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GLOP Addressing in 233/8

Status of this Memo

This document specifies an Internet Best Current Practices for the Internet Community, and requests discussion and suggestions for improvements. Distribution of this memo is unlimited.

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Abstract

This document defines the policy for the use of 233/8 for statically assigned multicast addresses.

1. Introduction

It is envisioned that the primary use of this space will be many-to-many applications. This allocation is in addition to those described on [IANA] (e.g., [RFC2365]). The IANA has allocated 223/8 as per RFC 2770 [RFC2770]. This document obsoletes RFC 2770.

2. Problem Statement

Multicast addresses have traditionally been allocated by a dynamic mechanism such as SDR [RFC2974]. However, many current multicast deployment models are not amenable to dynamic allocation. For example, many content aggregators require group addresses that are fixed on a time scale that is not amenable to allocation by a mechanism such as described in [RFC2974]. Perhaps more seriously, since there is not 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 has created a specific strategy for global multicast address allocation [RFC2730, RFC2909]. However, this approach has not been widely implemented or deployed. This document proposes a solution for a subset of the problem, namely, those cases not covered by Source Specific Multicast.

3. Address Space

The IANA has allocated 223/8 as per RFC 2770 [RFC2770]. RFC 2770 describes the administration of the middle two octets of 233/8 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   |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

3.1. 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.

4. 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 automatic assignment of a single /24 to each service provider and does not require an additional registration step.

4.1. Private AS Space

The part of 233/8 that is mapped to the private AS space [RFC1930] is assigned to the IRRs [RFC3138].

5. Large AS Numbers

It is important to note that this approach will work only for two octet AS numbers. In particular, it does not work for any AS number extension scheme.

6. Security Considerations

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

7. IANA Considerations

The IANA has assigned 233/8 for this purpose.

8. Acknowledgments

This proposal originated with Peter Lothberg's idea that we use the same allocation (AS based) as described in RFC 1797. Randy Bush and Mark Handley contributed many insightful comments, and Pete and Natalie Whiting contributed greatly to the readability of this document.

9. References

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11. Full Copyright Statement

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