IS-IS Support for Unidirectional Links

draft-ietf-isis-udl-01.txt

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V1 Changes

Only covering changes since WG V0 - more details at: http://tools.ietf.org/html?draft=draft-ginsberg-isis-udl-00.txt

Additional UDL sub-TLVs:
  - Protocols Supported
  - IP Address
  - IPv6 Interface Address
  - IPv6 Global Address
  - MT

Clarify BFD and GR Support

88th IETF, Vancouver, November 2013
Goals

Modest Protocol Extensions
No IP Encapsulation
No Static Configuration of neighbor Information
Allow UDL on the Return Path
Reliable Adjacency Maintenance
Reliable LSP Updates
Minimum Additional Network Wide Protocol Traffic
Support for Pt-Pt and LAN subnetworks
Basic Mechanisms

Sending Hellos
IS-T sends hellos as normal
IS-R sends hello information in “UDL-LSPs”

Adjacency Maintenance
IS-T relies on existence of return path rooted at IS-R to IS-T
IS-R maintains as normal

Update Process
IS-T operates as DIS on LAN (even on Pt-Pt links)
IS-R operates as non-DIS on LAN (even on Pt-Pt links)
IS-R may use UDL-LSPs to send PSNP equivalent
Special rules for UDL-LSPs

88th IETF, Vancouver, November 2013
## Protocols Supported sub-TLV

### Sub-TLV Format

<table>
<thead>
<tr>
<th># octets</th>
<th>#</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+---------------------------+</td>
<td>1</td>
<td>Type (129)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(To be assigned by IANA)</td>
</tr>
<tr>
<td></td>
<td>+---------------------------+</td>
<td>Number of NLPIDs</td>
</tr>
<tr>
<td></td>
<td>: NLPIDs</td>
<td>1 octet/NLPID</td>
</tr>
</tbody>
</table>

Specifies the set of Network Layer Protocol Identifiers that the originationing system is capable of forwarding (RFC 1195)
# IP Address sub-TLV

## Sub-TLV Format

| # octets |   |
|---------------------------+-------|
| Type (132)                | 1     |
| (To be assigned by IANA)  |       |
| Length                    | 4 * # of addresses |
| : IP Address(es)          | 4 octets/address |

Specifies the set of IP Addresses configured on the interface (RFC 1195)
IPv6 Interface Address sub-TLV

Sub-TLV Format

<table>
<thead>
<tr>
<th># octets</th>
</tr>
</thead>
<tbody>
<tr>
<td>+---------------------------------------------+</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>+---------------------------------------------+</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>+---------------------------------------------+</td>
</tr>
<tr>
<td>: IPv6 Address(es) :</td>
</tr>
<tr>
<td>+---------------------------------------------+</td>
</tr>
</tbody>
</table>

Specifies the set of IPv6 Addresses configured on the interface (RFC 5308). Link local addresses.
Sub-TLV Format

<table>
<thead>
<tr>
<th>Type (233)</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(To be assigned by IANA)</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>16 * # of addresses</td>
</tr>
<tr>
<td>IPv6 Address(es)</td>
<td>16 octets/address</td>
</tr>
</tbody>
</table>

Specifies the set of global IPv6 Addresses configured on the interface (RFC 6119). Addresses are global or unique local.
Multi-Topology sub-TLV

Sub-TLV Format

| Type (229)          | 1
| (To be assigned by IANA) |
|---------------------+---------------------------+
| Length              | 2 * # of MTIDs
|---------------------+---------------------------+
| MTID(s)             | 2 octets/MTID

Specifies the set of topology identifiers supported as per (RFC 5120).
BFD Support w UDL in return path

Multihop BFD Required

When using RFC6213 BFD must come up before IS-IS adjacency comes up.

If UDL link on the return path then circular dependency if both T-R and B-T try to come up at the same time.

RFC 6213 NOT supported on UDL links

86th IETF, Orlando, March 2013
Graceful Restart Support (RFC 5306)

IS-R Restarting
As hello information is sent in LSPs by IS-R this would require IS-R to generate new versions of UDL-LSPs prior to LSPDB sync

IS-T Restarting
IS-R is required to send CSNPs to IS-T. This is not supported and would many UDL-LSPs to be flooded in support of GR.

No Support for RFC 5306 on UDL Links
QUESTIONS?