                6bone (IPv6 Testing Address Allocation) Phaseout

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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.

7. Authors' Addresses

Robert L. Fink

EMail: bob@thefinks.com

Robert M. Hinden
Nokia
313 Fairchild Drive
Mountain View, CA 94043
US

Phone: +1 650 625-2004
EMail: bob.hinden@nokia.com

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