RIPE NCC Annual Report 2000

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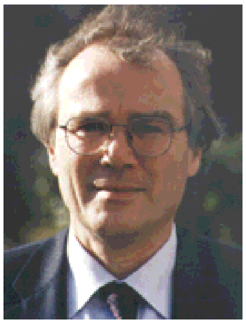
Foreword



Kees Neggers
Executive Board Chair

The RIPE NCC is a good example of Internet self-regulation at work: bottom-up policy development in the open RIPE meetings and professional service provision throughout the RIPE NCC Association.

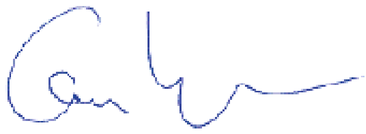
In doing so, the RIPE NCC maintains relations with an ever-growing community of stakeholders, industry bodies and non-traditional players such as governments and the European Parliament. The RIPE NCC actively reaches out to these groups to explain the proven and long standing governance structures and to include them in the existing registry process.

The cumulative achievements outlined in this report demonstrate the ability of the RIPE NCC to fulfil its duties as a Regional Internet Registry, to provide quality services to its members, and to adapt to the changing industry requirements. In the area of Internet administration, the RIPE NCC will continue to support the Internet Corporation for Assigned Names and Numbers (ICANN).

In the new millennium, the RIPE NCC anticipates further exciting challenges in addressing the ever changing demands of the Internet community. New technologies and Internet services continue to emerge, increasing the significance of the Internet as an integral part of daily life. A major task ahead for the coming years will be the large-scale introduction of IPv6.

I am confident that the RIPE NCC is ready for these challenges and will strengthen its reputation as a stable body and integral to Internet administration.

Kees Neggers



Executive Board Chair

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Report from the Managing Director

Summary

Axel Pawlik
Managing Director

The last year was a momentous period for the RIPE NCC, as the content of this report illustrates. The RIPE NCC membership surpassed the progressive growth projections announced in the 1999 Annual Report, experiencing its largest-ever growth of new members in 2000. This has brought the number of Local Internet Registries (LIRs) to a year-end total of 2,567.

The RIPE NCC operations have been faced with an increased strain on staff and facilities and were challenged to deploy further resources to meet membership needs. The staff has grown to 66 members and remains a very international group comprised of 22 nationalities. I would like to thank them all for their commitment, providing professional services to the membership in 2000.

The membership expressed its full and strong support for the RIPE NCC activities during the annual General Meeting (GM) held on 24 October 2000. Among the results of the meeting, the RIPE NCC Activities, Expenditures and Charging Scheme 2001 was unanimously approved.

Outlook 2001

In the year 2001, the RIPE NCC will further concentrate on the provision of professional and high quality services and develop new activities that are requested by the membership and the RIPE community. Registration Services will continue to receive extra attention, as it is a core service of the RIPE NCC operations. A primary goal in this area is the reduction of the wait queue. The RIPE NCC will introduce new tools and improve documentation to facilitate ease of communication with Local Internet Registries. Additional effort will be extended to produce statistics of resource consumption.

The RIPE NCC will launch a completely new version of the RIPE Whois Database software that includes the migration from the RIPE-181 routing registry format to the new Routing Policy Specification Language (RPSL) as well as additional security features. The Test Traffic Measurements (TTM) network will be significantly extended over the course of 2001 and further developed as a RIPE NCC service. The RIPE NCC will introduce a project on Deployment of Internet Security Infrastructure (DISI). A component of this project will include investigating the requirements to deploy secure DNS. The RIPE NCC internal infrastructure will be upgraded to support new and existing activities and ensure efficient and accessible services.

The ICANN Address Supporting Organisation (ASO) secretariat, which rotates to one of the three RIRs every year, will be handed over to the RIPE NCC in 2001 by the Asia Pacific Network Information Centre (APNIC). The RIPE NCC will continue to strongly support the efforts of the emerging Regional Internet Registries (RIRs) in close co-operation with the other established RIRs.

Finally, during this year, we look forward to continue working on the solid foundation of the RIPE NCC principles of neutrality, impartiality and openness to serve the Internet community and especially the RIPE NCC membership.

Axel Pawlik

Managing Director

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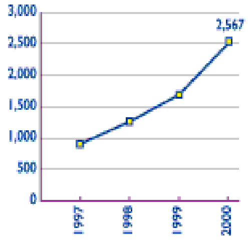
RIPE NCC Background and Overview

The RIPE Network Coordination Centre is an association of 2,567 members (as at 31 December 2000), primarily comprised of Internet Service Providers (ISPs), telecommunication organisations and large corporations. It provides services to members in 85 countries out of the 109 countries in its service region. Its services and co-ordination activities support the operation of the Internet infrastructure. The infrastructure, however, is not operated by the RIPE NCC; this falls within the realm of the activities of its membership, among others.

Membership Growth 1997-2000



The mission of the RIPE NCC is to perform activities for the benefit of the membership, primarily activities where the members need to organise as a group, although they may be competing with each other in other areas. While an activity may result in services being provided to an individual member, performing the activity as a whole must benefit the RIPE NCC membership as a group. Membership is open to anyone using the RIPE NCC services.

Other Regional Registri

- APNIC
  http://www.apnic.ne
- ARIN
  http://www.arin.net

As the Internet grew, the need for a neutral and impartial organisation to co-ordinate the RIPE community operating in an industry self-regulatory manner was identified. The RIPE NCC emerged from Réseaux IP Européens (RIPE) and started operations in April 1992. RIPE continues to play an influential role in the further development and formalisation of Internet administration in the RIPE NCC service region.

The RIPE NCC, established as an independent association, is one of three existing Regional Internet Registries. Its service region incorporates Europe, the Middle East, Central Asia and African countries located north of the equator (see map below). The other RIRs are APNIC, serving the Asia Pacific region, and ARIN, serving North and South America, the Caribbean and African countries located south of the equator. The map below depicts the RIPE NCC service region. A detailed map of the RIR service regions can be found at:

http://www.ripe.net/region-maps/

The RIPE NCC organisational structure consists of:

- Members who vote on issues during the Annual General Meeting and provide general input through participation at open RIPE meetings.

- An Executive Board appointed by the RIPE NCC membership.
- RIPE NCC staff.

The Executive Board includes individuals with expertise in the Internet community and represents the various interests of the members and the RIPE NCC service region as a whole. The RIPE NCC Executive Board members in 2000 were: Kees Neggers (Chair), Wim Vink (Treasurer), Mike Norris (Secretary), Frode Greisen (ASO Liaison) and Nigel Titley.

The activities and services of the RIPE NCC are defined, performed, discussed and evaluated in an open manner. The RIPE community mainly suggests new activities and results of activities are made available to the public. The budget as well as actual income and expenditures are published. Data submitted by its members for operational use are however kept in strict confidence. In all of its activities, the RIPE NCC observes strict neutrality and impartiality with respect to individual members.

The core activity of the RIPE NCC is to act as the Regional Internet Registry in its service region, providing global Internet resources and related services. The RIPE NCC also provides services for the benefit of the Internet community at large, including development and maintenance of the RIPE Whois database. Other activities include the administrative support for the RIPE community and the research and co-ordination of new projects. All activities and projects are described in the annual activity plan and budget that are approved by the membership. The RIPE NCC Activities and Expenditures 2000 can be found at:

http://www.ripe.net/ripe/docs/ripe-197.html

As the graph (*Top Ten Countries with New LIRs in 2000*) shows, the significant growth of new Local Internet Registries experienced in past years continued in 2000. Of the 2,567 members at the end of 2000, the net growth of members was 871, representing a record growth when compared to previous years. The chart (below) illustrates the actual membership figures of small, medium and large LIRs for the past two years as well as the projected membership for 2001. More information about the RIPE NCC is available at:

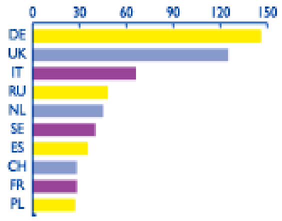
http://www.ripe.net/ripencc/about/

Actual and Projected Membership

	Actual		Projected *
	1999	2000	2001
Small	1,257	1,978	2,475
Medium	346	459	413
Large	93	130	81
Total	**1,696**	**2,567**	**2,969**

** The projection is as at September 2000*

Top Ten Countries wit
New LIRs in 2000



Germany	146
UK	125
Italy	66
Russia	48
Netherlands	45
Sweden	40
Spain	35
Switzerland	28
France	28
Poland	27

New Countries Served

ISO Code	Country
ET	Ethiopia
ML	Mali

* Countries are shown as found in the ISO 3166 country code list

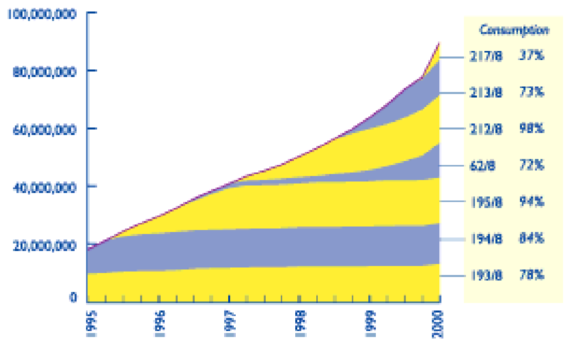
RIPE NCC Services and Projects

Registration Services

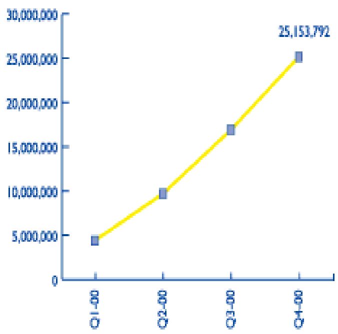
The main activity of the RIPE NCC as a Regional Internet Registry is to provide registration services to its members. The overall goal is to provide the fair distribution of global Internet resources required for the stable and reliable operation of the Internet.

The most prominent services are the assignment and allocation of IP address space, inter-domain routing identifiers (currently BGP autonomous system numbers) and the management of reverse domain name space (currently in-addr.arpa and ip6.int). These areas of activity also include auditing and quality control of IP requests, training of LIRs and producing documentation related to registration activities. The tasks ensure fair and expedient distribution of the resources. These criteria are further applied when members, acting as LIRs, provide registration services to their customers.

IPv4 Address Space Usage, 1995-2000



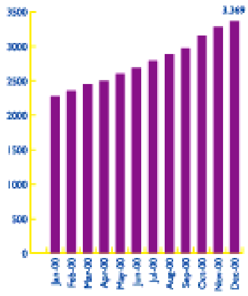
Total IPv4 Allocations in 2



The RIPE NCC processed a total of 21,964 resource requests in the past year and allocated more than 25,000,000 addresses to its members. A request for additional address space was submitted to the Internet Assigned Numbers Authority (IANA), resulting in the allocation of the address block 217/8 to the RIPE NCC in June 2000. From this range, 38% was allocated to LIRs in 2000. As shown in the graph below, 1,145 Autonomous System numbers were assigned to LIRs in 2000, an

Cumulative AS Numbe
to 2000

Autonomous System numbers were assigned to LIRs in 2000, an average of approximately 95 ASNs/month.



A total of 13 IPv6 allocations were made to members in the RIPE NCC service region in 2000, adding a total of 24 sub-TLA allocations. At the end of year 2000, a total of 58 sub-TLA allocations had been made globally. An overview of IPv6 allocations made worldwide can be found at:

http://www.ripe.net/cgi-bin/ipv6allocs

Development of the joint RIRs' IPv6 policy was discussed intensely at RIR meetings throughout the year. Most of the debate was centred on the issue of IPv6 assignment sizes. The RIRs worked together with their respective communities and the IETF to combine the technical specifications and the needs of the ISPs. Recommendations for a standard assignment size have been presented by the IETF to the various Internet communities. However, many issues remain open and will undergo further debate in 2001.

The current IPv6 policy document can be found at:

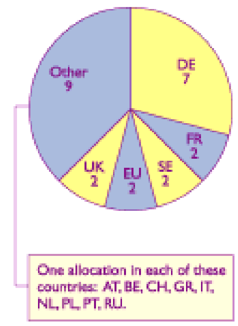
http://www.ripe.net/ripe/docs/ripe-196.html

Total IPv6 Allocations Per Region in 2000

RIR	sub-TLAs
RIPE NCC	24
APNIC	22
ARIN	12
Total	58

Due to the sharp increase in the number of members, coupled with challenges to find resources to meet this growth, the RIPE NCC experienced a notable increase in the wait queue. This issue was addressed at the RIPE 36 Meeting and a task force was formed to provide input on the needs and wishes of the Internet community. Recommendations from the task force were considered when the RIPE NCC adapted procedures to accommodate the changes in membership needs. This evaluation also resulted in the membership acquiring a better insight into the procedures of the RIPE NCC registration services.

Total RIPE NCC IPv6 Allocations up to 2000



Responding to the expressed demand for easily accessible information, several measures were taken to improve the documentation on the RIPE NCC website.

- The set-up process for new LIRs has been improved through enhanced automation and additional, comprehensive documentation.
- A "Tips" page was written with useful tips and advice on how to complete IP Address and AS Number request forms.
- An extensive Frequently Asked Questions (FAQ) section was developed on the website.
- External documentation on the website was reviewed and improved.

The creation of a helpdesk mailbox <*lir-help@ripe.net*> further enhanced efficiency in information dissemination and increased support for members. This mailbox provides a faster channel for shorter questions and gives priority to members.

A Tools Birds of a Feather (BoF) at RIPE meetings gave members an opportunity to further communicate requirements for tools needed to work effectively with the RIPE NCC. RIPE NCC members were able to demonstrate and share internal tools related to the assignment and allocation of IP addresses.

- A database consistency tool "Asused-public" was released, providing both a web and mail interface.
- An AS number request robot was released.

The public member tools can be found at:

http://www.ripe.net/ripencc/mem-services/tools/index.html

The "Hostmaster Centre" introduced at the RIPE 37 Meeting in September 2000 proved to be a success and will be made available for LIRs attending future RIPE meetings. The networked Hostmaster Centre created an opportunity for members to consult Hostmasters one-on-one with any questions related to their operations with the RIPE NCC.

In 2000, new LIR Training Course material was successfully launched and a reference booklet was developed to complement the course material and to provide further support to the LIRs. The RIPE NCC increased the number of training courses in 2000, holding 41 LIR Training Courses in 24 different countries. A total of 919 attendees from various LIRs throughout the membership were trained. The maximum number of participants for a course was increased from 20 to 30 persons to meet the high demand for training courses from a rapidly growing membership base. This change was monitored by the RIPE NCC Trainers to ensure that the increase in enrolment did not have an adverse effect on the quality of the services provided.

In addition to the LIR Training Courses given, IP request tutorials were introduced at RIPE meetings in 2000. These tutorials contained basic material selected from the current course material and were open to all RIPE meeting participants.

Further information about the LIR Training Courses can be found at:

http://www.ripe.net/ripencc/mem-services/training/

Cities where LIR Training Courses were held in 2000

Amman, Amsterdam, Ankara, Athens, Berlin, Budapest, Cairo, Copenhagen, Dublin, Florence, Geneva, Hamburg, Helsinki, Kiev, Krakow, Lisbon, London, Madrid, Moscow, Paris, Prague, Rome, Riyadh, St. Petersburg, Stockholm, Tel Aviv and Vienna.

The RIPE NCC adheres to Internet resource policies developed by community consensus in the RIPE LIR-WG. One of the fundamental responsibilities of the RIPE NCC is to ensure that all policies are developed in an open and transparent manner. Through open discussions at RIPE Meetings and on mailing lists, consensus for the following policy changes was reached:

- A discussion that raised the question whether name-based web hosting should be made mandatory where technically feasible resulted in a policy strongly discouraging IP-based web hosting.
- Effective 1 August 2000 the minimum allocation size was reduced from a /19 to /20.

RIPE NCC Hostmasters at work

These proposals were co-ordinated with the other RIRs and new policies now exist in all three RIR regions. On request from the RIPE community, the RIPE document "Size of Smallest Allocations in CIDR Blocks Allocated by the RIPE NCC" was published.

The document is available at:

http://www.ripe.net/ripe/docs/ripe-211.html

Participants during an LIR Training Course

Service provision and policies are continuously being co-ordinated with the other RIRs and these efforts have intensified over the last years through increased communication, attendance by all RIRs at respective open policy meetings, sharing of information and common evaluation of requests. Efforts have been made to align policies globally where possible, although there will naturally be certain differences due to different needs and markets in the regions.

More information about Registration Services can be found at:

http://www.ripe.net/ripencc/mem-services/registration/

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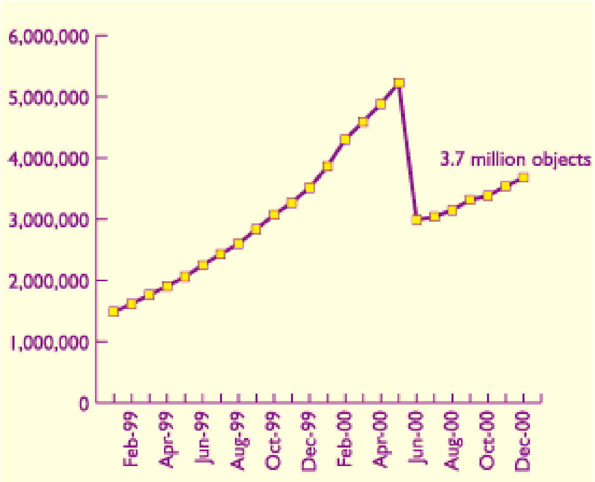
Database Services

Another prominent activity of the RIPE NCC is the operation and maintenance of the RIPE Whois Database and the implementation of new database functionality requested by the Internet community. This database provides information about address space, in-addr.arpa, routing policy and contact information. The RIPE Whois Database can be queried at:

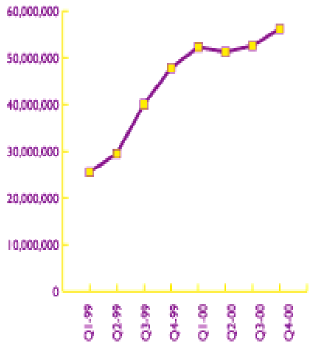
whois -h whois.ripe.net or *http://www.ripe.net/db/whois.html*

During 2000, the number of objects in the database continued to grow and reached 5.5 million by the end of the second quarter. In the second half of 2000, all domain objects under the .de Top Level Domain (TLD) were migrated from the RIPE Database to the German ccTLD registry (DENIC). The ccTLDs for .be, .ro and .fr followed suit. This resulted in a sharp decrease in the number of objects in the RIPE Database to approximately 3.0 million. By the end of the year, there were 3.7 million objects in the database. The following graph illustrates the change in the number of objects over the past two years.

Objects in the RIPE Whois Database, 1999-2000



Whois Queries 1999-20



Due to the migration of the domain objects, the number of updates first increased reaching 900,000 per month and then slowed down to less than 200,000 per month. The migration of the country code domains and related objects is still in progress. A number of ccTLD registries have completed the first phase of the migration (domain objects only), other ccTLD registries are planning the migration for 2001. A result of the first phase of the migration is that almost 80% of person objects that made up three-quarters of the database by the end of 2000 were not referenced from any other database object. This is expected to change over the course of 2001.

The increase in the number of queries in 2000 was less significant than in 1999. This is a result of many factors such as the increase in monitoring efforts placed on excessive queries, the migration of the domain objects and improved response time for updates to the database.

In 2000, the RIPE NCC continued working on the re-implementation of version 3 of the database software. The work is near completion and the transition to the new database system will take place in the first half of 2001. Currently, the RIPE database system uses the language known as RIPE-181 for routing registry objects. The new language, called RPSL (Routing Policy Specification Language) described in RFC 2622, defines an extended syntax for all database objects, mainly for the routing registry objects (aut-num, route, inet-rtr, etc.). Many new features have been implemented in this new version of the database software such as Routing Policy System Security support specified in RFC 2725, fast IP lookups and automatic access control.

The transition is a complex process as the new version of the RIPE database will be deployed at one time. Many objects in the RIPE database will be modified to make them RPSL compliant and are subject to change in the future.

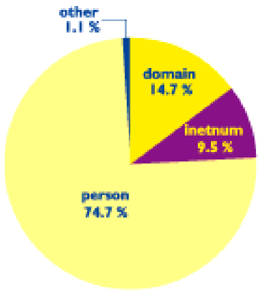
The RIPE NCC will make the migration to RPSL as smooth and easy as possible. More information about the migration to the new version of the RIPE database is available at:

http://www.ripe.net/rpsl/

In addition to these developments, the RIPE NCC continues to provide user support and monitor the data quality in order to maintain current data in the database. Training has been a part of the database support activities. An RPSL tutorial was delivered at the INET-2000 Conference held in Yokohama, Japan. Database training also comprises a significant part of the LIR Training Course. More information about Database Services can be found at:

http://www.ripe.net/ripencc/pub-services/db/

RIPE Database Contents Distribution
by object type (end of 2000)



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DNS Services

Associated with the assignment of address space is the setting up of the appropriate entries in the DNS to enable the reverse mapping of the addresses. This remains the primary DNS activity carried out by the RIPE NCC.

A new request-processing software was installed early in 2000 and reduced the workload on human administrators significantly while improving the response quality.

More information about reverse delegation is available at:

http://www.ripe.net/reverse/

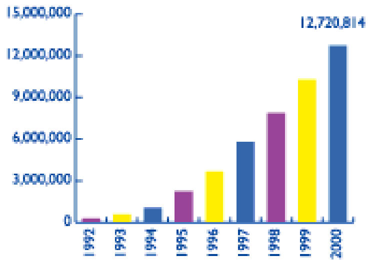
At the end of 2000, the RIPE NCC was providing a stable secondary DNS name service to 74 country code top-level domains and several second-level domains, continuing its policy of providing this service to any ccTLD upon request.

The RIPE NCC is also responsible for the operation of one of the DNS root name servers which is physically located at and operated in co-operation with the London Internet Exchange (LINX).

Since 1992, the RIPE NCC has been reporting on the growth of the Internet in its service region via the monthly RIPE Region Hostcount. All of the DNS zones under the Country Code Top Level Domains (ccTLDs) in the RIPE Region are examined. The RIPE NCC publishes summary statistics derived from this data.

During 2000, the number of hosts registered in the DNS for the RIPE NCC service region increased by more than 2,443,000 to almost 12,721,000, an increase of 24 percent.

DNS Hostcount, 1992-2000



More information about the Hostcount is available at:

http://www.ripe.net/hostcount/

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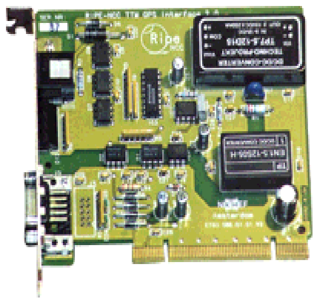
Test Traffic Measurements (TTM)

The Test Traffic Measurements service is designed to measure, reliably and impartially, end-to-end performance characteristics of the inter-provider Internet. This is achieved by installing so-called test-boxes at participating ISPs. These test-boxes send measurement traffic to each other. From this traffic, packet-losses and network delays are determined according to the metrics developed by the IETF IP Performance Metrics Working Group (IPPM-WG). As the RIPE NCC has an established track record of neutrality and impartiality, it is an ideal organisation to perform such measurements in a trusted way.



Interface board for the Trimb receivers, developed in collab with NIKHEF

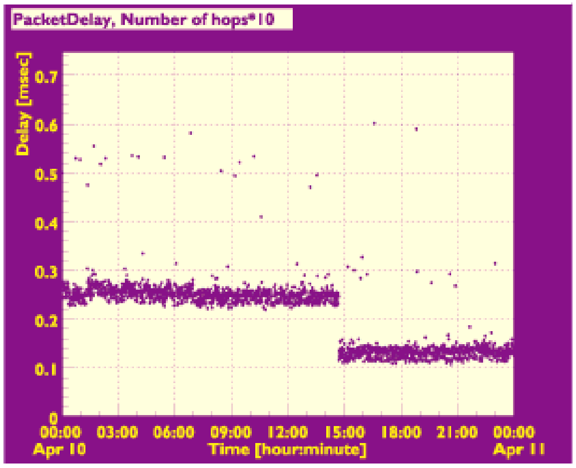
Since 1998, the RIPE NCC has proven that it can reliably measure performance characteristics of the Internet on a large scale. In 1999, the RIPE NCC annual General Meeting (GM) therefore asked to move TTM from an experimental project to a service offered to the entire Internet community. The preparations for this change started early in 2000 and in October the RIPE NCC TTM service was announced to the public.

Under the TTM service, any site interested in these measurements can buy one or more test-boxes against cost from the RIPE NCC. At the same time the site can also purchase a service contract from the RIPE NCC. Under the terms of the service contract, the RIPE NCC will operate the test-box and analyse and present the data collected with the test-box. The service contract and related policies will be developed further in close collaboration with the RIPE Test Traffic Working Group (TT-WG) in 2001.

The first test-boxes operated under this service contract were shipped to customers late in 2000. The RIPE NCC is currently in contact with several potential customers interested in deploying a large number of test-boxes and a publicity campaign will start at the RIPE 38 Meeting in 2001. It is expected that the number of test-boxes will grow from 50 at the end of 2000 to 150 in 2001.

With the introduction of this service, the RIPE NCC became the first organisation to offer tools for production end-to-end performance measurements on the Internet to the entire Internet community.

In parallel with the introduction of the TTM service, the RIPE NCC worked on improving both the hardware and software on test-boxes as well as the presentation of the data. The most important improvement was the development of a new GPS sub-system, used to synchronise the internal clock of the test-boxes. Major improvements were made to the infrastructure needed for the support of several hundreds of test-boxes.



Network delay between two test boxes as a function of time. Around 15:00, the network between the two boxes was upgraded and this is clearly reflected in the plot.

The data collected with the test-boxes are analysed at the RIPE NCC. The presentation of the data as well as services based on the data are being developed in close collaboration with the RIPE TT-WG. In 2000, work concentrated mainly on the presentation of the data although several other analytic studies were initiated, including long-term trend analyses of the data and the development of a metric to summarise and rank network performance. First results of these studies were presented at the RIPE TT-WG meetings. In 2001, these studies will continue and products based on these studies will be developed.

Several university research groups have shown interest in analysing the TTM data; their studies will be presented at the RIPE TT-WG meetings and possibly turned into products in 2001.

More information about Test Traffic Measurements is available at:

http://www.ripe.net/test-traffic/

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Routing Information Service (RIS)

The Routing Information Service has been established to collect inter-provider routing information at interesting points in the Internet infrastructure in near real time, time-stamp the information and store it in a database. The information produced by the RIS will be a major improvement over the current "looking glass" technology and will support ISPs in their operations.

A first prototype of the RIS was presented at the RIPE 35 Meeting. This prototype collected data at one location from a handful of peers. In the course of 2000, the collection software was improved and the RIS is now routinely collecting data at two locations, Amsterdam (RIPE NCC, approximately 15 peering sessions with sites all over the world) and London (LINX, approximately 27 peering sessions with LINX members). Two more collection points will be installed in early 2001, in Amsterdam (AMS-IX) and Paris (SFINX). In order to cope with the increased amount of data, a dedicated database machine for the RIS was installed.

The RIS database can be queried online via several web-forms. More query possibilities will be added based on user feedback in the RIPE Routing Working Group in 2001.

In order to provide information showing the development of Internet routing over time, a project was started to extract the relevant parameters from the RIS database and present them on the RIS website. After receiving positive feedback from the community, this project will be implemented in 2001. Other applications of the RIS data include the Routing Registry Consistency Check project, described below, as well as statistical analysis for scientific research projects.

Further information about the Routing Information Service can be found at:

http://www.ripe.net/ris/

Routing Registry Consistency Check (RRCC)

In 2000, the RIPE NCC started a new project named "Routing Registry Consistency Check". The project is designed to help identify, correct and keep up-to-date the routing data in the RIPE database. A coupling to the RIPE NCC address assignment activities is also an objective of this activity. The idea is to compare the actual state of the Internet routing tables with the information contained in the RIPE routing registry, and thus lead to an improvement in the operational value of vital information in the RIPE routing registry. The prototype of the system is to be delivered in the first half of 2001.

Code comparing the RIS data with the RIPE database has been written and some statistics on the current quality of the RIPE routing data have been generated. Additionally, a prototype server has been built that allows the operators of an AS to compare the routing entries for their specific networks with the advertisements they currently make. The RIPE NCC will present this to the RIPE community to seek their input and direction at the RIPE 38 Meeting in January 2001.

More information about the Routing Registry Consistency Check is available at:

http://www.ripe.net/ripencc/pub-services/db/rrcc/

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The RIPE NCC in the Internet Industry

The Regional Internet Registries are active in areas of new and existing technologies that require Internet resources. In 2000, the RIPE NCC initiated dialogue with various parties, including governments and industry groups as the awareness of issues surrounding the administration of Internet resources increased. During the course of 2000, the RIPE NCC met with Members of the European Parliament from six countries and extended its involvement with the European Commission and national governments. In addition, the RIPE NCC participated in numerous forums, leading to closer working relations with traditional partners in the industry and securing new relations with organisations driving new technologies.

The three Address Coun
members from the RIPE N
service region in 2000 we

- Sabine Jaume *(RENATER, France)*
- Hans Petter Holen *(SOL System, Norwa*
- Wilfried Wöber *(Vienna University, Austria).*

A main goal of these efforts is to promote the industry self-regulatory structures that have been developed over many years by the RIPE community and the RIPE NCC membership. This approach has also proven essential in embracing non-traditional players and facilitating industry convergence. The long-standing processes that exist in the

RIPE region proved to be flexible and open enough to incorporate these new developments.

The RIPE NCC is trusted by industry partners to provide professional services in a neutral and impartial manner. In 2000, the RIPE NCC was approached to take on new activities to further support the developing Internet infrastructure. As a result, the Internet Assigned Numbers Authority (IANA) has delegated the responsibility for the e164.arpa zone to the RIPE NCC following recommendations made by the Internet Architecture Board (IAB). More information about ENUM and the e164.arpa domain can be found at:

http://www.ietf.org/rfc/rfc2916.txt

In 2000, the RIPE NCC continued its commitment to the ICANN process and worked together with the ASO Address Council members gathering input from the RIPE community to advise ICANN.

The RIPE NCC was pleased to host the first ASO General Assembly Meeting in conjunction with the RIPE 36 Meeting held in Budapest, Hungary on 19 May 2000. Following a meeting with an ICANN Government Advisory Council (GAC) member, it was suggested that a presentation of the Regional Internet Registry System be made to the ICANN GAC. This was done in close co-operation with the other RIRs at the ICANN meeting held in Marina del Rey, USA on 14 November 2000.

Among the ASO activities carried out jointly by the RIRs was the submission of a document titled "Criteria for the Establishment of New Regional Internet Registries" to ICANN designed to be used as a reference outlining the criteria for establishing a new RIR. The RIPE NCC also participated in the open meetings organised by the two emerging RIRs, AfriNIC (African Network Information Centre) and LACNIC (Latin American and Caribbean Network Information Centre), and offered its full support in their development. Further information about these organisations can be found at:

AfriNIC: http://www.afrinic.org/

LACNIC: http://www.lacnic.org/

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RIPE

RIPE (Réseaux IP Européens) is a collaborative forum open to all parties interested in wide area IP networks. The objective of RIPE is to ensure the administrative and technical co-ordination necessary to enable the operation of the Internet in the RIPE region. There are no membership requirements for participation in RIPE and activities are performed on a voluntary basis.

The RIPE community is the most important source of public input for the RIPE NCC. RIPE also plays an influential role in developing the annual activity plan of the RIPE NCC. The RIPE NCC provides administrative support for RIPE and facilitates the organisation of RIPE meetings. The main purpose of the RIPE meetings is to discuss technical and policy issues affecting Internet administration and operation in the RIPE NCC service region and beyond. These meetings are held three times per year and are open to the public. More information about RIPE meetings can be found at:

http://www.ripe.net/ripe/meetings/

Discussions at RIPE meetings range from technical matters such as DNS, routing and databases to policy issues affecting Internet administration such as IP address assignments and allocation policies. To further support the RIPE community, the RIPE NCC administers the RIPE mailing lists and web site to allow for open public debate and information dissemination of relevant Internet issues important to the RIPE community.

In 2000, the RIPE NCC was approached by the mobile telephony industry with concerns about IP address space for their network infrastructure. The open structures of RIPE again proved to be invaluable in bringing together industry players and providing an ideal platform for the exchange of knowledge. One important result was the consensus building surrounding the convergence of mobile telephony and Internet technology.

The following RIPE Meetings were held in 2000 *:

RIPE 35	22-25 February	Amsterdam
RIPE 36	16-19 May	Budapest
RIPE 37	12-15 September	Amsterdam

** A total of 1,126 participants attended the RIPE Meetings during 2000*

More information about RIPE is available at:

http://www.ripe.net/ripe/

Rob Blokzijl (RIPE Chair) engaged in discussion with participants at RIPE 36

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Financial Report 2000

AUDITOR'S REPORT

Introduction

We have audited the financial statements of Réseaux IP Européens Network Coordi-nation Centre (RIPE NCC), Amsterdam, for the year 2000. These financial statements are the responsibility of the management of the association. Our responsibility is to express an opinion on these financial statements based on our audit.

Scope

We conducted our audit in accordance with auditing standards generally accepted in the Netherlands. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatements. 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 financial statement presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

Opinion

In our opinion the financial statements give a true and fair view of the financial position of the association as at 31 December 2000 and of the result for the year ended in accordance with accounting principles generally accepted in the Netherlands.

Amsterdam, 10 July 2001

Horlings, Brouwer & Horlings

Registeraccountants

BALANCE SHEET (in k EUR)

ASSETS	31/12/2000		31/12/1999	
Fixed Assets				
Computers	461		299	
Infrastructure	179		174	
Office Furniture	66		75	
Total Fixed assets		**706**		**548**
Current Assets				
Receivables	5,181		3,324	
VAT	15		-19	
Prepaids	579		230	
		5,775		**3,535**
Cash & payments in transit		**5,934**		**3,803**
Total		**12,415**		**7,886**
LIABILITIES				
Capital				
Reserves	477		477	
Clearing House	2,248		732	
Surplus	2,472		1,516	
		5,197		**2,725**
Current Liabilities				
Creditors	766		118	
Unearned revenues	5,621		4,391	
Personnel fund payable	498		333	
Miscellaneous payable	333		319	
		7,218		**5,161**
Total		**12,415**		**7,886**

STATEMENT OF INCOME AND EXPENDITURES (in k EUR)

	2000		1999	
INCOME				
Fees	7,982		5,718	
Other Income	233		122	
Total Income		**8,215**		**5,840**
EXPENDITURES				
Operating expenses	5,149		3,650	
Depreciation expense	503		343	
Total Expenses		**5,652**		**3,993**
Surplus before miscellaneous costs		**2,563**		**1,847**
Miscellaneous costs				
Doubtful debts	50		0	
Personnel fund	165		332	
Total miscellaneous costs		**215**		**332**
Financial expenses				
Banking expenses	16		25	
Bank interest	-158		-32	
Exchange rate differences	18		6	
Total financial expenses		**-124**		**-1**
NET SURPLUS		**2,472**		**1,516**

Notes to the RIPE NCC Balance Sheet as per 31 December 2000.

GENERAL INFORMATION

All amounts are expressed in kEUR and all currencies participating in the European Monetary Union are converted at the official rate as set by the European Central Bank on 31 December 1998. Historic costs have been used throughout unless otherwise stated.

FIXED ASSETS	31/12/2000	31/12/1999
Computers		
Purchase costs	940	460
Less: depreciation	-479	-161
Book value 31-12	**461**	**299**
Infrastructure		
Purchase costs	802	633
Less: depreciation	-623	-459
Book value 31-12	**179**	**174**
Office Furniture & Equipment		
Purchase costs	112	99
Less: depreciation	-46	-24
Book value 31-12	**66**	**75**
Total Fixed Assets at book value	**706**	**548**

Assets are valued at historical costs and are depreciated on a straight-line basis, starting in the month after acquisition. Computers are written off in two years, infrastructure is written off in three years and office furniture and equipment in five years. All items under EUR 1,000 are expensed. Because the computers are written off in two years instead of three years, the depreciation increases by an extra EUR 16,950.

CURRENT ASSETS	31/12/2000	31/12/1999
Receivables		
Receivables 31 December	5,201	3,374
Less: Bad debts/Credit notes	-20	-50
	5,181	**3,324**
	31/12/2000	31/12/1999
Prepaid rent & other expenses	348	53
Prepaid pensions & health	231	177
Prepaids	**579**	**230**

CAPITAL

The reserves are accumulated surpluses of previous years until 1998. They are not earmarked for any specific purpose.

The surpluses of both 1998 and 1999 have been allocated to the Clearing House by a decision of the Executive Board. This amount may be redistributed to the members if so decided by the Executive Board. The tax ruling between the RIPE NCC and the Dutch tax authorities allows the RIPE NCC to accumulate up to a maximum of three times the members' annual contributions in the Clearing House account. The first year of operation of the Clearing House was 1998.

CURRENT LIABILITIES

Unearned revenues
The unearned revenues consists of invoices sent in the calendar year but pertaining to the following accounting year. These will be recognised as income during the next accounting year.

Personnel Fund
The Personnel Fund expense was calculated using the number of people with employment contracts of indeterminate time working at the RIPE NCC as at 31 December 2000. The amount includes allowances for vacation pay, the pension and year end payment as well as the employer's part of the social premiums payable. The 2000 contribution to the fund was EUR 165,220.

Miscellaneous payables	31/12/2000	31/12/1999
Accruals	188	165
Accrued vacation	98	79
Wage taxes & social premiums	47	75
	333	319

ITEMS NOT SHOWN IN THE BALANCE SHEET

The RIPE NCC rents office space in two buildings and has three separate rental agreements for these. One contract runs from 1 January 1997 for a period of five years. This contract will be automatically renewed for a further five years if notice of intent to vacate has not been given to the owner. The other contract runs from 1 December 1997 for a period of five years with a renewal option of an additional five years. The last contract is for another 250 square meters in the adjoining building. This runs from 15 February 2000 for a period of five years with a renewal option of another five years.

Three bank guarantees have been issued to cover the rent of the office space in Amsterdam. The guarantees are valid for the length of the lease agreements plus three months.

Notes to the RIPE NCC Statement of Income and Expenditures

All amounts are expressed in kEUR and all currencies participating in the European Monetary Union are converted at the official rate as set by the European Central Bank on 31 December 1998. Historic costs have been used throughout unless otherwise stated.

The RIPE NCC had 66 employees as at 31 December 2000. Along with temporary personnel, this represents 61.7 FTEs (Full Time Equivalent). Salary and related costs account for 60% of Operating Expenses.

Revenues were higher than budgeted because the rate of growth of Local Internet Registries was higher than estimated. Interest revenues come from short-term deposits of working capital. Other income is primarily the RIPE meeting plus service charges and interests on outstanding accounts receivable.

The number of LIRs increased by just over 2.25 per calendar day in 2000, as opposed to the budgeted increase of 1.25 per calendar day. At the end of 2000 there were 2,567 Local Internet Registries as compared to 1,696 at the end of 1999.

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The RIPE NCC Annual Report 2000 can be found at:
http://www.ripe.net/annual-reports.html