RIPE NCC

RIPE NETWORK COORDINATION CENTRE | ANNUAL REPORT 2007

Contents

Highlights 2007

February
- RIPE NCC-operated K-root server stands firm against Distributed Denial of Service (DDoS) attack on the global root name server system.
- The CRYPT-PW deprecation project completed. All users now use at least MD5-PW to authenticate.

March
- An interoperability workshop on the Internet Systems Consortium's (ISC) DHCPv6 server software hosted at the RIPE NCC offices.
- RIPE NCC and RIPE community representatives take part in the IPv6 Deployment Panel at the ICANN Meeting in Lisbon, Portugal.

April
- First Middle East Network Operators' Group (MENOG) meeting held in Manama, Bahrain, with RIPE NCC providing organisational support.

May
- RIPE 54 Meeting held in Tallinn, Estonia, with over 270 attendees from 33 countries.

- János Zsakó (3C Kft, Hungary) and Nigel Titley (Easynet, UK) re-elected to the RIPE NCC Executive Board by members during the General Meeting.

June
- RIPE community requests that ICANN signs the DNS root.
- RIPE NCC membership hits 5000.

August
- RIPE NCC awarded Special Consultative Status by the Economic and Social Council (ECOSOC) of the United Nations.

September
- RIPE NCC Roundtable Meeting for Governments and Regulators takes place.

October
- RIPE 55 Meeting, Amsterdam, the Netherlands, has highest ever number of attendees: 375 attendees from over 40 countries.

- Hans Petter Holen (Visma IT) elected to the Address Supporting Organization (ASO) Address Council (AC) by the RIPE community.
- RIPE community issues statement on its position regarding IPv4 depletion and IPv6 deployment.
- RIPE NCC Regional Meeting takes place in Moscow, Russia.

November
- RIPE NCC signs the e164.arpa (ENUM) zone.
- RIPE NCC Regional Meeting/MENOG 2 Meeting takes place in Doha, Qatar.

December
- RIPE NCC invited to present at the Organization for Economic Co-operation and Development (OECD) Working Party on Communications Infrastructure and Service Policies (WP CISP) meeting on IPv4 depletion and IPv6 deployment.

2007

About the RIPE NCC

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).

As an RIR, the RIPE NCC assigns, allocates and registers Internet number resources (IPv4 and IPv6 address space and Autonomous System (AS) Numbers) to its members who are located in Europe, the Middle East and parts of Central Asia.

The RIPE NCC is an open, transparent and neutral organisation. As with all the RIRs, the RIPE NCC operates as a community-driven, bottom-up and self-governing organisation. The policies and procedures that govern the way it operates, the activities that it performs and the services it provides are proposed, discussed and adopted by its members and the RIPE community.

Most of its members are Internet Service Providers (ISPs) and telecommunication organisations. Other members are large corporations, academic institutions and government bodies. At the end of 2007, the RIPE NCC supported **5,369** members in the **74** countries in its service region. The organisation is based in Amsterdam, the Netherlands, and has around 100 staff.

The RIPE NCC and Réseaux IP Européens (RIPE)

RIPE is a collaborative forum open to all parties with an interest in the technical development of the Internet. The RIPE community is the collective term for any individual or organisation, whether members of the RIPE NCC or not, with an interest in the technical coordination of the Interent and the way the Internet is managed, structured or governed. The RIPE community 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.

Although similar in name, the RIPE NCC and RIPE are separate entities that are highly interdependent. The RIPE NCC provides administrative support to RIPE and the RIPE Working Groups, such as the facilitation of RIPE Meetings, the maintenance and development of the RIPE Document Store and publicly archived mailing lists.
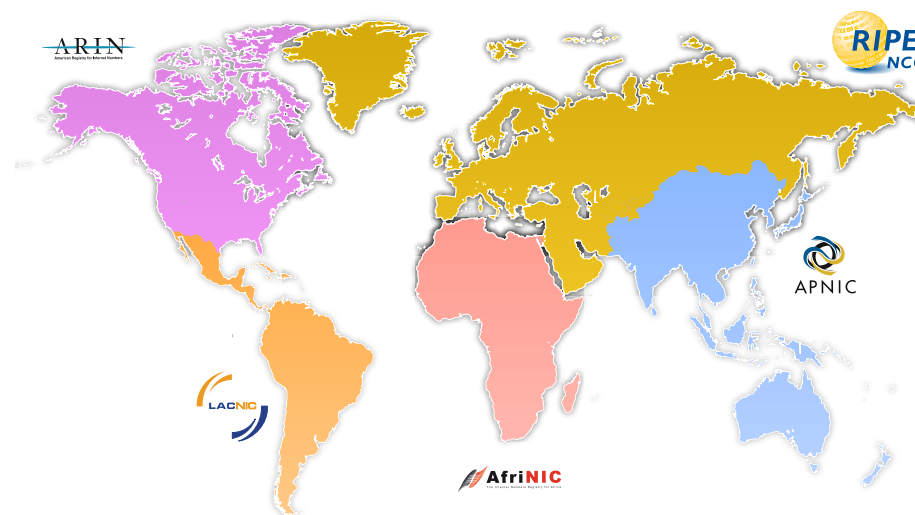
■ *Map showing the regions served by each RIR*

Report from the Chairman of the Executive Board

In 2007, the RIPE NCC experienced another year of strong Membership growth and now supports over 5,360 members, well above the 5000 mark. The strongest membership growth was again seen in Russia, followed by the UK and Italy.
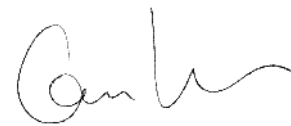
I am happy to report that good progress was made on the formal administrative site of things. Changes in Dutch law required an update of the RIPE NCC's Articles of Association (AoA). This opportunity was used to take a fresh look at the text and, as a result, we now have a much more streamlined set of AoA. In addition, and in close cooperation with the other Regional Internet Registries (RIRs), the RIPE NCC has clarified and strengthened its relationship with the Internet Corporation for Assigned Names and Numbers (ICANN) by a formal exchange of letters. Operational relations between the two organisations are continuing smoothly.

Throughout the year, the RIPE NCC contributed globally to the stable development of the Internet infrastructure. Participation in events like the Internet Governance Forum (IGF) have strengthened the dialogue and enhanced the cooperation between the RIRs and governments and regulators across the world. I'm also proud to note that the RIPE NCC was awarded Special Consultative status by the Economic and Social Council (ECOSOC) of the United Nations.

IPv4 depletion and IPv6 deployment were major issues of debate in 2007. They are likely to remain so over the next few years. The RIPE NCC has cooperated with the Organisation for Economic Co-operation and Development (OECD) Working Party which will be advising governments on these matters. The RIPE NCC expects to build on that relationship through further discussions about the concerns that all parties have about the future of Internet addresses and numbering. I'd like to thank the RIPE community for its collaborative efforts in this area by creating the "RIPE Community

Resolution on IPv4 Depletion and Deployment of IPv6" and for its essential participation in this policy development process.

With the RIPE NCC membership's demonstrated continued support, and together with the RIPE NCC staff and the RIPE community, I am confident that the RIPE NCC region is well prepared for the challenges ahead.

Kees Neggers
Executive Board Chairman

■ *Kees Neggers,*
Executive Board Chairman

Report from the Managing Director

Another exciting year has passed at the RIPE NCC. In addition to the large growth in membership over the year, the RIPE 55 Meeting was the most highly attended RIPE Meeting ever, attracting 375 attendees from over 40 countries, giving clear indication of the RIPE community's continued support.

Over the course of 2007, the RIPE NCC significantly boosted its outreach activities as planned. The RIPE Enhanced Cooperation Task Force was set up and held its first open session during the RIPE 55 Meeting. In addition, the RIPE NCC continued to organise RIPE NCC Roundtable Meetings with Governments and Regulators, holding another successful event in September. These meetings bring together this group of stakeholders and the technical community to discuss key Internet issues. The RIPE NCC also continued to represent the membership and the RIPE community at various government events, such as the Internet Governance Forum (IGF), the OECD Working Party on Communications Infrastructure and Service Policies (WP CISP) meeting and UK's Department for Business, Enterprise & Regulatory Reform (BERR) meeting.

Regional support in the Middle East was expanded, with the RIPE NCC providing administrative support for the first ever Middle East Network Operators Group (MENOG) Meeting held in Bahrain in April. The event was so successful that a second MENOG Meeting was held in Qatar in November alongside the RIPE NCC Regional Meeting. Given the positive feedback, more of these combined events will be held in 2008.

Technical operations remained stable throughout the year and I'm pleased to note that the RIPE NCC-operated K-root server, one of the Internet's 13 root name servers, stood firm against a deliberate 'Distributed Denial of Service (DDos)' attack on the global root name server system. Efforts were focused on preparing the technical requirements for IPv4 depletion and the uptake of IPv6. Preparations

for Internet number resource certification were ongoing over the year, with the RIPE Certification Task Force and the RIPE community providing valuable input and feedback for the project.

Our focus for 2008 is to continue to encourage involvement in the RIPE community, particularly the participation of governments and regulators. In order to do this effectively, the RIPE NCC has engaged the services of a Public Relations agency.

■ *Axel Pawlik, RIPE NCC Managing Director*

Cooperating closely with the RIPE Certification Task Force, Internet number resource certification activities will be centered on building scenarios and system prototypes. Our commitment to make all stakeholders aware of IPv4 depletion and encourage the adoption of IPv6 is ongoing. In addition, a greater emphasis will be placed on improving the quality and accuracy of registration data. Cooperation with our industry partners and the other RIRs, via the Number Resource Organization (NRO), and participation in various industry events, will continue.

Finally, I'd like to thank everyone for their support of the RIPE NCC and its activities and their participation in the RIPE community. I look forward to another successful year.

Axel Pawlik
RIPE NCC Managing Director

As the RIR for Europe, the Middle East and parts of Central Asia, the RIPE NCC provides Internet number resources – IPv4 and IPv6 address space and Autonomous System (AS) Numbers – to its members. The Internet Assigned Numbers Authority (IANA) allocates blocks of address space to all five RIRs. Each RIR then assigns parts of these blocks of address space to their own members. The RIRs maintain registration data for these Internet number resources and ensure that the distribution of them is fair and according to the policies set by their members and the wider Internet community.

Membership Fees

RIPE NCC members are charged an annual service fee based on the services that the member receives.

Yearly Fee 2007 (EUR)	
Extra Small	1,300
Small	1,800
Medium	2,550
Large	4,100
Extra Large	5,500
Sign-up Fee	2,000

More information about membership fees is available at:
www.ripe.net/membership/new-members

Services and Activities

In addition to providing services related to the assignment and allocation 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. This includes:

Database Services:
- The development, operation and maintenance of the RIPE Database and the operation of a Routing Registry (RR)

Technical Services:
- Operation of K-root, one of the world's 13 root name servers
- Reverse Domain Name System (rDNS) delegations
- Technical administration of Tier-0 ENUM

Community Support and Outreach:
- Administrative support for RIPE Working Groups
- Maintenance and development of RIPE community mailing lists
- Facilitation of RIPE Meetings and RIPE NCC Regional Meetings for RIPE NCC members and the Internet community
- Roundtable Meetings for Governments and Regulators
- Representation of the RIPE NCC, its members and the RIPE community at regional and global industry-related events and when liaising with governments and regulators

Training:
- Provision of RIPE NCC Training Courses for members and other stakeholders throughout the RIPE NCC's service region
- A free online E-Learning Centre available to everyone

Information Services:
- The Test Traffic Measurement Service (TTM): continuous monitoring of a network's connectivity to other points on the Internet
- Domain Name System Monitoring (DNSMON): a global overview of how DNS root servers and some Top-Level Domain (TLD) name servers are functioning
- The Routing Information Service (RIS): keeps track of changes in the global Internet routing system
- Hostcount++: a measurement service providing neutral statistics on the development of the Internet

More information about all the services and activities listed above can be found in this report, starting on page 11.
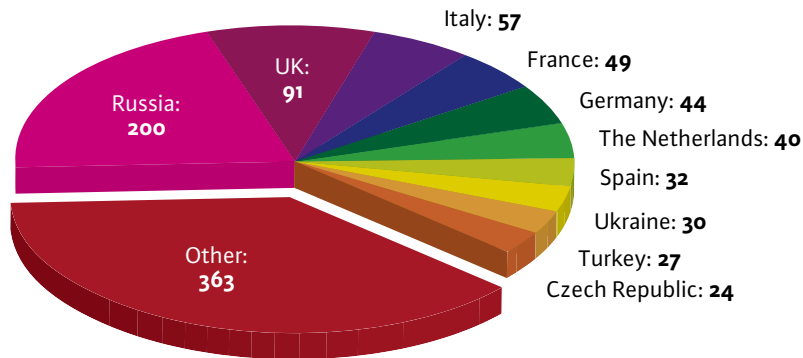
Membership Overview

Total number of members at 31 December 2007:
5,369 members,
an increase of **14%** on 2006

Total number of applications in 2007: **957**

Net membership growth: **647** members
(as a result of mergers and closures)

Five countries with most new members (net growth):
- Russia: **137**
- UK: **56**
- Italy: **36**
- Sweden: **35**
- The Netherlands: **26**

Pie chart labels:
- Russia: **200**
- UK: **91**
- Italy: **57**
- France: **49**
- Germany: **44**
- The Netherlands: **40**
- Spain: **32**
- Ukraine: **30**
- Turkey: **27**
- Czech Republic: **24**
- Other: **363**

■ *Applications for membership in 2007, per country*

Map labels:
- United Kingdom **621**
- Sweden **209**
- Germany **554**
- Russia **809**
- Netherlands **241**
- Poland **134**
- Switzerland **167**
- France **225**
- Italy **332**
- Spain **173**
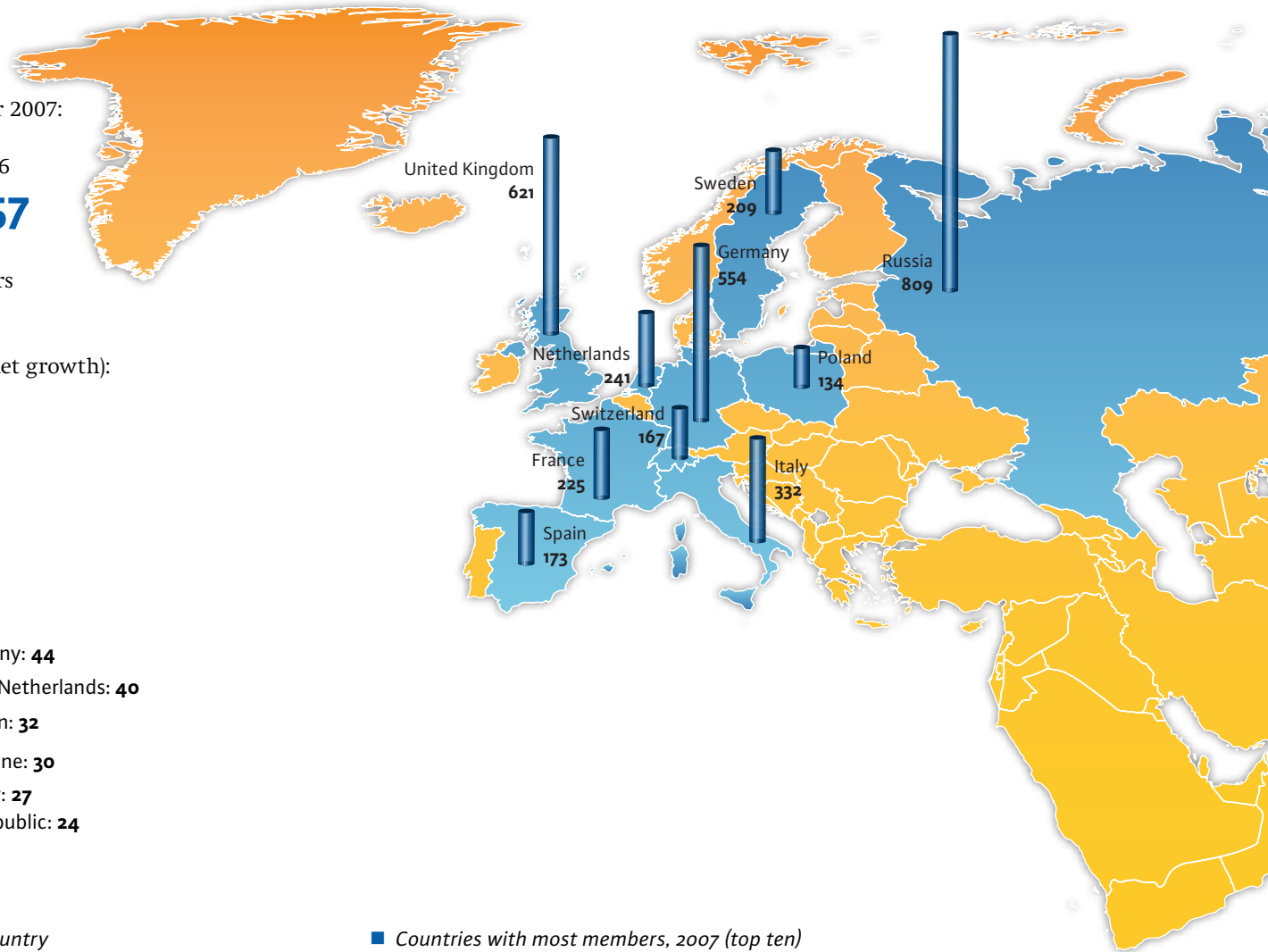
■ *Countries with most members, 2007 (top ten)*

Organisational Structure

The organisation consists of members, an Executive Board and RIPE NCC staff.

Members

In order to request IPv4 or IPv6 addresses and Autonomous System (AS) Numbers, organisations and individuals can become a member of one of the world's five Regional Internet Registries (RIRs). RIPE NCC membership is open to everyone and the only requirements are payment of membership service fees and that the member is based in the RIPE NCC's service region: Europe, the Middle East and parts of Central Asia. Most of our members are Internet Service Providers (ISPs) and telecommunication organisations. Other members are large corporations, academic institutions and government bodies.

RIPE NCC members can:
- Request Internet number resources
- Use the other services that the RIPE NCC provides to members and non-members

RIPE NCC members have the right to:
- Provide input for, and feedback on, the RIPE NCC's Activity Plan and Budget
- Adopt the RIPE NCC Charging Scheme each year during the RIPE NCC General Meeting
- Approve the Financial Report each year at the RIPE NCC General Meeting
- Propose a resolution to be adopted during the RIPE NCC General Meetings

- Nominate and elect candidates to the RIPE NCC Executive Board
- Give general feedback on the RIPE NCC's activities and services through participation in RIPE Working Groups, mailing lists and the RIPE NCC General Meetings

The Executive Board

RIPE NCC members elect the Executive Board. The Board currently consists of five people.

■ *RIPE NCC Executive Board*
From left: János Zsakó (Treasurer), Nigel Titley (Secretary), Kees Neggers (Chairman), Jim Reid (Member) and Dmitry Burkov (Member)

The Executive Board:
- Represents the membership and has oversight of the RIPE NCC management
- Is responsible for the overall financial position of the RIPE NCC and keeping records that allow the current financial situation to be evaluated at any moment
- Approves the RIPE NCC Activity Plan and Budget each year
- Appoints the RIPE NCC Management
- Calls the RIPE NCC General Meetings

More information about the Board, including the minutes from Executive Board meetings, can be found at: www.ripe.net/info/ncc/board

RIPE NCC Staff

The staff perform the RIPE NCC's operations, facilitate RIPE NCC services and provide administrative support to members, to the RIPE Working Groups and to the RIPE community. In addition, staff cooperate closely with the other four Regional Internet Registries (RIRs), industry partners, such as the Internet Society (ISOC), and the Internet Corporation for Assigned Names and Numbers (ICANN), and with governments and regulators.
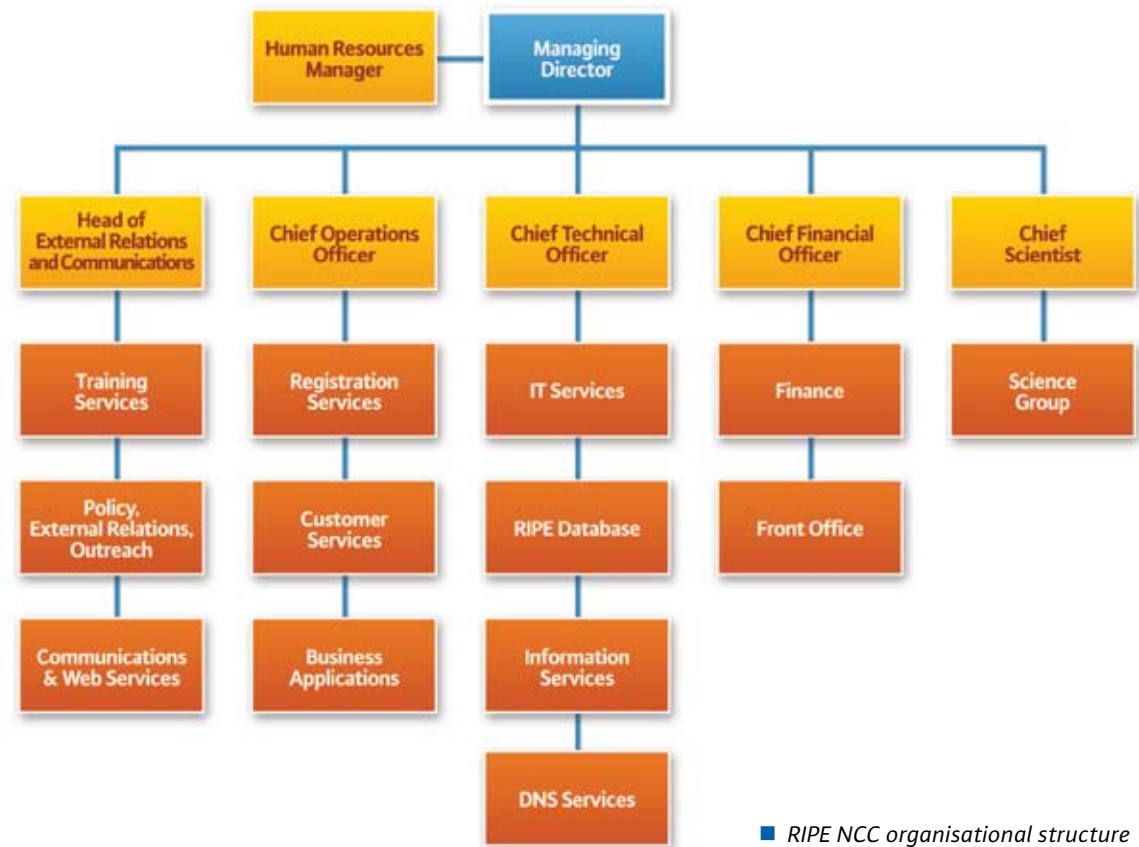
■ *RIPE NCC organisational structure*

Defining, Setting and Evaluating RIPE NCC Services and Activities

All the activities that the organisation performs and the services it provides are publicly defined, discussed and evaluated by RIPE NCC members and by the RIPE community. The activities that the RIPE NCC proposes to perform in the coming year are detailed in the Activity Plan. Input into the Activity Plan is collected from members and the RIPE community, together with feedback on activities, via the RIPE Working Groups, RIPE mailing lists and at the member-only General Meetings. The RIPE NCC Executive Board approves the Activity Plan each year. The Activity Plan is available to the public at: www.ripe.net/ripe/docs/ap.html

RIPE NCC General Meetings

All RIPE NCC members are encouraged to attend the RIPE NCC General Meetings. Currently, these meetings are held twice a year. During the General Meetings, members can vote to accept the audited Financial Report and adopt the RIPE NCC Charging Scheme. Members are also responsible for electing the Executive Board. Feedback on the RIPE NCC's activities and services can also be given directly to the Executive Board.

In 2007, the General Meetings took place alongside the RIPE 54 and RIPE 55 Meetings. During the May General Meeting, held on 9 May 2007, Executive Board elections took place. RIPE NCC members re-elected János Zsakó (3C Kft, Hungary) and Nigel Titley (Easynet, UK) into the two available seats.

RIPE NCC Members can attend the General Meetings. Minutes from each meeting are, however, available to the public. For more information about General Meetings and minutes archives, see: www.ripe.net/membership/gm/

Articles of Association

Amendments were made to the RIPE NCC Articles of Association (AoA) during the year to incorporate several changes in the Dutch code of law. At the General Meeting held on 9 May, 2007, the membership unanimously adopted the revised AoA. For more information about these amendments, please see: http://www.ripe.net/ripe/draft-documents/gm-may2007/articles-association.pdf

The current AoA can be found at: http://www.ripe.net/ripe/docs/articles-association.html •

New and Significantly Developed Activities 2007

Support for Internet Number Resource Certification

During 2007, the RIPE NCC focused its efforts on preparation and research for the implementation of Internet number resource certification. This enhanced security is a vital element to have in place as the industry moves into an era in which trust relationships may become increasingly important.

Internet number resource certification is a means of binding specific resources to the person or organisation that is entitled to hold those resources. This offers a range of potential benefits:
- The holders of Internet number resources will have proof that they hold a certain Internet resource
- Resource certificates could be used in securing routing information, through the Internet Routing Registry (IRR) or Border Gateway Protocol (BGP) for example
- Resource certificates could facilitate automated checks on the validity of address space

The RIPE NCC is, together with two of the other Regional Internet Registries (RIRs), APNIC and ARIN, helping to drive preparations for a certification system. However, the RIPE community must guide Internet number resource certification plans. So, to facilitate this, the RIPE Certification Task Force was established in October 2006 and has been tasked with examining the issues surrounding resource certification in the RIPE region, with efforts continuing throughout 2007.
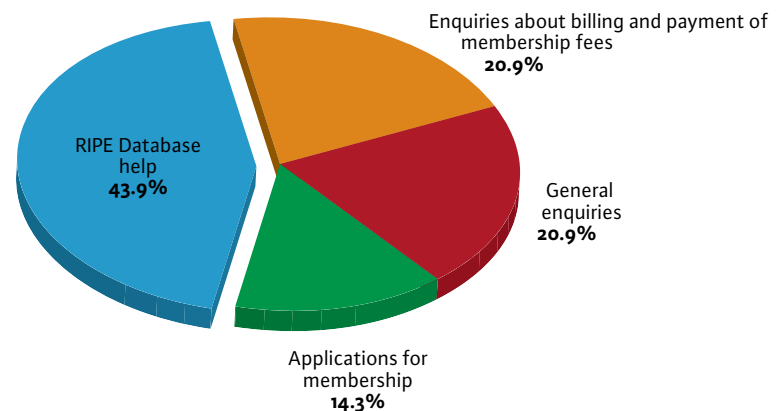
The task force's current focus is on setting priorities and providing feedback and advice regarding systems and applications to facilitate the certification process. Both the RIPE NCC and the task force give progress presentations during RIPE Meetings to keep the RIPE community and other stakeholders up to date with developments. More information about the Certification Task Force can be found at: www.ripe.net/ripe/tf/certification

RIPE NCC Customer Service Desk

In 2007, the Customer Service Desk was set up to streamline requests for membership, to improve user support and to enable members to communicate with the RIPE NCC more effectively. This new way of operating creates a single point of contact for first-line support.

Over the course of the year, procedures were improved and user-support documents were updated to improve workflows. The Customer Services team dealt with 17,797 requests during the year.

Enquiries about billing and payment of membership fees **20.9%**

General enquiries **20.9%**

Applications for membership **14.3%**

RIPE Database help **43.9%**

Membership Survey

Preparations are also underway for the third RIPE NCC membership survey. These surveys, conducted by a third party to ensure anonymity, enable the RIPE NCC to get feedback from members about the organisation's services and activities, evaluate its current operations and plan for future services and developments. Details of the membership surveys carried out in the past can be found at: www.ripe.net/membership/survey

Closure or Reduction of Activities in 2007

At the request of the RIPE community, the RIPE NCC phased out the secondary DNS service for the NL, IT, AT, DE and AU ccTLDs. This was done in consultation with the operators of these zones to ensure smooth migration and to eliminate any negative impact on DNS operations. These five ccTLDs have been migrated from our secondary server and we will continue to gradually phase out all mature ccTLDs in the coming years. The RIPE NCC will also continue to provide a secondary DNS name service to those developing ccTLD operators requiring it. More information about other DNS activities can be found on page 25. •

Ongoing Activities 2007 – Member Services

Registration Services

As a Regional Internet Registry (RIR), the RIPE NCC's most prominent activity is to distribute IPv4 and IPv6 addresses and Autonomous System (AS) Numbers in its service region. Our 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 address space to all the RIRs. The RIRs then allocate parts of this address space to their own members.

All Requests

In 2007, the RIPE NCC's Registration Services Department received a total of 14,876 requests, an increase compared to the 14,425 requests in 2006. These included requests for Provider Aggregatable (PA) assignments, Provider Independent (PI) assignments, IPv4 and IPv6 allocations, AS Number assignments, anycast assignments and questions regarding general registry and audit issues. From these requests, a total of 5,852 allocations and assignments for Internet number resources were made.

During the year, the service level remained stable and was comparable to the service level in 2006.

Internet number resource allocations and assignments made by the RIPE NCC in 2007:

- IPv4: 1,359 allocations
- IPv6: 157 allocations
- ASN: 2,267 assignments
- PI: 2,069 allocations
- Anycast: 4 (IPv4), 3 (IPv6) assignments

An overview of assignments and allocations can be found on page 14.

IPv4 Allocations 2007

The IANA allocated four /8s (slash numbers 92*, 93*, 94* and 95*) to the RIPE NCC in 2007. The RIPE NCC allocated around 62,707,700 IPv4 addresses during the year. Compared with 2006, this is a 5% increase in the total number of IPv4 addresses allocated and a 13% increase in the number of allocations made.

IPv4 Slash Notation

IPv4 address space is allocated in 'slashes' (/). One /8 is equivalent to 16 million IP addresses. More information about IPv4 addressing and slash notation can be found at:
www.ripe.net/info/info-services/addressing.html
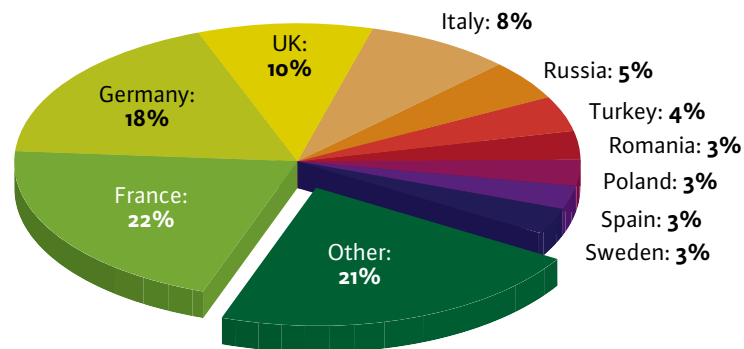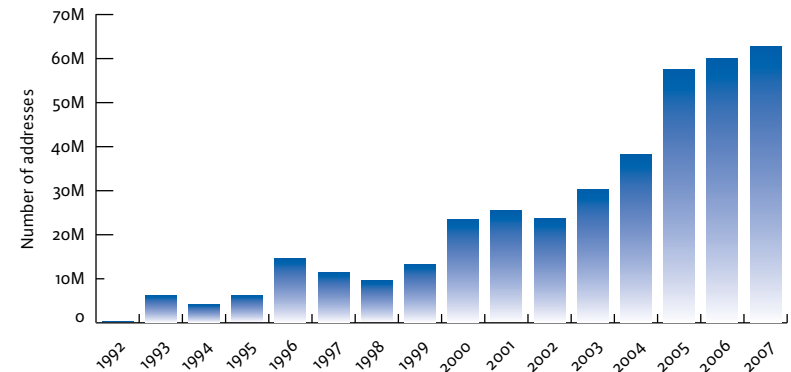
■ Total amount of IPv4 addresses allocated by the RIPE NCC per year (1992–2007)

■ Total amount of IPv4 addresses allocated by the RIPE NCC in 2007, per country
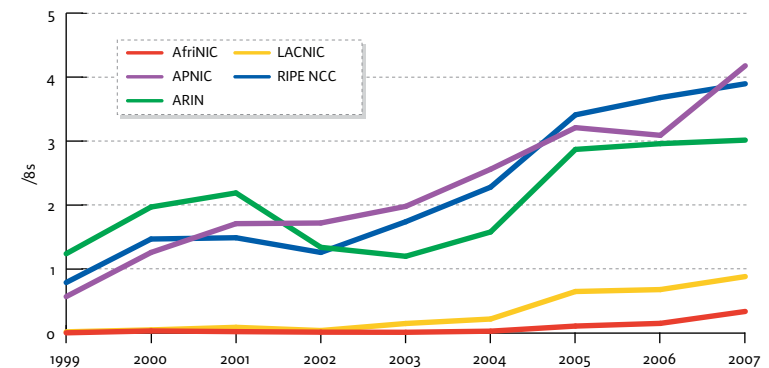
■ Total amount of IPv4 address space allocated by all RIRs per year in /8s

IPv6 Allocations 2007

During the year, the RIPE NCC made 157 allocations, a 78% increase in the number of allocations made compared with 2006. The IANA did not allocate any IPv6 address space to the RIPE NCC in 2007.
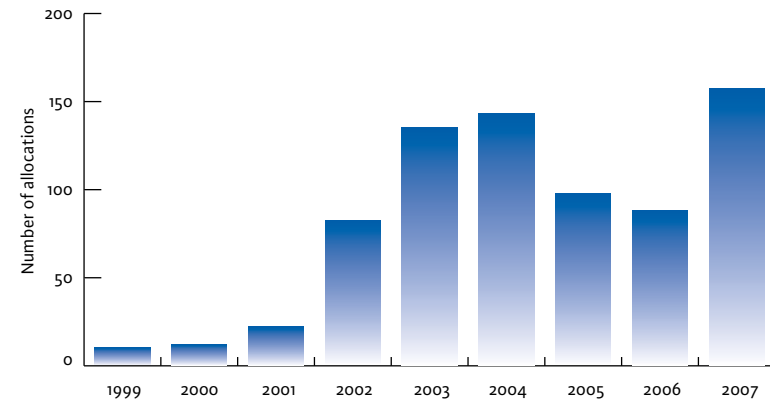
■ Total amount of IPv6 allocations made by the RIPE NCC per year (1999–2007)
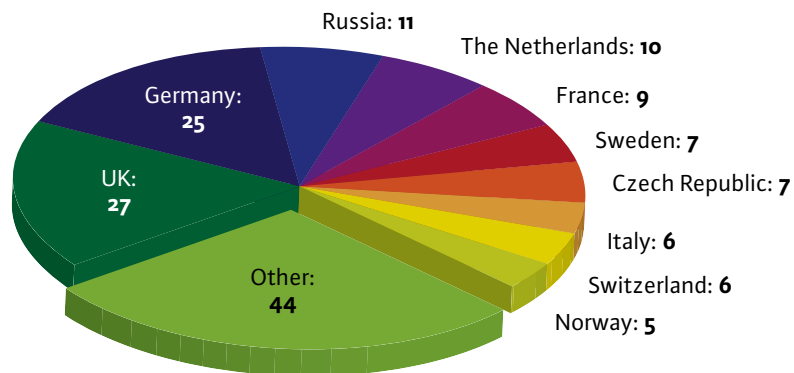
■ Total amount of IPv6 allocations made by the RIPE NCC in 2007, per country
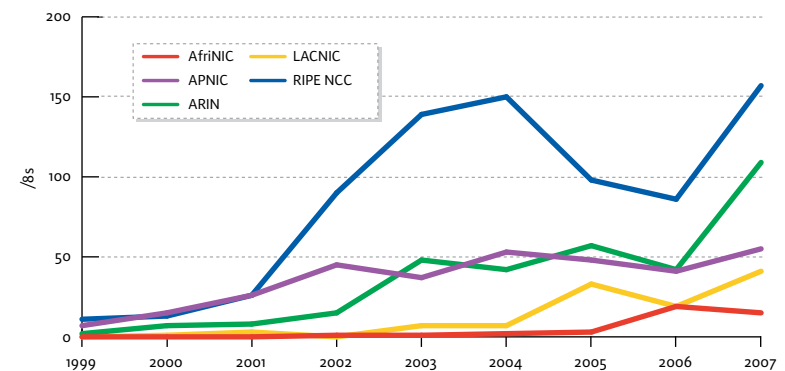
■ Total amount of IPv6 allocations made by all RIRs per year in /8s

Autonomous System (AS) Number assignments in 2007

The IANA allocated 2,048 ASNs to the RIPE NCC in two blocks of 1,024 ASNs. We assigned 2,267 ASNs during the year, a 12% increase on the amount assigned in 2006.
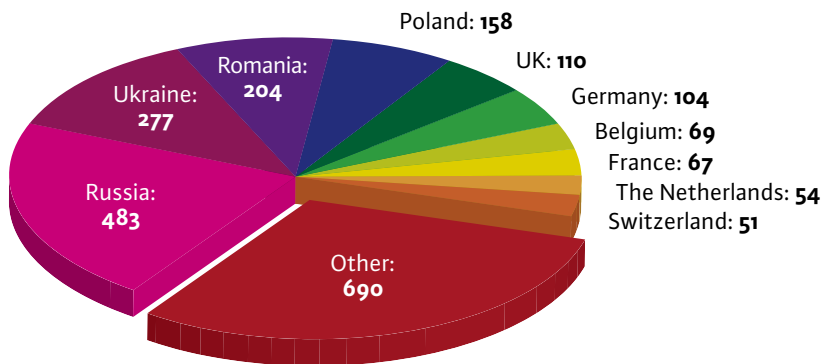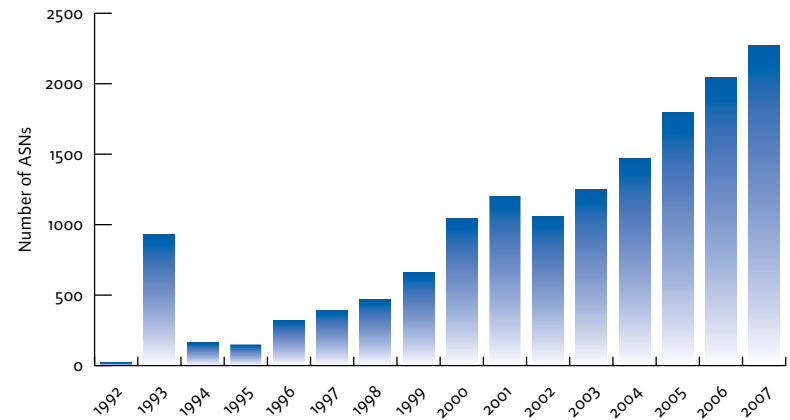
■ *Total number of AS Numbers assigned by the RIPE NCC per year (1992–2007)*

Poland: **158**
UK: **110**
Germany: **104**
Belgium: **69**
France: **67**
The Netherlands: **54**
Switzerland: **51**
Romania: **204**
Ukraine: **277**
Russia: **483**
Other: **690**

■ *AS Numbers assigned by the RIPE NCC in 2007, per country*

AfriNIC   LACNIC
APNIC   RIPE NCC
ARIN
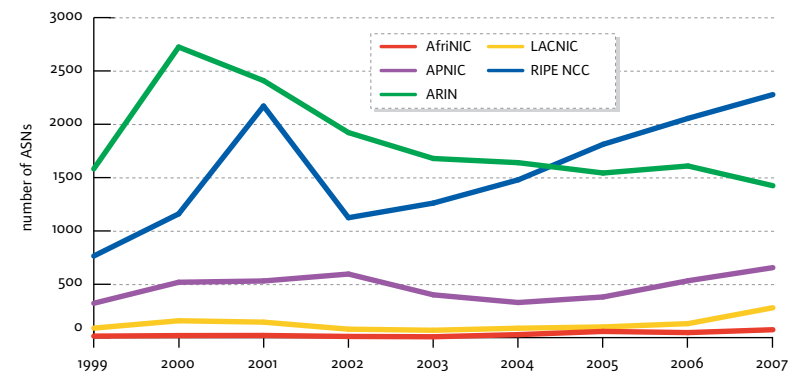
■ *AS Numbers assigned by all RIRs per year (1999–2007)*

Assignment and Allocation Policies Implemented in 2007

The policies outlining the way that the RIPE NCC allocates and assigns Internet number resources to its members are proposed, discussed and accepted or rejected by the RIPE community. During 2007, the Registration Services Department implemented the following community-accepted proposals:

2006–07: "First Raise in IPv4 Assignment Window Size".
- Requested that the Assignment Window (AW) available to Local Internet Registries (LIRs) be raised automatically from zero to /21 (2,048 IPv4 addresses) six months after an LIR receives its first allocation. The AWs of all existing LIRs older than six months and in good standing were also raised as a result of this policy.

2006–06: "IPv4 Maximum Allocation Period"
- Requested a change from 24 months to 12 months for the maximum allocation period. Internal procedures and documents were amended to facilitate this change.

2006–02: "IPv6 Address Allocation and Assignment Policy"
- Requested that the RIPE NCC remove arbitrary restrictions on the number of assignments that must be made before an LIR can qualify for an initial IPv6 allocation. The definition of an "End-Site" was also changed. Internal procedures were updated and the relevant documents were published to reflect these changes.

2005–08: "Proposal to Amend the IPv6 Assignment and Utilisation Requirement Policy"
- Set the minimum size of an end-site assignment to a /64 instead of a /48. It also changed the IPv6 HD ratio for additional allocations to .94 from .80. Internal procedures were updated and the relevant documents were published to reflect these changes.

More information about policy development can be found on page 30. More information about the policies mentioned above can be found at:
www.ripe.net/ripe/policies

Reclaimed Address Space

During 2007, 1.6 million unused IPv4 addresses were reclaimed, making a total of 2.4 million IPv4 addresses returned over the last two years. These addresses will be reallocated in the future.

Improving Data Consistency

The RIPE NCC initiated a data consistency project as requested by the RIPE community. This project will ensure that all allocation and registration data is correct and consistent.

The Local Internet Registry (LIR) Portal

The LIR Portal is the secure portal that enables members to manage their allocations and assignments online. The LIR Portal is available to all members and around 80% of them have activated an LIR Portal account. By using the LIR Portal, members can:

- Request Internet number resources (IPv4, IPv6 and Autonomous System (AS) Numbers)
- Update their own records in the RIPE Database
- View the status and progress of their requests
- Pay service fees

In 2007, several improvements were made to the LIR Portal's usability and robustness. Architectural and software changes were made to the underlying database that is used to store all member data. During the year, an external party performed a series of security audits on the LIR Portal in order to highlight any potential weaknesses. The sign-up process for new members was also improved and simplified with the deployment of new Java-based software. The updated registration form can be found at: https://lirportal.ripe.net/newlir-external

More information about the LIR Portal can be found at: https://lirportal.ripe.net

Training

In 2007, the RIPE NCC's Training Team gave:
- **49** Local Internet Registry LIR courses
- **21** Routing Registry courses
- **12** DNS for Local Internet Registry courses

These courses were held in **37** countries throughout the service region and attracted over **1,700** participants.

Staff from Local Internet Registries (LIRs) can attend:
- **LIR Training Course** – training members how to request Internet number resources and how to interact with the RIPE NCC.
- **Routing Registry (RR)** – explaining the features of Routing Policy Specification Language (RPSL) and the Routing Registry (RR) and related tools to experienced network operators.
- **DNS for LIRs** – providing information about the Domain Name System (DNS) services offered by the RIPE NCC. It covers the reverse DNS (rDNS) procedures and checks, as well as giving information about DNS Monitoring (DNSMON), K-root and anycasting. The course also covers DNS Security (DNSSEC) and the specific procedures to secure the in-addr.arpa zones.

■ *RIPE NCC Training Course, Tbilisi,*
Georgia

■ *Countries coloured* **blue**
show those countries in which
RIPE NCC Training Courses
were held during 2007
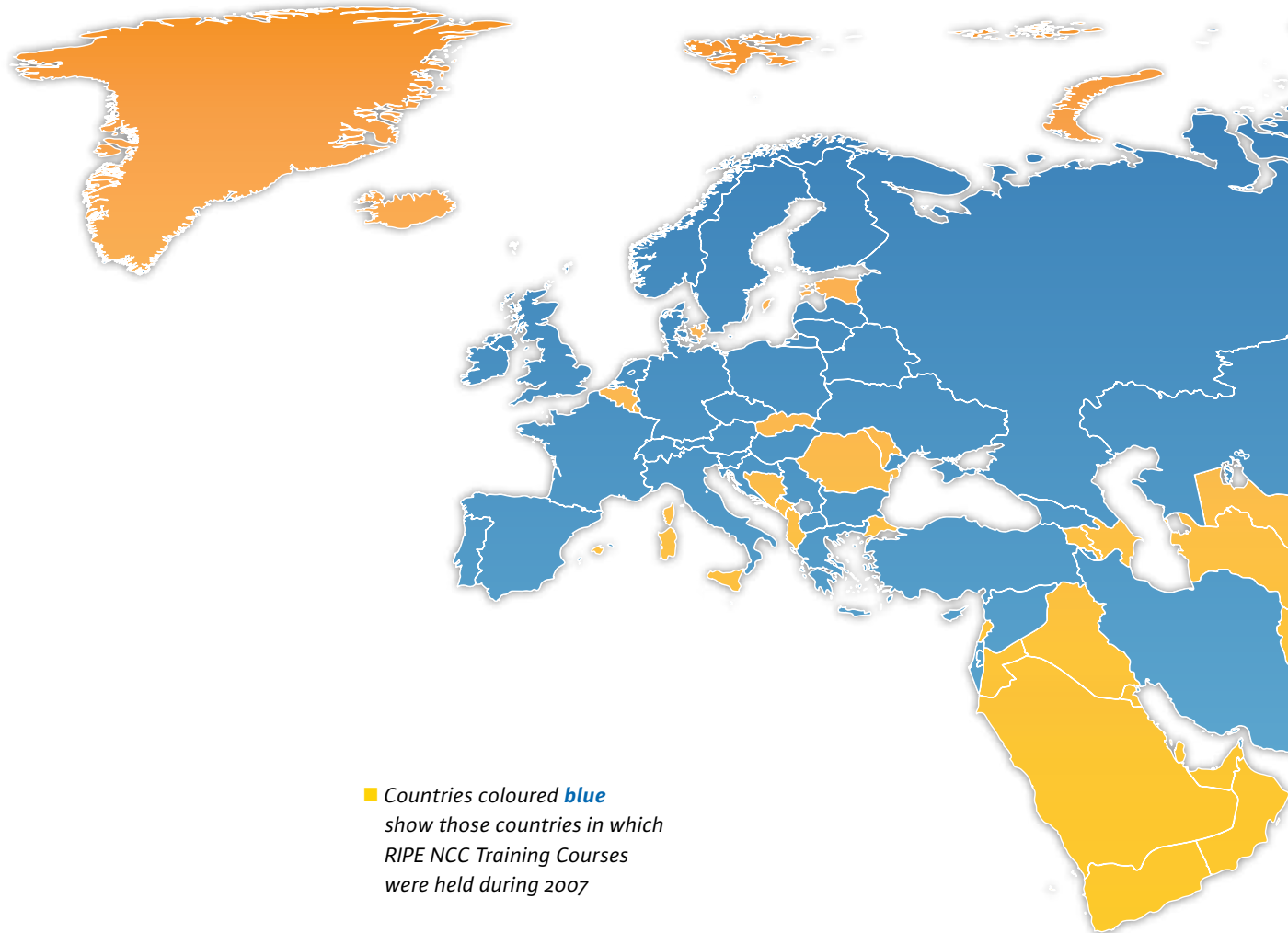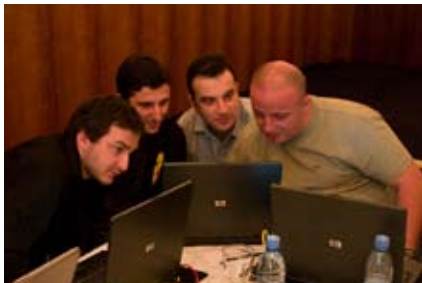
Training Seminars

In addition, one-day seminars covering all three training courses were held alongside the RIPE NCC Regional Meetings (see page 21) in Moscow and Qatar. These seminars were tailored specifically for the unique needs of members. The Training Team also gave several training-related presentations during industry conferences and peering forums held in the RIPE NCC service region.

Hosted Courses

Throughout the year, the Training Team delivered 10 training courses at venues provided by a host. More information about hosted courses and an overview of the 2007 hosts can be found at: www.ripe.net/training/hosting.html

All RIPE NCC Training Courses are regularly updated to include information on any new policies accepted by the RIPE community and modifications to procedures and software. For more information about RIPE NCC Training Services, see: www.ripe.net/training

RIPE NCC E-Learning Centre

The E-Learning Centre is free and open to anyone and offers short, online courses on topics relevant to the Internet industry, the RIPE community and governments and regulators. The E-Learning modules available also supplement the material covered in the RIPE NCC's Training Courses.

During 2007, two additional E–Learning modules were released:
- The RIPE Policy Development Process (PDP)
- Using PGP Keys & X509 Certificates in **mntner** Objects

Further modules are in the process of being developed based on feedback from our users.

As of 2007, over 2,500 people registered on the E-Learning Centre to view online courses.

More information about the RIPE NCC E-Learning Centre can be found at: https://e-learning.ripe.net

Regional Support

Support is offered to members throughout the RIPE NCC's service region. This enables the RIPE NCC to communicate more effectively with its members about the specific technical, administrative and policy issues that affect a particular region.

RIPE NCC Regional Meetings are held to bring together a region's members, local governments and key players in the global and local Internet industry, encourage dialogue and provide a platform for attendees to work together to identify key regional issues. Members have the opportunity to give feedback directly to RIPE NCC representatives, so their changing needs can be continuosly evaluated and addressed. These events are free of charge and open to everyone,

■ *Regional Meeting in Moscow*

although registration is required.

Two RIPE NCC Regional Meetings were held during 2007:
- October: Moscow, Russia
- November: Doha, Qatar, alongside the MENOG 2 Meeting

More information about RIPE NCC Regional Meetings is available at:
www.ripe.net/meetings/regional

Middle East Network Operators Group (MENOG) Meeting

MENOG is a regional forum that offers network engineers and other technical staff the opportunity to share knowledge and experiences and identify areas for regional cooperation. Created in 2007 by the region's Internet community, the RIPE NCC has provided administrative support for MENOG since its inception, beginning with the first MENOG meeting held in Bahrain on 3-5 April, 2007.

The RIPE NCC Regional Meeting, Qatar, was held alongside the MENOG 2 Meeting, which took place from 19-21 November 2007. Hosting these two events back-to-back received much positive feedback from attendees, the organisers and the regional press.

More information about MENOG can be found at:
www.menog.net •

■ *MENOG 2/RIPE NCC Regional Meeting, Qatar*

Ongoing Activities 2007 – Information Services

THE RIPE NCC's Information Services provide a deeper insight into the workings of the Internet. As a neutral and impartial organisation, commercial interests do not influence the data collected. All information services are available to anyone and some of them are offered free of charge.

Test Traffic Measurement (TTM) Service

The RIPE NCC TTM service enables 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 sites and measurement traffic is sent between them. From this traffic, packet losses, delays and other parameters are determined according to the metrics developed by the Internet Engineering Task Force's (IETF) IP Performance Metrics (IPPM) Working Group. During 2007, five new TTM test-boxes were deployed, bringing the total number of deployments to 80.

The RIPE Test Traffic Working Group (TT WG) provides feedback on the TTM service. Throughout the first half of 2007, the RIPE NCC and the TT WG continued to work with the TTM Task Force. The task force was set up to provide input on proposals about the future of the TTM network. At RIPE 55, the TT WG asked the RIPE NCC to implement the "TTM Futures – Final Proposal":
www.ripe.net/maillists/ncc-archives/tt-tf/2007/msg00005.html

Proposal 2005-11, "Multicast Monitoring on RIPE NCC Test Traffic Boxes" was fully implemented in 2007. For more information about this proposal, please see:
www.ripe.net/ripe/policies/proposals/2005-11.html

Domain Name System Monitoring (DNSMON)

The DNSMON service uses the Test Traffic Measurement (TTM) service test-boxes to provide an objective overview of DNS root servers and participating Top-Level Domain (TLD) name servers. The measurements show the availability of the root servers and enable users to distinguish between server-side and client-side problems. The DNSMON service was launched in April 2005. By 2007, around 25 TLDs were using it.

There are three levels of DNSMON service available:
- **Level 1**: Provided for a fee to participating TLDs. Subscribers can access the subscriber-only DNSMON server and access data as near to real-time as possible.
- **Level 2**: Provides root server operators with full access to the root domain free of charge, enhancing global cooperation in ensuring the stability of the DNS.
- **Level 3**: Data is provided to the public with an artificial two-hour delay.

At the RIPE 55 Meeting, the RIPE NCC Services Working Group reached consensus that the scope of the DNSMON service should be extended to include the monitoring of Tier-1 ENUM domains. The RIPE NCC has implemented this request. More information about DNSMON can be found at:
http://dnsmon.ripe.net

Routing Information Service (RIS)

The RIS keeps track of changes in the global Internet routing system by collecting and storing the Border Gateway Protocol (BGP) routing information that is gathered from peering sessions. This information is collected by the 14 Remote Route Collectors (RRCs) located at major Internet exchanges around the world. In 2007, these RRCs facilitated over 600 peering sessions. The 15th RRC was installed in Miami, USA, in November 2007 and is expected to be operational in early 2008.
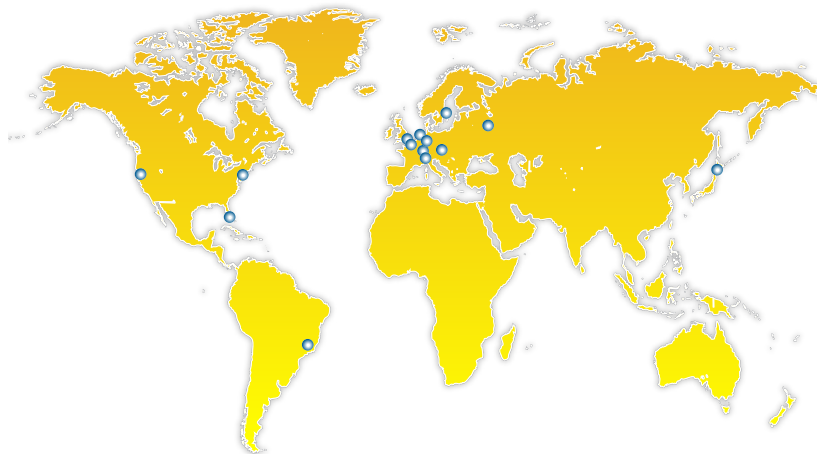
■ *Map showing location of RIS Remote Route Collectors (RRCs)*

Several tools that enable users to search, analyse and monitor changes in the global routing system are available to the public for free. During 2007, the RIPE NCC implemented two new RIS tools: the Autonomous System (AS) Dashboard and the Prefix Dashboard. These provide a simpler consolidated view of RIS data.

"MyASN", another of the RIS's integrated tools, enables network administrators to monitor routing changes related to a network. A MyASN account can be opened by anyone anywhere. The only requirement is that they have an AS Number. At the end of 2007, there were over **1,230** MyASN user accounts. More information on the tools available can be found at:
www.ripe.net/projects/ris/tools

The RIS Database stores data for a three-month period. All the raw data collected since the project started in 1999 is available at:
www.ripe.net/projects/ris/rawdata.html

Hostcount

The RIPE NCC coordinates the collection of data from the DNS zones of the Top-Level Domains (TLDs) in its service region and publishes summary statistics. Hostcount has been performed since 1993, making it one of the world's longest running data collection projects on, and about, the Internet. During 2007, a more accurate and scalable system that counts in-addr records and looks at BGP visibility of hosts was launched. In addition, a "Do It Yourself kit" to enable remote sites to participate, spreading the load and removing data protection concerns, was released. More information about Hostcount can be found at:
www.ripe.net/hostcount

An overview of all the RIPE NCC's Information Services can be found at:
http://is-portal.ripe.net/

Ongoing Activities 2007 – Coordination Activities

The RIPE Database

The RIPE Database contains information about IPv4 and IPv6 allocations and AS Number (ASN) assignments as well as information about the organisations, contacts and reverse Domain Name System (rDNS) delegations relating to them.

The RIPE NCC maintains and operates this database. Anyone can use the database to make queries and RIPE NCC members can update information relating to their Internet number resource allocations and assignments. During 2007, almost a billion queries were served – an average of 31 queries per second, mostly for IP address lookups.

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, that mirror each other and in which network operators can publish their routing policies and routing announcements.

The RIPE Database Help Desk dealt with around **7,800** enquiries in 2007.

Throughout 2007, several updates and improvements to the RIPE Database were made:

32–bit ASN:
- The RIPE Database now supports 32-bit ASN.

Objects and Attributes:
- The **irt** (Incident Response Team) object is now returned by default if a queried IP address or an encompassing IP range

has an associated **irt** object. The old behaviour can still be maintained by using the new **-C** flag. More information about the **irt** object can be found at: www.ripe.net/db/support/security/irt/irt-h2.html

The RIPE Data Protection Task Force, supported by the RIPE Database Working Group, requested that the *"mnt-by:"* attribute is made mandatory on the **person**, **role** and **domain** objects. Implementation of this request was still in progress during 2007.

CRYPT–PW
- The RIPE NCC began to phase out the use of CRYPT-PW in 2006 and successfully completed the task in 2007. Most users switched over their passwords using the web-based form provided. All users are now using at least MD5-based authentication.

Documentation
- The RIPE Database documentation was updated and a new manual, the "RIPE Database Update Reference Manual", was published. This manual can be found at: www.ripe.net/db/support/update-reference-manual.pdf

- During the RIPE 54 Meeting, it was proposed that the RIPE Database documentation should no longer be published with RIPE Document status. The RIPE Database Working Group agreed. In order to facilitate this, one RIPE Document, ripe-419: "RIPE Database Reference Manual", was published to serve as a reference point from which all other database documentation can be accessed. This document can be found at: www.ripe.net/ripe/docs/ripe-419.html

IPv6
- The RIPE Database whois server now supports native IPv6. Until 2007, the RIPE NCC only supported queries over IPv6 using a proxy.

E–Learning
- A new module on how to create and update basic database objects was added to the RIPE NCC E-Learning Centre. More details about this and the E-Learning Centre can be found on page 20.

Queries
- There has been a steady increase in the amount of queries that the whois servers handle, amounting to an increase of around 30% over 2007. The query cluster has been expanded to meet the growing demand.

Legal Issues and Data Protection
- Preparations are underway to enable the RIPE Database to support non-personal Near Real-Time Mirroring (NRTM) for operational data for those organisations that meet the requirements. This was requested by the Data Protection Task Force. New terms and conditions for using the RIPE Database, as well as a privacy statement, are also under legal review.

More information about the RIPE Data Protection Task Force can be found at:
www.ripe.net/ripe/tf/dp

More information about the RIPE Database and the IRR can be found at:
www.ripe.net/db

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 map IP addresses into names. For example, a reverse zone maps the address 193.0.014.129 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 a number of 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 (see page 26). In 2007, DNSSEC was also deployed for this zone.

Reverse Delegation

The RIPE NCC provides reverse domain delegations for IPv4 and IPv6 address space that it allocates. This continues to be one of our 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. More information about the RIPE Database can be found on page 24.

In 2007, a new policy for secondary name server operators was implemented for /16 IPv4 reverse delegations. It used to be mandatory to include ns.ripe.net as one of the secondary servers but now its inclusion is optional. This is consistent with the policy used for IPv6 reverse delegations. The RIPE NCC also started to carry out periodic lameness checks for the reverse delegations it supports.

Statistics are published monthly at:
www.ripe.net/info/stats/dns-lameness

More details about reverse delegation are available at:
www.ripe.net/reverse

Secondary DNS

The secondary DNS service ensures the reliability and robustness of the general DNS infrastructure and forms an important part of the RIPE NCC's DNS service. The RIPE NCC provides a secondary DNS service for other Regional Internet Registries' (RIRs) reverse zones and for some country code Top-Level Domain (ccTLD) organisations, mainly those in developing countries or those who have difficulty obtaining and paying for commercial DNS services. At the end of 2007, we were providing a stable secondary DNS service to **80** ccTLDs.
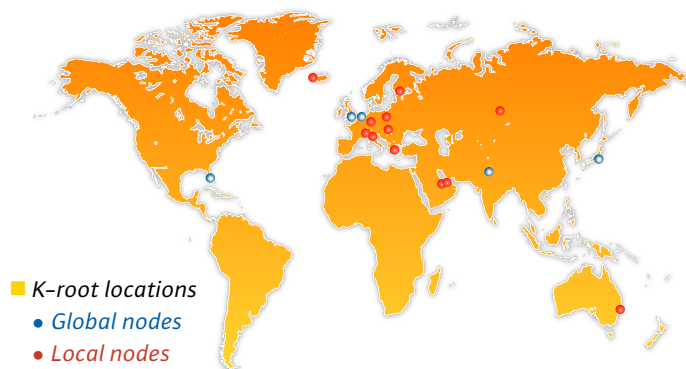
K–root and Anycast

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 Domain Name System (DNS) infrastructure. The K-root server has been operated by the RIPE NCC since 1997, when the first server was installed at the London Internet Exchange (LINX). Currently, K-root consists of 17 nodes, all of which are operated by the RIPE NCC.

■ *K–root locations*
● *Global nodes*
● *Local nodes*

K-root operations were stable throughout the year and all servers were upgraded with a new operating system and modern software distribution system. The deployment of AAAA resource records enable native IPv6 users to query the whole DNS tree via IPv6 without relying on IPv4. Although the root servers are just the top part of the DNS tree, it provides the basis for the full implementation of IPv6-enabled DNS. The RIPE NCC is one of the first root name server operators to deploy AAAA and to run IPv6 in production and is now fully prepared for IPv6 deployment. More information about K-root can be found at:
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). These instructions can be found at:
www.ripe.net/enum/instructions.html

ENUM is an Internet standard defined in RFC3671 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. More information about ENUM can be found at:
www.itu.int/ITU-T/inr/enum/procedures.html

A plan to deploy DNSSEC in the e164.arpa zone (ENUM) was presented to the IAB and to the RIPE community and received support. The zone was signed in November 2007. The RIPE NCC plans to start supporting secure delegations in March 2008. ●

THROUGHOUT the year, work continued on developing and promoting relations with governments, regulators and industry partners.

The Internet Governance Forum (IGF)

The second IGF was held from 10-16 November in Rio de Janeiro, Brazil, and was seen as an outstanding success. The key themes of the event were Access, Diversity, Openness, Security and Critical Internet Infrastructure. Working together with the other Regional Internet Registries (RIRs) as the Number Resource Organization (NRO – see page 28) and our industry partners, we participated in the forum, with our NRO colleagues speaking in several sessions. Full details of the NRO's activities at the IGF can be found at:
www.nro.net/governance

More information about the IGF can be found at:
www.intgovforum.org

Cooperation with the OECD

The Organisation for Economic Co-Operation and Development (OECD) is an organisation that helps governments tackle the economic, social and governance challenges of a globalised economy. During 2007, the RIPE NCC took part in the OECD's Working Party on Communication Infrastructure and Services Policy (CISP). RIPE NCC representatives presented the RIPE community's position on IPv4 depletion and IPv6 deployment to over 30 different governments in order to help develop an understanding of the future of the Internet economy.

In addition to this, the RIPE NCC provided input into an OECD report, "Internet Address Space: Economic Considerations in the Transition from IPv4 to IPv6". The RIPE NCC also contributed, on behalf of the NRO and the Internet community, to a document titled "The Future of the Internet Economy" and is looking forward to further cooperation with the OECD.

RIPE NCC Roundtable Meetings

Roundtable Meetings for Governments and Regulators have been held since 2005. These meetings are designed to enhance cooperation between the technical community in the RIPE NCC's service region and local governments and regulators.

Two Roundtable Meetings were held in 2007, on 12 February and 17 September. Around 30 invited participants attended each meeting, with just over half of them representing government institutions. Discussions were held on IPv4 depletion, IPv6 deployment, the Internet Governance Forum (IGF) and the role of governments in the Internet industry.

In 2007, the meeting program was expanded to include speakers from the RIPE community, representatives from the Internet Society (ISOC) and colleagues from the other RIRs. Meeting participants are encouraged to suggest topics that are relevant to them so that the RIPE NCC can arrange for experts to present and facilitate discussion on key issues. More information about Roundtable Meetings can be found at:
www.ripe.net/meetings/roundtable

RIPE Task Force on Enhanced Cooperation

The RIPE community believes that enhanced cooperation between all stakeholders in the Information Society is essential to ensure that all interests are served. This was recognised in the Tunis Agenda, a declaration published by the World Summit on the Information Society (WSIS) in 2005. During the RIPE 54 Meeting, the community decided to form the Enhanced Cooperation Task Force. The task force will advise on enhanced cooperation issues between the RIPE community and relevant stakeholders, particularly governments and regulators. The task force held an open meeting during the RIPE 55 Meeting. More information about the task force, including its charter, can be found at:
www.ripe.net/ripe/tf/enhanced-cooperation

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. More information about the NRO can be found at:
www.nro.net

The NRO Number Council (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). More information about the NRO NC can be found at:
www.nro.net/about/number-council.html

The Address Supporting Organization (ASO)

The ASO is one of the three supporting organisations required by the Internet Corporation for Assigned Names and Numbers (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 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 2007, the RIPE NCC's representatives on the ASO AC were:
- Hans Petter Holen (Visma IT) **–** Jan 2008-31 Dec 2010
- Dave Wilson (HEAnet) **–** Jan 2007-31 Dec 2009
- Wilfried Woeber* (UniVie/ACOne) **–** Jan 2006-31 Dec 2008

* Selected by the RIPE NCC Executive Board

The secretariat function rotates between the RIRs on an annual basis and was performed by APNIC in 2007. More information about the ASO is available at:
www.aso.icann.org •

RIPE

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 operation of the Internet.

The RIPE NCC and RIPE, although similar in name, are separate entities. 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, the maintenance and development of the RIPE Document Store and publicly archived mailing lists.

The RIPE community is the collective term for any individual or organisation, 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 30). All of RIPE's activites are publicly archived. More information about RIPE is available at:
www.ripe.net/ripe

RIPE Working Groups

In order to discuss various technical or service issues and policy proposals, the RIPE community formed a number of RIPE Working Groups. Each of the working groups uses publicly archived mailing lists, open to anyone, to facilitate discussion. The RIPE Working Groups also meet twice a year in dedicated sessions during RIPE Meetings. Working groups can be formed or disbanded as necessary by the RIPE community. More information about the RIPE Working Groups can be found at:
www.ripe.net/ripe/wg

■ *Rob Blokzijl, RIPE Chair*

RIPE Meetings

The RIPE NCC also supports and facilitates RIPE Meetings. Held twice a year, these five-day events are open to everyone, although registration is required. These 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. All sessions are webcast, audiocast or podcast and remote participants can contribute to discussions during the meeting sessions using Internet Relay Chat (IRC) or Jabber.

At the RIPE 55 Meeting, a real-time stenography service was tested. The feedback from remote participants and the attendees on-site was positive. This service will therefore be continued at future RIPE Meetings. •

Industry organisations: **28%**
Local Internet Registry (LIR): **26%**
Educational: **6%**
Other: **16%**
Government: **3%**
Commercial organisations: **21%**
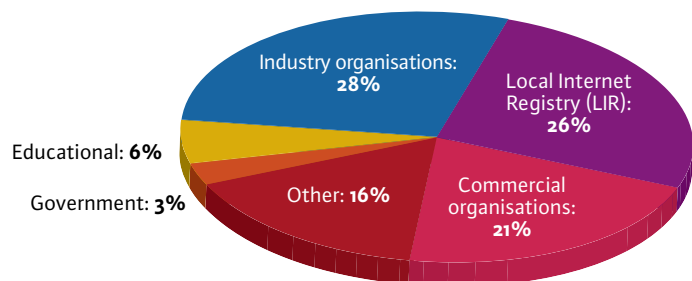
■ *RIPE 54 Meeting, Tallinn, attendance per organisational category*

Local Internet Registry (LIR): **25%**
Commercial organisations: **23%**
Other: **13%**
Government: **4%**
Industry organisations: **29%**
Educational: **6%**
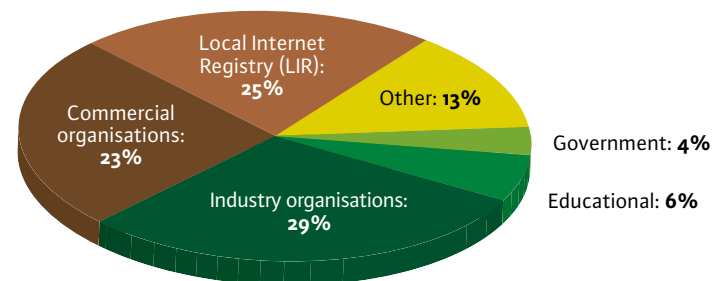
■ *RIPE 55 Meeting, Amsterdam, attendance per organisational category*

Policy Development

THE RIPE community develops and sets policies for the technical coordination of the Internet and the distribution of Internet number resources through a long-established, open, bottom-up process of discussion and consensus-based decision-making. This process is called the RIPE Policy Development Process (PDP). Anyone can suggest a new policy or a change to an existing policy, not just RIPE NCC members.

Although it provides administrative support for the RIPE PDP, the RIPE NCC does not accept or reject any policy. The RIPE community is responsible for this. Any policy proposal must complete the phases of the RIPE PDP. If, according to the RIPE PDP, there is consensus in the RIPE community to accept the proposal, it completes the PDP and "acceptance" is declared. The RIPE NCC then implements the policy into its working procedures.

More information about the RIPE PDP can be found at: www.ripe.net/ripe/policies

Policy Proposal Overview 2007

Nine new proposals were submitted during 2007:
- 2007-01, "Direct Internet Resource Assignments to End Users from the RIPE NCC"
- 2007-02, "Change in IP Assignments for Anycasting DNS Policy"
- 2007-03, "IPv4 Countdown Policy"
- 2007-04, "IANA Policy for Allocation of ASN Blocks to RIRs"
- 2007-05, "IPv6 ULA-Central"
- 2007-06, "Global Policy for the Allocation of the Remaining IPv4 Address Space"
- 2007-07, "End Policy for IANA IPv4 Allocations to RIRs"
- 2007-08, "Enabling Methods for Reallocation of IPv4 Resources"
- 2007-09, "Cooperative Distribution of the End of the IPv4 Free Pool"

Two proposals that were submitted in 2006 were still in the PDP process at the end of 2007:
- 2006-01, "Provider Independent (PI) IPv6 Assignments for End User Organisations"
- 2006-05, "PI Assignment Size"

Concluded Proposals

Eight proposals concluded the PDP during 2007. The RIPE community accepted the following proposals:
- 2005-08, "Proposal to Amend the IPv6 Assignment and Utilisation Requirement Policy"
- 2006-02, "IPv6 Address Allocation and Assignment Policy"
- 2006-06, "IPv4 Maximum Allocation Period"

- 2006-07, "First Raise in IPv4 Assignment Window Size"
- 2007-04, "IANA Policy for Allocation of ASN Blocks to RIRs"

These policies were then outlined in the following RIPE Documents:
- ripe-424, "IPv4 Address Allocation and Assignment Policies for the RIPE NCC Service Region"
- ripe-421, "IPv6 Address Allocation and Assignment Policy"
- ripe-376, "Internet Assigned Numbers Authority (IANA) Policy for Allocation of IPv6 Blocks to Regional Internet Registries"

These documents can be viewed in the RIPE Document Store at: www.ripe.net/ripe/docs

Three of these proposals were withdrawn by the proposer:
- 2006-04, "Contact E-mail Address Requirements"
- 2007-02, "Change in IP Assignments for Anycasting DNS Policy"
- 2007-03, "IPv4 Countdown Policy"

Current policy proposals can be found at: www.ripe.net/ripe/policies/proposals

Archived policy proposals can be found at: www.ripe.net/ripe/policies/proposals/archive •

Corporate Governance

The RIPE NCC conducts corporate governance best practice where possible. Its organisational, management and Executive Board structures are transparent. There is also clear division of responsibilities and duties between our members, the RIPE NCC Executive Board and the RIPE NCC's Managing Director, as stated in the RIPE NCC Articles of Association. The Articles of Association can be found at:
www.ripe.net/ripe/docs/articles-association.html

Arbitration

An arbitration committee exists to resolve any disputes between members and the RIPE NCC or between members themselves and it operates as a neutral and objective body. The arbitration committee consists of representatives from a variety of backgrounds and fields of expertise. More information about the arbitration committee can be found at:
www.ripe.net/ripe/docs/arbitration.html

Environmental Responsibility

The RIPE NCC increased its environmental efforts by becoming carbon neutral for all business air travel. A carbon off-setting program was set up with Atmosfair, an organisation that invests in projects contributing to the neutralisation of greenhouse gases, reducing carbon dioxide emissions and creating sustainable jobs in developing nations. As RIPE NCC staff travel frequently by air, money is donated for each flight that a staff member takes, helping the RIPE NCC to reduce its carbon footprint. More information about Atmosfair can be found at:
www.atmosfair.de •

Introduction to the Financial Report

In order to deal with an increased workload, the RIPE NCC incurred greater costs during the 2007 financial year than in the previous year. Our activities expanded as a result of strong membership growth coupled with other industry developments, such as Internet number resource certification and anticipated IPv4 depletion. In addition, we also intensified our outreach activities.

Over the year, a larger than expected number of membership applications resulted in a net growth of 647 members. The strongest membership growth was seen in Russia, the UK and Italy.

Despite the greater cost level, 2007 resulted in another year-end surplus of 1,070 kEUR. During the year, a rebate was given to existing members in order to redistribute the reserve from previous years that had built up beyond the target level in the RIPE NCC Clearing House. This method of reducing the RIPE NCC reserves proved to be very efficient and was well received by members.

The actual expenses in 2007 were on target compared with the budgeted 2007 costs. Since 2002, efficient cost control has ensured that our costs have increased by only 10% over this period, even though the number of members has increased by over 60% and the RIPE NCC's activities have significantly expanded.

To support these activities, staffing at the RIPE NCC also increased during 2007. The number of full time equivalents (FTEs) employed for the full year was 100.4 FTEs. At year-end, 110 staff (106 FTEs) were employed, which is in accordance with the 105.6 FTEs budgeted for in 2008.

The level of reserves in the RIPE NCC's Clearing House in 2007 continued to be above the target level of one year's total expenses, a goal set by the RIPE NCC's Executive Board and the organisation's management to guarantee the RIPE NCC's financial stability and continuity of operations. However, at year-end, both the Executive Board and the management felt that this higher reserve level was necessary to effectively manage the future challenges that the RIPE NCC and the Internet industry faces.

During 2007, the RIPE NCC began to value software development as an intangible fixed asset as part of a continued effort to better reflect the organisation's financial position.

Finally, looking ahead to 2008, the RIPE NCC will continue to cooperate with its industry partners. An agreement with the Internet Corporation for Assigned Names and Numbers (ICANN) was also reached for the RIPE NCC and the other four RIRs to settle outstanding contributions to ICANN in 2008 to support its activities. Responding to the changing industry landscape, and continuing the 2007 trend, outreach activities are set to widen further throughout 2008.

Axel Pawlik
Managing Director

Statement of Income and Expenditure 2007

(in kEUR)	Actual Year 2007	Budget 2007	Actual Year 2006	Difference FY07 vs Bud FY07		Difference FY07 vs FY06	
Income							
Fee	11,791	10,764	11,615	1,027	10%	176	2%
RIPE Meeting	219	227	194	(8)	-4%	25	13%
Other income	186	115	234	71	62%	(48)	-21%
Total income	**12,196**	**11,106**	**12,043**	**1,090**	10%	**153**	1%
Expenditures							
Personnel	7,102	6,967	5,848	135	2%	1,254	21%
General Operating expenses	2,796	2,828	2,281	(32)	-1%	515	23%
RIPE Meeting	401	356	416	45	13%	(15)	-4%
Training Courses	319	283	277	36	13%	42	15%
Regional Meetings	118	90	139	28	31%	(21)	-15%
Financial Expenses	65	72	54	(7)	-10%	11	20%
Subtotal Operational expenses	**10,801**	**10,596**	**9,015**	**(205)**	2%	**1,786**	20%
Miscellaneous expenses	144	330	344	(186)	-56%	(200)	-58%
Depreciation	729	769	621	(40)	-5%	108	17%
Total Expenses	**11,674**	**11,695**	**9,980**	**(21)**	0%	**1,694**	17%
Surplus/Deficit before interest income	522	(589)	2,063	1,112		(1,541)	
Interest income	548	476	420	**72**	15%	**128**	30%
Surplus/Deficit	**1,070**	**(113)**	**2,483**	**1,183**		**(1,413)**	
FTEs	**100.4**	**98.9**	**88.4**	**1.5**	2%	**12.0**	14%

Balance Sheet as at 31 December 2007

(in kEUR)	31 December 2007	31 December 2006
Assets		
Fixed assets		
Computers	795	886
Infrastructure	285	201
Office equipment	72	46
Total Fixed assets	**1,152**	**1,133**
Intangible fixed assets		
Software development	271	-
Total intangible fixed assets	**271**	**-**
Current assets		
Accounts receivable	2,988	1,773
VAT	75	28
Miscellaneous receivables	984	623
Total Current assets	**4,047**	**2,424**
Cash on hand	**19,436**	**18,771**
Total ASSETS	**24,906**	**22,328**
Liabilities		
Capital		
Reserves	477	477
Clearing House	12,217	12,193
Surplus	1,070	2,483
Total Capital	**13,764**	**15,153**
Current liabilities		
Creditors	875	189
Wage taxes and social securities	276	232
Unearned revenues	8,753	5,580
Personnel fund	-	(83)
Miscellaneous payables	1,238	1,257
Total Current liabilities	**11,142**	**7,175**
Total LIABILITIES	**24,906**	**22,328**

Notes to the RIPE NCC Statement of Income and Expenditure 2007

General

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 were in accordance with the previous accounting year.

The financial year 2007 resulted in a surplus of 1,070 kEUR. This positive result is due to a higher than expected income from membership growth and, while expenses were as budgeted, they increased from 2006. This surplus was accumulated in the RIPE NCC's Clearing House. During 2007, a rebate of 2,459 kEUR was given to all existing members, lowering the RIPE NCC's capital to an amount equal to 118% of total expenses. This is a decrease from the 152% capital versus total expenses at the end of 2006. The RIPE NCC's Executive Board and the RIPE NCC's Management aim to keep a minimum of one year's total expenses in reserve to ensure financial stability and operational continuity of the RIPE NCC.

Revenues

Revenues were 10% above budgeted income and just 1% above the revenue for 2006. This increase was a result of high membership growth in 2007, although the service fees were lowered in 2007 by 9%.

In 2007, the total number of members increased to 5,369, a net growth of 647. This is an increase of 14% compared to 2006. The total number of membership applications was 957, the highest number of applications since 2000. Most membership applications came from organisations in Russia (200), the United Kingdom (91) and Italy (57). The net growth of 647 takes into account closed members and applicants that never became members.

Income from RIPE Meetings increased from 2006 and was just below the budgeted income for RIPE Meetings in 2007. During 2007, two RIPE Meetings were held and both were well attended.

Other income includes fees from the Test Traffic Measurement (TTM) Service, the DNS Monitoring (DNSMON) Service, EU Value Added Taxes (VAT) reclamations from 2006 submitted in 2007 and a revaluation of the Internet Corporation of Assigned Names and Numbers (ICANN) accrual. While DNSMON income increased by 30% from 2006 to 76 kEUR, the EU VAT reclamations in 2007 decreased due to the fact that the RIPE 53 Meeting in 2006 was held outside the EU in Istanbul, Turkey. Overall, other income decreased in 2007 compared to 2006.

Expenditures

Total expenditure in 2007 was on budget. In comparison to 2006, expenses were up by 17% as already planned in the 2007 budget. This is an effect of increased staffing, travel expenses, consultancy expenses and depreciation expenses. Personnel expenses have increased by 2% compared to the budget and by 21% compared to 2006. This is a result of increased staffing levels needed to cope with increased workload due to membership growth and industry developments. For the full year, 100.4 full-time Equivalents (FTEs) were employed compared to the 98.9 budgeted for in 2007 and 88.4 in 2006. The number of FTEs is calculated on the basis of the number of days (as defined by social security benchmarks) worked by employees.

General operating expenses were 1% below the 2007 budget. Compared to 2006, the general operating expenses increased by 23%. The main reasons for this increase were:

- Consultancy: +217 kEUR (increased use of consultants)
- Travel: +131 kEUR (increased external relations efforts)
- IT infrastructure: +87 kEUR (improvements to the RIPE NCC's network infrastructure)

RIPE Meeting expenses were above budget mainly due to high attendance at both the meetings held in 2007.

Costs for Training Services also increased in 2007. As locations for the RIPE NCC Training Courses are selected on the basis of membership developments, more training courses were held in the two countries with the most membership growth – Russia and the UK. Venues in these two countries are among the most expensive in the RIPE NCC service region.

Two RIPE NCC Regional Meetings were held during 2007, in Moscow, Russia and Doha, Qatar, compared to the three Regional Meetings held in 2006.

Financial expenses are comprised of bank charges and credit card charges. The number of transactions in 2007 increased compared to 2006 while the average banking charge remained the same in 2007.

Miscellaneous expenses consist of bad debts and RIPE NCC Personnel Fund contributions. Bad Debts were 144 kEUR in 2007. The RIPE NCC Personnel Fund Board and the RIPE NCC Executive Board reached an agreement to dissolve the fund in 2008 and that no contribution would take place in 2007.

On average, the amount of cash was similar to the amount in 2006 but due to an increase in interest rates and more efficient cash management the interest income increased by 30%. •

Notes to the RIPE NCC Balance Sheet as at 31 December 2007

General Information

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.

Fixed assets *(in kEUR)*	Computers	Infrastructure	Office equipment	SW Development
Bookvalue 1/1/2007	886	201	46	-
Purchase costs	446	217	60	295
Depreciation	537	133	34	24
Book value 31/12/2007	**795**	**285**	**72**	**271**

■ *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. Computers consist of hardware and purchased activated software. Upon the advice of the RIPE NCC's auditors and contrary to the interim reports presented at the two RIPE NCC General Meetings in 2007, depreciation is not depreciated over five years but for the actual period of use. Hardware is written off in three years and software is written off in two years. Infrastructure is written off in three years and office equipment in five years. All items under EUR 1,000 are considered to be an expense.

In 2007, the expenses, personnel and consultancy costs associated with software development were added as an intangible fixed asset. Intangible fixed assets are valued at historical costs and are depreciated on a straight-line basis, starting from the month after acquisition. Intangible fixed assets are written off in three years.

Current Assets

Accounts receivable at the end of 2007 increased in comparison to 2006. This is because of the fact that in 2006 the category included the rebate paid to members in 2007. In addition, the number of members increased in 2007.

The provision for bad debts is accounted for on the basis of a percentage of the accounts receivable. This percentage is an average over the past three years. Currently, this average is 2.5%.

Even though the RIPE NCC performs active investigations into extra payments and overpayments by members to the RIPE NCC, the total amount of extra payments and overpayments was 49 kEUR in 2007. This is reported as creditors.

Other debtors, such as Test Traffic Measurement (TTM) and DNS Monitoring (DNSMON) customers, accounted for 28 kEUR at year-end 2007.

Accounts receivable include those payments that could not be identified and attributed to any specific member. At year-end this amounted to 24 kEUR.
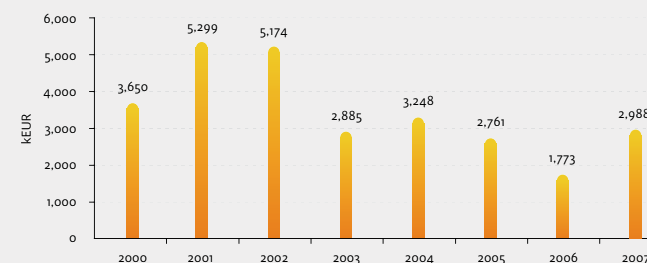

■ *Accounts Receivable*

Due to the high level of creditors, the outstanding amount of VAT receivable from the tax authorities has increased.

Miscellaneous receivable include pre-payments for rent, equipment, pension, health and deposits for RIPE Meeting venues. The RIPE NCC has a pension system of defined contribution with a pensionable age of 65 years, in accordance with Dutch fiscal requirements.

Other items listed under miscellaneous receivables are interest receivables, credit card payments to be received and payments in transit. In addition, miscellaneous receivables include a small inventory for the sale of K-root and Test Traffic Measurement (TTM) equipment.

■ *Fixed assets and intangible fixed assets*

Capital

The RIPE NCC has a tax-free ruling with the Dutch tax authorities. A surplus of up to three times the total amount of service fees received from members in a year can be deposited in a Clearing House. Excess amounts have to be redistributed to RIPE NCC members. Even though this limit was not reached in 2007, the Executive Board decided that the reserve exceeded the level necessary for securing financial stability and continued operations. So part of the Clearing House reserve was redistributed to members via a rebate on the 2007 service fees. The aim was to redistribute an amount of 2.5 million EUR. Due to closed members, the total amount of the rebate given to members was 2,459 kEUR.
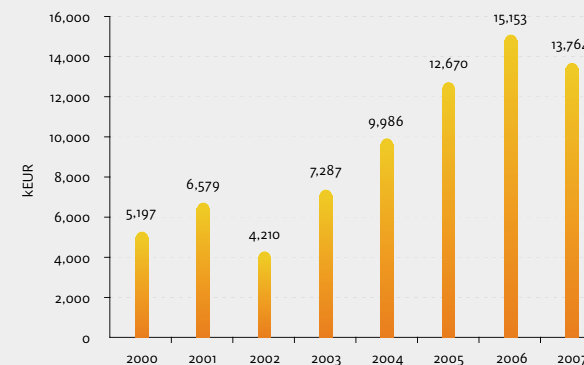
Current Liabilities

The 'Creditors' level increased as a result of several large purchases in December 2007 and outstanding payments for the rent of the RIPE NCC's office space.

The RIPE NCC has no outstanding credit notes with suppliers. Therefore, there was no correction to accounts receivable from creditors at year-end.

The unearned revenues consist of invoices sent in 2007 but pertaining to 2008. The main reason for the increase in unearned revenues included the rebate given to members in 2007. In addition, the membership has grown from 4,722 to 5,369 members, which increased the level of unearned revenues at year-end 2007.

Wage Taxes and Social Securities

The increase in the wage taxes and social securities category at year-end 2007 versus year-end 2006 is due to an increase in the number of staff employed at 31 December 2007.

Miscellaneous Payable

The miscellaneous payables include the accrued holiday days for employees. This amount is based on the number of outstanding vacation days at 31 December, 2007 valued at the December 2007 salary. In the course of 2007, payments were made to the Internet Corporation for Assigned Names and Numbers (ICANN) and therefore the accrued ICANN contribution decreased over the year.

■ *Miscellaneous payable*

Miscellaneous payable *(in kEUR)*	31/12/2007	31/12/2006
Accrued ICANN contribution	716	815
Holiday allowance/holiday days	437	344
Other payables	85	98
Total miscellaneous payable	**1,238**	**1,257**

Items not shown in the balance sheet

The RIPE NCC rents office space in two buildings and has separate rental agreements for these. These rental agreements were re-negotiated in 2005 and have been extended until December 2009. For these rental agreements, two bank guarantees were issued for an amount of 132 kEUR.

At 31 December 2007, the RIPE NCC had no financial liability or obligation towards the Number Resource Organization (NRO). All items were settled before year-end 2007. There was no material interest in the NRO that needs to be noted in this financial statement.

Cash Flow *(in kEUR)*

Begin Cash Balance 1 January 2007	**€ 18,771**

Cash Inflow

Service fee	€ 11,240
TTM/DNSMON	€ 130
RIPE Meetings	€ 199
Interest received	€ 410
Other	€ 241
Total Inflow	**€ 12,220**

Cash Outflow

Salary	€ 3,483
Wage tax and social security	€ 2,254
Pension and health	€ 719
RIPE Meetings and Regional Meetings	€ 303
Creditors	€ 4,796
Total Outflow	**€ 11,555**
Total Cash Inflow Balance	**€ 665**
End Cash Balance 31 December 2007	**€ 19,436**

■ *Cash Flow*

All amounts are expressed in kEUR. Foreign currencies are converted at the daily exchange rate at the date of transaction or valuation. The cash flow overview reflects the increased income received from membership service fees and the expected cash outflow to cover expenses. The RIPE NCC's cash management is based on the basic principle of securing the maximisation of interest income. The cash is held in several deposit accounts and is spread evenly between three different banks. The cash is completely liquid apart from two different year-deposit accounts for a total amount of 5 million euro. The RIPE NCC's cash flow was positive over 2007 and at year end the cash reserve amounted to 19,436 kEUR. ●

KPMG

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Auditor's report

Introduction

We have audited the accompanying financial statements of Réseaux IP Européens Network Coordination Centre, Amsterdam, for the year 2007 which comprise the balance sheet as at 31 December 2007, the profit and loss account for the year then ended and the notes, as set out on pages 34 to 40. These financial statements are the responsibility of the company's management. Our responsibility is to express an opinion on these financial statements based on our audit.

Scope

We conducted our audit in accordance Dutch Law. This law requires that we plan and perform the audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements.

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 statements 2007 of Réseaux IP Européens Network Coordination Centre, as set out on pages 33 to 40, have been prepared, in all material respects in accordance with the accounting policies selected and disclosed by the company, as defined in the notes of the financial statements.

Other matters

The financial statements 2007 of Réseaux IP Européens Network Coordination Centre, as set out on pages 34 to 40, and our auditor's report thereon are intended solely for the members of the Réseaux IP Européens Network Coordination Centre and are not suitable for other purposes.

Amstelveen, 1 April 2008

KPMG ACCOUNTANTS N.V.

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