

SEE 11

SEE 11 took place in Split, Croatia from 4-5 April 2023. The meeting saw 127 attendees from 19 different countries, including 56 newcomers.

The meeting discussed the Internet in South East Europe and featured a panel discussion on the evolution of the telecommunications market in the region so far and predictions for the future.

Other key topics were IPv6, cybersecurity, updates on networking in Ukraine and the first NOG meeting in Bosnia and Herzegovina.

READ MORE

MENOG 23

MENOG 23 took place in Riyadh, Saudi Arabia from 11-12 October 2023. 217 attendees joined in from 25 different countries, with 80 newcomers.

The event featured panel discussions on building Internet communities, the importance of Internet exchange points and the role of Saudi Arabia as a digital hub.

Also discussed at the meeting were RPKI, peering and Internet measurement tools.

READ MORE

CAPIF 2

CAPIF 2 took place in Tashkent, Uzbekistan from 19-20 September 2023. There were 225 attendees from 19 different countries.

The meeting focused on the importance of peering and interconnection in Central Asia. There were presentations from representatives of major ISPs and IXPs in the region. There were also presentations on useful Internet measurements and tools. IPv6 and RPKI were also discussed.

The meeting also saw the launch ceremony for the first K-root server in Uzbekistan.

READ MORE

RIPE NCC DAYS SOFIA

RIPE NCC Days Sofia took place in Sofia, Bulgaria from 27-28 June 2023. There were 124 attendees from eight different countries.

Key topics at the meeting were routing security, IPv6 and Internet measurement tools. There
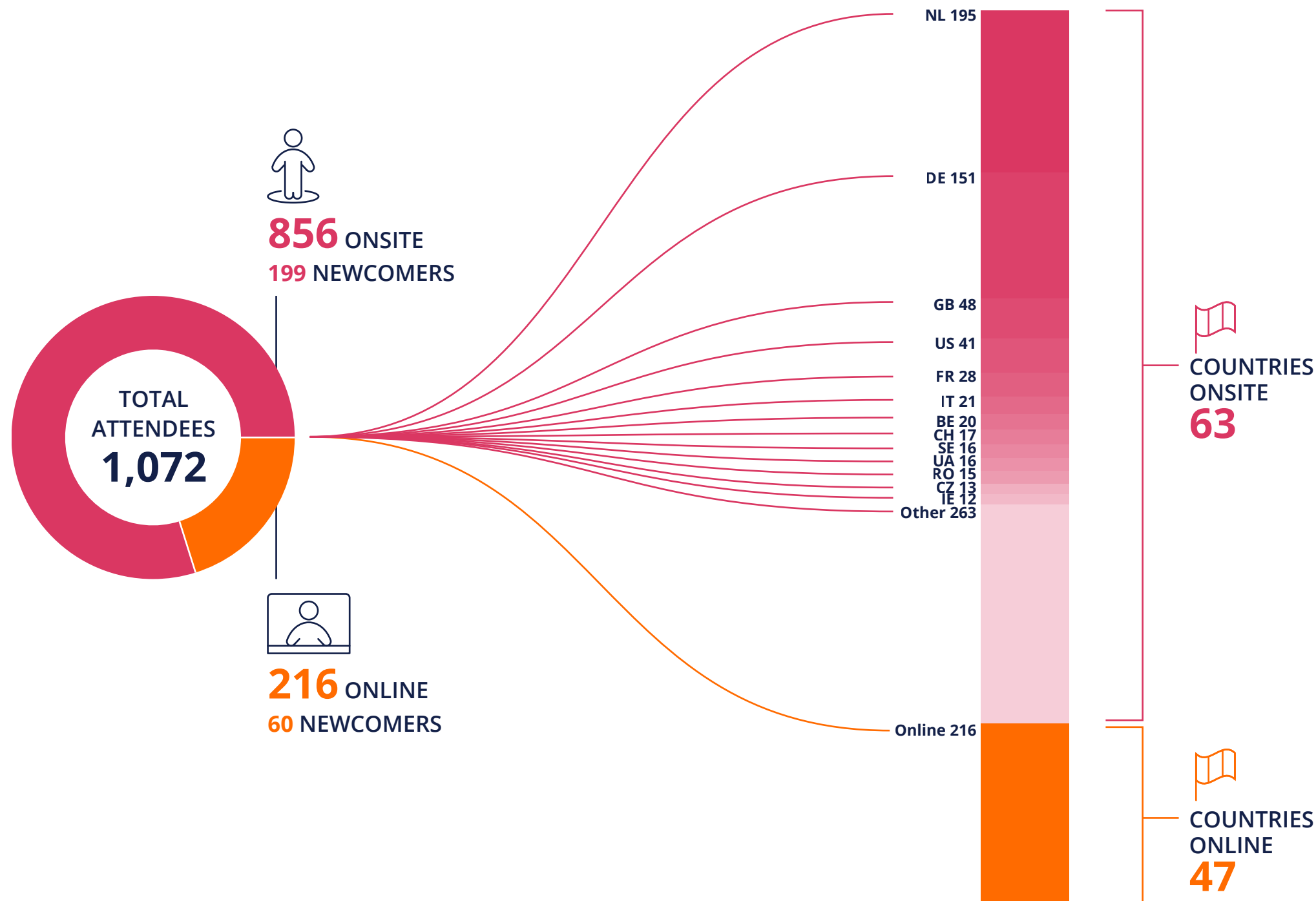
was also a presentation on trends in the telecommunications market in South East Europe and on the history of the Internet in Bulgaria.

READ MORE

INTERNET MEASUREMENT DAYS

In 2023, we held two Internet Measurement Days. One took place in Bishkek, Kyrgyzstan on 30 May 2023, with 89 attendees. The other took place in Chisinau, Moldova on 20 November 2023, with 72 attendees.

READ MORE

RIPE 86 - ROTTERDAM, THE NETHERLANDS

856 ONSITE
199 NEWCOMERS

TOTAL ATTENDEES
1,072

216 ONLINE
60 NEWCOMERS

NL 195
DE 151
GB 48
US 41
FR 28
IT 21
BE 20
CH 17
SE 16
UA 16
RO 15
CZ 13
IE 12
Other 263

Online 216

COUNTRIES ONSITE
63

COUNTRIES ONLINE
47
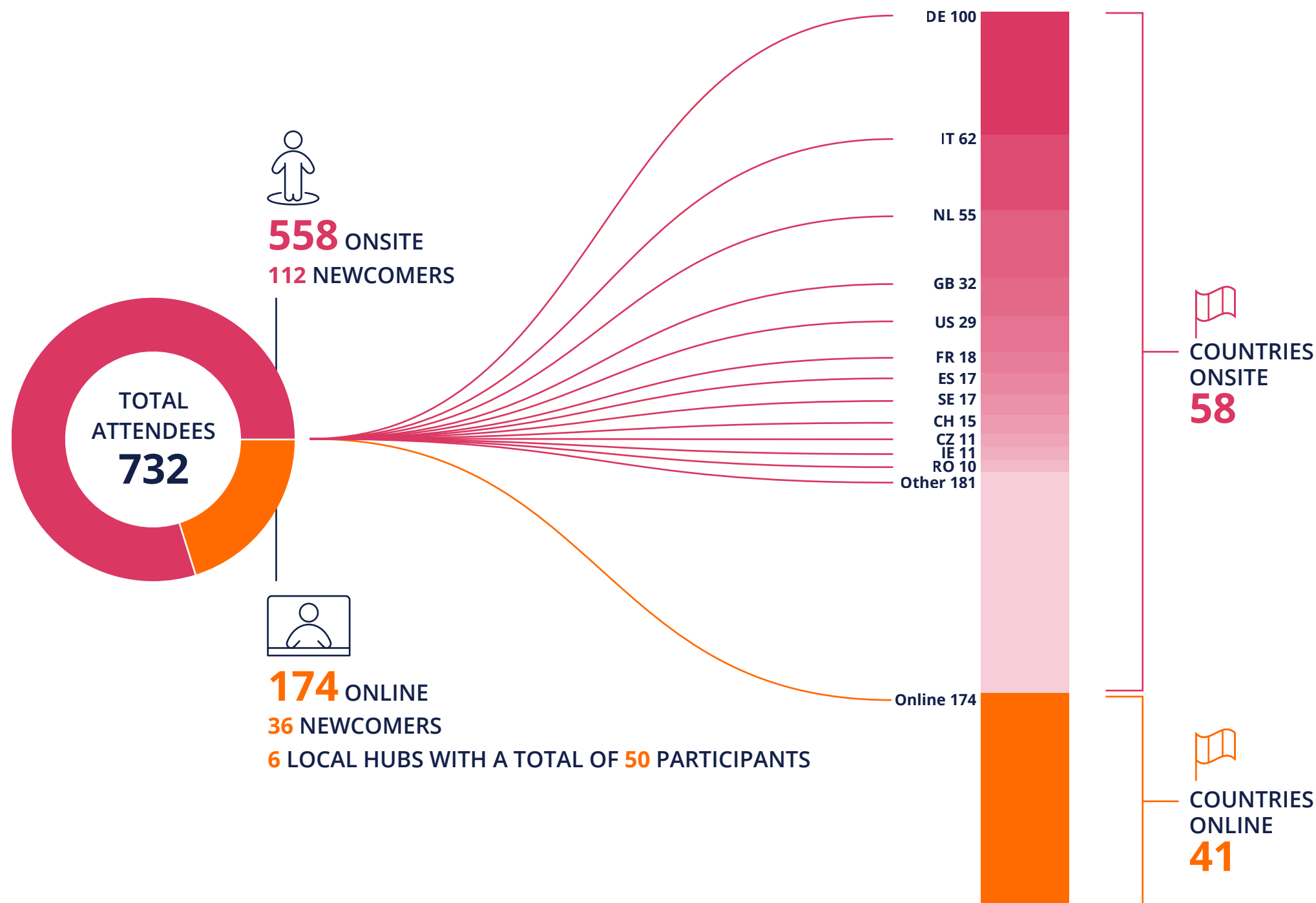
READ MORE

Highest number of onsite attendees ever

Reached the milestone of 20,000 RPKI certificates

New RIPE Code of Conduct Team

Diversity in Tech session focusing on youth involvement

RIPE 87 - ROME, ITALY

TOTAL ATTENDEES
732

558 ONSITE
112 NEWCOMERS

174 ONLINE
36 NEWCOMERS
6 LOCAL HUBS WITH A TOTAL OF **50** PARTICIPANTS

READ MORE

DE 100
IT 62
NL 55
GB 32
US 29
FR 18
ES 17
SE 17
CH 15
CZ 11
IE 11
RO 10
Other 181

Online 174

COUNTRIES ONSITE
58

COUNTRIES ONLINE
41

HIGHLIGHTS

Randy Bush was presented with the Rob Blokzijl Award for his contributions to the Internet in the RIPE NCC service region and beyond

————

Presented the results of the RIPE NCC Survey 2023

————

Local hubs were offered for the first time, in Bruges, Kyiv, Glasgow, Sanaa, Tallinn and Amsterdam

————

Attendees celebrated our IPv6-only meeting network

THE COMMUNITY PROJECTS FUND

Through the RIPE NCC Community Projects Fund, we aim to support projects of value to the operation, resilience and sustainability of the Internet, with a focus on tools and services benefitting the technical community in our service region.

There's no shortage of creative solutions in our community, and this fund gives innovators the chance to work on their project for 'the Good of the Internet'.

The RIPE NCC Community Projects Fund opened its call for applications in March 2023. The application period was open for just over 12 weeks, and 54 applications from 26 different countries were submitted to the Selection Committee.

READ MORE

PROJECTS FUNDED IN 2023

measurement.network: Organising active measurements
Tobias Fiebig

SubZero: Monitoring the deployment impact of the submarine cable system
Ioana Livadariu

Designing the next generation of public BGP route collection infrastructures
Fondation Université de Strasbourg

Community Canary: One of the first community projects trying Tor's Rust implementation Arti
Blueprint for Free Speech

Anycast Discovery: Daily mapping the Anycast landscape for enhanced Internet resilience
DACS, University of Twente

Secure time for IoT devices: developing the Roughtime proposed standard
Netnod AB

RIPE LABS

RIPE Labs is an open platform for network operators, researchers, developers and others to share case studies, best practices, deployment experiences, prototypes, research and more.

We also use RIPE Labs to share ideas and ask for feedback from the community, as well as trial prototypes for our tools. In 2023, we put increased focus on producing data-driven stories to provide the community with insights into a wide variety of Internet-related topics.

Data-Driven Stories in 2023

- Unknown Attribute 28 - A Source Of Entropy in Interdomain Routing?
- Does the Internet Route Around Damage? - Edition 2023
- The Resilience of the Internet in Ukraine - One Year On
- Palestine Internet Connectivity as Seen in BGP
- Who's Waiting on the IPv4 Waiting List?
- CAPIF 2: The Road to Interconnection

The RIPE Labs Article Competition

We held two competitions in 2023, with a total of 15 entries from the community.

- **RIPE Labs Article Competition Winner - RIPE 86**

  Intercept and Inject: DNS Response Manipulation in the Wild -
  Yevheniya Nosyk
- **RIPE Labs Article Competition Winner - RIPE 87**

  BGP Path Attribute Filtering - A Powerful Tool to Mitigate Alien Attributes -
  Berislav Todorovic

THREE MOST-READ RIPE LABS ARTICLES FROM 2023

Unknown Attribute 28 - A Source Of Entropy in Interdomain Routing?

Emile Aben

👁 **3,968** VIEWS*

READ MORE

BGP Path Attribute Filtering - A Powerful Tool to Mitigate Alien Attributes

Berislav Todorovic

👁 **2,010** VIEWS

READ MORE

Does the Internet Route Around Damage? - Edition 2023

Emile Aben

👁 **1,059** VIEWS

READ MORE

120 Articles

6 Podcasts

66 Articles (by non-staff)

24,295 Unique pageviews per month (average)

* Views here refers to average unique pageviews per month.

SURVEY 2023

In May-June 2023, we worked with Survey Matters, an independent third party, to conduct a survey on the RIPE NCC's services and activities. 3,899 people completed the survey, and their input helped us gauge the satisfaction of our members and stakeholders, the challenges they are facing, and the steps they would like us to take in the future.

Key findings from the survey indicate a high level of satisfaction regarding the quality of our service delivery, especially in areas such as resource registration, accuracy of the RIPE Database, and the responsiveness of our support services. The survey also highlighted areas for improvement, notably in the perceived value of membership fees and the effectiveness of communication and outreach efforts.

Members expressed concerns over the need for more IPv4 addresses and the slow adoption rate of IPv6. They emphasised the need for the RIPE NCC to be more active in facilitating the transition to IPv6, including offering more educational resources, training, and support for members undertaking this transition.

Cybersecurity equally emerged as a significant concern, with respondents indicating that the RIPE NCC should enhance its efforts in supporting members to secure their networks against increasing cyber threats. This includes developing best practice guides, security tools, and more robust collaboration with law enforcement agencies.

After examining the survey findings, we pinpointed 40 specific areas that we consider key findings that need to be addressed or considered as we carry out our work in the coming years. We are committed to releasing proposed responses and/or actions for each area that effectively address the identified issues.

READ MORE

HIGHLIGHTS

3,899 respondents

Available in 10 languages

52% of responses completed in a language other than English

Over nine in ten respondents rate the RIPE NCC's quality of service delivery as good or excellent (92%)

Net Promoter Score is strong (+43)

Perceptions of value for money have dropped (down from 76% to 69% since 2019)

80% of respondents who used the RIPE Database over the last two years feel the information is accurate (86%) and useful (89%)

Four in ten respondents indicate that information security remains one of the main challenges in their organisation

Inside the RIPE NCC

AT THE HEART OF THE RIPE NCC

FTEs
180.7
AVERAGE OVER 2023

182.3 AT THE END OF 2023

STAFF
FEMALE
35%

STAFF
MALE
65%

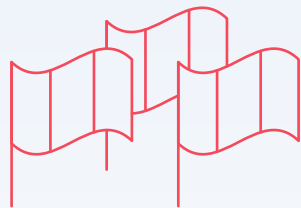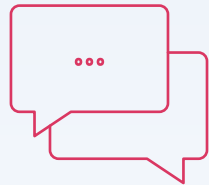FTE CONSULTANT VIA
EMPLOYER OF RECORD
1.4
AVERAGE OVER 2023
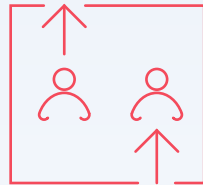
2.8 AT THE END OF 2023

NUMBER OF
STAFF NATIONALITIES
42

NUMBER OF
LANGUAGES
30+

TURNOVER
6.7%

READ MORE

RIPE NCC MANAGEMENT

The RIPE NCC's management team collectively take on the role of day-to-day management of the organisation by providing strategic and operational leadership and setting and reviewing Objectives and Key Results in line with the RIPE NCC Strategy and Activity Plan and Budget. A key function of the team is to ensure consistency in activities across the organisation, assessing the risks of the organisation and ensuring that these are being managed.

HANS PETTER HOLEN
MANAGING DIRECTOR

Hans Petter is responsible for the day-to-day operation of the organisation in line with the strategy approved by the Executive Board. He attends meetings of the Executive Board as set out in the Articles of Association. He also serves on the Executive Council of the Number Resource Organization (NRO), which is the coordinating body for the world's Regional Internet Registries (RIRs).

DANIELLA COUTINHO
SENIOR EXECUTIVE ASSISTANT TO THE MANAGING DIRECTOR

Daniella is the Senior Executive Assistant to the Managing Director and is also responsible for supporting the Executive Board. This includes managing the high-level administrative and strategic activities of the Managing Director and Executive Board, handling meeting logistics, preparing documentation and ensuring efficient communication between the RIPE NCC's management team, Executive Board and stakeholders.

ATHINA FRAGKOULI
CHIEF LEGAL OFFICER

Athina is responsible for the RIPE NCC's legal affairs and relevant risks to the organisation, including:
- Legal and regulatory compliance
- Corporate governance
- Legal matters related to Internet governance, public policy, national authorities and law enforcement agencies (LEAs)
- Legal impact analysis as part of the RIPE Policy Development Process (PDP) and technical discussions

SIMON-JAN HAYTINK
CHIEF FINANCIAL OFFICER

Simon-Jan is responsible for controlling and managing the RIPE NCC's financial resources within its risk appetite. This includes ensuring that all financial transactions, systems and procedures comply with regulations, accounting principles and standards.

HISHAM IBRAHIM
CHIEF COMMUNITY OFFICER

Hisham is responsible for managing and leading the External Engagement and Community budget and activities. External Engagement and Community consists of:
- Community building and member engagement
- Community learning and development
- Community coordination and collaboration
- Research

FELIPE VICTOLLA SILVEIRA
CHIEF TECHNOLOGY OFFICER
(Moved from Chief Operations Officer in 2023)

Felipe is responsible for managing and leading the Technology and Information Services budget and activities. Information Services consists of:
- LIR Portal
- RPKI
- RIPE Database
- DNS and K-Root
- RIPE Atlas
- RIPEstat
- RIS
- IT support

JAMES KENNEDY
CHIEF REGISTRY OFFICER *(Joined in 2023)*

James is responsible for managing and leading the Registry budget and activities. The Registry consists of:
- Registration of IP addresses and ASNs
- Processing of Registry updates
- Membership administration
- Registry accuracy and investigations

CAROLIEN VOS
CHIEF HUMAN RESOURCES OFFICER

Carolien is the head of HR and Administration and leads the two teams in these domains. She is responsible for developing and implementing the organisation's human resource strategy to attract, develop and retain talented employees to achieve current and future business objectives. She is also responsible for maintaining and improving office facilities and ensuring the delivery of organisational (administrative) support.

ELEONORA PETRIDOU
CHIEF INFORMATION SECURITY OFFICER

Eleonora is responsible for ensuring that the RIPE NCC maintains necessary levels of information security and compliance with best practices and applicable regulations.

GENERAL MEETING

The RIPE NCC holds a General Meeting (GM) twice a year - in spring and in autumn. The GM is the forum at which members can discuss the operations and activities of the RIPE NCC and share their feedback. Members also vote on the charging scheme for the following year, elect representatives on the RIPE NCC Executive Board and give their feedback on our Activity Plan and Budget.

The May 2023 GM had an unusually high member turnout compared to other GMs. It had the second highest number of votes and member turnout in the last decade following the May 2020 GM. The main reasons for such a high turnout were the proposal of four charging scheme options that drew a lot of comments from the members, and an Executive Board election with three available seats. In May, members voted to retain the existing charging scheme and elected Raymond Jetten, Maria Häll and Harald A. Summa to the Executive Board. In November, members approved changes to the RIPE NCC Articles of Association to strengthen our governance.

READ MORE

ELIGIBLE MEMBER TURNOUT

14.6% — May 2023
7.7% — Nov 2023

REGISTERED VOTES

2,911 — May 2023
1,532 — Nov 2023

CAST VOTES

2,366 — May 2023
1,204 — Nov 2023
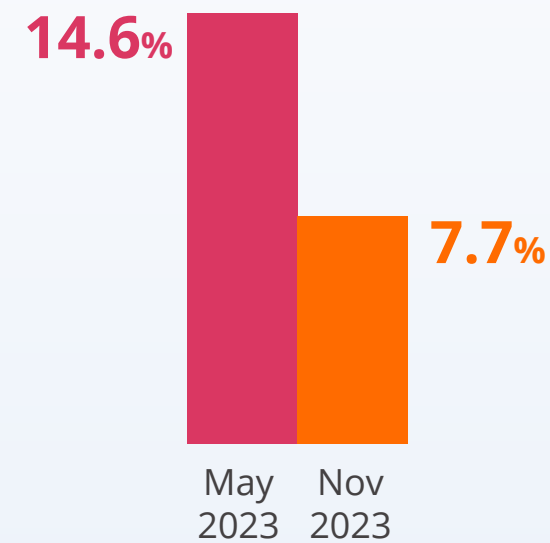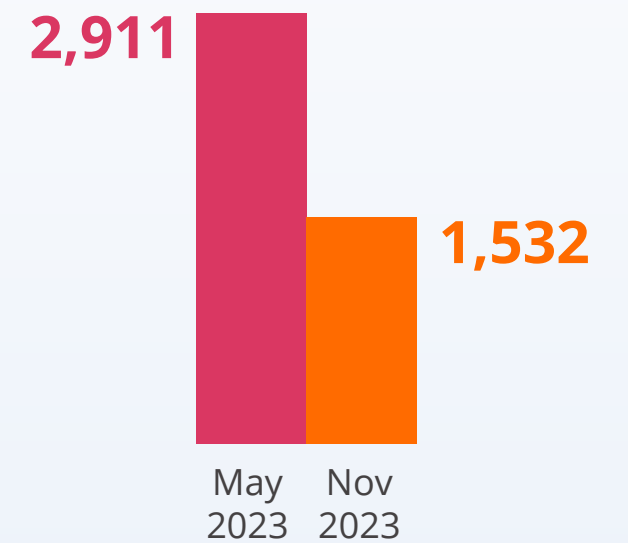
NUMBER OF COUNTRIES

86 — May 2023
72 — Nov 2023

COMPLIANCE AND TRANSPARENCY

We aim to implement corporate governance best practices where possible. We operate under transparent organisational, management and Executive Board structures.

CORPORATE GOVERNANCE

In 2023, we amended the following RIPE NCC legal documents:

- RIPE NCC Articles of Association
- RIPE NCC Standard Service Agreement
- RIPE NCC LIR Account Agreement
- Due Diligence for the Quality of the RIPE NCC Registration Data
- Transfer of Internet Number Resources and Change of a Member's Official Legal Name
- Independent Internet Number Resources - Contractual Relationship Changes Between Sponsoring LIR and End User
- Closure of Members, Deregistration of Internet Resources and Legacy Internet Resources
- RIPE Database Terms and Conditions
- RIPE NCC Certified Professionals Terms and Conditions
- RIPE NCC Website and Publicly Available RIPE NCC Services Terms of Service
- RIPE NCC Privacy Statement

All of these documents and their previous versions are available on our website.

READ MORE

ARBITRATION CASES

In 2023, we did not have any arbitration cases.
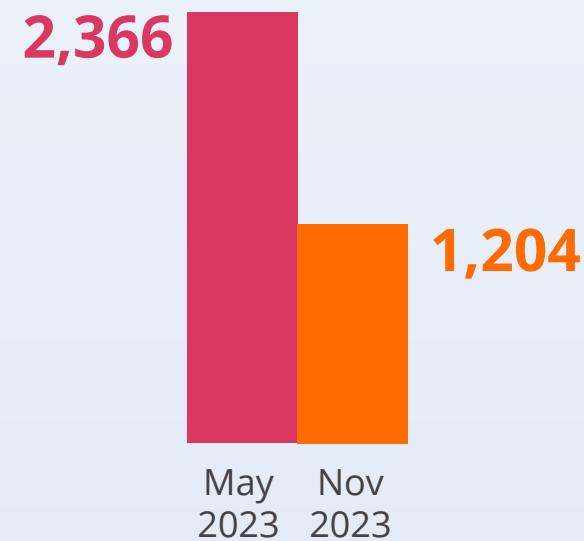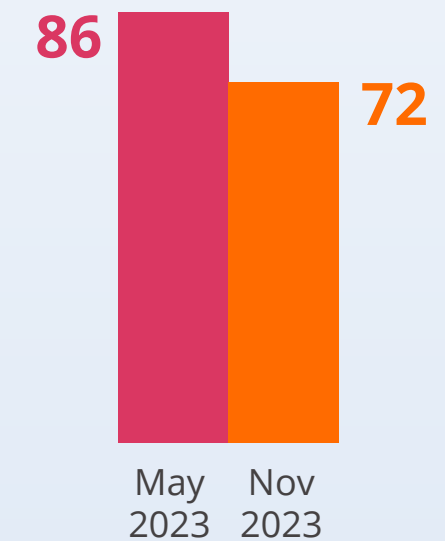
LEA TRANSPARENCY REPORT

The RIPE NCC receives information requests from Law Enforcement Agencies (LEAs) and tries to facilitate the provision of any required publicly available information. We do not provide confidential or private information to LEAs without a court order or other legally enforceable order or request under Dutch law.

READ MORE

GDPR COMPLIANCE

In 2023, we received 11 GDPR requests in total. Nine were from individuals requesting to delete their personal data. The other two were requests to confirm whether we are processing any personal data concerning the relevant requesters and, if yes, provide them access to their data. Upon receipt of any GDPR request and before we take any action, we ask to verify that the requester is the data subject of whom the request is about.

We complied with all requests to delete the individuals' personal data. In two cases where third parties we had engaged for the facilitation of a provision of a RIPE NCC service were processing the individuals' personal data on our behalf, we contacted these third parties and received their confirmation that they had deleted the relevant data upon our request. In one case, we received a request to delete personal data, but no personal data related to this individual was found.

Regarding the requests for access to the individual's personal data, we have complied with one of them. The other one was not completed as the requester did not respond to our authentication request.

We also had a security incident that involved the exposure of personal data from our intranet to an external service. We had our intranet's data deleted from this service and reported the incident to the Data Protection Authorities.

SANCTIONS AND MEMBER RESOURCES

Since the 2022 Russian invasion of Ukraine, the EU has passed a number of sanctions Regulations against many Russian entities and individuals. These and other previously passed sanctions Regulations have required us to invest more time and effort in screening potentially sanctioned members or End Users than in previous years. This included reviewing whether non-sanctioned members or End Users were owned or controlled by sanctioned parties.

To ensure compliance, we have invested in a sanctions third-party screening tool to automate this process; however, our manual follow-up due diligence checks still required substantial effort from us. In cases where a member or End User is found to be subject to sanctions, we are required to freeze their registered resources in the RIPE Database. However, we do not have to deregister these resources or terminate memberships.

In the sixth sanctions package against Russian entities and individuals, the EU Regulations introduced an exemption, and we confirmed with the Dutch government that this exemption also applied to Internet number resources. As a result, we were able to remove sanctions-related restrictions from 150 RIPE NCC members and End Users in

2023. We will also continue to investigate the possibility of a blanket exemption from all EU sanctions regulation for Internet number resources.

Since 2021, we have also been dealing with ongoing banking issues as many banks are hesitant to accept payments from individuals or entities in Iran and Syria. This has prevented many of our Iranian and Syrian members from being able to fulfil their financial payment obligations to us. We have therefore offered payment extensions to these members until we resolve the issues with our banks and are seeking a long-term solution to this situation.

READ MORE

QUARTERLY SANCTIONS TRANSPARENCY REPORTS
To keep members informed, we publish quarterly sanctions transparency reports on how RIPE NCC members, End Users and legacy resource holders are affected by sanctions. In 2023, we published four reports:

ripe-789
Q1 2023

READ MORE

ripe-799
Q2 2023

READ MORE

ripe-803
Q3 2023

READ MORE

ripe-809
Q4 2023

READ MORE
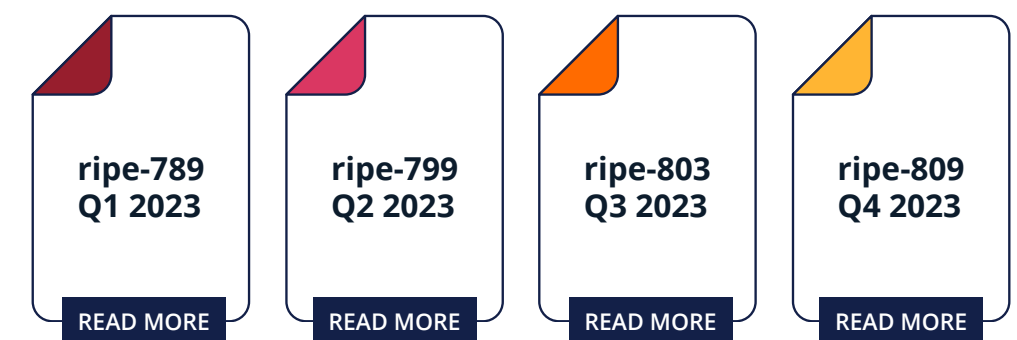
OVERVIEW OF COSTS PER ACTIVITY IN 2023 (in kEUR)

These figures are not part of the Financial Report and as such have not been audited by an external third party. These figures serve only as indications of the costs relating to these activities.

	Budget Operational Expense 2023	Actual Operational Expense 2023	Variance 2023	Actual Operational Expense 2022
The Registry	**10,000**	**10,146**	**(146)**	**9,391**
Registration Services	2,180	2,436	(256)	2,697
Membership Administration	1,380	1,474	(94)	1,081
Registry Accuracy and Investigations	1,350	1,298	52	1,364
LIR Portal	2,520	2,590	(70)	2,136
RPKI	1,930	1,662	268	1,555
RIPE Database	640	686	(46)	558
Information Services	**7,600**	**7,343**	**257**	**7,068**
DNS and K-Root	850	929	(79)	744
RIPE Atlas	1,400	1,336	64	1,579
RIPEstat	600	454	146	504
RIS	1,100	629	471	525
IT Support	3,650	3,995	(345)	3,716
External Engagement & Community	**10,000**	**9,160**	**840**	**8,353**
Community Building and Member Engagement	5,680	5,543	137	4,840
Community Learning and Development	1,920	1,855	65	2,128
Community Coordination and Collaboration	2,400	1,762	638	1,385
Organisational Sustainability	**11,300**	**9,493**	**1,807**	**8,823**
Facilities	2,190	1,971	219	1,648
HR	1,200	1,324	(124)	1,149
Legal	1,160	957	203	1,046
Finance	1,550	1,515	35	1,440
Information Security and Compliance	2,000	1,414	586	1,332
Office of the Managing Director	2,900	2,048	852	1,897
RIPE Chair	300	264	36	311
RIPE NCC (BEFORE BAD DEBTS AND DEPRECIATION)	**38,900**	**36,142**	**2,758**	**33,635**
Bad Debts	280	385	(105)	265
Depreciation	820	732	88	710
RIPE NCC TOTAL	**40,000**	**37,259**	**2,741**	**34,610**

OVERVIEW OF COSTS PER ACTIVITY IN 2023

For 2023, the RIPE NCC's operating expenses are under budget by 2.7 MEUR:

- The Registry: 146 kEUR over budget
- Information Services: 257 kEUR under budget
- External Engagement & Community: 840 kEUR under budget
- Organisational Sustainability: 1,807 kEUR under budget
- Bad Debts and Depreciation: 17 kEUR over budget

We are proud that we have been able to reduce costs with 2.7 MEUR, but the reasons for deciding to take this course of action are worrisome regarding our long-term financial stability. We have seen an unexpected reduction in income due to fewer new LIR accounts than budgeted and an expected decline in the number of LIR accounts overall (due to consolidation of multiple LIR accounts), combined with our inability to collect membership fees from Ultra High-Risk Countries. Additionally, there was the outcome of the May 2023 GM vote on the Charging Scheme 2024, in which the GM voted not to increase membership fees for 2024 and to reject a category-based charging scheme model. This meant a reduced budget for 2024 on top of increased costs due to inflation, which prompted an executive decision to immediately start

cutting costs to avoid a deficit for 2023 and to ensure a good starting base for 2024.

As a result, 2023 was a year focused on cost-cutting and efficiency for the RIPE NCC, while making sure we continued to deliver the level of service our members expect. This was achieved alongside rising costs due to inflation and a general trend of increasing salaries in the Dutch labour market. In 2023, the RIPE NCC conducted a benchmarking study on salary packages to ensure we conform to the market in terms of remuneration so that we can attract and retain knowledgeable and competent staff. A significant correction based on the outcome of this benchmarking study was processed in 2023. Here, we also made sure to include the effect of the extraordinary inflation of around 10% over 2022 for the Netherlands. This had a significant impact on the non-staff related operating expenses, which had to endure the bulk of the cost savings. This effect can be clearly seen in the actual versus budget results across all four budget divisions.

THE REGISTRY

These activities were over budget by 146 kEUR (1.5%). The Registry budget consists of over 70% of personnel

costs, and with that the benchmark corrections were the main factor in being over budget. This effect was offset by cost savings in consultancy (in software engineering) and information technology (compliance software in relation to sanctions).

INFORMATION SERVICES

These activities were under budget by 257 kEUR (3.4%). Personnel costs also made up the largest share of the budget, at 60%. Savings were made mainly in information technology, with cloud costs being the main contributor. These savings were offset by the steep increase in energy costs for our off-site server location. Overall, the costs reflect the change in CTO and cost-saving efforts in 2023.

EXTERNAL ENGAGEMENT & COMMUNITY

In light of the financial challenges outlined above, the External Engagement and Community teams were tasked with implementing a significant reduction in operational costs mid-year. These changes were reflected in our finances, as the External Engagement and Community activities concluded the year under budget by 840 kEUR, equating to an 8.4% decrease. This reduction was largely possible because many of these activities had a one-

off character, allowing for quicker budget adjustments. Significant savings were realised in areas such as travel, consultancy, and outreach & PR, which were the primary contributors to the cost reduction.

Despite achieving financial efficiency with all activities under budget in 2023, this came at the cost of reduced community engagement, which notably affected our ability to support national engagements within our service region—a concern voiced by our members during the November 2023 General Meeting.

ORGANISATIONAL SUSTAINABILITY

These activities were under budget by 1,807 kEUR (16%) and were therefore the most significant area of cost savings in 2023. This was helped by lower-than-budgeted office expenses, as many staff still frequently work from home. The NRO budget (which is shared with the other RIRs) was also significantly under-utilised, resulting in a cost saving for contributions. The major cost savings were in consultancy, after a conscious decision was made to scale back and prioritise in-house expertise and to not use the corporate restructuring budget.

Overall, all activities were under budget following an executive decision to cut costs in early 2023. HR is the one activity that was over budget, which is explained by an investment in leadership development throughout the RIPE NCC, the costs for which were assigned to the HR activity.

DEPRECIATION & BAD DEBTS

Depreciation was under budget after efforts by our new CTO to streamline costs so that we have a good strategy moving forward. As part of this, it was prudent to not fully exploit the CAPEX budget in 2023.

Bad debts were over budget, reflecting the uncertainty resulting from the payment extension we provided to our Ukrainian LIRs. We are confident and hopeful that our members in Ukraine will be able to maintain their business and pay their outstanding invoices, but we are required to reflect this uncertainty to ensure a true and fair view of our finances.

OVERVIEW OF THE RIPE NCC BUDGET AND EXPENSES 2023

Budget and Expenses (in kEUR)

Budget Savings (in kEUR)

	The Registry	Information Services	External Engagement and Community	Organisational Sustainability	Bad Debts and Depreciation
Total budget 40,000	10,000	7,600	10,000	11,300	1,100
	↑	↓	↓	↓	↑
Actual expenses 37,259	10,146	7,343	9,160	9,493	1,117

The Registry

	Registration Services	Membership Administration	Registry Accuracy and Investigations	LIR Portal	RPKI	RIPE Database
Total budget 10,000	2,180	1,380	1,350	2,520	1,930	640
	↑	↑	↓	↑	↓	↑
Actual expenses 10,146	2,436	1,474	1,298	2,590	1,662	686

External Engagement and Community

	Community Building and Member Engagement	Community Learning and Development	Community Coordination and Collaboration
Total budget 10,000	5,680	1,920	2,400
	↑	↓	↓
Actual expenses 9,160	5,543	1,855	1,762

Information Services

	DNS and K-Root	RIPE Atlas	RIPE-stat	RIS	IT Support
Total budget 7,600	850	1,400	600	1,100	3,650
	↑	↓	↓	↓	↑
Actual expenses 7,343	929	1,336	454	629	3,995

Organisational Sustainability

	Facilities	HR	Legal	Finance	Information Security, Risk and Compliance	Office of the Managing Director	RIPE Chair
Total budget 11,300	2,190	1,200	1,160	1,550	2,000	2,900	300
	↓	↑	↓	↓	↓	↓	↓
Actual expenses 9,493	1,971	1,324	957	1,515	1,414	2,048	264

ACTIVITY PLAN AND BUDGET 2023 COMMITMENTS

In the table below, we list the commitments we made in our Activity Plan and Budget 2023 and how we lived up to those commitments. We do not include those commitments that are business as usual or that can be considered as continuing to carry out a high level of service in a certain area.

#	Commitment from 2023 Activity Plan	Section	Status
1	Improve our response times by further streamlining our internal processes and becoming more efficient	1.1 Registration Services	Completed
2	Define a control framework based on international standards	1.1 Registration Services	On hold We are first completing an external review by EY.
3	Identify areas where we can improve our processes for members based on KPIs, NPS and CES	1.2 Membership Administration	In progress We are working on improving our KPIs with a special focus on our billing process.
4	Make our automated sanctions compliance checks more efficient and better integrated with our internal tooling	1.3 Registry Accuracy and Investigations	In progress We will be testing the new Dow Jones platform in the first half of 2024 for this purpose.
5	Begin automated 'active Registry monitoring'	1.3 Registry Accuracy and Investigations	In progress
6	Look for ways to improve/automate parts of the ARC process to increase the number of ARCs overall	1.3 Registry Accuracy and Investigations	In progress

#	Commitment from 2023 Activity Plan	Section	Status
7	Complete implementation of the new architecture for RIPE NCC Access	1.4 LIR Portal	In progress Along with completing the new architecture implementation, we are also making more security improvements.
8	Improve the resilience of our main Registry software	1.4 LIR Portal	Completed
9	Improve the security of the LIR Portal	1.4 LIR Portal	In progress In addition to vulnerability fixes and major upgrades, we worked on automated security patching. More security updates are planned pending the completion of commitment 10.
10	Reduce the technical debt of the tooling behind the LIR Portal	1.4 LIR Portal	In progress While some technical debt was tackled, we still need to replace the libraries and framework behind the LIR Portal.
11	Make UI improvements in the LIR Portal	1.4 LIR Portal	On hold
12	Look for ways to improve the overall resilience of the RPKI system by providing a better geographic distribution	1.5 RPKI	Completed
13	Improve the user experience by updating the UI, incorporating new standardised RPKI objects	1.5 RPKI	In progress We have a prototype of the new UI, which will include new object types, and are doing user testing.

#	Commitment from 2023 Activity Plan	Section	Status
14	Complete an ISAE3000 audit and publish the findings to the community	1.5 RPKI	In progress We have completed the majority of the audit preparation and expect to execute the audit in the first half of 2024.
15	Improve some of our policies and procedures as a result of the ISAE3000 audit	1.5 RPKI	On hold
16	Work with the other RIRs to facilitate a more unified experience for maintaining RPKI data	1.5 RPKI	In progress
17	Work on implementation of new NRTM version decided by Database Working Group	1.6 RIPE Database	In progress The server-side implementation has been completed, but there is still some work to do on the client side.
18	Work on new Numbered Work Items (NWIs) based on recommendations from the RIPE Database Requirements Task Force	1.6 RIPE Database	In progress We published an impact analysis for NWI-4 and finished NWI-13. We also implemented NWI-14 and NWI-19.
19	Use community feedback to draft requirements for our cloud strategy and improve the resilience of the RIPE Database	1.6 RIPE Database	Completed The draft cloud consultation document is ready and will be published in early 2024.
20	Increase the security of the RIPE Database	1.6 RIPE Database	Completed
21	Develop the web interface user experience of the RIPE Database	1.6 RIPE Database	Completed
22	Expand the number of hosted K-root and AuthDNS nodes	2.1 DNS and K-Root	Completed
23	Complete a fourth core site for our AuthDNS service	2.1 DNS and K-Root	In progress This is expected to be completed in early 2024.

#	Commitment from 2023 Activity Plan	Section	Status
24	Work on RIPE IPmap to improve the accuracy and volume of the data we provide	2.2 RIPE Atlas	In progress
25	Update our RIPE Atlas ambassador model to help us grow the network through promotion at local events and distributing probes	2.2 RIPE Atlas	In progress
26	Make the RIPE Atlas infrastructure more robust and extract more information from our data sets	2.2 RIPE Atlas	In progress
27	Finalise the migration of our big data backend from on-premise to the cloud	2.2 RIPE Atlas	In progress
28	Enhance our data quality through output checking and improve service delivery and reliability	2.3 RIPEstat	In progress We implemented a data collection tool to measure backend delays and will provide this data to users in Q1 2024.
29	Extend our data lake with new data sets and add new UI use cases	2.3 RIPEstat	In progress We enabled new data calls, allowing for the use cases Observed Bandwidth Capacity and Observed
30	Seek feedback from the RIPE community on areas for further improvement	2.4 RIS	In progress
31	Improve the RIS website	2.4 RIS	Completed
32	Migrate jobs to newer servers	2.4 RIS	In progress This is expected to be completed in late Q2 or early Q3 2024.
33	Enhance data quality	2.4 RIS	In progress
34	Implement our new selective peering strategy	2.4 RIS	Completed

#	Commitment from 2023 Activity Plan	Section	Status
35	Provide deep dives into Internet events that had significant impact, including reports and analyses based on the aggregation of data from RIPE Atlas, RIPEstat, RIS and other sources	2.5 Research	In progress
36	Migrate a number of applications to the cloud in line with their criticality level and the corresponding requirements set out in our cloud strategy	2.6 IT Support	In progress
37	Containerise applications to support easier maintenance and increased portability	2.6 IT Support	In progress
38	Finalise the overhaul of our email infrastructure	2.6 IT Support	Completed
39	Increase the capacity of our internal network	2.6 IT Support	Completed
40	Upgrade our virtual environment (computing and storage) to improve its performance, resilience and capacity	2.6 IT Support	Completed
41	Continue developing the hybrid meeting format to make it more inclusive and work to better understand the carbon footprint of our events, with a view towards identifying ways to reduce this	3.1 Community Building and Member Engagement	In progress For the first time, we offered local hubs for a RIPE Meeting. We also offered more online Open House meetings.
42	In Central Asia and South East Europe, organise RIPE NCC Days, Internet Measurement Days, hackathons and the newly launched Central Asia Peering and Interconnection Forum	3.1 Community Building and Member Engagement	Completed
43	Engage with NOGs by providing funding and logistical support and sending staff to attend or present	3.1 Community Building and Member Engagement	Completed

#	Commitment from 2023 Activity Plan	Section	Status
44	Run the RIPE NCC Survey 2023	3.1 Community Building and Member Engagement	Completed
45	Develop our data analysis capabilities so we can better understand our large and diverse membership	3.1 Community Building and Member Engagement	In progress We have made a push for more data-driven stories about our membership and released analyses of the state of the Internet in several countries.
46	Support the RIPE community's efforts to become more diverse through various initiatives, develop the RIPE NCC Translations platform and look for other areas where translations can help	3.1 Community Building and Member Engagement	In progress We supported several diversity efforts in the RIPE community. We continue to support the RIPE NCC Translations Platform and plan to develop this in the future.
47	Launch the updated www.ripe.net to make it easier to navigate and look at updating the design of the RIPE Meeting websites	3.1 Community Building and Member Engagement	In progress This is planned to be completed in early 2024.
48	Expand both the frequency and locations of our in-person training courses, while webinars will continue at their current reduced level	3.2 Community Learning and Development	Completed
49	Shift our focus from creating new content to improving our foundational elements – needs assessments, learning paths and user experience – to improve the quality of our learning experiences	3.2 Community Learning and Development	Completed
50	Look for more efficient and scalable options for certifications, like record-and-review or on-site tests	3.2 Community Learning and Development	Completed

#	Commitment from 2023 Activity Plan	Section	Status
51	Continue to focus on providing more data insights	3.3 Community Coordination and Collaboration	In progress We have released more data analyses on RIPE Labs, and we have presented regional data analysis at several of our events.
52	Continue to investigate the possibility of a blanket exemption from EU sanctions regulation for Internet number resources	3.3 Community Coordination and Collaboration	In progress We recently confirmed with the Dutch government that a sanctions exemption applied to some of our members. We will continue to seek a blanket exemption to ensure we can provide all members with uninterrupted service.
53	Help increase network operators' adoption of routing security best practices by working with public authorities to build awareness of resource certification	3.3 Community Coordination and Collaboration	Completed
54	Update the tools in our meeting rooms to better support a hybrid way of working	4.1 Facilities	Completed
55	Improve the security of our office space	4.1 Facilities	Completed
56	Continue our leadership development programme	4.2 HR	Completed
57	Improving our recruitment and personnel planning strategy in line with the changing labour market, hybrid working principles and increased work mobility	4.2 HR	Completed
58	Ensure an inclusive culture that encourages feedback	4.2 HR	Completed

#	Commitment from 2023 Activity Plan	Section	Status
59	Investigate possible ways to improve our resilience in the face of political, legislative and regulatory changes that have the potential to affect our operations	4.3 Legal	In progress We are following the developments in our service region and are constantly investigating ways to improve our resilience.
60	Continue monitoring legal developments related to GDPR and other applicable privacy-related laws and regulations to ensure that our procedures and framework remain up to date	4.3 Legal	In progress We are constantly monitoring the relevant legal developments. In 2023, we improved our implementation of the ePrivacy ("cookie") law.
61	Reinforce the legal framework of RPKI when necessary and the legal framework for our services that involve sharing data and enabling measurements to provide insight on the Internet	4.3 Legal	Completed
62	Continue to update our management reporting	4.4 Finance	In progress We have made improvements in our management reporting, but we are still working on automating these reports to be updated in real time.
63	Continue work on a new charging scheme	4.4 Finance	Completed
64	Further improve our Enterprise Resource Planning system	4.4 Finance	In progress We have already realised several efficiency gains due to a large number of small improvements.

#	Commitment from 2023 Activity Plan	Section	Status
65	Continue to focus on internal control and management reporting to better facilitate informed decision-making	4.4 Finance	In progress This will be a continuous focus point. We also initiated a project to explore external investment management a few years ago and selected a vendor in 2023. Following an extensive onboarding and integration process, we successfully concluded the integration.
66	Implement tooling and processes that promote 'secure by design' principles and the proactive identification and timely remediation of vulnerabilities	4.5 Information Security, Risk and Compliance	In progress We strengthened our vulnerability management, but this task will be a continuous focus point. We also launched a public version of our bug bounty programme and updated our Responsible Disclosure Policy.
67	Provide our engineers with all the necessary information on how to investigate attacks and the tooling to mitigate them	4.5 Information Security, Risk and Compliance	In progress
68	Develop a security awareness programme to enable each of our employees to follow relevant security awareness training	4.5 Information Security, Risk and Compliance	Completed
69	Establish an internally resourced risk and compliance function in 2023 that will help provide a third-party assurance report for RPKI and the Registry	4.5 Information Security, Risk and Compliance	Completed

#	Commitment from 2023 Activity Plan	Section	Status
70	Align our information security activities against the ISO 27001 framework	4.5 Information Security, Risk and Compliance	In progress We have completed the establishment of an Information Security Management System, a gap assessment and some policy updates. We will work on process and control implementation in 2024.
71	Support the Open CSIRT Foundation with the transition of the "Trusted Introducer" service for CSIRTs from GÉANT to a new independent foundation by contributing 50 kEUR per year for the next three years and serving on the organisation's Supervisory Board	4.6 Office of the Managing Director	In progress Contributions for the first two years have been paid. Our Managing Director serves on the Supervisory Board.
72	Continue to look for a way to improve our corporate structure so that it better meets the legal requirements that affect our operations across our service area and allows us to best mitigate potential risks	4.6 Office of the Managing Director	In progress We expect to establish a legal entity in Dubai in Q1 2024, which should be fully operational in Q2 2024.

RIPE NCC
RIPE NETWORK COORDINATION CENTRE