Shared Transition Space

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Shared Transition Space Request

`draft-weil-shared-transition-space-request-02`

IETF 81

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Introduction

- Operators are implementing IPv6, or soon will

- During the transition to IPv6, need to continue supporting IPv4 for legacy CPE equipment and IPv4-only content sites, even after IPv4 exhaustion

- Operators need non-RFC 1918 IPv4 address space to support transition technologies

- This draft requests a /10 (to be supplied by ARIN per 2011-5, either directly or through IANA) be used as Shared Transition Space

Shared Transition Space

- For use only by SPs to facilitate transition

- Maintain separate space from RFC 1918
  - Avoid overlap with customer premises

- IPv4 address space reserved for service provider use
  - "inside" addresses in a carrier NAT environment (e.g. between the CGN and customer CPE devices)
  - other IPv4 to IPv6 transition infrastructure.

- Not for use behind customer NAT (e.g. in-home network)

Changes Since IETF 79

- Per IETF feedback, requested /10 address space from ARIN.

- ARIN willing to allocate Shared Transition Space
  - Draft Policy 2011-5
  - See `draft-bdgks-arin-shared-transition-space-01`

- Requesting IETF guidance/direction per RFC 2860

ARIN Draft Policy 2011-5: Shared Transition Space

`draft-bdgks-arin-shared-transition-space-01.txt`

IETF 81

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Introduction

- This draft provides foundational information and support for `draft-weil-shared-transition-space-request-02`
  - Discusses technical merits of Shared Transition Space

- `draft-weil` requests the the reservation of a /10 block for Shared Transition Space

History

- `draft-shirasaki-isp-shared-addr` – showed need and requested space for this use in 2008

- `draft-weil-opsawg-provider-address-space` (Jul/10) followed by `draft-weil-shared-transition-space-request` (Nov/10) emphasized need and requested Shared Transition Space

- ARIN Draft Policy 2011-5 (accepted) referred to IAB (per RFC 2860)
  - IAB Response – The authority to allocate space of this nature lies with the IETF Community.
  - So, this draft (and support for latest version of `draft-weil`) has now been submitted for IETF review and for IESG to judge consensus.

Reasons for Shared Transition Space

- ## Applicability
  - Carrier Grade NAT (most deployable transition option), Non-Overlapping with RFC 1918, Extranet, SP Services, Private Intranet
  - NON-RFC 1918 and for SP Use Only.

- ## Benefits also include
  - Operation post run-out, delay wider CGN deployment, address recovery, return or transfer, more efficient then separate allocations, standardization
  - Allows operators to direct resources to IPv6
    - Not wasting time solving IPv4 issues

- ## Already being used by some operators (squat) with less legitimacy, and it works

Alternatives

- RFC 6319 outlined alternatives.

  - Some options were: Global Unicast Space (multiple allocations for same use), Class E, Prefix Squatting, Consortium

  - These have same basic effect as Shared Space except add additional complexities and problems.

- Private Address Space (RFC 1918)

  - This option is known to be problematic for many deployments and often RFC 1918 is already exhausted.

Arguments and Rebuttals

- NAT is bad.
  - No feasible alternative in many cases.
  - NAT is also not the only use case for shared transition space.

- Some proposed uses of this space breaks host operation.
  - Yes, but manageable (better then no IPv4 at all)

- This space could be misused.
  - This is not a technical argument (many technologies suffer from this)

- Nobody will use it.
  - Incorrect – will be forced to solve IPv4 run out

- ISPs are not growing.
  - Incorrect – networks are growing (endpoints / devices per user)

- RIR and ISP Inventories not exhausted.
  - Some RIR and ISP inventories are at or near exhaustion. Once that happens, it will be too late to reserve space.
  - The earlier a common Shared Transition Space is defined, the greater the benefit of standardization (heads off multiple disparate approaches that could have unintended consequences).

Arguments and Rebuttals

- ISP Shared Space uses up Inventory.
  - Single assignment vs. multiple assignments to operators for the same purpose (more efficient – less total space)

- /10 is not enough.
  - Does not argue the need for block. /10 still useful and operators have stated this

- It will not delay exhaustion.
  - True, but can help reduce CGN need and solves real problems

- Just Use IPv6.
  - IPv6 connectivity in itself does not solve IPv4 connectivity needs. IPv6 is not ready everywhere
  - Many IPv4 only devices and content (i.e. Consumer Electronics and home network equipment)

- It Delays IPv6 Deployment.
  - This action helps direct resources to IPv6 in place of wasted time on IPv4 issues.

In summary

- The need for Shared Transition Space has been highlighted repeatedly in the community (by operators).

- It solves <u>real</u> problems and challenges.

- Arguments against it do not overcome the benefits (i.e. benefits outweigh the drawbacks)

- Shared Space:
  - Could speed up IPv6 deployments
  - Could reduce the need for CGN deployments
  - Could stop global unicast space form being used in CGN environments

- ARIN is prepared to reserve the /10 if requested to do so.

- The IETF is asked to help the community move forward in solving these real issues and allow scarce resources to direct attention to IPv6 deployments.

Next Steps and Actions

Time is of the essence due to the dwindling inventory of IPv4 addresses.

`draft-weil` can be processed separately or in tandem with this draft, but the important thing to these authors is the disposition of `draft-weil`. This draft could be integrated into the final RFC version of `draft-weil` if desired.

What are the right next steps?

    a) One or both drafts are taken as working group items?

    b) One or both drafts become AD sponsored?

What would help drive consensus in the most expeditious manner that would best advise the IAB in the actions it should take related to ARIN-2011-5?