Network Working Group
Internet-Draft
Expires: December 31, 2001

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July 2, 2001

IPv6 Address Space Reserved for Documentation
draft-blanchet-ngtrans-exampleaddr-01

Status of this Memo

Copyright Notice

Abstract

To reduce the likelihood of conflict and confusion, an IPv6 prefix is reserved for use in examples in RFCs, books, documentation, and the like. Since site local addresses have special meaning in IPv6, these cannot be used in many example situations and are confusing. Instead, an IPv6 prefix 3ffe:ffff::/32 is reserved in the range of the test address space.

1. Rationale

IPv6 introduces many types of addresses in its addressing architecture [1], like scoped addresses (link-local, site-local) and global addresses. It also introduces mechanisms for renumbering

[2][5]. Since IPv6 has many new ways to use addresses, this means an increase use of examples and scenarios for documenting the use of addresses.

RFCs, vendor documentation, books and the like use examples with addresses. Authors always have an issue of using: already allocated addresses, not currently allocated addresses or private (site-local in IPv6) addresses in their examples. Using the configuration examples in a real environment can cause a problem. If the example uses site-local as global address example, then the actual mechanism for handling scoped addresses with site-local scoping can not be done. If allocated addresses are used, then this obviously can make address spoofing inadvertly if the environment is connected to the internet. Same could happen for a non-currently allocated address space that becomes allocated.

Similar, but different, discussion also applies to top level domain names and some have been reserved for similar purposes [4].

2. Non Use

This reserved address space MUST NOT be used for private networks or test networks. Use instead site-local [1].

3. Multicast

Multicast addresses can also be reserved for documentation using this document reserved address space together with the Unicast prefix-based proposal [6] for multicast addresses.

4. Assignment

The prefix 3ffe:ffff::/32, out of the test address space [3] currently used on the 6bone, is reserved for the purpose of this draft. The 6bone and the Internet MUST never use that prefix.

A /32 was chosen as a compromise. Multiple site prefixes and multihoming could not be demonstrated with a prefix greater than /47. A /24, which could be used for multiple TLA in exchange examples, was seen as too much space consumed for documentation. The compromise was /32. 3ffe:ffff::/32 was chosen as the last /32 in the current reserved test space[3].

5. IANA Considerations

IANA reserves 3ffe:ffff::/32 address space out of the test address space so that no one will ever receive this allocation, even if the 3ffe::/16 test address space is reallocated.

6. Security Considerations

This document encourages the use of test addresses in documentation so that less issues will arise from people that could instead use address space already allocated or to be allocated in the future. These could cause ip address spoofing. This proposal minimize such possible conflicts.

7. Acknowledgements

In alphabetical order, Alain Durand, Robert Elz, Bob Fink and Dave Thaler contributed to the discussion and improvements of this draft.

References

[1] Hinden, R. and S. Deering, "IP Version 6 Addressing Architecture", RFC 2373, July 1998.

[2] Thomson, S. and T. Narten, "IPv6 Stateless Address Autoconfiguration", RFC 2462, December 1998.

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

[4] Eastlake, D. and A. Panitz, "Reserved Top Level DNS Names", BCP 32, RFC 2606, June 1999.

[5] Crawford, M., "Router Renumbering for IPv6", RFC 2894, August 2000.

[6] Haberman, B. and D. Thaler, "Unicast-Prefix-based IPv6 Multicast Addresses", Internet-draft, Work in progress draft-ietf-ipngwg-uni-based-mcast-01.txt, January 2001.

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Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.