



Draft Policy ARIN-2024-11: IPv4 Transition Efficiency Reallocation Policy (ITERP)

Shepherds: Brian Jones, Kaitlyn Pellak



Problem Statement

Current Text (30 October 2024)

As the exhaustion of IPv4 addresses continues, ISPs and end-users face increasing challenges in managing their transition to IPv6. Many end-users require small amounts of IPv4 space to implement technologies like Carrier-Grade NAT (CG-NAT) or dual-stack environments, which are critical for their own IPv6 deployment efforts. Under the current NRPM 4.10 policy, ISPs are prohibited from reallocating portions of their IPv4 blocks to end-users, forcing these organizations to request larger, inefficiently used blocks (e.g., /24s) from ARIN.

This practice contributes to the unnecessary consumption of scarce IPv4 resources, as many end-users only need small blocks (e.g., /29s or /28s) for their CG-NAT and IPv6 transition processes. The inability to reallocate these smaller blocks results in wasteful allocations and hampers the overall efficiency of IPv4 address management.



Problem Statement (cont.)

Without a mechanism to allow ISPs to reallocate small portions of their NRPM 4.10 space to qualified end-users, the current policy inadvertently encourages inefficient IPv4 address utilization, which conflicts with ARIN's goal of maximizing the use of remaining IPv4 resources while facilitating the widespread adoption of IPv6.

The problem is twofold:

End-users are forced to request larger, underutilized IPv4 blocks for their IPv6 transition needs.

ISPs are unable to efficiently manage and reallocate their IPv4 resources under NRPM 4.10 to meet end-user demands for small-scale CG-NAT and IPv6 transition deployments.

Policy Statement



Add these bullets to section 4.10 of the NRPM to facilitate ARIN approved reallocation of 4.10 resources.

- ISPs may reassign a /29 or /28 for their direct downstream customers for IPv6 transition only. ARIN reserves the right to validate any downstream allocations from ISPs to direct customers.
- Anyone wishing to perform a reassignment of a 4.10 allocation must be approved through ARIN and meet all the justification requirements of this policy.

Timetable for Implementation: Immediate.

Draft Policy ARIN-2024-11: IPv4 Transition Efficiency Reallocation Policy (ITERP)

Action	Date
Proposal	4 September 2024
Draft Policy	30 October 2024

History



Community Feedback

...I interpret the proposal as allowing for NAT64-as-a-Service where the customer is IPv6-only, and a service provider provides the NAT64, dedicating a small IPv4 pool, less than /24 per customer for each customer's NAT64 needs. This would allow for more efficient use of the 4.10 pool, and such a use case would be consistent with 4.10 rules if the NAT64-as-a-Service provided reassignments of smaller blocks to its customers...

...Ah! Pardon my confusion. This seems to be a reasonable goal. How extant is this need?

To clarify, ITERP does not propose to allow the transfer of 4.10 space, but instead allow ISPs to reallocate /28 and /29, (or even /30 /31) to an End-User wanting to do things such as run their own Dual-Stack DNS, Dual Stack Load Balancers, or even CG-NAT implementations. IPv6-only networks large enough but not multi-homed via BGP. Many enterprise networks or other content networks don't run BGP or require an entire /24, but only need a very small address space reallocated to them for their IPv6 networks. Limiting the reallocations to a maximum of a /28 makes abusing this policy difficult...

Points to Consider

Allowing further reallocation of 4.10 space could open up additional possibility of inappropriate use of this space.

If this policy is successful, it could add administrative overhead to ARIN staff for downstream reallocation approvals.

A decorative vertical column of hexagons on the left side of the slide. The hexagons are arranged in a staggered pattern and feature various textures and colors, including teal, light blue, dark blue, and gold outlines.

Policy Impact

Could encourage further adoption of IPv6 for those downstream customers who do not have IT staff

Could encourage further nefarious behavior or misuse of the 4.10 space

Should create opportunity for more efficient use of the 4.10 space

Questions for the Community



As there has not been much Public Policy Mailing List feedback on this policy, does the community feel this is something that adds value to the 4.10 space allocations?

Or should the 4.10 space remain only for end users wishing to implement IPv6 in their network?