

RIPE NCC Activity Plan and Budget 2015

RIPE NCC

Document ID: ripe-630

Updates: ripe-598

Date: December 2014

A correction was made to this document on 8 July 2015. In Appendix 3: Budget Figures 2015, the total income in the RIPE NCC Budgeted Statement of Income & Expenditure 2015 was incorrectly stated as kEUR 22,269. This was amended to give the correct figure of kEUR 23,269.

Introduction to the Activity Plan and Budget 2015

The RIPE NCC Activity Plan and Budget 2015 documents the activities that the RIPE NCC proposes to undertake in 2015, along with their associated costs, provided in terms of Full Time Employees (FTEs), Costs (OPEX) and Capital Expenditure (CAPEX). The document also highlights areas of strategic focus for the organisation.

Increasing transparency is a goal the RIPE NCC is constantly striving towards. This document is the clearest way that RIPE NCC members can learn about, comment on and ultimately shape the direction that the RIPE NCC will take in the coming year. As a consequence, the RIPE NCC views the Activity Plan and Budget as an integral part of maintaining the trust of its members and it helps to ensure that the RIPE NCC maintains the highest standards of accountability.

To this end, categories of “activity status” are attached to the title of each activity in this document. By marking which activities are new and which are being significantly expanded or scaled back, readers will be able to easily gain an overview of what is being proposed for 2015 compared to the previous year. More details and a definition of each of these categories are provided in this document.

Where the status of an activity is anything other than “Ongoing”, this document provides details of why the decision was made, when it was made, and whether it was made by RIPE NCC Management, the RIPE NCC Executive Board, the RIPE NCC membership or the RIPE community.

The RIPE NCC publishes a draft version of this document and asks for input from members before publishing a final, definitive version. It is important that RIPE NCC members are aware of how they can provide feedback on the draft version of the Activity Plan and Budget.

In 2014, the RIPE NCC used a number of feedback mechanisms such as mailing lists and the various membership and community meetings held throughout the region to develop and present the first draft of this document to the RIPE NCC Executive Board in September. After the Executive Board’s feedback was incorporated, an updated document was published online and announced to the RIPE NCC membership in

September, six weeks before the RIPE NCC General Meeting. This gave members time to comment on the draft document before discussions took place at the RIPE NCC Services Working Group and the RIPE NCC General Meeting (GM). During this period, members were encouraged to ask questions and discuss the Draft Activity Plan and Budget via the RIPE NCC Membership Discussion mailing list (members-discuss@ripe.net).

The Draft Activity Plan and Budget was further discussed by the membership at the GM in November 2014. The feedback received there was then incorporated into the final Activity Plan and Budget after the approval of the document by the RIPE NCC Executive Board.

Features in This Activity Plan and Budget

To maintain good transparency for RIPE NCC members, this Activity Plan and Budget includes several features. An activity status is included for each of the activities listed. There are five different activity statuses given throughout this document:

- “Ongoing”: Any recurring activity that requires around the same amount of resources as in the Activity Plan and Budget 2014 (less than a 10% deviation on the Activity Plan and Budget 2014)
- “New Activity”: Any activity that is making its first appearance in the Activity Plan and Budget
- “Expanding”: Any activity where expenses will increase by more than 10% over the Activity Plan and Budget 2014 (OPEX)
- “Decreasing”: Any activity where expenses will decrease by more than 10% from the Activity Plan and Budget 2014 (OPEX)
- “Planned Ending”: Any activity that will come to a complete end in the course of the coming year

Secondly, where the status of an activity is anything other than “Ongoing”, this document will contain information about when and why the decision was made, and who was responsible for making the decision.

Finally, usage statistics have been included wherever possible for each activity. These are intended to show the general scale of a service. There are some cases where activities cannot be quantified or the inclusion of statistics is of little relevance so they are not provided.

Note: Individual activities that cost less than 5 kEUR per annum are considered to be negligible costs and therefore their cost details are not included in the Activity Plan and Budget.

Overview of the Strategic Focus Points in 2015

This document highlights the RIPE NCC's strategic focus points for the coming year. They are, broadly:

- Maintaining a strong registry
- Conducting effective outreach and external relations
- Consolidating and improving the current service offering
- Refining internal processes to provide further efficiency

In 2015, the RIPE NCC will continue to focus on maintaining the accuracy of the data in the RIPE Registry. The data in this registry is comprised of RIPE Database data and registration information held by the RIPE NCC, and it is therefore critical for the operations of our members and the wider Internet community.

The RIPE NCC's work in ensuring the accurate registration of data increasingly revolves around safeguarding legitimate resource holders' data in the wake of IPv4 exhaustion. A scarcity in the availability of unused IPv4 address space means there is increased potential for address space hijacking, while further resource transfer activity is expected. This, together with implementation of the policy proposal outlining services to legacy address space holders, means that the RIPE NCC will have to continue to improve and refine its processes to ensure an efficient registry service. It is envisioned that this work will be carried out with no significant increase in resources.

The RIPE NCC is also committed to carrying out effective external relations and outreach to its members and other important stakeholders in the Internet community. In 2014, the RIPE NCC organised events and traveled throughout the service region to meet with members and to hear directly from them and give them the means to have their voice heard within the wider community. This has already shown great benefits in terms of hearing exactly what our members want to see from us in terms of activities and service improvement that that can help them with their operations. The RIPE NCC is also increasing its efforts to provide support in local languages, particularly through the use of staff from throughout the service region that can communicate with members in their native languages.

In 2015, the RIPE NCC will host a number of Regional Meetings, support the development of local Network Operator Groups, carry out regionally targeted educational initiatives and represent the membership and technical community at regional Internet governance events. The establishment in 2014 of regional offices in Moscow and Dubai has greatly increased the RIPE NCC's ability to conduct effective outreach throughout its service region. This work will take place alongside the two RIPE Meetings that will be held in Europe in 2015, and which the RIPE NCC continues to see as its foremost means of connecting with the Internet community.

2015 will also be an important year for Internet governance as the stewardship of the IANA functions transitions away from the US National Telecommunications and Information Agency (NTIA). There is currently an ongoing process that will continue well into 2015 to capture the views and comments of the global Internet community.

The RIPE NCC is committed to being involved in this process and ensuring that the RIPE NCC membership and the RIPE community are fully aware of these important developments.

In 2015, the RIPE NCC will consolidate its current service offering. This work has already begun with the decision to use RIPE Atlas as the main source of data gathering for the RIPE NCC and RIPEstat as the portal serving all the RIPE NCC's data, and relevant third party data, to members and the community. The ending of Test Traffic Measurements and its inclusion in RIPE Atlas is an example of this consolidation, as is the planned integration of RPKI data and Routing Registry data through a single interface. Furthermore, no new RIPE NCC-initiated services are planned for 2015, although providing services for legacy address space holders is a new activity.

Ultimately, the RIPE NCC hopes that by consolidating its service offering it will be able to improve the value of the individual services for members while reducing the resources required to provide them. This will also allow the RIPE NCC to more effectively communicate the value of its service offering to the membership and other stakeholders. Combined with concerted efforts to increase efficiencies, refine organisational processes and reduce both internal and external bureaucracy, the RIPE NCC aims to deliver a more streamlined and efficient service for all its members and stakeholders.

Overview of RIPE NCC Costs per Activity 2015

On the following page 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.

Notes on Overview of RIPE NCC Activities

Full-Time Equivalents

Full-Time Equivalents (FTEs) indicates the average amount of personnel assigned to each activity as well as supporting staff over the course of the full year.

OPEX (Operational Expenses)

Operational expenses are all direct costs that relate to the activity or 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 calculated by dividing the percentage of FTEs involved in the activity by the overall number of FTEs.

Operational expenses exclude depreciation and bad debt 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 Dutch 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 cost. These costs comprise the costs of direct labour as well as outsourced consultancy costs.

Level 1	Level 2	FTEs	OPEX kEUR	CAPEX kEUR
1. Regional Internet Registry		41.9	4,301	280
	* 1.1 Registry Maintenance	30.5	3,071	30
	1.2 RIPE Database	7.2	692	150
	1.3 Resource Certification (RPKI)	2.7	307	0
	1.4 LIR Portal	1.5	231	100
2. Services		28.7	3,129	380
	2.1 Training	7.9	1,019	0
	* 2.2 RIPEstat	5.8	641	8
	* 2.3 RIPE Atlas	10.4	1,072	372
	2.4 Other Services	4.6	397	0
3. Coordination Activities		33.0	6,631	221
	3.1 DNS and K-root Operations	3.1	413	128
	3.2 Data Analysis and Scientific Support	2.6	313	6
	3.3 RIPE Labs	1.5	247	0
	* 3.4 External Relations	9.6	1,552	0
	* 3.5 Member Outreach	4.1	1,267	0
	3.6 IPv6 Support	1.6	161	0
	3.7 RIPE Meetings	5.7	1,414	87
	3.8 RIPE Policy and Community Support	1.9	234	0
	3.9 ICANN/IANA/IETF/ISOC/RIRs	2.9	1,030	0
4. Internal		32.5	6,596	1,291
	4.1 IT	10.8	1,912	768
	4.2 Facilities - Rent and Utilities	3.9	1,156	500
	4.3 Management and HR	7.6	2,118	23
	4.4 Finance and Administration	6.3	823	0
	4.5 Legal and Information Security	1.8	237	0
	4.6 Organisational Activities (Executive Board, Arbitration Panel and General Meetings)	2.1	350	0
Total		136.1	20,657	2,172

* RIPE NCC strategic focus point for 2015

RIPE NCC Activities 2015

1) Regional Internet Registry

***** 1.1 Registry Maintenance *** STRATEGIC FOCUS POINT 2015**

Status: Ongoing

Measurable usage: The RIPE NCC is administratively authoritative for approximately 90,000 Internet number resource records

Since 1992, the RIPE NCC has been responsible for assigning and allocating Internet number resources (IPv4, IPv6 and AS Numbers) within its service region. One of the organisation's key responsibilities is to maintain the accuracy and quality of the RIPE Registry, which contains information about the current holders of these resources. This includes information that is contained in the RIPE Database as well as other registration information held by the RIPE NCC. Maintaining the RIPE Registry remains a strategic focus for 2015.

The exhaustion of the unallocated "free pool" of IPv4 address space means the RIPE NCC adapted its registry function to maintain its careful stewardship of resource registrations. This means there is a continuing focus on legacy address space, with the goal of bringing registration records up to the same standards of accuracy as address space that was distributed by the RIPE NCC. Additionally, the RIPE NCC will work to ensure that the RIPE Registry can accurately deal with an increase in IPv4 transfers and a heightened potential for conflicts over address space, both resulting from the growing scarcity of IPv4. The RIPE NCC will continue to respond to any community-driven initiatives to increase the accuracy of data stored in the registry.

As part of this stewardship role, the RIPE NCC will pay special attention to protecting resource holders against hijacking of their Internet number resources. While this will likely involve more strict verification requirements when evaluating requests, the RIPE NCC will remain mindful of the balance between ensuring due diligence on the one hand while not being overly bureaucratic or inflexible on the other.

A range of services, such as the Resource Certification (RPKI) system and the Assisted Registry Check (an enhancement of the RIPE NCC's audit activities) will continue to provide an incentive for holders of this space to make sure that their Internet number resources are accurately registered. The focus will be on increasing the value of services that the RIPE NCC can provide to its members to improve their day-to-day operations, while at the same time maintaining the accuracy of registry data.

The RIPE NCC will also continue its work in partnership with the other RIRs to improve data quality and to make this data readily available to the Internet community.

Benefits for RIPE NCC members / RIPE community:

- Improves the overall accuracy of the data in the RIPE Registry
- Improves the accuracy of legacy address space registration records
- Supports members and the RIPE community with their operations and business needs

1.1.1 Distribution of IPv4/IPv6 Address Space and Autonomous System (AS) Numbers

Status: Ongoing

Measurable usage: Approximately 6,800 allocations and assignments up to December 2014

The RIPE NCC provides fair, impartial and stable distribution of Internet number resources according to policies developed by the RIPE community. In addition to the allocation and assignment of IPv4 and IPv6 address space, the RIPE NCC also assigns AS Numbers and registers these along with the initial associated routing policy. This ensures the uniqueness of AS Numbers and collects data for the Routing Registry. Since 2007, the RIPE NCC has assigned AS Numbers from both the 16-bit and 32-bit pools.

Benefits for RIPE NCC members / RIPE community:

- Provides fair and impartial distribution of Internet number resources guided by policies developed by the RIPE community
- 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

1.1.2 Management of Internet Number Resources

Status: Ongoing

Measurable usage: The RIPE NCC is administratively authoritative for approximately 90,000 Internet number resource records

The RIPE NCC manages the complete lifecycle of Internet number resources within its service region, supporting updates of the registration data and deregistering resources that have been returned. In order to facilitate the transfer of IPv4 Provider Aggregatable (PA) address space between members, the RIPE NCC provides the IPv4 Transfer Listing Service. The RIPE NCC expects that the work involved with transfers will increase significantly in 2015.

The RIPE NCC deregisters Internet number resources that have been allocated or assigned under false pretenses, contravene RIPE Policies or have been hijacked. This activity also applies to LIRs that have been closed for non-payment of their service fee and IP addresses returned by the holders to the RIPE NCC.

Benefits for RIPE NCC members / RIPE community:

- Ensures the uniqueness of IP addresses, aggregation of routing information and conservation of IP address space
- Implements the necessary procedures to enable the processes defined by RIPE Policies
- Enables the accurate registration of network management and contact information

1.1.3 Assisted Registry Check (ARC)

Status: Ongoing

Measurable usage: 2,000-3,000 Assisted Registry Checks planned for 2015

Since 1996, the RIPE NCC has conducted audits, at the request of the RIPE community, to ensure the fair and neutral application of policies and to actively check the quality and validity of registry data.

The Assisted Registry Check (ARC) review gives LIRs an opportunity to receive personalised support from the RIPE NCC. This includes help creating database objects to improve contact data, remove inconsistent resource records and provide clarification on RIPE Policies. The aim is to strengthen registry data while providing support for the daily technical operations of the membership.

The ARC review covers four broad subject areas:

- Registry consistency
- Resource consistency
- Route/rDNS consistency
- Resource Certification (RPKI) usage/consistency

Benefits for RIPE NCC members / RIPE community:

- Helps RIPE NCC members to maintain accurate registry data
- Provides RIPE NCC members with an overview of how their networks are perceived by an independent entity
- Provides personalised support to members
- Provides an incentive and an easy way for LIRs to keep their RIPE Database objects up to date
- Increases the overall accuracy of the RIPE Database

1.1.4 Maintenance of Contractual Information on End Users and Sponsoring LIRs

Status: Ongoing

Measurable usage: Contracts for approximately 50,000 End User Internet number resource records are overseen by the RIPE NCC.

Subject to the RIPE Policy on contractual requirements for PI resource holders (ripe-452), the RIPE NCC ensures that changes to contractual arrangements between sponsoring LIRs and End Users are followed up on and the appropriate administrative action taken.

In 2015, the RIPE NCC will finalise the process of implementing the RIPE Policy related to establishing an indirect or a direct contractual link between the End Users of independent Internet number resources and the RIPE NCC (ripe-452). Since this policy was implemented in 2009, Approximately 47,000 independent resources are now covered by a contractual relationship.

Benefits for RIPE NCC members / RIPE community:

- Ensures that Internet number resources are registered to the legitimate End Users or legacy resource holders
- Ensures that all resources are covered by a contractual relationship
- Maintains the accuracy of the RIPE Registry

1.1.5 Establishing Contractual Relationships With Legacy Internet Number Resource Holders

Status: New Activity

Measurable usage: The total number of legacy Internet resources within the RIPE Registry is approximately 4,200 parent IP blocks and 35,000 more specific blocks. Furthermore, there are 740 legacy AS Numbers

Historically, legacy resource holdings have been kept outside any formal relationship between their holders and the RIPE NCC. In order to improve the accuracy and trustworthiness of the registry data, ripe-605 “RIPE NCC Services to Legacy Internet Resource Holders” allows for a formal relationship between the Legacy Internet number resource holders and the RIPE NCC. In 2014, the RIPE NCC began to implement the RIPE Policy related to establishing an indirect or a direct contractual link between the holders of legacy Internet number resources and the RIPE NCC.

Benefits for RIPE NCC members / RIPE community:

- Ensures that Internet number resources are registered to the legitimate legacy Internet resource holders
- Safeguards the resources of the legitimate resource holders from hijackings
- Creates a formal relationship between legacy Internet resource holders and the RIPE NCC
- Maintains the accuracy of the RIPE Registry

1.1.6 Internet Number Resource Investigations, and Dispute and Hijacking Handling

Status: Ongoing

Measurable usage: The RIPE NCC has investigated 233 potential hijacks since 2012. The RIPE NCC received and investigated 654 abuse reports in 2014.

Since September 2012, the RIPE NCC has seen a significant increase in the number of succeeded and attempted IP address hijackings taking place in its service region. Due to the increasing scarcity of IPv4 address space, the RIPE NCC expects that the number of hijacking cases will continue to grow exponentially. Over the course of 2014, there were a number of incidents where hijackers attempted to impersonate resource holders – either to gain control of their resources in the RIPE Database or to sell them to third parties who were unaware that they were not the legitimate holder.

The hijackers mostly targeted apparently unannounced (legacy) resources. Due to the fact that hijackers use sophisticated methods to gain access to the resources, such as test announcements to verify usage, falsified documents, re-registering domains and making copies of websites, these investigations are time-consuming and labour intensive, involving several divisions within the RIPE NCC. Especially where it involves legacy space, the investigations are complex as the RIPE NCC has not issued the resources and has therefore no authoritative documentation of the original distribution and changes in holdership over time. Legacy resources are particularly susceptible to hijacking attempts.

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

Benefits for RIPE NCC members / RIPE community:

- Safeguarding the resources of the legitimate resource holders
- Maintaining accurate and consistent Registry data
- Executing the policies decided on by the RIPE community
- Ensuring resources are registered to legitimate holder of address space

Registry Maintenance Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Registry Maintenance	30.5	3,071	30

1.2 RIPE Database

Status: Ongoing

Measurable usage: Approximately 14.5 billion RIPE Database queries up to December 2014

The RIPE Database contains information about the IP addresses and AS Numbers used by networks within the RIPE NCC service region. For these resources, the database carries information about their current holders along with contact details and related attributes. Resource holders are responsible for maintaining the information in the database, while the role of the RIPE NCC is as data controller.

The RIPE Database provides information that is crucial for network troubleshooting and determining abuse contacts. The database has a wide range of users, including network engineers, system administrators and researchers. The service is available for anyone that needs information about networks and Internet number resources.

The RIPE Database also includes the RIPE Routing Registry, which is part of the global Internet Routing Registry (IRR). The IRR ensures the stability and consistency of global Internet routing by sharing information between network operators. The IRR consists of several databases, including the RIPE Routing Registry, in which network operators can publish their routing policies and routing announcements.

In 2015, the RIPE NCC will continue to improve the maintenance of the RIPE Database. This involves updating the software to better support operations and improving internal processes. There will be a focus on increasing the usability of the database, while making it more efficient and simpler to use. Work already began in 2014 to improve the documentation around the RIPE Database, and this work will continue in 2015.

With continuous progress in the maintenance area, the RIPE NCC can provide a high-quality service to the community with close to 100% uptime. In addition, the RIPE NCC frequently verifies database data and regularly launches initiatives to improve its overall quality.

The RIPE NCC will conduct a full review of the RIPE Database software. The goal of this is to find and eliminate any security-related issues that might be present in the code. The RIPE NCC will also review the database IT infrastructure, carry out measurements and test scenarios in order to be better prepared in case of an attack.

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
- Ensures the stability of global Internet routing
- Makes sure the RIPE Database is robust and secure
- Provides greater integration with the LIR Portal

1.2.1 Outreach and Open Source

Status: Ongoing

The development of the RIPE Database is done in close collaboration with all stakeholders. New features of the core database services are suggested, discussed and approved by the RIPE Database Working Group before they are implemented. New services that integrate with or extend the database software can also be initiated and defined in other forums such as the IETF or from feedback from training courses and direct customer contact.

As an example of the efforts in this area, the Release Candidate environment was introduced in 2014. This enables the database users to test their integration with upcoming database software releases. In 2015, the RIPE NCC will continue to reach out to database users. The only way to create and provide an excellent service is by knowing the users and involving them in the entire process.

The RIPE NCC is committed to the open source initiative and will streamline the collaboration we currently have with other RIRs that share the same codebase. Among the benefits of having the software available as open source are transparency and a more robust application. It also opens up for third-party developers to contribute to the development of the database.

Benefits for RIPE NCC members / RIPE community:

- Provides transparency and awareness relating to the ongoings related to the RIPE Database
- Ensures up-to-date and modern services
- Ensures that the RIPE NCC's priorities for the database match the RIPE community's

1.2.2 New Feature Development

Status: Ongoing

Measurable achievements: Eight releases up December 2014

Improvements to the RIPE Database are made on a continuous basis. The RIPE NCC works closely with the RIPE community to implement new features and priorities are established by the appropriate RIPE Working Groups.

The RIPE NCC will continue to identify where improvements can be made and suggest new features to the RIPE community that enhance the database software and the overall user experience. The RIPE NCC will closely monitor new policies and assess any impact they might have on the database software and suggest implementation plans

Among the new features for 2015, the RIPE NCC will look into the possibility of closer integration between the Routing Registry and Resource Certification (RPKI). The RPKI user interface currently provides a highly interactive interface that allows members to create Route Origin Authorisations (ROAs) that accurately reflect their routing. In 2015, the RIPE NCC plans to build on this and improve the usability, accuracy and consistency of the Routing Registry and RPKI through a single intuitive interface and API.

Starting in 2014, the RIPE NCC began work on a unified tool for resource management. The project will stretch into 2015. By providing targeted tools for managing the data in the RIPE Database, the user experience will improve greatly. This will help the new and average users of the database to get their tasks done in an intuitive and easy-to-use manner. Most of these features will be available through the LIR Portal (see more under the LIR Portal section in this Activity Plan). During this time, we will also focus on improving the usability of the database web tools for queries and updates.

Benefits for RIPE NCC members / RIPE community:

- Provides support to RIPE Database users in their daily operations
- Simplifies use of the database
- Creates new ways to use the database and new interfaces
- Provides an overview of member resources in one location

RIPE Database Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
RIPE Database	7.2	692	150

1.3 Resource Certification (RPKI)

Status: Ongoing

Measurable usage: 2,555 resource certificates created by 15 December 2014

In 2011, the RIPE NCC launched a community-driven system that allows Local Internet Registries (LIRs) to request a digital certificate listing the Internet number resources they hold. This Resource Certification (RPKI) system uses open standards that were developed in the Secure Inter-Domain Routing (sidr) Working Group in the IETF. All Regional Internet Registries (RIRs) are committed to operating a resource certification system, making this a global effort.

A resource certificate offers proof of holdership of a resource's allocation or assignment by an RIR. It allows the holder of the certificate to make statements – formally known as attestations – with regards to the resources listed on the certificate.

These statements could be about anything related to the resources, but the practical application offered today is the ability to use the certificates to help secure Internet routing, particularly BGP origin validation.

In 2015, the Resource Certification service will focus on finalising the implementation of the delegated model, offering a production grade service that allows network operators to run their own certificate authority software package, which the RIPE NCC will also provide as an open source solution. In addition, there will be an increased focus on the robustness and scaling of the system. All core components of the RPKI system will be open sourced.

Lastly, the RPKI Validator software package will be expanded to make sure other types of resource data can be included in the decision making process that operators need for their BGP workflow.

Benefits for RIPE NCC members / RIPE community

- Offers network operators a reliable system for performing BGP Origin Validation based on the RPKI data set
- An easy to use hosted interface to create statements with regards to BGP origination.
- The option to run a self-hosted open source package for running a local certificate authority
- A robust, open source validation package for using RPKI data, optionally in conjunction with supported router hardware
- A stepping stone towards full BGP security, including path validation, as developed by the sidr working group in the IETF

Resource Certification (RPKI) Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Resource Certification (RPKI)	2.7	307	-

1.4 LIR Portal

Status: Expanding

Measurable usage: ~120,000 (logged in) page view per month

The focus of the LIR Portal has shifted from requesting resources to managing them. Adding two-factor authentication for RIPE NCC Access tightened security. The functionality that the LIR Portal provides through the IPv4 Analyser is geared towards increasing data quality in the registry and the RIPE Database, allowing members to make the most efficient use of the remaining IPv4 address space that LIRs hold. In addition, the IPv6 Analyser is helping users to manage their IPv6 address space or take their first steps in making assignments, by offering a visual insight into the address space and integrating with the RIPE Database. Lastly, seamless LiveChat

functionality allows LIRs to quickly talk to an expert in the RIPE NCC if they need help.

Based on member feedback from the RIPE NCC Survey 2013, and due to the fact that the LIR Portal infrastructure is reaching the end of its life, RIPE NCC management has decided that in 2015 the LIR Portal will undergo a total overhaul to update its infrastructure, design and functionality, along with a number of its core features. This is causing the activity to expand in terms of the resources being allocated to it.

The focus of LIR Portal developments will be on helping LIRs with their address management by offering a single, integrated workflow for managing resources, fixing problems, updating the RIPE Database and setting up routing and DNS configuration. There will be a further focus on unlocking resource data through an API, to allow for more integration with the IP address management workflows that operators have.

Benefits for RIPE NCC members / RIPE community

- A single place to manage Internet number resources
- Clean user interface, easy to use wizards and tight integration with the RIPE Database
- Strong security with two-factor authentication
- User friendly with Live Chat services, allowing users to talk to an expert quickly and easily

LIR Portal Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
LIR Portal	1.5	231	100

2) Services

2.1 Training

Status: Expanding

The RIPE NCC provides regular face-to-face training courses within its service region on daily operations and specialised areas, such as IPv6 and routing security. The goal of this training is to increase efficiency, raise members' awareness of their role as part of the RIPE community and improve understanding of the RIPE NCC's procedures and tools. This also leads to a reduced workload for the RIPE NCC's internal department.

In addition to the face-to-face courses, the RIPE NCC provides training courses and learning resources online. In 2015, based on feedback received from members at Training Courses and in the RIPE NCC Survey 2013, the RIPE NCC will further develop these online learning possibilities, allowing members and the RIPE

community to easily follow training courses and share best current practices online while allowing the RIPE NCC to reach members outside regular destinations.

The RIPE NCC is also coordinating with technical experts and trainers in several regions to roll out a "Train the Trainer" program. This will prepare teams of local trainers to spread the technical knowledge required to build and operate IPv6 networks far beyond what might be achieved by the RIPE NCC alone.

2.1.1 RIPE NCC Academy

Status: Ongoing

Measurable usage: N/A: expected launch in Q3 2014

The RIPE NCC has been offering learning resources online for several years. These resources included instructional videos, documentation and live webinars, allowing participants to interact with RIPE NCC trainers remotely.

Results from the RIPE NCC Survey 2013 showed that members wanted the RIPE NCC to provide more online learning options. As a result, the RIPE NCC worked on the implementation of a virtual learning environment, the RIPE NCC Academy, which will be launched in Quarter 3 of 2014. The RIPE NCC Academy will allow the RIPE NCC to offer more learning modules and training courses through an interactive portal. Members will be able to test and certify their knowledge and interact with the RIPE NCC and each other, sharing best current practices and experiences. In 2015, the RIPE NCC will continue to develop content for the RIPE NCC Academy.

Benefits for RIPE NCC members / RIPE community:

- Members and non-members can conveniently access learning resources online
- Members have the opportunity to gain certificates demonstrating their knowledge
- Members and non-members can share best current practices and experiences with each other
- Members can interact with RIPE NCC trainers without having to travel

2.1.2 Webinars

Status: Ongoing

Measurable usage: 55 Webinars in 2014 / 15 participants per Webinar

The RIPE NCC organises weekly one-hour interactive webinars, offering members the opportunity to learn from RIPE NCC trainers, watch live demonstrations and have their questions answered online. The number of participants is limited to 15 so that the trainers have enough time to address individual questions. Topics covered are:

- Introduction to the RIPE Database
- RIPE Database Advanced Topics

- IPv6 in the RIPE Database
- IPv6 Addressing Plan Webinar
- Webinar for New LIRs
- Resource Certification (RPKI)

In 2015 the RIPE NCC will launch a Webinar on RIPE NCC Tools.

Benefits for RIPE NCC members / RIPE community:

- Enables interaction with RIPE NCC trainers on a variety of topics without having to travel

2.1.3 Local Internet Registry Training Course

Status: Ongoing

Measurable usage: 30 courses in 2014 / 20 participants per course

The one-day Local Internet Registry (LIR) Training Course introduces members to the administrative procedures and policies related to obtaining and distributing Internet number resources and operating an LIR.

Benefits for RIPE NCC members / RIPE community:

- Helps members to understand the RIPE NCC's processes and how to request Internet number resources
- Increases awareness of the importance of a high-quality registry

2.1.4 Basic IPv6 Training Course

Status: Ongoing

Measurable usage: 45 courses in 2014 / 20 participants per course

The IPv6 Training Course is a one-day session for members who are planning to deploy IPv6. The course teaches members how to create a deployment plan, the differences between IPv4 and IPv6, and the implications of IPv4 exhaustion.

Benefits for RIPE NCC members / RIPE community:

- Builds awareness about IPv4 exhaustion and the need for IPv6 deployment
- Assists with the IPv6 deployment process
- Increases awareness about IPv4 and IPv6 coexistence

2.1.5 Routing Security Training Course

Status: Ongoing

Measurable usage: 15 courses in 2014 / 20 participants per course

The Routing Security Training Course is a one-day introductory course for members, covering usage of the Internet Routing Registry (IRR), Routing Policy Specification Language (RPSL) and Resource Certification (RPKI).

Benefits for RIPE NCC members / RIPE community:

- Teaches members how to make Internet routing more secure and reliable using the Routing Registry and the Resource Certification (RPKI) system
- Explains how to document routing policy in the RIPE Database with RPSL
- Teaches members how to set up the RPKI system in the LIR Portal and use resource certificates to create Route Origin Authorisations (ROAs)
- Explains how to use ROAs in the BGP decision-making process

2.1.6 RIPE Database Training Course

Status: Ongoing

Measurable usage: 20 courses in 2014 / 20 participants per course

The RIPE Database Training Course is a practical introduction for members on usage of the RIPE Database that includes hands-on exercises. The course was first introduced in 2013, after feedback from training course surveys indicated that members wanted a stand-alone RIPE Database course.

Benefits for RIPE NCC members / RIPE community:

- Increases awareness of the function, scope and importance of the RIPE Database
- Contributes to the maintenance of database data by members
- Raises awareness of the applicable database-related widgets and tools in RIPEstat
- Increases awareness of the importance of a high quality registry

2.1.7 Hands-on Technical Workshops

Status: Ongoing

Measurable usage: Around eight courses per year, alongside regional meetings, conferences and on-request

The RIPE NCC delivers technical workshops and tutorials alongside regional meetings, conferences and on request. Both the RIPE NCC Survey 2013 and regular training course surveys indicated a need for hands-on training courses on various technical subjects in certain parts of the RIPE NCC service region. In 2014, this training material was updated and new material was developed. The RIPE NCC will continue to provide tutorials and workshops covering best current practices and popular topics such as IPv6, DNSSEC, Routing, Security and others.

Benefits for RIPE NCC members / RIPE community:

- Builds knowledge of upcoming technologies, best practices, protocols and RIPE Policies
- Increases awareness of the tools and services provided by the RIPE NCC

i) Advanced IPv6 Training Course

Status: Ongoing

Measurable usage: Four courses in 2014 alongside regional meetings / 20 participants per course

"Advanced IPv6" is a two-day IPv6 course. Topics include IGP, BGP, security and configuration. It is mandatory to have participated in the Basic IPv6 Training Course before members can attend this course.

Benefits for RIPE NCC members / RIPE community:

- Teaches members how to implement IPv6 in their core network
- Allows members to understand the differences and similarities between IPv4 and IPv6 security
- Assists with the IPv6 deployment process
- Increases awareness about different transition mechanisms
- Builds knowledge of upcoming technologies, best practices, protocols and RIPE Policies

ii) DNSSEC Training Course

Status: Ongoing

Measurable usage: Four courses in 2014 alongside regional meetings / 20 participants per course

The DNSSEC Training Course is an introductory, hands-on course on DNSSEC. It covers basic DNS theory, public key encryption basics and guides the participants in securing their domain name servers and zones.

Benefits for RIPE NCC members / RIPE community:

- Increases awareness about DNSSEC
- Allows members to understand the basic concepts of DNS Security
- Teaches members how to troubleshoot basic DNSSEC problems
- Increases awareness about different DNSSEC-related tools and procedures
- Builds knowledge of upcoming technologies, best practices, protocols and RIPE Policies

2.1.8 Training Courses for Law Enforcement Agencies (LEAs) and Other Stakeholders

Status: Ongoing

Measurable usage: Four workshops held annually / 25 participants per workshop

As outlined in section 3.4, Government and LEA Liaison, the RIPE NCC plays an important role in engaging all Internet stakeholders to work towards a stable, secure and global Internet. The RIPE NCC supports these activities by delivering workshops to LEAs and other stakeholders.

Benefits for RIPE NCC members / RIPE community:

- Promotes public/private sector dialogue
- Strengthens the awareness and legitimacy of the bottom-up policy development process
- Enables the future growth, stability and security of the Internet

Training Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Training	7.9	1,019	-

*** 2.2 RIPEstat *** STRATEGIC FOCUS POINT 2015

Status: Ongoing

Measurable usage: 180,000 average monthly visits

In 2014, the RIPE NCC focused on migrating RIPEstat backends from legacy and prototype systems to its consolidated data provisioning system, RIPEstat, which provides the data collected by many of the RIPE NCC's measurements systems, including RIPE Atlas and the Routing Information System (RIS). This migration greatly improved the consistency, stability and performance of RIPEstat while it will radically bring down the maintenance and expansion costs of the system for the coming years.

With this migration completed, in 2015 the focus will be on integrating different data sources in the RIPE NCC as well as data from third party data providers. RIPEstat will allow different target groups to get access to the information they need in the most useful format with the main focus on RIPE NCC members and small and medium-sized service providers, who form the majority of the membership and can get the most value from an open and public tool like RIPEstat.

In 2015, the RIPE NCC will keep adding new datasets to RIPEstat, both from the RIPE NCC and relevant external parties. The main goal will be providing a meaningful and useful relation between available datasets and maximising the value of these combined visualisations for end users. The platform will also be the entry point for RIS data as well as combined visualisations of public RIPE Atlas data and data from other sources.

Using feedback from RIPEstat users, the RIPE NCC will continue to evaluate other tools and features that can be incorporated into RIPEstat to make the service more useful to members and the RIPE community.

Benefits for RIPE NCC members / RIPE community:

- Provides current and historical information about Internet number resources, including those the user is responsible for
- Will provide members with routing-specific functions, such as alarms
- Additional targeted analysis options provided specifically for members
- Provides a single, consolidated interface for accessing all RIPE NCC public data

RIPEstat Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
RIPEstat	5.8	641	8

***** 2.3 RIPE Atlas *** STRATEGIC FOCUS POINT 2015**

Status: Decreasing

Measurable usage: Approximately 200 million measurement results per day and approximately 400,000 measurements performed in 2014; approximately 10,000 active probes forecast for 2015

At RIPE 61 in 2010, the RIPE NCC announced that it intended to start the RIPE Atlas measurement network and the RIPE NCC Executive Board later gave the project its approval. In the period since, the RIPE NCC has managed to build a leading Internet active measurement network that collects unique data, providing valuable live and historical information about the reliability of networks and the Internet’s reachability and connectivity.

RIPE Atlas has proven to be a very useful measurement infrastructure used by operators and scientists to observe the Internet, track changes in networks and diagnose networking issues, among other things. The RIPE NCC has received very positive feedback on the value of RIPE Atlas from different groups, including RIPE

NCC members, Internet Service Providers around the globe, press agencies, and researchers and scientists.

The RIPE NCC has already introduced features such as RIPE Atlas status checks, which integrate the power of the RIPE Atlas global network into end users' existing monitoring tools and infrastructure. This is an extremely valuable tool for service providers and the RIPE NCC will continue building tools and services aimed at providing direct value for our members and service providers in general. This will help to improve general stability and resiliency of the Internet by empowering service providers with unique tools to monitor global network behaviour and act proactively in case of issues.

RIPE Atlas currently allows users to run their own measurements that test reachability and round-trip times, traceroutes, DNS measurements and more – from thousands of vantage points around the globe. All measurements are aggregated and provide a big-picture view of the Internet available in several formats, including “traffic maps”.

In 2015, the RIPE NCC will continue to expand the RIPE Atlas infrastructure to accommodate the growing number of probes. The RIPE NCC plans to distribute no additional RIPE Atlas probes beyond keeping the network at the level of 10,000 active probes, but will pursue external funding and sponsorship. The RIPE NCC will work with parties interested in sponsoring this activity and will spend funds received from those parties towards expansion of the network. The experience gained by the RIPE NCC and the move to external funding of the service means that further efficiencies can be introduced while maintaining value for users.

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

Benefits for RIPE NCC members / RIPE community:

- Provides timely, hard data on topical issues such as country-wide Internet outages
- Offers topical measurements and data analysis for RIPE NCC members
- Interfaces with network monitoring tools and adds global-monitoring capabilities to such tools
- Reinforces the credibility and standing of the RIPE NCC by providing a neutral, transparent data collection infrastructure
- Provides datasets that can be used to analyse the operation and growth of the Internet
- Collects measurement data on the state of the Internet, using active data collection methods

2.3.1 RIPE Atlas Anchors

Status: Ongoing

Measurable usage: Approximately 100 RIPE Atlas Anchors deployed by December 2014

RIPE Atlas anchors are essentially enhanced probes with far greater measurement capacity than regular RIPE Atlas probes. They have replaced the old Test Traffic Measurement (TTM) machines and basically provide two functions: they perform far more measurements than regular probes and act as stable, cooperating regional targets for measurements originating from probes throughout the RIPE Atlas network. This allows users to examine measurement traffic at both the source and the destination. RIPE Atlas anchors are hosted by interested organisations (mostly data centres and IXPs), which receive additional benefits for their contribution.

In 2015, the RIPE NCC will continue to deploy RIPE Atlas anchors in various partnering networks in order to provide a wider distribution of measurement targets. Hosting and the hardware for RIPE Atlas anchors is funded by interested parties, except for strategic locations where the RIPE NCC has direct interest in monitoring the network connectivity in a location such as those where we host essential equipment like resiliency servers or global K-root nodes.

2.3.2 Routing Information Services (RIS) and DNS Measurements

Status: Ongoing

The RIPE NCC operates globally distributed measurement networks for the purpose of collecting data on Internet infrastructure, usage and development.

In 2015, the RIPE NCC will continue its work in cooperation with a range of stakeholders to unify, optimise and develop new interfaces for this data and continue to replace the end-of-service data collection hardware with a new hardware platform that is cheaper, easier to deploy and provides near real-time route updates to RIPE NCC backend infrastructure. Ultimately, the collection of these measurements will be incorporated into RIPE Atlas and the data will be accessible via RIPEstat as outlined in the sections above.

Benefits for RIPE NCC members / RIPE community:

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

RIPE Atlas Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
RIPE Atlas	10.4	1,072	372

2.4 Other Services

2.4.1 Membership Lifecycle Management

Status: Expanding

Measurable usage: 11,000 members; 1,680 membership applications; 25,000 member enquiries

The RIPE NCC manages the complete lifecycle of RIPE NCC memberships and of those wishing to avail of RIPE NCC Services (e.g., legacy resource holders). Support and advice is given throughout the contractual relationship, including queries from potential members, applications, administrative and contractual changes, billing enquiries and account closure.

In 2015, the RIPE NCC expects to see a further substantial increase in RIPE NCC members, leading to a greater number of applications and opportunities for support. Thanks to the focus on increasing efficiency, savings are expected to result in the absorption of the additional workload with less than one additional FTE.

New systems and processes will be introduced (for example, a new ticketing system and a remodeled process for contractual changes) that will lead to an improved customer experience in addition to gaining efficiency. Customer feedback will be sought, tracked and shared internally in order to remain aware of external perceptions and ahead of customer expectations.

Benefits for RIPE NCC members / RIPE community:

- Potential members receive advice regarding membership
- New customers are guided through the application process
- Support is given when administrative or financial questions arise
- Members are kept aware of services, tools and features that provide value for money
- Members can receive personal support via Live Chat and in other languages where possible

2.4.2 Test Traffic Measurements (TTM)

Status: Ended

The RIPE NCC initially proposed discontinuing TTM at RIPE 64 in Ljubljana. After further consultation with the RIPE community, it was agreed that the RIPE NCC would continue to provide this service until the end of 2013.

The Test Traffic Measurements (TTM) service was ended on 1 July 2014 and the benefits of the service will be offered through RIPE Atlas in a more focused and up-to-date way.

2.4.3 RIPE Database Proxy Service

Status: Ongoing

Measurable usage: 8 contracts have been signed; 6 actual users of the service

The RIPE Database Proxy Service is for third parties who send queries to the RIPE Database on behalf of their clients. It ensures that the daily access limits for users of the RIPE Database are correctly applied. For example, if a third party provides their clients with a web-based gateway to the RIPE Database, the proxy service ensures that daily limits are calculated based on the clients' queries and avoids the possibility of the third party's server being denied access to the RIPE Database because of too many queries from its clients.

At the 87th Executive Board Meeting, held on 26 March 2013, the RIPE NCC Executive Board decided that the RIPE Database Proxy Service should be continued free of charge, for both members and non-members, under a formal contract with the users of the service.

Benefits for RIPE NCC members / RIPE community

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

2.4.4 Near Real Time Mirroring (NRTM)

Status: Ongoing

Measurable usage: 25 users of the NRTM service

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

2.4.5 LISP EID Registry

Status: Ongoing

At the IETF, a new Internet Draft for the allocation of LISP EID address prefixes has been submitted. LISP EID (Locator/Identifier Separation Protocol Endpoint ID) is a "map-and-encapsulate" protocol.

The basic idea behind the separation is that the Internet architecture combines two functions: routing locators (where a client is attached to the network) and identifiers (who the client is) in one number space, the IP address.

The IETF LISP Working Group has requested a trial period of three years for this protocol extension. During these three years, interested parties can request IPv6 address space from a specific designated experimental block. Management and registration of the allocation of temporary experimental address space for LISP EID is likely to be carried out via the RIRs.

If this proposed activity goes ahead, no additional resources will be needed to execute the LISP registry – the expected workload would be significantly less than 0.5 FTEs for 2015.

Other Services Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Other Services	4.6	397	-

3) *Coordination Activities*

3.1 DNS and K-root Operations

Status: Expanding

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

In 2014, the RIPE NCC finished expanding its primary and secondary DNS services by adding a third cluster node in Stockholm, in addition to those currently located in Amsterdam and London, to improve resilience and geographical coverage.

K-root and other DNS service nodes will continue to be well maintained and, as a consequence, lifecycle upgrades and replacements are planned for 2015. The expansion of rDNS services to increase coverage is not planned for 2015.

Security-related aspects as well as global measurement and reporting on the RIPE NCC's DNS services are becoming increasingly important and will continue to be areas of focus in 2015.

Benefits for RIPE NCC members / RIPE community:

- Provides reverse DNS services for RIPE NCC members with registered IP addresses
- Ensures the stability and diversity of the DNS root name server system
- Guarantees the neutral, impartial and professional provision of key high-level DNS services
- Provides a secondary service for ccTLD operators

3.1.1. Reverse DNS and Reverse DNS Support

Status: Ongoing

Measurable usage: three reverse provisioning instances; approximately 5 billion reverse root queries daily

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

As part of its DNSSEC deployment efforts, 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 by 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

Status: Ongoing

Measurable usage: 76 TLDs hosted as secondary

The RIPE NCC offers a secondary name service to the other RIRs, along with some country code top-level domain (ccTLD) operators, who are in the start-up phase of

their operations. The RIPE NCC no longer provides this service to well-established ccTLDs.

In 2014, the RIPE NCC approached the RIPE community for input on documenting the requirements and policies for providing such services. The community has provided feedback and the guidelines have been published. In 2015, RIPE NCC will follow those guidelines as the process for running this service.

Benefits for RIPE NCC members / RIPE community:

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

3.1.3 DNS Service in the e.164.arpa Domain (ENUM)

Status: Ongoing

Measurable usage: 52 delegations in the ENUM (e164.arpa) zone

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, which allows the mapping of telephone numbers to domain names in order to help facilitate services such as Voice over IP (VoIP).

Benefits for RIPE NCC members / RIPE community:

- Supports the 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 e.164.arpa domain by deploying and maintaining DNSSEC and allowing secure delegations from ENUM operators

3.1.4 K-root Operations

Status: Ongoing

Measurable usage: 17 K-root instances; approximately 2 billion queries daily

The RIPE NCC operates the K-root server through a set of globally distributed anycast clusters. 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). The RIPE NCC has since deployed five global nodes of the K-root name server. Since 2003, the RIPE NCC has also been deploying anycast instances of the K-root server with local reachability. Currently there are 12 local nodes active.

The RIPE NCC collects and analyses data to evaluate the performance of the existing K-root anycast nodes and to determine if additional anycast nodes should be

deployed. Global coverage and capacity of the existing K-root anycast instances is considered sufficient.

In 2014, the RIPE NCC designed a new architecture for the K-root platform, which greatly reduces deployment costs of new nodes. In 2015, there are plans to revise all of existing nodes, perform the necessary lifecycle replacements, and renew and unify our hosting requirements and contracts with current hosts. The RIPE NCC is also working closely with other RIRs in order to identify locations where it can benefit from a local K-root node and find possible hosts for the service.

Benefits for RIPE NCC members / RIPE community:

- Provides a resilient, efficient, secure and high-quality 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 K-root anycast instances by monitoring network and instance problems, performing trend analysis and determining if, and where, other anycast nodes should be deployed.

DNS and K-root Operations Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
DNS and K-root Operations	3.1	413	128

3.2 Data Analysis and Scientific Support

Status: Ongoing

The RIPE NCC has a long-standing tradition of providing the operator community with data analysis about the state of the Internet and providing new and innovative tools that help the community understand various aspects of routing, DNS, reachability and other topics.

In 2015, the RIPE NCC will allocate more time to these scientific publications and analyses. It will also continue to develop prototype tools that, if they show enough operational value to the RIPE NCC membership and the community at large, can be evolved into future RIPE NCC services. The RIPE NCC will also aim to work with well-known publishing outfits to keep the technical community up to date with developments and changes in the global Internet infrastructure, such as the effects of natural disasters.

Benefits for RIPE NCC members / RIPE community:

- Regular reporting and analysis of various RIPE NCC-related statistics such as Internet number resource usage

- Accurate and methodological analysis of Internet events, with a particular emphasis on using data collected by the RIPE NCC's measurement systems
- Publication of interesting findings about the working of the Internet, relevant to network operators
- Prototypes of new and innovative tools that have the potential to become future RIPE NCC services

Data Analysis and Scientific Support Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Data Analysis and Scientific Support	2.6	313	6

3.3 RIPE Labs

Status: Ongoing

Measurable usage: 70 articles published in 2014; approximately 100,000 unique visitors

RIPE Labs is a platform for network operators, developers and industry experts to expose, test and discuss innovative Internet-related tools, ideas, analysis and statistics that can benefit members and the RIPE community. These ideas are being developed both within the RIPE NCC and the community at large.

The Statistics Dashboard has been one of the most popular pages on RIPE Labs. In 2015, the RIPE NCC will continue to provide more statistics and work on the consistent look and feel of the graphs. The RIPE NCC will also continue to reach out to the wider community and to attract content from external sources such as researchers and operators and experts (e.g. security experts).

Benefits for RIPE NCC members / RIPE community:

- Informs the community about new ideas and prototypes the RIPE NCC is working on
- Provides a platform for community members to present and discuss their research and use cases
- Provides a channel for the community to provide feedback to the RIPE NCC
- Provides a statistics dashboard showing a large range of operational statistics

RIPE Labs Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
RIPE Labs	1.5	247	-

*** 3.4 External Relations *** STRATEGIC FOCUS POINT 2015

Status: Ongoing

The RIPE NCC engages strategically with governments, law enforcement agencies (LEAs) and inter-governmental organisations on behalf of its membership and community. This activity has grown steadily in importance, and this is reflected in the growth in the External Relations Department in recent years. The RIPE NCC is recognised as a leader and innovator in this area among its industry partners.

The RIPE NCC's liaison strategies in this area include:

- RIPE NCC Roundtable Meetings for Governments and Regulators, held twice yearly
- Engagement with LEA representatives at events including the annual Global e-Crime Congress and targeted sessions with individual agencies or regional groups of agencies
- Direct engagement with government agencies on issues relevant to the RIPE NCC, its membership and the RIPE community in 21 countries in the service region as well as organs of the European Union
- Participation in international discussions of Internet-related public policy development in forums including the International Telecommunication Union (ITU) and its regional coordination groups (the Conference of European Postal and Telecommunications Administrations (CEPT) Committee on ITU (Com-ITU), the Regional Commonwealth in the Field of Communications (RCC) and the Arab Group), the Organisation for Economic Cooperation and Development (OECD) and the World Summit on the Information Society (WSIS)
- Cooperative educational and capacity building initiatives with public sector organisations and industry partners. The IPv6 Roadshow initiative (see section 3.6.1) is one example of this.

The 2015 landscape will likely be dominated by issues and processes relating to the U.S. Government's transition out of an IANA stewardship role. However, it will also see significant high-level discussions relating to the results of the ITU 2014 Plenipotentiary Conference (which takes place in October 2014), the WSIS+10 events and processes, and preparations for a 2016 OECD Ministerial Meeting on Internet governance issues.

Over 2015, the RIPE NCC will continue to build on its current liaison strategies and explore new avenues to inform and engage public sector representatives. The RIPE

NCC will also respond to RIPE community comments, and evolve new and improved strategies to inform the community of its External Relations activities and issues relevant to the community.

Benefits for RIPE NCC members / RIPE community:

- Ensures that the interests and concerns of the RIPE NCC membership and RIPE community are heard in Internet governance discussions at the national, regional and global level
- Contributes to the global legitimacy of bottom-up, community-driven policy-making processes, as practiced by the RIPE community
- 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
- Ensures the RIPE NCC can inform its membership and community of relevant public policy issues or discussions

External Relations Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
External Relations	9.6	1,552	-

***** 3.5 Member Outreach *** STRATEGIC FOCUS POINT 2015**

Status: Expanding

The RIPE NCC supports the open, multi-stakeholder model of Internet governance by engaging with a broad range of stakeholder groups on behalf of the membership and for the good of the Internet community. Among the stakeholder groups that the RIPE NCC has developed relationships with are:

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

2015 will see further expansion of current initiatives to build develop these relationships, including:

- The RIPE Academic Cooperation Initiative (RACI) to bring more academics, students and researchers into RIPE community events and forums

- Funding for RIPE community members to participate in the Internet Governance Forum and regional Internet governance events
- Contributions to technical community conferences and events to highlight RIPE NCC services (particularly statistics and analysis) and issues of concern (including IPv6 adoption and Internet governance discussions)

The RIPE NCC is also committed to building on its outreach efforts to the core membership by supporting Network Operator Groups, Internet Exchange Points (IXs) and other forums in the service region through sponsorship and active participation.

Regional organisation and participation are crucial to successful community-driven, bottom-up policy development models, providing all stakeholders with the means to contribute and have their voice heard. The RIPE NCC has been very active in supporting the development of regional forums within its service region, including:

- Network Operator Groups, including the Middle East Network Operators Group (MENOG), the Eurasia Network Operators Group (ENOG) and support for national NOGs throughout the service region
- RIPE NCC Regional Meetings, including sessions attached to MENOG and ENOG, the South East European Regional Meeting (which will hold its fourth meeting in 2015), and events in central Asia and the Middle East.
- Regional Internet governance forum events (including EuroDIG, the Arab IGF and national IGF events)
- Regionally targeted educational initiatives (the RIPE NCC/MENOG IPv6 Roadshow)

Over the past several years, and in line with the feedback received in the RIPE NCC Survey 2013, the RIPE NCC has been steadily increasing its outreach activities with a particular focus on the Russian and Middle East regions. Since 2012, this increase has been accompanied and facilitated by the addition of staff in regional offices in Dubai and Moscow. The External Relations team is now complete, with two staff in Amsterdam, two new staff members in Dubai and two staff in Moscow. These staff members, particularly in Dubai and Moscow, will strengthen the RIPE NCC's reach and influence with the technical community, public sector and business stakeholders in those regions.

In addition, the regional offices will be used to host staff from the Amsterdam office, building on the organisation's relationship with members and stakeholders across the service region.

Finally, the RIPE NCC will continue to build on work with industry partners, including ICANN and the Internet Society on various initiatives to build regional engagement with the Internet technical community.

Benefits for RIPE NCC members / RIPE community:

- Embraces external groups and stakeholders as part of the open RIPE community, strengthening the authority and legitimacy of the RIPE bottom-up policy development process

- Ensures that all RIPE NCC stakeholders feel engaged and represented in the operation and guidance of the organisation
- 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 effective coordination of the Internet technical community's input into multi-stakeholder Internet governance discussions

Member Outreach Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Member Outreach	4.1	1,267	-

3.6 IPv6 Support

Status: Expanding

The RIPE NCC will continue to focus a great deal of its outreach efforts on IPv6 awareness-raising efforts across the full range of RIPE NCC stakeholder groups. This includes work to inform and educate governments, regulators and LEAs about IPv6 deployment, engagement with national forums and task forces, and meetings with LEAs around the world. The RIPE NCC will also continue to work closely with the OECD on IPv6-related activities conducted under the remit of that organisation.

While there will remain a strong focus on the technical and operational aspects of deploying IPv6, the RIPE NCC management has decided that additional efforts will be made to raise awareness of IPv6 among decision-makers. This will be supported by the IPv6 Program Manager, newly appointed from within the RIPE NCC, who will be able to dedicate efforts to IPv6 awareness-raising activities.

Specifically, these efforts will include:

- Presence and participation in global, regional and national events, including technical forums, governmental meetings and business events
- Ongoing development of printed and online materials to facilitate IPv6 deployment for all stakeholders
- IPv6 messaging and communication in the traditional and online media, utilising the RIPE NCC's public relations agency and social media networks
- Collaborative efforts with other RIRs and industry partners on global education and capacity building
- Regular RIPE NCC Roundtable Meetings for governments, regulators and LEAs

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 in all relevant forums
- 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
- Highlights the advantages of the community-driven, bottom-up system for managing and distributing Internet number resources

3.6.1 Training and Education

i) RIPE NCC/MENOG IPv6 Roadshows

Status: Ongoing

The IPv6 Roadshow events are a joint initiative from the Middle East Network Operators Group (MENOG) and the RIPE NCC. They consist of three- or five-day events that provide hands-on training for network engineers involved in the operations of private and public sector networks.

In 2015, there will be around six IPv6 Roadshow events scheduled throughout the Middle East region. After a revision of all training material completed in 2014, the RIPE NCC will work with local partners, including governments, to initiate a train-the-trainer program to broaden the pool of Arabic-speaking trainers and increase the amount of capacity building resources in the region.

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

ii) IPv6 Roadshow in CIS region

Status: Ongoing

Building on the success of the RIPE NCC/MENOG IPv6 Roadshows, these events will be further rolled out in 2015. Recognising the needs of operators in this region, the IPv6 Roadshow events will be delivered by Russian-speaking trainers. To enable this, the RIPE NCC is working together with regional communities such as ENOG to recruit potential trainers, who will be asked to participate in a Train-the-Trainer Program facilitated by the RIPE NCC. In 2015, these activities will continue and the RIPE NCC will be working on extending the pool of trainers and continue the efforts in providing them with updated training materials as well as additional resources that can help to increase the understanding or awareness of IPv6 deployment.

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

3.6.2 Online IPv6 Resources, Measurements and Analysis

Status: Ongoing

The RIPE NCC supports IPv6 adoption by providing resources, measurements and analysis to its membership and the wider RIPE community. This activity includes maintenance of the IPv6ActNow.org website, the provision of IPv6-related statistics and the IPv6 RIPEness rating system, which measures and ranks the IPv6 preparedness of individual RIPE NCC members based on a number of specific indicators.

Recognising the advances being made in the deployment of IPv6 in several markets in the RIPE NCC service region, the RIPE NCC will continue working on including case studies and background information about successful IPv6 deployments on the IPv6ActNow.org website and RIPE Labs. In collaboration with local and regional communities the RIPE NCC will encourage and facilitate community members to share their operational experience with IPv6.

Monitoring and measuring the level of IPv6 deployment among members and Internet end users in general remains an important focal point. These measurements will provide an important basis to monitor progress as well as help the community to measure the quality of the IPv6-based communications. With significant advances in the deployment of IPv6 in several networks and markets, the RIPE NCC management has decided to put additional focus on providing statistics that can help the public sector to evaluate and identify successful programmes to incentivise IPv6 deployment.

Benefits for RIPE NCC members / RIPE community

- Provides comprehensive, impartial information to assist in deploying IPv6
- Provides analysis on the rate of IPv6 deployment
- Establishes the RIPE NCC and the RIPE community as authoritative sources of data and analysis
- Encourages RIPE NCC members to become IPv6-ready and rewards them for doing so
- Provides a unique indicator of IPv6 readiness across the RIPE NCC service region (and at more specific levels, including by country, sector, LIR size)

IPv6 Support Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
IPv6 Support	1.6	161	-

3.7 RIPE Meetings

Status: Ongoing

Measurable usage: 500+ attendees per meeting; 1,000+ remote participants

The RIPE NCC organises two five-day RIPE Meetings each year at various locations throughout its service region, trying to vary these geographically. RIPE Meetings bring together Internet Service Providers (ISPs), network operators and other interested parties from all over the world. The RIPE NCC provides all administrative, logistical and technical support.

The RIPE NCC expects that both RIPE Meetings in 2015 will receive attendance in excess of 600 people. For those that are unable to physically attend RIPE Meetings, state of the art webcasting services and live transcription will be made publicly available.

The RIPE NCC sends staff to RIPE Meetings who are available for face-to-face consultation about: Internet resource requests, the RIPE Database, billing queries, RIPE NCC training services, RIPE NCC tools and measurement services, RIPE Labs, and any other services that are made available to members or the wider community.

Benefits for RIPE NCC members / RIPE community:

- Supports the open, bottom-up, industry self-regulatory structure
- Stimulates participation of the RIPE community in the IP policy-making process and the technical coordination of IP networking
- Facilitates networking opportunities with key players in the Internet industry
- Contributes to the stable operation of the RIPE NCC by allowing for guidance and advice from the RIPE Working Groups

RIPE Meetings Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
RIPE Meetings	5.7	1,414	87

3.8 RIPE Policy and Community Support

Status: Ongoing

Measurable usage: Thirteen policy proposals entered the Policy Development Process (PDP) in 2014. Four proposals from 2013 completed the PDP in 2014.

The RIPE NCC provides support to any and all stakeholders who wish to participate in formulating RIPE Policy or who wish to be part of the RIPE community. It supports the RIPE Policy Development Process (PDP) and offers assistance to the RIPE Working Groups and Working Group Chairs as required so that they are able to develop policy in a consensus-based, bottom-up manner. The RIPE NCC provides information and statistics to various working group mailing lists and creates impact analyses that highlight the expected outcome of RIPE Policy proposals to facilitate community discussion. The RIPE NCC also implements procedures as part of the RIPE Policy Development Process (PDP).

In recent years important stakeholders within the Internet community, both technical and non-technical, have shown an increased interest in the RIR system. The RIPE NCC plays an active role in promoting the bottom-up policy development process:

- The engagement of the community members to participate in policy discussion
- The engagement of all the stakeholders in the Internet community that look at RIPE as a model of policy-making process
- The education and awareness building of the community members over the PDP and the multiple channels of communications available to participate in the self-regulation system – the process and procedures for the above engagement and awareness building
- Representation of RIPE NCC roles in the coordination of Internet policy
- The existing collaborations with other important Internet institutions such as ICANN, the ASO AC and the NRO

In 2015, the RIPE NCC will maintain its support for the RIPE Academic Cooperation Initiative (RACI), which aims to strengthen links between the RIPE community and the academic community. Launched in 2013, RACI gives top students an opportunity to present their Internet-related research at RIPE Meetings. The RIPE NCC will also continue to make heavily subsidised tickets available to any students who would like to attend RIPE Meetings.

The RIPE NCC maintains a number of high-volume external mailing lists. Traffic is closely monitored and efforts are made to support subscribers with problems and to control spam so the mailing lists can be easily and efficiently moderated without losing any End User functionality.

In 2014, the RIPE NCC started expanding its focus on increasing the level of participation in the PDP by facilitating accessibility, communication and information dissemination within the RIPE community. The initial strategic steps involved the adoption of new media, such as a Policy Development Office Twitter account.

Through Twitter, the Policy Development Office has been informing its numerous followers about new community policy proposals and discussions developing on the mailing lists. Due to the consistently growing Twitter views, currently an average of 1,000 views per tweet, and the enthusiastic feedback by members and representatives of the RIPE community for these advances in the Policy Development Process communication strategy, in 2015 the RIPE NCC will further focus on increasing accessibility to the Policy Development Process.

In 2015, the RIPE NCC plans to develop a pilot communication platform that will allow for better integration between different communication methods, such as forums and the existing mailing lists (which will remain the leading communication method), allowing for easier reading, searching and sharing. The focus will be on expanding participation in the RIPE PDP and reaching out to new audiences. The RIPE NCC will also investigate means of encouraging further engagement with the PDP via social media.

Benefits for RIPE NCC Members / RIPE Community:

- Promotes the RIPE Policy Development Process (PDP)
- Strengthens the RIPE community and encourages involvement
- Educates the RIPE community about the PDP and promotes its use
- Helps to anticipate problems related to the PDP or policy proposals by analysing their potential impact for the community
- Provides transparency and consistency of the procedures
- Translates RIPE Policy into RIPE NCC procedures
- Documents and maintains a clear overview of new and changed procedures
- Facilitates the exchange of information among the RIPE community and the RIPE NCC membership
- Encourages participation of individuals who have little or no experience of the RIPE community

RIPE Policy and Community Support Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
RIPE Policy and Community Support	1.9	234	-

3.9 ICANN/IANA/IETF/ISOC/RIRs

Status: Ongoing

The RIPE NCC is strongly committed to maintaining close relationships with its industry partners, including the four other Regional Internet Registries (RIRs), ICANN, the Internet Engineering Task Force (IETF) and the Internet Society (ISOC). As the global multi-stakeholder community prepares a plan for the transition of IANA

stewardship away from the U.S. Government, these relationships will be more important than ever, ensuring effective coordination and information sharing.

The RIPE NCC supports ICANN, particularly in relation to the role in it has played as manager of the IANA functions and now as convener of the multi-stakeholder process to develop a transition plan. The RIPE NCC works with the IETF and the Internet Society to ensure implementation of agreed technical standards and coordination among those who support the global operation of the Internet. These organisations will also be key partners in the IANA discussions over 2015.

The RIPE NCC Management plans to build on the organisation's leadership position in this area through new and expanded cooperative engagement efforts, building on activities like the RIPE NCC Roundtable Meetings and coordination efforts between the so-called “I-star” organisations.

Benefits for RIPE NCC members / RIPE community:

- Promotes the open, bottom-up, industry self-regulatory structure common to the RIR communities and other Internet technical coordination bodies
- Facilitates coordinated implementation of global policies developed by the Policy Development Processes (PDPs) of the five RIRs, and contributes to the global legitimacy of bottom-up, community-driven policy-making processes
- Facilitates the general technical and outreach coordination necessary to support the stable operation and governance of the Internet

ICANN/IANA/IETF/ISOC/RIRs Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
ICANN/IANA/IETF/ISOC/RIRs	2.9	1,030	-

4) Internal

4.1 IT

Status: Ongoing

The IT activity at the RIPE NCC is a substantial enterprise that provides considerable support for all the internal and external services and activities provided by a Regional Internet Registry. This activity includes the operation of the internal network and system administration and engineering support for all related infrastructure (such as co-location facilities, archiving and storage and email delivery), front-line support for staff, and IT support and enhancement for all external services provided by the RIPE NCC. 24/7 IT support is provided for all the RIPE NCC’s critical services.

The IT infrastructure at the RIPE NCC includes three co-locations as well as the set-up at the Amsterdam office, including data storage, desktop and laptop infrastructure, telephony and building access systems. The RIPE NCC also maintains the technical operations of the Number Resource Organisation (NRO) and the Address Supporting Organisation (ASO).

IT also includes the technical set-up for the twice-yearly RIPE Meetings at locations throughout the service region, as well as support during RIPE NCC Regional Meetings.

A key aspect for the IT service is the capacity planning with the continuous growth of data the RIPE NCC holds. The RIPE NCC has three co-location facilities and has one external “warm node” in Stockholm, Sweden to operate all RIPE NCC services. In 2015, the external “warm node” will be further expanded to be able to operate completely independent from the RIPE NCC infrastructure in the Netherlands.

Additional key areas will be automation improvements to the RIPE NCC’s network infrastructure, a high availability virtual server environment and a focus on efficiency to facilitate service improvements.

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). A technical emergency hotline is in place to ensure issues relating to RIPE NCC’s critical services can be dealt with appropriately.

Benefits for RIPE NCC members / RIPE community

- Supports the efficient deployment and enhancement of services
- Provides of 24/7 support for services
- Ensures efficient IT support for staff to facilitate delivery of RIPE NCC services
- Enables 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

IT Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
IT	10.8	1,912	768

4.2 Facilities – Rent and Utilities

Status: Ongoing

Facilities include all of the rent, utilities, security, repair and maintenance costs for the RIPE NCC’s building and equipment.

The RIPE NCC is continuously improving its facilities in order to provide a work environment that maximises the productivity of its employees. The RIPE NCC has reviewed its current location and is actively looking for a new office location to improve internal communication and employee productivity. In 2015, the RIPE NCC will conclude this project and will start re-locating to the new office space.

Benefits for RIPE NCC members / RIPE community:

- Creates a secure, healthy environment for employees
- Provides up-to-date and well-maintained working facilities

Facilities - Rent and Utilities Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Facilities - Rent and Utilities	3.9	1,156	500

4.3 Management and HR

Status: Ongoing

The Management and HR activity at the RIPE NCC encompasses the Senior Management functions, including the Managing Director and the Chief Scientist. The Senior Management Team works closely with the RIPE NCC Executive Board to develop the strategy and vision of the organisation. The team also guides staff and actively steers the RIPE NCC in order to provide excellent services and coordination activities for the RIPE NCC membership and the wider Internet community. The Senior Management Team is supported by the Management Assistants at the RIPE NCC.

HR is responsible for the recruitment of well-qualified employees from throughout the RIPE NCC’s service region and ensuring their effective integration into the RIPE NCC staff. HR is also responsible for staff training, salary administration and workplace health and safety.

The RIPE NCC continuously reviews its organisational structure to ensure it remains as efficient as possible. Management support is also provided to facilitate decision

making through engagement with relevant third parties. A priority is placed on maintaining an effective, healthy, and skilled RIPE NCC staff.

In 2015, the RIPE NCC’s HR activities will focus on automating its staff review process and dealing with legislative changes that will impact secondary benefits such as pensions. The RIPE NCC is also reviewing its Business Continuity Plan and improving its procedures for a more efficient recovery in the event of a disaster that affects its ability to operate – which requires regular scenario testing.

Benefits for RIPE NCC members / RIPE community:

- Ensures the continuation of critical RIPE NCC services in the event of a disaster
- Maximises the efficiency of the RIPE NCC’s internal structure
- Provides strategy and vision for the RIPE NCC
- Maintains a well-trained workforce

Management and HR Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Management and HR	7.6	2,118	23

4.4 Finance and Administration

Status: Ongoing

The RIPE NCC maintains high-quality administrative processes and is constantly looking to increase efficiency. Following from billing system changes made in 2014, in 2015 the RIPE NCC will continue work to improve its billing processes and facilities to offer enhanced payment options and other payment methods and minimise administrative overhead. Internally, the RIPE NCC will continue to enhance its financial and performance indicator reporting tools and improve the management of documents and processing of paperwork.

Benefits for RIPE NCC members / RIPE community

- Increases efficiency in payment and administration for members and the RIPE NCC
- Ensures a professionally managed organisation with efficient administrative processes and cost-effective processes
- Meets the financial needs of organisations in different parts of the RIPE NCC service region
- Meets the audit standards set by the Dutch fiscal system

Finance and Administration Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Finance and Administration	6.3	823	-

4.5 Legal and Information Security

Status: Ongoing

4.5.1 Legal

Status: Ongoing

The RIPE NCC follows national and international legal developments and updates its internal activities accordingly. One of the key external developments that will require extensive legal review and input is the NTIA statement on the ICANN transition. The RIPE NCC also maintains an extensive legal governance framework, which consists of a range of corporate governance documents that sets out the standards and procedures for our internal and external operations.

The RIPE NCC focuses efforts on helping legislators and Law Enforcement Agencies (LEAs) to understand how the self-governing mechanism of the RIPE community and the RIR system functions, and how they can participate. The RIPE NCC also provides legislators with technical knowledge to support the development of appropriate public policy.

2015 will see a growing internal demand for legal services to cooperate with the increasing complexity of tickets such as mergers, transfers and hijacking issues.

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 model
- Ensures that legislators receive the technical community's perspective

4.5.2 Information Security

Status: Ongoing

In 2015, the RIPE NCC will have an increased focus on the security of the RIPE NCC's public and member services. For 2015, several extensive (external) audits are scheduled to review some of the main services such as the RIPE Database, Resource Certification (RPKI) and RIPE NCC Access.

Other activities will include outreach to the security community, including the TF-CSIRT and M3AAWG, and further development of the RIPE NCC’s capabilities to respond quickly and efficiently to incidents.

Benefits for RIPE NCC members / RIPE community:

- Ensures the availability, confidentiality and integrity of the RIPE NCC’s services and data
- Minimises the impact of security incidents on the RIPE NCC’s services and subsequently minimises the possible impact on our members
- Co-ordination provision between parts of the security community and RIPE NCC members and the RIPE Community

Legal and Information Security Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Legal and Information Security	1.8	237	-

4.6 Organisational Activities (Executive Board, Arbitration Panel and General Meetings)

Status: Ongoing

The RIPE NCC supports twice-yearly RIPE NCC General Meetings (GMs). At these GMs, members vote annually on the RIPE NCC Financial Report 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 resolutions, such as amendments to the RIPE NCC Articles of Association. In order to help ensure an informed membership at the GM, the RIPE NCC prepares various sets of documentation including a draft Activity Plan and Budget, a 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. Members attending the GM in person can also choose to vote electronically.

As set out in the Articles of Association, the RIPE NCC supports a neutral and objective arbitration panel that exists to resolve any disputes relating to its services and evaluate any resource requests made by the RIPE NCC. The arbiters are appointed by the RIPE NCC’s Executive Board and approved by the RIPE NCC membership.

The RIPE NCC also facilitates multiple meetings for its Executive Board in 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 incorporates 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. The Executive Board also plays a crucial role in the RIPE NCC's outreach and member liaison activities. After every Executive Board meeting, the minutes of the meeting are published for the membership along with key outcomes.

The Executive Board and the RIPE NCC management are actively looking to engage with the membership regarding its activities and strive for the utmost transparency with regards to the management, services and strategies of the RIPE NCC.

The Executive Board proposal to increase the maximum number of board members was approved by the RIPE NCC membership at the General Meeting in Autumn 2013. The number of board members increased to six in 2014 and will further increase to seven in 2015.

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
- Gives a level of transparency on the management and the strategies of the RIPE NCC that gives members and other interested parties sufficient information to give feedback on any of activity/decision/change

Organisational Activities (Executive Board, Arbitration Panel and General Meetings) Costs for 2015:

Activity	FTEs	Costs	Capital Expenditure
Organisational Activities (Executive Board, Arbitration Panel and General Meetings)	2.1	350	-

5) Unforeseen Activities

There may be activities that are entirely unforeseen at the time of writing the RIPE NCC Activity Plan and Budget 2015 or have started recently and are not at the stage where they can be estimated to have a material financial impact. A quick, well-focused reaction to the changing environment and new requirements of the RIPE NCC members and other stakeholders is always a goal of the RIPE NCC. In line with good corporate governance, any unforeseen activities that that arise are developed in close consultation with the RIPE NCC Executive Board, and when there is any

material financial impact the Executive Board must approve the resulting action to be taken.

Appendix 1: Membership Services

- Distribution and Management of Internet Number Resources
- Assisted Registry Check (ARC)
- Resource Certification (RPKI)
- IPv4 Transfer Listing Service
- Resource Transfers
- Reputation Service
- LIR Portal
- IP Analyser
- Training Courses: LIR; IPv6; Routing Registry and Resource Certification (RPKI); RIPE Database
- Near Real Time Mirroring (NRTM)

Appendix 2: Summary of Activity Statuses (Excluding “Ongoing”)

New Activity

- 1.1.5 Establishing Contractual Relationships With Legacy Internet Number Resource Holders

Expanding

- 1.4 LIR Portal
- 2.1 Training
- 2.4.1 Membership Lifecycle Management
- 3.1 DNS and K-Root Operations
- 3.5 Member Outreach
- 3.6 IPv6 Support

Decreasing

- 2.2 RIPE Atlas

Ended

- 2.4.2 Test Traffic Measurements (TTM)

Appendix 3: Budget Figures 2015

RIPE NCC Budgeted Statement of Income & Expenditure 2015

In kEUR Income	Budget 2015	LE 2014	Budget 2014	Difference 15/14	15/B 14
Member Fees	17,840	17,200	17,168	640	672
Independent Resource Fees	1,050	950	950	100	100
New Member Sign-up Fees	2,500	2,800	2,100	(300)	400
New Member Fees	1,229	1,500	1,130	(271)	99
Re-opening Fees	200	200	50	-	150
RIPE Meetings	400	380	405	20	(5)
Other Income	50	185	150	(135)	(100)
Total Income	23,269	23,215	21,953	54	1,316
Expenditure					
Salary Wage Components	8,723	8,600	8,702	123	21
Secondary Benefits	1,784	1,900	1,812	(116)	(28)
Miscellaneous Personnel	2,076	1,800	1,776	276	300
<i>Subtotal Personnel</i>	<i>12,583</i>	<i>12,300</i>	<i>12,290</i>	<i>283</i>	<i>293</i>
Housing	888	800	758	88	130
Office Costs	1,872	1,500	1,854	372	18
External and Public Relations	817	550	637	267	180
Contributions	447	400	418	47	29
IT Infrastructure	1,229	1,250	1,427	(21)	(198)
Travel	1,210	1,200	1,151	10	59
Consultancy	1,443	1,500	1,613	(57)	(170)
Bank Charges	168	175	160	(7)	8
Subtotal Operational Expenses	20,657	19,675	20,308	982	349
Bad Debts	200	150	150	50	50
Depreciation	1,200	1,320	1,460	(120)	(260)
Subtotal Miscellaneous Expenses & Depreciation	1,400	1,470	1,610	(70)	(210)
Total Expenses	22,057	21,145	21,918	912	139
Result on Financial Assets	350	500	450	(150)	(100)
Surplus / Deficit	1,562	2,570	485	(1,008)	1,077
Capital Expenditure	2,172	1,050	1,702	1,122	471
Number of FTEs	136	138	136	(2)	0

Notes on Budgeted Income and Expenditure Table

Income

- The membership fee for 2015 is fixed at EUR 1,600 a 9% decrease on the 2014 fee
- Net membership growth is expected to be 1,100, consisting of 1,250 new members and 150 membership closures
- The number of independent resources charged for is estimated at 21,000
- Re-opening fees are the fees that are paid when a member is closed and then re-opens the LIR account
- Other Income is income from sponsorships and exchange rate differences

Expenses

- Personnel costs are split into direct salary items, secondary benefits such as health and pension premiums, and miscellaneous personnel costs such as employer's taxes, education and recruitment
- Office costs are all regular office costs such as phone, postage and insurance but also include location hire and catering during meetings
- Contributions include support for industry partners such as ICANN and ISOC to support industry self-regulation but also to support technical development like DNSSEC and BIND
- Travel costs include all travel costs for staff to RIPE Meetings and other meetings and includes all Executive Board member travel
- Consultancy includes software development, legal and accounting consultants

Result on Financial assets includes all interest received from investments, revaluations of investments and exchange rate differences of these investments.

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
2010	714	18,123	16,561	109%
2011	923	19,046	18,162	105%
2012	2,358	21,403	18,441	116%
2013	1,208	22,612	19,691	115%
LE 2014	2,570	25,182	21,145	119%
Budget 2015	1,562	26,744*	22,057	121%

*Note: the surplus is added to the Capital for comparison purposes. If in 2015 the surplus is redistributed to the membership, the % Capital of Expenses is estimated to be 114%.

Appendix 4: Changes to the Draft Activity Plan and Budget 2015 (24 September 2014)

Amendments to the Activity Plan

- The usage statistics provided for each activity have been updated with more current information.
- Minor editorial changes have been made to the text.

Amendments to the Budget

- The income from new LIRs has been increased by 299 kEUR, which is the result of increased membership growth.
- The Latest Estimate (LE) column in the budget for the 2014 financial year has been updated with the current and, therefore, more accurate information.
- There is a restatement within the Personnel costs of 75 kEUR from secondary benefits to miscellaneous personnel.