RIPE ncc

RIPE NCC Activities & Expenditure 1997

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RIPE NCC

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Updates: ripe-133
See also: ripe-145

1. Scope & Process

This memorandum describes the activities to be performed by the RIPE NCC and associated expenditure during the year 1997. The companion document "RIPE NCC Revenue & Charging 1997" (ripe-chr) describes the way to generate the necessary revenue.

There are several well defined stages in the creation of this document: It is drafted by the RIPE NCC based on input from RIPE and the users of NCC services. Subsequently it is approved, possibly after modification, by the NCC Contributors Committee representing the organisations providing the funding. TERENA finally endorses the document, acknowledging formal responsibility for the execution of the activities. At that point the document is frozen and represents both charter and budget for NCC activities during 1997.

Current Status

The contributors committee has approved this document on September 11 1996. TERENA has subsequently endorsed it. This version is final.

Changes

The document itself will not be changed once the process described above is completed. However the last two years of NCC operations experience have shown that revisions are needed during the course of the year. In today's Internet environment it is impossible to plan ahead for more than 15 months as the formal process requires. We therefore expect that the plan will be amended at least once during 1997. The RIPE NCC will propose amendments which will be approved following an accelerated version of the process described above involving the contributors committee and TERENA. The NCC quarterly reports will provide background and motivation for any such amendments.

2. Principles for NCC Activities

The RIPE NCC performs activities for the benefit of the Internet service providers (ISPs) in Europe and the surrounding areas; primarily activities that the ISPs need to organise as a group, although they may be competing with each other in other areas.

The RIPE NCC must therefore observe strict neutrality and impartiality with respect to individual service providers. In particular it refrains from activities that are clearly in the domain of the ISPs themselves.

Activities are defined, performed, discussed and evaluated in an open manner. Results of activities such as software tools are made available to the public. Budgets as well as actual income and expenditure are published. Individual data will be kept in confidence where required. For example the amounts of address space allocated and assigned are published as are database entries of individual assignments including the relevant contact data; however the information supporting individual assignment requests is kept in strict confidence.

While an activity may result in services being provided to an individual ISP, performing the activity as a whole must benefit the European ISPs as a group. For example address space registration services are provided to ISPs individually, but the activity as such benefits all ISPs by distributing address space according to common standards as well as maintaining a neutral and accessible registry. It is because of this distinction that this document is structured around activities, rather than services.

3. Activity Areas

Since 1996 all NCC activities have been grouped into four main categories. A general description of the categories follows to precede the budget figures. Detailed descriptions of all activities can be found later in this document.

Registration Activities

This represents activities related to the NCC's role as Regional Internet Registry (IR) for Europe and the surrounding areas. It includes handling of requests for assignment or allocation of IP address space, management of reverse domains associated with this address space as well as auditing and quality control to ensure fair and expedient processing of requests. Also included in this area are training of Local Internet Registries, production of documentation related to Internet registration as well as specific activities to ensure a proper and expedient start of new local IRs.

Services performed in this area are only accessible to formally established local IRs contributing to the funding of the NCC.

Coordination Activities

The activities grouped in this area are quite diverse. Their common purpose is to support the coherent operation of the Internet in the European area. An important activity is the provision of access to the RIPE database which provides information about address space and routing policies together with the appropriate contact points. Developing and publishing the RIPE database software is also part of this area, as is the provision of information services for ISPs and the general public via the Internet. Operational coordination such as efforts to reduce the number of globally visible routing prefixes also fall into this category, as does the production and publication of software tools for such efforts.

In order to be effective the services performed in this area have to be accessible to the general Internet public. Contributors to the funding of the NCC will receive precedence over other users when special support is needed.

Administration Activities

This area covers all regular reports published by the NCC, administrative support for RIPE as well as general administrative overheads which cannot be clearly attributed to a specific activity. As such it includes production of the Quarterly Reports and the resources needed for charging, billing and the general financial administration.

New Activities

This area represents those activities that are either entirely unforeseen or cannot be fully specified at the time of this writing. The existence of this area gives the NCC the flexibility to react quickly to the rapidly changing needs in today's Internet. Activities in this area are often suggested by the appropriate RIPE working group.

If the activities turn out to need long term support they may become a regular NCC activity funded by all contributors later. If the activities are short term but substantial, or continued support by all contributors is not appropriate, they may be continued as special projects for which funding is sought separately among interested parties.

These new activites are executed under the guidance of the RIPE working groups. It is assumed that representatives of the contributors participate actively in these working groups.

The PRIDE project and the creation of the routing registry in general are good examples of such activities as is the startup of IPv6 coordination.

4. Budget and Growth Plan

The number of local Internet registries is still increasing rapidly. The projections for 1997 are as follows:

Registries	Observed		Projected					
	Q1 1996	Q2 01996	Q3 1996	Q4 1996	Q1 1997	Q2 1997	Q3 1997	Q4 1997
Large ISP	32	34	37	41	44	48	51	54
Medium ISP	49	53	60	65	71	76	82	88
Small ISP	246	308	376	451	529	610	692	776
Enterprise	19	26	31	37	42	48	54	60
Last Resort	22	13	6	0	0	0	0	0
TOTAL	**368**	**434**	**510**	**594**	**686**	**781**	**878**	**977**

For easy comparison the projection uses the current categories for registries.

Based on this projection and the required activities as described below the sum of the staff resources needed during 1997 is as follows:

Activity Area	FTE
Registration	14.0
Coordination	6.1
Administration	4.7
New	2.5
Total	**27.3**

From this the following budget results according to the budgeting principles described in appendix X:

Activity Area	**1996**	**%**	**1997**	**%**	delta
Registration	556	61	**1064**	54	508
Coordination	162	18	**442**	22	280
Administration	138	15	**311**	16	173
New	60	7	**166**	8	106
TOTAL (kECU)	**916**		**1984**		**1068**

The figures of the 1996 budget (ripe-133) are shown for comparison. This budget represents expenditure under the assumption that the charging model similar to the current one will be in use and thus there will be no additional resources needed to administer charging. The additional resources needed to execute different models are on the order of one percent of the total. See the Revenue&Charging document for details.

Of course the growth has been planned carefully. The plans are ambitious but realistic. For illustration purposes the staffing plan broken down by department is shown below.

Department	**FTEs**			
	Q2 1996	Q4 1996	Q2 1997	Q4 1997
Management	3	4	4	4
Registration	6	7	9	12
Engineering	2	6	9	11
Administration	2	3	5	5
Total	**13**	**20**	**27**	**32**

Note that there is no direct relationship between the breakdown by activity area and that by department because staff from several departments may work on a particular activity.

General Discussion

Comparing the growth in registries and in personnel shows that the two are growing roughly at the same rate:

	Q2 1996	Q4 1996	Q2 1997	Q4 1997
Registries	434	594	781	977
FTEs	13	20	27	32
registries/FTE	33	30	29	31

Theoretically one would expect the NCC to grow more slowly than the number of local registries because of economies of scale. In reality however there are several factors compensating this trend.

Firstly the NCC is in a critical growth stage where low cost informal processes controlled and executed by individuals have to be replaced by more formal processes involving several people. For example financial planning and control have to be formalised further because both the funds and the number of people involved increase significantly.

Secondly the stability and reliability of the NCC becomes increasingly critical to the European Internet industry. Meeting this need causes additional overheads that we have been able to avoid in the past.

Last but not least existing services need to be extended in various ways and additional services are required.

Registration Activities

The growth in the expenditure for registration activities is slightly higher than the expected total growth in registries from 594 to 977.

We do expect to make further efficiency improvements to lower the costs for the present registration activities. However the room for that is limited as many of those activities require professional and technical judgement of hostmasters which cannot be automated.

The increased expenditure is caused by the introduction of necessary new activities and the stepping up of training activities. Distinct activities for quality control (R1.8) as well as consistency&audits (R1.9) are needed to maintain a fair and credible registry system. This also prepares well for later quality control certification, should it become desirable.

In order to defend the registry system as a process of industry self regulation towards the community at large, we need to continuously make sure that it works well and we must be able to demonstrate that it does. Good training and quality control is essential.

Coordination Activities

The expenditure for coordination activities increases again as the usage of them increases and they become more critical to a growing number of users. The recovery from the significant lack of resources in 1995 continues and is represented by a further increase of the relative size of this budget line to 22% of the total.

Administration Activities

Resources in this area will increase significantly as required by growth while relative size of expenditure is kept constant.

New activities

Activities in this area will be stepped up while the relative size of expenditure the area for remains constant.

5. Challenges

The main challenge for the NCC -as for the Internet- is to manage its growth. We have planned the growth of the NCC as carefully and realistically as possible while maintaining enough flexibility to react to the changing environment. This plan represents a good basis in material resources but the success of the NCC will depend on finding and keeping the people who make it happen.

Appendices

All activities will be described in appendices grouped activity by area. The descriptions list related activities as well as links to the relevant RIPE working groups. Wherever an activity is starting or increasing significantly during the year this is indicated. Finally special budgeting considerations are listed where appropriate.

Finally appendix X lists details of the budgeting procedures.

R - Registration Activities

This represents activities related to the NCC's role as Regional Internet Registry (IR) for Europe and the surrounding areas. Services performed in this area are only accessible to formally established Local IRs contributing to the funding of the NCC.

R.1 Regional Internet Registry

Goal:

> The RIPE NCC provides Internet registration services for Europe and surrounding areas; it acts as a Regional Internet Registry.

The overall goal of this activity is to provide fair, impartial and stable distribution of Internet numbers, especially address space in Europe and the surrounding areas. The specific goals for address space are uniqueness of addresses, conservation of the remaining IPv4 address space, aggregation of routing information and registration of network management information.

Description:

> Because the Regional Internet registry consumes the majority of RIPE NCC resources, its activities are described and accounted for in detailed activities below.

To be able to perform registration activities existing tools are used and new tools will be developed. The development of these tools is not listed as part of only a few activities, because the use of these tools is essential to reach the overall goal of these activities and to provide reliable registration services to Local IR's.

Common to of all these activities is further the feedback given to the RIPE Local IR WG about general application of procedures and policies.

Finally the general management of the Regional IR is accounted for in R1.

RIPE WG Advising:

> RIPE Local IR WG <lir-wg@ripe.net>

R1.1 First Address Space Assignment

Description:

The RIPE NCC will give special attention to every Local IR's initial request for address space. It will help to make the first assignment and allocate an aggregateable range of addresses for further assignments.

Goal:

This will help Local IR's to process their first request and to have a better understanding of the procedures for further requests. It will also help to build a good working relationship between the RIPE NCC and the Local IR's. Furthermore it will enable neutral and impartial treatment of all Local IR's.

RIPE WG Advising:

RIPE Local IR WG <lir-wg@ripe.net>

R1.2 Assignment Approval

Description:

Some IP address requests require approval from the RIPE NCC, specially when they are above a certain size. The RIPE NCC will evaluate these IP address requests. Sometimes local IRs will also request the opinion of the NCC about assignments even when it is not strictly required. The RIPE NCC will furthermore give recommendation and guidelines for future requests.

Goal:

This activity will ensure uniform application of policies and assignment criteria by all Local IR's and will help to make a Local IR familiar with request evaluation. It will support Local IR's in their operations and help them to process increasing request sizes. It will also enable fair operations of all Local IR's.

RIPE WG Advising:

RIPE Local IR WG <lir-wg@ripe.net>

R1.3 PI Assignment

Description:

The RIPE NCC will process all requests for PI (provider independent) address space submitted by Local IR’s.

Goal:

This activity will prevent fragmentation of the local IR’s 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 WG Advising:

RIPE Local IR WG <lir-wg@ripe.net>
RIPE Routing WG <routing-wg@ripe.net>

R1.4 Address Allocation

Description:

The RIPE NCC will allocate address space to Local IR’s for further assignment to end users. This activity will also contain auditing of assignments made from previous allocations.

Goal:

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

RIPE WG Advising:

RIPE Local IR WG <lir-wg@ripe.net>,
RIPE Routing WG <routing-wg@ripe.net>

R1.5 AS Number Assignment

Description:

The RIPE NCC will assign AS numbers according to IANA policies and will register these numbers and the associated routing policies.

Goal:

This activity will ensure uniqueness of AS numbers and help in collecting data for the Routing Registry.

Related Activities:

Routing Registry Maintenance

WG advising:

RIPE Local IR WG <lir-wg@ripe.net>
RIPE Routing WG <routing-wg@ripe.net>

R1.6 Reverse DNS Delegation

Description:

The RIPE NCC will delegate reverse DNS zones for the address ranges allocated or assigned by the RIPE NCC. In order to provide this service the RIPE NCC will provide reliable name servers and try to avoid pollution of the DNS in the zones delegated to the RIPE NCC. Therefore the RIPE NCC will check all zones under it's responsibility for proper set-up and functioning.

Goal:

This activity will be necessary to ensure proper address-to-name mapping for addresses allocated to the RIPE NCC.

RIPE WG Advising:

RIPE DNS WG <dns-wg@ripe.net>
RIPE Local IR WG <lir-wg@ripe.net>

R1.7 Registry Consistency & Auditing

Description:

The RIPE NCC will significantly increase its efforts to actively check the quality and validity of registry data. This will also include the production of statistics on address space usage.

In order to ensure a fair address space distribution, the RIPE NCC will regularly check that assignment guidelines are applied equally.

This activity will be separated from the other registration activities because it needs to be defined and executed somewhat independently from the day-to-day processing of requests. Senior hostmasters will be relieved of their daily duties and assigned to this activity for significant periods of time.

Of course consistency checking and auditing will still be performed within other activities as well. This particular activity is to provide the parts that have to be done independently of processing individual requests.

Goal:

This activity will promote consistent and fair application of assignment criteria w.r.t. conservation of address space and aggregation of routing information. This activity will also help to identify parts of the procedures themselves that cause problems. These observations will be reported back to the RIPE Local IR working group for further investigation and improvement of the procedures.

Related Activities:

all registration activities

RIPE WG Advising:

RIPE Local IR WG <lir-wg@ripe.net>

R1.8 Registration Activities Quality Control

Description:

Because of the enormous growth it becomes increasingly important to systematically monitor the quality of registration activities within the NCC.

The NCC will develop quality measures for registration activities and monitor them. Part of this activity will be to give careful attention to customer questions and suggestions. This will also include proposals for possible automation and other improvements of internal procedures and work flow management. Eventually this activity may lead to seeking a formal quality management certification.

Of course quality control will still be performed within other registration activities as well. This particular activity is to provide the parts that have to be done independently of processing individual requests.

This will also be managed and executed separately from day-to-day request processing. Senior hostmasters will be relieved of their daily duties and assigned to this activity for significant periods of time. The reporting chain and responsibility for this activity will be separate from the other registration activities.

Goal:

This activity will help to maintain a high quality of services provided.

Related Activities:

All registration activities. Administration activities.

RIPE WG Advising:

RIPE Local IR WG <lir-wg@ripe.net>

Budgeting:

10% of the costs for this activity are assigned to Administrative services because their quality will also be directly and indirectly monitored and approved.

R2 Initial Support for Local IR's

The initial support for newly established registries is independent from other registration activities. They are not initiated by a request sent to the RIPE NCC but are part of the process to open a Local IR. During this phase additional clarification and explanation is involved to make the new Local IR familiar with all procedures necessary to operate an Internet registry.

R2.1 Initial Contact

Description:
: The RIPE NCC will provide initial support to Local IR's during their start up phase.

Goal:
: This activity will support new Local IR's during their start up phase, so that they feel comfortable with tools, procedures and guidelines.

Related Activities:
: Billing

R2.2 Training Courses

Description:
: The RIPE NCC will develop and deliver Training Courses for Local IR's. The course material will include IP address assignment and allocation procedures and policies, delegation of reverse domains and how to you use the database.

Goal:
: The goal of this activity is to make new Local IR's familiar with procedures and policies as well as to keep established Local IR's up to date with new guidelines and developments. This will facilitate smooth operations between the RIPE NCC and the Local IR's. By establishing the same assignment policies we will also enable a fair distribution of address space among the community.

WG advising:
: RIPE Local IR WG <lir-wg@ripe.net>

R 3 Liaison and Coordination

Description:

The RIPE NCC will perform its function as a Regional Internet Registry (IR) in close cooperation and coordination with other Internet organisations like the IANA, other regional IRs and local IRs. This activity will include processing electronic mail related to registry coordination as well as attending relevant meetings mostly in conjunction with other Internet meetings.

Goal:

The goal of this activity is to ensure the European registry system conforms with the goals and policies of other regional areas of the Internet. It is also important to promote the interests of the Local IR's in its service region to the whole community and the Internet authorities.

WG advising:

RIPE Local IR WG <lir-wg@ripe.net>

Budgeting:

This activity is very closely related to coordination services and it is often not possible to separate out the resource usage in detail. Thus all liaison activities are grouped here, but 50% of the costs are assigned to coordination activities.

C. Coordination Activities

The activities grouped in this area are quite diverse. Their common purpose is to support the coherent operation of the Internet in the European area. In order to be effective the services performed in this area have to be accessible to the general Internet public. However contributors to the funding of the NCC will receive precedence when special support is needed.

C.0 RIPE Database Software

Description:

The RIPE NCC will continue to maintain and expand the RIPE database software suite. The RIPE database software is used to provide a repository for registration services data as well as the RIPE routing registry and to make this data available on the Internet. The software is also used by some local IRs, by the AP-NIC as well as all routing registries worldwide. The NCC will maintain the RIPE database software suite and further develop it to meet future requirements.

Goal:

This activity will result in a highly functional RIPE database software suite in a distributable version. By making this publicly available, compatibility between various registries is promoted.

Related Activities:

Registration services activities (R.1-R.3) heavily depend on this software as does the routing registry (C.5). Other related activities include: C.1, C.2, C.3 and C.7.

WG advising:

RIPE Database WG <db-wg@ripe.net>, RIPE Local IR WG <lir-wg@ripe.net>, RIPE Routing WG <routing-wg@ripe.net>

C.1 RIPE Database Availability

Description:
The RIPE NCC will provide access to the RIPE database via whois and wais servers. Additionally, efforts to support secondary database servers at other sites will be facilitated. In particular, assistance will be provided to local registries in setting up secondary database servers. Software which allows near real time mirroring of the RIPE database will be maintained and enhanced as required.

Goal:
This activity will ensure efficient and reliable access to the information maintained in the RIPE database.

Related Activities:
C.0 Database Maintenance and C.2 Database Exchange

WG Advising:
RIPE Database WG <db-wg@ripe.net>

C.2 Routing Registry Data Exchange

Description:
To ensure efficient access to global routing policy data, the RIPE NCC will coordinate and execute the exchange of data with other routing registries.

Goal:
This activity will enable ISPs to optimize their routing policies at a global level in an efficient fashion.

Related Activities:
C.1 RIPE Database Availability, C.3 Registry Data Exchange, C.5 RR Maintenance, and C.6 RR Tools.

WG Advising:
RIPE Database WG <db-wg@ripe.net> RIPE Routing WG <routing-wg@ripe.net>

C.3 Registry Data Exchange

Description:

The RIPE NCC will coordinate registry data exchange with other regional registries. The extent to which this will be possible depends on the cooperation of other regional registries.

Goal:

To provide the end user with *authoritative* data on address space and other assigned numbers regardless of the regional registry a query is submitted to.

Related Activities:

C.1 RIPE Database Availability, C.7 Database management tools

WG Advising:

RIPE Database WG <db-wg@ripe.net>

C.4 DNS Quality Monitoring

Description:

The DNS name servers in the RIPE NCC service region determine the quality of the data available to the ISPs in the region. The RIPE NCC will track the consistency and availability of DNS name servers in its service region, as well as their immediate connections beyond. The NCC will report errors and will, if necessary, take corrective action. be taken. The NCC will develop tools to detect errors as required. The NCC will publish the monthly European top level domain host count.

Goal:

This activity supports the maintenance of globally consistent DNS servers. In particular it is aimed to ensure the integrity of the reverse delegation data corresponding to the address space allocated by the RIPE NCC.

Related Activities:

R1.6 Reverse DNS Delegation, C.7 Database management tools

WG Advising:

RIPE DNS WG <dns-wg@ripe.net>

C.5 RR Maintenance

Description:

The routing policies registered in the RR can be exploited to determine optimal policies for a particular ISP. To ensure the results are reliable, the RIPE NCC will track consistency of routing registry data. Checks will also be performed for redundant routing announcements. ISPs will be informed of gaps and possible errors. Moreover, the NCC will develop training material for the use of the RR as needed.

Goal:

This activity supports the maintenance of a globally consistent RR. It also helps eliminate redundant route announcements, which in turn helps control the growth of routing tables.

Related Activities:

C.6 RR Tools, C.7 Database Quality Tools, R2.2 Training Courses

WG Advising:

RIPE Routing WG <routing-wg@ripe.net>

C.6 RR Tools

Description:

The Routing Registry tools that were developed in the PRIDE project allow the data stored in the RR to be employed in making routing policy decisions. The RIPE NCC will maintain and extend the RR tools developed in the PRIDE project, help deploy and support RR tools developed by others as necessary and help to develop new tools as required.

Goal:

This activity will enable the data stored in the RR to be used to improve Internet routing at a global level.

Related Activities:

C.2 Routing Registry Data Exchange, C.5 RR Maintenance.

WG Advising:

RIPE Routing WG <routing-wg@ripe.net>

C.7 Database Quality Tools

Description:

The RIPE NCC maintains a number of databases in which address allocations and assignments are stored or referenced. To ensure the data registered is reliable, tools will be developed to monitor consistency of the RIPE database, the RR, the DNS, and the internal databases of the RIPE NCC. Data maintainers will be notified if an inconsistency is detected.

Goal:

This activity will guarantee the authority of the information maintained at the RIPE NCC, and facilitate data consistency among the distributed public databases.

Related Activities:

C.4 DNS Quality Monitoring, C.5 RR Maintenance, R1 Regional Internet Registry 4,3

WG Advising:

RIPE Database WG <db-wg@ripe.net> RIPE Local IR WG <lir-wg@ripe.net>

C.10 RIPE Document Store

Description:

The RIPE NCC will maintain and enable access to documents relevant to ISPs in the RIPE NCC service area. This includes documents produced by RIPE, the RIPE NCC, and related Internet documents which may be of use. The documentation will be made available via FTP and WWW.

Goal:

This activity enables access to key Internet information and documentation, including that produced at the RIPE NCC.

Related Activities:

all NCC activities

A. Administration Activities

This area covers the regular reports published by the NCC, administrative support for RIPE, as well as general administrative overheads which cannot be clearly attributed to a specific activity.

A1. Administration & Reporting

Description:

> The NCC will maintain a proper financial planning, financial accounting, and general administration. It will publish quarterly activity reports, yearly activity and financial reports. The RIPE NCC will also provide administrative support to RIPE, in particular for the organisation of RIPE meetings.

Currently many tasks in this area such as accounting and personnel management are preformed by the TERENA secretariat. During 1997 this support is expected to continue but not increase in absolute terms. This means an increasing proportion of the administrative work will be done by dedicated NCC personnel.

Goal:

> To create and maintain a smooth running administrative core that provides a management information system, guarantees financial husbandry, looks after personnel needs. To provide information to the contributors and other interested parties.

Related Activities:

> This activity is related to and supports all other categories of RIPE NCC.

N. New Activities

This area represents those activities that are either unforeseen or cannot be fully specified at the time of this writing. The existence of this area gives the NCC the flexibility to react quickly to the rapidly changing needs in today's Internet. Activities in this area are often suggested by the appropriate RIPE working group. By their nature new activities are hard to specify in detail and priorities can change quickly. Activities may be dropped or added as necessary. Priorities and details will be discussed intensively with the relevant RIPE working groups. 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 RIPE working groups concerned.

N.1 IPv6 Coordination

Description:

The NCC will gather and publish information about implementations of IP version 6. It will provide coordination support for IPv6 pilot networks including the registration of IPv6 objects in the RIPE database. It will also provide routing and test-target support by operating one or more IPv6 routers and end-systems. This activity is already started and will continue.

Goal:

This activity will provide a source of information about the state of IPv6 and help ISPs to get experience with it.

RIPE WG Advising:

IP Version 6 WG <ipv6-wg@ripe.net>

N.2 Routing Information Service

Description:

Exterior routing is a critical component of the Internet. There is a growing need for network operations staff to have access to the state of routing at strategic points in the European Internet both in near real time and for selected times in the past. This is very helpful to quickly diagnose connectivity problems. Long term time series of this information are also useful to determine trends in routing, help validate routing registry data, promote aggregation and much more.

The RIPE NCC will neutrally and professionally collect real time routing data from those willing to provide it. The NCC will make this data publicly available in a suitable form, possibly similar to the current routing registry.

Note that this activity is markedly different from operating 'route server' at exchange points. It does not provide individual real-time views of routing information to be used for actually routing traffic. It provides general views at specific times for problem diagnosis and archives them.

The RIPE NCC will also provide prototype tools for access to the data. It will not provide full fledged commercial quality tools or integrate this functionality into existing network management tools.

This activity will be started during the year in consultation with the relevant working groups. It's schedule is dependent on the relative priority of other activities in this area. The resources currently planned are sufficient for prototype implementations and initial deployment support showing feasibility and usefulness of the service. Large scale deployment and maintenance may require additional funding which will be sought separately.

Goal:

To provide access to routing state at strategic points both in near real time and for selected times in the past. To enable time series analysis of this data.

RIPE WG Advising:

Routing WG <routing-wg@ripe.net>, EOF <eof-wg@ripe.net>

N.3 Test Traffic Measurements

Description:

The RIPE NCC will compile a 'traffic test station' software suite to inject, absorb and measure test traffic packets. The RIPE NCC will promote deployment of the station by interested parties as well as collect the measurement data, verify, process and make it publicly available in various forms. Note that this data is different from the routing data (N.2) and needs to be collected at different points.

There are many uses for such independently collected and verified data. A near real time stream of measurement data can help to diagnose connectivity problems.

Processed statistics can be used to manage and demonstrate quality of ISPs and the Internet as a whole.

The key to this is the independent and impartial collection and publishing of the data. Also essential is good documentation about what is being measured and what is not.

This activity will be started during the year in consultation with the relevant working groups. It's schedule is dependent on the relative priority given to other activities in this area. The resources currently planned are sufficient for prototype implementations and initial deployment support showing feasibility and usefulness of the service. Large scale deployment and maintenance may require additional funding which will be sought separately.

Goal:

To help diagnose real time connectivity problems. Collection of connectivity data by a neutral agency. To help establish measures for Internet quality.

RIPE WG Advising:

EOF <eof-wg@ripe.net>, Routing WG <routing-wg@ripe.net>

X - Budgeting Principles

Since personnel resources dominate all others, budgeting is based on the expected personnel resources needed by each activity.

In determining the distribution of various overheads to particular budget lines, each overhead was dealt with separately and distributed in an appropriate manner. After this process of distribution total individual FTE costs were allocated to specific activities which were in turn split between the four budget lines. Listed below are all of the overhead categories together with a description of the respective distribution policies.

Office Supplies
: These costs were distributed on an FTE basis.

Rented Equipment
: These costs were distributed on an employee basis, regardless of their FTE status.

Telecommunications Costs
: These costs were distributed on an FTE basis.

Computer Equipment
: These costs were distributed based on an FTE basis.

Travel Costs
: These costs were attributed to the specific activity to which they pertained.

Rent
: This cost was distributed based on an employee basis, regardless of their FTE status.

Recruitment
: These costs were distributed based on an FTE basis.

Consultancy Fees
: These costs were distributed based on an FTE basis.

External Accounting
: These costs were distributed based on an FTE basis.

Unforeseen Expenses
: These were distributed based on an FTE basis.