

draft-mfine-l3vpn-mvpn-cfg-00

Discoverable MVPN Configuration
with BGP Auto-Discovery

Background

- MVPN is a protocol framework, fitting together different...
 - Auto-Discovery mechanisms (PIM, BGP,...)
 - Data traffic transport methods (PIM, RSVP, LDP, ...)
 - Multicast route exchange mechanisms (PIM, BGP, ...)
 - Selective tunnel binding mechanisms (UDP-based, BGP, ...)
 - Inter-AS models (Non-segmented, Segmented, ...)
 - Inter-site shared trees support
- These various different mechanisms, models, and levels of support are not interoperable, yet are not always discoverable.

Relevant Quote

"There are several different methods for doing THIS. As these methods are not interoperable, the method to be used for a particular MVPN must either be configured, or discovered as part of the auto-discovery process."

Section 3.4 of draft-ietf-l3vpn-2547bis-mcast-08

- THIS is referring to PE-PE Transmission of C-Multicast Routing, but is also applicable to other MVPN configuration parameters.

Purpose

- There does not exist a mechanism for discovering most MVPN configuration parameters as part of the auto-discovery process.
- This draft provides a framework for discovering MVPN configuration parameters as part of the BGP Auto-Discovery process.

Solution

- This draft specifies configuration bitfields in BGP extended communities carried by auto-discovery routes.
- MVPN configuration parameters covered by this draft include:
 - Inter-Site Shared C-Trees Support
 - Section 13 of draft-ietf-l3vpn-2547bis-mcast-bgp-07
 - Section 14 of draft-ietf-l3vpn-2547bis-mcast-bgp-07
 - S-PMSI Bindings Exchange Mode
 - Section 7.4.2 of draft-ietf-l3vpn-2547bis-mcast-08
 - Section 12 of draft-ietf-l3vpn-2547bis-mcast-bgp-07
 - C-Multicast Routes Exchange Mode
 - Section 3.4.1.2 of draft-ietf-l3vpn-2547bis-mcast-08
 - Section 11 of draft-ietf-l3vpn-2547bis-mcast-bgp-07

Intra-AS Configuration

- Intra-AS Configuration Extended Community carried by Intra-AS I-PMSI A-D routes:

```
0                   1                   2                   3
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
                              +--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
                              |I| S | C |
                              +--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
```

I - Inter-Site Shared C-Trees Support
S - S-PMSI Bindings Exchange Mode
C - C-Multicast Routes Exchange Mode

- This is an IP address specific extended community.

Inter-AS Configuration

- Inter-AS Configuration Extended Community carried by Inter-AS I-PMSI A-D routes:

```

0                1                2                3
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
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|I| S |                                                         |
+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+

```

I - Inter-Site Shared C-Trees Support
 S - S-PMSI Bindings Exchange Mode

- This is an AS specific extended community.

Misconfiguration

- Discovering MVPN configuration parameters provides a framework for handling configuration conflicts.
- No specific behavior for handling configuration conflicts is specified in the current draft.
- Discovered configuration conflicts SHOULD be logged and MAY stop further processing of affected BGP Auto-Discovery routes.

Open Issues

- Use BGP attributes instead of size-constrained BGP extended communities?
- Use configuration TLVs instead of static configuration bitfields? (e.g., like in RFC 5561 "LDP Capabilities")
- How to handle PE's that do not advertise MVPN auto-discovery routes?