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GLOP Addressing in 233/8

1. Status of this Memo

2. 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.

3. Copyright Notice

4. 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 8.

5. Address Space

For purposes of the experiment described here, the IANA should allocate 233/8. The remaining 24 bits will be administered in a manner similar to that described in RFC1797:

```
 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   |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```


5.1. 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.

6. Allocation

As mentioned above, the allocation proposed here follows the RFC1797 (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 RFC1797, 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.

6.1. Private AS Space

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

7. Using GLOP Addressing in the Single Source Address Space

232/8 has been assigned for use by single source applications [SS]. The AS-based assignment scheme described here can also be used in this space. Note that a site using GLOP assignments in 232/8 should take care when advertising those sources over an inter-domain source advertisement protocol such as MSDP [MSDP]. In particular, the decision to advertise these sources via MSDP can result in visibility via traditional means (e.g., via a shared tree).

8. 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].

9. 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.

10. IANA Considerations

IANA should allocate 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].

11. 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.

12. References

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[IANA] www.isi.edu/in-notes/iana/assignments/multicast-addresses

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