RIPE NCC Activity Plan 2010

Section A: RIPE NCC Vision and Focus

1. Vision and Strategy

The RIPE Network Coordination Centre (RIPE NCC) is an independent, not-for-profit membership organisation that serves a membership base of over 6,500 members in more than 75 countries across Europe, the Middle East and parts of Central Asia. The RIPE NCC operates under the principles of openness, transparency, neutrality and impartiality. All services offered by the RIPE NCC are based on the input and needs of the RIPE NCC members and the RIPE community.

For more than 15 years, the RIPE NCC has been successful in providing administrative and technical coordination to the Internet community. An important aspect of this technical coordination is the RIPE NCC's established function as a Regional Internet Registry. This function includes the reliable and stable allocation of Internet number resources to its members and the responsible storage of an open, publicly accessible registry of Internet number resource allocations.

Since its inception in 1992, however, the RIPE NCC has also provided a range of important coordination and measurement activities. As a result of its portfolio of services and activities, the RIPE NCC has earned the trust and respect of its members and the Internet community as a whole. Consequently, it has often been asked by its members, RIPE working groups and other important stakeholders to perform enhanced or new activities in order to support the management, measurement and technical coordination of the Internet. One of the RIPE NCC's key strengths has been its continued ability to respond to these requests and the changing needs of its members and the range of stakeholders that make up the Internet community.

The RIPE NCC will broaden the existing multi-stakeholder environment while continuing to promote cooperation between the public and private sectors. As a neutral, impartial and respected organisation, the RIPE NCC is ideally placed to act as point of contact between the RIPE community and public stakeholders with an interest in the Internet. The RIPE NCC will support cooperation activities between public stakeholders and the RIPE community as well as continuing to cooperate with the other Regional Internet Registries and industry partners.

The RIPE NCC will build on the long-standing support from the private and public sectors for the current RIR system emphasising that this system is a successful model of industry self-regulation based on well-established open structures and processes in Internet number resource management. The key message, to be disseminated through a variety of external and public relations channels, will be that the future stability of the Internet relies on the continued support for these established structures and processes.

The next few years will see a significant change in the global Internet landscape. In order to respond to the changing industry conditions, the RIPE NCC will need to evolve its position to remain capable of performing the administrative and technical coordination of the Internet on behalf of its members and the RIPE community. The primary goal of these strategic activities is to make sure that the RIPE NCC continues to represent the best interests of its members and the RIPE community while ensuring the overall stability of the Internet.

The RIPE NCC's primary focus will continue to be on performing activities that support the operations of its members and the activities of network operators throughout its service region and specifically those activities that require a neutral, impartial and authoritative organisation with the specific expertise demonstrated by the RIPE NCC. As part of its evolution, the RIPE NCC will ensure that it is prepared to perform any enhanced or new coordination activities as requested by its members or the RIPE community.

2. RIPE NCC Focus Points

Reliable and Stable Technical Registration of Internet Number Resources

Since 1992, the RIPE NCC has been responsible for allocating Internet number resources in its service region. The next few years will see a significant change in the global Internet landscape and in particular in the Internet registry system, as the remaining IPv4 address space is allocated. Against a likely backdrop of increased demand for resource transfers, the RIPE NCC will need to evolve its registration processes if it is to continue to uphold the core principles upon which its registry function has been based: uniqueness, aggregation and conservation.

An important part of this evolution will involve enhanced registry functions that will enable the RIPE NCC to play a more active role in the lifecycle management of Internet number resources (IPv4, IPv6 and AS Numbers). While some of these activities will be an extension of current resource management practices (such as allocation, auditing and merger/closure procedures), other activities may provide new registry functions designed to meet the changing needs of RIPE NCC members (e.g. certification of Internet number resources). As a result of these enhanced registry activities, the RIPE NCC will evolve its role from distributing and registering Internet number resources to more actively managing the full lifecycle of these resources.

Enhanced registry functions such as certification are necessary to enable the RIPE NCC to adapt the way it engages with its core registry principles to better reflect the changing Internet landscape (e.g. imminent exhaustion of unallocated IPv4 address pool and increased deployment of IPv6). With the exhaustion of the unallocated IPv4 address pool, there will be an increased scrutiny on the processes involved in IPv4 address space allocation, a possibility of a growing demand for resource transfers and an increasing potential for conflicts over address space. Given these developments, there will be an increasing need for the RIPE NCC to provide a more robust registry function. Enhanced

registry activities would enable the RIPE NCC to provide this function. At the same time, increasing the accuracy and range of the data stored in the record archive of Internet number resources will support future Internet coordination, statistical and research activities.

Data Quality – The RIPE NCC as a Trusted Source of Reliable Data

The RIPE NCC will maintain and extend its reputation as a trusted source of data about the Internet in the RIPE NCC service region and beyond. Providing high-quality measurements and analysis that can be used for a variety of operational, media, analyst and governmental activities, the RIPE NCC will secure its place in the Internet industry as a trusted authority capable of not only performing a much-needed registry function but also of providing a range of useful data sets, tools and analysis services that can be used by a range of Internet stakeholders.

Data analysis is essential in helping support most of the policy debates within RIPE by providing accurate analysis of the potential impact of a specific policy proposal. In addition, providing accurate, up-to-date and trusted data on Internet operations helps the RIPE NCC to make expert contributions to public policy debates and to ensure that decisions are based on quantifiable data.

3. New or Significantly Developed Activities for 2010

Note: Information about the budgeted costs for these activities is available in the RIPE NCC Budget 2010:

http://www.ripe.net/ripe/docs/budget2010.html

Registration Data Quality

Data quality encompasses the accurate records of registered Internet number resources and measurements relevant to Internet operations. The RIPE NCC will continue work to measure, monitor and enhance the data quality of Internet number resource registrations. The focus here will be on Early Registration Transfer (ERX) space and the legacy address space allocated before the Regional Internet Registry system existed.

The acceptance of RIPE Policy Proposal 2007-01, "Direct Internet Resource Assignments to End Users from the RIPE NCC" has had a significant impact on the RIPE NCC's focus on data quality regarding holders of Provider Independent (PI) number resources. These resources include Autonomous System numbers, Provider Independent IPv4 address assignments, anycast assignments and Provider Independent IXP IPv6 address assignments. Under the terms of the Policy Proposal 2007-01, it is now necessary for any future PI number resource holder in the RIPE NCC service region to enter into a direct contractual relationship with RIPE NCC or a Local Internet Registry (LIR). A significant amount of work is needed to support this transition, particularly with respect to the holders of PI number resources assigned before Policy Proposal 2007-01 was

approved in October 2008 and the associated 38,000 objects in the RIPE Database. This work is of central importance to maintaining accurate records of registered Internet number resources and to ensuring that, in its function as a Regional Internet Registry, the RIPE NCC can uphold the highest levels of registration data quality.

Deployment of Internet Number Resource Certification

In 2010, the RIPE NCC will focus on two areas of certification deployment: the underlying policy framework and the implementation of an augmented certification system.

The underlying policy framework, which is currently being developed within the Internet Engineering Task Force (IETF), will encompass a policy that describes the technical details of certification and one that defines the business relationships. The RIPE NCC has been working with the IETF on the former during 2009 and will adapt the latter so that it can be submitted to the RIPE Policy Development Process (PDP) in 2010.

Following the work completed in 2009 on the technical infrastructure necessary to issue certificates for Internet number resources, the RIPE NCC will focus in 2010 on the work needed to deploy a production-ready certification system. This will involve extending the basic implementation of the existing central certification model to include, for example, the Up-Down protocol and a range of operator tools.

External Relations

The RIPE NCC has been called upon by different entities in the public sector (including individual governments and the United Nations) to continue providing support for the technical coordination of the Internet. As a result, the RIPE NCC will continue its successful coordination work with the other RIRs, industry bodies and governments.

The RIPE NCC has received positive recognition for its contributions to the World Summit on the Information Society (WSIS), held from 2003-2005, the ongoing Internet Governance Forum (IGF) and the Organisation for Economic Cooperation and Development (OECD) Committee for Information, Computer and Communications Policy (ICCP). These experiences demonstrate that the RIPE NCC's public affairs contributions are an essential contribution to promoting public/private sector dialogue and to guaranteeing the future growth of the Internet.

Supporting the development of important forums, such as the RIPE Cooperation Working Group, and focusing on the key questions governments need to answer, the RIPE NCC's external relations activities will continue to promote this important dialogue between the technical community and government stakeholders. The RIPE NCC will represent the view of the RIPE community and the RIPE NCC's members, at the same time explaining to all relevant stakeholders recent developments in the Internet landscape and the impact that these developments could have.

These developments include the pressing need for IPv6 adoption, the future exhaustion of IPv4 address space and the related issues of global and regional fairness. The RIPE NCC will build on its relationships with the public sector, promoting the public/private dialogue required to deal with IP address issues that affect public policy and that have an impact on the technical coordination of the Internet. As part of these efforts, the RIPE NCC will continue to develop relationships with government representatives in order to understand their concerns, to answer their questions and to help them understand the key issues related to the management and distribution of IP addresses. At the same time, the RIPE NCC will continue to work with a range of stakeholders from both the public and private sectors to ensure that the relevant parties are working together to understand the changing Internet landscape and to make informed decisions that guarantee the stability of the Internet.

RIPE LABS

The purpose of RIPE Labs is to offer a platform for network operators, Internet experts and developers focused on developing innovative Internet-related tools and ideas. Providing an open platform enabling direct user engagement and knowledge sharing, RIPE Labs will stimulate community building and the prototyping of exciting ideas in a pre-production environment. Initially, the RIPE NCC will take the lead in originating the prototypes and developing them based on feedback from users. Over time, RIPE Labs will grow to fulfil the specific needs of the RIPE NCC members and the Internet community as a whole.

High Quality Information Services for Operators and the Internet Community

The RIPE NCC provides the global Internet community with a range of data sets, tools, and analyses on Internet infrastructure, development, and usage. Focused on the importance of high-quality, timely data and useful tools, these information services can be used to analyse general Internet operations including routing, connectivity, traffic flow and DNS infrastructure performance; to run specific measurement experiments; to detect, diagnose and analyse significant network incidents; and to research long-term trends.

The RIPE NCC will focus on improving the quality and usefulness of this data, as well as the speed and manner with which it is collected, processed and presented. Additionally, in collaboration with external stakeholders, the RIPE NCC will further develop the user-interfaces and query tools to make them more powerful, simpler to use and more intuitive.

The RIPE NCC will make increased efforts to encourage feedback and involvement from the RIPE community and users of the RIPE NCC's Information Services to guide ongoing development of current and new services. In addition, the RIPE NCC will actively seek to promote its information services to new users both within and outside its service region through co-operation with other Regional Internet Registries (RIRs) wherever possible.

4. Closure or Reduction of Activities

At the time of writing, the RIPE NCC does not foresee the closure or reduction of any service or activity.

5. RIPE NCC Ongoing Activities

Information on the RIPE NCC's ongoing activities (Membership Services, Coordination Activities and Information Services) is available in Section B of this document, RIPE NCC Ongoing Activities.

6. Unforeseen Activities

The RIPE NCC will keep a reserve of resources to take up any activities that appear necessary during the course of the year. These activities are entirely unforeseen at the time of writing the RIPE NCC Activity Plan 2010 or have started recently and are not at the stage where they can be quantified as a budgeted activity. A quick, well-focused reaction to the changing environment and new requirements of the RIPE NCC members and other stakeholders has always been a strong point of the RIPE NCC.

Section B: RIPE NCC Ongoing Activities

1.0 Membership Services

The RIPE NCC aims to exceed its members' service expectations in the registration of Internet resources. The purpose of these distribution activities is:

- To provide a fair, impartial distribution of Internet number resources guided by the RIPE community policies based on the goals of uniqueness, conservation and aggregation
- To actively maintain an accurate resource registry
- To provide accurate and valid Internet Registry resource data
- To provide guidance for internal procedures

1.1 Distribution and Management of Internet Number Resources

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

- Uniqueness of IP addresses
- Aggregation of routing information
- Conservation of IP address space
- Procedure and policy definition for IP address space
- Registration of network management and contact information

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

Description of Activity:

The RIPE NCC allocates and assigns Internet number resources according to RIPE community policy.

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

Goal of Activity:

- To ensure the fair distribution of Internet number resources
- To ensure the efficient use of IP address space and AS Numbers
- To facilitate the optimal aggregation of routing information
- To support members with the processes and procedures

1.1.2 Auditing and Data Accuracy

Description of Activity:

The RIPE NCC actively checks the quality and validity of Internet resource registry data. To ensure fair address space distribution, the RIPE NCC checks that appropriate assignment decisions are made. The RIPE NCC also makes regular reports on these activities to the RIPE community as well as producing statistics on address space usage.

Goal of Activity:

- To promote a consistent and fair application of assignment criteria relating to the
  conservation of address space and aggregation of routing information
- To identify and improve any parts of the registration procedure that cause delays in order to improve service levels and response times
- To implement mechanisms to improve the quality, range and accessibility of the data the RIPE NCC provides relating to its allocation of Internet number resources to its members
- To provide high quality data on the allocation of Internet number resources that can reliably be used in the daily operations of ISPs

1.1.3 Policy Implementation (procedures)

Description of Activity:

The RIPE NCC implements procedures as part of the RIPE Policy Development Process (PDP). New policy requests or requests for changes to be made to existing policies are discussed in the RIPE NCC Policy Implementation Coordination Group (PICG).

Goal of Activity:

- To provide transparency and consistency of the procedures
- To provide procedural information and responses to the RIPE community
- To support and promote global Internet IP address policies
- To document and maintain a clear overview of new and changed policies

1.1.4 Project Support

Description of Activity:

The RIPE NCC co-ordinates internal projects to support the range of activities related to the distribution of Internet resources.

Goal of Activity:

- To implement policy requests
- To provide cross-departmental dedicated project support

1.2 Training Courses

The RIPE NCC provides a range of courses to members and non-members, using a variety of teacher-based courses and additional training strategies.

The RIPE NCC makes continued efforts to reach a broader audience, particularly members who are unable to attend RIPE NCC training courses due to geographical, financial, scheduling or other constraints. These efforts include developing online modules that cover a range of RIPE NCC procedures and the RIPE Policy Development Process (PDP).

The RIPE NCC provides the following courses to its members for free:

- LIR Training Course
- IPv6 for LIRs Training Course
- DNS for LIRs Training Course
- Routing Registry Training Course

1.2.1 LIR Training Course

Description of Activity:

The Local Internet Registry (LIR) Training Course is a one-day introduction to the procedures and policies related to obtaining and distributing Internet number resources from the RIPE NCC, operating an LIR and using the RIPE Database. The training material is regularly updated to make sure that LIRs are aware of any recent policy changes decided by the RIPE community.

Goal of the Activity:

- To help members send correctly prepared Internet number resource requests to the RIPE NCC
- To help ensure a more timely completion of these requests

- To explain the correct procedure for registering and updating registry data relating to Internet number resources
- To create awareness for the RIPE Policy Development Process

1.2.2 IPv6 Training Course

Description of Activity:

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

Goal of the Activity:

- To increase awareness about IPv4 depletion
- To increase IPv6 uptake
- To remove fears about IPv6 and the deployment process
- To increase awareness about IPv4 and IPv6 coexistence

1.2.3 Routing Registry Training Course

Description of Activity:

The Routing Registry Training Course covers Internet Routing Registry (IRR) usage, related tools and Routing Policy Specification Language (RPSL).

Goal of the Activity:

- To provide an introduction to the Internet Routing Registry (IRR) usage, related tools, Routing Policy Specification Language (RPSL) and the RIPE NCC Routing Information Service (RIS)

1.2.4 DNS for LIRs Training Course

Description of Activity:

This course, offered from time to time and upon request, provides an introduction to reverse DNS (rDNS) procedures and checks, as well as giving information about DNS Monitoring (DNSMON), K-root and anycasting. The course also covers DNSSEC and the specific procedures set up by the RIPE NCC to secure the in-addr.arpa zones.

Goal of the Activity:

- To provide LIRs with information about the different DNS-related services offered by the RIPE NCC

1.3 Customer Services

The purpose of the RIPE NCC's Customer Services is to take ownership of first line enquiries and requests, managing each request correctly and efficiently while communicating all necessary details. In order to ensure the complete satisfaction of its members, the RIPE NCC focuses on the following Customer Services goals:

- Act as the general first line contact point for the RIPE NCC as a whole (questions, feedback, issues and problems)
- Bring new members up to speed so that they can request resources and make use of other RIPE NCC services
- Consolidate customer support services and facilitate the coordination of consistent internal and external service levels
- Answer general member and public enquiries, providing a good resolution in the shortest possible time and escalate when appropriate (following agreed Service Level Agreements)
- Provide the first interface between the RIPE NCC and potential and new members
- Handle all phone, mail and e-mail enquiries in a professional manner
- Create standard answers for frequently asked questions
- Document service quality measures and targets and provide reporting on this

1.3.1 New LIR Support

Description of Activity:

The RIPE NCC gives initial support to LIRs and Direct Assignment Users during their set-up phase. Information and support is also extended to potential LIRs and Direct Assignment Users.

Goal of Activity:

- To support new LIRs and Direct Assignment Users during their set-up phase by introducing them to the relevant tools, procedures and guidelines
- To give potential LIRs and Direct Assignment Users enough information to make an informed choice as to whether or not they become an LIR
- To prepare LIRs and Direct Assignment Users so that they are able to make use of the RIPE NCC's services

1.3.2 Billing and Administration Support

Description of Activity:

The RIPE NCC provides billing and administrative support for existing and potential LIRs and Direct Assignment Users.

Goal of Activity:

- To provide support for billing questions, invoicing (invoices, reminders) and the merger/closure of LIRs
- To provide support for contract-related issues such as LIR name changes and mergers and Direct Assignment Users

1.3.3 Database User Support

Description of Activity:

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

Goal of Activity:

- To provide first line user support for the RIPE Database and related services
- To continuously collect user feedback regarding these services
- To report on Service Level Agreement (SLA) adherence
- To create standard answers for frequently asked questions

1.3.4 DNS and Reverse DNS (First Line Support)

Description of Activity:

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

Goal of Activity:

- To provide first line user support for the DNS, Reverse DNS and related services
- To continuously collect user feedback regarding these services
- To report on SLA adherence
- To create standard answers for frequently asked questions

1.4 RIPE NCC Interaction Mechanisms

The RIPE NCC provides flexible and convenient ways for LIRs and others from the Internet community to interact with the RIPE NCC's systems. There is a specific focus on the security aspects of such interactions to ensure privacy and authentication wherever needed.

1.4.1 Customer Service Centre

Description of Activity:

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

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

Goal of Activity:

- To assist members and the RIPE community in any outstanding issues
- To promote greater cooperation between the RIPE NCC, its members and the RIPE community

1.4.2 RIPE NCC LIR Portal

Description of Activity:

The purpose of the LIR Portal is to give LIRs an easy-to-use web interface for accessing RIPE NCC services, for managing their registry's data and for making queries and updates. The LIR Portal is also used by the RIPE NCC to make important announcements to RIPE NCC members and for collection of valuable feedback through a range of member surveys.

Goal of the Activity:

- To enable members to receive Internet number resources in a timely fashion by improving the request, evaluation and approval process
- To enable members to manage their registry data and make queries and updates

2.0 Coordination Activities

2.1 RIPE Database: Maintenance and Development

The RIPE Database contains registration details of IP addresses and AS Numbers used by networks based in the RIPE NCC service region.

It shows the organisations that hold the resources, where the allocations were made and contact details for the networks. The organisations that hold those resources are responsible for updating their information in the RIPE Database.

An Internet Routing Registry (IRR), primarily for the RIPE NCC region, is also part of the RIPE Database.

The information in the RIPE Database is used by a range of people, including network engineers, system administrators, researchers and End Users for various purposes such as network troubleshooting or determining abuse contacts. In most cases these users are not RIPE NCC members.

The RIPE NCC regularly makes improvements to the interface for the RIPE Database in order to provide users with more useful features and easier ways to update the database. The RIPE NCC also makes continued efforts to improve the accuracy and the usefulness of the data in the RIPE Database.

The RIPE NCC implements community-driven changes as they arise, making software and system modifications in response to feedback from users and decisions made by the RIPE community.

2.1.1 User support and software maintenance

Description of Activity:

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

The RIPE NCC also performs regular software maintenance activities including bug fixes and minor modifications. The results of these software development efforts are made publicly available.

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

Goal of Activity:

- To provide user support for the RIPE Database and related services
- To continuously collect user feedback regarding the service

- To keep the user community informed about new developments as well as planned and emergency maintenance
- To ensure the high quality of the system software and the reliable operation of the database and related services

2.1.2 New Database Features

Description of Activity:

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

Goal of Activity:

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

2.2 RIPE

The RIPE NCC supports the RIPE community through technical and administrative coordination.

2.2.1 RIPE Meetings

Description of Activity:

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

Goal of Activity:

- To support the open, bottom-up, industry self-regulatory structure common to all RIR communities in managing Internet number resources
- To stimulate the participation of the RIPE community and other stakeholders in the IP policy-making process and the technical coordination of IP networking
- To contribute to the stable operation of the RIPE NCC by allowing for guidance and advice from the RIPE Working Groups
- To enable attendees to provide input and feedback on the RIPE NCC Activity Plan

2.2.2 Supporting the RIPE Policy Development Process (PDP)

Description of Activity:

The RIPE community develops and sets policies through a long established, open, bottom-up process of discussion and consensus-based decision making. Anyone interested in the well-being of the Internet may bring up proposals within the RIPE community forum and take part in the related discussions. The RIPE NCC provides administrative and facilitative support for this process.

Goal of Activity:

- To track proposals and make sure the milestones of the PDP are applied as necessary
- To monitor policy-related topics and developments and report these to the RIPE community
- To analyse RIPE policies and proposals and report the findings back to the RIPE community
- To support the RIPE NCC's implementation and execution of policies
- To make sure all policies are documented in RIPE Policy documents and these policy documents are kept up-to-date
- To perform outreach activities for the promotion of the RIPE Policy Development Process

2.3 Mailing List Management

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

The goal is to ensure the exchange of information among the RIPE community and the RIPE NCC membership, as well as to provide support for subscribers of the RIPE and RIPE NCC mailing lists.

2.4 Domain Name System (DNS) Coordination

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

For reverse DNS associated with address space managed by other RIRs, the RIPE NCC provides secondary DNS to support the reliability of reverse lookups.

The scalability of the DNS infrastructure for secondary, reverse and primary DNS services is improved based on the requirements specific to each of these services. The

purpose of these activities is to maintain and improve the operations of an efficient, responsive and robust DNS service.

2.4.1 Reverse DNS

Description of Activity:

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

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

Goal of Activity:

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

2.4.2 Operating the K-root Name Server

Description of Activity:

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

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

Goal of Activity:

- To improve the resiliency, efficiency, security and quality of the K-root service
- To isolate the impact of an "external" Denial of Service (DoS) attack and localise the impact of a "local" DoS attack

- To efficiently maintain the network of anycast instances of K-root by monitoring network and instance problems, performing trend analysis and determining if, and where, other anycast nodes should be deployed

2.4.3 Secondary DNS Service

Description of Activity:

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

Goal of Activity:

To support the stability of the global DNS by offering a professional and stable service to the other Regional Internet Registries and developing ccTLD operators that require it

2.4.4 DNS Services in the e164.arpa Domain

Description of Activity:

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

Goal of Activity:

- To support 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
- To support security of the e164.arpa domain by deploying and maintaining DNSSEC and allowing secure delegations from ENUM operators

2.5 Reporting on RIPE NCC and RIPE Activities and Developments

The RIPE NCC reports on its activities and RIPE developments using a variety of media:

- The RIPE NCC website
- The RIPE NCC Annual Report, including financial statements
- The RIPE NCC Member Update newsletter (distributed to the membership one month prior to each RIPE Meeting)
- E-mail reporting to RIPE NCC members and interested parties
- RIPE Meetings, RIPE NCC Regional Meetings and Roundtable Meetings

- Press releases, media briefings and speaker opportunities

The goal of the RIPE NCC's reporting activities is to provide the membership and other interested parties with open, detailed information about the ongoing activities of the RIPE NCC and its role in Internet administration. It also furthers the RIPE NCC's efforts to communicate more effectively with its membership and stakeholders and to increase participation in RIPE.

2.5.1 Annual Report

Description of Activity:

The RIPE NCC Annual Report, including financial statements, is published in advance of the RIPE NCC General Meeting (GM).

Goal of Activity:

- To provide a full account of the RIPE NCC's activities in the previous year and audited financial statements for RIPE NCC members to vote on at the GM

2.5.2 Minutes and Reports from RIPE Meetings

Description of Activity:

The RIPE NCC provides minutes, webcasts and audiocasts of RIPE Working Group and Plenary sessions at RIPE Meetings, as well as links to relevant presentations.

In addition, the RIPE NCC provides reports after each RIPE Meeting that summarise the highlights and actions that came out of the meeting.

Goal of Activity:

- To keep the RIPE community, the RIPE NCC membership and other interested parties up-to-date with the decisions and discussions that took place at the previous RIPE Meeting

2.5.3 RIPE NCC Member Update

Description of Activity:

The Member Update publication fulfils a request made by members in the 2002 RIPE NCC Membership Survey by providing information on the RIPE NCC and the development and performance of its services to the membership. It also provides updates on policy development issues affecting the RIPE community.

Goal of Activity:

- To publish and distribute the latest Member Update at least four weeks prior to each RIPE Meeting

2.6 RIPE NCC External Relations

The purpose of the RIPE NCC's external relations activities is to:

- Support and represent the interests of the RIPE NCC's membership and the RIPE community
- Communicate the RIPE NCC's role in IP address management and the technical coordination of the Internet
- Win continued support for RIPE's long-established, bottom-up, industry self-regulation and promote the open structures and processes in which RIPE and the RIPE NCC operate
- Ensure that the RIPE NCC and the RIPE community continue to play an effective role in the further formalisation of Internet administration, particularly technical coordination and the development of policy related to Internet number resource distribution

2.6.1 Coordination with Governments and Regulators

Description of Activity:

Building on its position as a neutral and trusted organisation with proven expertise in the technical coordination of IP networking, the RIPE NCC continues to develop relations with government and regulator representatives. This is part of continued efforts to enhance the cooperation between the public and private sector regarding Internet management issues.

The RIPE NCC facilitates Roundtable Meetings to discuss Internet management issues relevant to governments and regulators. The Roundtable Meetings provide a chance for attendees to learn more about how to participate in IP address management policy-making. High-level discussions of topics such as IP address space management and root server operations also provide attendees with an overview of the main elements involved in the technical coordination of the Internet.

Goal of Activity:

- To develop close contact with governments and regulators with an interest in the technical coordination of IP networking
- To explain the proven, long-standing industry self-regulatory structures of the RIRs and secure continued support for the existing registry process

- To communicate the principles of Internet industry self-regulation to policy makers in the public and the private sector, and to encourage well-informed decisions
- To encourage the participation of public and private sectors in the formation of policies related to Internet number resource distribution
- To bring together the public and private sector to discuss IP networking issues

2.6.2 Coordination with Industry Bodies

Description of Activity:

The RIPE NCC continues to support and represent the interests of its membership and the RIPE community to Internet industry groups. The main goals of these outreach activities remain the promotion of the open, bottom-up, industry self-regulatory structure common to all RIR communities in managing Internet number resources as well as the general technical coordination needed to support the stable operation of the Internet.

The RIPE NCC represents the interest of its members and the RIPE community by actively participating in various industry-related forums and meetings.

Goal of Activity:

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

2.6.3 RIPE NCC E-Learning Centre

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

2.6.4 Liaison and Outreach

2.6.4.1 Increasing Participation in the Policy Development Process

Description of Activity:

The RIPE NCC aims to increase the participation of RIPE NCC members and the RIPE community in the Policy Development Process (PDP) and the discussion that occurs on the RIPE NCC mailing lists. In broad terms, this activity will ensure the sustainability of the PDP by educating new participants of the community about how the process works

and its role in supporting the open, bottom-up, industry self regulatory structure common to all RIR communities. Outreach activities will seek to widen the demographic make-up of current participants by targeting CEOs and the senior management of ISPs as well as the younger members of the RIPE community.

Goal of Activity:

- To ensure the sustainability of the RIPE Policy Development Process
- To explain the importance of the Policy Development Office in facilitating the RIPE Policy Development Process
- To increase the diversity of voices participating in the RIPE Policy Development Process

2.6.4.2 Regional Support

Description of Activity:

The RIPE NCC organises Regional Meetings that provide a focused effort to proactively encourage feedback from RIPE NCC members and the RIPE community. In addition, these meetings are intended to increase the involvement of RIPE NCC members, the RIPE community and other stakeholders in the open policy-making process.

Goal of Activity:

- To promote local contact with members
- To provide a forum for discussing issues relevant to a specific area of the RIPE NCC service region
- To enable the RIPE NCC to continuously evaluate and address the changing needs of RIPE NCC members

2.7 Information Dissemination

The RIPE NCC ensures timely and effective information dissemination of relevant publications, announcements and web postings (via the RIPE NCC web site) to the RIPE NCC membership, RIPE community, governments and other stakeholders.

The goal of this activity is:

- To build awareness of the RIPE NCC and its services
- To inform selected audiences about RIPE and RIPE NCC-related issues, news and noteworthy events
- To support the efforts of the organisation in its representation of the RIPE NCC membership, RIPE community and their interests to new industry players and governments

2.8 RIR Coordination

The RIPE NCC participates in coordination activities with the other RIRs. These coordination activities include:

- High-quality, consistent services
- The consistent application of approved policy
- Joint technical and communication projects
- Liaison activities
- The presentation of a global view of IP address management

The RIRs work together through the Number Resource Organization (NRO) to act collectively on matters relating to the interests of the RIRs. The NRO offers a single contact point that enables global partners to reach the RIRs collectively. This means that a global, uniform view supported by all five RIRs can be presented when necessary.

3.0 Information Services

The RIPE NCC provides a range of data sets, tools, and analyses on Internet infrastructure, development, and usage. The RIPE NCC continues to integrate new services into its existing portfolio, while presenting overviews which demonstrate how these services can be used and what benefits they offer.

3.1 Routing Analysis

The RIPE NCC operates a global network of Border Gateway Protocol (BGP) monitoring probes which enable a worldwide, integrated view of routing information. By providing services such as the Routing Information Service (RIS), MyASN, and BGP beacons, the RIPE NCC's routing analysis services give network operators the tools they need to help them operate and monitor autonomous systems and IP prefixes. All collected data is time-stamped, stored in a database and used as the input data for various tools, as well as being made available for download. The RIPE NCC investigates and develops additional services based on analysis of this data and feedback from the Internet community.

Goal of Activity:

- Collect BGP information at multiple locations worldwide and make this data available to the community
- Provide tools to access the data and further enhance these tools based on community feedback
- Provides services which process this data for the benefit of the community

3.2 Connectivity Measurement

The RIPE NCC's connectivity measurement services are focused around the Test Traffic Measurements (TTM) service that provides impartial measurements of the end-to-end

performance characteristics of the inter-provider Internet. This is achieved by installing measurement probes at participating sites worldwide. The test-boxes exchange measurement traffic based on metrics developed by the IETF IP Performance Working Group (IPPM).

Goal of Activity:

- To collect independent measurements of performance-related quantities of the Internet, particularly between the networks operated by users of the TTM service

- To provide useful trend analysis and to refine the system based on user feedback

3.3 DNS Monitoring

The RIPE NCC DNS Monitoring Service (DNSMON) provides a comprehensive, objective and up-to-date overview of the quality of the service offered by certain DNS root, Top-Level Domain (TLD) and ENUM tier-1 name servers. DNSMON measures DNS performance between sites that take part in the TTM service and those where monitored DNS servers are installed. The data is updated at least hourly.
The measurements are presented at various levels of granularity, allowing users to switch between general representations and more detailed views specific to certain domains, servers and probes for freely selectable timeframes. The RIPE NCC provides DNSMON to root server operators free of charge as a service to the Internet community. TLD and ENUM operators may request monitoring of their own nameservers and gain access to the DNSMON helpdesk on a cost recovery basis.

Goal of Activity:

- To provide high-quality monitoring of important DNS servers

- To allow users to view historical data, enabling a quick analysis of both past and present DNS issues

3.4 Hostcount

The Hostcount has been performed monthly since 1992 to indicate the growth in the RIPE NCC service region. The Hostcount provides statistics on the number of hosts connected to the Internet in Europe and surrounding areas. The statistics are gathered in collaboration with a range of organisations doing local counts per country Top-Level Domain.

Goal of Activity:

- To provide the Internet community with an up-to-date view of the number of hosts connected to the Internet in the RIPE NCC service region

- To increase the accuracy and usability of the Hostcount and to develop the Hostcount in consultation with the Internet community

3.5 Additional Information Services

All RIPE NCC Information Service platforms are designed to be scalable so that new tools and services based on community feedback can be efficiently and rapidly deployed. The RIPE NCC is committed to reacting to such requirements and acting on its own initiative in order to meet current and future user needs, which are evaluated in consultation with the community via the RIPE Test Traffic (TT) Working Group.

Goal of Activity:

- To respond to requests from the community to investigate the possibilities for expanding the RIPE NCC's Information Services portfolio to better serve the community

- To pro-actively seek ways in which the RIPE NCC's Information Services' infrastructure can be used to better serve the community

- To monitor the latest research and technical developments related to Internet measurements

3.6 Reporting and Statistics Collection

The RIPE NCC provides authoritative data and reports on the operations development of the Internet, and the consumption rate of Internet number resources. As part of these activities, the RIPE NCC also raises awareness of issues related to the Internet.

Goal of Activity:

- To provide useful, up-to-date information relevant to a range of interested parties, including:

    - Network operators

    - RIPE Working Groups

    - Industry bodies

    - Law enforcement agencies

    - Governments and regulators

    - The media

    - Research institutes