

RIPE NCC Submission to the ITU IPv6 Group Correspondence Group

22 March 2011

Introduction

The RIPE NCC, as network coordination centre and the Regional Internet Registry (RIR) for a service region that spans Europe, the Middle East and parts of Central Asia, has been closely involved in the distribution and deployment of IPv6 addresses for more than a decade. The RIPE NCC's activities in this area extend far beyond address distribution and registration, and include network measurement, awareness raising, education and capacity building. The following submission draws on this wide range of experience and expertise.

Measuring the Current State of IPv6 Deployment

With the recent exhaustion of the IANA free pool of IPv4 addresses, the global deployment of IPv6 has become a more pressing and visible issue than ever before. As is well known, the current levels of IPv6 adoption are relatively small, compared to the extent of the IPv4-based Internet. The industry is only now beginning to see a significant increase in the number of IPv6 allocations and growth of implementation, and it is vital that organisations that have coordination responsibilities (such as the RIRs and the ITU) have an accurate, up-to-date view of the global situation.

The RIPE NCC has developed a number of tools available to the public that measure IPv6 uptake from several perspectives.

At the most basic level, all RIR registration files are freely available, allowing anyone to access information on the number of IPv6 allocations made to Local Internet Registries (LIRs). This information can be found at:

<ftp://ftp.ripe.net/pub/stats/ripenncc/2011/> [raw data]

<http://labs.ripe.net/Members/wilhelm/members-and-number-resources-1-year-later>

[analysis]

The RIPE NCC IPv6 RIPPENess project draws on the RIPE NCC IPv6 allocation data, as well as a number of other metrics (RIPE Database registration, visibility on the Internet, registration of reverse DNS information) to produce an overview of the level of IPv6-readiness of LIRs in a given country, region or industry sector. IPv6 RIPPENess information can be found at:

<http://ripenness.ripe.net/>

The RIPE NCC has also created a measurement tool to display the percentage of Autonomous Systems (AS) (networks) registered in a given state, region or set of states that are announcing IPv6 addresses to the Internet.

<http://v6asns.ripe.net/v/6>

These measurements show that both the allocation and implementation of IPv6 have shown strong growth in the very recent past, but that overall rates of IPv6 holdership and usage remain relatively low. Developing the strategies to encourage IPv6 deployment and increase this growth rate is vital, and an important step in that process is to identify the needs of the various stakeholder groups.

Issues Hindering the Deployment of IPv6

As network coordination centre for its service region, the RIPE NCC works closely with network operators and other members of the RIPE community. Through RIPE Meetings, policy discussions, training and outreach programs, the RIPE NCC has gathered input and feedback from the technical community on the issues currently hindering the widespread and immediate adoption of IPv6. A brief summary of this feedback follows:

- While network operators are able to obtain IPv6 addresses from the RIPE NCC with little difficulty, there is a lack of knowledge of how to deploy these addresses.
- Training needs to focus on real-world implementation scenarios and issues, and deal with the transition technologies (6to4, Teredo, etc.) necessary to integrate IPv6 networks with existing IPv4 networks.
- High-level awareness-raising is required to ensure that all stakeholder groups (including government and business, particularly upper management) understand the urgency of IPv6 adoption and their role in facilitating it.

The RIPE NCC is working with the RIPE community and other stakeholder groups to address these issues.

RIPE NCC Efforts to Facilitate IPv6 Deployment

Training and Education

Network operator training is a key element of the RIPE NCC's efforts to encourage IPv6 deployment. RIPE NCC training activities include:

- **IPv6 For LIRs Training Course:** A course provided by the RIPE NCC Training Services department to RIPE NCC member organisations at no additional cost. This course provides an introduction to the basic IPv6 concepts and covers how to obtain an allocation of IPv6 address space from the RIPE NCC.
- **MENOG Middle East IPv6 Roadshow:** A 3- or 5-day technical workshop funded by the RIPE NCC and delivered by experts from the technical community to government and enterprise network operators in the Middle East. This program was launched in 2010, with events held in Istanbul (October 2010) and Damascus (January 2011). There are currently six more events planned for 2011. The RIPE NCC is also working with the AfriNIC, the RIR for Africa, to expand this program into the African region.

The RIPE NCC is continuing to expand its range of educational tools and programs, and identify opportunities to reach new audiences.

Online Information

The RIPE NCC provides a number of targeted online resources for all stakeholders to learn more about IPv6:

- **IPv6 Act Now**
www.ipv6actnow.org
IPv6 Act Now is a website launched in June 2009, operated by the RIPE NCC. Designed as a one-stop resource for IPv6-related information, the site seeks to engage a wide-ranging audience, including the business, government and technical communities. The site features news items, multimedia interviews with members of

the community, statistics and discussion forums. The site also features a “How To Act Now” section, which provides practical information to Small Business, Enterprise, Government and ISPs.

- **RIPE Labs**

<http://labs.ripe.net>

RIPE Labs is an online platform designed for network operators, developers and industry experts to expose, test and discuss innovative Internet-related tools, ideas and analysis. Since its launch in September 2009, RIPE Labs has published more than 30 articles relating to IPv6, including graphs, measurements, tools and analyses.

The RIPE NCC has also worked closely with the RIPE community to facilitate the production and publication of information useful to different stakeholder groups:

- **Preparing an IPv6 Addressing Plan**

http://www.ripe.net/training/material/IPv6-for-LIRs-Training-Course/IPv6_addr_plan4.pdf

This document, originally published by Dutch network operator SURFNet and translated and published on the RIPE NCC website in March 2011, provides a detailed manual on how to implement IPv6 into an existing network. As of 18 March, the document had been downloaded from the ripe.net website more than 5000 times.

- **Customer Premises Equipment (CPE) Survey**

<http://labs.ripe.net/search?Subject=CPE>

This “living document” is a collaborative project by the RIPE community, using the RIPE Labs platform. It addresses one of the key issues surrounding IPv6 adoption, namely the uncertainty surrounding CPE compatibility with IPv6. The survey gathers manufacturer claims and user experiences for an overview of existing products and their level of IPv6-readiness.

- **Requirements For IPv6 in ICT Equipment**

<http://www.ripe.net/ripe/docs/ripe-501>

Based on work done by the Slovenian IPv6 Working Group, this RIPE community document provides a Best Common Practice (BCP) template that can be used by governments or large enterprises to specify requirements for IPv6 compatibility when seeking tenders for information and computer technology (ICT) equipment and support.

Outreach to Governments, Regulators and Law Enforcement Agencies

The RIPE NCC also works closely with a wide range of governments and intergovernmental organisations to raise awareness of the issues surrounding IPv6 deployment. As well as meeting individually with representatives of many governments in the region, the RIPE NCC hosts Roundtable Meetings in both Europe and the Middle East, which provide an opportunity to speak directly to governments, regulators and law enforcement agencies to address the unique issues faced by these stakeholders.

RIPE NCC staff and RIPE community representatives have also engaged closely with organisations such as the European Commission, the OECD, the Council of Europe and the International Telecommunications Union (ITU), providing expert input to the discussions taking place in those fora.

Working with the ITU BDT to Facilitate IPv6 Deployment

The adoption of IPv6 is an issue that affects all stakeholders in the Internet, and there is a role for all stakeholder groups to play in ensuring the smooth transition to an IPv6-enabled Internet. Communication, coordination and cooperation between stakeholder groups is vital to ensuring that efforts to encourage IPv6 deployment are efficient and effective.

The RIPE NCC welcomes the opportunity to work with the ITU BDT in developing and evolving strategies for encouraging IPv6 deployment and ensuring equality of access to information and resources throughout the RIPE NCC service region. Some examples of how the RIPE NCC and the ITU BDT might work together include:

- Collaboration between the ITU BDT, the RIPE NCC and the RIPE community to stage hands-on training events throughout the RIPE NCC service region
- Coordination and communication between the ITU BDT and the RIPE NCC regarding print and website publications targeting specific Internet stakeholder groups
- Increasing levels of cross-participation between the RIPE NCC and ITU BDT to ensure that staff and members of both organisations have access to the best information and assistance

We thank you for the opportunity to contribute to this Correspondence Group, and hope that the information contained in this submission will be useful in the upcoming meeting of the ITU IPv6 Group and the ongoing work of the ITU BDT.