

# **RIPE NCC Activity Plan and Budget 2013**

*RIPE NCC*

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### **Introduction**

The RIPE Network Coordination Centre (RIPE NCC) is an independent, not-for-profit membership organisation that serves a membership base of over 8,500 members in 75 countries across Europe, the Middle East and parts of Central Asia. It supports the operations of its members and the activities of network operators throughout its service region, specifically activities that require a neutral, impartial and authoritative organisation.

In addition to running a strong, reliable Regional Internet Registry, and associated tools such as the RIPE Database and the LIR Portal, the RIPE NCC provides a range of other services to support the operations of its members. These services offer a complete view of the real-time or historical, state of any IP address range as well as a global network for testing reachability from thousands of nodes. The RIPE NCC also provides training courses such as an introductory course in requesting address space and managing Internet number resources.

While the registry activities and services provided by the RIPE NCC are focused on offering services that support its members' operations, the coordination activities serve the membership and the Internet community at large by supporting critical elements of the Internet's infrastructure and policy development. As well as operating the K-root server, and providing a range of important DNS services, the RIPE NCC organises RIPE Meetings and a range of regional, government and law enforcement meetings. These meetings, and the RIPE NCC's outreach activities in general, are part of efforts to support the RIPE Policy Development Process and to ensure the involvement of all stakeholders from across the public and private sector.

An important aspect of the RIPE NCC's work in this respect is to ensure that government representatives have an informed understanding of the policy and technical processes that are responsible for the success of the Internet. These relationships, established through Roundtable Meetings, participation in OECD and UN working groups and at the Internet Governance Forum (IGF), enable the RIPE NCC to represent the interest of its members and the RIPE community and to promote the robust community-driven processes that underlie the success of the RIPE NCC and the RIPE community.

At the same time, in conjunction with its registry activities and services, the RIPE NCC strives to maintain the stable registration and distribution of Internet number resources and to provide useful tools, services and coordination activities that support the businesses of its members and the technical coordination of the Internet.

In all these processes, the RIPE NCC relies on the input it receives from its members and those in the RIPE community to ensure the organisation is best placed to meet its stakeholders' needs.

### **Activity Plan Process**

Since its inception the RIPE NCC has run an open and transparent process regarding its activities and budget. A variety of feedback mechanisms are utilised throughout the year to gather membership and community input on activities that the RIPE NCC carries out. These feedback mechanisms include, but are not limited to: the RIPE NCC Membership and Stakeholder Survey; the RIPE NCC Services Working Group; RIPE Meetings; Regional Meetings. The input that is received is then incorporated by the RIPE NCC Management into its strategy for the following year. In line with good Corporate Governance, this strategy is then discussed at length with the RIPE NCC Executive Board who then develop and produce the draft Activity Plan and Budget published in advance of the Autumn General Meeting for further discussion. Following the discussion that takes place on the relevant mailing lists and at the General Meeting, the RIPE NCC Executive Board make any necessary amendments before they formally approve the final Activity Plan and Budget, which is published annually in December.

This is an ongoing process that provides all RIPE NCC members with opportunities for providing feedback on the RIPE NCC's strategy, activities and budget. Ultimately the RIPE NCC Executive Board, which is made up of five representatives elected by RIPE NCC members, approve the final Activity Plan and Budget. The membership is able to express their confidence in the individuals on the Executive Board by voting for their preferred candidates during Executive Board elections at RIPE NCC General Meetings.

### **Overview of RIPE NCC Costs per Activity 2013**

Below is an overview of the Full-Time Equivalents (FTEs), operational expenses (OPEX) and capital expenses (CAPEX) per activity. All amounts are in kEUR. The overview is presented on two levels. It is possible to click on any level 1 or level 2 activity for more detailed information.

Level 1	Level 2	FTEs	OPEX kEUR	CAPEX kEUR
<b>1. The Registry</b>		<b>44</b>	<b>3,813</b>	<b>600</b>
	* <a href="#">1.1 Registry Maintenance</a>	29.0	2,620	7
	* <a href="#">1.2 Certification (RPKI)</a>	2.6	336	200
	<a href="#">1.3 RIPE Database</a>	7.4	424	393
	<a href="#">1.4 LIR Portal</a>	5.1	433	-
<b>2. Services</b>		<b>25</b>	<b>2,865</b>	<b>414</b>
	<a href="#">2.1 Training</a>	7.1	886	-
	* <a href="#">2.2 RIPEstat</a>	5.0	489	153
	* <a href="#">2.3 RIPE Atlas</a>	9.5	1,124	216
	<a href="#">2.4 Other Services</a>	3.7	366	45
<b>3. Coordination Activities</b>		<b>29</b>	<b>6,168</b>	<b>135</b>
	<a href="#">3.1 DNS Services and K-root Operations</a>	2.6	350	95
	<a href="#">3.2 RIPE Labs</a>	2.4	373	-
	<a href="#">3.3 Measurements and Data Collection</a>	2.2	295	20
	<a href="#">3.4 Government and LEA Liaison</a>	1.3	499	-
	* <a href="#">3.5 Outreach &amp; External Relations</a>	5.6	1,014	-
	<a href="#">3.6 Regional Support and Outreach</a>	1.5	505	-
	<a href="#">3.7 RIPE Meetings</a>	7.3	1,498	20
	<a href="#">3.8 RIPE Policy and Community Support</a>	2.0	247	-
	<a href="#">3.9 IPv6 Support</a>	1.0	154	-
	<a href="#">3.10 ICANN/IANA/IETF/ISOC/RIRs</a>	2.9	1,233	-
<b>4. Internal</b>		<b>37</b>	<b>5,637</b>	<b>658</b>
	<a href="#">4.1 IT</a>	12.6	1,685	452
	<a href="#">4.2 Facilities - Rent and Utilities</a>	4.3	1,211	160
	<a href="#">4.3 HR &amp; Management</a>	6.2	1,255	26
	<a href="#">4.4 Finance &amp; Admin</a>	7.9	657	20
	<a href="#">4.5 Specialist Support (Legal &amp; Information Security)</a>	2.8	446	-
	<a href="#">4.6 Organisational Activities (GM and Executive Board Meetings)</a>	3.0	383	-
<b>Total</b>		<b>135</b>	<b>18,483</b>	<b>1,807</b>

\* RIPE NCC strategic focus point for 2013

## ***Notes on Overview of RIPE NCC Activities***

### **FTE**

Full-Time Equivalents (FTEs) are given to one decimal place for Level 2 activities and rounded to a whole number for Level 1 activities. These figures include both the personnel dedicated to each activity as well as supporting staff.

### **OPEX (Operational Expenses)**

Operational expenses are all direct costs that relate to the activity / project and a portion of overhead that is related to absence (vacation, illness, education) that has been allocated to the project. The overhead allocation is based on the percentage of FTEs involved in the activity divided by the overall FTEs. Operational expenses exclude depreciation and bad debts expenses.

### **CAPEX (Capital Expenditure)**

Capital expenses are all items that are taken as an asset. These items include hardware and software, infrastructure, office furniture and software development. Hardware and software consists of hardware and purchased activated software. All items under EUR 500 are expensed, as is required by the tax code. Intangible fixed assets includes only in-house software development. Software development costs are capitalised insofar as they are incurred in respect of potentially valuable projects and are stated at costs. These costs comprise the costs of direct labour as well as outsourced consultancy costs.

## **RIPE NCC Activities 2013**

### **1) Regional Internet Registry**

#### **\*\*\* 1.1 Registry Maintenance \*\*\* STRATEGIC FOCUS POINT 2013**

Since 1992, the RIPE NCC has been responsible for distributing Internet number resources in its service region. One of the organisation's key responsibilities is the strength and quality of the Internet number resources registry associated with the distribution of these resources.

With the exhaustion of unallocated IPv4 address space, the RIPE NCC will ensure that it continues to fulfill its stewardship duties by adapting its registry function appropriately. This will involve a focus on legacy address space to ensure that it is accurately registered in the RIPE NCC registry. At the same time, the registry will be evolved to ensure that it can accurately deal with the transfer of IPv4 space, a scenario that has become increasingly likely given the scarcity of unallocated IPv4 address space.

With the exhaustion of the unallocated IPv4 address pool, there will be increased scrutiny on the processes involved in IP address space allocation, the possibility of a growing demand for resource transfers and an increased potential for conflicts over address space. Given these developments, the RIPE NCC will continue to provide a robust and authoritative registry at the same time as responding to any community-driven initiatives for increasing the accuracy and range of data stored in the registry of Internet number resources.

The accuracy of this data, vital for day-to-day network operations, is also of increasing importance to governments, regulators and law enforcement agencies. In ensuring that this data is comprehensive, accurate and up-to-date, the RIPE NCC's registry function will not only support these stakeholders and its members but will also provide invaluable authoritative data for future Internet coordination, statistical and research activities. The RIPE NCC will continue work to measure, monitor and enhance the data quality of Internet number resource registrations. The focus here will be on the legacy address space allocated before the Regional Internet Registry (RIR) system existed. The goal of these activities will be to bring legacy space registration records up to the same standards of accuracy as address space distributed by the RIPE NCC since 1992.

A range of services, such as the Certification system and enhanced audit activities, will provide an incentive for holders of such space to make sure that their Internet number resources are accurately registered in the registry. The focus will be on tools and value-added services that the RIPE NCC can provide to its members to improve both their day-to-day operations and the accuracy of the registration data of Internet number resources in the RIPE NCC registry.

The RIPE NCC will also continue to work with the other RIRs to increase data quality and to make this improved data readily available to the Internet community.

#### **Benefits for RIPE NCC members / RIPE community:**

- Improves the accuracy and range of data stored in the registry of Internet number resources

- Enables the registry to evolve so that it can deal with changes resulting from the exhaustion of the unallocated IPv4 address pool
- Improves the accuracy of legacy address space registration records

### **1.1.1 Distribution and Management of Internet Number Resources**

In its role as a Regional Internet Registry (RIR), the RIPE NCC provides allocation and registration services to Local Internet Registries (LIRs) in Europe, the Middle East and parts of Central Asia. The overall goal of the RIPE NCC's allocation and registration services is to provide fair, impartial and stable distribution of Internet number resources in its service region.

#### **Benefits for RIPE NCC members / RIPE community:**

- Provides a fair, impartial distribution of Internet number resources guided by policies developed by the RIPE community
- Ensures the uniqueness of IP addresses, aggregation of routing information and the conservation of IP address space
- Implements the necessary procedures to enable the processes defined in the policies developed by the RIPE community
- Enables the accurate registration of network management and contact information

### **1.1.2 IPv4 / IPv6 Address Space and Autonomous System (AS) Numbers**

The RIPE NCC allocates and assigns Internet number resources according to RIPE community policy. The RIPE NCC allocates and assigns IPv4 and IPv6 address space to RIPE NCC members. The RIPE NCC also assigns AS Numbers and registers these numbers and the initial associated routing policy, ensuring the uniqueness of AS Numbers and collecting data for the Routing Registry. From 2007, the RIPE NCC has assigned AS Numbers from both the 16-bit and 32-bit pools.

#### **Benefits for RIPE NCC members / RIPE community:**

- Enables the fair distribution of Internet number resources
- Promotes the efficient use of IP address space and AS Numbers
- Facilitates the optimal aggregation of routing information
- Supports members with the relevant processes and procedures

### **1.1.3 Auditing**

The RIPE NCC actively checks the quality and validity of Internet resource registry data. This audit activity has been set in place to ensure the fair and neutral application of policies set by the RIPE community.

For 2013, the RIPE NCC will increase the number of annual audits it performs from the current figure of 400 to around 2,000. Currently, the audit process focusses on the correctness of registry and RIPE Database data and compliance with policies related to Internet number resources in use. In 2013, the audit activity will become more detailed in order to provide added value to the RIPE NCC membership. Audits will look at reverse DNS setup and RIPE Database entries. They will also use RIPE Atlas in order to

determine the reachability of a particular network and will check for Certification usage and consistency.

**Benefits for RIPE NCC members / RIPE community:**

- Enables the fair and neutral application of policies set by the RIPE community
- Educates RIPE NCC members on how to achieve compliance with RIPE Policies
- Offers added value to RIPE NCC members by providing an overview of how their networks are perceived by an independent entity

**1.1.4 Data Accuracy**

For 2013, the RIPE NCC will continue work to implement the RIPE Policy related to establishing an indirect or a direct contractual link between the End Users of Provider Independent (PI) address space and the RIPE NCC (ripe-452). The RIPE NCC will also continue work on registering legacy Internet number resources that were allocated before the current RIR system was in place.

**Benefits for RIPE NCC members / RIPE community:**

- Keeps the data in the RIPE Registry as current, complete and correct as possible
- Ensures that Internet number resources are registered to the legitimate End Users, possibly Legacy resource holders

**1.1.5 Filtered Resource Assistance**

The RIPE NCC offers assistance to members whose IP address space is being filtered.

**Benefits for RIPE NCC members / RIPE community:**

- Helps members understand who is filtering their address space and what can be done to have these filters updated
- Assists members in contacting the party that is filtering the relevant IP address space so that the filters can be updated

**1.1.6 Listing Service**

The Listing Service facilitates the transfer of IPv4 PA address space between RIPE NCC members according to the IPv4 Address Allocation and Assignment Policies for the RIPE NCC service region.

**Benefits for RIPE NCC members / RIPE community:**

- Allows holders of unused IPv4 PA allocations to voluntarily re-allocate complete or partial blocks of their allocated IPv4 address space to entities that have a demonstrated need for IPv4 addresses

### **1.1.7 Resource transfers between Sponsoring LIRs**

Subject to the RIPE Policy on contractual requirements for PI resource holders (ripe-452), the RIPE NCC facilitates the transfer of independent Internet number resources from a sponsoring LIR to a new sponsoring LIR.

#### **Benefits for RIPE NCC members / RIPE community:**

- Enables transfers between sponsoring LIRs
- Helps to improve the accuracy and currency of the RIPE Registry
- Enhances independence of address holder from sponsoring LIR

### **1.1.8 Reputation Service**

This new service will show RIPE Database users the last time each object was audited either by the RIPE NCC or by the LIR itself. A feature will be added to the LIR Portal in 2013 that will enable LIRs to 'self-audit' their objects and to easily perform mass updates.

#### **Benefits for RIPE NCC members / RIPE community:**

- Provides an incentive and an easy way for LIRs to keep their RIPE Database objects up to date
- Increases the accuracy of the RIPE Database

### **1.1.9 History of RIPE Database Object Updates**

The RIPE NCC checks for unauthorised changes in RIPE Database objects for which it is administratively responsible (mainly independent Internet number resources).

#### **Benefits for RIPE NCC members / RIPE community:**

- Provides active investigation of the reason for unauthorised changes to RIPE Database objects, helping to improve the correctness of data in the registry
- Educates LIRs in the case of a mistaken update, de-registration, RIPE Policy violation or updates related to transfers of resources
- Contributes to maintaining a correct and accurate RIPE Registry

### **1.1.10 Resources De-registration**

The RIPE NCC de-registers Internet number resources that have been allocated or assigned under false pretenses; that contravene RIPE Policies; or that have been hijacked. This activity also applies to LIRs that have been closed for non-payment of their service fee or for termination of their contract.

#### **Benefits for RIPE NCC members / RIPE community:**

- Helps to keep the RIPE Registry accurate and current
- Prevents hijacking of Internet number resources

### Registry Maintenance Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
Registry Maintenance	29.0	2,620	7

### \*\*\* 1.2 Resource Certification (RPKI) \*\*\* STRATEGIC FOCUS POINT 2013

The Resource Certification (RPKI) system allows RIPE NCC members to request a digital certificate listing the Internet number resources they hold. It offers cryptographic proof that a certain organisation holds a certain set of resources that have been registered with the RIPE NCC. The practical application offered today is the ability to use resource certificates to help secure Internet routing, particularly BGP origin validation.

For 2013, the RIPE NCC will develop the RPKI system with a focus on security, resilience and operator autonomy. The service will also be expanded, as requested by the RIPE NCC membership, so that legacy address space holders and PI End Users who have address space registered in the RIPE Database will be eligible for a resource certificate.

Resilience will be improved so that all elements of the service are available at all times for LIRs' daily operations and that there is no single point of failure. This will involve providing a Hosted Certificate and Route Origin Authorisation (ROA) management system via the LIR portal; offering a non-hosted Parent Certificate system; and enabling data retrieval via the ROA repository.

The RIPE NCC has taken steps so that operators are fully in control when making BGP routing decisions based on the RPKI data set. For example, the RIPE NCC RPKI Validator has the option to specify local overrides on the global data set. In 2013, we will expand our efforts to enable operator autonomy with periodic audits of the RPKI system by an independent party.

#### Benefits for RIPE NCC members / RIPE community:

- Offers validated proof of holdership
- Offers a platform that helps making Internet routing more secure
- Certifies all types of Internet number resources
- Makes the RIPE NCC Registry more robust

### RPKI Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
RPKI	2.6	336	200

## **1.3 RIPE Database**

The RIPE Database contains registration details of IP addresses and AS Numbers used by networks based in the RIPE NCC service region. It shows the organisations that hold the resources, where the allocations were made and contact details for the networks. The organisations that hold those resources are responsible for updating their information in the RIPE Database. An Internet Routing Registry (IRR), primarily for the RIPE NCC service region, is also part of the RIPE Database.

### **Benefits for RIPE NCC members / RIPE community:**

- Enables a range of users, including network engineers, system administrators, researchers and End Users, to find the information they need for network troubleshooting or determining abuse contacts

### **1.3.1 RIPE Database: Maintenance and Development**

The RIPE NCC regularly makes improvements to the interface for the RIPE Database. This includes implementing community-driven changes as they arise, making software and system modifications in response to feedback from users and decisions made by the RIPE community.

### **Benefits for RIPE NCC members / RIPE community:**

- Provides users with more useful features and easier ways to update the database
- Improves the accuracy and the usefulness of the data in the RIPE Database

### **1.3.2 User Support and Software Maintenance**

The RIPE NCC provides user support for the RIPE Database and related services. This includes incident handling and problem resolution as well as responding to user questions and comments.

The RIPE NCC also performs regular software maintenance activities, including bug fixes and minor modifications. The results of these software development efforts are made publicly available, both in the production software as well as by means of providing the source code to the community.

This activity includes the maintenance and improvement of documentation associated with the RIPE Database.

### **Benefits for RIPE NCC members / RIPE community:**

- Provides user support for the RIPE Database and related services
- Incorporates user feedback into the developments of the service
- Keeps the user community informed about new developments as well as planned and emergency maintenance
- Ensures the high quality of the system software and the reliable operation of the database and related services

### 1.3.3 New Database Features

The RIPE NCC designs and implements new database features as requested by the user community or proposed by the RIPE NCC. It performs the development work based on the priorities established in the appropriate RIPE Working Groups.

#### **Benefits for RIPE NCC members / RIPE community:**

- Ensures that the RIPE Database continues to serve the needs of the user community and the priorities of the RIPE Working Groups
- Provides new features to the RIPE Database that reflect the changing requirements of the Internet community

### 1.3.4 Implementation of New Version of RIPE Database

The current version of the RIPE Database has been in production for more than ten years and, as a consequence, maintaining and adding features to this old platform has become costly, time-consuming and difficult to scale.

As a result, the RIPE NCC has focused on implementing a new version of the RIPE Database software with the latest tools and technologies. Most of the new version is already in production but the code base is still being improved before public release of the source code.

There is currently a lot of activity in the IETF about standardising the global whois query and response format. The RIPE NCC is committed to adding support for these standards to the RIPE Database software.

#### **Benefits for RIPE NCC members / RIPE community:**

- Enables the RIPE Database software to scale to new performance and hardware requirements
- Makes the software more maintainable and so enables the implementation of new features in a timely fashion and without spending resources to create more legacy code
- Incorporates the latest changes in Internet standards and complies with current standards and practices designed to achieve global compatibility

#### **RIPE Database Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
RIPE Database	7.4	424	393

## 1.4. LIR Portal

The LIR Portal is the primary place where members interact with the RIPE NCC. This ranges from resource requests to billing. For 2013, the RIPE NCC plans to enhance the LIR Portal to make it the single place where members can manage and analyse everything related to their Internet number resources.

The first results of these efforts can already be seen in the IP Analyser tool, which will be expanded to encompass all types of address space and to offer an overview of the resources and RIPE Database objects that require attention.

In addition, we will make all information retrievable through an application programming interface (API) so that it can be used in the IP address management tools that members use in their organisation.

### Benefits for RIPE NCC members / RIPE community:

- Provides a central place where members can efficiently manage and analyse all aspects of the Internet number resources they receive from the RIPE NCC
- Makes resource requests easier and more efficient
- Enables members to incorporate LIR Portal functionality into their own IP address management tools
- Strengthens the registry

### 1.4.1 IP Analyser

The IP Analyser is a service accessible through the LIR Portal that gives RIPE NCC members detailed information about their IPv4 and IPv6 allocations and assignments. The ultimate goal is to offer a complete overview of all the IP resources an LIR holds and to inform them about everything related to those resources.

### Benefits for RIPE NCC members / RIPE community:

- Gives a complete insight into the status of the IP resources that are held by an LIR, including:
  - which allocations are held
  - which assignments have been made
  - how much of the allocations are in use
  - which free address space can be assigned to customers
  - which overlapping and invalid assignments have been made
  - whether the LIR is eligible for an additional allocation

### LIR Portal Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
LIR Portal	5.1	433	-

## **2) Services**

### **2.1 Training**

#### **2.1.1 LIR Training Course**

The LIR Training Course is a one-day introduction to the administrative procedures and policies related to obtaining and distributing Internet resources (i.e. IP addresses, AS Numbers and reverse DNS delegations) and operating an LIR. Training Courses are offered across the whole RIPE NCC service region.

##### **Benefits for RIPE NCC members / RIPE community:**

- Increases understanding of the RIPE NCC's processes and procedures and how resources are distributed
- Ensures LIRs know how to send correctly prepared Internet number resource requests to the RIPE NCC, enabling a more timely completion of these requests
- Ensures LIRs know the correct procedure for registering and updating registry data relating to Internet number resources and how to work with the RIPE Database
- Increases awareness of the RIPE Policy Development Process
- Gives LIRs the opportunity to meet RIPE NCC staff face-to-face

#### **2.1.2 IPv6 Training Course**

The IPv6 Training Course is a one-day course about the need for IPv6 and includes basic information on how to plan IPv6 deployment.

##### **Benefits for RIPE NCC members / RIPE community:**

- Increases awareness about IPv4 depletion
- Increases IPv6 uptake
- Removes fears about IPv6 and the deployment process
- Increases awareness about IPv4 and IPv6 coexistence

#### **2.1.3 Routing Registry and Resource Certification (RPKI) Training Course**

The Routing Registry Training and Resource Certification (RPKI) Training Course is a one-day course that covers Internet Routing Registry (IRR) usage, Routing Policy Specification Language (RPSL) and Resource Certification (RPKI). This course is intended for members that have basic experience with the RIPE Database and who understand the BGP protocol and inter-domain routing.

##### **Benefits for RIPE NCC members / RIPE community:**

- Increases understanding of how to make Internet routing more secure and reliable with the information available in the Routing Registry and Resource Certification (RPKI) systems
- Explains how to document routing policy in the RIPE Database with RPSL
- Increases understanding of how to set up the Resource Certification system in the

- LIR Portal
- Explains how to use resource certificates to create Route Origin Authorisations (ROAs)
- Demonstrates the use of ROAs in the BGP decision-making process

#### **2.1.4 RIPE NCC E-Learning Centre**

The RIPE NCC provides a range of courses to members and non-members, using a variety of teacher-based courses and additional training strategies. A key strategy in this respect is the RIPE NCC E-Learning Centre. This is a free resource allowing members and non-members to access online modules on a variety of courses, ranging from IPv6 and DNSSEC to the RIPE Database.

#### **Benefits for RIPE NCC members / RIPE community:**

- Enables members and non-members to access learning resources online at a time and place that is convenient for them

#### **2.1.5 RIPE NCC Webinars**

The RIPE NCC Webinars are live, one-hour online training courses that allow participants to interact with RIPE NCC trainers without leaving their desks. The RIPE NCC will focus on topics and issues most important for LIRs. The following webinars are currently available:

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

The following topics will be developed:

- IPv6 - how to achieve 4\* RIPv6ness
- New LIR webinar – How to Get Started

#### **Benefits for RIPE NCC members / RIPE community:**

- Enables members to interact with RIPE NCC trainers and to learn about a variety of topics quickly and without having to travel

#### **Training Course Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
Training	7.1	886	-

### \*\*\* 2.2 RIPEstat \*\*\* STRATEGIC FOCUS POINT 2013

RIPEstat provides a one-stop shop for comprehensive information about the current state and history of specific Internet number resources (IP Addresses, ASNs). It presents information from the RIPE registry, various measurements and third party databases such as geo-location and blacklists and provides both near real-time and historical information about a specified IP address range or ASN.

By the end of 2012, RIPEstat will incorporate virtually all public data available at the RIPE NCC to describe Internet number resources. It will enable users to query for raw data or by using default or customised visualisations while responding with relevant answers and reasonable performance.

For 2013, the RIPE NCC will focus on expanding the infrastructure used by this service and on keeping up with the usage growth. Measurement data from RIPE Atlas will be incorporated into RIPEstat. In particular, measurement results related to the queried resources will be shown, if such results are available.

Using feedback from RIPEstat users, the RIPE NCC will also make an evaluation of possible tools or features that can be incorporated into RIPEstat to make the service more useful for RIPE NCC members and the broader user base.

#### **Benefits for RIPE NCC members / RIPE community:**

- Provides the RIPE community and RIPE NCC members with current and historical information about any Internet number resource
- Provides RIPE NCC members with historic information about the Internet number resources they are responsible for
- Provides RIPE NCC members with routing-specific functions, such as alarms
- Provides targeted analysis and user interface options aimed specifically at members

#### **RIPEstat costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
RIPEstat	5.0	489	153

### \*\*\* 2.3 RIPE Atlas \*\*\* STRATEGIC FOCUS POINT 2013

RIPE Atlas provides active measurements of packet flows from thousands of vantage points across the Internet with emphasis on the RIPE NCC service region. This augments the current routing based measurements with actual data traffic: RIPE Atlas does not measure how packets *should* flow but if and how they *actually do*.

RIPE Atlas allows users to run their own measurements that test reachability and round trip times, traceroutes, DNS measurements and more. Users can select from thousands of vantage points. All measurements are pooled and provide a big-picture view of the

Internet presented as “traffic maps”.

By the end of 2012 the RIPE Atlas network will consist of approximately 2,500 active measurement probes, mostly operating in the RIPE NCC service region.

In 2013, the RIPE NCC will continue to expand the RIPE Atlas command, control and collection infrastructure to accommodate the growing number of probes. The RIPE NCC plans to distribute 4,000 additional RIPE Atlas probes in order to gain more vantage points and thereby a more detailed picture of the forwarding plane of the Internet.

In addition, we will deploy approximately 50 RIPE Atlas Anchors. These larger nodes, which will be provided by hosting organisations, will function as high capacity measurement probes and will provide a cooperating target for measurement traffic. This will allow users to examine measurement traffic at both the source and the destination.

The measurable goals for RIPE Atlas in 2013 are:

- 6,000 active probes
- 50 active RIPE Atlas Anchors
- Three new traffic maps
- Data sharing codified and available for all interested parties

The RIPE NCC will extend RIPE Atlas with components that can notify users in the case of pre-defined events occurring (alarms) and will continue expanding data sharing (availability and access) to interested parties.

Based on the data back-end used by RIPE Atlas, all Atlas data will be stored in such a way that allows this data to be used in other services, such as RIPEstat. In addition, the RIPE NCC will create and document application programming interfaces (APIs) for measurement specification and data access. The goal is to enable RIPE Atlas users to access its functionality from scripted environments, giving more flexibility to incorporate RIPE Atlas services into other business or monitoring processes.

The RIPE NCC will actively maintain a public roadmap for RIPE Atlas and will hold continued dialogue with the RIPE community, especially the RIPE MAT Working Group, about future developments and functionality.

#### **Benefits for RIPE NCC members / RIPE community:**

- Enables users to send actual active measurement traffic from thousands of vantage points across the Internet and to record the responses
- Provides Internet traffic maps that show the general state of the Internet for situational awareness
- Provides timely, hard data on topical issues
- Offers topical measurements, data analysis and alarms for RIPE NCC members
- Reinforces the credibility and standing of the RIPE NCC

### 2.3.1 RIPE Atlas Anchors

The RIPE NCC will deploy approximately 50 RIPE Atlas Anchors in 2013. The Anchors will have two main functions:

- Provide a cooperating target for measurement traffic that will allow measurement traffic to be observed at both the source and the destination
- Act as high-capacity probes, compared to the standard RIPE Atlas probes, generating measurement traffic

The RIPE Atlas Anchors will be capable of carrying out part of the functionality currently offered by the Test Traffic Measurements (TTM) service (see 2.4.5). RIPE Atlas Anchors will be capable of evolving into a more advanced “RIPE NCC box” offering additional services such as local instances of K-root.

#### **Benefits for RIPE NCC members / RIPE community:**

- Perform part of the measurement functionality provided by TTM
- Perform active measurements
- Attract active measurements from others to RIPE Atlas Anchors
- Capable of hosting local node of K-root
- Will allow RIPE NCC services to be obtained more quickly at the local level

#### **RIPE Atlas Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
RIPE Atlas	9.5	1,124	216

## 2.4 Other Services

### 2.4.1 Routing Information Service (RIS)

The RIPE NCC operates a worldwide network of Border Gateway Protocol (BGP) monitoring probes, known as Remote Route Collectors (RRCs). They provide a fully integrated global view of routing information at key locations around the world. All collected data is time-stamped, stored in a database and used as the input for various tools, as well as being made available for download.

#### **Benefits for RIPE NCC members / RIPE community:**

- Provides a comprehensive collection of data from Internet routing plane
- Offers one of only two major efforts worldwide to capture routing data: route views and RIS
- Provides a long-time series of routing data from a neutral and impartial source

## **2.4.2 DNS Measurements**

The RIPE NCC's DNS measurements are focused on the DNS Monitoring Service (DNSMON), which provides a comprehensive, objective and up-to-date overview of the quality of the service offered by certain DNS root, Top-Level Domain (TLD) and ENUM tier-1 name servers. The data is updated regularly and presented at various levels of granularity.

While DNSMON will continue to run in 2013, DNSMON data will be incorporated into RIPE Atlas.

### **Benefits for RIPE NCC members / RIPE community:**

- Provides neutral and impartial measurements and high-quality monitoring of important DNS servers
- Enables users to view historical data, enabling a quick analysis of both past and present DNS issues
- Monitors authoritative servers focused on high-level DNS zones operated by members

## **2.4.3 Administrative Support**

The RIPE NCC provides administrative support for services such as RIPE Atlas, the DNS Monitoring service (DNSMON), Test Traffic Measurements (TTM) and the Routing Information Service (RIS). This includes incident handling and problem resolution as well as responding to user questions and comments.

### **Benefits for RIPE NCC members / RIPE community:**

- Ensures new user applications run smoothly and efficiently from beginning to end
- Initiates and activates RIPE Atlas probes
- Provides first line user support for these services
- Collects user feedback regarding these services

## **2.4.4 RIPE NCC Access**

RIPE NCC Access is the RIPE NCC's single sign-on system, which allows RIPE NCC members to use a single set of credentials to access our various services without being prompted to log in again at each of them. Currently, the following services are supported by RIPE NCC Access:

- LIR Portal
- IS Alarms
- RIPE Labs
- RIPEstat
- RIPE Atlas
- RIPE Meeting website

### **Benefits for RIPE NCC members / RIPE community:**

- Offers a simplified and unified access to RIPE NCC services and improves the overall user experience

### **2.4.5 Test Traffic Measurements (TTM)**

The RIPE NCC will wind down the Test Traffic Measurements (TTM) service in 2013. It is intended that the benefits of the TTM service will be offered in a more focused and up-to-date way through RIPE Atlas. Where possible, the current TTM test-box hosts will be able to host RIPE Atlas Anchors once the TTM systems are fully migrated to that system.

### **Benefits for RIPE NCC members:**

- The measurements and trend analysis benefits for RIPE NCC members arising from TTM will be continued in more focused ways through RIPE Atlas

### **2.4.6 Near Real Time Mirroring**

The Near Real Time Mirroring (NRTM) service provides RIPE NCC members with a local copy of the RIPE Database. This local copy is kept up to date with modifications from the RIPE Database in near real time. The NRTM feeds do not contain any personal or private data.

### **Benefits for RIPE NCC members / RIPE community:**

- Provides members with a local copy of the RIPE Database
- Enables members to use RIPE Database data (e.g. routing data) in near real time to manage their networks without the need to continuously query the RIPE Database for changes

### **2.4.7 RIPE Database Proxy Service**

The RIPE Database Proxy Service is specifically aimed at RIPE NCC members who send queries to the RIPE Database on behalf of their clients. It ensures that the daily access limits that apply to all users of the RIPE Database are correctly applied. For example, if a member provides their clients with a web-based query gateway to the RIPE Database, the proxy service ensures that daily limits are calculated based on the clients' queries and avoids the possibility of a member's server being denied access to the RIPE Database because of too many queries from that member's clients.

### **Benefits for RIPE NCC members / RIPE community:**

- Provides members with a mechanism for ensuring that their clients' RIPE Database queries are not added to the member's daily access limit
- Helps to ensure the accessibility of query gateways to the RIPE Database that members provide to their clients

### Other Services Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
Other Services	3.7	366	45

### 3) Coordination Activities

#### 3.1 DNS Services and K-root Operations

The RIPE NCC provides DNS coordination and support activities as well as reverse DNS services for IPv4 and IPv6 address space managed by the RIPE NCC. For reverse DNS associated with address space managed by other RIRs, the RIPE NCC provides secondary DNS to support the reliability of reverse lookups. The scalability of the DNS infrastructure for secondary, reverse and primary DNS services is improved based on the requirements specific to each of these services.

In 2013, the RIPE NCC plans to expand the authoritative and secondary DNS services currently provided from Amsterdam and London cluster nodes by adding a third cluster node to improve resilience and geographical coverage.

#### Benefits for RIPE NCC members / RIPE community:

- Stability and diversity of the DNS root name server system
- Neutral, impartial and professional provision of key high-level DNS services
- Reverse DNS service for RIPE NCC members with registered IP addresses

##### 3.1.1 Reverse DNS

The RIPE NCC delegates reverse DNS zones for the address ranges managed by the RIPE NCC. To support this service, the RIPE NCC provides reliable, authoritative name servers and checks all zones under its responsibility to ensure they are properly set up and functioning correctly.

As part of its efforts in the area of DNSSEC deployment, the RIPE NCC publishes signed zones and provides tools for users to secure delegations received from the RIPE NCC. In addition, the RIPE NCC shares experience through publishing operational white papers, documentation and software toolkits.

#### Benefits for RIPE NCC members / RIPE community:

- Supports the proper address-to-name mapping for addresses allocated to the RIPE NCC
- Provides reliable and secure reverse DNS services
- Supports the operation and maintenance of DNSSEC

### **3.1.2 Secondary DNS Service**

The RIPE NCC offers a secondary name service to the other Regional Internet Registries (RIRs) along with some country code Top-Level Domain (ccTLD) operators, although it no longer provides this service to well-established ccTLDs.

#### **Benefits for RIPE NCC members / RIPE community:**

- Supports the stability of the global DNS by offering a professional and stable service to the other RIRs and developing ccTLD operators that require it

### **3.1.3 DNS Services in the e164.arpa Domain (ENUM)**

The Internet Architecture Board (IAB) has an agreement with the RIPE NCC under which the RIPE NCC provides technical operation of the e164.arpa domain. This domain implements support in the DNS for the ENUM protocol, allowing mapping of telephone numbers to domain names in order to help facilitate such services as Voice over IP (VoIP).

#### **Benefits for RIPE NCC members / RIPE community:**

- Supports operations of one of the systems required for the deployment of the ENUM protocol, promoting increased integration between the Internet and services provided through the traditional telephony infrastructure
- Supports security of the e164.arpa domain by deploying and maintaining DNSSEC and allowing secure delegations from ENUM operators

### **3.1.4 DNS and Reverse DNS (First Line Support)**

The RIPE NCC provides DNS coordination and support activities as well as reverse DNS services for IPv4 and IPv6 address space managed by the RIPE NCC.

#### **Benefits for RIPE NCC members / RIPE community:**

- Provides first line user support for DNS, Reverse DNS and related services
- Continuously collects user feedback regarding these services

### **3.1.5 K-root Operations**

The RIPE NCC operates the K-root server. Root name servers are a crucial part of the Internet DNS infrastructure. The RIPE NCC has operated the K-root server since 1997, when the first server was installed at the London Internet Exchange (LINX) in the United Kingdom.

Since 2003, the RIPE NCC has been deploying anycast instances of the K-root server with local reachability. The RIPE NCC has also deployed five global nodes of the K-root name server. The RIPE NCC collects and analyses data to evaluate the performance of the K-root anycast nodes that have been deployed and to determine if, and where, other anycast nodes should be deployed.

### **Benefits for RIPE NCC members / RIPE community:**

- Improves the resiliency, efficiency, security and quality of the K-root service
- Isolates the impact of an "external" Denial of Service (DoS) attack and localises the impact of a "local" DoS attack
- Efficiently maintains the network of anycast instances of K-root by monitoring network and instance problems, performing trend analysis and determining if, and where, other anycast nodes should be deployed

### **DNS Services and K-root Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
DNS services and K-root operations	2.6	350	95

### **3.2 RIPE Labs**

RIPE Labs is a platform focused on developing innovative Internet-related tools and ideas that have developed both within the RIPE NCC and the community at large. It enables direct user engagement during the production and development process of many RIPE NCC services as well as acting as a platform for knowledge sharing.

RIPE Labs is seen as another channel to gain both member and community feedback about the services provided by the RIPE NCC, especially those that are continuously being developed. The RIPE NCC wants to get more feedback about the services being developed so that we can better serve the needs of the membership.

We also want to increase the amount of community articles that appear on RIPE Labs and will also look to increase interaction so that those publishing their articles will get more feedback from their peers.

The RIPE NCC plans to build on the success of RIPE Labs since its launch in 2009 and wants to continue building on this success in 2013. In addition, the RIPE NCC wants to develop RIPE Labs over 2013 so that it can act as the definitive portal for RIPE NCC associated statistics. These statistics, which will include dynamic and historical statistics, will be presented in an easy-to-find and logical format.

### **Benefits for RIPE NCC members / RIPE community:**

- Stimulates community building
- Enables rapid prototyping of new ideas in a pre-production environment
- Allows for community feedback during the RIPE NCC service development phases
- Provides an iterative, effective and community-driven process of presenting potential tools and services that can be discussed, tested and improved
- Gives community members an easily accessible platform to showcase their ideas and research

### RIPE Labs Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
RIPE Labs	2.4	373	-

### 3.3 Measurements and Data Collection

The RIPE NCC operates globally distributed measurement networks for the purpose of collecting data on Internet infrastructure usage and development. The RIPE NCC continues to integrate new services, such as RIPEstat and RIPE Atlas, into its existing portfolio (see sections 2.2 and 2.3). We also continue to work in cooperation with a range of stakeholders to unify, streamline, optimise and develop new interfaces to this data.

#### Benefits for RIPE NCC members / RIPE community:

- Provides datasets that can be used to analyse the operation and growth of the Internet
- Provides the data that can be used in tools such as RIPEstat and RIPE Atlas

#### Measurements and Data Collection Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
Measurements and data collection	2.2	295	20

### 3.4 Government and LEA Liaison

The RIPE NCC's leadership in engaging all Internet stakeholders to work toward a stable, secure and global Internet has been recognised by many governments and international organisations. The RIPE NCC has received positive recognition for its contributions to the World Summit on the Information Society (WSIS), held from 2003-2005, the ongoing Internet Governance Forum (IGF) and the Organisation for Economic Cooperation and Development (OECD) Committee for Information, Computer and Communications Policy (ICCP). The RIPE NCC has also organised regular Roundtable Meetings for Governments and Regulators, meetings for law enforcement agencies (LEAs) and has contributed to a wide range of forums and task forces with individual governments and regional authorities in countries including Belgium, Germany, Lebanon, Moldova, Netherlands, Norway, Qatar, Saudi Arabia, Sweden, the United Arab Emirates and the United Kingdom. The RIPE NCC has also been actively involved in coordinating capacity-building events such as the IPv6 Roadshow, regional technical and Internet governance forums, and training events. Continuing to build on this work is essential to promoting public/private sector dialogue and to guarantee the future growth, stability and security of the Internet.

The RIPE NCC will continue to explore new ways to engage with the public sector and

continue the dialogue between governments and the Internet technical community. This will include working to expand the audience of RIPE NCC Roundtable Meetings, in which the RIPE NCC can represent the view of the RIPE community and the RIPE NCC's members while explaining new developments in the Internet landscape and the impact that these developments could have on public policy. Alongside the Roundtable Meetings, the RIPE NCC will establish new, targeted forums for stakeholder groups and build on the work already done in the area of capacity building, particularly related to IPv6 training and awareness.

The RIPE NCC will also continue to engage where appropriate with international public sector and industry organisations, including the International Telecommunication Union (ITU), the Conference of European Postal and Telecommunications Administrations (CEPT) and national policy groups.

**Benefits for RIPE NCC members / RIPE community:**

- Promotes public/private sector dialogue
- Ensures that the interests and concerns of the RIPE NCC membership and RIPE community are heard in multi-stakeholder Internet governance discussions at the national, regional and global level
- Promotes openness and transparency in the development of public policy relating to the Internet, as well as raising any specific concerns of the RIPE NCC membership or the RIPE community
- Enables the future growth, stability and security of the Internet

**Government & LEA Liaison Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
Government & LEA liaison	1.3	499	-

**\*\*\* 3.5. Outreach and External Relations \*\*\* STRATEGIC FOCUS POINT 2013**

The RIPE NCC supports the open, multi-stakeholder model of Internet governance through engaging with a broad and growing range of stakeholder groups. The RIPE NCC has identified stakeholder groups that we have, or are developing, relationships with, including:

- RIPE NCC membership
- Internet technical community (including Network Operators Groups)
- Internet industry and professional groups
- Industry partners (RIRs, ICANN, the Internet Society)
- Academia and the research community
- The Free and Open Source Software (FOSS) and online gaming communities
- Public sector (governments and regulators)
- Law Enforcement Authorities (LEAs)

### **Benefits for RIPE NCC members / RIPE community:**

- Engaging with these groups and embracing them as part of the RIPE community strengthens the authority and legitimacy of the bottom-up policy development process
- Positions the RIPE NCC to facilitate expert technical input into policy and decision-making processes outside the RIPE forum that may impact on, or be affected by, IP addressing issues.
- Enables the effective, coordinated representation of the Internet technical community's interests, including the model of open, bottom-up, industry self-regulation, in multi-stakeholder Internet governance forums

### **Outreach and External Relations Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
Outreach and External relations	5.6	1,014	-

### **3.6 Regional Support and Outreach**

In 2013, it is expected that two RIPE NCC Regional Meeting/MENOG Meetings will be held in the Middle East region, two RIPE NCC Regional Meeting/ENOG Meeting in the Russia/CIS region and one RIPE NCC Regional Meeting in South East Europe. IPv6 tutorials, workshops and presentations will take place at all regional events.

With the significant growth of the IT and Internet industries in the Middle East, Russia and South Eastern Europe (and the resulting increase in RIPE NCC members), the RIPE NCC is focused on increasing the participation of Internet stakeholders from these areas of its service region. By working with the different communities in these areas, the RIPE NCC is encouraging increased regional participation both in the activities of the RIPE NCC and the RIPE Policy Development Process. The aim is to strengthen the RIPE community by enabling regional communities to participate more fully in policy development and to ensure that regional concerns, issues and needs are represented.

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

## Regional Support and Outreach Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
Regional support and Outreach	1.5	505	-

### 3.7 RIPE Meetings

The RIPE NCC organises RIPE Meetings, providing all administrative and technical support.

#### Benefits for RIPE NCC members / RIPE community:

- Supports the open, bottom-up, industry self-regulatory structure common to all RIR communities in managing Internet number resources
- Stimulates participation of the RIPE community in the IP policy-making process and the technical coordination of IP networking
- Contributes to the stable operation of the RIPE NCC by allowing for guidance and advice from the RIPE Working Groups
- Enables meeting attendees to provide feedback on the RIPE NCC Activity Plan (in the RIPE NCC Services Working Group)
- Encourages participation of individuals who have little or no experience of the RIPE community
- Provides a full set of minutes that keeps the RIPE community, the RIPE NCC membership and other interested parties up-to-date with the discussions and decisions that took place at a RIPE Meeting
- Through live webcasting and online feedback mechanisms, enables remote participation in the discussions taking place at RIPE Meetings
- Facilitates networking opportunities with key players in the Internet industry in the RIPE community and beyond

#### 3.7.1 Customer Service Centre (at RIPE Meetings)

At RIPE Meetings, the RIPE NCC provides staff who are available for face-to-face consultation about:

- Internet resource requests (IPv4, IPv6, Autonomous System Numbers)
- The RIPE Database
- Changes to registry file information
- Invoice and billing queries
- RIPE NCC Training Courses and the RIPE NCC E-Learning Centre
- The Routing Information Service (RIS) and BGPlay
- Reverse DNS setup, DNSSEC, DNSMON, K-root, the Test Traffic Measurements (TTM) service and email services
- How to become a Local Internet Registry (LIR)
- The RIPE NCC and its services

**Benefits for RIPE NCC members / RIPE community:**

- Assists members and the RIPE community with any outstanding issues
- Promotes greater cooperation between the RIPE NCC, its members and the RIPE community

**RIPE Meeting Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
RIPE Meetings	7.3	1,498	20

**3.8 RIPE Policy and Community Support**

The RIPE NCC provides support to all stakeholders who wish to participate in formulating RIPE Policy or who wish to be part of the RIPE community.

**Benefits for RIPE NCC members / RIPE community:**

- Promotes the RIPE Policy Development Process
- Strengthens the RIPE community

**3.8.1 Supporting the RIPE Policy Development Process (PDP)**

The RIPE NCC provides support to the PDP and gives all assistance required by RIPE Working Groups and Working Group Chairs so that they are able to develop policy in a consensus-based, bottom-up manner.

The RIPE NCC also provides information and statistics to various working group mailing lists and creates impact analyses of potential RIPE Policy proposals.

**Benefits for RIPE NCC members / RIPE community:**

- Promotes the PDP
- Educates the RIPE community about the PDP
- Helps to anticipate potential problems related to the PDP or policy proposals

**3.8.2 Policy Implementation (procedures)**

The RIPE NCC implements procedures as part of the RIPE Policy Development Process (PDP). The implementation of RIPE Policy is done in the RIPE NCC Policy Implementation Coordination Group (PICG).

**Benefits for RIPE NCC Members / RIPE Community:**

- Provides transparency and consistency of the procedures
- Provides procedural information and responses to the RIPE community
- Supports and promotes global Internet IP address policies

- Translates RIPE Policy into RIPE NCC procedures
- Documents and maintains a clear overview of new and changed procedures

### 3.8.3 Mailing List Management

The RIPE NCC maintains a number of high-volume external mailing lists. The processing of mailing list traffic is constantly monitored and all mailing lists are archived. Efforts are made to support subscribers with problems and to reduce or control the spam on external mailing lists so that they can be easily and efficiently moderated without losing any End User functionality.

#### Benefits for RIPE NCC Members / RIPE Community:

- Ensures the exchange of information among the RIPE community and the RIPE NCC membership
- Provides support for subscribers of the RIPE and RIPE NCC mailing lists
- Reduces/controls spam on external mailing lists so that they can be easily and efficiently moderated without losing any end user functionality

#### RIPE Policy and Community Support Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
RIPE policy and community support	2.0	247	-

## 3.9 IPv6 Support

### 3.9.1 Training and Education

#### i) RIPE NCC IPv6 for LIRs Training Course (see 2.1.2)

#### ii) RIPE NCC/MENOG IPv6 Roadshows

The IPv6 Roadshow events are a joint initiative from the Middle East Network Operators Group (MENOG), the RIPE NCC and APNIC. They consist of three- and five-day hands-on training events targeted at an audience of government and enterprise network operators.

In 2013, there will be around ten IPv6 Roadshow events scheduled throughout the Middle East region. The RIPE NCC will also work with regional partners, including governments, to launch the IPv6 Roadshow Train the Trainer Program, which will enable local trainers to deliver the IPv6 Roadshow course material in their community.

#### Benefits for RIPE NCC members / RIPE community:

- Provides education and capacity building, in a context that recognises the Middle East region's specific needs
- Builds relationships with public sector bodies and actors in the Middle East

- Enables local trainers to acquire the knowledge and skills to educate their communities

### **iii) RIPE NCC/ENOG IPv6 Roadshows**

Building on the success of the RIPE NCC/MENOG IPv6 Roadshows, these events will be rolled out in Russia and the CIS countries during 2013. The IPv6 Roadshow Train the Trainer Program will also enable local trainers to deliver these courses.

#### **Benefits for RIPE NCC members / RIPE community:**

- Provides education and capacity building in a context that recognises the specific needs of stakeholders in Russia and the CIS countries
- Builds relationships with public sector bodies and actors in Russia and the CIS countries
- Enables local trainers to acquire the knowledge and skills to educate their communities

## **3.9.2 IPv6 Outreach**

### **i) RIPE NCC Representation at IPv6-related Events**

During 2013, the RIPE NCC will continue to send representatives to relevant IPv6-related events throughout the RIPE NCC's service region and beyond. We will also reach out to some audiences that we have not actively targeted in the past.

#### **Benefits for RIPE NCC members / RIPE community:**

- Builds awareness among all Internet stakeholders of the need to deploy IPv6
- Ensures that the interests of the RIPE NCC membership and the technical community are represented at global events
- Highlights the work being done by the RIPE NCC and RIPE community in data-gathering and analysis
- Promotes capacity building, particularly in developing areas, and facilitates knowledge sharing with global experts
- Enables the RIPE NCC to offer expert input into IPv6 related fora and events

### **ii) Outreach to Governments, Regulators and LEAs**

The RIPE NCC will continue its efforts to inform and educate governments, regulators and LEAs about IPv6 deployment in their sectors via regular RIPE NCC Roundtable Meetings for Governments and Regulators, engagement with national forums and task forces, and meetings with LEAs from around the world. We will also continue to work closely with the OECD on their IPv6-related activities.

#### **Benefits for RIPE NCC members / RIPE community:**

- Builds awareness among public sector stakeholders of the need to facilitate the deployment of IPv6

- Promotes public/private sector dialogue, with the goal of more informed policy-making
- Ensures that the interests of the RIPE NCC membership and the technical community are represented
- Facilitates effective cooperation between the Internet technical community and the public sector in areas such as capacity-building projects and law enforcement
- Highlights the advantages of the community-driven, bottom-up system for managing and distributing Internet number resources

### **iii) IPv6ActNow.org**

The RIPE NCC's IPv6ActNow.org website is a comprehensive resource for IPv6-related information for all stakeholders.

In 2013, IPv6ActNow.org will be continually updated with the latest information on IPv6 deployment, equipment and events.

#### **Benefits for RIPE NCC members / RIPE community:**

- Provides a comprehensive collection of impartial information to help every stakeholder prepare to deploy IPv6
- Offers a platform for all stakeholders to share their own experiences with IPv6 deployment and learn from community best practices
- Promotes IPv6 deployment

### **iv) General Outreach**

During 2013, The RIPE NCC's general IPv6 outreach will continue by developing printed and online materials to facilitate all stakeholders with their IPv6 deployment programs. We will enhance our IPv6 messaging and communication in the traditional and online media, utilising our PR agency and social media networks. We will also work closely with the other RIRs on global education and capacity building goals.

#### **Benefits for RIPE NCC members / RIPE community:**

- Keeps all stakeholders informed about developments on IPv6-related matters
- Ensures that the interests of the RIPE NCC membership and the technical community are represented
- Highlights the work being done by the RIPE NCC and RIPE community in data-gathering and analysis
- Highlights the advantages of the community-driven, bottom-up system for managing and distributing Internet number resources

## **3.9.3 IPv6 and RIPE NCC Membership Support**

### **i) IPv6 RIPv6ness**

IPv6 RIPv6ness is a rating system that awards stars to RIPE NCC members depending on specific indicators of IPv6 preparedness.

In 2013, the RIPE NCC will continue to analyse its members' IPv6 preparedness and increase the profile of this activity.

**Benefits for RIPE NCC members / RIPE community:**

- Encourages RIPE NCC members to become IPv6-ready and rewards them for doing so
- Provides all stakeholders with a unique indicator of IPv6 readiness across the RIPE NCC service region (and at more specific levels, including by country, sector, LIR size)
- Enables analysis of regional IPv6 penetration

### **3.9.4 Regional and Community Support**

#### **i) Community Support**

In 2013, the RIPE NCC will continue to support relevant RIPE Working Groups and the RIPE Meeting Programme Committee with IPv6 content development and other community-led initiatives.

**Benefits for RIPE NCC members / RIPE community:**

- Ensures that the community is well-informed on IPv6 and related developments
- Facilitates and supports community-driven activities and projects
- Ensures the continued effectiveness of RIPE as a policy-making and information sharing forum

#### **ii) Regional Support**

RIPE NCC Regional Meetings bring together RIPE NCC members, local governments, key players in the global and local Internet industry and RIPE NCC staff. These events are free of charge and open to everyone.

In 2013, it is expected that two RIPE NCC Regional Meetings/MENOG Meetings will be held in the Middle East region, two RIPE NCC Regional Meetings/ENOG Meetings in the Russia/CIS region and one RIPE NCC Regional Meeting in South East Europe. IPv6 tutorials, workshops and presentations will take place at all regional events.

**Benefits for RIPE NCC members / RIPE community:**

- Ensures that stakeholders in all regions are well informed about IPv6 and related developments
- Provides opportunities to address specific regional concerns and challenges
- Brings the RIPE NCC to those members who are unable to attend RIPE Meetings

#### **iii) CPE Survey**

The Customer Premises Equipment (CPE) survey collects data on the IPv6 readiness of CPEs from various vendors. In 2013, we will periodically update the CPE survey with information from vendors and conduct analysis on the results.

### **Benefits for RIPE NCC members / RIPE community:**

- Keeps all stakeholders informed about hardware-related IPv6 developments
- Encourages vendors to ensure their equipment is IPv6 ready
- Provides a neutral overview of equipment features derived from community collaboration

### **3.9.5 IPv6 Statistics**

The RIPE NCC provides a number of IPv6-related statistics based on a set of data that helps the membership and the community at large, including government institutions, to follow the rate of IPv6 deployment in the RIPE NCC service region.

In 2013, we will make IPv6-related statistics more accessible through RIPE Labs and IPv6ActNow. We will continue to provide up-to-date statistics and measurement results based on RIPE Atlas, RIPEstat and other tools.

### **Benefits for RIPE NCC members / RIPE community:**

- Provides all stakeholders with accurate, impartial information and analysis on the rate of IPv6 deployment
- Offers all Internet stakeholders the opportunity to use neutral data to help build the case for IPv6 deployment
- Establishes the RIPE NCC and RIPE community as authoritative sources of data and analysis

### **IPv6 Support Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
IPv6 Support	1.0	154	-

### **3.10 ICANN/IANA/IETF//ISOC/RIRs**

The RIPE NCC is strongly committed to maintaining close relationships with its industry partners, including the four other Regional Internet Registries (RIRs), ICANN, the IETF and the Internet Society (ISOC). These relationships are vital to ensuring coordinated administration of the resources that each organisation is responsible for. The RIPE NCC supports ICANN, particularly in relation to its role in managing the IANA functions, and works with the IETF and ISOC to ensure implementation of agreed technical standards and coordination among those who support the global operation of the Internet.

### **Benefits for RIPE NCC members / RIPE community:**

- Promotes the open, bottom-up, industry self-regulatory structure common to all RIR communities in managing Internet number resources
- Allows collaboration for implementation of global policies developed by the Policy Development Processes (PDPs) of the five RIRs

- Assists the general technical coordination needed to support the stable operation of the Internet

#### **ICANN/IANA/IETF/ISOC/RIRs:**

Activity	FTEs	Costs	Capital Expenditure
ICANN/IANA/IETF/ISOC/RIRs	2.9	1,233	-

#### **4) Internal**

##### **4.1 IT**

This RIPE NCC activity includes the operation of the internal network and all related infrastructure (its colocation facilities, archiving and storage), the internal support for staff, and IT support and enhancement for all services.

In 2013, IT automation improvements and a focus on efficiency to facilitate service improvements will be the key focus areas.

##### **Benefits for RIPE NCC members / RIPE community:**

- Support efficient deployment of services and enhancements of services
- Provision of 24/7 support for services
- Efficient IT support to staff to facilitate RIPE NCC service delivery

##### **4.1.1 Technical Emergency Hotline**

The RIPE NCC monitors its critical services 24/7. This monitoring includes RIPE NCC websites, the RIPE Database, K-Root, DNS and reverse DNS, the LIR Portal and Resource Certification (RPKI).

Following feedback from RIPE NCC members and the RIPE community, the RIPE NCC launched a Technical Emergency Hotline in November 2012. The hotline, which will continue in 2013, enables users to contact an after-hours call centre that evaluates incoming calls and forwards the details of legitimate reports immediately to the appropriate RIPE NCC 24/7 team.

##### **Benefits for RIPE NCC members / RIPE community:**

- Enables the RIPE NCC members and the RIPE community to flag technical emergencies outside of the RIPE NCC's regular office hours
- Ensures the details of technical emergencies are forwarded to the RIPE NCC's 24/7 teams in a timely manner
- Supports the efficient operation of the RIPE NCC's technical services

### IT Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
IT	12.6	1,685	452

### 4.2 Facilities - Rent and Utilities

In 2013, the RIPE NCC will continue to improve its infrastructure in order to provide a productive work environment to its employees.

Apart from the rental agreement, facilities include utilities, security, repair and maintenance costs for the RIPE NCC building and equipment.

#### Benefits for RIPE NCC members / RIPE community:

- Provides a secure, healthy environment for employees
- Provides up-to-date and well-maintained equipment

### Facilities Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
Facilities	4.3	1,211	160

### 4.3 HR & Management

The RIPE NCC continuously reviews its organisational structure to make it as efficient as possible. We provide excellent management support to facilitate decision-making and engagement with relevant third parties. At the same time as supporting management in maintaining effective and healthy RIPE NCC staff, we also keep the educational level of managers and staff at the highest possible level.

#### Benefits for RIPE NCC members / RIPE community:

- Ensures the RIPE NCC's organisational structure and staff skillset are optimised so as to fulfil the strategic goals of the organisation as discussed with the RIPE NCC membership and approved by the RIPE NCC Executive Board.

## HR & Management Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
HR & Management	6.2	1,255	26

## 4.4 Finance & Admin

The RIPE NCC maintains an accurate and efficient administrative process. We are continually enhancing our procedures to make them more efficient. We have a set of automated reporting tools in place to proactively provide up-to-date financial and administrative summaries to the RIPE NCC Management. In addition, we focus on improving our billing processes and offering more efficient online payment methods.

### Benefits for RIPE NCC members / RIPE community:

- Provides lower costs through offering online payment methods
- Ensures a professionally managed organisation with efficient administrative processes and cost-effective processes
- Facilitates the financial needs of organisation in different parts of the RIPE NCC service region

## Finance & Admin Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
Finance & Admin	7.9	657	20

## 4.5 Specialist Support (Legal & Information Security)

### i) Legal

The RIPE NCC continually follows national and international legal developments and ensures that our internal activities are updated accordingly. We also provide a range of corporate governance documents that set the standards and procedures for our internal and external operations.

The RIPE NCC focuses efforts on helping legislators and law enforcers to understand how the self-governing mechanism of the RIPE community and the RIR system as a whole functions, and how they can participate.

### Benefits for RIPE NCC members / RIPE community:

- Ensures that the RIPE NCC is run within an up-to-date legal framework and with a full set of corporate governance documents
- Improves legislators and LEAs' understanding of the Internet governance model

and the role of RIRs to gain their support for the current, successful model

## ii) Information Security

In 2013, there will be a sustained focus on the security of the RIPE NCC's public and member services. Activities will include implementing and maturing our security baselines and performing in-depth security audits of the provided services.

Other activities are aimed at expanding our abilities to detect security incidents and further developing the RIPE NCC's capabilities to react quickly and efficiently to those incidents.

### Benefits for RIPE NCC members / RIPE community:

- Ensures a high level of availability, confidentiality and integrity of the RIPE NCC services and its (member) data
- Minimises the impact of security incidents on the RIPE NCC's services and subsequently minimises the possible impact on our members

### Specialist Support Costs for 2013:

Activity	FTEs	Costs	Capital Expenditure
Specialist support	2.8	446	-

## 4.6 Organisational Activities (GM and EB Meetings)

The RIPE NCC supports twice-yearly RIPE NCC General Meetings (GMs). At these GMs, members vote annually on the Financial Report of the organisation and on the Charging Scheme for the following year. At GMs, members can also exercise their rights to vote in Executive Board elections and on amendments to corporate governance documents. In order to facilitate an informed membership at the GM, the RIPE NCC prepares various sets of documentation including a draft activity plan and budget, a draft charging scheme and an annual report, which includes a summary of the RIPE NCC's financial status from year to year. The RIPE NCC provides remote participation facilities and electronic voting capabilities for those members who are unable to attend the GM in person but who wish to follow proceedings and vote in elections and on resolutions.

The RIPE NCC also facilitates multiple meetings for its executive board over the course of each year. These meetings deal with strategic and financial issues pertinent to the organisation as well as the RIPE NCC's relationship with industry partners. At these meetings the RIPE NCC Executive Board incorporate the feedback from the membership and the RIPE NCC Management into their discussion and final decision on the RIPE NCC's Activity Plan and Budget for the following year.

**Benefits for RIPE NCC members / RIPE community:**

- Allows RIPE NCC members' interests to be represented by Executive Board
- Gives members the opportunity to give feedback directly to the Executive Board on the RIPE NCC's Activity Plan and Budget
- Allows members to approve the RIPE NCC Charging Scheme and Financial Report
- Members can elect representatives to the Executive Board
- Provides opportunities to follow GM proceedings and cast votes from anywhere in the world

**Organisational Activities Costs for 2013:**

Activity	FTEs	Costs	Capital Expenditure
Organisational activities	3.0	383	-

**5. Unforeseen Activities**

There may be activities that are entirely unforeseen at the time of writing the RIPE NCC Activity Plan 2013 or have started recently and are not at the stage where they can be quantified as a budgeted activity. A quick, well-focused reaction to the changing environment and new requirements of the RIPE NCC members and other stakeholders has always been a strong point of the RIPE NCC. In line with good Corporate Governance, any activities that fall under this category are developed in close consultation with the RIPE NCC Executive Board.

## **Appendix 1: Membership Services**

The RIPE NCC provides the following member-only services:

- Distribution and Management of Internet Number Resources
- Auditing
- Resource Certification
- Listing Service
- Resource Transfers
- Reputation Service
- Filtered Resource Assistance
- LIR Portal
- IP Analyser
- Training Courses: LIR; IPv6; Routing Registry and Resource Certification (RPKI)
- DNSMON
- Near Real Time Mirroring (NRTM)
- RIPE Database Proxy Service

## Appendix 2: Budget Figures 2013

### RIPE NCC Budgeted Statement of Income & Expenditure 2013

In kEUR	Budget	LE	Budget	Difference	
<b>Income</b>	2013	2012	2012	13/12	13/B12
Member Service Fees	17,742	17,665	16,975	77	767
Sign-up Fees	2,100	2,170	1,676	(70)	424
RIPE Meetings	250	175	250	75	-
Other Income	100	280	250	(180)	(150)
<b>Total Income</b>	<b>20,192</b>	<b>20,290</b>	<b>19,151</b>	<b>(98)</b>	<b>1,041</b>
<b>Expenditure</b>					
Salary Wage Components	7,949	7,630	7,370	319	579
Secondary Benefits	1,673	1,600	1,582	73	91
Miscellaneous Personnel	1,826	1,550	1,804	276	22
<i>Subtotal Personnel</i>	<i>11,448</i>	<i>10,780</i>	<i>10,756</i>	<i>668</i>	<i>692</i>
Housing	776	765	909	11	(133)
Office Costs	1,576	1,547	1,614	29	(38)
Marketing / ER	648	530	670	118	(22)
Contributions	407	400	399	7	8
IT Infrastructure	1,097	960	899	137	198
Travel	1,262	1,145	1,205	117	57
Consultancy	1,116	810	933	306	183
Financial Expenses	153	137	125	16	28
<b>Subtotal Operational Expenses</b>	<b>18,483</b>	<b>17,074</b>	<b>17,510</b>	<b>1,409</b>	<b>973</b>
Miscellaneous Expenses	150	180	250	(30)	(100)
Depreciation	1,747	1,750	1,823	(3)	(76)
<b>Subtotal Miscellaneous Expenses &amp; Depreciation</b>	<b>1,897</b>	<b>1,930</b>	<b>2,073</b>	<b>(33)</b>	<b>(176)</b>
<b>Total Expenses</b>	<b>20,380</b>	<b>19,004</b>	<b>19,583</b>	<b>1,376</b>	<b>797</b>
Interest Income	600	550	400	50	200
<b>Surplus / Deficit</b>	<b>412</b>	<b>1,836</b>	<b>(32)</b>	<b>(1,424)</b>	<b>444</b>
Capital Expenditure	1,807	1,233	2,278	574	(471)
Number of FTEs	135	128	129	7	6

### Development of the RIPE NCC Reserves

The table below summarises the RIPE NCC's capital development. The capital consists of the RIPE NCC reserves, including the surplus/deficit for the year at issue.

Year	Surplus/ Deficit	Capital at 31 December	Total Expenses Per Year	% Capital of Expenses
2008	2,824	16,588	11,765*	141%
2009	821	17,409	14,683	119%
2010	714	18,123	16,561	109%
2011	923	19,046	18,162	105%
Estimated 2012	1,836	20,882	19,004	110%
Budget 2013	412	21,294	20,380	104%

*Note: \*The expenses in 2008 include a payback from the Personnel Fund of EUR 1.5 million*

### Specification of Budgeted Income

Income	Amount in kEUR
LIR Service Fees	16,931
New Members Sign Up Fees	2,100
PI Assignment Charge	811
<b>Total Service Fees</b>	<b>19,842</b>
RIPE Meeting Fees	250
Other Income	100
<b>Total Income</b>	<b>20,192</b>