

Global policy for the allocation of the remaining IPv4 address space

Prop.afpol-v4gb200707

Didier KLA

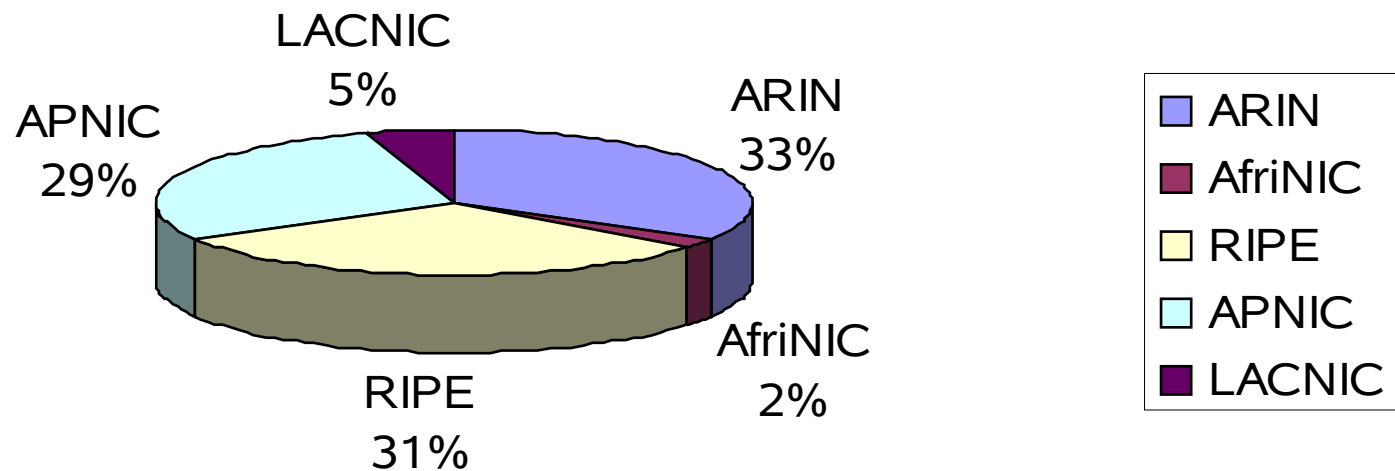
didier.kla@orange-cit.ci

IPv4 Allocation Policy to RIR

- IANA current allocation policy.

<http://www.icann.org/general/allocation-IPv4-rirs.html>

- Gentlemen Agreement



Proposed Policy prop051

Incentive:

- IANA free pool for allocation of IPv4 addresses (/8s) is decreasing rapidly.
- Bringing certainty to each RIR that they will receive a last IPv4 allocation from IANA of equal size.

... prop51 (cont.1)

Policy statement...

Phase 1:

- IANA reserves N (/8) units to each RIR and set them out of the free pool.
- IANA Keeps applying the current allocation policy;
- Until the request for IPv4 from any RIR to IANA will compromise the remaining free pool of IANA according to the following formula:
 - X = IPv4 /8 units available before the last request.
 - A = /8 units needed to fulfill the last request from an RIR.
 - R = Number of RIRs recognized by ICANN.
 - if $R * N \leq (X - A)$ -----> Threshold value
- At this point phase 2 of the policy will be initiated...

... prop51 (cont.2)

Phase 2:

- IANA automatically allocate the reserved IPv4 allocation (N) units to each RIR;
- And respond to the last request with the remaining available allocation units in IANA pool (M units).

... prop51 (cont.3)

Calculation of the remaining M units

- Assignment for each RIR = Reserved N (/8) units
- Remaining M units = Available (/8) IPv4 units before last request – N * R
- Total assigned (/8) units for the last requesting RIR = N + M

N Value ?

The defined value for N in the proposal
is 5.

What AfriNIC do with N (/8) ?

- For countries in Africa with zero IPv4 allocation.
- New-Comers.
- Continental Projects.
- Supporting Existing LIRs in transition phase to IPv6.
- Critical Infrastructure.

Quick Example:

Assume the remaining free pool for IANA = 26

And an RIR requests for 2 (/8) IPv4 ;

Then IANA will allocate N for each RIR

And in addition allocate M=1 to the last requesting RIR

So the total (/8) allocated for that RIR = 5 + 1

Proposal Advantages

- It allows each RIR to guarantee its last allocation units so that each RIR community can develop its own mechanism/policy through its PDP for making use of the last IPv4 allocation.
- Equal allocation of the final (/8) blocks across RIRs brings certainty that all RIRs will have a final allocation from IANA.
- Limits RIR shopping.

Proposal Advantages

- Reduce pressure on IANA central pool.
- Allows for suitable time for LIRs to begin their transition phase to the next IP generation (IPv6)
- Provide real IPv4 for new-comers / new projects to avoid using NAT at the beginning (as many applications encountered problems while using NAT)

Proposal Status

- AfriNIC: submitted in July-2007 and open for discussion till the next meeting in SA.
- APNIC: submitted and discussed in face-to-face meeting but didn't get consensus.
- ARIN: submitted in July-2007 to AC for initial review.
- LACNIC: It had consensus and has been approved in LACNIC X meeting
- RIPE: submitted in July-2007 and open for discussion.



Thank You



Q & A

New-Comers

- we couldn't say for new comers after the following three years or so we don't have IPv4 for you, go and use IPv6 only or DIE!!! They could live in isolated island as no one can predict exactly when IPv6 will dominate ..
- And for existing LIRs each RIR community can develop policies for encouraging them to deploy IPv6 before requesting for new allocation of IPv4.
- It's the role of RIR community to plan how to afford IPv4 in the next years and this proposal is aiming to help in that.



LINKS:

- Existing
- Planned / Funded
- Required
- Proposed Submarine cables

Southern & Eastern Links

- Planned / Funded
- Proposed Submarine cables

NEPAD

Summary of the project proposal

- The New Partnership for Africa's Development (NEPAD) has identified ICT infrastructure as one of the major parameters for economic growth and poverty reduction in Africa.
- Africa needs a broadband infrastructure linking all its nations; Africa needs to extend this infrastructure within the individuals nations in a manner that permits modern computer controlled networks to function in support of all elements of modern economy

IGF Themes (Access, Diversity,..)

Access:

- As a plan for using these continental fiber cables in developing ICT in Africa; There is a proposal of AfrISPA for establishing:
 - 5 Regional Internet Hub (RIXP for local traffic).
 - 4 Regional Internet Carriers.
 - 3 Continental Internet Carriers.
 - Transit IP traffic

Diversity:

iDNS projects in AfriNIC region.

FAQ

1. Could you please explain why we need this proposal? What will it do for Internet?
2. Delay / less motivation in deploying IPv6.
3. Impact on AfriNIC region?
4. How could it Reduce the pressure on the central pool ?

FAQ...

1. What about NIRs ?
2. Contradicts AfriNIC's active campaign of awareness of IPv6.
3. Become left behind in technology progress?
4. Encourages RIR shopping?
5. No access to content which will become more and more available on IPv6.
6. What is the criteria for choosing $N = 5$?

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A1- To be able to plan for new projects that could be done in the coming years. And for new-comers in the region as a start till IPv6 become a dominant in Internet traffic. And also for critical infrastructure

- So that we do need for such proposal:
- For Internet provider; It'll help new comers, supporting existing LIRs And this in consequence will reflect on developing ICT penetration as it's the aim of IGF which will in consequence reflect on the Internet users.

A2- IPv6 is a determinism, we all have to admit that, and this proposal doesn't discourage that... but IPv6 deployment needs a long time and couldn't come by a day and night nor in two or three years for the all Internet operators to fully transit to IPv6. Some problems we may face now with IPv6 is:

- Not all applications & hardware that we have now support it and we do need time for develop/replacement also if we now have the up-to-date H/W and S/W we can't go for native IPv6 before all big players do that (Google, yahoo, hotmail, Gmail,...etc) and what about eLearning and eCommerce websites ? what about DNS Root Servers ? does it all support IPv6 ? what about the reverse pointer from IPv6 DNS do existing now does it for free?

- If I have an upper provider supports IPv6 peering could I reach all IPv6 websites do exist now? or it depend on how many IPv6 networks that upper provider do peering with them?
- This proposal is only seeking for determining the last allocation size from IANA and make it equal for all RIRs and doesn't aim to delay/less motivation in deploying IPv6. And then each RIR community is free to decide how will the last allocated blocks be assigned? Whether its according to the existing or modified policies.
- For example may RIR reserve a block of these 5 blocks for continental projects and the other block for newcomers and could modify the existing assignment policy to encourage the existing LIRs to have IPv6 deployment before applying for more IPv4..

A3-Impact of the policy in AfriNIC region.

This policy has no negative impact in the AfriNIC region and on the other hand it gives more certainty to the regional community.

The percentage of the number of IP addresses allocated to AfriNIC in relation to the population is much smaller than in other regions. In fact the percentage are closer to the LACNIC and APNIC than in North America for example.

It means that the challenge that AfriNIC region will face is not very different from other regions.

- What happened if the policy is not approved.

AfriNIC can be for example the second in the queue when the last 2 /8 are ready to be allocated. Which means that AfriNIC have addresses for satisfying the needs of its customers for less than 6 months.

AfriNIC will be so the first in running-out and the situation in AfriNIC region may become more worse than in other regions.

- On the other hand If we apply this proposal. It will permit to implement soft landing policies in advance, because you will not have to compete for the last allocation.
And at the end you will receive 5 /8s which will permit AfriNIC to develop suitable policies for living with the IPv4 decaying in a known base.
- SO, there is no negative impact, in contrast There is a very positive impact.

A4- It'll reduce pressure by preventing battle on the remaining IPv4 blocks, as each RIR knows in advance its last allocation will be 5 /8 and that will allow each RIR community to focus on their policies and how to modify it if needed for the distribution of these last allocated blocks from IANA.

- So instead of making LIRs replacing private IP addresses of their core networks with real IP to allocate more addresses from RIRs and that lead RIRs to enter in a requesting race for addresses from IANA. And then when IANA pool run-out LIRs will reverse the process and use private IPs again ! It's better to know how many IP addresses each RIR will have as a last allocation to let its community puts their plans.

A5. NIRs

- AfriNIC has no NIRs
- And for RIRs who has NIRs, they could keep the same policy applying now for NIRs or develop a new policies by the community.

A6. AfriNIC's active campaign of awareness of IPv6

- The answer is simply in the question
AfriNIC Campaign of “awareness”; we first seek for increasing awareness then we can say campaign for deployment of native IPv6.
- Raising awareness, know-how, raising Technicality of engineers to be able smoothly doing the transition when it'll be.
- And as I said in the mailing list we do planning for developing our region with what we have now in our hands keeping our eyes on the future /next generation of IP version.
- Is it consider a contradiction ?

A7. Who are lead the Technology progress now ?

We are following the big players as I said, and Again we don't say NO for IPv6 ! We say that we need the last 25 /8 blocks to be divided across the 5 RIRs equally for the mentioned reasons before.

A8. RIR Shopping

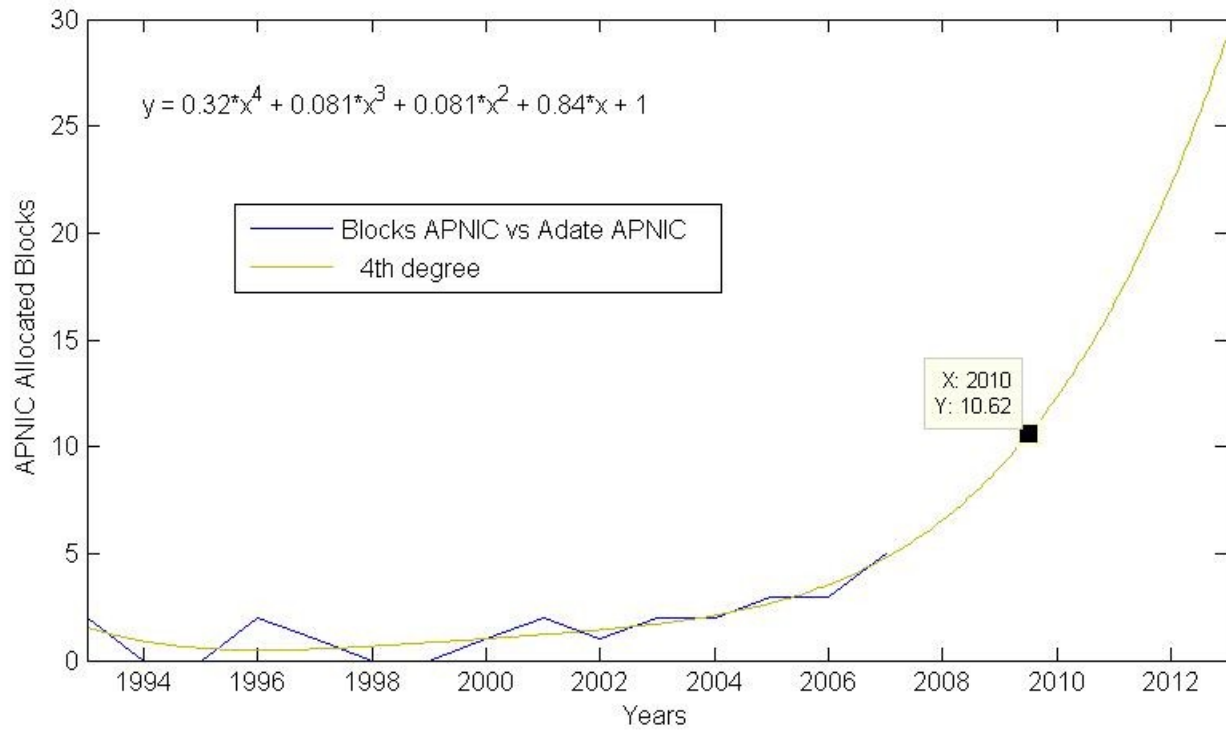
- First we can't put a plan or policy before we can know what will we have in our stock?.
- Then each RIR community can start developing policies to limit shopping as much as possible. Simply If you NOW propose a policy for Adiel (AfriNIC CEO) regarding limitation of RIR shopping he will answer you what's shopping we don't know how much we'll have then, so how could we regulate something we don't know ?
- With this policy or without it RIR shopping could happen but with this policy each RIR has the chance to develop policies for limitation/prevention.

A9. Access to content in IPv6

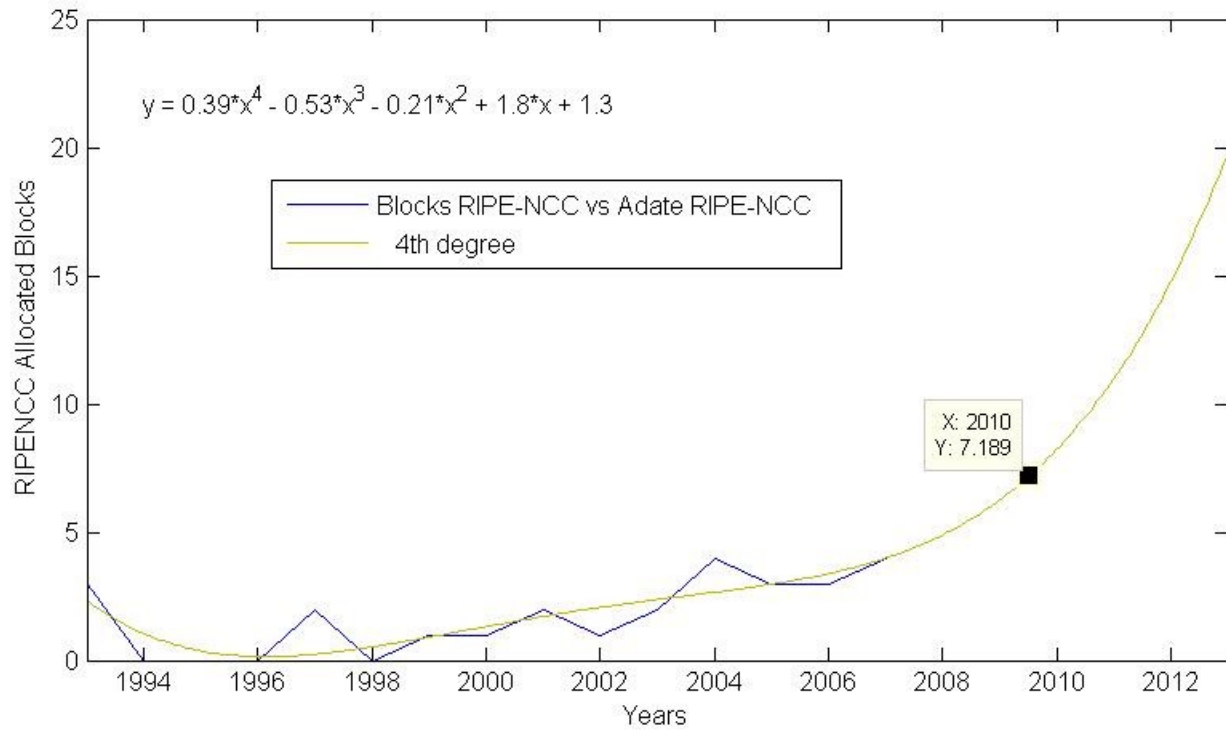
- This policy is not against deploying IPv6 or dual-stack but dual stack still need IPv4 as Geoff Huston said many times in the mailing list.
- The 5 /8 blocks is not that big allocation which will prevent LIRs from transition and in same time each RIR could developed its policy for regulating the usage of these 5 blocks.
- In same time increasing awareness and technicality will enable LIRs to operate their dual-stack, native IPv6 easily when IPv6 content become dominant.
- Could any one decide a date for IPv6 domination ?

A10. “N” Criteria

- By making curve fitting using Matlab for the allocated blocks to each RIR in trying to artificially predict its future needs after 3 years ,for example, for APNIC it'll be in 2010 a 10 (/8) and for RIPE NCC it'll be a 7 (/8).
- So as an average value for N that could be suitable for all RIRs, specially for large RIRs we choose $N = 5$.



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