«No Need»

Post-Depletion Reality Adjustment and Cleanup

http://www.ripe.net/ripe/policies/proposals/2013-03

Tore Anderson
tore@redpill-linpro.com
Redpill Linpro AS
RIPE66, Dublin, May 2013

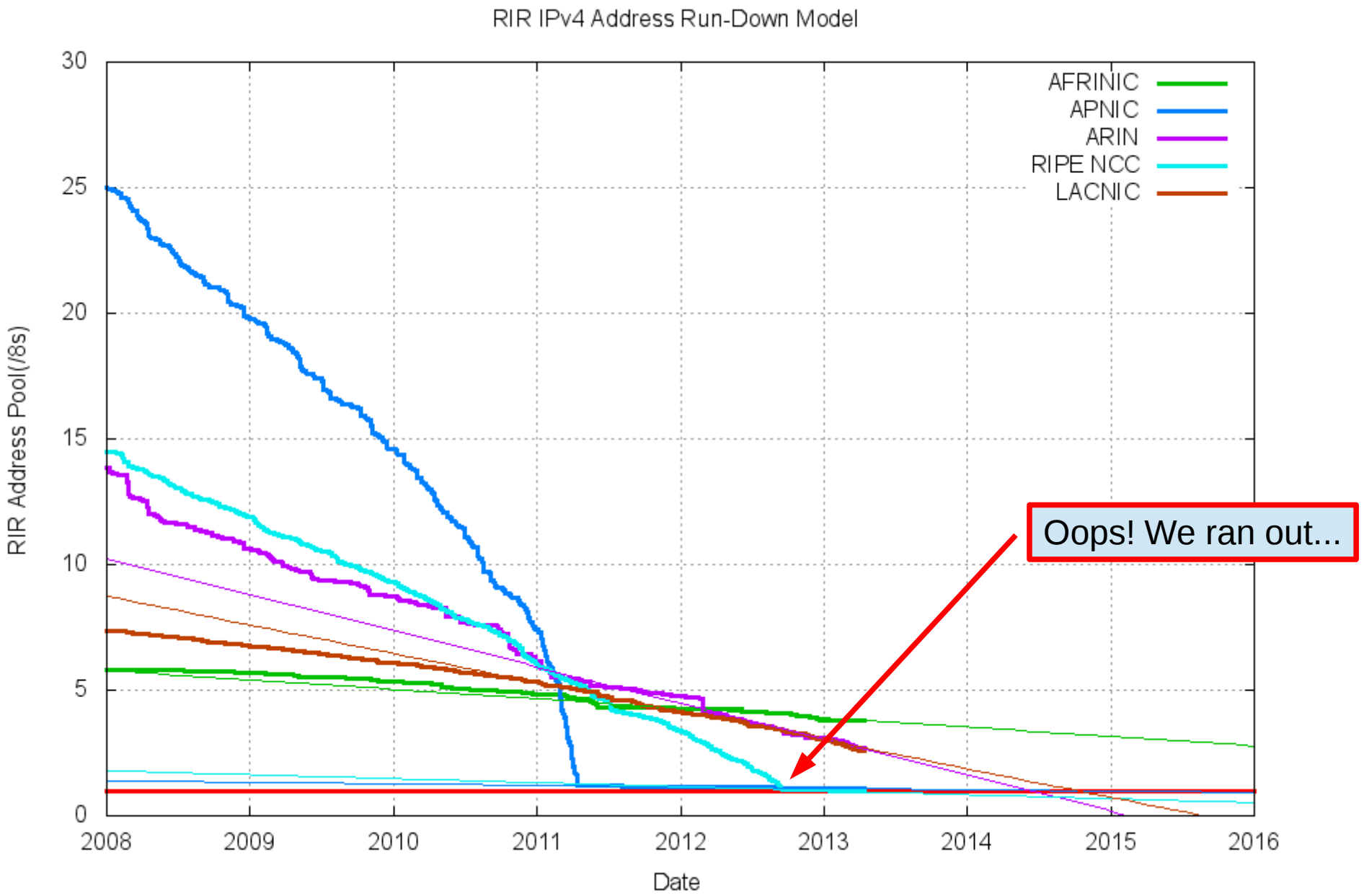
```
% Provider Aggregatable (PA) Assignment Request Form


% RIPE NCC members can use this form to request a PA assignment. Please see
% ripe-584 for instructions on how to complete this form

#[GENERAL INFORMATION]#
%
% Please add your RegID.

request-type: pa-ipv4
form-version: 1.3
x-ncc-regid: nl.bluelight

#[ADDRESS SPACE USER]#
%
% Who will use the requested address space?

legal-organisation-name: North SantaBank
organisation-location: Santa City, NN
website-if-available: http://www.nsb.nn

% Does this End User already have address space that can be
% used for this assignment? (Yes/No)

space-available: No

#[ADDRESSING PLAN]#
% How will the End User use this address space?
%
%       Subnet       Immediate    Intermediate  Entire   Purpose
%       size (/nn)   Requirement  Requirement   Period

subnet: /26             32           64          64     Employee VPN Access
subnet: /26             18           34          64     Financial Services
subnet: /26             22           30          60     Workstations
subnet: /27             11           15          28     Public Services
subnet: /27              7           18          30     Operations
subnet: /24            176          192         240     Branch Offices
totals: /23            266          353         486

number-of-subnets: 6

% Which netname will you use for this assignment?

netname: NN-NSB

% Will the End User return any address space?

address-space-returned: 85.118.187/24 to nl.bluelight in 3 months

#[EQUIPMENT DESCRIPTION]#
%
% What equipment will be used and how will it use the requested
% address space?

equipment-name:    Core switches
manufacturer-name: Cisco
model-number:      25xx
other-data:        3 units

equipment-name:    Servers
manufacturer-name: HP
model-number:      various
other-data:        40 units

equipment-name:    Firewalls
manufacturer-name: Cisco
model-number:      PIX 515 E
other-data:        2 units, 8 IP addresses

equipment-name:    Workstations
manufacturer-name: Dell
model-number:      GX150
other-data:        22 units, 1 IP address each

equipment-name:    Routers
manufacturer-name: Cisco
model-number:      3825
other-data:        2 units

equipment-name:    Routers
manufacturer-name: Cisco
model-number:      AS5300
other-data:        1 unit, 32 ports

#[NETWORK DESCRIPTION]#
%
% Please add more information if you think it will help us understand
% this request.

We have 11 branches across Santa City linked by corporate fibre channels.
We will assign a /28 subnet for each branch.
Each branch will have SMTP, WWW, file server, e-banking and dial-up pool.
Public Internet Services: SMTP (2 IP addresses),
WWW (6 IP addresses, 2 servers), FTP (1 IP address), DNS (2 IP addresses)
Financial Services: 6 servers, 3 IP addresses each.
Operations network: Security, Monitoring, VPN, Proxy, DNS

#[NETWORK DIAGRAM]#
%
% Have you attached a network diagram to this request? (Yes/No)

diagram-attached: Yes

#[END of REQUEST]#

Best Regards,
Jan Janssen, Bluelight Admin
```

Goals of the Internet Registry System

Public IPv4 address assignments should be made with the following goals in mind:

[...]

> Conservation: Public IPv4 address space must be fairly distributed to the End Users operating networks. To maximise the lifetime of the public IPv4 address space, addresses must be distributed according to need, and stockpiling must be prevented.


RIR IPv4 Address Run-Down Model
RIR Address Pool(/8s)
Date
AFRINIC
APNIC
ARIN
RIPE NCC
LACNIC
Oops! We ran out...
0
5
10
15
20
25
30
2008
2009
2010
2011
2012
2013
2014
2015
2016

Goals of the Internet Registry System

Public IPv4 address assignments should be made with the following goals in mind:

[...]

Conservation: Public IPv4 address space must be fairly distributed to the End Users operating networks. **To maximise the lifetime of the public IPv4 address space**, addresses must be distributed according to need, and stockpiling must be prevented.

Remaining lifetime of the public IPv4 space in the RIPE region = 0

The proposal in a nutshell:

Conservation: Public IPv4 address space must be fairly distributed to the End Users operating networks. To maximise the lifetime of the public IPv4 address space, addresses must be distributed according to need, and stockpiling must be prevented.

«Conservation» policy provisions

- Requirement to document need
  - End Users: PA assignments
  - LIRs: PA allocations
  - Time limits for both of the above
- Assignment Window mechanism
- Slow-start principle
- 80% rule
- Sub-allocations: size and frequency limitations

«Conservation» policy provisions

- Requirement to document need
  - End Users: PA assignments
  - LIRs: PA allocations
  - Time limits for both of the above
- Assignment Window mechanism
- Slow-start principle
- 80% rule
- Sub-allocations: size and frequency limitations

Benefits to the RIPE community and membership

- Reduced bureucracy and reduced workload
  - No more forms to fill out, analyse, or archive
  - LIRs may instead choose to *trust* their customers
  - LIR Audits become less time-consuming
  - The above goes for both the LIRs and the RIPE NCC
- Long-term business planning becomes permitted
  - Customer signs 3 year contract? Your LIR is now allowed to make the full assignment, unlike today
  - Acquire IPv4 allocations (through transfers) to serve your LIR's operational needs for longer than a year at a time

Benefits to the RIPE community and membership

- Playing field becomes level and fair
  - No longer possible to game or manipulate the need-based system by exaggerating or making up «need» for IPv4 addresses
- Makes IPv4 and IPv6 policies more similar
  - 98.7% of all IPv6 delegations made by the NCC are not sized according to the recipient's need (i.e., they are PI assignments not larger than /48 or PA allocations not larger than /29)

Policy cleanup

(primarily done because it was easier to remove all the outdated and obsolete sections and paragraphs completely, than attempting to rewrite them in order to remove «need»)

Obsolete/defunct policy provisions

- PA allocations
  - Except for the *«last /8»* austerity provisions
- PI assignments, including:
  - Anycast TLD and Tier 0/1 ENUM nameservers
  - Provisions for multihoming
- Minimum allocation size = /21

Proposed cleanups

- PA allocations
  - Except for *«last /8» policy* provisions
- PI assignments, including
  - Anycast TLD nameserver 0/1 ENUM nameserver
  - Provisions for multihoming
- Minimum allocation size = ~~/21~~ /22
- Promote *«the last /8 policy»* to *«the only policy»*
  - Does not change the actual/effective policy: still a single /22 per LIR, a single /22-/24 to IXPs, and a /16 in reserve
- Various other editorial improvements

Benefits to the RIPE community and membership

- Makes the IPv4 policy more accessible and easy to understand
  - Reduces its size to about half, from ~6000 to ~3000 words
  - Removes outdated and defunct provisions which only serve to confuse readers
  - Removes complicated topics like the Assignment Window
  - Gets rid of self-contradictory and confusing policy, such as:
    - «The last /8» – does that mean the 185.0.0.0/8 block only?
    - The minimum allocation size – is it /21 or /22?
    - Will the RIPE NCC assign PI space to End Users, or not?

PDP status

- Discussion phase finished
- Discussion phase summary:
  - 110+ messages posted
  - Explicit statements of support from 22 individuals
  - Statements of non-support from 4 individuals
  - Hot topics:
    - LIR-to-LIR allocation transfers and IPv4 second-hand markets in general
    - Inter-RIR transfers, especially between the ARIN and RIPE regions
    - Whether or not ARIN has «juridstiction» over legacy space (!)
    - How to go about purchasing radio spectrum in the USA (!!!)
- Currently awaiting the RIPE NCC's Impact Analysis and the start of the review phase
  - Version 2.0 will include only minor clarifications and language improvements, the actual/effective proposal itself is unchanged

2013-03 is not a «transfer proposal»

- The primary goal is to remove the bureaucracy surrounding PA assignments
- This appears to be in tune with the RIPE community and membership's priorities:
  - Since IPv4 depletion up to and including last week:
    - 36 PA allocation transfers have been made
    - 251,254 PA assignments have been made
  - Lacklustre community interest in proposal 2012-02 (an prerequisite for Inter-RIR transfers in the first place), according to the WG chairs it has «far from consensus»
  - Another transfer proposal, 2012-03, was recently withdrawn – nobody cared
- 2013-03's impact on allocation transfers is really just an inevitable side effect
  - With «no need» at assignment level, keeping it at higher levels is pointless as LIRs could then generate whatever «need» they require by making an arbitrarily large assignment to someone or something:
  - *«Dear NCC, we intend to assign a trillion billion IPv4 addresses to our coffee machine, but we don't have enough, so please grant us pre-approval for transferring up to a trillion billion addresses»*
- To me, the entire «IPv4 Market» seems grossly overhyped. That said:
  - Several APWG participants believe that «no need» will also make the allocation transfer mechanism more attractive and easy to use for the membership – if so, great!

Arguments against the proposal seen on the APWG list so far (and my responses)

«2013-03 conflicts with RFC 2050(-bis)»

- True, however RFC 2050 was written for a pre-IPv4-depleted world. Its Conservation goal has outlived its purpose; it makes no sense to attempt to conserve something that which does not exist.
  - RFC 2050 is a «Best *Current* Practice» that describes how things were done at the time; not a stone tablet describing how things must be done until the end of time
- Arguing against 2013-03 solely on the basis on a conflict with RFC 2050 is, in my opinion, an *Appeal to Tradition* (definition from Wikipedia)*:*
  - *«[...] a common fallacy in which a thesis is deemed correct on the basis that it correlates with some past or present tradition. The appeal takes the form of "this is right because we've always done it this way."*

    An appeal to tradition essentially makes two assumptions that are not necessarily true:
    - *[...]*
    - *The past justifications for the tradition are still valid at present.*
      - *In actuality, the circumstances may have changed; this assumption may also therefore be untrue.»*
- We have plenty of other conflicts with RFC 2050 in the policy already, such as:
  - In particular the «last /8 policy»; LIRs do not get space according to their need
  - Lack of requirement for multihoming

«Under 2013-03, LIRs must assign space to their end users without any control or bounds»

- **False**. 2013-03 does **not** forbid LIRs from developing their own conservationalist policies, or simply continue using the same forms and criteria as before
- IPv4 addresses are valuable and scarce, no sensible LIR will want to throw their reserves out the window
  - Even if they do, they will only shoot themselves in the foot; no damage is being inflicted on the rest of the community as they cannot go back to the NCC to get more space from the public pool
  - One less competitor to worry about for the rest of us...

«2013-03 makes it possible to buy and sell IPv4 address to the highest bidder»

- **<u>False</u>**. Transfers of allocations (paid or unpaid), is **already possible** under current IPv4 address policy
  - This has been the case since proposal 2007-08 «Enabling Methods for Reallocation of IPv4 Resources» was accepted and implemented
- 2013-03 will however make it *theoretically* possible for an LIR to buy addresses for which it has no operational need. In practise, this concern seems unlikely:
  - Why would an LIR (or any entity really) spend money on something it doesn't need?
    - Especially considering that the LIR in question would have to outbid all the LIRs in the region with ***actual*** and quite possibly ***desperate*** operational need?
  - Transferred addresses may not be transferred further until after 24 months
    - A deterrence against pure IPv4 price speculation
    - Also, 24 months gives us enough time to pass new policy against any new and abusive behaviours before the LIR in question has the chance to «cash in»
  - In any case, an address block must be unused in order to be eligible for being transferred
    - If the recipient for some reason has no intention of using it either, this is just a continuation of the status quo – no damage is being inflicted on the RIPE community and membership

«2013-03 makes us incompatible with ARIN's Inter-RIR transfer policies»

- True only if proposal 2012-02 passes the PDP before 2013-03 does
  - If not, false: We're *already* incompatible and 2013-03 doesn't change anything one way or the other
  - Interest in 2012-02 has been lacklustre, it has *«far from consensus»* after an already extended review period – it does not appear that the community cares much about Inter-RIR transfers (or transfers in general) anyway
- In my humble opinion:

  If remaining incompatible with ARIN's is the price of getting rid of the bureaucracy surrounding the tens of thousands of assignments made by RIPE region LIRs every month, it's well worth it
- That said – remember that ARIN still has a free pool
  - The precondition for a «no need» proposal to make sense is therefore not yet present in their region
  - However, they're projected to deplete less then a year from now...what then?

Comparsion with other RIRs

- AfriNIC, ARIN, LACNIC:
  - Need-based policies, no formal proposals to change this submitted to their PDPs at the time of writing
  - Note: All have remaining IPv4 space in their free public pools
  - «Pre-PDP» discussions reported to take place in ARIN region (on ARIN-PPML, and at ARIN31 Lunch Table Topics)
- APNIC:
  - Transfer policy initially without a need requirement [prop-050]
  - ARIN then added a requirement to their Inter-RIR transfer policy, demanding that the other RIR must «compatible **needs-based** policies» [2012-1]
  - This caused APNIC to add a need requirement to their Inter-RIR policy in order to comply with ARIN's requirement [prop-096]

Thank you!

Any questions?