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D. Rao
P. Mohapatra
Cisco Systems
J. Haas
Arbor Networks
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**Generic Subtype for BGP Four-octet AS specific extended community
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Abstract

Maintaining the current best practices with communities, ISPs and enterprises that are assigned a 4-octet AS number may want the BGP UPDATE messages they receive from their customers or peers to include a 4-octet AS specific extended community. This document defines a new sub-type within the four-octet AS specific extended community to facilitate this practice.

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1. Introduction

Maintaining the current best practices with communities, ISPs and enterprises that are assigned a 4-octet AS number may want the BGP UPDATE messages they receive from their customers or peers to include a 4-octet AS specific extended community. This document defines a new sub-type within the four-octet AS specific extended community to facilitate this practice.

For example, [[RFC1998](#)] describes an application of BGP community attribute ([[RFC1997](#)]) to implement flexible routing policies for sites multi-homed to one or multiple providers. In a two-octet AS environment, the advertised routes are usually associated with a community attribute that encodes the provider's AS number in the first two octets of the community and a LOCAL_PREF value in the second two octets of the community. The community attribute signals the provider edge routers connected to the site to set the corresponding LOCAL_PREF on their advertisements to the IBGP mesh. In this way, customers can put into practice topologies like active-backup.

When such a provider is assigned a four-octet AS number, the existing mechanism of using communities is not sufficient since the AS portion of the [RFC 1997](#) community cannot exceed two bytes. The natural alternative is to extend the same mechanism using extended communities since it allows for encoding eight bytes of information.

[I-D.ietf-l3vpn-as4octet-ext-community] defines a format for a four-octet AS specific extended community with a designated type field. That document defines two sub-types: Four-octet specific Route Target extended community and Four-octet specific Route Origin extended community. This document specifies a generic sub-type for the four-octet AS specific extended community to provide benefits such as the one cited above as the Internet migrates to four-octet AS space.

1.1. Requirements Language

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 [RFC 2119](#) [[RFC2119](#)].

2. Generic Sub-type Definition

Similarly, a 2-octet AS number may have two valid representations as either a standard community or a 4-octet extended community with the upper two octets of the AS number set to zero. For backward compatibility with existing deployments, and to avoid inconsistencies between standard communities and 4-octet extended communities, two-octet ASes SHOULD use standard 2-octet communities as defined in [RFC 1997](#) rather than the 4-octet AS specific community as defined in this document.

4. Acknowledgments

The authors would like to thank Paul Jakma, Bruno Decraene and Cayle Spandon for their useful comments on the document.

5. IANA Considerations

This document defines a specific application of the four-octet AS specific extended community. IANA is requested to assign a sub-type value of 0x04 for the generic four-octet AS specific extended community.

This document makes the following assignments for the generic four-octet AS specific extended community:

Name	Value
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transitive generic four-octet AS specific	0x0204
non-transitive generic four-octet AS specific	0x4204

6. Security Considerations

There are no additional security risks introduced by this design.

7. Normative References

- [I-D.ietf-l3vpn-as4octet-ext-community]
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Authors' Addresses

Dhananjaya Rao
Cisco Systems
170 W. Tasman Drive
San Jose, CA 95134
USA

Email: dhrao@cisco.com

Pradosh Mohapatra
Cisco Systems
170 W. Tasman Drive
San Jose, CA 95134
USA

Email: pmohapat@cisco.com

Jeffrey Haas
Arbor Networks
2727 S. State St.
Ann Arbor, MI 48104
USA

Email: jhaas@arbor.net

