RIPE NCC Activities, Expenditure and Charging Scheme 2001

Version 1.1

RIPE NCC

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Table of Contents

Process

This document contains the planned activities for the RIPE NCC and the associated expenditures for the year 2001 as well as the charging scheme to ensure the necessary revenues. RIPE NCC staff, based on input from RIPE and the users of the NCC services, have drafted it and the Executive Board of the RIPE NCC will present it to the RIPE NCC members. The members will approve the final version at the Annual General Meeting. No changes will be made to this document after its approval.

Executive Summary

The total budget for the planned 2001 activities is 7,924 k EUR. The increase of almost 27.6% in the total budget is due primarily to an increase in personnel, principally in Registration Services and New Projects and accelerated depreciation taken (from three to two years) on computer equipment. All activities directly pertaining to members show increases in spending ranging from almost 25% to over 53% while the administrative costs (overhead) show an increase of slightly higher than 7.5% over the previous year.

Fees for all Local Internet Registries (LIRs) will be reduced by approximately12% to 2,100, 2,950 and 3,900 EUR for Small, Medium and Large LIRs respectively. Total revenues are expected to be 7,974 k EUR for 2001.

An operating plan must be able to be adapted to changing circumstances. Any amendments to the RIPE NCC Activities and Expenditures 2001 will be made within the formal structure of the RIPE NCC

Association and therefore require the approval of the RIPE NCC Executive Board. No fee adjustment will be made in the course of the year.

Growth Plan and Budget

The budgeted costs for the various activities for 2001 (with 2000 for comparative purposes) are shown below.

Activity Area	2000	%	2001	%	change	%
Membership Services						
Registration Activities	2646	42.6	3539	44.7	893	33.7
Test-Traffic Measurements	299	4.8	459	5.8	160	53.5
Co-ordination	1786	28.8	2225	28.1	439	24.6
New Activities	489	7.9	637	8.0	148	30.4
Administration	990	15.9	1064	13.4	74	7.5
Total (kEUR)	6210		7924		1714	27.6

The increase in the budget for 2001 is 27.6%, including a special reserve of just over 375,000 EUR or 5% of total costs for various contingencies. Because this reserve touches on several of the activity areas it has been distributed among them based on the Full Time Equivalents (FTEs) required by each activity.

The increase of the number of new Local Internet Registries (LIRs) is estimated at 450 for 2001 or at approximately 1.25 per calendar day as for the 2000 budget. For the first half of 2000, the actual increase has been closer to two new LIRs per calendar day. No explanation is available as to why the number of LIRs is increasing at this rate whether this trend will continue.

The past does not guarantee the future. There is no mechanism for adjusting fees during the year if anticipated LIR growth is overestimated and actual growth is lower than budgeted. On the other hand, there is a mechanism for returning any surplus to the members if anticipated LIR growth is underestimated and actual growth is higher. This is done through the Clearinghouse procedure (see RIPE document ?RIPE NCC Clearing House Procedure? for more information). Ensuring the continuity of the RIPE NCC operations is the main reason for keeping the estimated growth rate of new LIRs at this level.

The projections for the remainder of 2000 and the year 2001 are as follows:

	Observed			Projected	
Registries	1997	1998	1999	2000	2001
Large	66	75	93	81	81
Medium	188	253	346	413	413
Small	653	935	1257	2025	2475
Total	907	1263	1696	2519	2969

The growth in the number of LIRs is but one indicator of the growth and workload. Estimates for the increase in workload for Registration Services are based on this as well as on the number of tickets handled by the hostmasters. It is expected that the hostmasters will be handling 25,000 tickets in 2001 (19,000 tickets estimated for 2000), based on past statistics and a linear extrapolation from them.

Membership Services

Registration Activities

Registration activities represent operations relating to the RIPE NCC's role as a Regional Internet Registry (RIR) for the RIPE NCC service region. They include: the handling of requests for assignment and allocation of IP address space and AS numbers, management of reverse domain name space associated with this address space and the auditing and quality control necessary to ensure fair and expedient processing of requests. Also included are training of Local Internet Registries (LIRs), production of documentation related to Internet registration and specific activities that guarantee a proper and appropriate start of new LIRs.

Services provided in this area are available only to members that contribute to the funding of the RIPE NCC.

The biggest challenge for Registration Services (RS) in 2001 will be coping with growth and planning for a future full of unknowns. A conscious decision has been made to move towards staffing of hostmasters so that peak demand can be met with minimal delays (previous activity plans have been made to meet average demand). When the number of tickets is lower, hostmasters will focus on tracking industry developments to analyse and improve procedures and to investigate members? needs. Staffing to meet peak demand will also allow the hostmasters the time needed to keep up-to-date with developments in the industry, maintain and better the document store and permit more emphasis on auditing, both internally and externally.

With the aim of providing better service the RIPE NCC will carry out an in-depth examination of all the processes of Registration Services, either by using an external party, an internal cross-functional group or some combination of the two.

Training courses for new LIRs will be increased from current levels. A second trainer will be hired and more efforts will be placed on training of existing LIRs. When this is combined with the increased training planned for hostmasters, improvements in the quality of the external world (requests coming in to RS) and the internal world (level of knowledge and competence of hostmasters) can be expected.

Interest in IPv6 is expected to grow and IPv6 address space registration will become more important. The RIPE NCC continues to require resources to gain experience with IPv6 requests and to produce software tools for handling them. Developments in the area of WAP, GPRS, UMTS, 3G, etc. and their implications for the development of RS will be followed carefully.

Liaison activities with existing and emerging Regional Internet Registries, particularly AfriNIC, will continue and greater efforts will be made towards co-ordination of policies and procedures.

Test-Traffic Measurements

The goal of the Test-Traffic Measurements (TTM) is to do independent measurements of performance related quantities of the Internet and in particular the inter-provider networks between the networks of the membership. Examples of such quantities are the delay, loss or routing vector between 2 points. In order to measure these quantities, the RIPE NCC installs dedicated measurement stations (so-called "test-boxes"), operates them, analyses the data and reports the results to the participants.

Starting January 2001, all sites participating in the TTM will be charged an annual service fee of 3,000 Euro. The resources budgeted in 2001 provide the means to launch TTM as a full service, to continue to run the network, offer services to the sites already participating in the project and to pursue the development of new services based on the Test-Traffic data.

In order to break even during the first year of operations as a service, an estimated total number of 160 test-boxes will have to be operated by the RIPE NCC.

This activity represents about11.5% of the total Membership Services budget.

Additional information on Test Traffic Measurements can be found at:
http://www.ripe.net/ripe/docs/ripe-168.html

Co-ordination Activities

The common purpose of these diverse activities is to support the coherent operation of the Internet in the RIPE region. The primary activity is the provision of access to the RIPE database, providing information about address space, routing policies and reverse DNS information together with the appropriate contact points. Development and publication of RIPE database software, provision of information services for ISPs and the public via the Internet fall under co-ordination activities.

Operational co-ordination also comes under this category as does the production and publication of software tools for such efforts. Maintenance of the root name server that the RIPE NCC operates is also included in co-ordination activities.

The services performed in this area must be accessible to the Internet community in order to be effective. When special support is needed, RIPE NCC members will receive priority over other users.

The organising of the three annual RIPE meetings is very much a co-ordination activity as these gatherings now also play an important role in the work of the ICANN Address Supporting Organisation. Although the fees charged cover the direct costs such as room and equipment rental, meals, etc. of the RIPE meetings, the RIPE NCC covers all the indirect costs. These include the logistical support, registration, documentation, minute taking, the maintenance of the RIPE web site, etc. and amount to approximately 2.5 Full Time Equivalents.

Legitimacy and representation of the RIPE NCC continue to be an important focus for 2001. The Activity Plan for 2001 foresees more concentration on new technologies and industries that could have an impact on IP address usage rate and the Internet registry system. External representation of the RIPE NCC and the RIPE community to third party organisations (new industries, governments, ICANN etc.) is also a notable co-ordination activity.

Following a major re-implementation of the database in 2000, increased focus on quality and consistency of the data registered in the RIPE database is planned in 2001, in particular through the Routing Registry Consistency project.

This project will compare live Internet data with data contained in the Internet Routing Registry (IRR) and produce reports on address and AS number utilisation and registration. It is also an objective of this project to produce tools to enable network operators to use the IRR as an analysis and troubleshooting tool in their daily work.

During 2001, work will be carried out to increase support for IPv6 and multicast applications in the IRR. Additionally, security aspects of interaction with the RIPE Database will be improved.

Efforts will be continued in order to provide proper data maintenance, data management and data analysis tools including regular updates on the status of the data in the database as well as general help with good data maintenance practices. Database and related software will be actively maintained and developed to ensure that new features are available to meet user needs.

Particular attention is given to the data related to routing information in the database. An increasing number of ISPs rely on the IRR to support decisions made relating to their network operations. The RIPE NCC continues to promote security mechanisms to ensure reliable and trustworthy data and perform reality checks on the data registered in the IRR.

An important part of co-ordination activities in 2001 is the deployment and support of Routing Policy Specification Language (RPSL). This includes the development of tools to interact with the new database software.

New Activities

The RIPE NCC performs activities primarily for the benefit of the membership in its service region. New Activities are either entirely unforeseen or have started recently and are not yet at the stage where they can be developed as other services to members. Due to the impartial and neutral position of the RIPE NCC, it can play an important role in facilitating new projects and services for its members as well as for the RIPE community.

The impetus for New Activities comes from various sources: the RIPE NCC itself, individuals and/or organisations within the RIPE community and/or the appropriate RIPE working groups.

If the activities require long term support they may become a regular RIPE NCC activity subsequently funded by all members. If the activities are short term but substantial or continued support by all members is not appropriate, they may be continued as special projects for which funding is sought separately among interested parties.

These activities fall under the guidance of the various RIPE working groups with active participation of the RIPE NCC membership and the Internet community.

A 30% increase in the budget is planned for New Activities in 2001. Test Traffic will become a regular Membership Service and phased out of New Projects. Two new projects have already been started and increased attention will be brought on technological development relating to the Internet. Participation in the Working Groups of organisations such as the IETF and NANOG will be increased.

Security Deployment is a new activity started in late 2000. As the Internet becomes used for more and more critical applications, security becomes increasingly important. A lot of security technology has recently been developed and now needs to be deployed throughout the Internet Infrastructure [RFC2828]. Prominent examples are DNSSec [RFC2535] and IPSec [RFC2401].

One of the new projects in 2001 will support the RIPE community in deploying these technologies. Information and experience will be gathered by the deployment of the technologies within the RIPE NCC. Courses and workshops in the RIPE community will foster further deployment. The initial focus will be on DNSSec. This will later be expanded to other relevant technologies.

The Routing Information Service (RIS) will be continued as a New Project. RIS collects BGP routing information at several major exchange points in near real time and stores it in a database. An interface similar to a 'looking glass' then provides both multiple views and information about specific times in the past. This is a new and unique tool for ISP operations: operators do no longer have to search for specific looking glass services covering the area of interest; further, they can query for data at the specific time of any problems.

The RIS database is also useful to the RIPE NCC itself as it provides information about how resources allocated by the RIPE NCC are actually used on the Internet over an extended period. During 2001 RIS will move from a new activity to a production service available to the Internet at large.

Administration Activities

This area covers all general administrative overheads (building rental, computer infrastructure, Personnel, office supplies, etc.) that cannot be clearly attributed to a specific activity in one of the other areas.

The slight increase above the general cost of living increase in 2001 is due primarily to the rental of additional office space and related costs needed to accommodate staff.

Charging Scheme

The charges for 2001 are fixed annual charges and are based on the size category of a local registry. A minimum size category will be determined based on address space allocations held by the registry on November 1, 2000. The categories will be published and registries changing in billing category size will be notified by e-mail.

New Local Internet Registries (LIRs) established during 2001 will be charged a sign-up fee and 25% of the annual fee for each quarter that they are a member. Their initial minimum size category will be SMALL. Enterprise registries are classed as SMALL for charging purposes.

The proposed charges for 2001 are as follows:

Annual Charge	2001	2000	1999	1998	1997	1996
SMALL	2100	2400	2650	2450	2200	1500
MEDIUM	2950	3350	3700	3400	3000	4500
LARGE	3900	4400	4900	4500	4000	8500
Sign Up	2100	2100	2100	2000	1300	2000

The proposed fees for 2001 are approximately 12% lower than those of 2000 and have been brought down to a level below the 1997 fees while the cost of the associated activities are more than 27% higher. This is due to the increased number of registries sharing the costs.

The charging model algorithm (see RIPE document ?Alternative Models for RIPE NCC Revenue & Charging 1997? for more details) has been used to determine the minimum size category for each registry, based on the address space allocations held by the registry. A shift in the ratio of SMALL to MEDIUM to LARGE registries has been noted this year. This is considered normal given the dramatic increase in the number of new registries over the last two years.

The following table compares the distribution of current size categories (1 November 1999) with that of the minimum size category determined from allocation data on 1 September 2000:

Category	New Minimum	Current
SMALL	73.6	77.3
MEDIUM	21.8	17.2
LARGE	4.7	5.5

The distributions suggest that some changes are happening. The breakdown of these changes can be seen in detail below:

From \ To	SMALL	MEDIUM	LARGE
SMALL	1550	153	5
|MEDIUM	22	309	19
LARGE	1	21	76

The data for these tables can be found at ftp://ftp.ripe.net/ripe/local-ir/category-Sep and at ftp://ftp.ripe.net/ripe/local-ir/allocs-Sep.

The minimum size category for each registry for charging will be determined based on the address space allocations held by that registry on November 1, 2000. The minimum size category for all registries based on allocations received before November 1, 2000 can be found at ftp://ftp.ripe.net/ripe/local-ir/category-Nov. The allocation data this is based on as well as current registry size can be found at ftp://ftp.ripe.net/ripe/local-ir/allocs-Nov. All registries should check this data and report any inconsistencies to <billing@ripe.net>.

	New Registries	
450	Sign up Fees	945
450	Small	473
	Existing Registries	
1233	Small	4246
366	Medium	1218
97	Large	328
	Other Income	
153	Test Traffic	460
825	Ripe Meeting	304
Total Income		7974

These revenues will provide a surplus of approximately 50,000 EUR or just over .5% of the total budgeted cost of the activities.

Challenges

Managing the growth while remaining stable, professional and pro-active in developing new activities and keeping abreast of leading edge technical developments, continues to be one of the greatest challenges facing the RIPE NCC. This plan ensures the timely and proficient delivery of essential services to the members and, at the same time, maintains the flexibility necessary to be able to react promptly to the continually changing environment and to remain aware of new developments and players. The success of this plan lies in finding and keeping the people who work to make it happen.

The last eighteen to twenty-four months have seen finding qualified personnel become the greatest challenge. The biggest single constraint that the RIPE NCC faces is the scarcity of IT personnel, not just in the Netherlands and the European community but in the entire RIPE NCC service region. The RIPE NCC will have to continue to offer an attractive and challenging working environment.

APPENDIX

M - Membership Services

Activities included in Membership Services relate directly to services provided to the RIPE NCC's membership. Services performed in this area are only accessible to formally established members of the RIPE NCC.

M1 Regional Internet Registry

In its role as a Regional Internet Registry the RIPE NCC provides Internet registration services its service region. The overall goal of this activity is to provide fair, impartial and stable distribution of Internet numbers (IPv4 and IPv6) in the RIPE NCC service region. The specific goals for the distribution of address space are uniqueness of addresses, conservation of the remaining IPv4 address space, procedure and policy definition for IPv6 address space, aggregation of routing information and registration of network management information.

In the recent past the RIPE NCC has been slower than required in increasing the resources necessary to keep up with the workload in Registration Services. The rate of growth has been smoothly increasing over the last few years and unless a major shift in industry evolution takes place, it should continue to do so in the near future. The actual growth increase is outlined in the 'Growth Plan and Budget' section of this document. A similar pattern of growth is experienced in the number of tickets received from LIRs. The RIPE NCC will continue to increase staff levels in Registration Services to meet peak workload demands.

In order to balance resources and workload, this year Registration Services will be growing above the expected growth in the number of LIRs.

Automation in request processing aims at minimising clerical work for the RIPE NCC Hostmasters. It also saves time as LIR staff receive fast feedback on the most common problems. Further automation is still required, particularly in the field of easing the work of LIRs.

RIPE NCC hostmasters also provide training courses for LIRs. This is very much a "third line" support activity. It also requires a high level of scrutiny because of the absolute requirement for fairness and impartiality in registration services decisions.

In 2001 both work flow and quality management will have to keep step with the expected growth and ensure that peaks in the load lead neither to unacceptable delays nor to a reduction in quality. The impartiality and neutrality of the RIPE NCC has to be maintained at all times. The basic procedures will change to focus on the content of address requests and ease the process of providing additional information. Common to all of registration activities is liaison with the RIPE Local IR Working Group (WG) and with the other Regional Internet Registries about general application of procedures and policies.

M1.1 First Address Space Assignment

Description:

The RIPE NCC will give special attention to initial address space requests from new LIRs. It will assist in producing the first assignment and allocate an aggregatable range of addresses for further assignments.

Goal:

This will help LIRs to process successfully their first request and provide a better understanding of the procedures for further requests. This initial support also promotes a good working relationship between the RIPE NCC and the LIRs and ensures that the LIRs are able to provide the same support to their customers.

RIPE Working Group Advising:

RIPE Local IR WG

M1.2 Assignment Approval

Description:

Certain IP address requests require approval from the RIPE NCC, especially when they are above a threshold size. The RIPE NCC will evaluate these IP address requests. LIRs can also request the opinion of the RIPE NCC about assignments even when it is not strictly required. The RIPE NCC will provide recommendations and guidelines for future requests.

Goal:

This activity will ensure uniform application of policies and assignment criteria by all LIRs and will help make the LIR familiar with request evaluation. It supports LIRs in their operations and helps them process larger request sizes

Related Activities:

M1.7

RIPE Working Group Advising:

RIPE Local IR WG

M1.3 PI Assignment

Description:

The RIPE NCC will process all requests for provider independent (PI) address space submitted by LIRs.

Goal:

This activity will prevent fragmentation of the LIRs? allocated address space by making the PI assignment from an address pool managed by the RIPE NCC. This will promote aggregation of routing information.

RIPE Working Group Advising:

RIPE Local IR WG

M1.4 Address Allocation

Description:

The RIPE NCC will allocate IPv4 address space to LIRs for further assignment to end-users. IPv6 address space will also be allocated to Top Level Aggregate Registries. These activities will also contain auditing of assignments made from previous IPv4 and IPv6 allocations. Tools to support the allocation process and to ensure the best aggregation possible will be enhanced. This particularly includes tools and software to support the newer IPv6 activity.

Goal:

This activity helps to ensure fair distribution of IPv4 and IPv6 address space. It will also support the efficient use of address space in order to conserve the remaining IPv4 address space and to aggregate IPv4 and IPv6 routing information.

Related Activities:

M1.7

RIPE Working Group Advising:

RIPE Local IR WG

M1.5 AS Number Assignments

Description:

The RIPE NCC will assign AS numbers according to global and local policies. It will register these numbers and the associated routing policies. Documentation and training materials will be updated and an additional training course will be developed.

Goal:

This activity ensures uniqueness of AS numbers and helps in collecting data for the Routing Registry. It also helps to prevent unnecessary increases in the number of autonomous systems that are visible in global Internet routing.

RIPE Working Group Advising:

RIPE Local IR WG, RIPE Routing WG RIPE Database WG

M1.6 Reverse DNS Delegation

Description:

The RIPE NCC will delegate reverse DNS zones for the address ranges allocated or assigned via the RIPE NCC. In order to provide this service the RIPE NCC will provide a reliable secondary nameserver and work to avoid pollution of the DNS in the zones delegated to the RIPE NCC. Therefore, the RIPE NCC will check all zones under its responsibility as to proper set-up and functioning. Proactive checking of already delegated zones will be an important goal.

Goal:

This activity supports the proper address-to-name mapping for addresses allocated to the RIPE NCC.

RIPE Working Groups Advising:

RIPE Local IR WG, RIPE DNS WG

M1.7 Consistency & Auditing

Description:

The RIPE NCC will actively check the quality and validity of Internet resource registry data, including the production of statistics on address space usage. In order to ensure fair address space distribution, the RIPE NCC will check that assignment guidelines are applied uniformly. This activity is separated from the other registration activities as it is defined and executed somewhat independently from the day-to-day processing of requests; consistency checking and auditing are performed within other activities. Observations are reported back to the RIPE Local IR Working Group for further investigation and improvement of the procedures.

Goal:

This activity promotes a consistent and fair application of assignment criteria relating to the conservation of address space and aggregation of routing information. This activity assists in identifying parts of the procedure that cause problems.

Related Activities:

All registration activities

RIPE Working Group Advising:

RIPE Local IR WG

M2 Initial Support for new LIRs

The initial support for newly established registries is provided in addition to other registration activities. It is not initiated by a request for address space or AS numbers sent to the RIPE NCC but is part of the process to establish a new LIR. During this phase additional clarification and explanation is involved to familiarise the new LIR with all procedures necessary to operate an Internet registry.

M2.1 Registry Set-up

Description:

The RIPE NCC will provide initial support to LIRs during their set-up phase. It will support and provide information to potential LIRs.

Goal:

This activity supports new LIRs during their set-up phase to introduce tools, procedures and guidelines. It will also give potential LIRs enough information to make an informed choice as to whether or not they become a LIR.

Related Activities:

M2.2

RIPE Working Group Advising:

RIPE Local IR WG

M2.2 Training Courses

Description:

The RIPE NCC will further develop and continue to deliver Training Courses for LIRs, both new and existing. The course material includes IP address assignment and allocation procedures and policies, delegation of reverse domains and usage of the RIPE database. Additional, more specific, courses will be developed.

Goal:

The goal of this activity is to familiarise the new LIRs with procedures and policies and keep established LIRs up-to-date with new guidelines and developments. This will facilitate smooth operations between the RIPE NCC and the LIRs. With the consistent application of policies the RIPE NCC can ensure fair distribution of address space among the community.

RIPE Working Group Advising:

RIPE Local IR WG

M3 Liaison & Co-ordination

Description:

In order to execute its activities for its members the RIPE NCC acts as a liaison and co-ordinates with a variety of organisations and tracks the activities of others. Examples of such organisations are IANA, ICANN, IETF, RIPE, ARIN and APNIC. It is often difficult to attribute liaison and co-ordination resources to specific activities and it is therefore an activity in its own right.

Goal:

To maintain the necessary relationships with other organisations related to the operations of the RIPE NCC.

Budgeting: Costs for this activity are split evenly between the registration and co-ordination activity budget lines.

M4 Test Traffic Measurements

Description:

1. Continue to run a network of test-boxes. The RIPE NCC will continue to operate a network of test-boxes as well as a service where the host sites can retrieve the data produced by their text-box.

To improve the quality of the data and to detect problems with the test-boxes, Data Quality Monitoring (DQM) will be done on a regular basis.

2. Run standard analysis. The current version of the analysis code will be expanded to show summary numbers, trends over time and other suggestions made for expanding or improving the project.

At RIPE-33, a method was proposed to detect unusual network conditions and warn operators about them. The NCC will continue to offer this service and, together with network operators, investigate how these warnings can be interfaced with existing network monitoring tools.

3. Continue development work on the project. Development work on the project will continue in several different areas:

a. Develop models to parameterise the data. A model will be developed to describe the data over long time intervals and to look for trends in the data over time. This can be used as a planning tool for ISPs.

b. New metricswill be studied and, if feasible, implemented on the test-boxes.

c. Development of interfaces to other applications such as Traffic Engineering tools.

d. Any developments in the Internet related to the Test-Traffic Measurements will be energetically followed and responded to

RIPE Working Group Advising:

RIPE Test-Traffic WG

C - Co-ordination Activities

The activities performed in this area must be accessible to users of the Internet and the general public in order to be effective. Their common purpose is to support the coherent operation of the Internet in the RIPE NCC's area of operation.

C1 RIPE Database Maintenance and Development

Description:

The RIPE NCC will ensure the reliability of the RIPE database and extend its functionality as needed. C1 activities include the work related to the RIPE database software and the quality of data registered in the database.

Goal:

The RIPE database is the core software on which the Regional IP Registry and the RIPE Routing Registry are based. Reliability and rich functionality of the RIPE database are essential for the RIPE NCC, the LIRs in the RIPE NCC service region and the Internet. By maintaining public releases, the RIPE NCC hopes to encourage all registries to make use of the software and to acquire the newest improvements. This encourages data exchange and co-operation among registries.

This set of activities is designed to continue consistent support and provide a reliable service both in the short and long term and to continue developments according to the needs of the RIPE community.

RIPE Working Group Advising:

RIPE Database WG

C1.1 User Support and Software Maintenance

Description:

The RIPE NCC will manage a role mailbox for questions and comments and address user questions promptly. The RIPE NCC will also perform basic software maintenance activities including bug fixes and minor modifications. In parallel, the RIPE NCC will provide robust portable releases with fixed bugs and new features. It will also work on maintaining and improving the system's documentation.

Goal:

This activity is intended to provide a timely response to user enquiries. It also helps assure the smooth operation of the registry system.

Related Activity:

C1.4

RIPE Working Group Advising:

RIPE Database WG

C1.2 Consistency

Description:

The RIPE NCC will continue working to prevent inconsistencies and inaccuracies in the RIPE Database contents by improving syntax checks, modifying contact reference mechanisms and educating users.

The RIPE NCC will help users perform data maintenance activities to improve the quality of data already in the RIPE database. This will include reporting problems to contacts where possible and providing tools which enable users to clean up their data. The RIPE NCC will also produce regular "State of the Database Reports" in order to monitor the quality of data over time.

Goal:

The value of the RIPE database for its users depends on the quality of data in the database. The goal of this activity is to monitor and improve the consistency and accuracy of the data maintained in the RIPE database.

RIPE Working Group Advising:

RIPE Database WG

C1.3 Database Availability and Exchange

Description:

The RIPE NCC will provide access to the RIPE Database via whois servers and by supporting other sites in mirroring the data. For example, support will be given to LIRs in setting up secondary database servers. The RIPE NCC will actively pursue and co-ordinate data exchange both with other Regional IP Registries and other Routing Registries.

Goal:

This activity is intended to enable RIPE database users to acquire the information they need quickly and to help those outside the RIPE region acquire information in the RIPE database as easily as possible. This is essential for both the IP and the Routing Registries.

RIPE Working Group Advising:

RIPE Database WG RIPE Routing WG

C1.4 New Database Features

Description:

The RIPE NCC will design and implement new database features as requested by the user community or proposed by the RIPE NCC. The RIPE NCC will perform the development work based on the priorities established in the appropriate working groups.

During 2001, particular effort will be centred around the extension of RPSL functionality to expand its capabilities to IPv6 and multicast routing description.

Goal:

The purpose of this activity is to provide new functionality as the RIPE database user community expresses the need for it.

Related Activities:

C1.1

RIPE Working Group Advising:

RIPE Database WG

C1.5 Routing Registry Tool Deployment and Training

Description:

The transition from ripe-181 " Representation of IP Routing Policies in a Routing Registry" to RPSL will be completed using the new Whois Database server.

The RIPE NCC will work to create support tools such as RR tools and the RA toolset. These tools will be made available to members of the RIPE community. The RIPE NCC will continue to deploy training courses to teach the RPSL language and the use of the RR tools in configuring routers and examining policies and routing in the Internet.

Goal:

Useful RR tools are currently being developed outside the RIPE NCC. In particular, the RA toolset can be used to define routing registry objects and to evaluate currently registered objects in the process. It further allows configurations to be generated and/or verified from the contents of the routing registry. The goal of this activity is to enable members of the RIPE community to exploit RPSL and define the development of new RR tools.

RIPE Working Group Advising:

RIPE Routing WG

C1.6 Routing Registry Consistency

Description:

This activity seeks to improve data quality in the Internet routing registry as a public source of intended routing information (as described by the maintainers of the data, the ISPs). It also aims to improve data accessibility and processing capabilities to enable users to extract the largest possible benefit from this information source.

Goal:

The objective of this activity is to provide a public, accurate and reliable source of information about public routing information in the RIPE NCC service region, comparing the intended routing policies as described in the IRR to the information actually exchanged by routing protocols. A coupling to the RIPE NCC's address assignment activities is also an objective of this activity.

RIPE Working Group Advising:

RIPE Routing WG

C1.7 Security Mechanisms of the RIPE Database

Description:

This activity has traditionally been part of general RIPE Database development. However, in today's world a more dedicated focus on data access and maintenance is required.

Goal:

This activity will seek to deploy secure methods of accessing and maintaining data in the RIPE Database. It will interface with a more general increase in awareness of security matters in all interactions between the RIPE NCC and other parties.

RIPE Working Group Advising:

RIPE Database WG

C2 Information Services & Communication

C2.1 Mailing List Management

Description:

The RIPE NCC will maintain high quality mailing lists for exchanging information among members of the RIPE community. Effort will be spent to prevent spam (unsolicited advertising) on the lists, to improve the quality of the address lists in order to minimise bounces, and to support subscribers with problems. The processing of mailing list traffic will be constantly monitored.

Goal:

To ensure information exchange among members of the RIPE community and provide support for subscribers.

C2.2 Maintenance of Information Services

Description:

The RIPE NCC will maintain a WWW and ftp server at http://www.ripe.net/ and ftp://ftp.ripe.net/ respectively and the accompanying <webmaster@ripe.net> role mailbox to provide help and information to users. This includes the following detailed activities: continuous modification and re-structuring of the information on the WWW server providing the best structure for ease of use to visitors of the site. The RIPE NCC will also monitor the content of the servers to assure accuracy, consistency and a user-friendly environment.

Goal:

The purpose of this activity is to ensure that the information and services on the RIPE NCC servers are up-to-date and working well and that responses to user needs are provided in a timely manner.

Related Activities:

C2.3

RIPE Working Group Advising:

All

C2.3 Public Relations and Outreach

Description:

The RIPE NCC has managed to establish an extensive network in the Internet community and with existing and new players. This must continue and be intensified.

In the past, all issues related to 'RIPE NCC activities/IP address distribution' came up naturally in the RIPE community. Today there are other groups and forums that deal with Internet and IP issues. The RIPE NCC needs to make contact with those organisations and ensure that RIPE and the RIPE NCC are properly represented in all forums dealing with issues that affect Internet administration. The open structures and processes in which RIPE and the RIPE NCC operate need to be promoted and new players must be encouraged to participate actively.

Liaison and co-operation with the other RIRs have been intensified significantly over the last few years. Effort must now be focused on new players, new technologies and governments showing an interest in Internet administration and governance.

Goal:

This activity aims to increase the awareness of RIPE and the RIPE NCC with existing and new players in the Internet community and ensure that the RIPE NCC continues to play an effective role in the further formalisation of Internet administration.

C2.4 Reporting

Description:

The RIPE NCC will continue to report about its activities to its membership, the RIPE community and the general public both on the network and at RIPE meetings. The RIPE NCC will publish an Annual Report, including financial statements, for distribution to its membership, suppliers and interested members of the public. The Annual Report will also serve as a general Public Relations document. Continuous effort will be placed in developing the Web site to provide up-to-date and informative documentation essential to the RIPE NCC membership.

Goal:

This activity provides the RIPE NCC membership and other interested parties with open, detailed information about the ongoing RIPE NCC activities and its position in the Internet community.

Related Activities:

C2.3, C4

C3 DNS Co-ordination

Description:

The RIPE NCC does not provide domain name registration services. It does however provide DNS co-ordination and support activities as well as registration of reverse address mapping domain registrations within the in-addr.arpa domain.

C3.1 European Root Name Servers

Description:

The RIPE NCC will support the operation of the root name servers located in the RIPE NCC service region. In particular it will operate the server currently located at the LINX in London (k.root-servers.net).

Goal:

Those few DNS name servers serving the "." (root) zone are critical elements of the Internet infrastructure that should be operated in a neutral and professional way. The goal of this activity is to ensure that this happens.

RIPE Working Group Advising:

RIPE DNS WG

C3.2 Secondary DNS Service

Description:

The RIPE NCC will provide secondary name service and limited support to those country TLD administrators that wish to use it. The RIPE NCC will assist ICANN in the administration of those TLDs as described in RFC1591.

Goal:

Many users in Europe depend on DNS name servers serving the zones of two letter ISO3166 country code top level domain s. Name service for these zones should be reliable. New countries should be supported to establish their country code TLD s. Reverse zones are served in a secondary capacity to assist in ensuring the reliability of reverse lookups.

RIPE Working Group Advising:

RIPE DNS WG

C3.3 DNS Hostcount

Description:

The RIPE NCC will provide monthly statistics on the number of hosts connected to the Internet in Europe and surrounding areas. The statistics are gathered in collaboration with numerous organisations doing local counts per country.

Goal:

The goal of this activity is to collect and publish uniform time series data about the growth of the Internet in the region and continues a time series started in October 1990. The information is used extensively by organisations operating in this region and beyond.

RIPE Working Group Advising:

RIPE DNS WG

C4 RIPE Meeting

Description:

The RIPE NCC will provide administrative and technical support for the RIPE meetings. These meetings take place three times a year and are open to the public. Actual costs regarding venue, equipment hire, etc. will be recouped by charging an attendance fee as well as through corporate sponsorship.

Goal:

To provide support of an infrastructure whereby the RIPE meetings can be held. Guidance and advice from the RIPE Working Groups and membership is invaluable to the RIPE NCC in supporting its effective role in further formalising Internet Administration. RIPE also plays an influential role in defining the annual activity plan and these meetings are therefore essential to the stable operations of the RIPE NCC.

N - New Activities

This area represents those activities that are either unforeseen or cannot be fully specified at the time of writing. By nature new activities are hard to specify in detail and priorities can change quickly. Activities may be dropped or added as necessary. The activity descriptions below are therefore more of a subjective statement of direction rather than a fixed plan of action. In particular, some of the ideas below have not yet been fully discussed in the relevant RIPE working groups.

N1 Routing Information Services

The goal of the Routing Information Service (RIS) is to collect BGP routing information at several major exchange points in near real time and store that in a database. An interface similar to a 'looking glass' then provides both multiple views and information about specific times in the past. This is very useful to SP operations because operators do not have to search for specific looking glasses covering the area of interest; additionally they can query the specific time of a problem rather than having access to just the present state of routing information. The database is also useful for the RIPE NCC itself as it allows hostmasters to determine how prefixes and autonomous systems have been used on the Internet over an extended period.

During 2001 RIS will move from a new project to a production service available to the Internet at large. Additional peerings will be established to get an even more comprehensive picture of the BGP routing information and additional services will be developed.

RIPE-WG advising:

RIPE Routing WG

N2 Security Deployment

Description:

The RIPE NCC will gather information and experience by deploying the technologies ourselves and foster deployment in the RIPE community through presentations, courses and workshops. ISPs and specifically RIPE NCC members will have to play a key role in deploying these technologies. The RIPE NCC will initially focus on DNSSec and co-operate with other organisations working in this area such as CENTR and NLnet Labs.

Goal:

The project will support the RIPE community in deploying security technologies, in particular those that have to be deployed in the Internet infrastructure itself, like DNSSec. One specific goal is to have in-addr.arpa secured for all address blocks allocated to the RIPE NCC by the end of the year 2001; another goal is to take part in creating BCP-type RFCs on the deployment of DNSSec and to get them published.

RIPE-WG advising:

to be determined, BoF planned for RIPE-38

N3 Unforeseen Activities

Description:

The RIPE NCC will actively follow the developments in the Internet and react to any requirements for new activities from the RIPE community. In the past the RIPE NCC has been requested to study and start up a fair number of new activities at short notice. Many of them have been successful because this possibility has been provided for in the activity plans since the RIPE NCC's inception.

Goal:

The goal of this activity is to ensure that the RIPE NCC continues to react to the developments and changing needs of the Internet environment.

RIPE Working Group Advising:

Depending on the activity

back to the top