                    Flowspec Indirection-id Redirect for SRv6
                draft-ietf0-idr-srv6-flowspec-path-redirect-04

Abstract

   This document defines extensions to "FlowSpec Redirect to
   indirection-id Extended Community" for SRv6. This extended community
   can trigger advanced redirection capabilities to flowspec clients for
   SRv6. When activated, this flowspec extended community is used by a
   flowspec client to retrieve the corresponding next-hop and encoding
   information within a localised indirection-id mapping table.

   The functionality detailed in this document allows a network
   controller to decouple the BGP flowspec redirection instruction from
   the operation of the available paths.

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 [2].

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1. Introduction

"FlowSpec Redirect to indirection-id Extended Community" for IPv4 is defined in ietf-idr-flowspec-path-redirect [1]. This draft specifies extensions to this community for SRv6.

2. Redirect to indirection-id Community

This document defines a new sub-type value for SRv6 in "FlowSpec Redirect to indirection-id Extended Community". The format of this extended community with the new sub-type value is show below:

```
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| Type         |Sub-Type (TBD) | Flags(1 octet)|    ID-Type    |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|          Generalized indirection_id (16 octets)              |
~                                                              ~
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Where

Type: 1 octet, defined in ietf-idr-flowspec-path-redirect [1].

Sub-Type: 1 octet, its value (TBD) will be assigned by IANA.

Flags: Same as that defined in ietf-idr-flowspec-path-redirect [1].

ID-Type: 1 octet value. This draft defines following Context Types:

   0 - Localised ID (The flowspec client uses the received
   indirection-id to lookup forwarding information within the
   localised indirection-id table. The allocation and programming of
   the localised indirection-id table is outside scope of the
   document)

   1 - Node ID with SID/index in MPLS-based Segment Routing (This
   means the indirection-id is mapped to an MPLS label using the
   index as a global offset in the SID/label space)

   2 - Node ID with SID/label in MPLS-based Segment Routing (This
   means the indirection-id is mapped to an MPLS label using the
   indirection-id as global label)

   3 - Binding Segment ID with SID/index in MPLS-based Segment
   Routing (This means the indirection-id is mapped to an MPLS
   binding label using the indirection-id as index for global offset
   in the SID/label space).

   4 - Binding Segment ID with SID/label in MPLS-based Segment
   Routing (This means indirection-id is mapped to an MPLS binding
   label using the indirection-id as global label).

   5 - Tunnel ID (Tunnel ID is within a single administrative domain
   a globally unique tunnel identifier. The allocation and
   programming of the Tunnel ID within the localised indirection-id
   table is outside scope of the document)

6 - Node ID with SID/index in SRv6 (This means the indirection-id is mapped to an SRv6 SID using the indirection-id as global SRv6 SID or index)

7 - Binding Segment ID with SID/index in SRv6 (This means the indirection-id is mapped to an SRv6 binding SID using the indirection-id as index for global offset in the SID space).

8 - Binding Segment ID with SID/index in SRv6 (This means indirection-id is mapped to an SRv6 binding SID using the indirection-id as global SRv6 SID).

Generalized indirection_id: 128-bit identifier used as indirection_id

3. Security Considerations

A system using "Redirect to indirection-id" extended community can cause during the redirect mitigation of a DDoS attack overflow of traffic received by the mitigation infrastructure.

4. Acknowledgements

This document received valuable comments and input from IDR working group including Adam Simpson, Mustapha Aissaoui, Jan Mertens, Robert Raszuk, Jeff Haas, Susan Hares and Lucy Yong.

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6. IANA Considerations

   This document requests a new sub-type value under "FlowSpec Redirect
   to indirection-id Extended Community Sub-Type" registery.

Value	Code	Reference
0x01	Flowspec Redirect to 128-bit Path-id for SRv6	[RFC-To-Be]

7. References

7.1. Normative References

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7.2. Informative References

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