RIPE / RIPE NCC

RIPE
Operators community
Develops addressing policies
Working group mailing lists
2010 meetings:
  Prague 3-7 May
  Rome 15-19 November

RIPE NCC
Located in Amsterdam
Not for profit membership organisation
One of five RIRs - distributes IP & ASN
RIPE Policy Development
Why would you want to participate?

- Policy determines how you run your business

- Over 6000 LIRs, however;
  - only a fraction are active participants in the PDP

- RIPE community is open to everyone

- Policies change...
  - due to the change in technology
  - because of different business models
Policy development process

Create Policy Proposal

Discussion Phase

Initial discussion of proposal

Proceed to documentation?

Document is drafted

Suggested timeline: up to 9 weeks

Review Phase

Comment and review

Is there consensus?

Suggested timeline: up to 5 weeks

Concluding Phase

Last call

Is there consensus?

Announce decision

Suggested timeline: up to 5 weeks
Hot policy topics

• **Use of Final /8 (2008-06)**
  - new and existing LIRs can receive only one allocation of minimum size at that time

• **IPv4 […] to Facilitate IPv6 Deployment (2009-04)**
  - allocations according to demonstrated need, but downscaled with factor 64
  - minimum allocation or PI assignment is /27
  - condition: IPv6 deployment according to RFC5211

• **IPv6 allocation size for 6rd (Rapid Deployment)**
How can you participate?

• Sign up for the Policy Development Process Announcement mailing list

• Read the Working Group mail archives
  - RIPE website → RIPE → Mailing Lists

• Come to the RIPE Meetings
  - Two free tickets for new LIRs
  - Remote participation is also possible
Just approved: “Run Out Fairly”

• Warning - sneak preview!
  - real implementation details known in January 2010

• Gradually reduced allocation / assignment periods, for a need of up to...
  • ... 9 months (July 2010)
  • ... 6 months (January 2011)
  • ... 3 months (July 2011)

• In January 2010 - assignments for up to 1 year
IPv4 address pool

10% available

Central Registry

Other

APNIC

ARIN

LACNIC

AfriNIC

RIPE NCC
IPv4 address pool - the future?

![Graph showing IPv4 address pool projections](image)

- **IANA Pool**
- **RIR Allocations**
- **Advertised**
- **RIR Pool**

Data vs. Projection

- Today
- 2010
- 2011
- 2012
IPv6
IPv6 address distribution

IANA

RIR

LIR

End User

PA Allocation

PA Assignment

PI Assignment

/3

/12

/32

/48

/56

/48
IPv6 allocations per country

Updated: 10 dec 2009
Getting an IPv6 allocation

• To qualify, an organisation must:
  - Be an LIR
  - Have a plan for making assignments within two years

• Minimum allocation size /32
  - larger allocations require solid justification
  - /29 reserved for growth
  - next allocation criteria: HD=0.96 (37% of /32)
Customer assignments

• Assign to your customers enough addresses
  - /48  = 65,536 subnets
  - /56  = 256 subnets
  - /64  = 1 subnet
  - /128 = one device
  - register in a database accessible by the RIPE NCC

• Make sub-allocations to large customers
  - Service Providers, large enterprises
  - register sub-allocations in the RIPE DB
Getting IPv6 PI assignment

• To qualify, an organisation must:
  - Demonstrate it will multihome
  - Meet the contractual requirements for Independent Resources

• From this week, also for LIRs
  - LIRs must demonstrate special routing requirements
  - Can not be used for sub-assignments to End Users

• Minimum assignment size /48
What does an IPv6 space cost?

- IPv6 PA allocation /32 = 1 scoring unit
- points = \( \sum (2009-1992) \times \text{(scoring unit)} = 17 \times 1 + ... \)

<table>
<thead>
<tr>
<th>Category</th>
<th>Points</th>
<th>Fee 2010</th>
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<tbody>
<tr>
<td>Extra Small</td>
<td>0 - 27</td>
<td>€ 1300</td>
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<tr>
<td>Small</td>
<td>- 150</td>
<td>€ 1800</td>
</tr>
<tr>
<td>Medium</td>
<td>- 1233</td>
<td>€ 2550</td>
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<tr>
<td>Large</td>
<td>- 8047</td>
<td>€ 4100</td>
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<tr>
<td>Extra Large</td>
<td>&gt; 8047</td>
<td>€ 5500</td>
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</table>

- PI assignment yearly fee: 50 Euro in 2010
IPv6 allocations and announcements

RIPE NCC Allocations

Announcements
IPv6 routing

- Announce your whole allocation as one prefix
  - recommended, not mandatory any more
- If announcing several longer prefixes, please follow the BCP (currently being written)
- Create route6 object in RR
- BGP filter recommendations (Gert Doering)
- Global IPv6 routing table: 2500 entries
- Prefixes per country (Gert Doering)
Independent Resources

• What is considered Independent Resource?
  - made directly from RIPE NCC to End User
  - PI (IPv4, IPv6)
  - ASN
  - IXP IPv6
  - Anycast

• Contract with End User required
  - Example contract on RIPE NCC website
  - and registration from Chamber of Commerce

• Yearly charges for Independent Resources
Requesting Independent Resources

• Sponsoring LIR can request for End User
• Direct Assignment User can request for themselves
• End User can become LIR

• PI assignment - no sub-assigning allowed!
• Often confusion about “portable addresses”
  - PA allocation is also “independent” from other ISPs
Existing assignments: End User choices

• Sign contract with their original LIR
• Find a new sponsoring LIR
• Become an Direct Assignment User and get a RIPE NCC End User Assignment Agreement
• Become an LIR
• Return the resources
Existing Assignments: LIR’s task

• List of independent resources in LIR Portal
• By September, LIRs have marked their:
  - my Infrastructure / my End User
  - not my End User
• All resources not marked are charged to LIR!
• Next step: upload contracts by December 2009
• “Phase 3”, in 2010
  - RIPE NCC will contact “orphanned” End Users
Charging Scheme 2010

• 5 LIR categories: Extra Small to Extra Large
• Category determined by IPv4 and IPv6 allocations over time
• Per category fee in 2010 is the same as in 2009

• New in 2010:
  - Direct assignments don’t influence category
  - 50 Euro fee for every direct assignment
32-bit AS Numbers

- 32-bit ASN deployment schedule:
  - 1 Jan 2008: 16-bit default, 32-bit on request
  - 1 Jan 2009: 32-bit default, 16-bit on request
  - 1 Jan 2010: Undifferentiated ASN Pool

Note:
- 16-bit AS Numbers will not be deprecated
- This schedule applies to newly assigned ASNs
32-bit AS Numbers and you

• Can you handle the new format: “AS4192351863”

• If not, please act now!

• Prepare for 32-bit ASNs in your organisation:
  - Check whether your hardware is compatible;
    if not, ask your hardware vendor for support
  - Check whether your upstream provider is running
    compatible hardware;
    if not, encourage them to upgrade!
More from RIPE NCC
IPv6 Measurements - A compilation

The increased deployment of IPv6 that has accompanied the exhaustion of the free IPv4 address pool has encouraged a wide range of organisations and individuals to conduct measurements related to IPv6 data and traffic. These studies range from analyses of IPv6 take-up per country and per organisation, to technical examinations of the performance of IPv6-enabled websites.

» Read more

Discuss this topic here: IPv6 Measurements

IPv6 Monitor - An Interview with Alain Durand

During IETF 74, I sat down with Alain Durand to ask him to explain the type of IPv6 measurements he is doing at Comcast (http://ipv6monitor.comcast.net) together with the University of Pennsylvania (http://mnlab-ipv6.seas.upenn.edu).
RIPE NCC Upcoming Courses List & Registration

You can register yourself and/or your colleague for any of the available training courses below.

If a course is already closed then please email training@ripe.net to be placed on the waiting list.

Click on the table headers to sort the list by location, type or date.

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Status</th>
<th>Location</th>
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<td>Full</td>
<td>Milan, Italy</td>
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<td>Starhotels Splendido</td>
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</tbody>
</table>
More information:

www.ripe.net
www.ipv6actnow.org

BECCHA@ripe.net