

# RIPE NCC

ANNUAL REPORT 2012



20 YEARS SERVING THE RIPE COMMUNITY



Annual Report Photography: Exteriors/Interiors RIPE NCC Building, Amsterdam

**RIPE Network Coordination Centre**

P.O. Box 10096  
1001 EB Amsterdam  
The Netherlands

[www.ripe.net](http://www.ripe.net)



**RIPE**  
NCC

**Facebook:**

[www.facebook.com/ripenncc](https://www.facebook.com/ripenncc)  
[www.facebook.com/ripemeetings](https://www.facebook.com/ripemeetings)

**YouTube:**

[www.youtube.com/user/ripenncc](https://www.youtube.com/user/ripenncc)

**LinkedIn:**

[www.linkedin.com/company/ripe-ncc](https://www.linkedin.com/company/ripe-ncc)

**Twitter:**

[www.twitter.com/ripe\\_ncc](https://www.twitter.com/ripe_ncc)  
[www.twitter.com/ripemeeting](https://www.twitter.com/ripemeeting)  
[www.twitter.com/pdo\\_ripe\\_ncc](https://www.twitter.com/pdo_ripe_ncc)  
[www.twitter.com/trainingripenncc](https://www.twitter.com/trainingripenncc)  
[www.twitter.com/mir\\_ripe\\_labs](https://www.twitter.com/mir_ripe_labs)  
[www.twitter.com/ripe\\_atlas](https://www.twitter.com/ripe_atlas)

# Table of Contents

- 5. Report from the Chairman of the Executive Board
- 6. Report from the RIPE NCC Managing Director
- 7. 20 Years Serving the RIPE Community
- 8. RIPE NCC Service Region
  
- 9. About the RIPE NCC**
- 10. Introduction
- 11. Organisation and Services Overview
- 12. The RIPE NCC and the RIPE Community
- 12. Organisational Structure
- 13. RIPE NCC Members and the Executive Board
- 14. RIPE NCC General Meetings
- 14. Arbitration
- 15. Defining, Setting and Evaluating RIPE NCC Services and Activities
- 16. Articles of Association
- 16. Corporate Governance
- 16. Legal Framework
  
- 17. Activities**
- 18. Registration Services
- 18. Reaching the Last /8
- 19. Requests for Internet Number Resources
- 20. IPv4 Allocations in 2012
- 21. IPv6 Allocations in 2012
- 22. Autonomous System Number (ASN) Assignments in 2012
- 23. 32-bit ASNs
- 23. Legacy Resource Registration
- 24. RIPE NCC Audit Activity
- 25. Resource Quality Assistance
- 25. Abuse Reports
- 26. Assignment and Allocation Policies Implemented in 2012
- 26. RIPE Policy Proposal 2007-01
- 27. Returned Address Space
- 27. Returning Addresses to the IANA
  
- 28. THE LIR Portal
- 28. Resource Certification (RPKI)
- 30. The IP Analyser
- 31. The IPv4 Transfer Listing Service
- 31. The API Key Management Toolset
- 32. The RIPE Database
- 33. Training Services
- 33. Webinars
- 34. IPv6 Roadshows
- 34. RIPE NCC E-Learning Centre
- 35. Measurements, Tools and Statistics
- 35. RIPEstat
- 36. RIPE Atlas
- 37. Test Traffic Measurement (TTM) Service
- 37. Domain Name System Monitoring (DNSMON)
- 37. Routing Information System (RIS)
- 38. IPv6 RIPEness
- 39. Customer Services
- 40. Live Chat
- 40. Technical Emergency Hotline
  
- 41. Coordination Activities**
- 42. DNS Services
- 42. Reverse Delegation
- 42. Secondary DNS
- 42. K-root and Anycast
- 42. ENUM
- 43. RIPE Labs
- 44. IPv6 Act Now
- 44. Social Media at the RIPE NCC
- 45. External Relations
- 45. The International Telecommunications Union (ITU)
- 46. The Internet Governance Forum (IGF)
- 46. The Arab Internet Governance Forum (IGF)
- 47. Organisation for Economic Cooperation and Development (OECD)
- 47. RIPE NCC Roundtable Meetings
  
- 48. RIPE NCC and Law Enforcement Agencies (LEAs)
- 48. RIPE Cooperation Working Group
- 48. The Number Resource Organization (NRO)
- 48. The NRO Number Council (NRO NC)
- 48. The Address Supporting Organization (ASO)
  
- 49. RIPE and the RIPE Policy Development Process**
- 50. RIPE NCC and the RIPE Community
- 51. RIPE Working Groups
- 51. RIPE Task Forces
- 52. RIPE Meetings
- 52. The RIPE Programme Committee
- 53. RIPE NCC Regional Meetings and Support
- 54. The RIPE Policy Development Process (PDP)
  
- 57. The RIPE NCC Financial Report 2012**
- 58. Introduction to the Financial Report from the Treasurer of the RIPE NCC Executive Board
- 59. General Notes on the Financial Report
- 60. Statement of Income and Expenditure 2012
- 61. Notes to the RIPE NCC Statement of Income and Expenditure 2012
- 65. Balance Sheet
- 66. Notes to the Balance Sheet as per 31 December 2012
- 70. Cash Flow
- 72. Independent Auditor's Report



## REPORT FROM THE CHAIRMAN OF THE EXECUTIVE BOARD

It is with great pleasure that I write to you in the RIPE NCC's 20th year of operation. Established with the support of the RIPE community to become its Network Coordination Centre, and to be responsible for the distribution and management of Internet number resources in the region, the RIPE NCC continues to provide these services to the RIPE community two decades later. And as the needs of the RIPE community have expanded and diversified, so has the RIPE NCC grown in size and scope to meet the needs of its members and the RIPE community.

Today, the RIPE NCC still carries out those core functions that it carried out in 1992. It does so now in a considerably changed landscape and with a vastly changed membership and community.

The first members of the RIPE NCC were largely the national research networks that still exist today, along with a small number of commercial organisations. By the end of 2012, the RIPE NCC consisted of almost 9,000 members across a huge territory, stretching from Reykjavik in the west to Vladivostok in the east, and from the Arctic Circle to the Middle East. Meeting the needs of these diverse organisations, often through difficult and uncertain periods, has driven the evolution of the RIPE NCC.

In the RIPE NCC's first quarterly report from 1992, RIPE Database queries were

measured in the thousands. In 2012, the RIPE Database answered almost 7 billion queries. The RIPE NCC now provides tools and services that allow organisations to analyse their own network performance, and with your support it is building the largest Internet measurement network ever made. 2012 saw the end of the free pool of IPv4 addresses, and much work over the past decade has been to help drive deployment of the new protocol on which the Internet will operate. Since 1997, the RIPE NCC has also diligently operated the K-root server for the good of the Internet at large.

As the Internet has become one of the most important factors for economies and societies throughout the world, so too has the need grown for the RIPE NCC to represent its members and protect the bottom-up, inclusive model that has led to the development of the free and open Internet we have today. The RIPE NCC and its Executive Board now represent its membership at a range of Internet governance forums, often in collaboration with other Regional Internet Registries, and seeks to educate and inform all stakeholders on the issues that are important to the RIPE NCC membership. After 20 years of work in this arena, the RIPE NCC is now looked to as a leader in the world of Internet governance.

One historical aspect of the RIPE NCC that came to an end in 2012 was the charging scheme algorithm used to

calculate members' annual fees. After some years of discussion on the issue, RIPE NCC members elected to change to a simple "one LIR-one fee" Charging Scheme at the September General Meeting. The acceptance of this new charging structure offers simplicity for members, encourages the RIPE NCC sense of community and will hopefully provide stability for the years ahead. We have also changed the long-standing format of the RIPE NCC Activity Plan and Budget to allow members to see more clearly the connection between activities and costs. This is something we hope to further develop in close collaboration with the membership.

In looking at the RIPE NCC's beginnings in 1992 and seeing where we are today, it is clear just how much excellent work has been carried out by the RIPE NCC and by the members who drive its development. This has been a collaborative story that owes much to thousands of individuals and organisations in the Internet community. We should be proud of what has been achieved with the RIPE NCC over the past 20 years. I believe that it is our diversity, as well as our common desire to see a strong and stable Internet working within its current framework, that will lead to another 20 years of success for the RIPE NCC, for its membership and for the Internet community at large.

*Nigel Tittley*



## REPORT FROM THE RIPE NCC MANAGING DIRECTOR

In its 20th year of operations, the RIPE NCC's free pool of IPv4 addresses finally came to an end. Two decades of work in allocating IPv4 addresses according to the needs of our members stopped on 14 September 2012. Now, we have reached our last /8 of addresses, from which all LIRs are entitled to one /22 of address space.

Perhaps the most satisfying aspect to the run-out of the free pool was how, operationally for the RIPE NCC, it was close to a complete non-event. The world continued to turn and the RIPE NCC went about its business as usual. Much of this is thanks to the RIPE community's sensible IPv4 addressing policies, which the RIPE NCC could easily follow. RIPE NCC staff also worked diligently for the past years to develop internal procedures that would ensure a fair, transparent and smooth run-out of the free pool.

A noticeable aspect of the IPv4 run-out was that RIPE NCC members did not appear to panic, and allocation trends in the period up to run-out were remarkably similar to previous years. I like to think that this speaks to the members' own preparedness in advance of the run-out.

Another noteworthy trend was that membership growth following run-out of the free pool matched the experience of APNIC following their own IPv4 free pool run-out the previous year. In fact, 2012 saw the RIPE NCC's biggest increase to date, with a net growth of 965 members during the year.

It is this continued growth in the membership, together with careful management of expenses, that saw the RIPE NCC end the year in a very strong financial position. This leaves the RIPE NCC well placed to meet the challenges it expects to face in the coming years.

One of these challenges will be to defend the bottom-up, multistakeholder model that has served the Internet and the RIPE NCC membership so well over the past 20 years. To this end, the RIPE NCC attended the World Telecommunication Standardization Assembly (WTSA) in November and the World Conference on International Telecommunications (WCIT) in December. The WCIT conference brought Internet governance into the global spotlight, and it was important that the RIPE NCC was present to represent the interests of RIPE NCC members. Thankfully, WCIT did not result in changes to the multistakeholder model, but the RIPE NCC must remain vigilant in this area as we move forward.

Of course, alongside these notable events, the RIPE NCC continued to work to improve its regular services for the benefit of members in 2012. Two very successful RIPE Meetings were held during the year, four Regional Meetings were held in association with MENOG and ENOG, and two Roundtable Meetings for government and one for law enforcement agencies took place. We worked to develop our analytical tools, such as RIPEstat, RIPE Atlas and the IP Analyser. And we completed a wide range of actions, large and small, that arose from the 2011 Membership and Stakeholder Survey. For all this, and much more, I would like to give my sincere thanks to the staff at the RIPE NCC.

As a final note, I would like to thank the membership for its support not just in 2012 but over the past 20 years. As I hope this extensive Annual Report shows, the RIPE NCC works hard in a wide variety of areas to provide its members and the RIPE community with an organisation they can be proud of. We can only achieve that with your support, your advice and your feedback. This has been vital to our development over the past 20 years, and it will continue to be so in the coming years.

*Axel Pawlik*



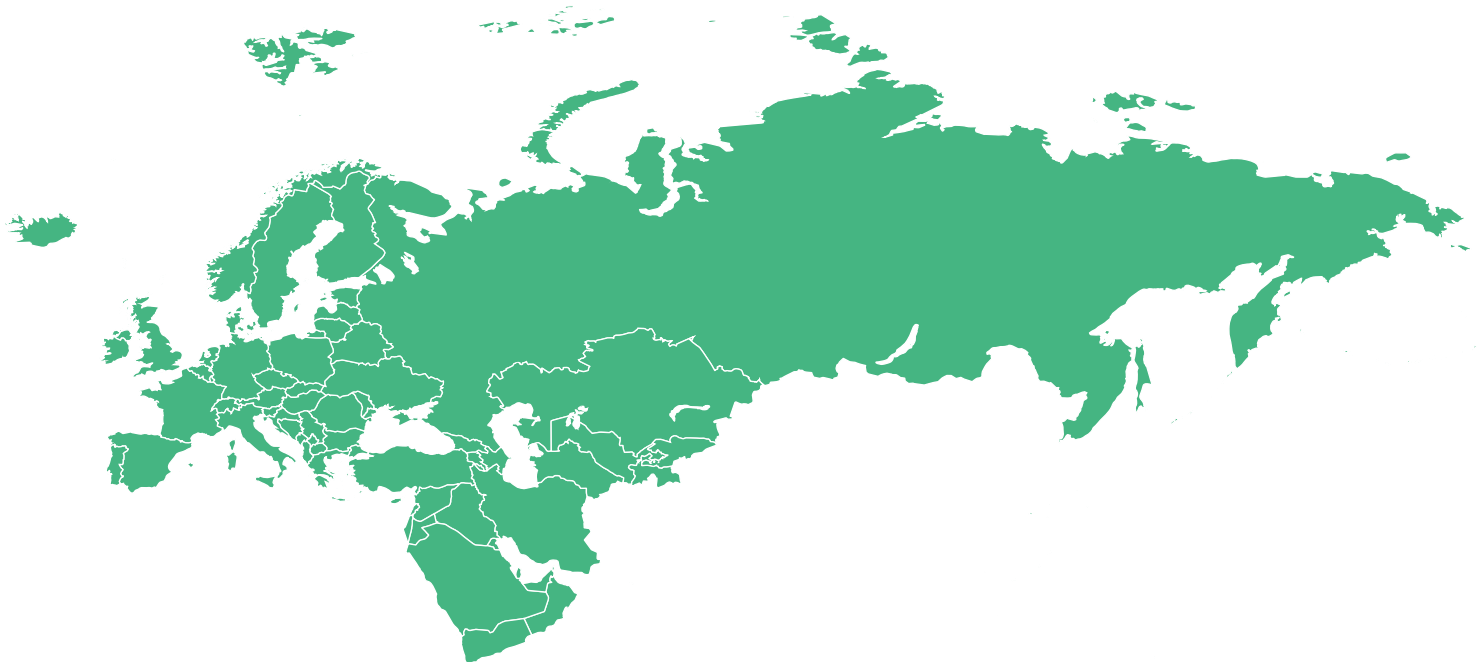
## 20 Years Serving the RIPE Community

In April 2012, the RIPE NCC celebrated 20 years of serving the RIPE community. The RIPE NCC was established to coordinate and support the activities of the RIPE community and to function as a European Internet Registry (later a Regional Internet Registry) responsible for the distribution and management of Internet number resources.

Originally set up as part of Réseaux Associés pour la Recherche Européenne (RARE, later TERENA) and with a staff of one (the RIPE NCC's current Chief Scientist Daniel Karrenberg), the RIPE NCC has grown over the past two decades to become a diverse organisation with almost 9,000 members and responsible for a wide range of functions and services. During this time, the Internet has grown and become interwoven with business and society in ways few could have predicted, and the role of the RIPE NCC has evolved to meet a range of new challenges.

|   |             |  |
|---|-------------|--|
|   | <b>1992</b> | RIPE NCC established   |
| Launch of www.ripe.net<br>First list of LIRs published  | <b>1993</b> |  |
|   | <b>1994</b> | 100th member joins RIPE NCC<br>RIPE Database updated for CIDR  |
| First use of self-declared charging categories<br>(Small, Medium, Large)  | <b>1995</b> |  |
|   | <b>1996</b> | Hierarchical authorisation introduced<br>in RIPE Database  |
| RIPE NCC incorporated as not-for-profit organisation<br>RIPE NCC starts to operate K-root server  | <b>1997</b> |  |
|   | <b>1998</b> | 1,000th member joins RIPE NCC  |
| MoU signed with ICANN to form Address Supporting Organisation (ASO)<br>RIPE NCC makes its first IPv6 allocations  | <b>1999</b> |  |
|   | <b>2000</b> | 2,500th member joins RIPE NCC  |
| Daniel Karrenberg receives Internet Society Jonathan Postel Service Award<br>RIPE NCC gets involved in developing and implementing DNSSEC                                     | <b>2001</b> |  |
|   | <b>2002</b> | RIPE NCC becomes Tier 0 registry for ENUM  |
| LIR Portal launched<br>Formation of the Number Resource Organisation (NRO)<br>First RIPE NCC Regional Meeting held in Dubai   | <b>2003</b> |  |
|   | <b>2004</b> | RIPE NCC Regional Meetings held in Moscow and Nairobi  |
| Formalisation of the RIPE Policy Development Process (PDP)<br>First RIPE NCC Roundtable Meeting for Governments and Regulators<br>RIPE NCC E-Learning Centre launched         | <b>2005</b> |  |
|   | <b>2006</b> | RIPE Certification Task Force formed   |
| 32-bit ASNs allocated by the RIPE NCC for the first time<br>5,000th member joins RIPE NCC<br>First Middle East Network Operators Group (MENOQ)                                | <b>2007</b> |  |
|   | <b>2008</b> | First RIPE Meeting to be held in the Middle East   |
| Launch of RIPE Labs<br>First IPv6 Training Course   | <b>2009</b> |  |
|   | <b>2010</b> | RIPE Atlas deployed as a pilot project<br>First RIPE NCC Roundtable Meeting for Law Enforcement Agencies |
|   | <b>2011</b> |  |
| 50th RIPE Meeting since formation of the RIPE NCC<br>First Eurasia Network Operators Group (ENOG) Meeting<br>First RIPE NCC Regional Meeting in South East Europe (Dubrovnik) | <b>2012</b> | RIPE NCC reaches Last/8 of IPv4 address space  |

## RIPE NCC **SERVICE REGION**



### 2012 in Numbers

**76** Countries  
**8,760** Members  
**965** New Members  
**2** RIPE Meetings  
**4** Regional Meetings  
**2** Roundtable Meetings  
**1** LEA Meeting

**103** Training Courses  
**33** Webinars  
**109** RIPE Labs Articles  
**2,304** RIPE Atlas Probes Active  
**38** RIPEstat Widgets  
**1,685** IPv6 RIPEness 4-star LIRs  
**27,671** Customer Service Queries

**5.27 / 8** Blocks Covered by an RPKI ROA  
**~6.8** Billion RIPE Database Queries  
**2,638** IPv4 Allocations  
**1,289** IPv6 Allocations  
**2,500** ASN Allocations  
**1 / 8** IPv4 Space Remaining

## 20 Years Serving the RIPE Community





---

## **ABOUT THE RIPE NCC**

RIPE NCC 2012

---

## Introduction

The Réseaux IP Européens Network Coordination Centre (RIPE NCC) is an independent, not-for-profit membership organisation. It supports the operation and development of the Internet through technical coordination and operates one of the world's five Regional Internet Registries (RIRs).

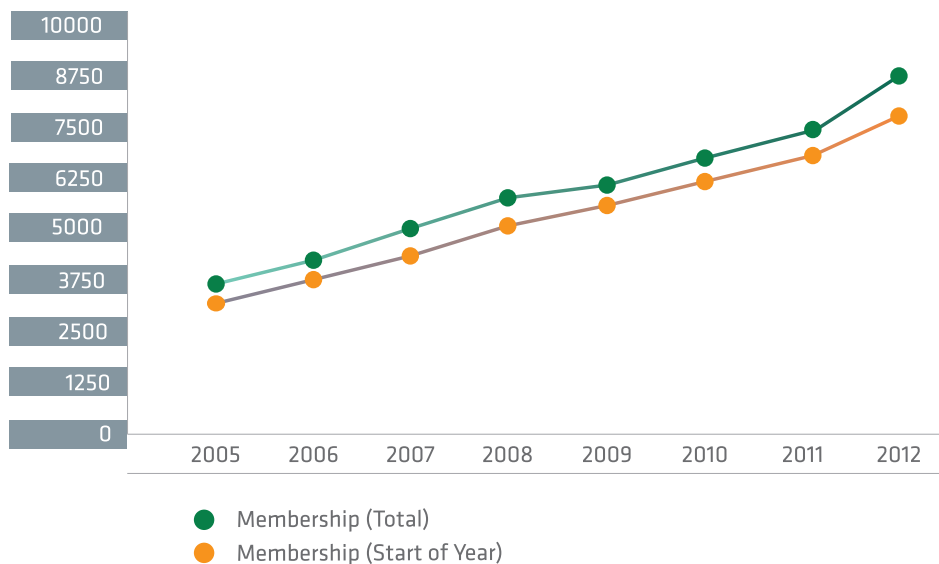
The RIPE NCC's most prominent tasks include:

- Registering and distributing Internet number resources
- Operating the RIPE Database
- Operating K-root, one of the world's 13 root name server clusters
- Facilitating RIPE community activities
- Providing high-quality measurement and information services

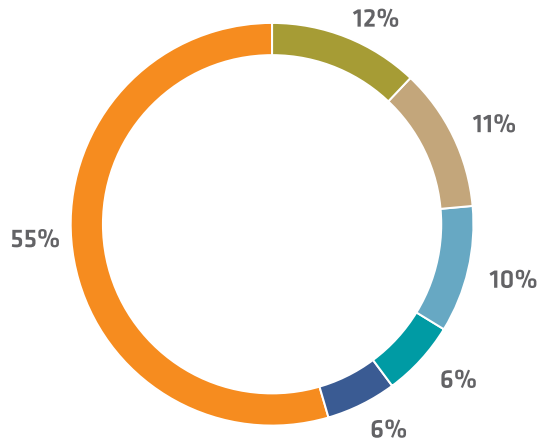
Most of the RIPE NCC's members are Internet Service Providers (ISPs) and telecommunication organisations. Other members are corporations, academic institutions, legal organisations and government bodies. At the end of 2012, the RIPE NCC supported 8,760 members with operations in the 76 countries in its service region. The RIPE NCC is based in Amsterdam, the Netherlands, and had 128 full-time equivalent (FTE) employees in 2012. It is an open, transparent and neutral organisation.

As with the existing four other RIRs, the RIPE NCC operates as a community-driven, bottom-up and self-governing organisation. The policies that govern the way the RIPE NCC operates are proposed, discussed and accepted by the RIPE community (see page 54). The activities performed by the RIPE NCC and the services it provides are approved each year by the RIPE NCC Executive Board following feedback from the members.

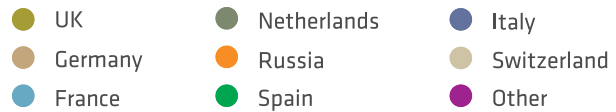
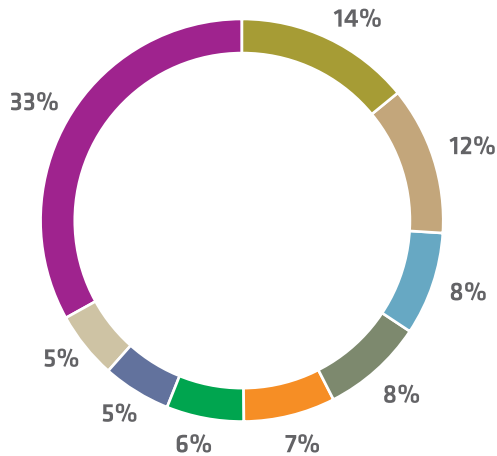
### RIPE NCC Membership Growth



## Total Membership by Country



## New Membership by Country



## Organisation and Services Overview

As the RIR for Europe, the Middle East and parts of Central Asia, the RIPE NCC provides Internet number resources – IPv4 and IPv6 addresses and Autonomous System (AS) Numbers – to its members. The RIPE NCC maintains registration data for these Internet number resources and ensures that they are distributed in accordance with the policies set by the Internet community. It works to ensure correct registration of the resources it allocates and assigns through education and audit activities.

In addition to providing services related to the allocation and assignment of Internet number resources, the RIPE NCC also supports the operation and development of the Internet for the benefit of the Internet community as a whole. It does this through management of critical Internet resources, provision of education and measurement networks for the community, and outreach and coordination activities.

### More specifically, the RIPE NCC's activities include:

#### The Registry

- Allocation and Assignment of Internet Number Resources
- Registry Maintenance
- LIR Portal
- Certification (RPKI)
- RIPE Database

#### Services

- Training
- RIPEstat
- RIPE Atlas
- DNS Monitoring (DNSMON)
- Routing Information Service (RIS)
- RIPE Database Proxy Service
- Test Traffic Measurements (TTM)

#### Coordination Activities

- DNS Services and K-root Operations
- RIPE Labs
- Measurements and Data Collection
- Government and LEA Liaison
- Outreach and External Relations
- Regional Support and Outreach
- RIPE Meetings
- RIPE Policy and Community Support
- IPv6 Promotion

## The RIPE NCC and the RIPE Community

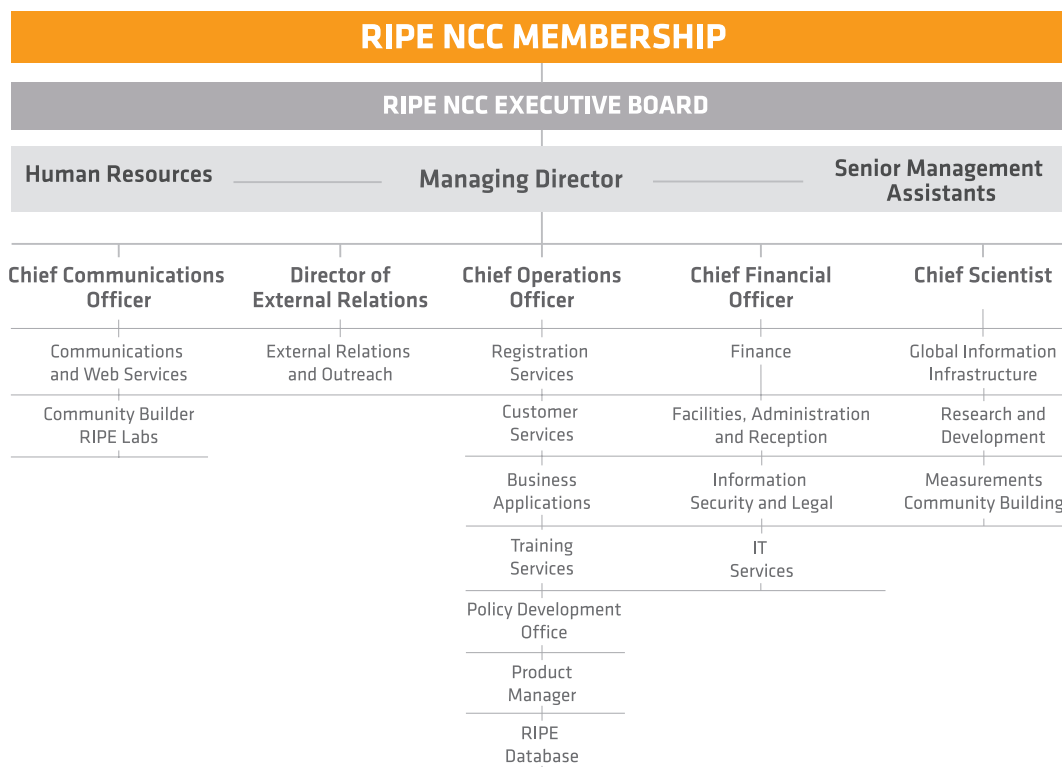
The RIPE NCC and RIPE are separate but highly interdependent entities. RIPE was founded in 1989 and is a collaborative forum open to all parties with an interest in the technical development of the Internet. The term “RIPE community” is used to describe individuals or organisations, whether members of the RIPE NCC or not, with an interest in the technical coordination of the Internet and the way the Internet is structured and managed. This includes the RIPE NCC membership, government and regulatory bodies, academic institutions, as well as other organisations and individuals with an interest in technical and Internet governance issues.

Valuable input from the Internet industry, governments and regulators is channeled to the RIPE NCC through the RIPE community. There are no formal requirements for participation. The RIPE NCC provides administrative support to RIPE, the RIPE Working Groups, RIPE Task Forces and RIPE Programme Committees, such as the facilitation of RIPE Meetings and the maintenance of the RIPE Document Store and publicly archived mailing lists.

[www.ripe.net/ripe](http://www.ripe.net/ripe)

## Organisational Structure

The RIPE NCC organisation consists of members, an Executive Board and RIPE NCC staff. An arbiters panel exists that can be used by RIPE NCC members to resolve disputes with other members or with the RIPE NCC regarding the RIPE NCC’s services.



## RIPE NCC Members and the Executive Board

The activities of the RIPE NCC are financed by and decided upon by its members, who elect the RIPE NCC Executive Board to represent their interests.

The Board currently consists of five members who:

- Represent the membership
- Provide guidance to the RIPE NCC Senior Management
- Are responsible for the overall financial position of the RIPE NCC and for keeping records that allow the current financial situation to be evaluated at any moment
- Present the RIPE NCC Financial Report and the Charging Scheme for members to vote on
- Approve the RIPE NCC Activity Plan and Budget
- Appoint the RIPE NCC Managing Director
- Call RIPE NCC General Meetings



|                 |               |              |                    |                |
|-----------------|---------------|--------------|--------------------|----------------|
| Fahad AISHirawi | Dmitry Burkov | Nigel Titley | Christian Kaufmann | Remco van Mook |
| Member          | ICANN Liaison | Chairman     | Secretary          | Treasurer      |

## RIPE NCC General Meetings

All RIPE NCC members are encouraged to attend the RIPE NCC General Meetings, either in person or remotely. Currently, these meetings are held twice a year. During the General Meetings, members can:

- Vote to accept the audited Financial Report
- Adopt the RIPE NCC Charging Scheme
- Approve any resolutions that may be proposed by the Executive Board or the RIPE NCC membership
- Elect Executive Board members

At General Meetings, members have the opportunity to give feedback directly to the Executive Board on the RIPE NCC's activities and services.

In 2012, the RIPE NCC General Meetings took place alongside the RIPE 64 and RIPE 65 Meetings. An Executive Board election was held during the General Meeting on 19 April 2012. The term of Executive Board member Dmitry Burkov expired, and RIPE NCC members re-elected Dmitry to the available seat.

At the General Meeting on 26 September 2012, the membership approved the RIPE NCC Charging Scheme 2013, which introduced a one LIR-one fee charging structure.

All members, including those unable to attend the General Meetings in person, can vote electronically on resolutions and in the Executive Board elections. Members can also follow the General Meeting remotely via webcast and can contribute to discussions through a chat channel.

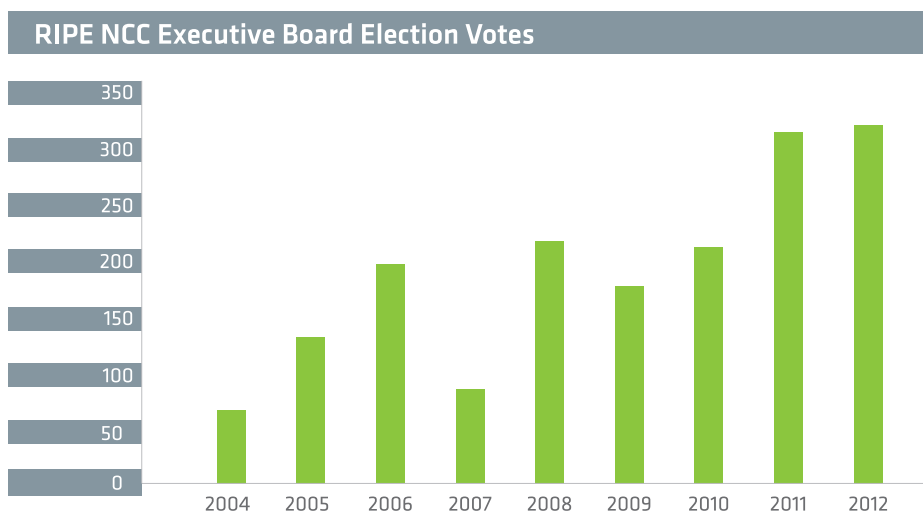
The General Meetings are only open to RIPE NCC members. Minutes from each meeting are, however, available to the public.

## Arbitration

A neutral and objective arbiters panel exists to resolve any dispute related to services provided by the RIPE NCC. The arbiters are appointed by the RIPE NCC's Executive Board and approved by the RIPE NCC membership.

In 2012, the arbiters were asked to evaluate one request from the RIPE NCC to receive resources for its own activities. Details of this request and the decision from the arbiters are available at:

<http://www.ripe.net/internet-coordination/news/about-ripe-ncc-and-ripe/internet-number-resources-approved-to-the-ripe-ncc>



## Defining, Setting and Evaluating RIPE NCC Services and Activities

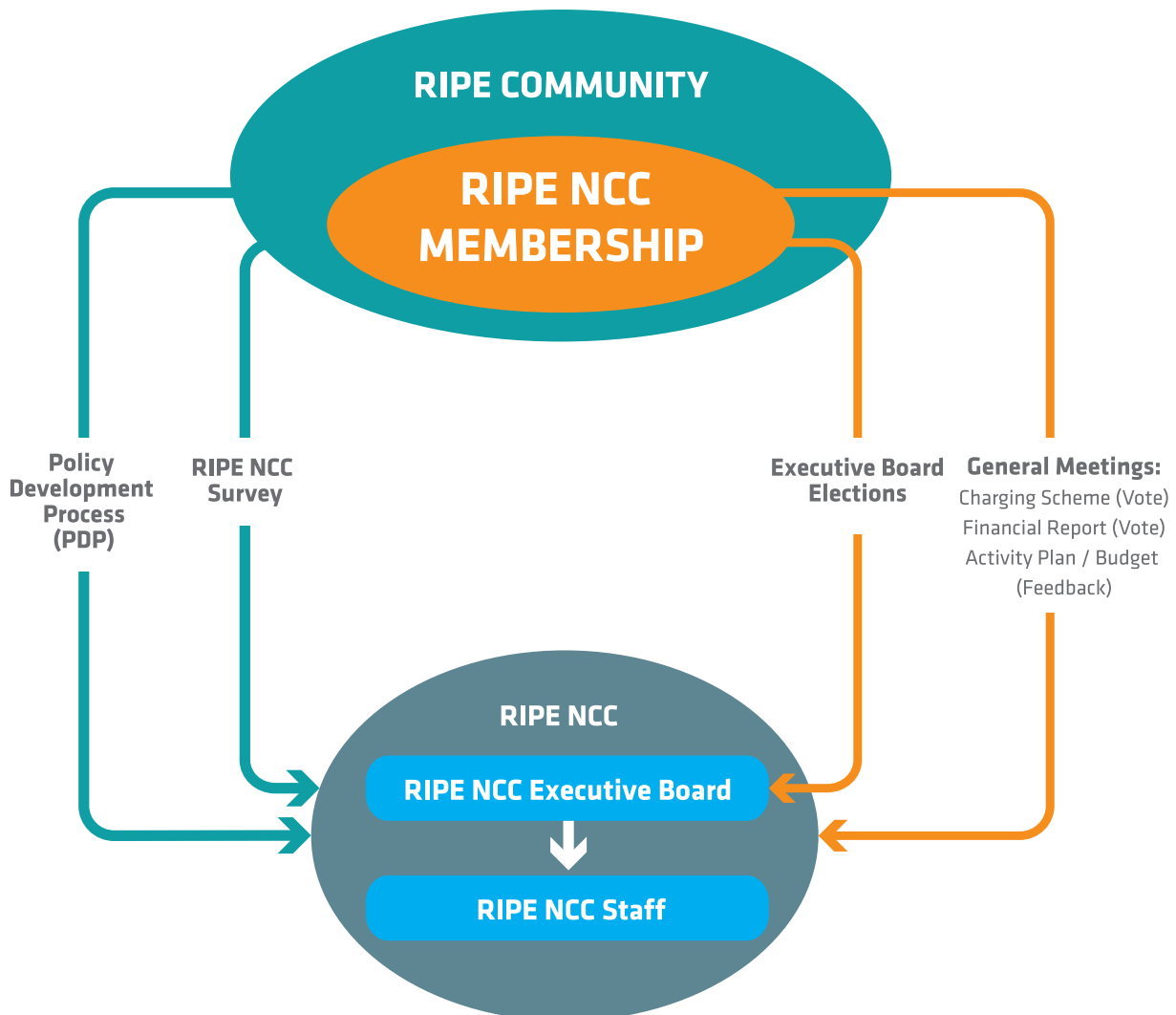
The activities that the RIPE NCC performs and the services that it provides are defined, discussed and evaluated by RIPE NCC members and by the RIPE community. All proposals, plans and discussions are publicly documented.

The activities that the RIPE NCC proposes to perform in the coming year are detailed in the annual Activity Plan. Input into the Activity Plan and feedback on activities is collected

from members and the RIPE community via the RIPE Working Groups, RIPE mailing lists, RIPE NCC Regional Meetings and at the members-only General Meetings. The RIPE NCC Executive Board approves the Activity Plan.

In 2012, the RIPE NCC presented a new-format Activity Plan and Budget based on recommendations from the membership. The new document is laid out in a more user-friendly way and clearly associates the activities with the costs involved.

[www.ripe.net/ripe/docs/ripe-558](http://www.ripe.net/ripe/docs/ripe-558)



## Articles of Association

The rights and obligations of the RIPE NCC are detailed in the Articles of Association (AoA).

[www.ripe.net/ripe/docs/articles-association](http://www.ripe.net/ripe/docs/articles-association)

## Corporate Governance

The RIPE NCC aims to implement corporate governance best practices where possible and operates under transparent organisational, management and Executive Board structures. It has clear and open communication channels regarding its operations. There is also a clear division of responsibilities and duties between members, the Executive Board and the management team, as stated in the RIPE NCC Articles of Association.

## Legal Framework

In 2012, the RIPE NCC enhanced the legal framework under which it operates by reinforcing the legal structure surrounding existing RIPE NCC services. It fortified its corporate governance by producing a series of documents that describe RIPE NCC procedures in a clear and transparent way, including:

- “Transfer of Internet Number Resources and Change of a Member’s Official Legal Name”, which describes the procedure to be followed in the case of changes to the Internet number resource records that are registered to the member and in the case of changes to the official name of the member
- “Due Diligence for the Quality of the RIPE NCC Registration Data”, which describes the controls the RIPE NCC performs before and after the registration of Internet number resources
- “Independent Internet Number Resources – Contractual Relationship Changes Between Sponsoring LIR and End User”, which describes the possible consequences of modifications to a contractual relationship between a sponsoring LIR and an End User of independent Internet number resources
- “RIPE NCC Data Protection Report”, which describes the implementation of the Dutch data protection legal framework by the RIPE NCC
- The RIPE NCC also created Terms and Conditions for new RIPE NCC services and updated the RIPE NCC Privacy Statement in order to comply with the new Dutch Telecommunications Act.

Finally, the RIPE NCC appeared in court after it filed a summons against the State of the Netherlands following a police order it received on 8 November 2011 to temporarily “lock” specific registrations in the RIPE Database. The RIPE NCC filed the summons because it wanted the Dutch court to clarify what the RIPE NCC’s obligations are for such orders in the future.

[www.ripe.net/lir-services/ncc/legal](http://www.ripe.net/lir-services/ncc/legal)





---

# Activities

RIPE NCC 2012

---

## REGISTRATION SERVICES

As a Regional Internet Registry (RIR), the RIPE NCC's most prominent activity is to distribute and register IPv4 and IPv6 addresses and Autonomous System (AS) Numbers in its service region. The goal is to ensure fair distribution of Internet number resources and to maintain accurate registration data. The Internet Assigned Numbers Authority (IANA) allocates blocks of addresses to the RIPE NCC and the other four RIRs that exist today. The RIPE NCC then allocates and assigns parts of these address blocks to its members and End Users in accordance with policies developed by the RIPE community. 2012 marked the 20th year that the RIPE NCC has carried out these duties on behalf of the RIPE community.

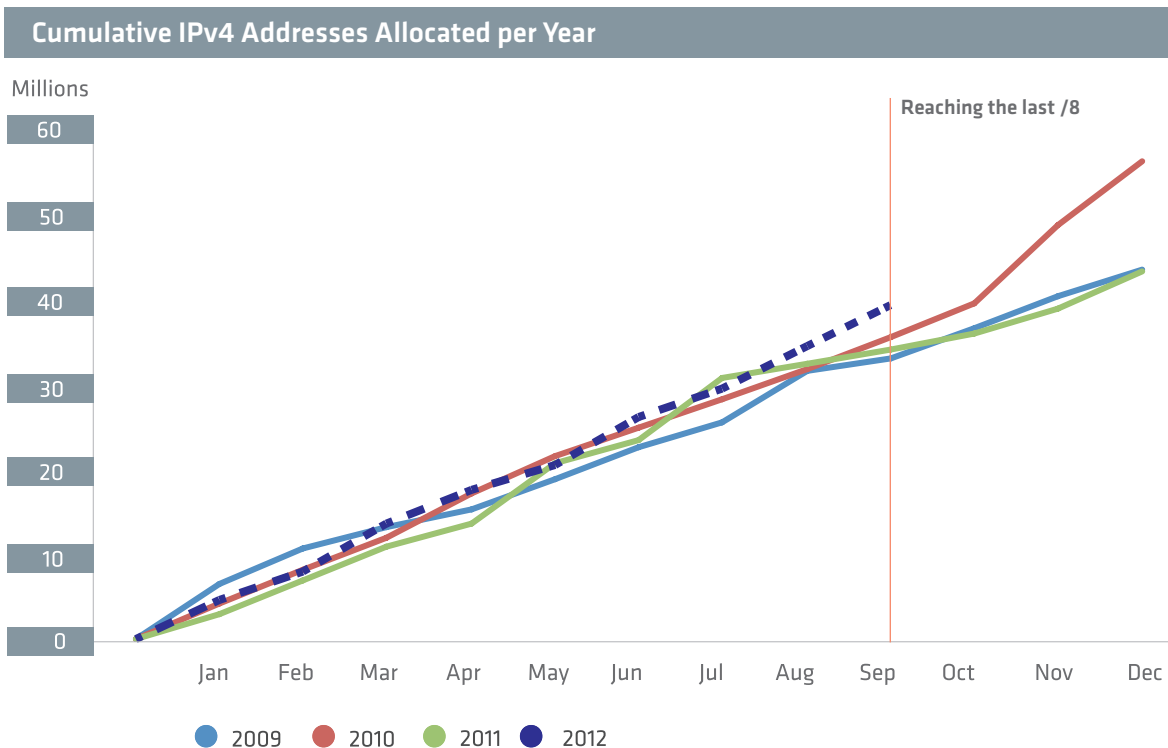
### Reaching the Last /8

For the RIPE NCC, 2012 was a significant year. On 14 September, the RIPE NCC reached its final /8 block of IPv4 address space, which it received from IANA the year before. Over the past decade, the RIPE NCC, together with the other RIRs, has worked to educate its membership and other stakeholders about the urgent need to deploy IPv6 to allow for the future growth of the Internet.

[www.ripe.net/v4exhaustion](http://www.ripe.net/v4exhaustion)

In the months leading up to this milestone, maintaining the RIPE NCC's principles of fairness, consistency and transparency was crucial. The RIPE NCC published a regularly updated graph showing the amount of IPv4 address space remaining in the pool. On 4 September, the RIPE NCC announced that it had one /10 remaining, in addition to the last /8. It was at this point that additional measures that had been planned in advance were enacted to minimise the risk of inconsistencies and ensure that requests were processed strictly in the order they were received. In addition, the quarantine period for returned address space was gradually reduced, so that there was none remaining prior to reaching the last /8.

In the days following the September announcement, the RIPE NCC received a record number of IPv4 requests. But the fact that the run-out went so smoothly and fairly is in part due to the foresight of the RIPE community that had ensured there were adequate policies in place to guide the actions of the RIPE NCC. The graph below demonstrates that, overall, there was little variation in IPv4 allocations in 2012 compared to previous years.



## Requests for Internet Number Resources

In 2012, the RIPE NCC received a total of 16,703 assignment and allocation requests, a slight decrease compared to the 16,888 requests received in 2011.

These requests included:

- Provider Aggregatable (PA) assignments
- Provider Independent (PI) assignments
- IPv4 and IPv6 allocations
- Autonomous System Number (ASN) assignments
- Anycast assignments
- Assignments for Internet Exchange Points (IXPs)
- Assignments to Direct Assignment Users (DAUs)

From the total number of requests, 9,448 allocations and assignments of Internet number resources were made. Internet number resource allocations and assignments made by the RIPE NCC in 2012 consisted of:

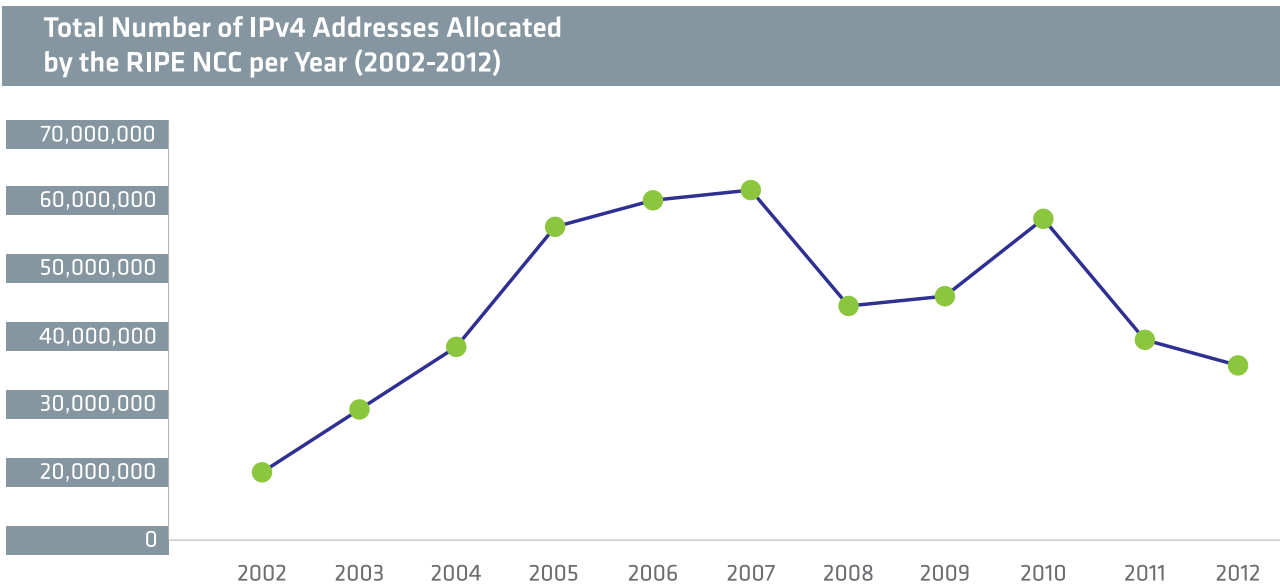
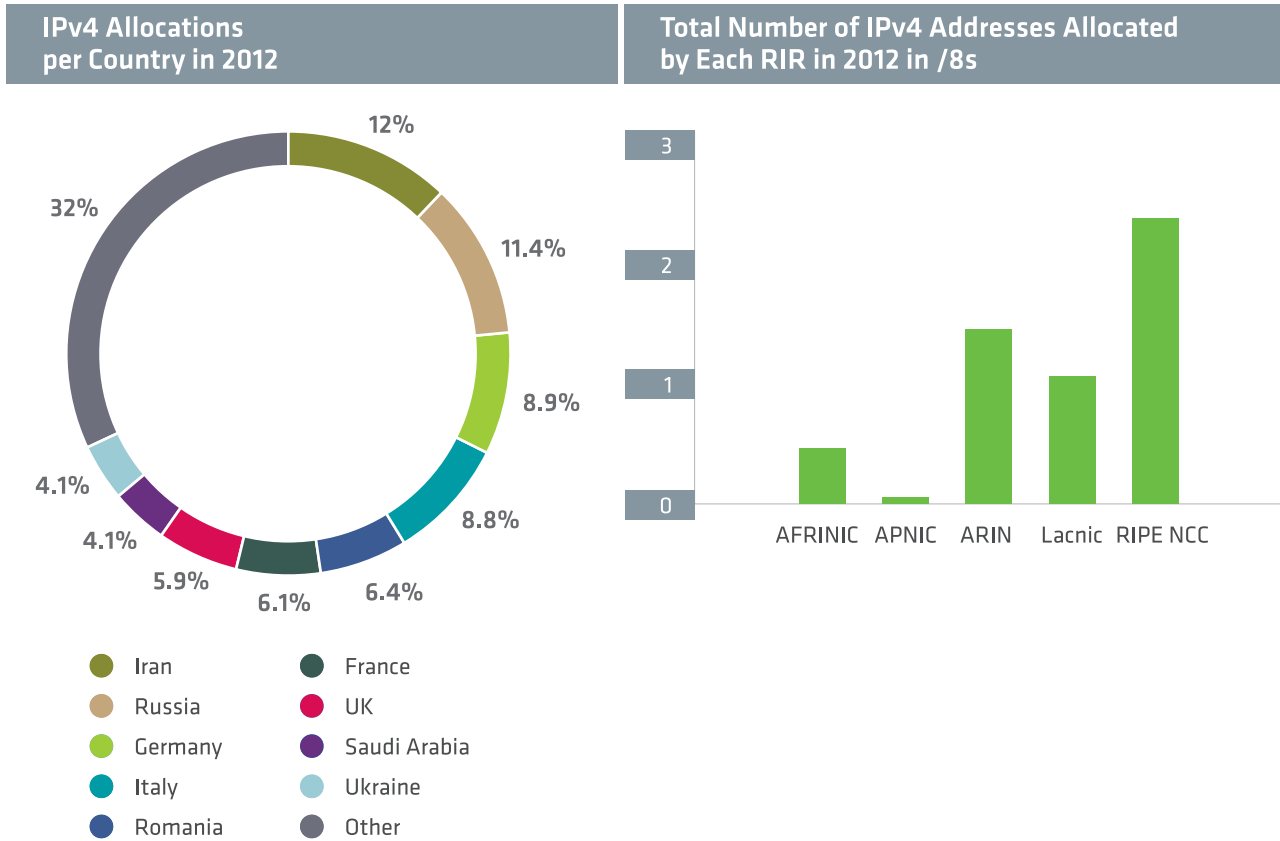
- IPv4: 2,638 allocations
- IPv4 /22s issued since 14 September: 805
- IPv6: 1,289 allocations
- IPv6 allocation extensions: 159
- ASN: 1,424 (16-bit) and 1,076 (32-bit) assignments
- PI: 2,384 (IPv4) and 445 (IPv6) assignments
- Anycast: 9 (IPv4) and 9 (IPv6) assignments
- IXP: 11 (IPv6) and 4 (IPv4) assignments

A more in-depth overview of how to request allocations and assignments can be found at:

[www.ripe.net/lir-services/resource-management/number-resources](http://www.ripe.net/lir-services/resource-management/number-resources)

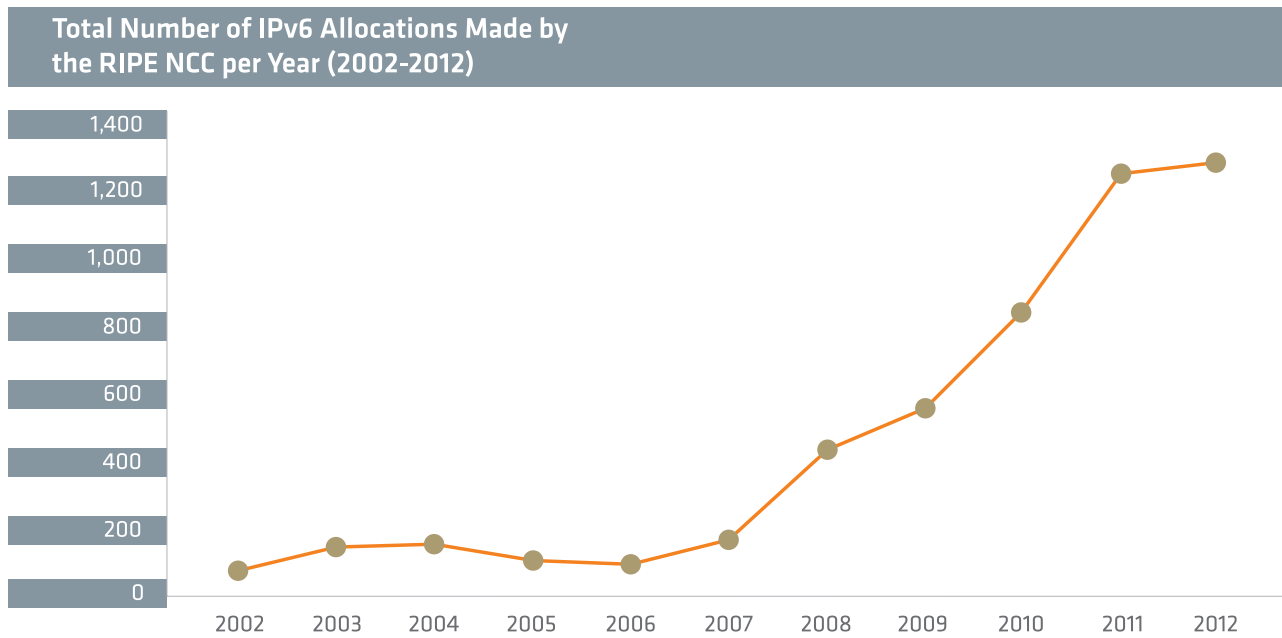
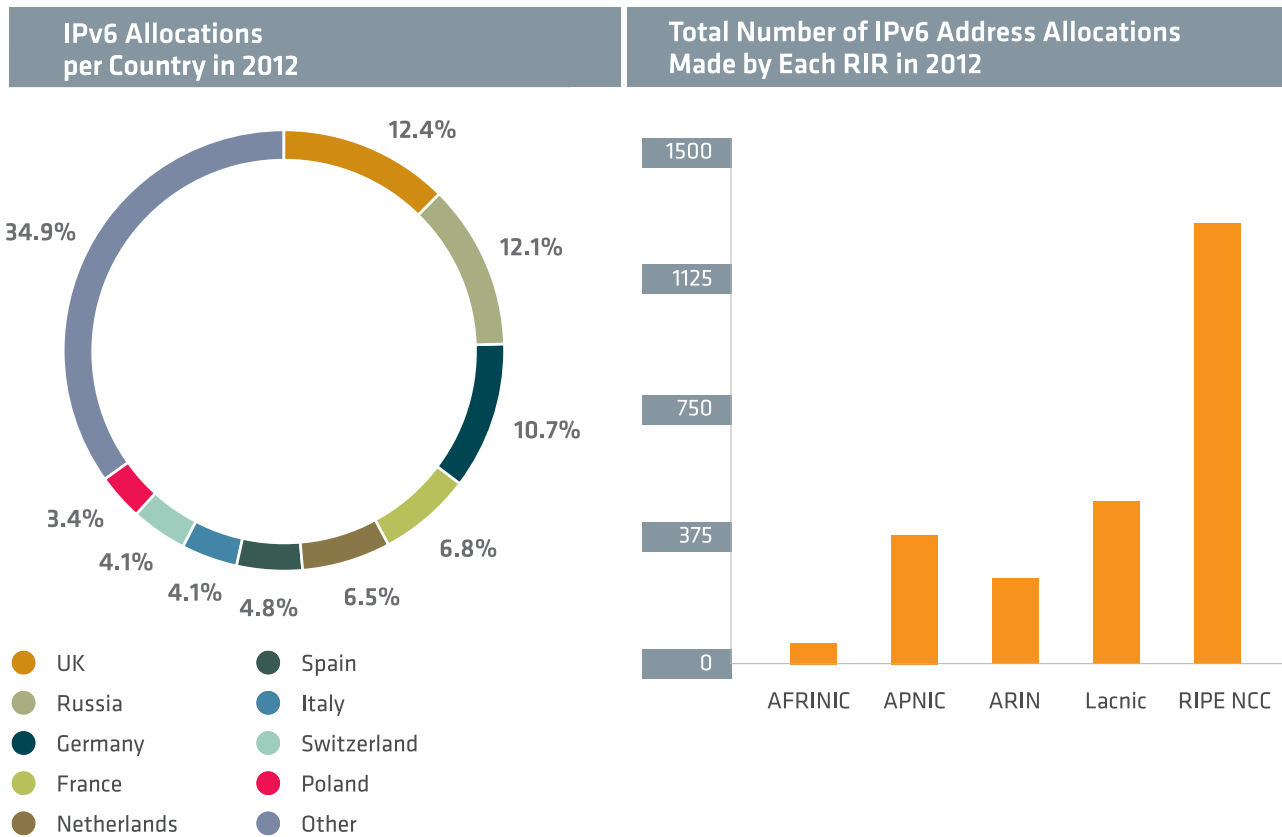
## IPv4 Allocations in 2012

The RIPE NCC allocated 37,083,136 IPv4 addresses during the year. Compared with 2011, this is a 7.13% decrease in the total number of IPv4 addresses allocated.



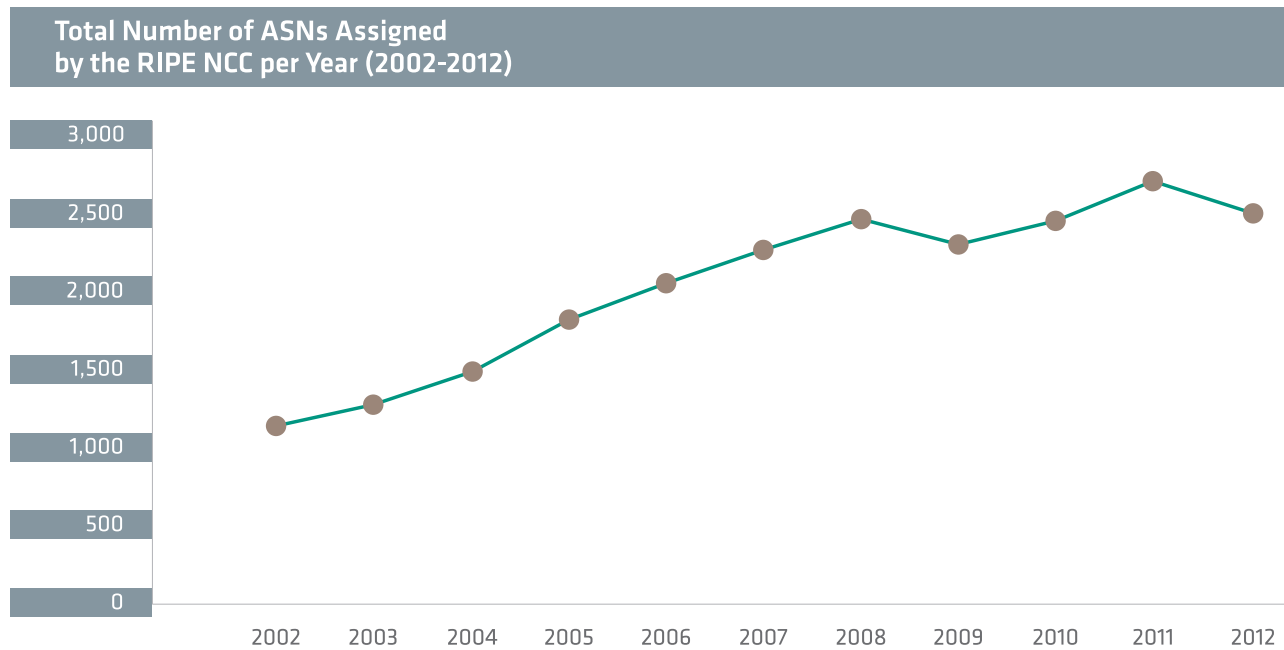
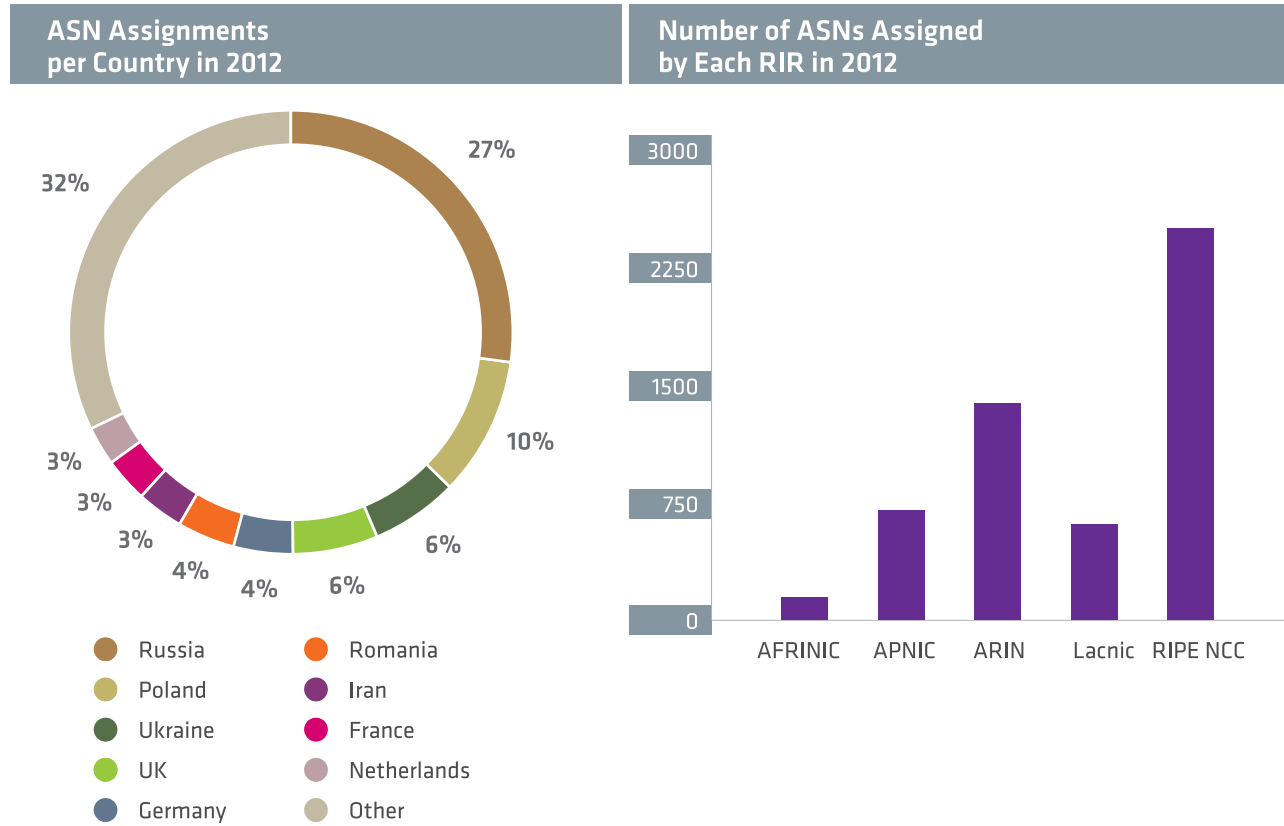
## IPv6 Allocations in 2012

The RIPE NCC made 1,289 IPv6 allocations in 2012. 4,871 LIRs held an IPv6 allocation at the end of 2012, constituting 55.6% of the RIPE NCC membership.



## Autonomous System Number (ASN) Assignments in 2012

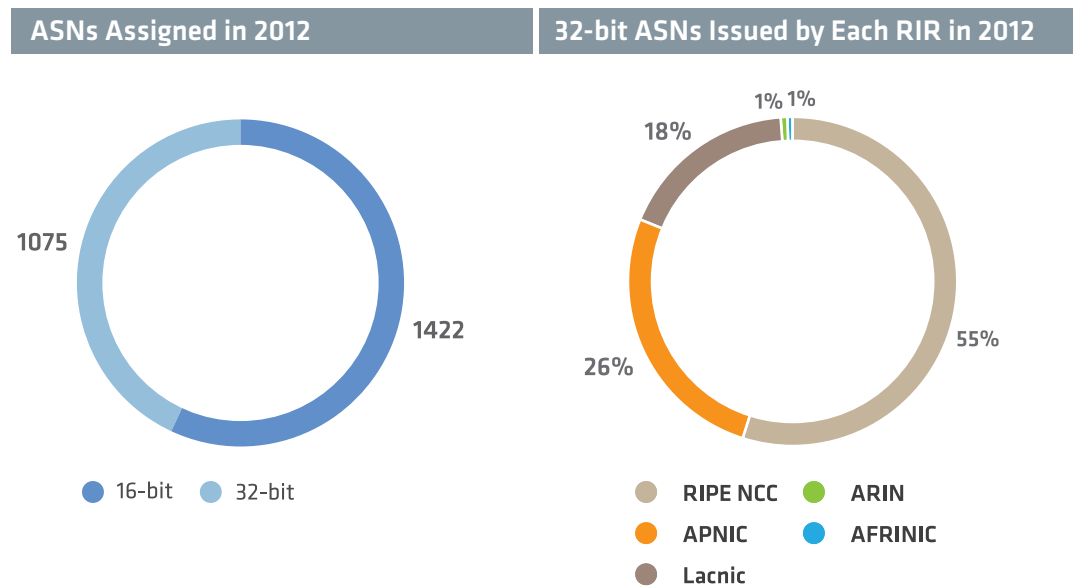
The IANA allocated 3,072 ASNs to the RIPE NCC in 2012. The RIPE NCC assigned 2,500 ASNs during the year, a 7.4% decrease compared to the amount assigned in 2011.



## 32-bit ASNs

In January 2009, the RIPE NCC began assigning 32-bit (or four-byte) Autonomous System Numbers (ASNs) by default. This has encouraged adoption of the new format throughout the region.

In 2012, 43% of the ASNs assigned in the RIPE NCC service region were 32-bit.



## Legacy Resource Registration

Legacy address space is the IPv4 address space that was distributed by the Internet Assigned Numbers Authority's (IANA) central registry prior to the formation of the Regional Internet Registry (RIR) system. After the RIPE NCC was established as an RIR, IANA authorised it to take over administrative responsibility for the address space that IANA had distributed in what is now defined as the RIPE NCC service region (Europe, the Middle East and parts of Central Asia).

There are approximately 2,500 organisations in the RIPE NCC service region holding 4,500 legacy space prefixes.

At the end of July 2012, the RIPE NCC stopped contacting legacy holders proactively. A policy proposal was published regarding legacy space and the RIPE NCC will await the outcome of this proposal.

Many organisations approached the RIPE NCC to register their resources and these requests are still being processed.

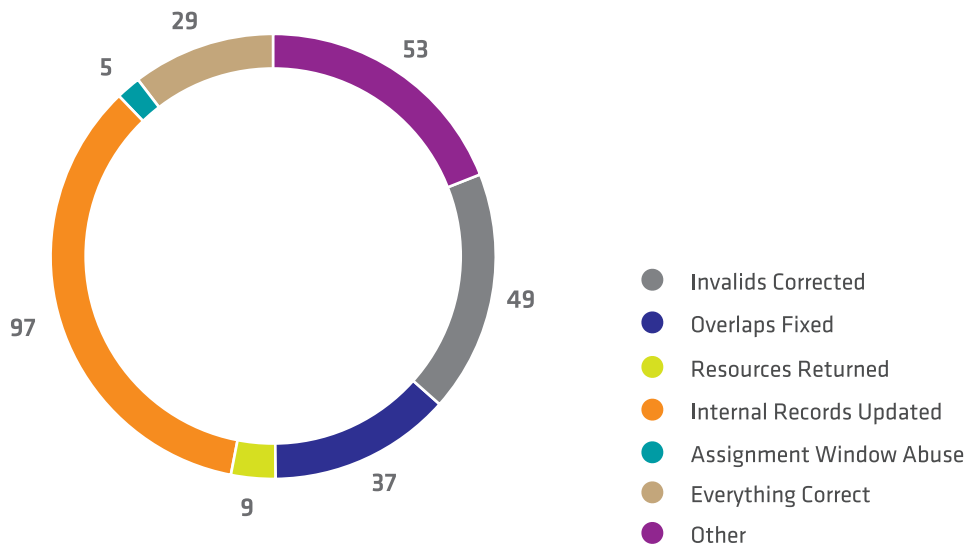
## RIPE NCC Audit Activity

Since 1996, when the RIPE community first asked the RIPE NCC to audit LIR contact data and resource records, the community has become increasingly concerned with the quality of the data registered by RIPE NCC members and the RIPE NCC itself. This concern coincides with increased emphasis on the accurate registration of data in the RIPE Registry as the free pool of unallocated IPv4 address space decreases.

This emphasis on data quality can be seen in the rising rates of audits processed over the past several years and the increase in data granularity from the completed audits. In 2012, the RIPE NCC initiated 210 audits. This is around half the number of audits conducted in 2011, as correct management in the lead-up to the last /8 took priority from August.

The data collected from completed audits is becoming more detailed and in 2012 articles related to audits were published on RIPE Labs to solicit feedback. Feedback from members is used to determine the balance between overhead costs and the required detail of data. Feedback collected in 2012 was used to begin a review of audit activity, taking IPv4 exhaustion into account.

### Audit Outcomes in 2012





## Resource Quality Assistance

The RIPE NCC takes proactive quality assurance measures such as announcing pilot prefixes of newly allocated IP address blocks and the quarantine times for returned IP address space. The RIPE NCC also provides information about tools to identify where an address range is filtered, lists available contact details of the organisation that filters it and helps to establish a direct communication between relevant parties.

The range 128/16 was allocated by the IANA to the RIPE NCC. This range was configured by default as a martian on older versions of Juniper OS. Registration Services has proactively contacted (via email and phone) all operators who were still filtering this range, asking them to update their filters. This has led to a significant increase in visibility: 128/16 was among the last ranges that were distributed by the RIPE NCC on 14 September 2012.

<https://www.ripe.net/lir-services/resource-management/ripe-ncc-resource-quality-assistance>

## Abuse Reports

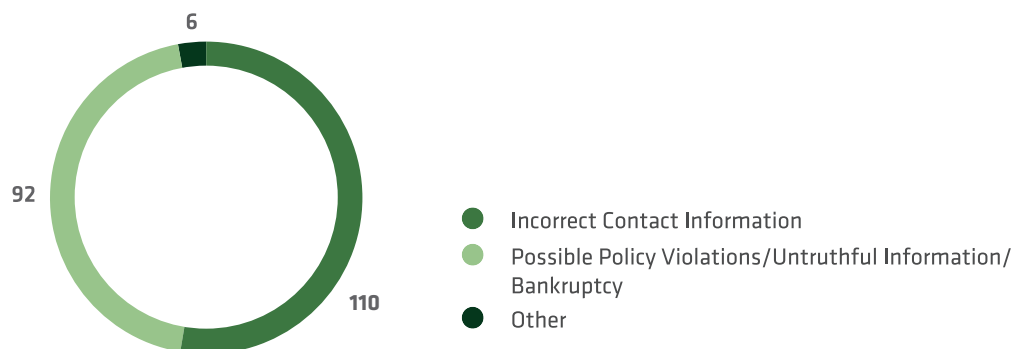
In April 2012, the RIPE NCC launched the RIPE NCC Report Form to make it easier to file a complaint and to ensure that all the information needed to follow up is included in the report.

<http://www.ripe.net/contact>

Of the 380 reports received through the Report Form in 2012, 208 were related to Registration Services (the remainder concerned issues such as spamming or hacking). All 208 reports were investigated. Of these 208 reports:

- 110 reported incorrect data in the RIPE Database. 25 of these required further investigation by the RIPE NCC.
- 92 reports concerned policy violations, untruthful information or related to bankruptcy. Of these reports, 57 were found not to be policy violations. 14 could not be followed up due to lack of information. And 21 reports resulted in further inquiries.
- 6 reports did not fall under the scope of normal Registration Services abuse reports, but they were investigated nonetheless.

### Abuse Reports in 2012 Related to Registration Services



## Assignment and Allocation Policies Implemented in 2012

All the policies detailing the way in which the RIPE NCC allocates and assigns Internet number resources to its members are proposed, discussed and accepted or rejected by the RIPE community. The RIPE NCC implements the RIPE community-accepted policies into its operations and procedures.

In 2012, the RIPE NCC implemented three assignment and allocation policies:

- 2011-02 Removal of Multihomed Requirement for IPv6 PI
- 2011-04 Extension of the Minimum Size for IPv6 Initial Allocation
- 2011-05 Safeguarding Future IXPs with IPv4 Space

## RIPE Policy Proposal 2007-01

In 2012, the RIPE NCC continued work to implement RIPE Policy Proposal 2007-01, "Direct Internet Resource Assignments to End Users from the RIPE NCC". This proposal became ripe-452, "Contractual Requirements for Provider Independent Resource Holders in the RIPE NCC Service Region." The policy states that a contractual relationship must exist between an End User and a sponsoring LIR or the RIPE NCC. It also states that a contractual relationship must be retroactively put in place for End Users of independent Internet number resources that were previously assigned.

Phase 1 of the implementation required LIRs to provide an assignment agreement between the LIR and the End User with every assignment request.

In Phase 2, LIRs could mark resources as:

- My Infrastructure
- My End User, if the resource holder would sign an agreement with the LIR
- Not My End User, if the resource holder would not sign an agreement with the LIR

Phase 3 of the policy implementation began in March 2011, when the RIPE NCC started to directly contact the End Users of independent Internet number resources who did not sign an agreement with a sponsoring LIR during Phase 2. This involved contacting around 19,500 resource holders and asking them for a response.

By the end of December 2012, the RIPE NCC had contacted around 7,900 resource holders. Feedback for about 6,500 of these resources was completed and the required documentation was marked as:

- Approved;
- Approved as LIR infrastructure; or
- The resources were returned to the RIPE NCC

## Returned Address Space

Over 837,000 IPv4 addresses were returned to the RIPE NCC during 2012. A total of over 9.68 million IPv4 addresses have now been returned over the last six years (including 1.36 million legacy addresses), contributing towards good management of Internet number resources. The RIPE NCC re-allocates the addresses that have been returned after a quarantine period.

As the RIPE NCC is now allocating from 185/8, address space that is returned to the RIPE NCC will only be re-issued after 185/8 has been fully used. This address space will also be distributed according to section 5.6 of ripe-553, "Use of Last /8 for PA Allocations".

[www.ripe.net/ripe/docs/ripe-553#----use-of-last-8-for-pa-allocations](http://www.ripe.net/ripe/docs/ripe-553#----use-of-last-8-for-pa-allocations)

## Returning Addresses to the IANA

On 6 May 2012, the ICANN Board ratified GPP-IPv4-2011, "Global Policy for Post Exhaustion IPv4 Allocation Mechanisms by the IANA". This global policy enables IANA to redistribute any recovered IPv4 address space equally among the RIRs.

Following the ratification of this global policy, on 22 May 2012 the RIPE NCC returned 1,368,576 recovered legacy IPv4 addresses to the IANA and will continue to do so with any legacy space it recovers in the future.

The ICANN Board Resolution is available at:

[www.icann.org/en/groups/board/documents/resolutions-06may12-en.htm](http://www.icann.org/en/groups/board/documents/resolutions-06may12-en.htm)

## THE LIR PORTAL

The LIR Portal is the secure web area for RIPE NCC members to manage everything related to their membership and the Internet number resources they hold.

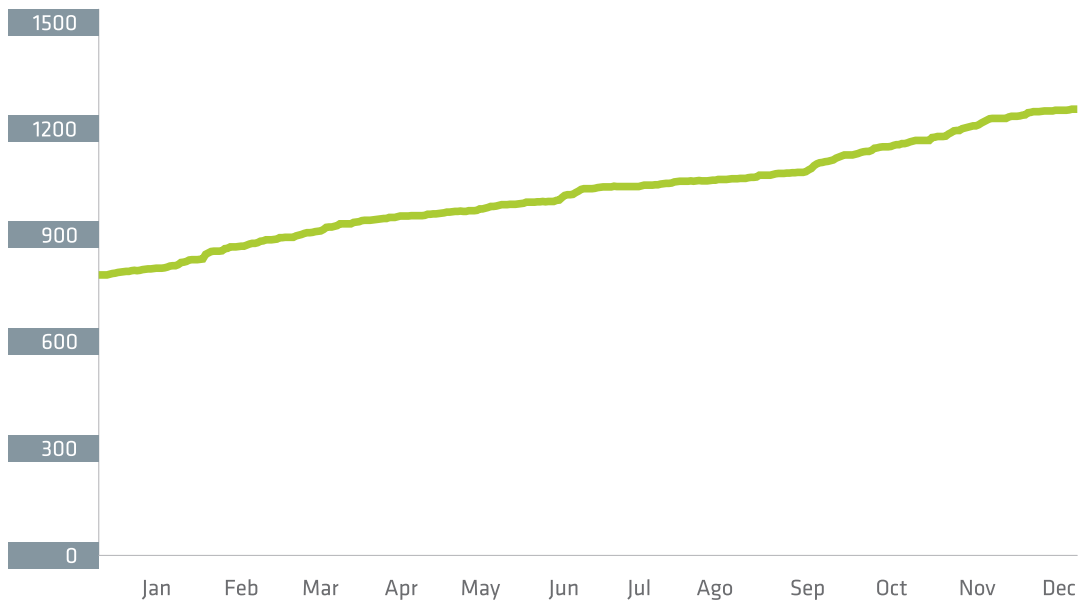
In 2012, there was an added emphasis on making sure that all improvements to the LIR Portal are created with a focus on quality and usability. The RIPE NCC's goal is to employ new technologies while continuing to support users of legacy workflows. The results of these efforts can be seen in four main areas:

- The Resource Certification (RPKI) service
- The IP Analyser
- The IPv4 Transfer Listing Service
- The Application Programming Interface (API) Key Management toolset

### Resource Certification (RPKI)

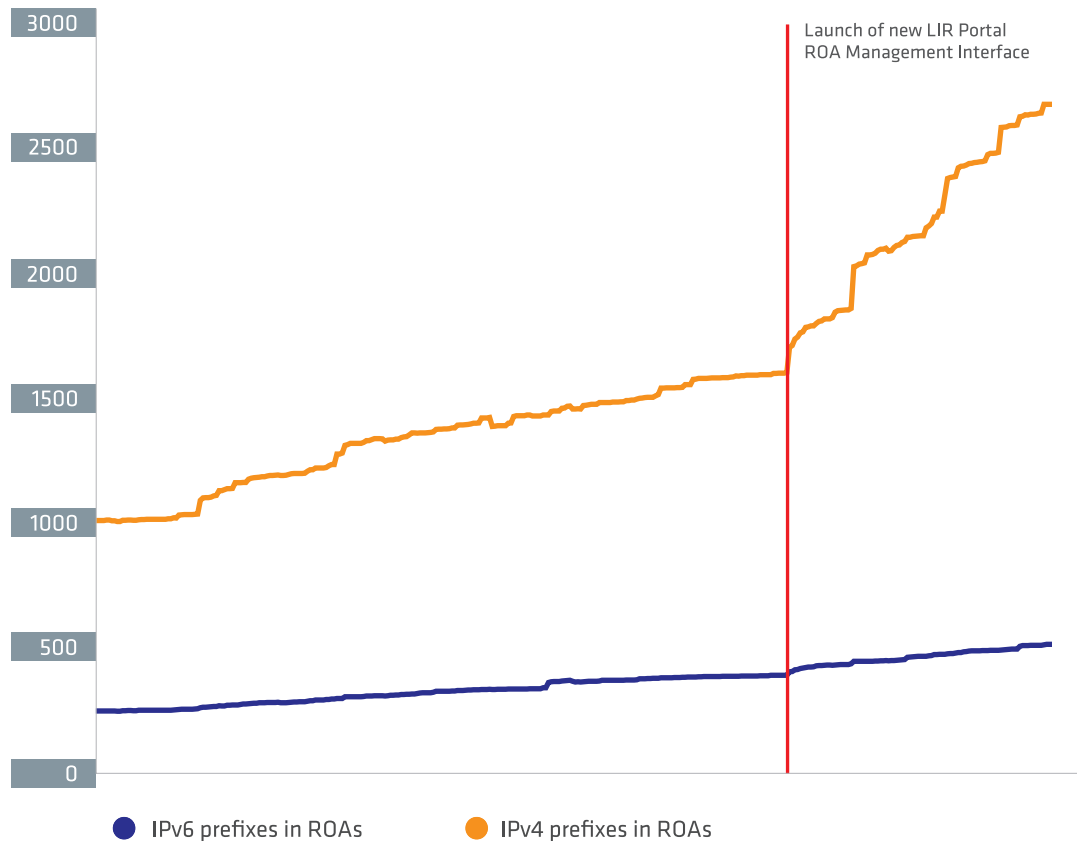
In 2012, the number of RIPE NCC members using RPKI to certify their IP address space grew to over 1,250, or around 15% of the membership. This growth can be attributed to an increase in members' interest in BGP Origin Validation, something that has been encouraged by the industry, with Cisco and Juniper offering RPKI support in their router hardware as a free update.

#### Growth of LIRs with a Resource Certificate in 2012



Using their certificates, most of these members have created Route Origin Authorisations (ROAs) for their BGP route announcements. In the RIPE NCC service region, nearly 3,000 IPv4 prefixes covering more than five /8 blocks are matched by a ROA. In addition, over 500 IPv6 prefixes are now covering more than 9,000 /32 blocks.

## Growth of Address Space Covered by a ROA in 2012



As requested by the RIPE NCC membership, the main focus for RPKI in 2012 was on making sure the Resource Certification service is secure, resilient and ensures operator autonomy. The RIPE NCC improved its authentication system, tightened internal security processes, moved the servers to secured data centres and increased the overall auditability of the system. Since most of this work was at the back end, users would not have noticed any visible changes in the system.

In September 2012, the RIPE NCC launched a new management interface for the Resource Certification system in the LIR Portal. This introduced improvements to the quality and usability of the service. The system can guide new users through basic concepts, can make suggestions to ensure that high-quality data is entered, and includes a notification system that alerts users when BGP route announcements no longer match the data that was entered, or when a BGP hijack is ongoing.

All of this has improved the usage of the system and quality of the data being entered, resulting in significant growth in the number of ROAs generated and an improvement in the overall reliability and value of the system to network operators.

It should be noted that by the end of 2012, only a relatively small portion of the address space the RIPE NCC manages was available for Resource Certification. The most common request was to make every type of address space eligible for certification, including Provider Independent and legacy address space. This will be the main focus for 2013.

## The IP Analyser

About ten years ago, the RIPE NCC developed a small toolset called “asused”. It allows RIPE NCC members to get a plain text report on assignments, free space and various other aspects of the address space they hold. The toolset was open sourced so the wider community could maintain it and develop it further, but this never materialised to a satisfactory level, even though many RIPE NCC members are depending on the information the tool supplies. Asused contains a number of bugs and lacks several crucial features, such as the ability to see “invalid” assignments that are, for example, made without RIPE NCC approval.

In 2012, the RIPE NCC Executive Board asked the RIPE NCC to re-implement the asused functionality in a new tool. This has resulted in the IP Analyser, which provides members with information to assist them in managing their allocations and assignments. The IP Analyser gives RIPE NCC members access to the following information:

- An overview of all allocations and assignments they hold
- An overview of available free space in their allocations
- An overview of all invalid assignments that require their attention

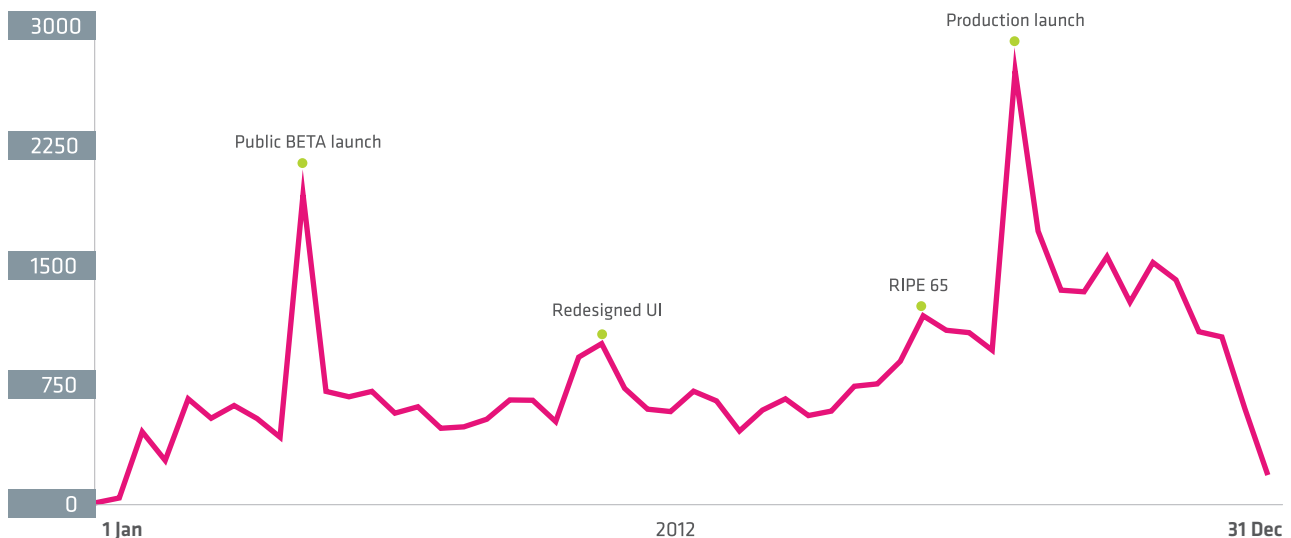
### The IP Analyser offers several key advantages:

- Both public and private information about the LIR’s registry is fetched in real time and displayed in a user-friendly LIR Portal web application
- Members no longer have to contact the RIPE NCC to get an overview of their invalid assignments
- The application can suggest free space for customer assignments with conservation in mind

The membership expressed a requirement that the IP Analyser information not be solely locked into the LIR Portal web interface but should also be available in a way that can integrate with local IP address management tools and workflows. In order to achieve this, the RIPE NCC has made the IP Analyser data available in plain text and machine-readable formats.

Since the production launch in September, the IP Analyser has become the most frequently visited page in the LIR Portal, with around 1,500 logged-in members visiting per week. In addition, more than 150 RIPE NCC members have already created an access key to use the IP Analyser data through the API.

### Weekly Page Views of the IP Analyser in the LIR Portal



Work on the IP Analyser will continue in 2013, with a focus on IPv6. The RIPE NCC’s goal is to help members make an IPv6 addressing plan, and to help manage their allocations and assignments.

## The IPv4 Transfer Listing Service

Last year, the IPv4 Transfer Listing Service was added to the LIR Portal. This is a platform that enables RIPE NCC members to list and exchange the IPv4 address space they hold and no longer need.

As the RIPE NCC is now allocating addresses according to the last /8 policy, IPv4 transfers between members are expected to become increasingly important. This is why, in 2012, the Listing Service was expanded to allow RIPE NCC members to request IPv4 address space for transfer, further streamlining the transfer process by bringing supply and demand together on one platform.

## The API Key Management Toolset

Because there is a lot of private information exchanged between the RIPE NCC and its members, the RIPE NCC implemented an Application Programming Interface (API) Key Management toolset, which allows members to create an access key. Using the key, they can access all private information relevant to them that is available in the LIR Portal in plain text or machine-readable format.

In 2012, two services were made available through the authenticated API: My Resources and the IP Analyser. The My Resources API offers access to all registry information about member resources in JSON or XML format, including ASNs, IPv4 and IPv6 allocations, Assignment Window history, PI assignments and legacy address space. The IP Analyser API offers access to all information about the member's IPv4 assignments, available free space and invalid assignments that require their attention, in JSON or plain text format.

There is a dedicated page on the RIPE NCC website giving an overview of all the available APIs:

[www.ripe.net/developers](http://www.ripe.net/developers)

## THE RIPE DATABASE

The RIPE NCC operates and maintains the RIPE Database. The database contains information about IPv4 and IPv6 allocations and Autonomous System Number (ASN) assignments originally allocated by the RIPE NCC, as well as information about the organisations, contacts and reverse Domain Name System (rDNS) delegations relating to them. Anyone can query the RIPE Database, and RIPE NCC members can use it to update information relating to their Internet number resource allocations and assignments.

During 2012, about 6.8 billion queries were served, which is almost the same query rate as in 2011. The RIPE Database also includes the RIPE Routing Registry (RR), which is part of the global Internet Routing Registry (IRR). The IRR ensures the stability and consistency of global Internet routing by sharing information between network operators. The IRR consists of several databases, including the RIPE RR, in which network operators can publish their routing policies and routing announcements.

During 2012, the RIPE NCC mainly focused on the redevelopment of 11-year-old RIPE Database software, rewriting the code from scratch in Java. The new code needed to accommodate a range of changes from different sources, including policy changes, new protocols and technologies, feature requests by the RIPE community and changes in client-side tooling. The new code needed to facilitate quick responses to these change requests while maintaining backward compatibility with existing tools and processes. The RIPE NCC achieved this by surrounding the new software with thousands of test cases that run automatically with every code commit and guarantee that business rules and software behaviour are maintained.

The software is written in a way that makes it possible to deploy it to production in increments and not as a major change, which helped the RIPE NCC to deploy the new software to production in regular periods and make sure the new software is 100% backwards compatible with existing software.

## Database Queries Software

In 2012, the RIPE NCC deployed the latest version of the new queries software to its production cluster. The code base had support for all the features of the old software and, after running both code bases in parallel for some weeks, the old queries code was fully decommissioned from the production cluster. This includes the Near Real Time Mirroring (NRTM) server code.

## Database Updates Software

The RIPE NCC also started working on redeveloping its update software for the RIPE Database. By the end of 2012, coding was completed for the software and most of it is now in production. There are a few pieces of the code that are not yet in production because the compatibility tests were ongoing at the end of the year, but the old update software is scheduled to be decommissioned early in 2013.

The new software has many features, including much higher performance, the ability to handle redundancy, easy scalability, and quick and safe behaviour changes.

Other work carried out by the RIPE NCC in 2012 included:

- Implementation of hiding MD5 hashes in database queries as requested by the RIPE community
- Implementation of a GeoLocation Prototype on the RIPE community's recommendation
- Cleaning up the RIPE Database of all forward domain data
- Working on RIPE Database API improvements and working on the WHOIS RDAP Protocol
- Improving the RIPE Database infrastructure with the goal of higher security and safety of data as well as higher performance
- Working with the community to devise an implementation proposal and plan for an Abuse Contact Management Policy



## TRAINING SERVICES

The RIPE NCC provides training courses to members in its service region. The purpose of these courses is to assist with the correct registration and administration of Internet number resources, while also providing further training in more specialised areas. These training courses are regularly updated to include information on any new policies accepted by the RIPE community or modifications to existing policies or software.

In 2012, the RIPE NCC ran 103 training courses in 35 different countries, with a total of 2,060 attendees. There were three courses offered:

- Local Internet Registry (LIR) Training Course – Shows members how to request Internet number resources and how to interact with the RIPE NCC. There were 897 attendees in 2012.
- Routing Registry (RR) Training Course – Explains the features of the Routing Policy Specification Language (RPSL), the Routing Registry (RR) and related tool to experienced network operators. There were 283 attendees in 2012.
- IPv6 for LIRs Training Course – Raises awareness about IPv6 and how to obtain IPv6 address space, as well as current best practices for deploying it and IPv6 Internet addressing policies. There were 880 attendees in 2012.

Roughly half of the course participants were from LIRs who had never been to a RIPE NCC training course before (45%). The rest (55%) were returning and consisted of new staff from existing LIRs or staff from LIRs who wanted to refresh their knowledge.

The vast majority (83%) of attendees were from LIRs located in the country where the course was held. Only 17% came from other (often neighbouring) countries, which indicates that members are taking advantage of the courses held close by. Feedback from attendees also indicated that they valued the opportunity to meet in person with RIPE NCC staff at the training courses.

## Webinars

In 2012, the RIPE NCC introduced training through online webinars for the first time, with three different courses on offer:

- Introduction to the RIPE Database
- RIPE Database – Advanced Topics
- Resource Certification (RPKI)

Each of these topics is covered once every month, and each webinar can be attended by up to 23 people. In 2012, the RIPE NCC ran a total of 33 webinars, each with full attendance. Feedback from attendees indicated that they appreciated being able to interact with the trainers and each other remotely, without having to travel.

## IPv6 Roadshows

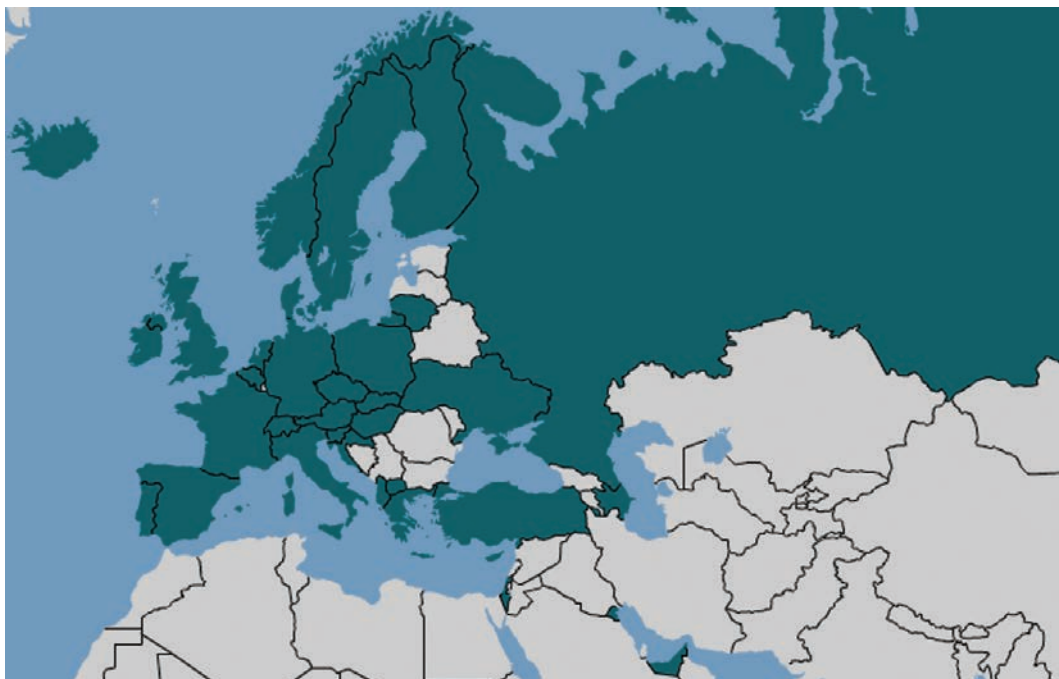
In 2012, the RIPE NCC ran six IPv6 Roadshows in the Middle East. These events were a joint initiative between the Middle East Network Operators Group (MENOG), the RIPE NCC and APNIC, and they were intended to give network operators an opportunity to gain hands-on experience dealing with IPv6.

## RIPE NCC E-Learning Centre

The RIPE NCC has an E-Learning Centre on its website with short online courses on topics relating to the Internet industry, the RIPE community, governments and regulators. The E-Learning modules are also used to supplement the material covered in the RIPE NCC's training courses.

[www.ripe.net/lir-services/training/e-learning](http://www.ripe.net/lir-services/training/e-learning)

### Countries Where the RIPE NCC Held Training Courses in 2012



## MEASUREMENTS, TOOLS AND STATISTICS

### RIPEstat

RIPEstat is a web-based interface that provides everything you ever wanted to know about IP address space and Autonomous System Numbers (ASNs) in one place. It presents registration and routing data, DNS data, geographical information, abuse contacts and more in the form of widgets that can be embedded on any webpage. RIPEstat also provides an API to access the raw data for use in advanced applications.

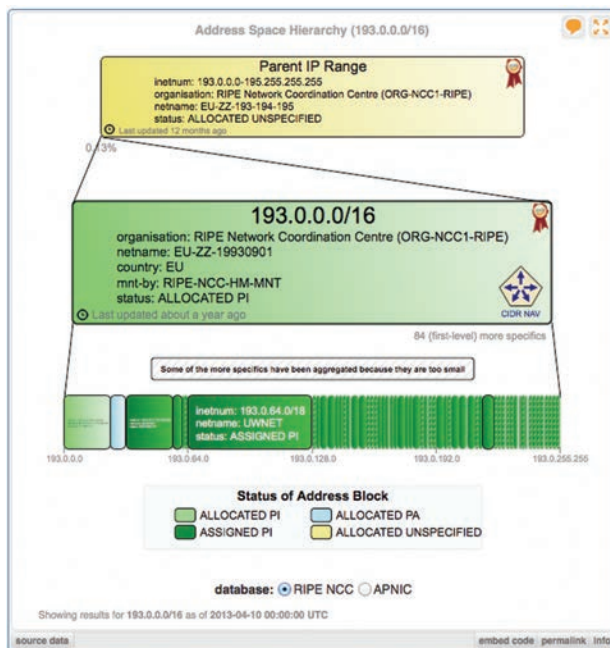
During 2012 the RIPE NCC increased the number of RIPEstat widgets from 21 to 38 and made significant improvements to others. The RIPE NCC also introduced a new “tabbed” homepage that groups widgets into useful categories, in addition to developing a command line interface.

Particularly noteworthy are two new widgets that display RIPE Registry data in a graphical way. The Registry Browser shows the interrelationship of entries in the RIPE Registry and even provides a change history to logged-in members. The Address Space Hierarchy widget displays address space registrations in the context of the addressing hierarchy.

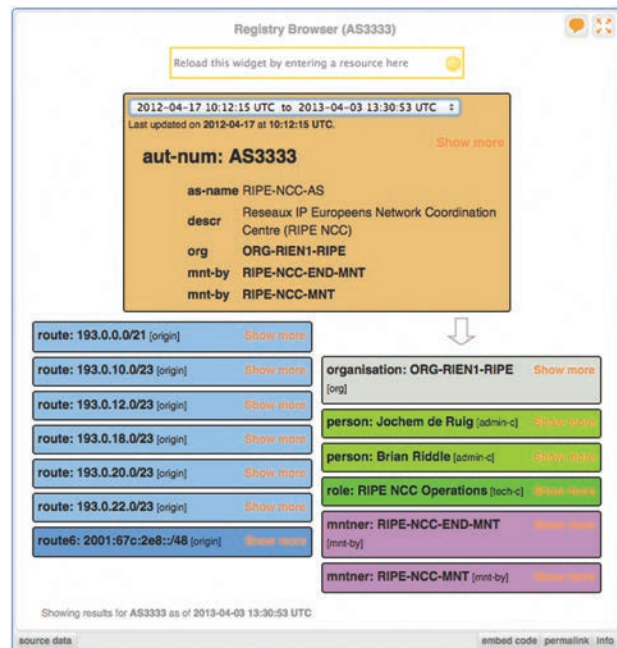
RIPEstat retrieves information from the RIPE NCC’s various data sets, including the RIPE Registry and measurement data, as well as from external sources. By collecting, maintaining and presenting this data in a simplified, consolidated way, RIPEstat provides a “one-stop shop” that allows users to correlate comprehensive data for a specific address range or ASN with ease. In addition to the most recent data, RIPEstat also displays up to a decade of history for many data sets. The number of unique RIPEstat users grew from 62,000 in 2011 to more than 122,000 in 2012.

During 2012 the RIPEstat Team focused on supporting community participation in the development of RIPEstat by providing frequent updates on progress, collecting feedback from users and developing a comprehensive roadmap for RIPEstat. Based on this feedback, in 2013 RIPEstat plans to include support for a wider range of query types, such as hostnames and country codes. Continued improvement of the user interface will allow users to create their own customised views and settings.

<https://stat.ripe.net>



Address Space Hierarchy Widget



Registry Browser Widget

## RIPE Atlas

RIPE Atlas is a global Internet measurement network that adds an active dimension to the data the RIPE NCC collects about the Internet. It employs a network of thousands of probes distributed around the world that perform active measurements on their hosts' networks, including ping, traceroute, DNS and SSL certificate measurements. In addition to providing visualisations and analyses based on the collected data, RIPE Atlas enables all RIPE NCC members to perform their own customised active measurements from thousands of vantage points across the globe. While each individual measurement helps to answer a specific question, the results of the combined data will eventually lead to an Internet traffic map that shows real packet flows.

The RIPE Atlas network expanded from 1,024 probes at the end of 2011 to 2,304 probes worldwide by 31 December 2012, concentrated in the RIPE NCC's service region, and the network is continually growing. Anyone is able to host a probe by applying online, and the RIPE NCC hopes to expand the RIPE Atlas network to 4,000 active probes by the end of 2013.

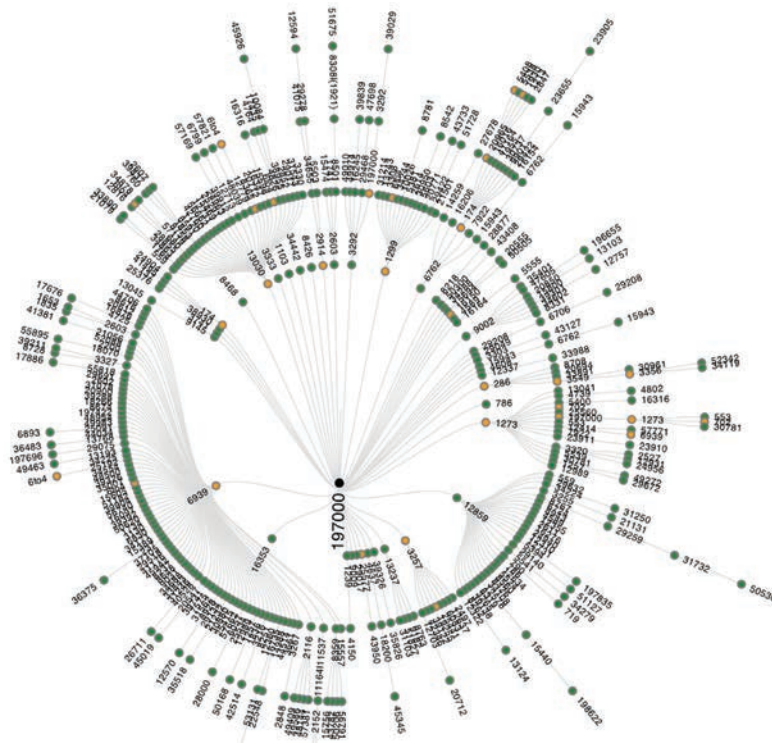
In 2012, the number of RIPE Atlas users grew from 1,300 to 5,500 users, more than 1,500 of whom were RIPE NCC members. New features available only to RIPE NCC members were developed, including the ability to test their networks' IPv6 connectivity and receive a graphical presentation of the results. RIPE Atlas sponsors provided 70k EUR in support in 2012.

Throughout 2012, the RIPE NCC used the global RIPE Atlas network to provide a range of analyses, such as determining the impact of Hurricane Sandy on the Internet and comparing the extent of prefix filtering in IPv4 versus IPv6 networks.

During 2012, the RIPE NCC also began work on the RIPE Atlas anchors pilot. RIPE Atlas anchors are enhanced RIPE Atlas probes that will be used as fixed measurement targets for the rest of the RIPE Atlas network. These anchors will allow for an even greater understanding of network connectivity at local and regional levels.

In 2013, RIPE Atlas will continue to be developed in close cooperation with its users and the wider Internet community. Current plans based on community feedback include an increased focus on expanding data visualisation for user-defined measurements and supporting "one-off" measurements that allow users greater flexibility in collecting timely data about their own networks.

<https://atlas.ripe.net/>



*RIPE NCC members can test their network's IPv6 connectivity by performing traceroutes using the RIPE Atlas network.*

## Test Traffic Measurement (TTM) Service

The RIPE NCC TTM began in 2000 as a service to enable users to continuously monitor the connectivity of their networks to other points on the Internet using a neutral and reliable measurement system. TTM test-boxes are deployed at participating hosts and measurement traffic is sent between them.

The TTM service has been very successful for more than a decade, but in order to address their changing needs and take advantage of the latest technology, TTM users and the RIPE NCC evaluated the service in 2011 and 2012, and decided to discontinue it by mid-2013. RIPE Atlas, and in particular RIPE Atlas anchors, will provide users with some of the TTM functionality in the future.

[www.ripe.net/ttm](http://www.ripe.net/ttm)

## Domain Name System Monitoring (DNSMON)

DNSMON uses the TTM test-boxes to provide an objective overview of DNS root servers and participating Top-Level Domain (TLD) name servers. The measurements show the quality of the DNS and enable users to distinguish between server-side and client-side problems. By the end of 2012, 29 TLDs were using DNSMON.

With the TTM service coming to an end in mid-2013, the RIPE NCC has been investigating new mechanisms, independent of the TTM test-boxes, to collect the DNS monitoring information. As a result of this, DNSMON measurement systems will also transition to RIPE Atlas. During 2012, the RIPE NCC started to prepare for this migration, which will also include work on a new user interface to present the data. These changes are expected to be in place by the third quarter of 2013.

<https://dnsmon.ripe.net>

## Routing Information Service (RIS)

RIS keeps track of changes in the global Internet routing system by collecting and storing Border Gateway Protocol (BGP) routing information using 13 Remote Route Collectors (RRCs) located at major Internet exchanges around the world. During 2012, a significant number of the RRCs were replaced as part of regular life-cycle maintenance, with more scheduled for replacement in 2013.

RIS holds a complete routing history of the Internet for the past decade, which is available as a raw data download, while the most recent three months of data can be queried via a variety of tools. In the future, older tools such as the RIS Dashboard will be gradually phased out, and eventually RIS data will be presented exclusively via RIPEstat, which will become the RIPE NCC's consolidated source for all Internet number resource related information.

[www.ripe.net/data-tools/stats/ris](http://www.ripe.net/data-tools/stats/ris)

## IPv6 RIPv6ness

The RIPE NCC uses a rating system called IPv6 RIPv6ness to measure the level of IPv6 adoption by LIRs. LIRs are awarded up to four stars, one for each of the following criteria:

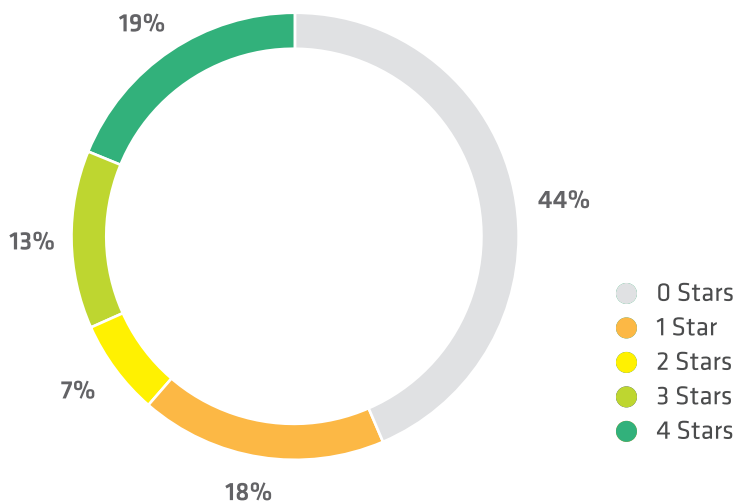
- The LIR has received an IPv6 allocation or PI assignment
- The IPv6 prefix is visible in the Routing Information System
- A **route6** object for the IPv6 prefix is registered in the RIPE Database
- Reverse DNS is set up for the IPv6 prefix

The first star is awarded when a member receives an initial allocation of IPv6 address space. By mid 2012, the number of members who had this first star passed the 50% mark for the first time. This number further increased after September, as one of the requirements for receiving a /22 allocation from the final /8 of IPv4 address space is to first have already received an IPv6 allocation. The second, third and fourth stars are awarded when each of the remaining three criteria are satisfied, in no particular order.

Following suggestions from the RIPE community, the RIPE NCC is currently developing a fifth star for the IPv6 RIPv6ness system that considers whether LIRs provide IPv6 services to customers. This fifth star will be implemented in 2013.

[ip6ripeness.ripe.net](http://ip6ripeness.ripe.net)

### The RIPv6ness of LIRs in the RIPE NCC's Service Region as of 31 December 2012



## CUSTOMER SERVICES

The RIPE NCC's Customer Services Team is the first point of contact for the RIPE NCC membership and the RIPE community with the RIPE NCC. The team sets up new RIPE NCC members, provides first-line support and assists in coordinating internal activities within the RIPE NCC. In 2012, the RIPE NCC's Customer Services Team could be contacted through live chat and a web form, as well as by email and telephone.

### Ticketed Requests

In 2012, the Customer Services Team handled a total of 27,671 tickets, an increase of 39% compared to the 2011 total of 19,943.

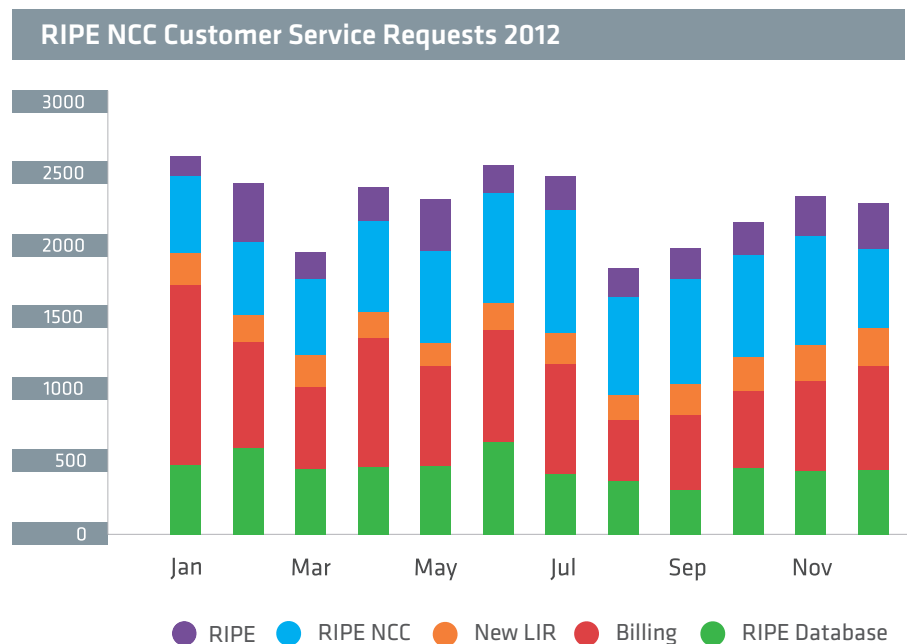
The number of new LIR applications went up by 61% - there was a substantial spike in September and October after the RIPE NCC reached the last /8 of IPv4 address space. There was a 22% increase in billing tickets and 100% increase in general enquiries (these were mostly LIR Portal questions and abuse complaints).

These requests related to:

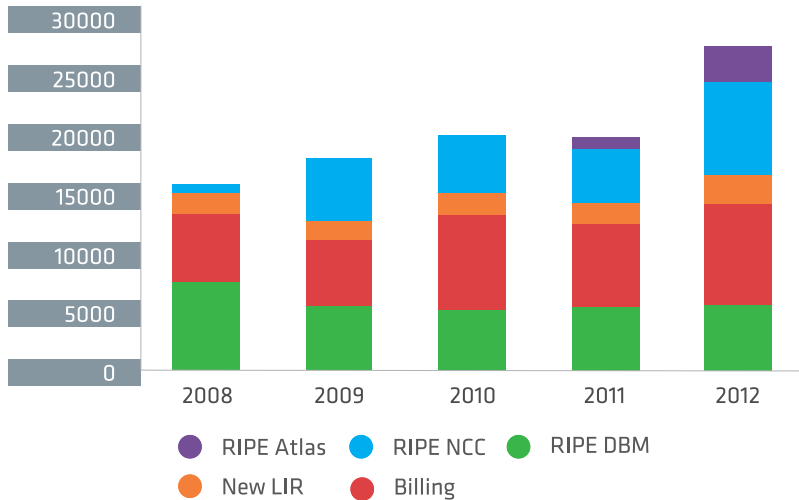
- RIPE Database
- rDNS
- LIR Portal
- New RIPE NCC member queries and applications
- Billing and contracts
- General administration
- RIPE Atlas
- Abuse complaints

At the beginning of 2012, a customer satisfaction survey was launched that offers everyone who has tickets with Customer Services the opportunity to report on the level of service they received. This survey runs on a continuous basis and has given the RIPE NCC excellent feedback on how to improve its customer services. By the end of the year, 80% of those who responded to the survey reported that they were satisfied with the level of service received.

In 2012, Customer Services also stopped sending paper welcome packs to new RIPE NCC members and instead provided them with a digital version. This is part of the Green Office Project the RIPE NCC engaged in, which also included only sending hard copies of the RIPE NCC Annual Report to those members who opted in to receive it using the LIR Portal.



### RIPE NCC Customer Service Requests 2008-2012



### Live Chat

After a successful pilot from the year before, the Customer Services Team in 2012 increased their availability via Live Chat from two to six hours per day. Customer surveys have shown that satisfaction with the service is high and requests for chat sessions have almost doubled after the extension of Live Chat hours and the promotion of the service.

### Technical Emergency Hotline

In late 2012, the RIPE NCC launched the Technical Emergency Hotline, created as a way for members to report suspected critical incidents or outages to the RIPE NCC outside of regular office hours. The hotline is operated by a third-party call centre with staff who have been trained to evaluate any reports and contact the appropriate RIPE NCC team if required. Any calls to the hotline during office hours are redirected to the RIPE NCC.





---

## **COORDINATION ACTIVITIES**

RIPE NCC 2012

---

## DNS SERVICES

As part of the technical support for allocated address space, the RIPE NCC provides primary and secondary Domain Name System (DNS) services for reverse domains. Reverse zones are used to translate IP addresses into names.

For example, a reverse zone maps the address 193.0.14.129 to the name k.root-servers.net.

For the reverse zones maintained by the RIPE NCC, full DNS Security (DNSSEC) support, including zone signing and support for secure delegations, is provided. A secondary DNS service for some country code Top-Level Domains (ccTLDs) is also provided. The RIPE NCC also runs the Tier-0 registry and the DNS service for the e164.arpa domain to support ENUM.

### Reverse Delegation

The RIPE NCC provides reverse domain delegations for IPv4 and IPv6 address space that it allocates and assigns. This continues to be one of the primary DNS activities. RIPE NCC members maintain their own reverse delegations by updating their information in the RIPE Database, the authoritative source for reverse zones in the RIPE NCC service region.

The RIPE NCC anycasted cluster for DNS services worked smoothly throughout 2012. The cluster was operational at two sites in London and Amsterdam. Zones served from these clusters included reverse delegations for RIPE NCC member allocations, ccTLD secondary services and RIPE NCC authoritative zones.

By the end of 2012, the RIPE NCC had provisioned delegation signer records for its DNSSEC-enabled zones to all but five zones. Those remaining zones have no DNSSEC support yet. However, this brings the zones maintained by the RIPE NCC that have full DNSSEC support to more than 95%.

In June 2012, there was an outage of the reverse DNS services, which had a significant impact on several RIPE NCC members' operations. A post-mortem investigation uncovered operational and procedural weaknesses. The RIPE NCC took this opportunity to improve its operations in several ways, such as establishing an emergency hotline, and the incident and the improvements implemented were reported in detail on RIPE Labs.

<https://labs.ripe.net/Members/dfk/conclusions-drawn-from-reverse-dns-event>

### Secondary DNS

The secondary DNS service ensures the reliability and robustness of the general DNS infrastructure. The RIPE NCC provides a secondary DNS service for other Regional Internet Registries' reverse zones and for some ccTLD organisations, mainly in developing countries or those who have difficulty obtaining and paying for commercial DNS services. At the end of 2012, a stable secondary DNS service was provided to 76 ccTLDs, including four internationalised domain name (IDN) ccTLD domains for Syria, Jordan, Kazakhstan and Qatar.

### K-root and Anycast

The RIPE NCC operates K-root, one of the Internet's 13 root name servers. Root name servers are a crucial part of the Internet DNS infrastructure. The RIPE NCC has operated the K-root server since 1997, when the first server was installed at the London Internet Exchange (LINX). Currently, K-root consists of 18 nodes, all of which are operated by the RIPE NCC. K-root operations were stable throughout 2012.

[k.root-servers.org](http://k.root-servers.org)

### ENUM

The RIPE NCC provides Domain Name System (DNS) operations for the e164.arpa zone (ENUM) in accordance with the instructions from the Internet Architecture Board (IAB).

[www.ripe.net/data-tools/dns/enum/iab-instructions](http://www.ripe.net/data-tools/dns/enum/iab-instructions)

ENUM is an Internet standard defined in RFC 3761 for mapping E.164 telephone numbers into domain names and storing these in the DNS. The RIPE NCC delegates domains for E.164 country codes to entities (Tier-1 registries) requesting them after approval is given by the ITU Telecommunication Standardization Sector – Telecommunication Standardization Bureau (ITU-T TSB). The ITU-T TSB handles delegation requests following the ITU-T Study Group 2 (ITU-T SG2) interim procedures.

[www.itu.int/en/ITU-T/inr/enum/Pages/procedures.aspx](http://www.itu.int/en/ITU-T/inr/enum/Pages/procedures.aspx)

## RIPE LABS

The RIPE Labs website is a way for the RIPE NCC to share ideas and prototypes with the community while still in their early stages, by drawing on feedback from network operators, developers and industry experts. It has also proven to be an effective means of sharing statistics and information generated by the RIPE NCC.

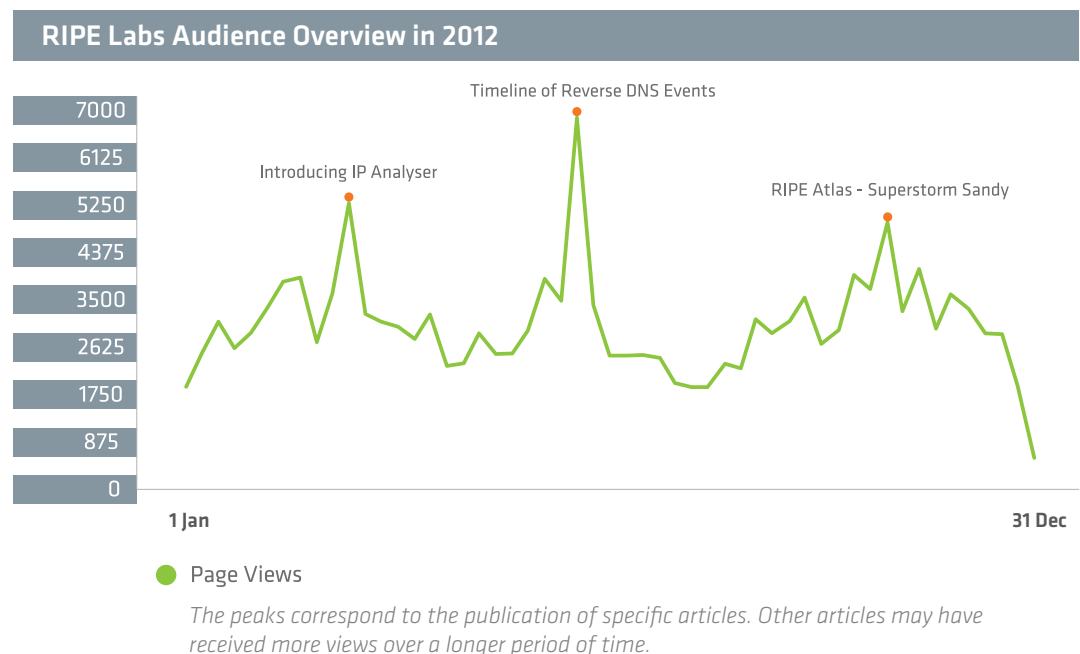
Over the course of 2012, RIPE Labs published 109 articles and received 110,000 unique visitors. Popular articles included a timeline of the reverse DNS outage, the launch of the IP Analyser tool and the impact of Hurricane Sandy on the Internet as seen by RIPE Atlas.

In 2012, the RIPE NCC also collaborated with European IXPs on several articles relating to Internet traffic during noteworthy events, including the Stratos Skydive, the London Olympics and the Euro 2012 football championship.

A new Statistics Dashboard was launched towards the end of the year, which brings together statistics currently published by the RIPE NCC in one place. The graphs are updated dynamically – daily or weekly as appropriate. The Statistics Dashboard is a step towards making the wealth of information the RIPE NCC has collected over the past 20 years more accessible to the RIPE community. It will continue to be developed as the RIPE NCC identifies additional statistics that can be published.

The underlying premise of RIPE Labs is one of engagement, collaboration and openness. The RIPE NCC is actively looking to grow this platform over the coming years and invites the RIPE community to get involved. RIPE Labs can host research, content or tools that other organisations or individuals would like to share with the wider community. The RIPE NCC also welcomes feedback on the site, and as requests for specific information.

<https://labs.ripe.net>



### IPv6 Act Now

Since its launch in 2009, the IPv6 Act Now website has become a comprehensive source of IPv6-related information, providing resources tailored to a variety of different audiences that includes business, government and technical communities. The site highlights the latest developments in IPv6 deployment, news items, statistics, events, training opportunities and interviews with key players in the Internet community.

In 2012, the IPv6 Act Now site continued to make more tools and statistics available, including new case studies about IPv6 deployment, the 2012 IPv6 CPE Survey (which looked at the level of IPv6 support for various vendors' Customer Premises Equipment), and a number of measurements and tools related specifically to the World IPv6 Launch on 6 June 2012.

[www.ipv6actnow.org](http://www.ipv6actnow.org)

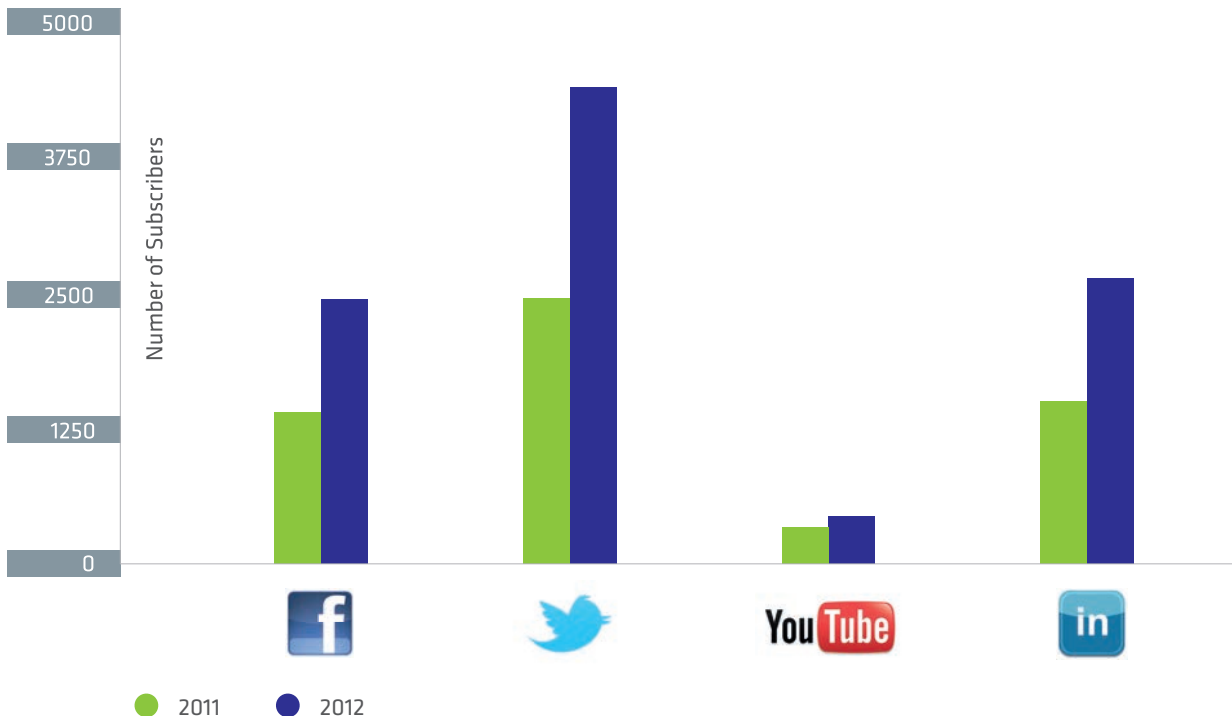
### Social Media at the RIPE NCC

The RIPE NCC engaged with a growing audience across a number of social media platforms in 2012, including Twitter, Facebook, LinkedIn and YouTube. The RIPE NCC updates all accounts with RIPE NCC and industry news, follows up on direct messages and maintains any subscriber/fan/follower requests. From 2011-2012, the RIPE NCC's Twitter audience grew by 79%, Facebook fans increased by 74%, the LinkedIn RIPE community group grew by 75% and YouTube subscribers increased by 27%.

When traditional communication channels are unavailable, social media allows the RIPE NCC to stay connected with its audience, as happened during a server outage in September 2012.

The RIPE NCC now utilises a number of social media analytic tools that will ensure we continue to use our time efficiently and effectively across these platforms.

Growth of RIPE NCC Social Media Accounts 2011-2012



## EXTERNAL RELATIONS

RIPE NCC External Relations (ER) was established in 2011 as a separate department within the RIPE NCC. Headed by Director of External Relations, Paul Rendek, the ER Team is tasked with coordinating the RIPE NCC's engagement with external stakeholders, including technical groups, government, regulators, intergovernmental organisations, law enforcement agencies and civil society.

2012 saw issues of Internet governance once again in the spotlight, culminating in the International Telecommunication Union's (ITU) World Conference on International Telecommunications (WCIT), held in December in Dubai. The RIPE NCC contributed actively to a wide range of forums and events throughout the year.

The primary goals of the RIPE NCC in this area are to:

- Support and represent the interests of the RIPE NCC's membership and the RIPE community
- Communicate the RIPE NCC's role in IP administration and management, and the technical coordination of the Internet
- Build support for the long-established, bottom-up, industry self-regulation processes and open structures within which RIPE and the RIPE NCC operate
- Ensure that the RIPE NCC and the RIPE community continue to play an effective role in the further formalisation of Internet administration, particularly technical coordination and the development of policy related to Internet number resource distribution
- Promote the RIPE Policy Development Process and encourage participation in policy development
- Promote RIPE Labs and develop and encourage participation in RIPE Labs among the Internet community

## The International Telecommunications Union (ITU)

The ITU became a major focus of Internet governance discussions in 2012, with the WCIT serving as a rallying point for many stakeholders in both the private and public sectors. The RIPE NCC has evolved its engagement with ITU forums over recent years, and is a member of both the Standardization (ITU-T) and Development (ITU-D) sectors of the organisation.

In 2012, RIPE NCC staff participated in the following ITU events:

- Fourth (and final) meeting of the ITU IPv6 Group (June)
- World Telecommunication Standards Assembly (November)
- World Conference on International Telecommunications (December)

While the concluding report of the Chair of the ITU IPv6 Group noted that the current registry model is meeting the needs of Internet stakeholders, the WTSA and WCIT saw further discussion of ITU-driven changes to this model and an expansion of the ITU's role in Internet governance. The RIPE NCC's priority in these discussions was the promotion of bottom-up, multi-stakeholder policy development, which is at odds with the ITU's model of prioritising input from government and the public sector.

To effectively prepare for and influence discussions at the WTSA and WCIT events, the RIPE NCC participated in a number of regional preparatory events over the course of the year. This included the European Conference of Postal and Telecommunications Administrations' (CEPT) ITU Working Group (Com-ITU) and regional meetings of the Arab Group.

## The Internet Governance Forum (IGF)

The IGF provides an important opportunity for the many different stakeholders in the Internet community to come together and discuss Internet governance issues. While not a decision-making body, IGF workshops and discussions help to inform decision-making processes in other forums.

The seventh IGF was held in Baku, Azerbaijan from 6-9 November 2012, drawing around 1,600 participants from 128 countries. As in previous years, the RIPE NCC participated on its own behalf and in cooperation with the other Regional Internet Registries as the Number Resource Organization (NRO).

The year also saw Paul Rendek, RIPE NCC Director of External Relations, take up a position on the IGF Multi-stakeholder Advisory Committee. In this position, he contributed to shaping the content and format of discussions at the 2012 IGF, and will continue to influence the development of the IGF over the coming years.

The RIPE NCC worked jointly with other organisations to organise three workshops at the IGF 2012:

- Moving to IPv6: Challenges for Internet Governance (with the NRO)
- Internet Governance and RPKI (with the NRO)
- Best Common Practices for Building Internet Capacity (with AFRINIC and the Arab IGF)

[www.nro.net/news/internet-governance-forum-2012-baku-azerbaijan](http://www.nro.net/news/internet-governance-forum-2012-baku-azerbaijan)

[www.intgovforum.org](http://www.intgovforum.org)

## The Arab Internet Governance Forum (IGF)

The RIPE NCC played a major role as organiser and sponsor of the first Arab IGF, which was hosted by the Kuwait Information Technology Society (KITS) in Kuwait from 9-11 October. Paul Rendek serves as a member of the Multi-stakeholder Advisory Group (MAG) responsible for organising the event, and RIPE NCC staff provided remote participation facilities in all sessions of the meeting.

The launch of the Arab IGF is a major step in facilitating wider and more effective regional engagement in Internet governance discussions, and ensuring that the voices of all stakeholders in the Arab region are heard.

[www.igfarab.org](http://www.igfarab.org) [in Arabic]

## Organisation for Economic Cooperation and Development (OECD)

The RIPE NCC has been involved with the work of the OECD's committee for Information, Computer and Communication Policy (ICCP) since 2007, and views the OECD as one of the most important forums for multi-disciplinary study and discussion of Internet governance-related issues. In 2012, the OECD Secretariat launched studies on subjects including IPv6 adoption, IP interconnection and broadband metrics.

The RIPE NCC contributes to this work on its own behalf and together with a range of industry partners via the OECD Internet Technical Advisory Committee (ITAC). The RIPE NCC also acts as ITAC's formal point of contact for the Working Party on Communication, Infrastructures and Services Policy (WP CISP), a role it has performed since 2010. Responsibilities in this role include collecting ITAC feedback on OECD work, submitting formal responses to the Secretariat and making interventions on behalf of the ITAC during WP CISP meetings.

In 2012, the RIPE NCC sent representatives to the following meetings at the OECD headquarters in Paris, France:

- WP CISP meetings, 11-12 June and 10-11 December
- ICCP meeting, 23-24 October
- ITAC face-to-face meeting, 23 October

Information about ITAC can be found online at:

[www.internetac.org](http://www.internetac.org)

## RIPE NCC Roundtable Meetings

The RIPE NCC has been holding Roundtable Meetings for Governments and Regulators since 2005, with the aim of enhancing cooperation between the Internet technical community in the RIPE NCC service region and governments, regulators and LEAs. Attendance at these meetings is by invitation only.

Two Roundtable Meetings were held in 2012:

21 February, Brussels: This was the first RIPE NCC Roundtable Meeting held outside Amsterdam, with the aim of attracting new participants, including staff from the European Commission and other European Union institutions. The meeting also attracted a significant contingent of law enforcement representatives.

27 September, Amsterdam: This meeting was held adjacent to the RIPE 65 Meeting, giving participants the chance to participate in RIPE community discussions, particularly in the RIPE Cooperation Working Group, which immediately preceded the Roundtable Meeting.

Issues discussed at these two Roundtable Meetings included:

- RIPE NCC areas of concern regarding WCIT and the ITU
- RIPE NCC technical developments, including R&D projects and RPKI
- Cross-border law enforcement and the RIPE NCC
- Updates on IPv6 deployment, IPv4 exhaustion and IP address transfers

[www.ripe.net/meetings/roundtable](http://www.ripe.net/meetings/roundtable)

## RIPE NCC and Law Enforcement Agencies (LEAs)

On 14 March 2012, the RIPE NCC hosted a Roundtable Meeting for LEAs, adjacent to the annual E-Crime Congress in London. Representatives from law enforcement and cybercrime units came together with staff from the RIPE NCC, representatives from the other Regional Internet Registries (RIRs) and members of the RIPE community to discuss areas of common interest.

The RIPE NCC also built on existing relationships with national authorities in the region and cross-border groups including Interpol and Europol. Activities in this area included face-to-face meetings and training session topics such as RIPE Policies, RIPE NCC tools and IPv6.

The RIPE NCC also liaises with LEAs through the Cyber Crime Working Party (CCWP), which is a communication platform where operational and policy issues are discussed. The CCWP was created to enhance cooperation between LEAs and the technical community in the RIPE NCC service region.

## RIPE Cooperation Working Group

The RIPE Cooperation Working Group was established in 2008 on the recommendation of the RIPE Task Force on Enhanced Cooperation, and held its first session at the RIPE 57 Meeting. The Cooperation Working Group provides valuable dialogue with the RIPE community about issues that affect governments, regulators and law enforcement agencies.

The Cooperation Working Group met twice in 2012, and was an important forum for community discussion in the lead-up to the ITU WCIT meeting, with discussions on the International Telecommunications Regulations (ITRs) and the regional WCIT preparatory processes. Other issues discussed included Internet governance in the Arab region, ongoing development of the IGF, and project updates from the European Commission and ISOC.

## The Number Resource Organization (NRO)

The NRO serves as a coordinating mechanism for the Regional Internet Registries (RIRs) to act collectively on matters relating to the interests of the RIRs. It offers a single contact point that enables global partners and other interested parties to reach the RIRs collectively. This means that a global, uniform view supported by all five RIRs can be presented when necessary.

The directors of each RIR make up the NRO Executive Council (EC). The EC positions of Chairman, Secretary, Treasurer and Member rotate between the RIRs on a yearly basis.

The 2012 EC positions were:

- Chairman: John Curran (ARIN)
- Secretary: Paul Wilson (APNIC)
- Treasurer: Adiel Akplogan (AFRINIC)
- Members: Axel Pawlik (RIPE NCC), Raúl Echeberria (Lacnic)

[www.nro.org](http://www.nro.org)

## The NRO Number Council (NRO NC)

The NRO NC is comprised of three people from each RIR's local Internet community and acts as an advisory body to the NRO EC. The NRO NC also performs the role of the Address Supporting Organization Address Council (ASO AC).

## The Address Supporting Organization (ASO)

The ASO is one of the three supporting organisations required by the ICANN bylaws. The ASO reviews recommendations on global IP address policy and advises the ICANN Board on these matters. The ASO Address Council (AC) appoints two directors to the ICANN Board of Directors. ASO AC members are appointed from each of the five RIR regions. The local Internet community in each region selects two members and the Executive Board of each RIR appoints one member to the ASO AC.

In 2012, the representatives from the RIPE NCC's service region, and their three-year terms, were:

- Wilfried Woeber\* (UniVie/ACOnet): 1 Jan 2012-31 Dec 2014
- Dave Wilson (HEAnet): 1 Jan 2010-31 Dec 2012
- Hans-Petter Holen (Visma IT): 1 Jan 2011-31 Dec 2013

\* Wilfried Woeber holds the position selected by the RIPE NCC Executive Board.

At the RIPE 65 Meeting in September 2012, Dmitry Kohmanyuk was elected to the seat being vacated by Dave Wilson. His three-year term begins on 1 January 2013.

[www.aso.icann.org](http://www.aso.icann.org)





---

**RIPE AND THE RIPE  
POLICY DEVELOPMENT  
PROCESS**

RIPE NCC 2012

---

## RIPE NCC AND THE RIPE COMMUNITY

RIPE (Réseaux IP Européens) is a collaborative forum open to all parties with an interest in wide area IP networks and the technical development of the Internet. It has existed since 1989. The RIPE community's objective is to ensure the administrative and technical coordination necessary to enable the smooth and stable operation of the Internet.

The RIPE NCC and RIPE, although similar in name, are separate. They are, however, highly interdependent. The RIPE NCC provides administrative support to RIPE and the RIPE Working Groups, such as the facilitation of RIPE Meetings and the maintenance and development of the RIPE Document Store and publicly archived mailing lists.

The RIPE community is the collective term for individuals or organisations, whether members of the RIPE NCC or not, with an interest in the technical coordination of the Internet and the way the Internet is managed, structured or governed. It provides the RIPE NCC with crucial input from the Internet industry, the public, governments and regulators. There are no membership requirements for participation in RIPE. All activities are performed on a voluntary basis, except those performed by the RIPE NCC, and decisions are formed by consensus using the RIPE Policy Development Process (PDP) (see page 54). All of RIPE's activities are documented, archived and available to the public.

[www.ripe.net/ripe](http://www.ripe.net/ripe)





## RIPE Working Groups

In order to discuss technical or service issues and policy proposals, the RIPE community formed a number of RIPE Working Groups. Each of the working groups uses mailing lists that are open to anyone and publicly archived to facilitate discussion. The RIPE Working Groups meet twice a year in dedicated sessions during RIPE Meetings. Working Groups can be formed or disbanded as necessary by the RIPE community.

### Active RIPE Working Groups

- Address Policy Working Group
- Anti-Abuse Working Group
- Cooperation Working Group
- Database Working Group
- DNS Working Group
- EIX Working Group
- ENUM Working Group
- IPv6 Working Group
- MAT Working Group
- RIPE NCC Services Working Group
- Routing Working Group

## RIPE Task Forces

Task Forces are groups of individuals who have a collective interest in performing specific tasks for the good of the RIPE community. Task Forces designate a coordinator, who is responsible for making sure that progress is made and that results are achieved within the time frame that the Task Force has agreed.

The outcome of a Task Force's work is usually a report with recommendations. The recommendations are discussed by the RIPE community and implemented when agreement is reached.

### The following RIPE Task Forces were active during 2012:

- The RIPE Task Force
- RIPE Working Group Chair Task Force

## RIPE MEETINGS

The RIPE NCC supports and facilitates RIPE Meetings. Held twice a year, these five-day events are open to everyone, although registration is required. RIPE Meetings bring together key industry players, network operators, governments, regulators and individuals to discuss the technical, administrative and policy issues surrounding IP networking. Relevant tutorials, trainings and demonstrations are also provided.

The RIPE NCC facilitates remote participation and feedback mechanisms during RIPE Meetings for those who are unable to take part in person. All sessions are webcast and audiocast, and remote participants can contribute to discussions during the meeting sessions using Internet Relay Chat (IRC). Live transcripts of the sessions are also provided for attendees.

In 2012, the RIPE 64 Meeting was held in Ljubljana, Slovenia, and the RIPE 65 Meeting was held in Amsterdam, the Netherlands

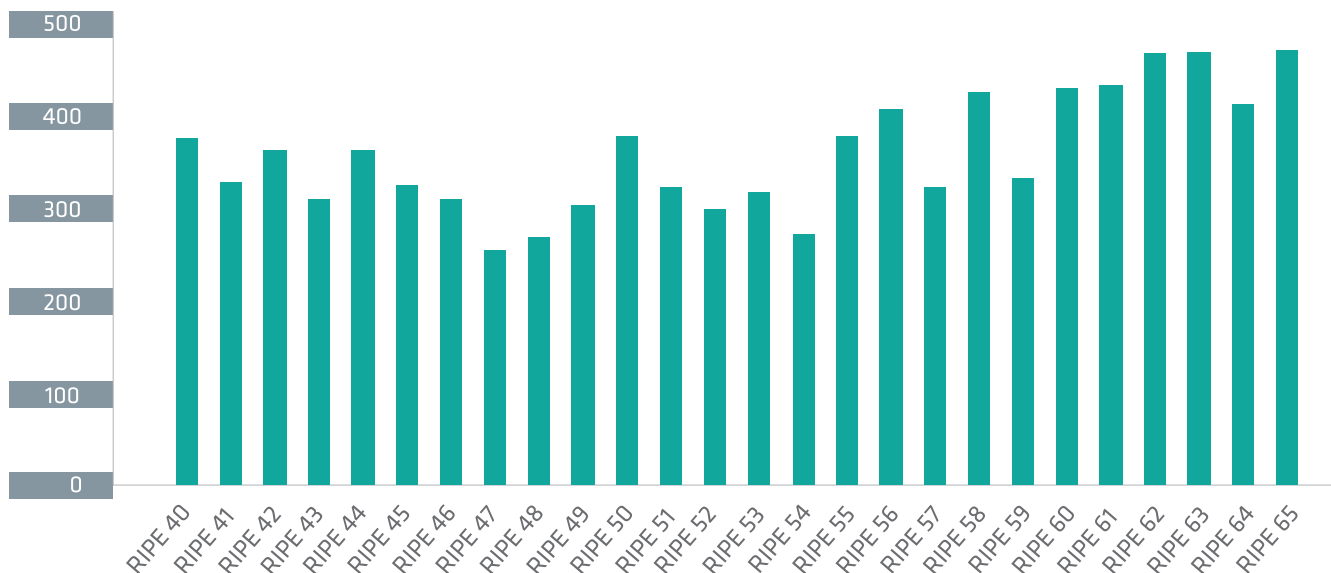
## The RIPE Programme Committee

The RIPE Programme Committee (PC) is responsible for ensuring that the RIPE Meeting programme consists of interesting, relevant and inspiring content. Comprised of volunteers from different parts of the RIPE community, the RIPE PC plans and develops the programme for each RIPE Meeting.

The PC members for RIPE 65 were:

- Todd Underwood, PC Chair
- Filiz Yilmaz, PC Vice-Chair
- Brian Nisbet, RIPE Working Group Chair Representative
- Osama I. Al-Dosary, MENOGE Representative
- Andrei Robachevsky, ENOG Representative
- Sander Steffann
- Jan Žorž

## RIPE Meeting Attendance



## RIPE NCC REGIONAL MEETINGS AND SUPPORT

The RIPE NCC aims to increase regional participation in community-driven processes from the full range of Internet stakeholders, including RIPE NCC members, governments and law enforcement agencies (LEAs). The RIPE NCC works with these different stakeholders to encourage capacity building and training in regional areas, focusing on the practical details of IPv6 deployment and crucial issues related to Internet governance.

The RIPE NCC service region is made up of 76 diverse countries at varying stages of Internet development. With the significant growth of the IT and Internet industries in the Middle East, Russia and South Eastern Europe (and the resulting increase in RIPE NCC members), the RIPE NCC is focused on increasing the participation of Internet stakeholders from these areas of its service region. By working with the different communities in these areas, the RIPE NCC is encouraging increased regional participation, both

in the activities of the RIPE NCC and the RIPE Policy Development Process (PDP). The aim is to strengthen the RIPE community by enabling regional communities to participate more fully in policy development and to ensure that regional concerns, issues and needs are represented.

The RIPE NCC has provided extensive support in the establishment of regional Network Operator Groups (NOGs). Building on the establishment of the Middle East Network Operators Group (MENOG) in 2007 and the Eurasian Network Operators Group (ENOG) in 2011, the RIPE NCC will continue to supply the technical and administrative expertise required to develop existing NOGs and assist in the creation of any new groups required by the Internet community.

### The main goals of the RIPE NCC's work in this area are to:

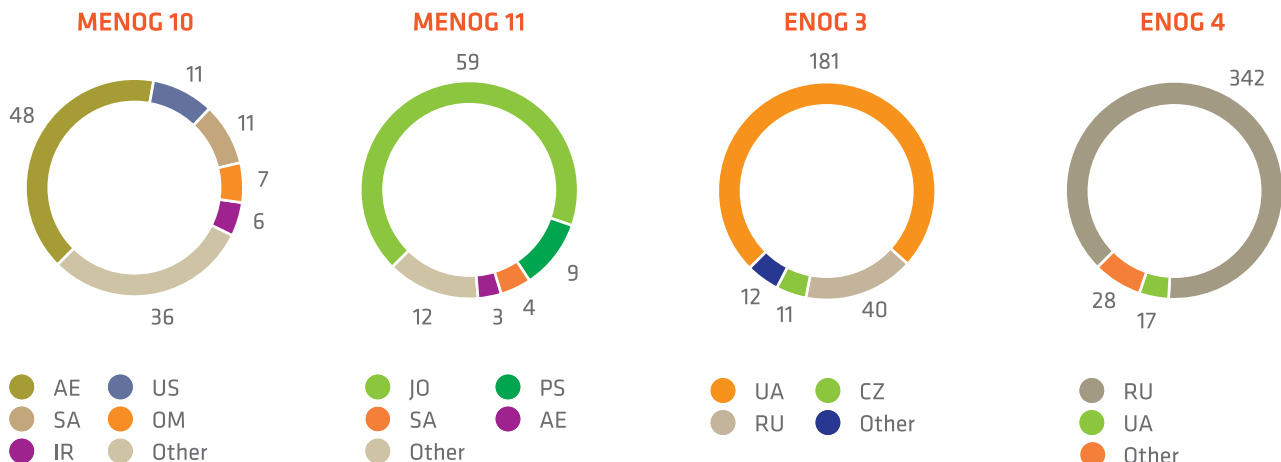
- Encourage the cooperation of operators from countries in specific regions, enabling them to exchange information and discuss the issues that affect them

- Enable the RIPE NCC to further support Local Internet Registries (LIRs) in a given region and to continuously evaluate and address the changing needs of RIPE NCC members
- Identify, discuss and solve the specific issues affecting operators in a given region through increased awareness of the latest developments in the Internet industry
- Encourage broader involvement in the RIPE PDP
- Broaden the legitimacy of RIPE and the RIPE NCC so as to promote technical community solidarity across the entire RIPE NCC service region

### In 2012, the following RIPE NCC Regional Meetings took place:

- MENOG 10 Regional Meeting, 30 April - 1 May 2012, Dubai, UAE
- MENOG 11 Regional Meeting, 7 - 8 October 2012, Amman, Jordan
- ENOG 3 Regional Meeting, 22 - 23 May, Odessa, Ukraine
- ENOG 4 Regional Meeting, 23 - 24 October 2012, Moscow

## Regional Meeting Attendees in 2012



## THE RIPE POLICY DEVELOPMENT PROCESS (PDP)

The RIPE community develops and sets policies for the technical coordination of the Internet and the distribution of Internet number resources. The RIPE Policy Development Process (PDP) is the means by which this is achieved, with its long-established, bottom-up process of discussion and consensus-based decision making. The RIPE PDP is open to anyone who would like to suggest a new policy or a change to an existing policy.

The RIPE NCC has no role in accepting or rejecting policies. Instead, it provides administrative support for the PDP. In order to be accepted, all policy proposals must complete the phases of the PDP and, if according to the chair of the relevant RIPE Working Group, there is consensus in the RIPE community to accept a proposal, it completes the PDP and “acceptance” is declared. The RIPE NCC then implements the policy into its working procedures.

### Engagement in 2012

In 2012, ten new policy proposals were entered into the PDP, which ties with 2010 for the most proposals received in one year. Many of the proposals dealt with issues of critical relevance to the RIPE community. For example, the RIPE NCC is now the third RIR to be considering sound policies for the transfer of Internet number resources between service regions.

The RIPE community is increasingly using the PDP as the appropriate way to define sets of rules and guidelines. It is significant that the PDP in 2012 was used to dealing with issues not limited to address policy, with proposals entered into the PDP by the RIPE NCC Services and Anti-Abuse Working Groups, in addition to proposals from the Address Policy Working Group.

## IPv4 Exhaustion and Legacy Address Space

There is still a great deal of interest from the community in updating section 5.5 of “IPv4 Address Allocation and Assignment Policies for the RIPE NCC Service Region”, which is related to transfers of IPv4 address space. 2012 saw passionate discussions about this on the mailing lists and at RIPE 65. It is clear that the community remains highly engaged with this issue.

It was at RIPE 65 that holders of legacy address space spoke out for the first time regarding legacy space and the PDP. They announced that they wanted to define their relationship with the RIPE NCC and that they had chosen the PDP as the best tool to achieve this.

While legacy space is a challenging issue, it is also something of a historic one. For 20 years, legacy space has remained outside of the RIR framework. It is also significant that the proposal was not created by one single person but rather was a coordinated effort from a number of legacy space holders who had previously discussed the issue at length on the Address Policy Working Group mailing list.

### Impact Analysis

The Impact Analysis is an important component of the PDP. It enables the RIPE community to understand the expected effects a policy proposal would have if it were accepted. This allows for the scope and implementation of a policy proposal to be further refined so it produces the desired results.

In 2012, the Impact Analysis began to play a larger role in supporting community discussion around policy proposals in the PDP. This has been encouraging, as one of the most important services the PDP provides to the community is to ensure that the Impact Analysis is sufficiently exhaustive and efficient.

## Proposals Entered Into the Policy Development Process in 2012

### 2012-01, "Inter-RIR Address Transfers"

Proposed to allow IPv4 address transfers between the RIPE NCC and other RIRs in order to supplement the pool of available IPv4 addresses. This proposal was later withdrawn (see below).

### 2012-02, "Policy for Inter-RIR Transfers of IPv4 Address Space"

Proposed to describe how the RIPE NCC would handle transfers of IPv4 address space with LIRs that are outside of the RIPE NCC's service region. It also introduced the definition to determine compatibility and coordination between the different RIR policy frameworks.

### 2012-03, "Intra-RIR Transfer Policy Proposal"

Proposed to modify the transfer policy as explained in section 5.5 of "IPv4 Address Allocation and Assignment Policies for the RIPE NCC Service Region". The proposal aimed to increase the allocation period when evaluating a transfer request from 3 months to 24 months.

### 2012-04 "PI Assignments from the Last /8"

Proposed to modify the rules under which the RIPE NCC distributes Provider Independent (PI) IPv4 address space from the last /8 block. The proposal defined that a minimum of a /24 should be assigned to End Users if their request complied with the criteria to receive IPv4 address space and they had already received an IPv6 allocation. An End User who was also an LIR would be able to apply for an allocation or an assignment, but not both.

### 2012-05, "Transparency in Address Block Transfers"

Proposed to increase the transparency surrounding transfers of IPv4 address space by modifying section 5.5 of "IPv4 Allocation and Assignment Policies for the RIPE NCC Service Region" to require the RIPE NCC to publish a record of all transfers conducted under this policy.

### 2012-06, "Revert 'Run out Fairly'"

Proposed to revert the changes introduced in the IPv4 policies by 2009-03, "Run out Fairly". The proposal sets the allocated period to 12 months and the assignment period to 24 months.

### 2012-07, "RIPE NCC Services to Legacy Internet Resource Holders"

Proposed to introduce a framework for the maintenance of registration data and for the delivery of services to legacy Internet resource holders.

### 2012-08, "Publication of Sponsoring LIR for Independent Number Resources"

Proposed for the RIPE NCC to publish the identity of the sponsoring organisation for each independent number resource assigned by the RIPE NCC.

### 2012-09, "Modification of the Time Limits for Temporary Internet Assignments"

Proposed to extend the time limits given to temporary assignments (such as those used for events and research).

### 2012-10, "Extension of IPv6 /32 to /29 on a Per-allocation vs Per-LIR Basis"

Proposed to allow IPv6 address space holders to extend their subnet from a /32 to a maximum of /29 without requiring additional documentation. A previously approved policy proposal had already intended to allow for this, however a strict reading of that policy meant that holders of multiple /32s could extend these to only one /29.

## Concluded Proposals

### 2011-02, “Removal of Multihomed Requirement for IPv6 PI”

This proposal updated ripe-536, “IPv6 Address Allocation and Assignment Policy”. It removed the multihome requirement necessary to receive Provider Independent (PI) IPv6 address space.

### 2011-04, “Extension of the Minimum Size of IPv6 Initial Allocation”

This proposal modified the eligibility for an organisation to receive an initial IPv6 allocation up to a total of /29. This enables small LIRs to deploy IPv6 using any transaction technology in a manner that does not encourage issuing a single /64 to end customers when an LIR has a minimum allocation of /32.

### 2011-05, “Safeguarding Future IXPs with IPv4 Space”

This proposal updated the ripe-530, “IPv4 Address Allocation and Assignment Policy”. It permits operators in the RIPE NCC service region to continue building successful Internet Exchange Point (IXP) communities after IPv4 depletion.

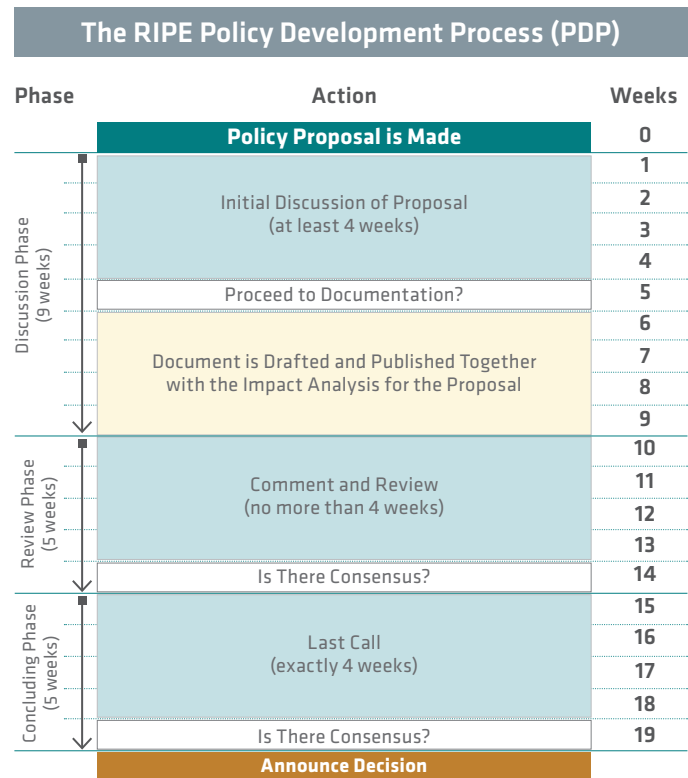
### 2011-06, “Abuse Contact Management in the RIPE NCC Database”

This proposal created the new policy ripe-563, “Abuse Contact Management in the RIPE Database.” The policy introduces a new contact attribute named “abuse-c:”, which can be included in **inetnum**, **inet6num** and **aut-num** objects.

## Withdrawn Proposals

### 2012-01, “Inter-RIR Address Transfers”

See above. After feedback and discussion at the RIPE 64 Meeting, the proposer decided to collaborate with other community members on submitting different policy proposals related to IPv4 transfers and withdrew the proposal.







---

# **FINANCIAL REPORT**

RIPE NCC 2012

---



## **INTRODUCTION TO THE FINANCIAL REPORT FROM THE TREASURER OF THE RIPE NCC EXECUTIVE BOARD**

In its 20th year, the RIPE NCC experienced a number of landmark events and operational challenges that helped to make 2012 a busy but ultimately successful year for the organisation.

The run-out of the free pool of IPv4 address space was just one event that drew heavily on RIPE NCC resources during the year. At the same time, work continued as always on developing the RIPE NCC's services and providing them for a much-increased number of members in 2012. RIPE Meetings and Regional Meetings were held across the service region. The RIPE NCC worked to promote deployment of IPv6 while providing accurate registration of Internet number resources. Outreach activities were also stepped up, especially for the World Conference on International Telecommunications (WCIT).

Despite the demand on resources required by these activities, solid cost control ensured that the overall expenditure level increased by only 2% compared to 2011 and was 6% below the budgeted amount. It was a very strong financial year, aided greatly by the biggest increase in members ever. The RIPE NCC attracted 965 new members, bringing the total number to 8,760 by the end of the year.

I welcome the simplification of the RIPE NCC Charging Scheme. In September, the membership approved a charging scheme for 2013 that dispensed with the complex algorithm used to determine members' fees in favour of a "one LIR-one fee" scheme. The change came after a number of years of healthy discussion on the issue, so it is pleasing that the membership has opted for a simple charging scheme that should stand the test of time.

Maintaining the strategy of limiting exposure, the RIPE NCC purchased new Norwegian, French and Canadian government bonds to spread its risk across a range of countries and currencies. This fits with the Treasury strategy of lowering risk towards the Eurozone and reducing financial sector exposure.

To minimise the risk of sudden change, the RIPE NCC Executive Board tasked the RIPE NCC management with proactively discussing its existing tax ruling with the Dutch tax authority. This meets the agreement made with the authorities to inform them of any changes in circumstances, such as increased membership and higher reserves.

Your Executive Board will continue to look to reduce the costs per member while at the same time working to improve operations and services. The very strong financial results for the year, combined with the bolstering of the RIPE NCC membership figures, means that the RIPE NCC is excellently placed to do so in the years ahead.

*Remco van Mook*

## **GENERAL NOTES ON THE FINANCIAL REPORT**

All amounts are expressed in kEUR. Foreign currencies are converted at the daily exchange rate at the date of transaction or valuation. The balance sheet has been prepared in accordance with the historical cost convention.

The accounting principles applied by RIPE NCC are in accordance with the Dutch law and the Dutch accounting standards on recognition and measurement. The comparative figures are reclassified where necessary in order to easily compare with the financial statements of this year.

The financial year 2012 resulted in a surplus of 2,358 kEUR, substantially above the forecast deficit of 32 kEUR. This surplus will accumulate in the RIPE NCC's Clearing House.

As a result of the high surplus in 2012, the RIPE NCC's capital/expense ratio increased to 116% of total expenses, compared to a percentage of 105% at the end of 2011. This high surplus from 2012 has left the capital/expense ratio above the target level of 100% set by the RIPE NCC's Executive Board and the RIPE NCC management. Reserves are kept to a minimum of one year's total expenses so as to ensure the financial stability and operational continuity of the RIPE NCC.

## STATEMENT OF INCOME AND EXPENDITURE 2012

| (in kEUR)  | Actual<br>2012 | Budget<br>2012 | Actual<br>2011 | Variance<br>2012 vs B2012 |              | Variance<br>2012 vs 2011 |             |
|--|----------------|----------------|----------------|---------------------------|--------------|--------------------------|-------------|
| <b>Income</b>  |                |                |                |                           |              |                          |             |
| Service Fees   | 17,371         | 16,725         | 16,003         | 646                       | 4%           | 1,368                    | 9%          |
| Sign-up Fees   | 2,330          | 1,676          | 1,866          | 654                       | 39%          | 464                      | 25%         |
| Direct Assignment User Fees                                  | 298            | 250            | 238            | 48                        | 19%          | 60                       | 25%         |
| RIPE Meetings  | 203            | 250            | 260            | (47)                      | -19%         | (57)                     | -22%        |
| Other Income   | 84             | 250            | 337            | (166)                     | -66%         | (253)                    | -75%        |
| <b>Total Income</b>  | <b>20,286</b>  | <b>19,151</b>  | <b>18,704</b>  | <b>1,135</b>              | <b>6%</b>    | <b>1,582</b>             | <b>8%</b>   |
| <b>Expenditures</b>  |                |                |                |                           |              |                          |             |
| Personnel*   | 10,528         | 10,757         | 10,054         | (229)                     | -2%          | 474                      | 5%          |
| Housing  | 741            | 909            | 654            | (168)                     | -18%         | 87                       | 13%         |
| Office Costs*  | 1,346          | 1,614          | 1,535          | (268)                     | -17%         | (189)                    | -12%        |
| Marketing/ER   | 582            | 670            | 607            | (88)                      | -13%         | (25)                     | -4%         |
| Contributions  | 394            | 399            | 449            | (5)                       | -1%          | (55)                     | -12%        |
| IT Infrastructure  | 982            | 899            | 867            | 83                        | 9%           | 115                      | 13%         |
| Travel*  | 1,058          | 1,205          | 1,150          | (147)                     | -12%         | (92)                     | -8%         |
| Consultancy  | 892            | 933            | 888            | (41)                      | -4%          | 4                        | 0%          |
| Bank Charges   | 137            | 124            | 116            | 13                        | 10%          | 21                       | 18%         |
| <b>Subtotal Operational Expenses</b>                         | <b>16,660</b>  | <b>17,510</b>  | <b>16,320</b>  | <b>(850)</b>              | <b>-5%</b>   | <b>340</b>               | <b>2%</b>   |
| <b>Surplus Before Miscellaneous Costs &amp; Depreciation</b> | <b>3,626</b>   | <b>1,641</b>   | <b>2,384</b>   | <b>1,985</b>              | <b>121%</b>  | <b>1,242</b>             | <b>52%</b>  |
| Doubtful Debts & Other<br>Miscellaneous Costs                | 64             | 250            | 141            | (186)                     | -74%         | (77)                     | -55%        |
| Depreciation   | 1,717          | 1,823          | 1,701          | (106)                     | -6%          | 16                       | 1%          |
| <b>Total Miscellaneous Costs &amp; Depreciation</b>          | <b>1,781</b>   | <b>2,073</b>   | <b>1,842</b>   | <b>(292)</b>              | <b>-14%</b>  | <b>(61)</b>              | <b>-3%</b>  |
| <b>Total Expenses</b>  | <b>18,441</b>  | <b>19,583</b>  | <b>18,162</b>  | <b>(1,142)</b>            | <b>-6%</b>   | <b>279</b>               | <b>2%</b>   |
| <b>Surplus/Deficit Before Interest Income</b>                | <b>1,845</b>   | <b>(432)</b>   | <b>542</b>     | <b>2,277</b>              | <b>-527%</b> | <b>1,303</b>             | <b>241%</b> |
| Result on Interest Income                                    | 513            | 400            | 381            | 113                       | 28%          | 132                      | 35%         |
| <b>Surplus / Deficit</b>                                     | <b>2,358</b>   | <b>(32)</b>    | <b>923</b>     | <b>2,390</b>              |              | <b>1,435</b>             |             |
| FTEs   | 128            | 129            | 127            | -1                        | -1%          | 1                        | 1%          |

\* In 2012, a restatement was made in relation to the 2011 figures. Office Costs include costs for temporary workers (previously reported under Personnel) and costs for Location Hire (previously reported under Travel).

## NOTES TO THE RIPE NCC STATEMENT OF INCOME AND EXPENDITURE 2012

### INCOME

Income relates to the proceeds from the delivery of services after deducting taxes on sales. Income and expenses are attributed to the period to which they relate.

The revenue was 6% above budget and 8% above the revenue for 2011 due to an unprecedented membership growth in 2012 and as a result of the continuation of the Charging Scheme 2011, which led to an on average higher service fee than the average service fee that was budgeted for with the proposed Charging Scheme 2012.

Following the exhaustion of the IPv4 free address pool in September, the RIPE NCC experienced a large number of new membership requests during the later part of 2012. The number of members in 2012 increased to 8,760, a growth of 965 during the year.



The net growth of 965 includes closed members and members that merged in 2012. The total number of membership applications was 1,263. This number excludes applicants that started the application process but never completed it. As a result of the higher-than-expected influx of new members, the sign-up fee income was 39% higher than the budgeted amount.

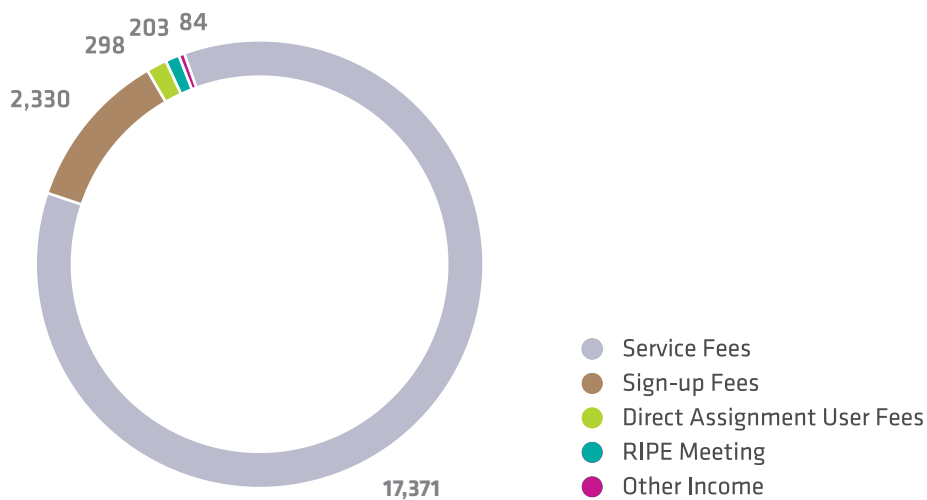
Following the acceptance of the Charging Scheme for 2013, all existing Direct Assignment Users (DAUs), DNSMON subscribers and NRTM clients were required to become members by 1 January 2013 in order to continue receiving services from the RIPE NCC. Most of these service users became members, resulting in a total number of 164 new members in 2012.

Overview of membership growth in 2012, including DAUs, DNSMON subscribers and NRTM clients who became members following the acceptance of the Charging Scheme for 2013.

| Membership Growth in 2012 | Members | New Members in 2012 |
|---------------------------|---------|---------------------|
| Per 1 January 2012        | 7,795   |                     |
| New Organisations         |         | 801                 |
| DAUs                      |         | 156                 |
| DNSMON Subscribers        |         | 7                   |
| NRTM Clients              |         | 1                   |
| Per 31 December 2012      | 8,760   |                     |

Income from the two RIPE Meetings was lower than in 2011 because the number of attendees was 17% below the level achieved in 2011. Other income decreased considerably in comparison with the previous year. This decrease was caused by the lack of income from the Test Traffic Measurement (TTM) service, lower contributions received from industry partners for the development of RPKI software and, in 2012, the RIPE NCC could only reclaim a low amount of EU VAT from 2011.

#### Revenue Distribution (in kEUR) in 2012



## EXPENDITURES

Expense control in 2012 resulted in a total expenditure of 6% below budget, or 1,142 kEUR, and 2% above the total expenditure levels in 2011. Operational expenses were 5% below the budgeted figure and were 2% above the 2011 levels.

### Personnel expenses

Personnel expenses were 2% below the budget and increased by 5% compared to 2011. This increase was caused by increased salaries, higher social wage taxes and higher pension contributions due to an ageing workforce.

There were 128 full time equivalents (FTEs) employed during 2012. This is comparable with 2011, when there were 127 FTEs and it was below the budgeted figure of 129. The number of FTEs is calculated on the basis of the actual number of hours worked.

### Operational expenses

Housing costs were significantly under budget but increased compared to 2011. This was a result of a planned expansion of the RIPE NCC rental space. The renegotiation of the average square metre rental price was compared favourably to existing and budgeted prices.

Office costs were lower due to a minimum use of temporary staff, low postage and insurance costs, and substantially lower location hire costs for RIPE Meetings and training courses.

Marketing and External Relations costs are below the levels of 2011 due to an overall efficient use of funds for Marketing and External Relations activities, but specifically as a result of more cost-efficient use of the RIPE NCC's public relations agency.

Contributions include the contribution made to industry partners such as ICANN and ISOC, but also contributions to international organisations such as the International Telecommunications Union (ITU).

IT Infrastructure costs increased due to costs for the RIPE Atlas network, including the probes that could not be taken as an asset as was planned for in the budget. This resulted in an increase of 130 kEUR compared to the budgeted figure.

Travel costs remained well within the budget set and below the level of 2011 following a decrease in the number of trips.

Legal consultancy costs were higher compared to 2011 due to the costs of the legal proceedings the RIPE NCC is engaged in with the state of the Netherlands regarding a police order it received directing it to lock specific registrations. All other consultancy costs (IT, Accounting and General Consultancy) were below budget.

The increase in Bank Charges is caused by a higher number of payment transactions in comparison to 2011. The average cost per transaction was similar to previous years.

This activity costs overview is based on the cost centre administration from the RIPE NCC accounting system. These figures exclude the allocation of staff costs to these activities.

| Activities<br>(in kEUR) | Actual<br>2012 | Budget<br>2012 | Actual<br>2011 | Variance<br>2012 vs B2012 | Variance<br>2012 vs B2011 |
|-------------------------|----------------|----------------|----------------|---------------------------|---------------------------|
| RIPE Meetings           | 662            | 748            | 780            | (86) -11%                 | (118) -15%                |
| Training Courses        | 322            | 363            | 300            | (41) -11%                 | 22 7%                     |
| Regional Meetings       | 240            | 322            | 438            | (82) -25%                 | (198) -45%                |

As in previous years, two RIPE Meetings were held in 2012, one in Ljubljana, Slovenia and one in Amsterdam, the Netherlands. RIPE Meeting expenses were under budget by 11% and 15% below the level in 2011 due to efficient organisation and a decrease in staff attendance at RIPE Meetings.

RIPE NCC Training increased the number of people trained over the year, with more than 2,000 people trained in 2012. This increase in training courses provided as well as promotional activities to increase awareness of training among members resulted in higher costs compared to 2011, but the efficient booking of trainings and many hosted courses caused the costs for training to be well below budget.

Four RIPE NCC Regional Meetings were supported: two ENOG Meetings – one in Moscow, Russia and one in Odessa, Ukraine; and two MENO Meetings – one in Dubai, United Arab Emirates and one in Amman, Jordan.

Miscellaneous expenses consist of bad debts. This figure shows the very low number of membership closures, considerably lower than the previous year and far below the expected number of closures. The budget item of 50 kEUR for “Unforeseen” was unused.

Depreciation expenses were below budget. Some planned investment projects were postponed or taken as a direct cost, such as the RIPE Atlas network. Investments in building infrastructure as well as software development costs taken as an asset resulted in a similar depreciation level to 2011. The total value of all purchases taken as an asset decreased by 12% compared to 2011 to a total of 1,418 kEUR.

Interest income increased by 28% from the budgeted figure and by 35% from 2011. The average interest received on the cash reserves and financial assets was 2.2% compared to 1.7% in 2011.



## BALANCE SHEET

| (in kEUR)                            | 31 December 2012 | 31 December 2011 |
|--------------------------------------|------------------|------------------|
| <b>ASSETS</b>                        |                  |                  |
| <b>FIXED ASSETS</b>                  |                  |                  |
| Computers                            | 1,014            | 1,148            |
| Infrastructure                       | 293              | 215              |
| Office Equipment                     | 76               | 77               |
| <b>Total Fixed Assets</b>            | <b>1,383</b>     | <b>1,440</b>     |
| <b>INTANGIBLE FIXED ASSETS</b>       |                  |                  |
| Software Development                 | 1,223            | 1,465            |
| <b>Total Intangible Fixed Assets</b> | <b>1,223</b>     | <b>1,465</b>     |
| <b>FINANCIAL ASSETS</b>              |                  |                  |
| Fixed Term Deposits                  | 3,000            | -                |
| Government Bonds                     | 5,797            | 1,990            |
| <b>Total Financial Assets</b>        | <b>8,797</b>     | <b>1,990</b>     |
| <b>CURRENT ASSETS</b>                |                  |                  |
| Accounts Receivable                  | 370              | 10,595           |
| Value Added Tax (VAT)                | 223              | 2                |
| Miscellaneous Receivables            | 1,242            | 1,154            |
| <b>Total Current Assets</b>          | <b>1,835</b>     | <b>11,751</b>    |
| <b>CASH ON HAND</b>                  | <b>10,947</b>    | <b>17,625</b>    |
| <b>TOTAL ASSETS</b>                  | <b>24,185</b>    | <b>34,271</b>    |
| <b>LIABILITIES</b>                   |                  |                  |
| <b>CAPITAL</b>                       |                  |                  |
| Reserves                             | 477              | 477              |
| Clearing House                       | 18,568           | 17,646           |
| Surplus                              | 2,358            | 923              |
| <b>Total Capital</b>                 | <b>21,403</b>    | <b>19,046</b>    |
| <b>CURRENT LIABILITIES</b>           |                  |                  |
| Creditors                            | 889              | 759              |
| Wage Taxes & Social Securities       | 498              | 421              |
| Unearned Revenues                    | 328              | 12,952           |
| Miscellaneous Payables               | 1,067            | 1,093            |
| <b>Total Current Liabilities</b>     | <b>2,782</b>     | <b>15,225</b>    |
| <b>TOTAL LIABILITIES</b>             | <b>24,185</b>    | <b>34,271</b>    |

## NOTES TO THE BALANCE SHEET AS PER 31 DECEMBER 2012

All amounts are expressed in kEUR. Foreign currencies are converted at the daily exchange rate at the date of transaction or valuation. Historic costs have been used throughout unless otherwise stated.

The balance sheet at year-end 2012 is mostly affected by the fact that the invoices for 2013 are sent in January of 2013 instead of at the end of 2012. The accounts receivable shows a considerable decrease compared to 2011 because of the delay in sending the invoices. In 2012, the RIPE NCC continued to invest part of its Cash on Hand in government bonds, trying to achieve further solidity of its reserves while achieving a safe return on investment.

### FIXED ASSETS AND INTANGIBLE FIXED ASSETS

Assets are valued at historical costs and are depreciated on a straight-line basis, starting from the month after acquisition.

Fixed assets are depreciated for the actual period of economic use. Hardware & Software consists of hardware and purchased activated software. Hardware is written off over three years and software is written off over two years. Infrastructure is written off after three years and office equipment after five years. All items under EUR 500 are expensed.

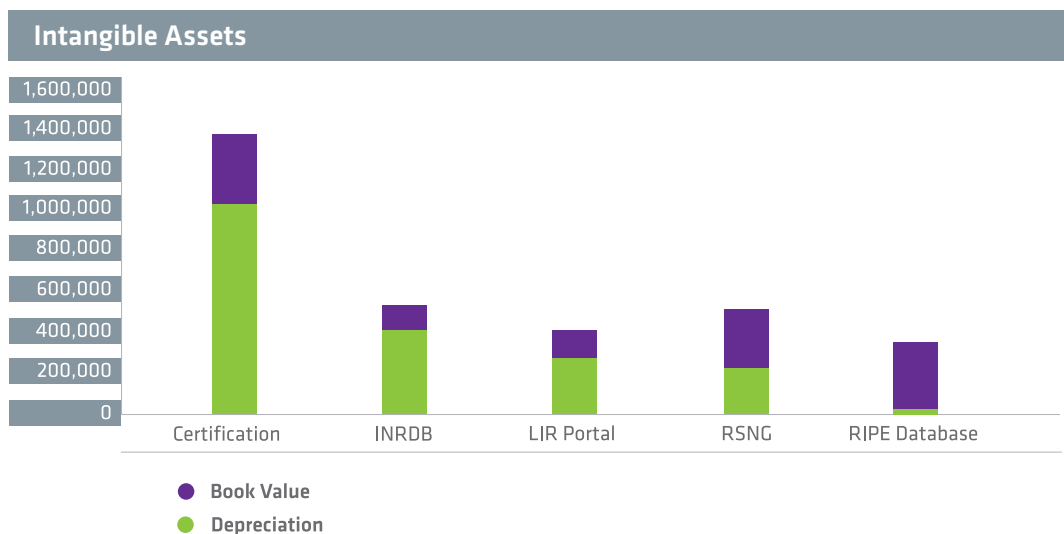
Intangible fixed assets consist solely of in-house software development. Software development costs are capitalised insofar as they are incurred in respect of potentially valuable projects and are stated as costs. These costs comprise the costs of direct labor and, for certain projects, outsourced consultancy costs. Upon termination of the development phase, the capitalised costs are written off over their expected useful life. This period is set at three years.

| Fixed Assets<br>(in kEUR)          | Hardware &<br>Software | Infrastructure | Office<br>Equipment | Software<br>Development |
|------------------------------------|------------------------|----------------|---------------------|-------------------------|
| Book Value 1 January 2012          | 1,148                  | 215            | 77                  | 1,465                   |
| Purchased Costs                    | 643                    | 195            | 25                  | 555                     |
| Depreciation                       | 777                    | 117            | 26                  | 797                     |
| <b>Book Value 31 December 2012</b> | <b>1,014</b>           | <b>293</b>     | <b>76</b>           | <b>1,223</b>            |

The Capital Expenditure for 2012 was 1,418 kEUR. This is a decrease of 12% compared to 2011 and 38% compared to the budget set for 2012. This is a result of the lower-than-expected software development capitalisation.

In 2012, the expenses for personnel and consultancy costs associated with Internet Number Resource Certification (RPKI), the further development of the internal registration software (RSNG) as well as new features for the RIPE Database were taken as intangible assets for a total amount of 555 kEUR. At the end of 2012, there was no addition for consultancy costs for projects that are expected to be taken as an asset in the future.

Below is an overview of the projects with a book value per 31 December 2012.



Note: The Internet Number Resource Database (INRDB) and the Resource Services Next Generation (RSNG) tools are RIPE NCC back-end software.

## FINANCIAL ASSETS

The government bonds stated as financial assets, listed and unlisted are individually valued at fair value. Changes in the fair value are directly recognised in the statement of income and expenditure.

During the course of 2012, the RIPE NCC Executive Board in close cooperation with the RIPE NCC Management continued to further the Treasury Statute execution to assure stable management of its financial reserves.

Following the trend of 2011, when Dutch and German government bonds were purchased for a total value of EUR 2 million, the RIPE NCC's asset portfolio was further diversified, with the purchase of four additional government bonds from France, Canada (two different types of bonds) and Norway for an additional approximate value of EUR 4 million. These purchases have decreased the RIPE NCC's exposure towards the financial industry and towards the Eurozone. The overall combined performance of the bonds over 2012 was -0.26% compared to the combined performance of 0.01% over 2011.

## CURRENT ASSETS

### Accounts Receivable

Accounts receivable consists of those invoices outstanding at 31 December 2012. The main item in this category is the invoices for the annual service fee. The decision to postpone the invoices for 2013 to January of 2013 instead of December 2012 is reflected in the low level of accounts receivable of 345 kEUR. Included in this item is a restatement of 183 kEUR that was made from debtors to Accounts payable for prepaid amounts from members at 31 December 2012.

Other items included under Accounts receivable are other debtors accounting for 33 kEUR. A provision for bad debts accounts for 1% of the total Accounts receivable. An amount for payments that could not be identified and attributed to any specific member amounting to 5 kEUR at year-end 2012.

**Value Added Tax (VAT)**

Because the invoices pertaining to 2013 were not sent in December 2012, the VAT receivable from the Dutch tax authorities is higher than normal at year-end.

**Miscellaneous Receivables**

Miscellaneous receivable increased slightly compared to 2011. Items listed under this section are:

Prepayments for office rent, equipment, RIPE Meetings, IT service contracts, pensions, health and contributions for 2013. The increase of prepayments is attributable to contracted IT services and licenses for 2013, as well as an increase in pension and health contributions. The RIPE NCC has a pension system of defined contribution with a pensionable age of 65 years, in accordance with Dutch fiscal requirements.

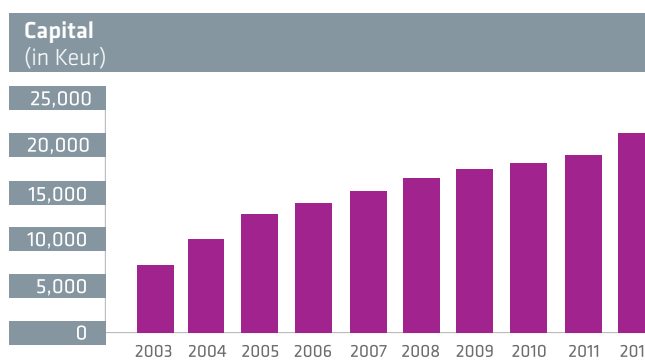
Interest receivable increased at year-end 2012 to 341 kEUR, an increase of 47% compared to 2011 as a result of the increase in financial assets that pay out interest once every calendar year.

Other receivables include credit card payments to be received, payments in transit and a small inventory for the sale of TTM equipment.

| Miscellaneous Receivable<br>(in kEUR) | 31 December 2012 | 31 December 2011 |
|---------------------------------------|------------------|------------------|
| Prepayments                           | 795              | 681              |
| Interest Receivable                   | 341              | 232              |
| Other Receivables                     | 106              | 241              |
| <b>Total Miscellaneous Receivable</b> | <b>1,242</b>     | <b>1,154</b>     |

## CAPITAL

The RIPE NCC has a tax-free ruling with the Dutch tax authorities, the so-called "Clearing House". A reserve of up to three times the total amount of service fees received from members in a year can be accumulated without paying Corporate Income Tax. Excess amounts have to be redistributed to RIPE NCC members. At the end of 2012, the Capital had increased to 21,403 kEUR. This represents a similar level to the previous year of 1.06 times the service fee level for the pertaining year.



## CURRENT LIABILITIES

### Creditors

The amount payable to Creditors at the end of 2012 increased compared to 2011. A restatement of 10 kEUR was made from creditors to Accounts Receivable for outstanding credit notes with suppliers at 31 December 2012.

### Wage Taxes and Social Securities

The increase in wage taxes and social securities at year-end 2012 versus year-end 2011 is due to higher social security taxes and a higher average employee salary, while the number of staff employed at 31 December 2012 was similar to the levels at year-end 2011.

### Miscellaneous Payables

Miscellaneous payables include the accrued holiday allowance and the accrued vacation days for employees. This amount is based on the number of outstanding vacation days at 31 December 2012 valued on the December 2012 salary levels. The total value of the accrued vacation days is 346 kEUR.

At year-end 2012, six months of the contribution for the ICANN fiscal year 2012/2013 were outstanding. Other payables are accruals and receivable discounts on rental agreements.

## ITEMS NOT SHOWN IN BALANCE SHEET

The RIPE NCC rents office space in two connected buildings and has separate rental agreements for these. These rental agreements were re-negotiated in 2012 and have been extended until December 2016. In 2012, a section of our office space was exchanged for another area, placing our office areas in close proximity and increasing our overall number of square metres. For these rental agreements, two bank guarantees have been issued for an amount of 175 kEUR. The amount due in rent for both rental agreements will total 669 kEUR in 2013. The total obligation for these rental agreements amounts to 2,156 kEUR over the remaining contract period. Additional lease agreements add a total obligation of 73 kEUR towards third parties for the next four years.

At 31 December 2012, the RIPE NCC had no other financial liability or obligation towards any industry partner that is not reflected in the Balance Sheet. There was no capital or financial interest in any other organisation that had a financial impact on this financial statement.

## Cash Flow

| (in kEUR)                                |                         | 2012           | 2011           |
|--|-------------------------|----------------|----------------|
| <b>Operational Cash Balance</b>          | <b>1 January 2012</b>   | <b>17,625</b>  | <b>22,935</b>  |
| New LIR                                  |                         | 2,647          | 2,375          |
| LIR Service Fee                          |                         | 15,203         | 11,812         |
| TTM/DNSMON                               |                         | 287            | 230            |
| RIPE Meetings                            |                         | 245            | 278            |
| Interest Received                        |                         | 453            | 368            |
| Sale - Financial Assets                  |                         | -              | -              |
| Other                                    |                         | 398            | 564            |
| <b>Total Inflow</b>                      |                         | <b>19,233</b>  | <b>15,627</b>  |
| <b>Cash Outflow</b>                      |                         |                |                |
| Salary                                   |                         | 5,343          | 5,001          |
| Wage Tax and Social Security             |                         | 3,858          | 3,382          |
| Pension and Health                       |                         | 980            | 1,056          |
| RIPE Meetings and Regional Meetings      |                         | 525            | 346            |
| ICANN                                    |                         | 202            | 187            |
| Purchase - Financial Assets              |                         | 6,922          | 1,976          |
| Creditors                                |                         | 8,087          | 8,975          |
| <b>Total Outflow</b>                     |                         | <b>25,917</b>  | <b>20,924</b>  |
| <b>Total Cash Inflow Balance</b>         |                         | <b>(6,684)</b> | <b>(5,297)</b> |
| Unrealised Exchange Rate Income          |                         | 6              | (13)           |
| <b>Operational Cash Balance</b>          | <b>31 December 2012</b> | <b>10,947</b>  | <b>17,625</b>  |
| <b>Financial Assets</b>                  |                         |                |                |
| <b>Financial Assets Cash Balance</b>     | <b>1 January 2012</b>   | <b>1,990</b>   | <b>-</b>       |
| Government Bonds                         | 1 January 2012          | 1,990          | -              |
| Net Cash Used for Governments Bonds      |                         | 3,922          | 1,976          |
| Revaluations of Government Bonds         |                         | (115)          | 13             |
| Government Bonds                         | 31 December 2012        | 5,797          | 1,990          |
| Other Financial Assets                   | 1 January 2012          | -              | -              |
| Net Cash Used for Other Financial Assets |                         | 3,000          | -              |
| Revaluations of Other Financial Assets   |                         | -              | -              |
| Other Financial Assets                   | 31 December 2012        | 3,000          | -              |
| <b>Financial Assets Cash Balance</b>     | <b>31 December 2012</b> | <b>8,797</b>   | <b>1,990</b>   |
| <b>Total Start Cash Balance</b>          | <b>1 January 2012</b>   | <b>19,615</b>  | <b>22,935</b>  |
| <b>Total End Cash Balance</b>            | <b>31 December 2012</b> | <b>19,744</b>  | <b>19,615</b>  |

All amounts in the Cash Flow overview are expressed in kEUR. Foreign currencies are converted at the daily exchange rate at the date of transaction or valuation.

The operational cash outflow is a result of the investments in government bonds in accordance with the Treasury Statute. The financial assets increased substantially with the investment in four different government bonds of approximately EUR 1 million each and fixed deposits of EUR 3 million. The RIPE NCC's cash flow remained stable from the beginning until the end of the year at 19,744 kEUR.

The remaining cash not listed as financial assets was held in several deposits spread among three different banks, as part of a prudent and conservative management of the reserves held by the RIPE NCC and in line with the Treasury Statute.

## INDEPENDENT AUDITOR'S REPORT

To: Réseaux IP Européens Network Coordination Centre

We have audited the accompanying Financial report 2012 as set out on pages 57 to 71 of Réseaux IP Européens Network Coordination Centre, Amsterdam, which comprise the statement of income and expenditure for the year 2012, the balance sheet as at 31 December 2012 and the notes, comprising a summary of the accounting policies.

### *Management's responsibility*

Management is responsible for the preparation of the Financial report in accordance with the accounting policies selected and disclosed by the entity, as set out in the notes of the Financial report. Furthermore, management is responsible for such internal control as it determines is necessary to enable the preparation of the Financial report that is free from material misstatement, whether due to fraud or error.

### *Auditor's responsibility*

Our responsibility is to express an opinion on the Financial report based on our audit. We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. This requires that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the Financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the Financial report. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the Financial report, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation of the Financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the Financial report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

### *Opinion*

In our opinion, the Financial report is prepared, in all material respects, in accordance with the accounting policies selected and disclosed by the entity, as set out in the notes of the Financial report.

Wognum, 15 April 2013

BDO Audit & Assurance B.V. on its behalf,

sgd.  
M.E. Jager RA



**RIPE Network Coordination Centre**

P.O. Box 10096  
1001 EB Amsterdam  
The Netherlands

[www.ripe.net](http://www.ripe.net)