

Network Working Group
Request for Comments: 2770
Category: Experimental

D. Meyer
Cisco Systems
P. Lothberg
Sprint
February 2000

GLOP Addressing in 233/8

Status of this Memo

This memo defines an Experimental Protocol for the Internet community. It does not specify an Internet standard of any kind. Discussion and suggestions for improvement are requested. Distribution of this memo is unlimited.

Copyright Notice

Copyright (C) The Internet Society (2000). All Rights Reserved.

Abstract

This describes an experimental policy for use of the class D address space using 233/8 as the experimental statically assigned subset of the class D address space. This new experimental allocation is in addition to those described on [IANA] (e.g. [RFC2365]).

This memo is a product of the Multicast Deployment Working Group (MBONED) in the Operations and Management Area of the Internet Engineering Task Force. Submit comments to <mboned@ns.uoregon.edu> or the authors.

1. Problem Statement

Multicast addresses have traditionally been allocated by a dynamic mechanism such as SDR [SAP]. However, many current multicast deployment models are not amenable to dynamic allocation. For example, many content aggregators require group addresses which are fixed on a time scale which is not amenable to allocation by a mechanism such as described in [SAP]. Perhaps more seriously, since there isn't general consensus by providers, content aggregators, or application writers as to the allocation mechanism, the Internet is left without a coherent multicast address allocation scheme.

The MALLOC working group is looking at a specific strategy for global multicast address allocation [MADCAP, MASC]. This experiment will proceed in parallel. MADCAP may be employed within AS's, if so desired.

This document proposes an experimental method of statically allocating multicast addresses with global scope. This experiment will last for a period of one year, but may be extended as described in section 6.

2. Address Space

For purposes of the experiment described here, the IANA has allocated 233/8. The remaining 24 bits will be administered in a manner similar to that described in RFC 1797:

```

0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|           233           |           16 bits AS           | local bits |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

2.1. Example

Consider, for example, AS 5662. Written in binary, left padded with 0s, we get 0001011000011110. Mapping the high order octet to the second octet of the address, and the low order octet to the third octet, we get 233.22.30/24.

3. Allocation

As mentioned above, the allocation proposed here follows the RFC 1797 (case 1) allocation scheme, modified as follows: the high order octet has the value 233, and the next 16 bits are a previously assigned Autonomous System number (AS), as registered by a network registry and listed in the RWhois database system. This allows a single /24 per AS.

As was the case with RFC 1797, using the AS number in this way allows the experiment to get underway quickly in that it automatically allocates some addresses to each service provider and does not require a registration step.

3.1. Private AS Space

The address space mapped to the private AS space [RFC1930] is reserved for future allocation.

4. Transition from GLOP to Other Address Allocation Schemes

It may not be necessary to transition from the address allocation scheme described here to a more dynamic approach (see, e.g., [MASC]). The reasoning here is that the statically assigned addresses taken from 233/8 may be sufficient for those applications which must have static addressing, and any other addressing can come from either a dynamic mechanism such as [MASC], the administratively scoped address space [RFC2365], or the Single-source address space [SS].

5. Security Considerations

The approach described here may have the effect of reduced exposure to denial of space attacks based on dynamic allocation. Further, since dynamic assignment does not cross domain boundaries, well known intra-domain security techniques can be applied.

6. IANA Considerations

IANA has allocated 233/8 for experimental assignments. This assignment should timeout one year after the assignment is made. The assignment may be renewed at that time. It should be noted that the experiment described here is in the same spirit the experiment described in [RFC1797].

7. Acknowledgments

This idea originated with Peter Lothberg's idea that we use the same allocation (AS based) as described in RFC 1797 in the class D address space. Randy Bush and Mark Handley contributed many insightful comments.

8. References

- [RFC2730] Hanna, S., Patel, B. and M. Shah, "Multicast Address Dynamic Client Allocation Protocol (MADCAP)", RFC 2730, December 1999.
- [MASC] D. Estrin, et al., "The Multicast Address-Set Claim (MASC) Protocol", Work in Progress.
- [MSDP] D. Farinacci et al., "Multicast Source Discovery Protocol (MSDP)", Work in Progress.
- [IANA] www.isi.edu/in-notes/iana/assignments/multicast-addresses

- [RFC1797] IANA, "Class A Subnet Experiment", RFC 1797, April 1995.
- [RFC1930] Hawkinson, J. and T. Bates, "Guidelines for creation, selection, and registration of an Autonomous System (AS)", RFC 1930, March 1996.
- [RFC2365] Meyer, D., "Administratively Scoped IP Multicast", RFC 2365, July 1998.
- [RFC2374] Hinden, R., O'Dell, M. and S. Deering, "An IPv6 Aggregatable Global Unicast Address Format", RFC 2374, July 1998.
- [SAP] Handley, M., "SAP: Session Announcement Protocol", Work in Progress.
- [SS] www.isi.edu/in-notes/iana/assignments/single-source-multicast

9. Authors' Addresses

David Meyer
Cisco Systems, Inc.
170 W. Tasman Drive
San Jose, CA 95134-1706
United States

EMail: dmm@cisco.com

Peter Lothberg
Sprint
VARESA0104
12502 Sunrise Valley Drive
Reston VA, 20196

EMail: roll@sprint.net

10. Full Copyright Statement

Copyright (C) The Internet Society (2000). All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet Standards process must be followed, or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Acknowledgement

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

