RIPE NCC Approved and Ongoing Activities

Section 1: Membership Services

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 its service region. This service region covers 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
- Conservation of IP address space
- Procedure and policy definition for IP address space
- Aggregation of routing information
- Registration of network management and contact information

The key function of the RIPE NCC Membership Services is the fair distribution of Internet number resource requests to RIPE NCC members.

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

Description of Activity:

The RIPE NCC allocates and assigns IPv4 and IPv6 address space to RIPE NCC members for use in their own and End Users networks. The RIPE NCC also assigns AS Numbers according to RIPE community policy. It registers these numbers and the initial associated routing policy, ensuring the uniqueness of AS Numbers and collecting data for the Routing Registry.

The RIPE NCC develops and maintains tools to support the allocation process.

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

1.1.2) 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 a reliable secondary name server 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 secure the in-addr.arpa zones under the RIPE NCC's management
- To support the deployment and maintenance of DNSSEC

1.1.3) Consistency, Auditing and Data Accuracy

Description of Activity:

The RIPE NCC actively checks the quality and validity of Internet resource registry data, including the production of statistics on address space usage. To ensure fair address space distribution, the RIPE NCC regularly checks that appropriate assignment decisions are made. The RIPE NCC also makes regular reports on these activities to the RIPE Address Policy Working Group.

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 assignment procedure that cause problems 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 LIRs and ISPs
- To develop metrics that can be used to objectively measure the quality of Internet number resource registration data and the results of efforts to improve data accuracy

1.2) 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.

1.2.1) 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.

Goal of 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

1.2.2) Security Mechanisms

Description of Activity:

The RIPE NCC provides and continues to develop secure communication channels for members to communicate with the RIPE NCC.

Goal of Activity:

- To provide members with simplified, consistent, and secure ways of requesting and managing Internet number resources using the RIPE Database and other RIPE NCC services

1.3) Initial Support for New LIRs

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

The RIPE NCC provides initial support to new, or potential LIRs, in order to:

- Support new LIRs during their set-up phase by introducing them to the relevant tools, procedures and guidelines

- Give potential LIRs enough information to make an informed choice as to whether or not they become an LIR.

1.4) 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 those who are unable to attend RIPE NCC training courses due to geographical, financial, scheduling or other constraints. This area includes developing online modules covering how the RIPE NCC works and the RIPE Policy Development Process (PDP).

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

- LIR Training Course
- DNSSEC Training Course
- Routing Registry Training Course

1.4.1) LIR Training Course

Description of Activity:

The Local Internet Registry (LIR) Training Course is a one-day introduction to 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 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

1.4.2) DNSSEC Training Course

Description of Activity:

This course provides an introduction to DNS security extensions with special focus on how to deploy DNSSEC.

Goal of Activity:

- To provide DNSSEC deployment information relevant to LIRs

1.4.3) 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 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).

1.5) Membership Liaison

The RIPE NCC develops liaison activities and regional support. These play significant roles in involving RIPE NCC members, the RIPE community and other stakeholders in the open policy-making process and in defining the activities and services of the RIPE NCC.

1.5.1) 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.

Goal of Activity:

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

Section 2: Co-ordination Activities

2.1) RIPE Whois Database: Maintenance and Development

The RIPE Whois 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 Whois Database.

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

The information in the RIPE Whois 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 Whois 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 Whois 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 manages a role mailbox for questions and comments so that it can answer user questions promptly.

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 Whois Database.

Goal of Activity:

- To provide user-friendly interfaces to the RIPE Whois Database
- To provide a timely response to user enquiries

- To help ensure the smooth operation of the Internet Routing Registry System

2.1.2) Cross Registry Information Service Protocol (CRISP)

Description of Activity:

The Cross Registry Information Service Protocol (CRISP) Working Group has developed the Internet Registry Information Service (IRIS) protocol within the Internet Engineering Task Force (IETF) process. The RIPE NCC continues to provide server implementation and client tools, while co-ordinating with other server operators, client tool authors, and service providers to encourage use of the IRIS protocol and the associated services the RIPE NCC provides.

Goal of Activity:

- To support the widespread adoption of IRIS as it occurs globally
- To allow users to easily look up IP address ranges or AS Numbers using a single tool to automatically query the appropriate database

2.1.3) 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:

- The purpose of this activity is to provide new features to the RIPE Database as the user community expresses the need for them

2.2) RIPE

The RIPE NCC supports the RIPE community through technical and administrative co-ordination.

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 in the IP policy-making process and the technical co-ordination 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 Vision and Focus document

2.2.2) Supporting the RIPE Policy Development Process (PDP)

Description of Activity:

The RIPE NCC acts as a secretariat for the RIPE community. With regards to the Policy Development Process, this includes activities such as hosting mailing lists and their web archives, hosting a document archive, providing editorial assistance to document authors and tracking the progress of policy proposals and publishing their status.

Goal of Activity:

- To make the status and history of policy proposals clear
- To make it easy to follow policy development
- To ease the process of proposing policy change
- To make it easier to understand the text of policy documents

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) Deployment of Internet Security Infrastructure (DISI)

Within DISI, the RIPE NCC supports the RIPE community in the deployment of security-relevant technologies in the Internet infrastructure. The focus is on the development and deployment of technologies that need to be co-ordinated globally in the

Internet infrastructure. The RIPE NCC continuously monitors the development of security-relevant technologies, such as DNSSEC deployment and secure routing, and keeps the RIPE community informed about relevant efforts.

2.5) Domain Name System (DNS) Co-ordination

The RIPE NCC provides DNS co-ordination and support activities as well as registrations for IPv4 and IPv6 address space managed by the RIPE NCC.

For reverse mapping address space managed by other RIRs, the RIPE NCC provides a 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.

2.5.1. Reverse Delegation for the Early Registration Transfer (ERX) Address Space

Description of Activity:

Together with other RIRs, the RIPE NCC provides shared zone management for the Early Registration Transfer (ERX) address space. This enables holders of the address blocks transferred to the RIPE NCC to maintain reverse delegation for them with the RIPE NCC even if the higher level zone is maintained by another RIR.

Goal of Activity:

- To support the management of reverse delegation for the ERX address space transferred to the RIPE NCC

2.5.2) 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 London, UK.

Since 2003, the RIPE NCC has been deploying anycast instances of the K-root server with local reachability. The RIPE NCC has also deployed four 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

2.5.3) Secondary DNS Service

Description of Activity:

The RIPE NCC will also continue to offer a secondary name service and limited support to country code top level domain (ccTLD) administrators. Reverse zones are served in a secondary capacity to assist in ensuring the reliability of reverse lookups.

Goal of Activity:

- To ensure the reliability and robustness of the general DNS infrastructure
- To provide the secondary DNS service to any ccTLD organisation that requests it

2.5.4) DNS Services in the e164.arpa Domain

Description of Activity:

The Internet Architecture Board (IAB) has an agreement with the RIPE NCC under which it is responsible for providing DNS services in the e164.arpa domain. This domain implements support in the DNS for the ENUM protocol, allowing mapping of telephony services into the Internet.

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

2.6) 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

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.

2.6.1) Annual Report

Description of Activity:

The RIPE NCC Annual Report, including financial statements, is published in advance of the RIPE General Meeting (GM) where members vote on whether to approve the RIPE NCC's financial statements for operations in the prior year.

Goal of Activity:

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

2.6.2) Minutes and Reports from RIPE Meetings

Description of Activity:

The RIPE NCC provides minutes of Working Group and Plenary sessions at RIPE Meetings, including 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.

2.6.3) 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

2.7) 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 co-ordination 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 co-ordination and the development of policy related to Internet number resource distribution

2.7.1) Co-ordination with Governments and Regulators

Description of Activity:

Building on its position as a neutral and trusted organisation with proven expertise in the technical co-ordination of IP networking, the RIPE NCC continues to develop relations with government and regulator representatives.

The RIPE NCC facilitates Roundtable Meetings to discuss Internet management issues relevant to governments, regulators and industry partners. 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 IPv4/IPv6 address space and root name servers also provide attendees with an overview of the main elements involved in the technical co-ordination of the Internet.

Goal of Activity:

- To develop close contact with governments and regulators with an interest in the technical co-ordination 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, both 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

2.7.2) Co-ordination 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 group. The main goal of these outreach activities remains the promotion of the open, bottom-up, industry self-regulatory structure common to all RIR communities in managing Internet number resources.

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

2.8) RIR Co-ordination

The RIPE NCC participates in co-ordination activities with the other RIRs. These co-ordination activities include:

- 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 thorough the Number Resource Organization (NRO) to develop and implement formalised co-ordination activities that are of relevance to all RIR communities.

The NRO facilitates RIR co-ordination, provides third parties with a convenient single contact point to the RIR system and acts as a body capable of safeguarding the unallocated Internet number resource pool.

The NRO also develops relationships with government, regulators and industry partners to ensure they have an informed understanding of how Internet address space management and distribution works and why it has proven so successful. The focus of these activities is to win continued support for the industry self-regulatory structures of the RIRs and the existing registry process.

Section 3: Information Services

The RIPE NCC provides a range of data and analysis on Internet infrastructure, measurement and usage. The RIPE NCC continues to integrate new and existing services into a service portfolio while developing overviews that explain how these services can be used and the benefits they offer.

3.1) Routing Information Service (RIS)

The Routing Information Service (RIS) provides an integrated view of Border Gateway Protocol (BGP) routing information collected at multiple locations worldwide. The service integrates multiple views, provides information about the routing state at specific times in the past and enables users of the service to monitor their Internet address space.

The data collected by the RIS is time-stamped, stored in a database and is used as the raw data for a number of additional services provided by the RIPE NCC, such as BGPlay and myASn. The RIPE NCC investigates and develops additional services based on analysis of this data and feedback from the Internet community.

BGPlay is a Java application that displays animated graphs of the routing activity of a certain Internet address prefix within a specified time interval. MyASn is a notification system for BGP route propagation that allows users to specify expected paths and other attributes and notifies them if a deviation in routing information is detected.

3.2) Active Measurement Service

The RIPE NCC operates an active measurement network. The data collected from this network is available to the Internet community for both operational and statistical analysis. The strategy behind the Active Measurement Service is defined and evaluated in consultation with the RIPE Test Traffic Working Group so that it can be reviewed and adjusted to meet current user needs.

3.2.1) Test Traffic Measurements (TTM)

Description of Activity:

The Test Traffic Measurements (TTM) Service provides impartial measurements of the end-to-end performance characteristics of the inter-provider Internet. This is achieved by installing test-boxes at participating sites. These test-boxes send measurement traffic to each other. From this traffic, packet-losses, delays and other parameters are determined according to the metrics developed by the IETF IP Performance Working Group (IPPM WG).

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 allow users to monitor the connectivity of their network to other parts of the Internet, and to provide them with trend analysis
- To measure performance-related quantities such as: one way delays between hosts (latency), packet losses, path information ("traceroute"), bandwidth and delay variation (jitter)
- To refine the system based on user feedback

3.2.2) DNS Monitoring (DNSMON)

Description of Activity:

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 and Top-Level Domain (TLD) name servers. DNSMON measures DNS performance between sites that take part in the TTM service and those where DNS servers are installed. The high number of probes and the method of presenting the results are unique. The information is updated every hour.

The measurements are presented at various levels of granularity, allowing users to switch between general representations and more detailed views specific to particular domains, servers, and probes for freely selectable time frames.

The RIPE NCC provides DNS Monitoring as a free service to the Internet community. For interested parties, TLD operators in particular, value added services such as monitoring of specific name servers and access to the DNSMON helpdesk are provided for an additional cost recovery fee.

Goal of Activity:

- To provide high-quality monitoring of important DNS servers and participating Top-Level Domain (TLD) name servers
- To allow users to view historical data, enabling a quick analysis of both past and present DNS issues

3.2.3) Additional Active Measurements

Description of Activity:

The Active Measurements Network can accommodate additional active measurements. In consultation with the RIPE Test Traffic Working Group, the RIPE NCC investigates and discusses development plans for using the Active Measurements Network to make additional active measurements.

Goal of Activity:

- To respond to requests from the Internet community to investigate the possibilities for making additional active measurements
- To monitor the latest research and technical developments related to the Active Measurements Network and the measurements that can be made using this network

3.3) Reporting and Statistics Collection

The RIPE NCC provides authoritative data and reports on the growth of the Internet and the consumption rate of Internet number resources. As part of this activity, the RIPE NCC also raises awareness of issues related to the consumption of Internet number resources. The purpose of this activity is to provide useful, up-to-date information relevant to a range of interested parties, including:

- Network operators
- RIPE Working Groups
- Industry bodies
- Governments and regulators
- The media

A range of statistics are gathered and incorporated in order to improve cross-checks and cross-referencing as well as to unify the presentation of statistics and to improve their accessibility.

The RIPE NCC also develops metrics that can be used to objectively measure the quality of Internet number resource registration data and the results of efforts to improve data accuracy.

3.3.1) Hostcount

Description of Activity:

The RIPE NCC region 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

3.3.2) Information Dissemination

Description of Activity:

As a neutral source of information about the Internet, the RIPE NCC provides a selection of papers on Internet infrastructure, administration, measurement and usage.

Goal of Activity:

- To provide an overview for those unfamiliar with each topic, as well as in depth information relevant to network operators, industry bodies and other interested parties