

Discussion Guide



ARIN XXVII Draft Policies and the PDP

<https://www.arin.net/ARIN-XXVII/>

Welcome

Policies in the ARIN region are developed by the Internet community using the open and transparent process described in the ARIN Policy Development Process (PDP). The Internet community develops policies via discussion on the ARIN Public Policy Mail List (PPML) and at the ARIN Public Policy Meetings. Anyone may participate in the process – ARIN membership is not required.

The ARIN Board of Trustees adopts draft policies recommended to it by the ARIN Advisory Council if the Board determines that the PDP has been followed, that support and consensus for a policy has been reached among the community, and if the draft policies are consistent with ARIN's Articles of Incorporation and Bylaws and with the applicable laws and regulations.

The ARIN Public Policy Meeting is conducted in an orderly manner to understand the sense of the majority, to respect the views of the minority, and to protect the interests of those absent. Accordingly, the flow of the meeting is structured according to a published agenda and participants are expected to follow Meeting Courtesies and the Rules of Discussion.

Meeting Courtesies

All participants are requested to:

1. Either mute or turn off all communications devices such as cell phones, PDAs, and pagers.
2. Mute the audio output of their computers and other electronic devices.
3. Listen to the speakers and not engage in activities that are unrelated to the draft policy being discussed, such as processing e-mail.

Draft Policy Discussion Structure

Policy development is facilitated by the use of a structured process at the Public Policy Meeting. The steps in this process are:

1. Draft Policy Introduction: The history of the draft policy, including the date of introduction, the date of designation as a draft policy, and any previous considerations is presented. The presentation also identifies the ARIN Advisory Council members who are shepherds of the draft policy. In addition, ARIN staff and legal assessments are reviewed.
2. Presentation: A member of the ARIN Advisory Council (or the petitioner) presents the draft policy.
3. Discussion: Discussion of the draft policy is conducted using the Rules of Discussion in the meeting program.

ARIN XXVII DISCUSSION GUIDE

For Discussion

This document contains the draft policies on the ARIN XXVII agenda. The text of the draft policies in this document is up to date through 12 April 2011.

Included at the end of this document is a copy of ARIN's Policy Development Process (PDP).

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Draft Policy 2011-1: Globally Coordinated Transfer Policy

https://www.arin.net/policy/proposals/2011_1.html

Advisory Council Shepherds: **Bill Darte and Robert Seastrom**

23 December 2010

Summary:

This proposal would allow a registrant of IPv4 addresses from one RIR to transfer those resources to a registrant (or future registrant) of another RIR as long as both RIRs agree to the transfer, and apply compatible, needs-based policies in accordance with the stewardship principles expressed in RFC 2050.

Policy Statement:

Any RIR's resource registrant may transfer IPv4 addresses to the resource registrant of another RIR as long as the two RIRs agree and maintain compatible, needs-based transfer policies that exercise Internet stewardship consistent with the values expressed in RFC2050.

Rationale:

Since individual RIRs now allow transfers, it makes sense to be able to transfer between regions as well.

Timetable for implementation: Upon ratification by the ARIN Board of Trustees

STAFF ASSESSMENT

ARIN Staff Comments

1. This policy seems to directly contradict NRPM 8.3, Transfers to Specified Recipients which disallows IPv4 number resources to be transferred outside of ARIN's region. Without a change to NRPM 8.3, ARIN would only be able to apply NRPM 8.2, Mergers and Acquisitions when reviewing inter-RIR policies.

2. The staff would implement this policy in the following manner:

- a. For transfers from the ARIN region into another RIR region, ARIN would:
 - o Confirm that the other RIR has "compatible, needs-based transfer policies that exercise Internet stewardship consistent with the values expressed in RFC 2050
 - o Apply the relevant ARIN transfer policy criteria to the resource registrant
 - o Seek confirmation from the other RIR that the requesting organization is physically located and has a verified legal presence in the region
 - o Closely coordinate with the other RIR, informing them when ARIN is ready to complete the transfer
 - o Complete transfer upon confirmation from the other RIR that the recipient has met that RIR's applicable transfer policies

b. For transfers into the ARIN region from another RIR region, ARIN would:

- o Confirm that the other RIR has "compatible, needs-based transfer policies that exercise Internet stewardship is consistent with the values expressed in expressed in RFC2050"
- o Apply the relevant ARIN transfer policy criteria to the resource recipient
- o Verify that the requesting organization is physically located and has a verified legal presence in the region
- o Closely coordinate with the other RIR, informing them when ARIN is ready to complete the transfer
- o Complete transfer upon confirmation from the other RIR that the registrant has met that RIR's applicable transfer policies

3. This proposal allows the transfer of any IPv4 resource, whether it be Legacy/ERX address space or address space that was directly delegated to the RIR by IANA. Allowing the transfer of directly delegated number resources between RIRs could cause a variety of issues including:

- Zone fragmentation
- DNS synchronization problems
- Potential administrative and operational issues in coordinating reverse addressing

4. The phrasing "to the resource registrant of another RIR" might be made more accurate if the word "resource" was dropped and just the words "to the registrant of another RIR" were retained. The recipient of a resource transfer may not already have resources registered. This rephrasing would make it clear that you have to be registered with the RIR, but not necessarily be a current resource holder to utilize this policy.

5. The text implies that the resources being transferred go directly from Registrant>Recipient rather than from Registrant>RIR A>RIR B>Recipient. If the space gets transferred directly from registrant to recipient without coming back to the RIR first, it is unclear which RIR is ultimately authoritative for the space.

ARIN General Counsel

- o First, I suggest one major addition to this policy which may be totally consistent with the drafter's intent. Currently, it is my understanding that ARIN policy does not permit transfers within the region unless the resources are covered by RSA or LRSA. The language of this section might properly be clarified to reinforce the requirement that the resources be put under LRSA (or RSA) before they are transferred.

o Second, in addition, I believe the word 'compatible' might better be described as 'comparable'.

o Third, don't we have to make the transfer to a specific registrant 'thru' the other RIR and not directly to that recipient from ARIN?

I made some other suggestions on language in caps for you to consider: "Any RIR's resource [RSA OR LRSA] registrant may transfer IPv4 addresses to a SPECIFIC resource registrant of another RIR, THRU THAT RIR, so long as the RECEIVING RIR agrees to and maintains comparable, needs-based transfer policies that exercise Internet stewardship consistent with the values expressed in RFC2050. NO TRANSFER MAY BE MADE TO AN RIR THAT DOES NOT MAINTAIN COMPARABLE NEEDS-BASED TRANSFER POLICIES CONSISTENT WITH THE VALUES IN RFC2050."

As drafted this policy has no 'out': for example, it does not on its face permit ARIN to refuse a transfer because the recipient is someone who violates US or the recipient country's laws; or violates other ARIN policies. Do you want any flexibility built in to permit ARIN staff to refuse an inter-region transfer if it would refuse an intra-region transfer? I am not sure such a right to refuse is implied or could be exercised.

Resource Impact: This policy would have minimal resource impact from an implementation aspect. It is estimated that implementation would occur within 3 months after ratification by the ARIN Board of Trustees. However, maintaining the policy is another matter and could require significant (human) resources to carry out the potential increase in inter-RIR transfers.

Draft Policy 2011-2: Protecting Number Resources

https://www.arin.net/policy/proposals/2011_2.html

Advisory Council Shepherds: **Marc Crandall and Scott Leibrand**

28 January 2011

Summary:

This policy directs ARIN to pro-actively identify and research abandoned, unused, or fraudulently obtained number resources for the purposes of trying to reclaim them when appropriate. It would require staff to report on the activities associated with this policy (without improperly disclosing details of individual matters) during ARIN's Public Policy meetings.

Policy Statement:

ARIN shall use any reasonable and practical methods to proactively look for fraudulently obtained or abandoned number resources and seek the return of those resources to ARIN.

Abandoned resources include, but are not limited to:

- resources with no valid POC (per section 3.6),
- resources assigned or allocated to a deceased individual,
- resources assigned or allocated to a defunct or otherwise no longer viable entity, and
- resources declared unused or abandoned by the organization to which they are allocated.

A report of activities under this policy shall be delivered at each ARIN meeting.

Rationale:

ARIN has generally only reactively looked for fraudulently obtained or abandoned number resources, generally via reports to <https://www.arin.net/resources/fraud/>.

Taking these community reports is a good first step, but ARIN can be in a far better position to know which resources were fraudulently obtained or abandoned due to the additional paperwork that ARIN holds which is not available to the public, and the record of interactions (or lack thereof) with the resource holder.

Implementation suggestions:

It is expected that the board/executive management will interpret "reasonable and practical" to mean "some amount of staff time that is not zero", but will also be fiscally viable, and to direct reviews in such a way as to provide the community a good return on invested resources. For example, ARIN could check resources without a valid POC, reclaim resources that aren't being routed, and contact the announcing/upstream ASNs of any resources that are being routed to implement record updates or to implement section 8 transfers as appropriate. The next lowest hanging fruit might be prefixes that were originally visible in the routing table, but have not been present for a long time.

ARIN should also 1) report on the aggregate quantity of number resources that were returned due to this proactive activity, 2) report on the aggregate cost to the members of this activity, and 3) obtain feedback from the membership as to whether more or less resources should be devoted to this endeavor.

Resources in use by a successor organization should not be considered abandoned, but may be reviewed as appropriate via the processes outlined in current ARIN policy (for example, sections 8.2 or 12 of the NRPM).

ARIN should attempt to contact all known POCs for a block, and only determine that it is abandoned if no POC indicates it is still in use. If a BGP advertisement for the resource in question is visible in the Internet routing table, ARIN should attempt to contact the organization responsible for the advertising ASN, as well as any organizations seen to be providing transit services for the resource, to inform them that the resource is being considered for abandoned status.

At least 30 days before reclaiming any number resource, ARIN should publicly announce their declaration that the resource is considered abandoned, and shall reconsider such declaration if additional information is provided to ARIN about the use of the resource in question.

Timetable for implementation: Immediate

STAFF ASSESSMENT

ARIN Staff Comments

- Based on staff's experience with resource reclamations and revocations, the process of identifying and reclaiming resources (especially due to fraud or misuse) can take anywhere from a few days to several weeks from start to finish, so there will be a significant time factor involved.
- Given the current workload at ARIN and the limited number of staff available to do this type of work, additional experienced staff would be needed before this policy could be fully implemented.
- This policy could have very significant financial implications due to the need for additional staff, the time involved in identifying, researching, and reclaiming these resources, and the potential additional legal fees involved for review.
- Reclaiming legacy resources is more complex than reclaiming ARIN issued resources. Therefore, ARIN staff would need to carefully consider this complexity when determining which number resources to seek out first.
- Staff will need to develop detailed, well thought out, and well-documented procedures due to the potential legal issues involved in reclaiming resources.

ARIN General Counsel

No legal comments

Resource Impact:

This policy would have a moderate resource impact from an initial implementation aspect. It is estimated that implementation would occur within 6 – 9 months after ratification by the ARIN Board of Trustees.

However, this policy will have a significant resource impact from an execution aspect. Based on our experience with resource reclamations and revocations, the process of identifying and reclaiming resources (especially due to fraud or misuse) takes a great deal of time from start to finish. It requires significant research, documentation, and fact checking. A single fraudulent event can take a number of days or weeks, to properly fact-find and document.

Draft Policy 2011-3: Better IPv6 Allocations for ISPs

https://www.arin.net/policy/proposals/2011_3.html

Advisory Council Shepherds: **Robert Seastrom and David Farmer**

30 January 2011

Summary:

This policy allows an ISP to receive an initial allocation large enough to give each site in its network the block size required for its largest single site. Site block size and overall block size would be based on a less than 75% used threshold. ISPs will be eligible to obtain an additional allocation when they have either allocated 75% of their existing allocation to sites or have a serving site that has allocated at least 90% of its existing block. ISP customers of ISPs will be eligible to obtain an allocation based on the same methodology. All allocations (including those to customer ISPs and to ISP serving sites) will be made on nibble boundaries. This policy will lower the current minimum allocation size from a /32 to a /36 as it allows ISPs to request a /36.

Policy Statement:

Amend section 2 as follows:

Delete section 2.9 (Obsolete)

Replace section 2.10 with the following:

2.10 The term End Site shall mean a single structure or service delivery address, or, in the case of a multi-tenant structure, a single tenant within said structure (a single customer location).

Add the following:

2.12 When applied to IPv6 policies, the term serving site shall mean a location where an ISP terminates or aggregates customer connections, including, but, not limited to Points of Presence (POPs), Datacenters, Central or Local switching office or regional or local combinations thereof.

2.13 When applied to IPv6 policies, the term "provider assignment unit" shall mean the prefix of the smallest block a given ISP assigns to end sites (recommended /48).

2.14 The term utilized shall have the following definitions when applied to IPv6 policies:

- (i) A provider assignment unit shall be considered fully utilized when it is assigned to an end-site.
- (ii) Larger blocks shall have their utilization defined by dividing the number of provider assignment units assigned from the containing block by the total number of provider assignment units. This ratio will often be expressed as a percentage (e.g. $a/t*100$, for a /36 $3072/4096 * 100 = 75\%$ utilization)

Replace sections 6.5.1 through 6.5.3 with the following:

6.5.1 Terminology

- (a) The terms ISP and LIR are used interchangeably in this document and any use of either term shall be construed to include both meanings.

- (b) The term nibble boundary shall mean a network mask which aligns on a 4-bit boundary (in slash notation, /n, where n is evenly divisible by 4, allowing unit quantities of X such that $2^n=X$ where n is evenly divisible by 4, such as 16, 256, 4096, etc.)

6.5.2 Initial Allocations to LIRs

6.5.2.1 Size

- (a) All allocations shall be made on nibble boundaries.
- (b) In no case shall an LIR receive smaller than a /32 unless they specifically request a /36.
- (c) The maximum allowable allocation shall be the smallest nibble-boundary aligned block that can provide an equally sized nibble-boundary aligned block to each of the requesters serving sites large enough to satisfy the needs of the requesters largest single serving site using no more than 75% of the available addresses.

This calculation can be summarized as /N where $N = 48 - (X + Y)$ and X is a multiple of 4 greater than $4/3 * \text{-serving sites}$ and Y is a multiple of 4 greater than $4/3 * \text{end sites served by largest serving site}$.

- (d) For purposes of the calculation in (c), an end site which can justify more than a /48 under the end-user assignment criteria in 6.5.8 shall count as the appropriate number of /48s that would be assigned under that policy.
- (e) For purposes of the calculation in (c), an LIR which has subordinate LIRs shall make such allocations according to the same policies and criteria as ARIN. In such a case, the prefixes necessary for such an allocation should be treated as fully utilized in determining the block sizing for the parent LIR.
- (f) An LIR is not required to design or deploy their network according to this structure. It is strictly a mechanism to determine the largest IP address block to which the LIR is entitled.

6.5.2.2 Qualifications

An organization qualifies for an allocation under this policy if they meet any of the following criteria:

- (a) Have a previously justified IPv4 ISP allocation from ARIN or one of its predecessor registries or can qualify for an IPv4 ISP allocation under current criteria.
- (b) Are currently multihomed for IPv6 or will immediately become multihomed for IPv6 using a valid assigned global AS number.

In either case, they will be making reassignments from allocation(s) under this policy to other organizations.

- (c) Provide ARIN a reasonable technical justification indicating

why an allocation is necessary. Justification must include the intended purposes for the allocation and describe the network infrastructure the allocation will be used to support. Justification must also include a plan detailing anticipated assignments to other organizations or customers for one, two and five year periods, with a minimum of 50 assignments within 5 years.

6.5.3 Subsequent Allocations to LIRs

- (a) Where possible ARIN will make subsequent allocations by expanding the existing allocation.
- (b) An LIR which can show utilization of 75% or more of their total address space, or more than 90% of any serving site shall be entitled to a subsequent allocation.
- (c) If ARIN can not expand one or more existing allocations, ARIN shall make a new allocation based on the initial allocation criteria above. The LIR is encouraged, but not required to renumber into the new allocation over time and return any allocations no longer in use.

Replace section 6.5.4 with the following

6.5.4 Assignments to end users shall be governed by the same practices adopted by the community in section 6.5.8 except that the requirements in 6.5.8.1 do not apply.

Add the following to 6.5.7

LIRs which received an allocation under previous policies which is smaller than what they are entitled to under this policy may receive a new initial allocation under this policy provided that they agree to renumber into that new allocation and return their prior allocation(s) within 5 years. If possible, ARIN will simply expand their existing allocation rather than requiring renumber and return.

Rationale:

The current ISP policy for IPv6 allocations is both short-sighted and insufficient for rational deployments by most ISPs. We have gained significant operational experience with IPv6 in the time since it was written and it is clear that current policy is driving many ISPs to choices of excess conservatism that will eventually harm innovation in the consumer space.

Under the proposed policy, the entirety of the ARIN region can still be numbered in no more than 2 /12s (quite probably 1). There are still 506 /12s free within the current /3. It is unreasonable to shoot ourselves in the foot with address scarcity thinking so early into the IPv6 deployment. This policy seeks to strike a more reasonable and harmonious balance of the goals stated in NRPM 6.3.

The lower bound of /36 is intended to facilitate extremely small ISPs getting a smaller block if they do not need to support more than ~4000 customers. It is hoped that the board will take subsequent action to adjust the fee structure to eliminate the \$1,000/year price hike for those extremely small ISPs. These ISPs can, of course, get a /32 if they wish.

The intent of section 6.5.4 is to create and preserve parity between the requirements for LIR->End User and ARIN->End User policies. This section presumes that 6.5.8 has already been modified as described in draft policy 2010-8.

Some examples of determining the size of block for which an organization is eligible:

Bill's Bait, Sushi, and IP Transit:

Largest serving site: 200 end sites
Number of serving sites: 5
200 rounds up to 256 (nibble boundary, 8 bits). $200 \gg 192 (256 * 0.75)$, so, round up to 4096 (12 bits)
5 rounds up to 16 (nibble boundary, 4 bits). $5 \ll 12 (16 * 0.75)$, so, no further round up. 16 (4 bits)
 $48 - (12+4) = 32$ -- This organization could receive up to a /32.

Lee's Rural Internet, Inc.

Largest serving site: 1024 end sites
Number of serving sites: 30
1024 rounds up to 4096 (nibble boundary, 12 bits) $1024 \ll 3072 (4096 * 0.75)$, so 4096 (12 bits)
30 rounds up to 256 (nibble boundary, 8 bits). $30 \ll 192 (256 * 0.75)$, so, 256 (8 bits)
 $48 - (12+8) = 28$ -- This organization could receive up to a /28.

Paul's Mega Metro ISP, LLC

Largest serving site: 3,500 end sites
Number of serving sites: 140
3,500 rounds up to 4096 (nibble boundary, 12 bits). $3500 \gg 3072 (4096 * 0.75)$, so, round up to 65,536 (16 bits)
140 rounds up to 256 (nibble boundary, 8 bits) $140 \ll 192 (256 * 0.75)$, so, 256 (8 bits)
 $48 - (16+8) = 24$ -- This organization could receive up to a /24

PON's CMTS mega DSL Corp.

Largest serving site: 30,000 end sites
Number of serving sites: 700
30,000 rounds up to 65,536 (nibble boundary, 16 bits). $30,000 \ll 49,152 (65536 * 0.75)$, so, 65,536 (16 bits)
700 rounds up to 4,096 (nibble boundary, 12 bits). $700 \ll 3072 (4096 * 0.75)$, so, 4,096 (12 bits)
 $48 - (16+12) = 20$ -- This organization could receive up to a /20.

Timetable for implementation: Immediate

STAFF ASSESSMENT

ARIN Staff Comments

- The proposed addition of 2.14, a definition of "utilized" is meant to only refer to IPv6 and the application of this policy. The word "utilized" is very important to IPv4 policy, and this new definition could introduce unnecessary ambiguity. Perhaps the proposed definition could have a qualifier noting that it's only applicable to IPv6 addressing.
- The proposed additions of 2.12 and 2.13 suffer the same problem as in comment #1, albeit without the same wide-ranging effect of the proposed 2.14. They, too, should probably be qualified as only relating to IPv6 policy.
- 6.5.2.2.b has both an OR and an AND clause that is unclear and ambiguous. We believe the OR refers to the two possibilities for qualifying, and the AND refers to only the second possibility. The text should be re-written to remove the ambiguity.
- 6.5.2.2.b needs editing for grammar. The clause shifts between tenses.

- 6.5.2.2.c needs editing for punctuation and grammar.

ARIN General Counsel

No comments

Resource Impact:

This policy would have moderate resource impact from an implementation aspect. It is estimated that implementation would occur within 6 - 9 months after ratification by the ARIN Board of Trustees. The implementation of this policy will require staff to develop new sparse allocation methods and software.

Draft Policy 2011-4: Reserved Pool for Critical Infrastructure

https://www.arin.net/policy/proposals/2011_4.html

Advisory Council Shepherds: **Scott Leibrand and David Farmer**

23 November 2010

Summary:

This policy would set aside a /16 equivalent when the IANA issues its last /8 to ARIN. These addresses would be reserved for issuing under the IPv4 micro-allocations for critical infrastructure policy (NRPM 4.4). If any of the reserved addresses are unused 36 months after implementation, ARIN may begin using the addresses for other purposes.

Policy term: 36 Months following implementation

Policy Statement:

Upon receipt of the last /8 that the IANA will allocate to ARIN per the Global Policy for the Allocation of the Remaining IPv4 Address Space, ARIN will place an equivalent of a /16 of IPv4 address space in a reserve for Critical Infrastructure, as defined in section 4.4. If at the end of the policy term there is unused address space remaining in this pool, ARIN staff is authorized to utilize this space in a manner consistent with community expectations.

Rationale:

Section 4.10 of the NRPM is insufficient with respect to insuring the continued operation of critical infrastructure. This proposal, if adopted, will protect those resources with a reasonable amount of reserved v4 address space and prevent an overrun of CI needs by NRPM Section 4.10 or any successor. The intent is to separate CI needs and make a distinct pool available to insure the continuity of CI allocations per NRPM Section 4.4 for at least 36 months.

This proposal should be considered an emergency proposal. IANA exhaustion is likely to occur prior to the next ARIN meeting.

Timetable for implementation: Immediate

STAFF ASSESSMENT

ARIN Staff Comments

- The proposal says, “reserve for critical infrastructure” but doesn’t elaborate on what critical infrastructure actually is. NRPM 4.4. (“Micro-allocation”) defines a specific list of uses that qualifies as critical infrastructure. For coherency, perhaps this policy should specifically state that “critical infrastructure” as defined in NRPM 4.4. That way, there can be no misinterpretation of its meaning.

ARIN General Counsel

No comments

Resource Impact:

This policy would have minimal resource impact from an implementation aspect. It is estimated that implementation would occur within 3 months after ratification by the ARIN Board of Trustees.

Draft Policy 2011-5: Shared Transition Space for IPv4 Address Extension

https://www.arin.net/policy/proposals/2011_5.html

Advisory Council Shepherds: **Stacy Hughes and Chris Morrow**

20 January 2011

Summary:

This proposal asks ARIN to reserve and register a single, contiguous /10 in ARIN's Whois in a fashion similar to blocks reserved by RFCs (like RFC1918 or RFC3068). The block is never to be assigned directly to any organization and is to be shared by anyone who wishes to use it, with no further registration actions required by ARIN. Staff understands that this space is not to be routed on the public Internet and that there will be multiple people using the same address space much like is done with RFC 1918 space today.

Policy Statement:

Updates 4.10 of the NRPM:

A second contiguous /10 IPv4 block will be reserved to facilitate IPv4 address extension. This block will not be allocated or assigned to any single organization, but is to be shared by Service Providers for internal use for IPv4 address extension deployments until connected networks fully support IPv6. Examples of such needs include: IPv4 addresses between home gateways and NAT444 translators.

Rationale:

The Internet community is rapidly consuming the remaining supply of unallocated IPv4 addresses. During the transition period to IPv6, it is imperative that Service Providers maintain IPv4 service for devices and networks that are currently incapable of upgrading to IPv6. Consumers must be able to reach the largely IPv4 Internet after exhaustion. Without a means to share addresses, people or organizations who gain Internet access for the first time, or those who switch providers, or move to another area, will be unable to reach the IPv4 Internet.

Further, many CPE router devices used to provide residential or small-medium business services have been optimized for IPv4 operation, and typically require replacement in order to fully support the transition to IPv6 (either natively or via one of many transition technologies). In addition, various consumer devices including IP-enabled televisions, gaming consoles, medical and family monitoring devices, etc. are IPv4-only, and cannot be upgraded. While these will eventually be replaced with dual-stack or IPv6 capable devices, this transition will take many years. As these are typically consumer-owned devices, service providers do not have control over the speed of their replacement cycle. However, consumers have an expectation that they will continue to receive IPv4 service, and that such devices will continue to have IPv4 Internet connectivity after the IPv4 pool is exhausted, even if the customer contracts for new service with a new provider.

Until such customers replace their Home Gateways and all IPv4-only devices with IPv6-capable devices, Service Providers will be required to continue to offer IPv4 services through the use of an IPv4 address sharing technology such as NAT444. A recent study showed that there is no part of RFC1918 space which would not overlap with some IPv4 gateways, and therefore to prevent address conflicts, new address space is needed.

Service providers are currently presented with three options for obtaining sufficient IPv4 address space for NAT444/IPv4 extension deployments: (1) Request allocations under the NRPM; (2) share address space with other providers (this proposal); or (3) use address space allocated to another entity (i.e. 'squat'). Of the three options, option 2 (this proposal) is preferable, as it will minimize the number of addresses used for IPv4 extension deployments while preserving the authority of IANA and RIRs.

Timetable for implementation: Immediate

STAFF ASSESSMENT

ARIN Staff Comments

- This proposal would have ARIN acting as the registrant for this single IP block and maintaining it without us (or the public) knowing who is actually using it or how they are using it. This will likely generate a great deal of abuse and spam complaints to ARIN.
- It is unclear whether ARIN would need to set up nameservers for this block to provide rDNS.

ARIN General Counsel

No legal comments

Resource Impact:

This policy would have minimal resource impact from an implementation aspect. It is estimated that implementation would occur within 3 months after ratification by the ARIN Board of Trustees.

Draft Policy 2011-6: Returned IPv4 Addresses

https://www.arin.net/policy/proposals/2011_6.html

Advisory Council Shepherds: **Cathy Aronson and Chris Grundemann**

10 March 2011

Summary:

This policy proposal would require ARIN to retain any address space that is or has been returned, revoked or recovered for redistribution to customers within the ARIN region, except where otherwise directed by policy.

Policy Statement:

4.1.9 Returned IPv4 Addresses

Except where otherwise directed by policy; all IPv4 addresses returned to, recovered, or revoked by ARIN will be made available for allocation or assignment in the ARIN region as quickly as practicable.

Rationale:

Adopting this proposal will result in the clarification of the status of returned IPv4 addresses. IPv4 address resources should not sit idle due to lack of policy clarity.

Timetable for implementation: Immediate

STAFF ASSESSMENT

ARIN Staff Comments

- The wording of the proposal seems to indicate that any address space, including a /8, that gets returned to ARIN gets added into ARIN's inventory and made available for redistribution. In all other instances where a legacy /8 has been returned to ARIN, ARIN has returned that space to IANA. This proposal would change that standard practice.
- Staff will continue to implement its own operating procedures for recycling any returned address space.
- The community should consider amending the Rationale to state "... status of existing and future returned IPv4 addresses" if that matches the policy intent. The clarification would avoid any misinterpretation in implementation when handling space returned, recovered, or revoked before policy adoption.

ARIN General Counsel

None

Resource Impact:

This policy would have minimal resource impact from an implementation aspect. It is estimated that implementation would occur within 3 months after ratification by the ARIN Board of Trustees.

The following would be needed in order to implement:

- Updated guidelines
- Staff training

POLICY DEVELOPMENT PROCESS

This version of the ARIN Policy Development Process was published on 7 January 2009. It supersedes the previous version.

Part One – Principle

1. Purpose

This document describes the ARIN Policy Development Process (PDP). The ARIN PDP is the process by which all policies governing the management of Internet number resources in the ARIN region are developed by and for the ARIN community. ARIN's Internet number resource policies are documented community decisions that directly determine the rules by which ARIN manages and administers Internet number resources.

Internet number resource policies are developed in an open and transparent manner by the Internet community. Anyone may participate in the process - ARIN membership is not required. The Policy Development Process (PDP) described in this document defines how policy is established in the ARIN region. Part I of this document provides background information regarding the ARIN PDP and Part II provides the details of the process.

2. Scope

1. Policies developed through the PDP are community selfregulatory statements that mandate or constrain actions. They apply throughout the ARIN region. Policies contribute to the security and stability of the Internet as they foster good stewardship of Internet number resources by ensuring fair distribution of resources and facilitating the operation of the Internet by those who use them.
2. Policies developed through the PDP do not describe a step-by-step process. Such a process is called a procedure. Procedures are established by the policy implementer to execute the policy in such a manner to comply with the policy.
3. Policies developed through the PDP do not define a service to be offered by ARIN.
4. Policies developed through the PDP do not define or establish ARIN fees. All matters concerning fees are a fiduciary responsibility of the Board of Trustees.
5. The ARIN Board of Trustees adopts draft policies recommended to it by the ARIN Advisory Council if the Board determines that the PDP has been followed, that support and consensus for a policy has been reached among the community, and if the draft policies are consistent with ARIN's Articles of Incorporation and Bylaws and with the applicable laws and regulations.
6. Internet number resource policies are distinctly separate from ARIN general business practices and procedures. ARIN's general business practices (including fees) and procedures are not within the purview of the Policy Development Process. (The ARIN Consultation and Suggestion Process can be used to propose changes in non-policy areas.)
7. This version of the ARIN PDP is designed to bring forth clear, technically sound and useful policy; reduce overlapping policy proposals; require both staff and legal assessments; give adequate opportunity for discussion prior to each public

policy meeting; and provide a means of review prior to possible adoption. The PDP empowers the ARIN Advisory Council as a policy development body with checks and balances, and maintains an open and transparent process.

3. Policy Development Principles

All policies are developed following three principles: open, transparent, and bottom-up.

3.1. Open

All policies are developed in an open forum in which anyone may participate. There are no qualifications for participation. Policy discussions in the ARIN region are conducted in an open, publicly accessible forum that consists of a Public Policy Mail List (PPML) and the Public Policy Meeting (PPM). Anyone may subscribe to the PPML and anyone may attend a PPM via the Internet or in person.

3.2. Transparent

All aspects of the PDP are documented and publicly available via the ARIN website. The PPML is archived. The proceedings of each PPM are published. All policies are documented in the Number Resource Policy Manual (NRPM). All policy statements in the NRPM are cross referenced to the original policy proposal, the archives of the PPML, all related PPM proceedings, and the minutes of the appropriate Advisory Council and the ARIN Board of Trustees meetings. Finally any procedures that are developed to implement the policy are documented, publicly available, and not deviated from by the ARIN staff.

3.3. Bottom Up

All policies in the ARIN region are developed by the ARIN community from the bottom up. The community initiates proposals; the ARIN Advisory Council develops the proposals into draft policies which are then discussed by the community. When the Advisory Council determines that the community has reached consensus on a proposal it recommends it to the Board of Trustees who after receipt adopts the draft policy as a policy. The Board of Trustees may not disapprove a policy, but if it has concerns about a draft policy, it may refer it back to the Advisory Council for further work.

4. Policy Development Process Philosophy

Internet number resource management requires good stewardship and judicious management. Thus policies must be developed that ensure fair distribution, meet technical requirements, and enable administration. All policy statements must be clear, complete, and concise. The criteria that are defined must be simple and obtainable.

4.1. Fair Distribution

Although the available amount of Internet number resources appears to be infinitely large, their defined characteristics create a finite resource to which principles of conservation must be applied. These defined characteristics include the recognition of network topology realities. To prevent capricious consumption such as stockpiling, Internet number resource policies provide for the distribution according to demonstrated operational needs.

4.2. Technical Requirements

Policies must meet the technical requirements for the way that they are used in the operational environment. Policies must allow for aggregation of Internet number resources in a hierarchical manner to permit the routing scalability which is necessary for proper Internet routing. However, policies cannot guarantee routability of any particular Internet number resource as that is dependent on the actions of the individual Internet operators. Policies must not create a situation in which Internet number resources intended for public operation are not globally unique.

4.3. Administration

Policies must enable administration and management of Internet number resources that is neutral, impartial, and consistent. Policies must be unambiguous and not subject to varying degrees of interpretation.

5. Terms

Proposal

An idea for a policy that is submitted to the Advisory Council using the policy proposal template.

Draft Policy

A policy proposal that has been developed by the Advisory Council from individual submitted proposals or merged proposals, reviewed by ARIN staff and legal counsel, and posted for discussion on the PPML.

Policy

A draft policy that has the support of the community and the Advisory Council, and has been adopted by the Board of Trustees.

6. The PDP Cycle

The policy development process is composed of a five (5) phase cycle – need, discussion, consensus, implementation, and evaluation.

6.1. Need

The PDP cycle begins with the identification of a need for either a new policy or the revision or elimination of an existing policy. This need is usually determined by a change in technology, a change in the operational environment of the Internet, or the result of the experience of the implementation of an existing policy.

6.2. Discussion

Draft policies are discussed by the community both on the public policy mailing list and in the public policy meeting.

6.3. Consensus

The Advisory Council determines the consensus of the community regarding the draft policy. It evaluates the type and amount of support and opposition to a policy as expressed by the community on the ppml and in the public policy meeting.

6.4. Implementation

The policy is implemented by ARIN staff using published procedures.

6.5. Evaluation

The implementation experience of the policy is periodically reviewed by the staff who reports the results to the Advisory Council and the community.

Part Two – The Policy Development Process

This section provides the details of the ARIN Policy Development Process. A graphical flow depiction of the process is provided at Appendix A. All days are calendar days unless otherwise specified.

1. The Policy Proposal

Policy proposals may be submitted by anyone in the global Internet community except for members of the ARIN Board of Trustees or the ARIN staff. Proposals may be submitted any time to the ARIN staff for delivery to the Advisory Council using the template at Appendix B. There is no deadline for the submittal of policy proposals. Besides delivering the policy proposal to the Advisory Council, the staff will post the policy proposal to the public policy mailing list so that the community will be provided the ability to comment on the proposal. Policy proposals posted to the PPML by individuals will not be considered by the Advisory Council until the proposal is submitted to the staff and delivered to them. Only policy proposals that are developed into draft policies by the Advisory Council, or successfully petitioned, will be discussed for adoption on the PPML and at the public policy meeting.

2. Draft Policy

Upon receipt of a policy proposal, the Advisory Council assumes control of the proposal. The Advisory Council evaluates policy proposals and develops them into technically sound and useful draft policies that, if adopted, will make a positive contribution to the Number Resource Policy Manual. The development of draft policy consists of several steps.

2.1. Clarity & Understanding

Upon receipt of a policy proposal the ARIN staff will work with the proposal originator to ensure there is clarity and understanding of the proposal text. Staff does not evaluate the proposal itself at this time, their only aim is to make sure that they understand the proposal and believe that the community will as well. Staff reports the results of this step to the Advisory Council within 10 days.

2.2. Development & Evaluation

The Advisory Council develops a draft policy. During this effort they may take any action such as rewrite, abandon, merge various proposals, or use a proposal as an idea to generate a draft policy. The Advisory Council must make a decision regarding any policy proposal at their next regularly scheduled meeting that occurs after the Advisory Council receives the Clarity and Understanding Report from staff. If the period before the next regularly scheduled meeting is less than 10 days, then the period may be extended to the subsequent regularly scheduled meeting, but the period shall not be extended beyond 45 days. The Advisory Council will announce its decision regarding any policy proposal once they have decided how to utilize the proposal.

Once the Advisory Council crafts a draft policy it submits it for staff and legal review. This review will be completed within 10 business days. Upon receipt of the staff and legal comments, the Advisory Council examines staff and legal comments to ensure its understanding and resolve any issues that may have been raised. These comments may cause the Advisory Council to revise its draft policy.

2.3. Discussion & Review

Once the Advisory Council completes its work on a draft policy, to include the staff and legal reviews, it publishes the draft policy and accompanying staff and legal reviews on the PPML for review and discussion. In order for a draft policy to be considered for adoption discussion at a public policy meeting it must be published on the PPML at least 35 days prior to the public policy meeting.

2.4 Discussion Petition

Any member of the community, including a proposal originator, may initiate a Discussion Petition if they are dissatisfied with the action taken by the Advisory Council regarding any specific policy proposal. If successful, this petition will change the policy proposal to a draft policy which will be published for discussion and review by the community on the PPML and at an upcoming public policy meeting.

The Discussion Petition must be initiated within 5 business days of announcement of the Advisory Council's decision regarding a specific policy proposal; the petition must include the proposal and a petition statement. The petition duration is 5 business days. The ARIN President determines if the petition succeeds (success is support from at least 10 different people from 10 different organizations). In order to be considered at an upcoming public policy meeting, the petition must be successfully completed at least 35 days prior to that meeting.

A successful petition may result in competing versions of the same draft policy. Staff and legal reviews will be conducted and published for successful petitions.

All draft policies that are selected by the Advisory Council or successfully petitioned are published for review and discussion on the public policy mailing list.

3. Public Policy Meeting

Those draft policies that are published at least 35 days prior to a public policy meeting will be placed on the agenda of that meeting for adoption discussion. In the period leading up to the public policy meeting changes may be made to the text of the draft policy. At 10 days prior to the public policy meeting no further changes will be made to the draft policy text so that a single text for each draft policy is considered at the meeting. The text remains frozen until after the completion of the public policy meeting.

The draft policies that have been selected by the Advisory Council are presented by the Advisory Council at the public policy meeting. Draft policies resulting from successful petitions are presented by the petitioner. Competing draft policies, if any, will be discussed together. Discussion and votes at the meeting are for the consideration of the Advisory Council.

4. Consensus

4.1 Discussion Evaluation

At the conclusion of the public policy meeting, the Advisory Council controls all draft policies, including those that were successfully petitioned. The Advisory Council reviews all draft policies and, taking into account discussion on the PPML and

at the public policy meeting, decides what to do with each one within 30 days following the public policy meeting. The Advisory Council may take any action such as rewrite, merge, abandon, or send to last call the draft policies. The results of the Advisory Council's decisions are announced to the PPML. Draft policies that are not abandoned or sent to last call are placed on the AC docket for further development and evaluation.

4.2 Last Call Petition

Any member of the community, including a proposal originator, may initiate a Last Call Petition if they are dissatisfied with the action taken by the Advisory Council regarding any draft policy. If successful, this petition will move the draft policy to last call discussion and review by the community on the PPML.

The Last Call Petition must be initiated within 5 business days of the announcement of the Advisory Council's decision regarding a specific draft policy; the petition must include the draft policy and a petition statement. The petition duration is 5 business days. The ARIN President determines if the petition succeeds (success is support from at least 10 different people from 10 different organizations).

4.3 Last Call

The Advisory Council selects draft policies that have the support of the community and the Advisory Council and sends these draft policies to a last call for review and discussion by the community on the PPML. The last call period will be for a minimum of 10 days. The Advisory Council may decide that certain draft policies require a longer last call period of review, such as those that were revised based on comments received while the text was frozen. If the Advisory Council sends a draft policy to last call that is different from the frozen version, then the Advisory Council will provide an explanation for all changes to the text.

4.4. Last Call Review

Within 30 days of the end of last call the Advisory Council determines consensus for each draft policy by reviewing last call comments, revisiting its decision (the Advisory Council may take any action such as rewrite, merge, or abandon), and determining readiness for consideration by the Board of Trustees. If the Advisory Council modifies a draft policy, it will be sent to another last call or may be placed back on the docket of the Advisory Council for further development and evaluation.

The results of the Advisory Council's decisions are announced to the PPML. The Advisory Council forwards the draft policies that it supports to the Board of Trustees for consideration.

4.5 Board of Trustees Consideration Petition

Any member of the community may initiate a Board of Trustees Consideration Petition if they are dissatisfied with the action taken by the Advisory Council regarding any last call review. If successful, this petition will move the draft policy for consideration by the Board of Trustees. The Board of Trustees Consideration Petition must be initiated within 5 business days of the announcement of the Advisory Council's decision regarding a specific last call review of a draft policy; the

petition must include the draft policy and a petition statement. The petition duration is 5 business days. The ARIN President determines if the petition succeeds (success is support from at least 10 different people from 10 different organizations).

5. Board of Trustees Review

The ARIN Board of Trustees reviews and evaluates each draft policy within 30 days of receipt. The Board examines each draft policy in terms of fiduciary risk, liability risk, conformity to law, development in accordance with the ARIN PDP, and adherence to the ARIN Articles of Incorporation and Bylaws. The Board may adopt, reject or remand draft policies to the Advisory Council. Rejections will include an explanation. Remands will include an explanation and a recommendation. The Board may also seek clarification from the Advisory Council without remanding the draft policy. The results of the Board's decision are announced to the community via PPML.

6. Implementation

The projected implementation date of the policy is announced at the time that adoption of the policy is announced. ARIN staff updates the NRPM to include the adopted policy and implements and publishes a new version of the manual.

7. Special Policy Actions

7.1. Emergency PDP

The Board of Trustees may initiate the Emergency PDP by declaring an emergency and posting a draft policy to the PPML for discussion for a minimum of 10 business days. The Advisory Council will review the draft policy within 5 business days of

the end of the discussion period and make a recommendation to the Board of Trustees. If the Board of Trustees adopts the policy, it will be presented at the next public policy meeting for reconsideration.

7.2. Policy Suspension

If, after a policy has been adopted, the Board receives credible information that a policy is flawed in such a way that it may cause significant problems if it continues to be followed, the Board of Trustees may suspend the policy and request a recommendation from the Advisory Council on how to proceed. The recommendation of the Advisory Council will be published for discussion on the PPML for a period of at least 10 business days. The Board of Trustees will review the Advisory Council's recommendation and the PPML discussion. If suspended, the policy will be presented at the next scheduled public policy meeting in accordance with the procedures outlined in this document.

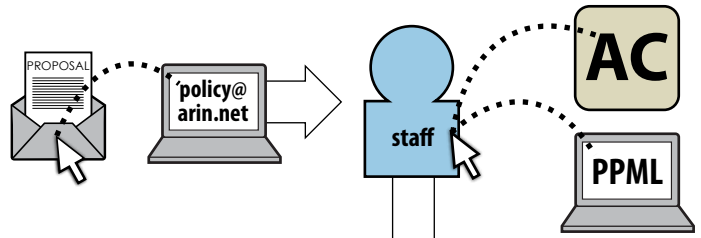
If, after a policy has been ratified and put into effect, the Board of Trustees receives credible information that a policy is flawed in such a way that it may cause unforeseen problems if it is continued to be followed, the Board may suspend the policy and request a recommendation from the ARIN Advisory Council on how to proceed. The Advisory Council's recommendation will be posted for discussion on the Public Policy Mailing List for a period of at least ten working days.

Appendix A: PROCESS FLOW CHART

1 Proposal

Submittal

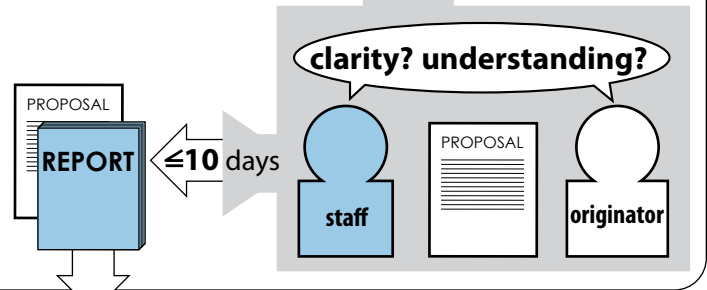
- By anyone at anytime (not Staff or BoT)
- Submit template to policy at ARIN
- Staff posts the proposal to PPML and forwards it to the AC.



2 Draft Policy

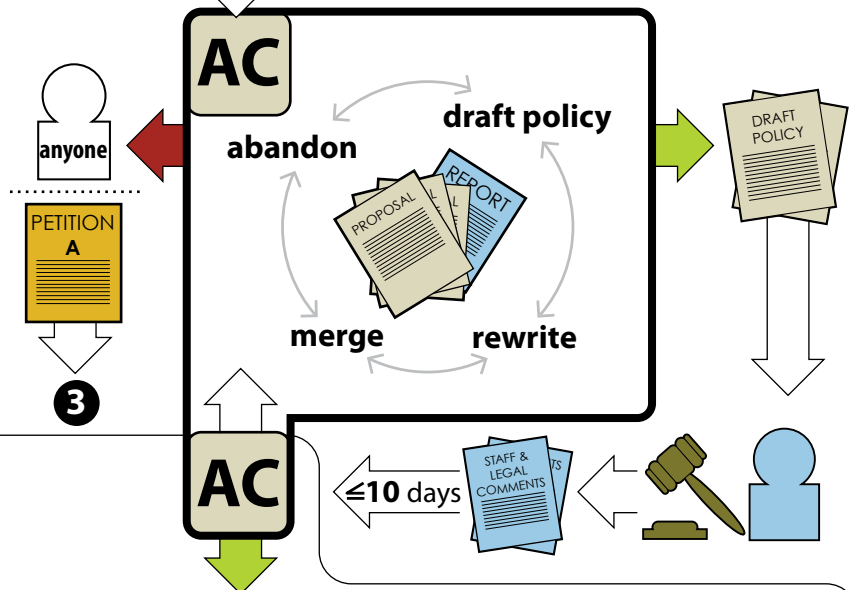
a. Clarity & Understanding

- Staff and originator work together to ensure clarity and understanding of what is being proposed.
- Staff does not evaluate the proposal.
- Staff reports the result of this step to the AC within 10 days.



b. Development & Evaluation

- AC assumes control of all proposals.
- AC develops and evaluates proposals to only bring forth technically sound policies that make a positive contribution to the Number Resource Policy Manual. The AC may rewrite, merge, abandon, etc.; for example, they may use a proposal as an idea to generate a draft policy.
- AC must submit for Staff and Legal review if it intends to move a draft policy forward. Review comments must be understood and addressed. Text may be revised in response.
- AC must make a decision regarding any proposal within 30 days of receipt (approx.).
- Decisions posted to PPML.



c. Discussion & Review

- AC selects sound and useful draft policies for community discussion.
- Relevant staff and legal comments are published with each draft policy.
- Anyone may initiate Discussion Petition (Petition A*) if dissatisfied with AC action.
- Staff and legal reviews are conducted for successful petitions.
- Draft policy is posted to PPML for community discussion and review.

AC selects...



3 Public Policy Meeting

- The PPM agenda will contain those draft policies that will have been on the PPML for at least 35 days prior to the meeting.



Draft policy text is frozen 10 days prior to PPM so that a single text for each draft policy is considered at the meeting.

- The AC presents draft policies at the Public Policy Meeting; the successful petitioner presents their draft policy. Competing proposals will be discussed together.



3 Public Policy Meeting (cont.)

Discussion and votes at the meeting are for the consideration of the AC.

4 Consensus

a. Discussion Evaluation

- AC controls all draft policies.
- AC considers list and meeting discussion and may rewrite, merge, abandon, send to last call, etc.
- Draft policies not abandoned or sent to last call are placed on AC's docket for further development and evaluation.
- AC's decisions are posted to PPML.
- Anyone may initiate Last Call Petition (Petition B*) if dissatisfied with AC action.
- AC must make a decision within 30 days of the PPM.

b. Last Call

AC selects draft policies that have support both in the community and the AC and sends them to a last call for comments on the PPML for at least 10 days. If text is different from the frozen version, AC will explain.

c. Last Call Review

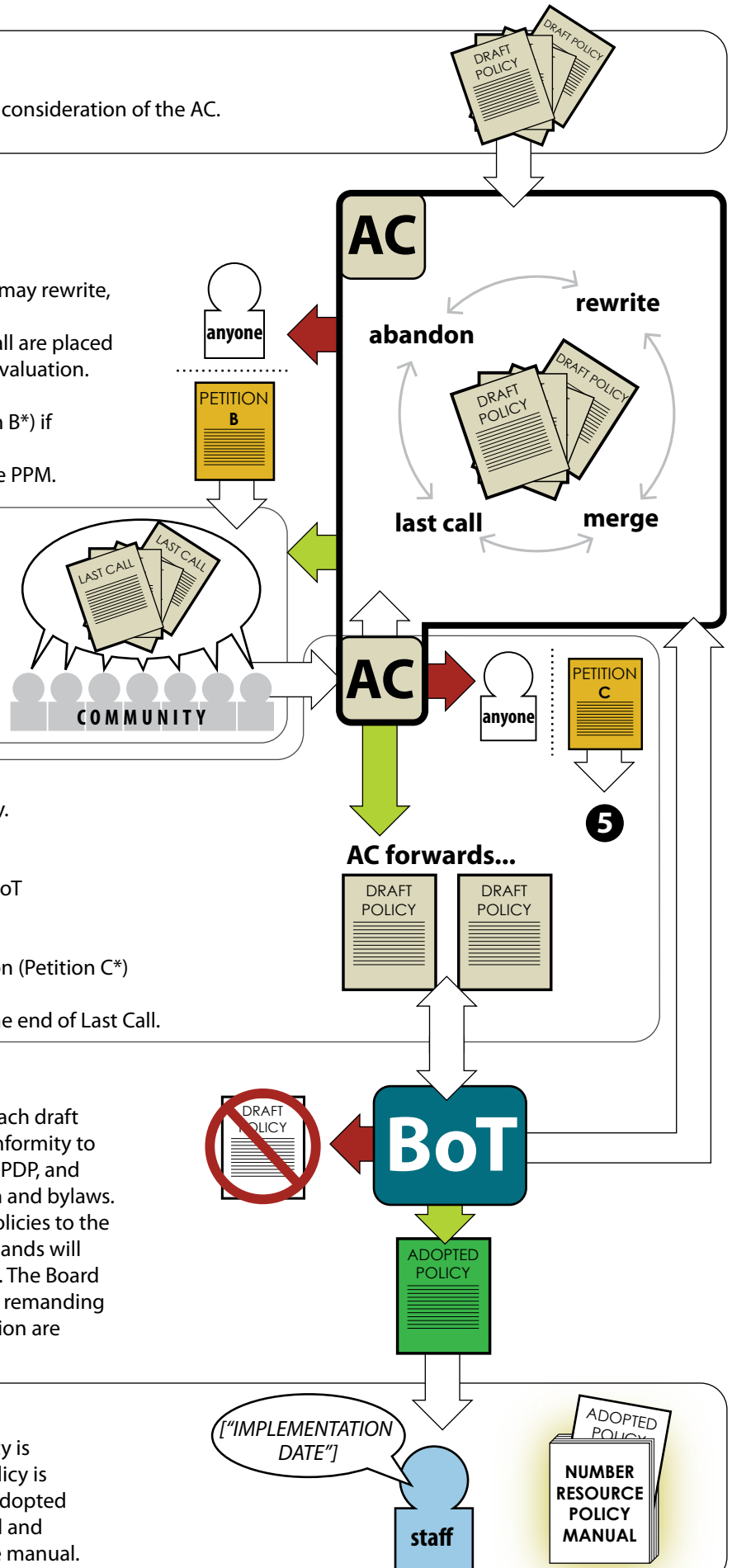
- AC determines consensus for each draft policy.
 - Reviews last call comments
 - Revisits earlier decision
 - Determines readiness for consideration by BoT
- AC may revise and repost to last call.
- AC's decisions are posted to PPML.
- Anyone may initiate BoT Consideration Petition (Petition C*) if dissatisfied with AC action.
- AC determines consensus within 30 days of the end of Last Call.

5 Board of Trustees Review

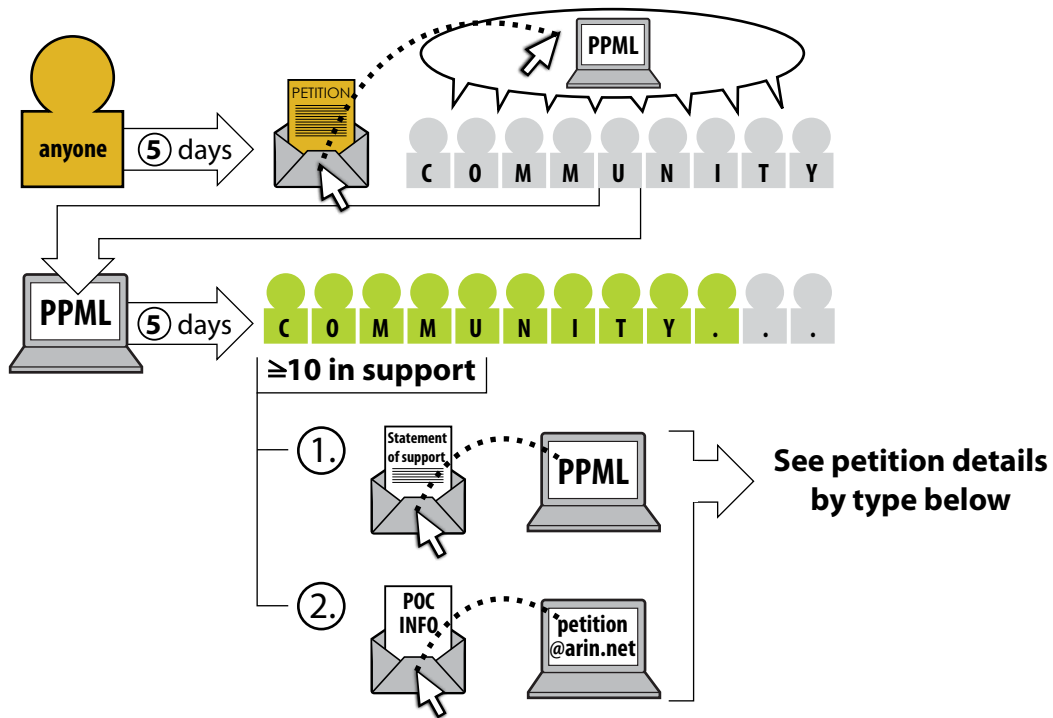
Within 30 days of receipt the Board examines each draft policy in terms of fiduciary risk, liability risk, conformity to law, development in accordance with the ARIN PDP, and adherence to the ARIN Articles of Incorporation and bylaws. The Board may adopt, reject or remand draft policies to the AC. Rejections will include an explanation. Remands will include an explanation and a recommendation. The Board may also seek clarification from the AC without remanding the draft policy. The results of the Board's decision are announced to the community via PPML.

6 Implementation

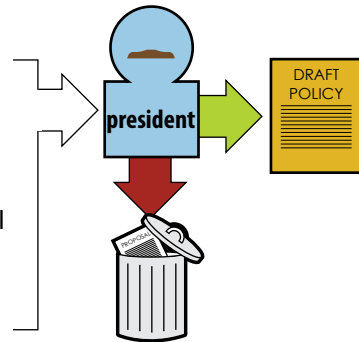
The expected implementation date of the policy is announced at the time that adoption of the policy is announced. ARIN staff updates to include the adopted policy into the Number Resource Policy Manual and implements and publishes a new version of the manual.



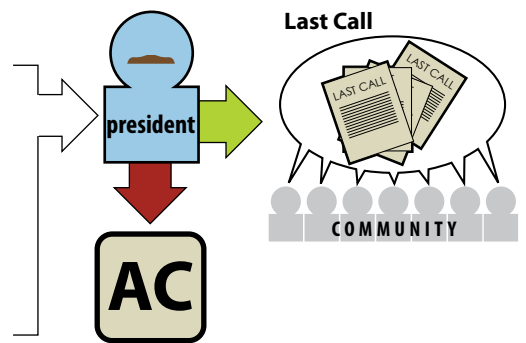
Appendix A: PDP PETITIONS



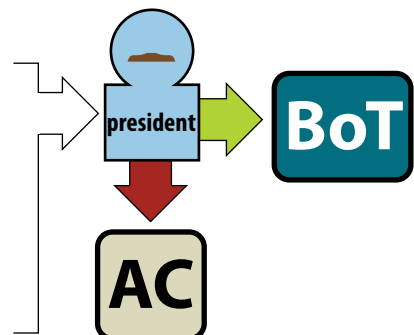
Discussion Petition - If any member of the community, including a proposal originator, is dissatisfied with the AC action on a policy proposal they can initiate a Discussion Petition to move this particular proposal to the PPML for discussion as a draft policy. Anyone may initiate the petition on the PPML (within 5 business days of publication of the AC's decision); the petition must include the proposal and a petition statement. The petition duration is 5 business days. The ARIN President determines if the petition succeeds. Success is support from at least 10 different people from 10 different organizations.



Last Call Petition - If any member of the community, including a proposal originator, is dissatisfied with the AC action on a draft policy they can initiate a Last Call Petition to move this particular draft policy to the PPML for last call. Anyone may initiate the petition on the PPML (within 5 business days of the publication of the AC's decision); the petition must include the draft policy and a petition statement. The petition duration is 5 business days. The ARIN President determines if the petition succeeds. Success is support from at least 10 different people from 10 different organizations.



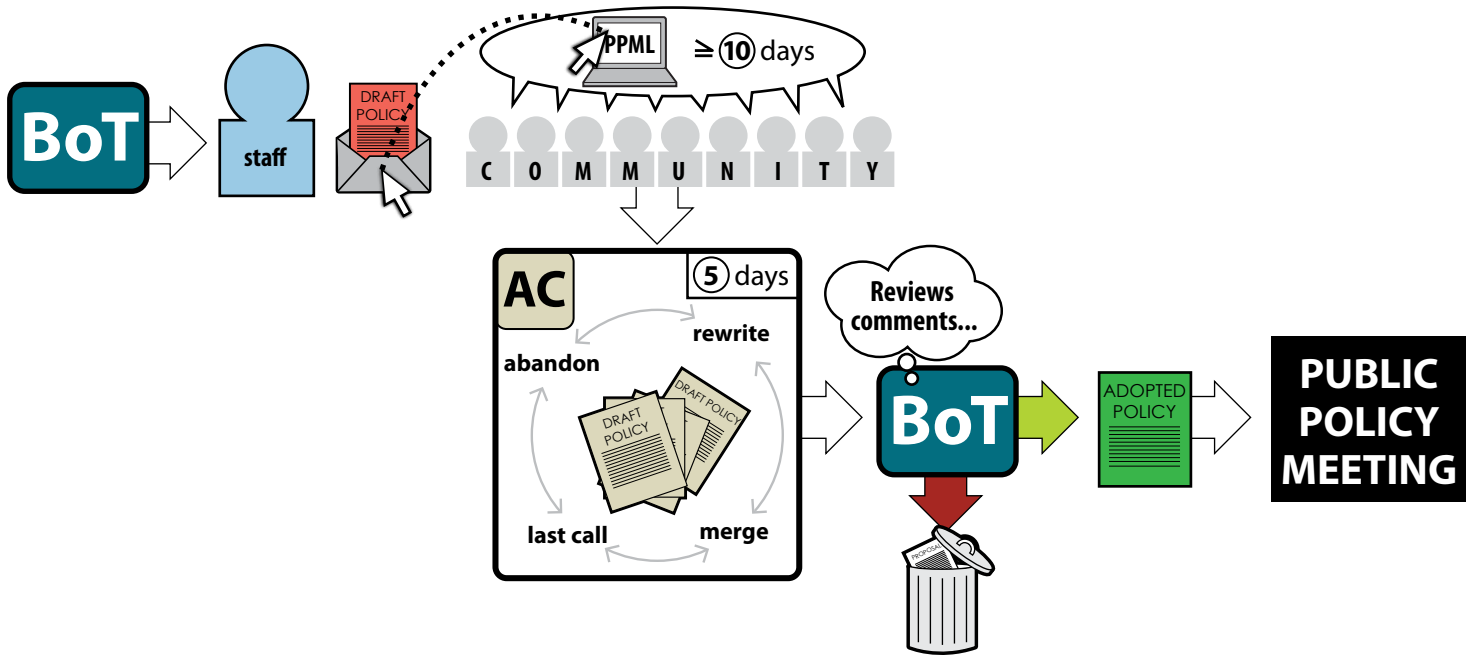
BoT Consideration Petition - If any member of the community is dissatisfied with the AC action on a draft policy they can initiate a Board of Trustees Consideration Petition to move this particular draft policy for consideration by the Board of Trustees. Anyone may initiate the petition on the PPML (within 5 business days of the publication of the AC's decision); the petition must include the draft policy and a petition statement. The petition duration is 5 business days. The ARIN President determines if the petition succeeds. Success is support from at least 10 different people from 10 different organizations.



Appendix A: SPECIAL BoT POLICY ACTIONS

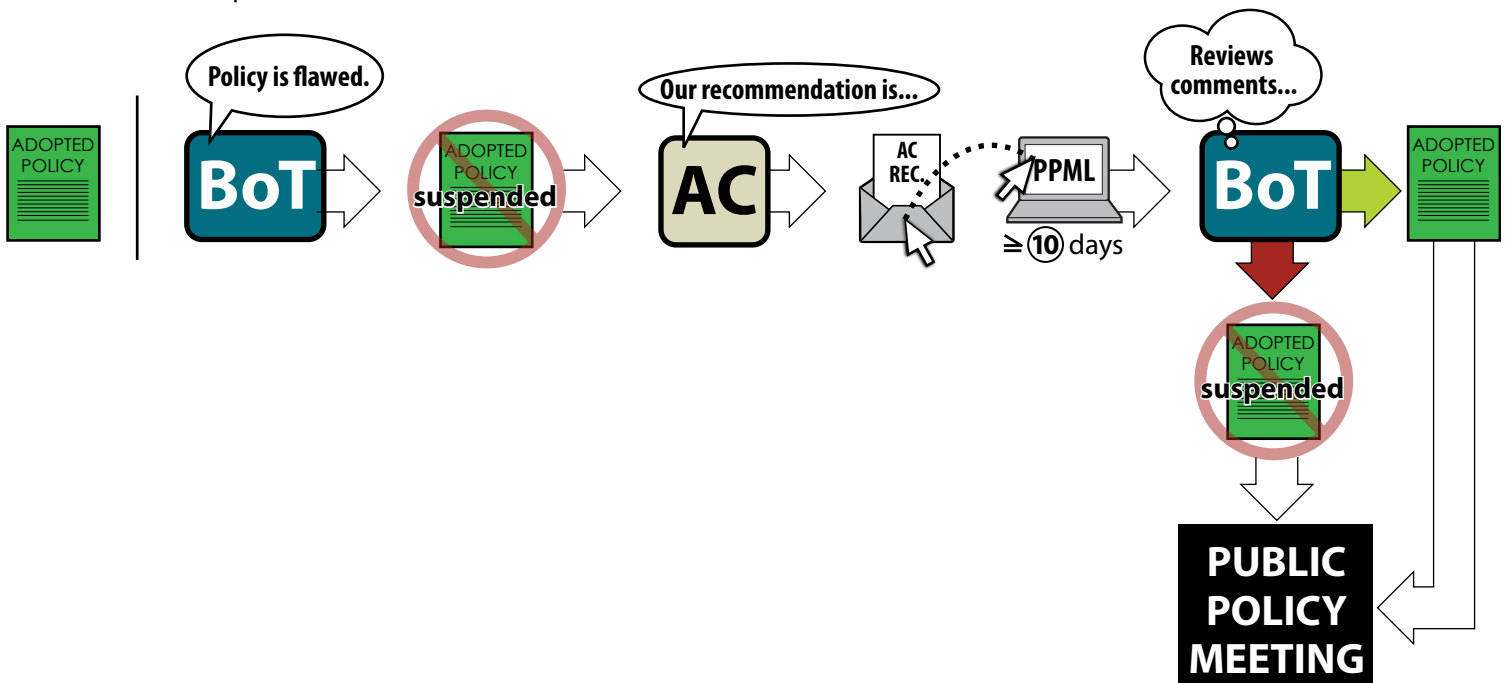
Emergency PDP

The Board of Trustees may initiate the Emergency PDP by declaring an emergency and posting a draft policy to the PPML for discussion (minimum 10 business days). The AC will review the draft policy within 5 business days of the end of the discussion period and make a recommendation to the BoT. If the BoT adopts the policy, it will be presented at the next PPM for reconsideration.



Policy Suspension

If, after a policy has been adopted, the BoT receives credible information that a policy is flawed in such a way that it may cause significant problems if it is continued to be followed, the BoT may suspend the policy and request a recommendation from the AC on how to proceed. The AC's recommendation will be posted for discussion on the PPML for a period of at least 10 business days. The BoT will review the AC's recommendation and the list discussion. If suspended, the policy will be presented at the next scheduled PPM in accordance with the procedures outlined in this document.



Appendix B: PROPOSAL TEMPLATE

Guidelines for Completing the ARIN Policy Proposal Template are available at: https://www.arin.net/policy/pdp_appendix_b.html.

Template: ARIN-POLICY-PROPOSAL-TEMPLATE-2.0

1. Policy Proposal Name:
2. Proposal Originator
 1. name:
 2. email:
 3. telephone:
 4. organization:
3. Proposal Version:
4. Date:
5. Proposal type:
new, modify, or delete.
6. Policy term:
temporary, permanent, or renewable.
7. Policy statement:
8. Rationale:
9. Timetable for implementation:

END OF TEMPLATE



