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6bone (IPv6 Testing Address Allocation) Phaseout

Status of this Memo

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Abstract

The 6bone was established in 1996 by the IETF as an IPv6 Testbed network to enable various IPv6 testing as well as to assist in the transitioning of IPv6 into the Internet. It operates under the IPv6 address allocation 3FFE::/16 from RFC 2471. As IPv6 is beginning its production deployment it is appropriate to plan for the phaseout of the 6bone. This document establishes a plan for a multi-year phaseout of the 6bone and its address allocation on the assumption that the IETF is the appropriate place to determine this.

This document obsoletes RFC 2471, "IPv6 Testing Address Allocation", December, 1998. RFC 2471 will become historic.

1. Introduction

The 6bone IPv6 Testbed network was established in March 1996, becoming operational during the summer of 1996 using an IPv6 testing address allocation of 5F00::/8 [TEST-OLD] that used the original (and now obsolete) provider based unicast address format. In July 1998, a new IPv6 Addressing Architecture [ARCH] replaced the original provider based unicast address format with the now standardized Aggregatable Global Unicast Address Format [AGGR].

To allow the 6bone to operate under the revised IPv6 address architecture with the new Aggregatable Global Unicast addressing format, [TEST-OLD] was replaced with a new IPv6 testing address

allocation" of 3FFE::/16 in [TEST-NEW]. During the fall of 1998, in anticipation of [AGGR], the 6bone was re-addressed under the 3FFE::/16 prefix with little problems.

From the fall of 1998, until the issuance of this note, the 6bone has continued to successfully operate with Aggregatable Global Unicast Address prefixes from the 3FFE::/16 allocation, using a set of 6bone routing practice rules specified in [GUIDE], and later refined to 6Bone backbone routing guidelines in [PRACTICE].

During its lifetime the 6bone has provided:

- a place for early standard developers and implementers to test out the IPv6 protocols and their implementations;

- a place for early experimentation with routing and operational procedures;

- a place to evolve practices useful for production IPv6 prefix allocation;

- a place to provide bootstrap qualification for production IPv6 address prefix allocation;

- a place to develop IPv6 applications;

- a place for early users to try using IPv6 in their hosts and networks.

As clearly stated in [TEST-NEW], the addresses for the 6bone are temporary and will be reclaimed in the future. It further states that all users of these addresses (within the 3FFE::/16 prefix) will be required to renumber at some time in the future.

Since 1999 planning for, and allocation of, IPv6 production address prefixes by the Regional Internet Registry (RIR) community has been underway. During 2002 more production IPv6 address prefixes had been allocated than are allocated by the 6bone at the top level. It is generally assumed that this is one reasonable indicator that planning for a 6bone phaseout should begin.

It is generally assumed that there is still some remaining need for the 6bone, at least for current usage that will take time to evaluate and possibly move to production IPv6 networks when possible.

It is generally viewed that the 6bone is an IETF activity as it was established by IETF participants to assist the IETF in developing IPv6 protocols, and also to assist in the IPv6 transition. To this

end, the [TEST-NEW] RFC specified that the 6bone testing was to be under the auspices of the IETF IPng Transition (ngtrans) Working Group 6bone testbed activity. However, during 2002 the ngtrans working group was terminated and replaced to a certain degree by the v6ops working group, which did not include oversight of the 6bone in its charter. Therefore it is assumed that it is appropriate to use the IETF Informational RFC process to determine a 6bone phaseout plan, as well as an appropriate way to get community feedback on the specifics of the 6bone phaseout.

This plan for a 6bone phaseout specifies a multi-year phaseout timeline to allow sufficient time for continuing operation of the 6bone, followed by a sufficient time for 6bone participants to convert to production IPv6 address prefixes allocated by the relevant Regional Internet Registry (RIR), National Internet Registry, or Local Internet Registries (ISPs).

It is anticipated that under this phaseout plan the 6bone will cease to operate by June 6, 2006, with all 6bone prefixes fully reclaimed by the IANA.

This document obsoletes RFC 2471, "IPv6 Testing Address Allocation", December, 1998. RFC 2471 will become historic.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

2. 6bone Phaseout Plan

To provide for the continuing useful operation of the 6bone, to the extent that IETF consensus judges it to be useful, 6bone top level address prefixes known as pseudo TLA's (pTLAs) MAY continue to be allocated until January 1, 2004.

Thus after the pTLA allocation cutoff date January 1, 2004, it is REQUIRED that no new 6bone 3FFE pTLAs be allocated.

To provide for sufficient planning time for 6bone participants to convert to production IPv6 address prefixes, all 6bone prefixes allocated by the cutoff time specified above, except for allocations withdrawn as a matter of 6bone operating procedures, SHALL remain valid until June 6, 2006.

Thus after the 6bone phaseout date June 6, 2006, it is the intent that no 6bone 3FFE prefixes, of any size/length, be used on the Internet in any form. Network operators may filter 3FFE prefixes on their borders to ensure these prefixes are not misused.

It should be noted that this RFC does not intend to imply that a 6bone prefix holder, whether at the pTLA top level or lower, should seek a production IPv6 address prefix at any specific level. It may be entirely reasonable for a 6bone prefix holder to seek a higher level, or a lower level, IPv6 prefix as their specific needs dictate.

3. References

3.1. Normative References

[ARCH] Hinden, R. and S. Deering, "Internet Protocol Version 6 (IPv6) Addressing Architecture", RFC 3513, April 2003.

[AGGR] Hinden, R., Deering, S. and M. O'Dell, "An Aggregatable Global Unicast Address Format", RFC 2374, July 1998.

[RFC2119] Bradner, S., "Keywords for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[TEST-NEW] Hinden, R., Fink, R. and J. Postel, "IPv6 Testing Address Allocation", RFC 2471, December 1998.

[TEST-OLD] Hinden, R. and J. Postel, "IPv6 Testing Address Allocation", RFC 1897, January 1996

3.2. Informative References

[GUIDE] Rockell, R. and R. Fink, "6Bone Backbone Routing Guidelines", RFC 2772, February 2000.

[PRACTICE] Durand, A. and B. Buclin, "6bone Routing Practice", RFC 2546, March 1999.

5. Security Considerations

This document defines a phaseout plan for the usage of the IPv6 Testing Address Allocation [TEST-NEW], which uses addresses consistent with [AGGR]. It does not have any direct impact on Internet infrastructure security.

6. IANA Considerations

This document defines a phaseout plan for the usage of the IPv6 Testing Address Allocation [TEST-NEW]. The IANA MUST reclaim the 3FFE::/16 prefix upon the date specified in section 2.0.

When the 6bone Testing Address Allocation is reclaimed by the IANA, it is expected that many network operators will filter it on their borders to ensure these prefixes are not misused.

There is experience from the IPv4 world that such filters may not be removed promptly should this address space be reallocated, and it is recommended that the IANA bears this in mind before reallocating it in a manner that would require it to be routed globally within the current Internet.

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Acknowledgement

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