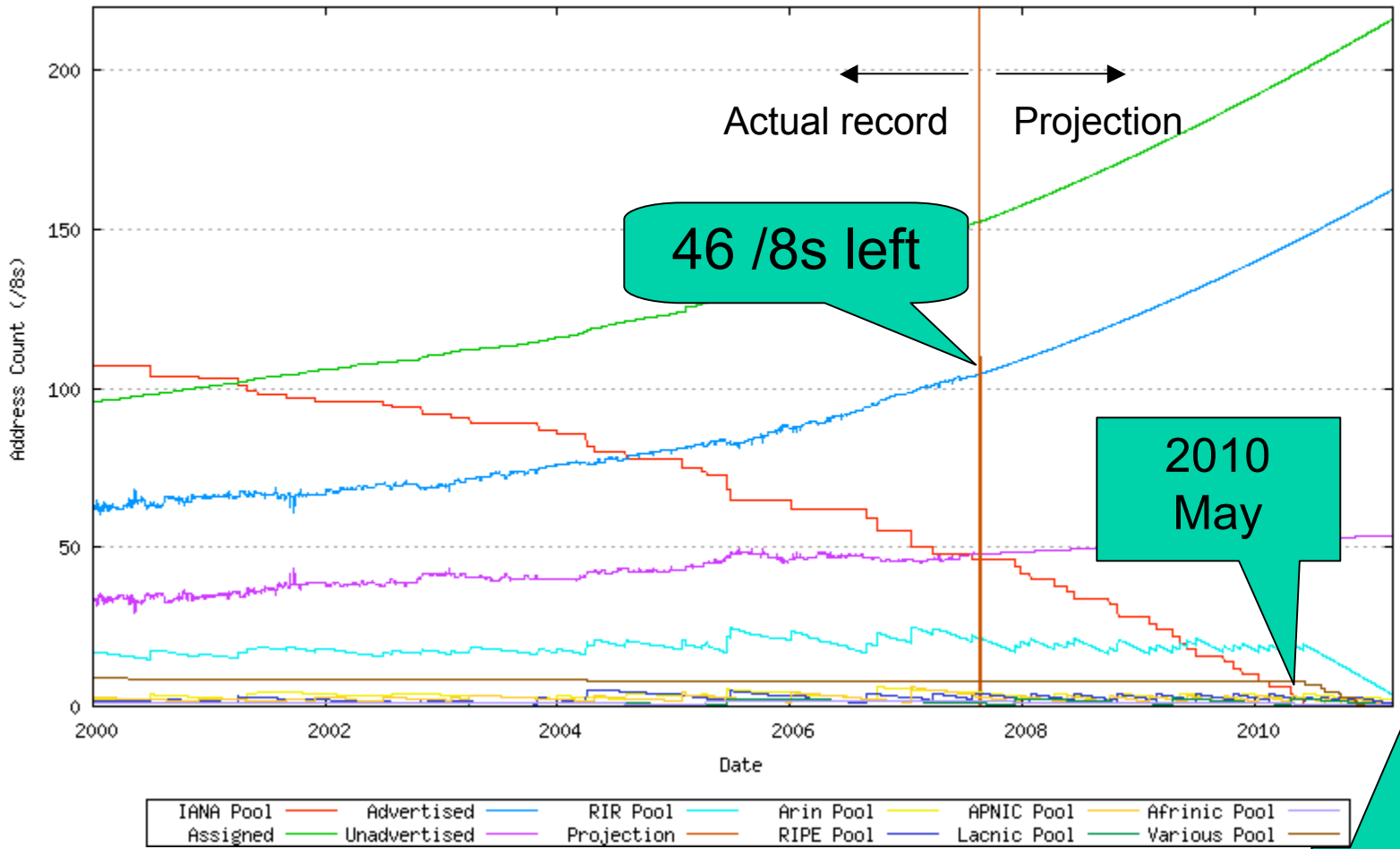


APNIC24
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End Policy for LIR allocations in APNIC region

- Japan Network Information Center
- Izumi Okutani

How much IPv4 address left?



Source : Geoff Huston - IPv4 address space report
<http://www.potaroo.net/tools/ipv4/>

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Background

- ❑ JPNIC has set up IPv4 exhaustion team to review effective policy measures to prepare for the exhaustion

- ❑ Had discussions at JPNIC Open Policy Meeting
 - Consensus on need for a policy to prepare for exhaustion, and to tighten the criteria after a certain date
 - Various opinions on “how to tighten the criteria” and no consensus was reached


- ❑ We’d like to share suggestions made on how to distribute the last piece(s) of APNIC pool, and discuss which idea is effective to meet the needs of APNIC region

This presentation intends to review ...


“what is the most effective policy measure in APNIC region to prepare for IPv4 exhaustion? ”

- It should be read in conjunction with prop-046
 - i.e., how should we distribute APNIC pool after IANA Exhaustion Date (IED)?

So What are the Options?

 Do no nothing as an explicit decision and continue distribution under the current scheme

 Restrict distribution only to those with efficient utilization

 Restrict distribution only to those with IPv6 deployment plan

 Restrict distribution only to initial allocations

 Restrict distribution only to translators

Do no nothing as an explicit decision:

Basic Concept

- ❑ Simply continue with the current scheme until the very end and make no changes to the criteria
- ❑ Policy changes will only cause confusion and does not fundamentally solve issues regarding exhaustion

Do no nothing as an explicit decision

□ Pros

- Can prevent feelings of “unfairness”
- People will know what to expect by maintaining the current criteria
 - May actually result in less confusion compared to applying short term policy changes

□ Cons

- Issues regarding the exhaustion should be solved by other means outside policy
 - e.g., must consider other methods to ensure communications between native IPv4 and IPv6 networks

Restrict only to those with efficient utilization: Basic Concept

- ❑ The most important issue is to encourage more efficient use of IPv4 space

- ❑ Distribute to those that can meet strict criteria
 - e.g., higher utilization rate, tighter documentation/review, etc

- ❑ Encourage efficient utilization of IPv4

Restrict only to those with efficient utilization

□ Pros

- It helps encourage efficient utilization
- It may prolong life of IPv4 space to a certain extent

□ Cons

- Efforts and result may not balance
 - A few months of prolonged IPv4 will not help much
 - There may be more effective means to encourage efficient use, e.g., address recovery
- It is difficult to set up adequate criteria
 - raising % delays requesting period, but doesn't reduce the total consumption

Restrict only to those with IPv6 deployment plan: Basic Concept

- ❑ The most important issue will be to get the community be prepare for IPv6 deployment

- ❑ Confirm IPv6 deployment plan of IPv4 requestors to encourage IPv6 deployment
 - e.g., have a plan to provide IPv6 service within 1 year

- ❑ Combination with other policy may be another option, such as with restricting to initial allocations

Restrict only to those with IPv6 deployment plan

□ Pros

- It helps ISPs to prepare for IPv6 Internet in advance

□ Cons

- IPv6 deployment may eventually take place without policy encouragement if ISPs consider as necessary
- Target of encouragement will be limited to those who managed to submit request for the remaining IPv4
- Creates barrier to those who really need IPv4 but IPv6 deployment is not ready

Restrict only to initial allocations:

Basic Concept

- ❑ The most important issue is to make IPv4 Internet available to new comers as currently “the Internet = IPv4”

- ❑ Give priority to those without IPv4 address space
 - Existing IPv4 users can expand IPv4 network by NAT or other means
 - Those without a single global IPv4 address have no means to connect to the IPv4 Internet (NATing requires at least 1 IPv4)

- ❑ Existing IPv4 users may wait to receive recovered IPv4

Restrict only to initial allocations

□ Pros

- It enables effective use of the same address space
 - A /8 will last **10 years** + if restrict to initial allocations (in /21s)
 - Keeping a /8 for initial allocations shortens allocation period for existing LIRs for **3-4 months**
- It will allow IPv4 Internet connections to those without IPv4 until technology is developed to absorb the difference in IP versions

□ Cons

- Benefit is limited to new comers, not the community in general
- Weighing importance in needs could be controversial
 - expansion vs new start

Restrict only to translators:

Basic Concept

- ❑ The most important issue is to ensure communications between native IPv4 and IPv6 networks
 - Currently “Internet = IPv4”, but IPv6 Internet will also develop after IPv4 runs out

- ❑ Give priority to networks which provide IPv4 ←
→IPv6 translator

- ❑ Directly tackle the issue of breach between IPv4 and IPv6 communications

Restrict only to translators

□ Pros

- If adequate no. of translators are set-up, each network don't need to worry about IP versions
- It helps the Internet in general, not particular groups of people (given the translator is for public use)

□ Cons

- It is difficult to speculate the number/requirements
- Difficult to set up criteria which define “translator”
 - Who will set up translator networks for public use in reality?
- Distributing to ISP's translators is likely to provide limited benefits ISPs and their customers

Summary

Possible Measures	Pros	Cons
Priority to initial allocations	<input type="checkbox"/> Help new comers until IPv4-IPv6 convergence is ready	<input type="checkbox"/> Benefits limited to new comers
Priority to translators	<input type="checkbox"/> Help IPv4-IPv6 communications	<input type="checkbox"/> Difficult to speculate no & set-up criteria
Encourage IPv6 deployment	<input type="checkbox"/> Help ISPs prepare for IPv6 in advance	<input type="checkbox"/> Create barriers to those who need IPv4 but not v6 ready
Encourage efficient use	<input type="checkbox"/> Encourage efficient use	<input type="checkbox"/> Efforts and result may not balance
Explicitly do nothing	<input type="checkbox"/> Can prevent feelings of “unfairness”	<input type="checkbox"/> Issues regarding exhaustion cannot be helped by policy

Other issue: IDC and Hosting Service Providers

- ❑ IPv4 exhaustion will have direct impact on core business model of IDCs and hosting providers
 - their service to assign IPv4 address space to its customer servers
 - Clients can NAT or use translators without global IPv4, but servers need global IPv4 address space as 1:1 ratio
 - IDCs and hosting service providers cannot deploy NAT/translators to its customers while ISPs providing IPv4 connections to clients can

JPNIC's position

- “Most effective way to distribute the last piece(s) of IPv4” widely vary by region
 - IPv6 deployment may be the most important issue for a region with wide IPv4 deployment
 - A region with rooms for IPv4 development may have stronger needs to give priority to new comers

- We believe it will benefit the community to distribute the last piece(s) of APNIC pool for special purpose
 - For new comers without a single IPv4 or for translators to ensure communications between native IPv4 and IPv6

- This is why we have made a global policy proposal
 - Please see prop-0046 for more details

A Question to the Community

- ❑ What do you think is the most important issue to address in the APNIC region?
 - Help those without any IPv4?
 - Ensure communication between native IPv4 and IPv6?
 - Encourage IPv6 deployment?
 - Ensure effective utilization of IPv4?
 - Continue with the current criteria to keep consistency?

- ❑ Suggestions on other options are of course very welcome !

Q&A

Let's discuss how to pro-actively face IPv4 address exhaustion in APNIC region!

