LDP extensions for Explicit Pseudowire to transport LSP mapping

draft-cao-pwe3-mpls-tp-pw-over-bidir-lsp-02.txt

Mach Chen (mach.chen@huawei.com)

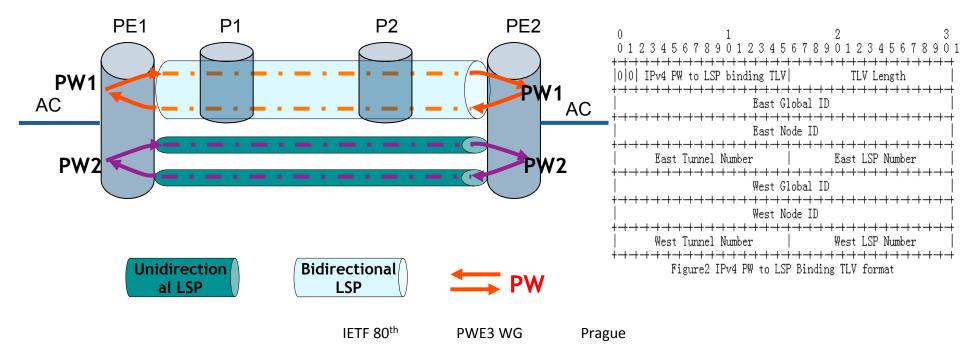Wei Cao (wayne.caowei@huawei.com)

Attila Takacs (Attila.Takacs@ericsson.com)

Problem statement

- Currently,
    - A PW uses two unidirectional LDP/RSVP-TE LSPs as PSN Tunnel,
    - Each PE of the PW selects and binds to PSN Tunnel independently, there is no control plane support

- Transport services (e.g., MPLS-TP)normally require co-routed bidirectional paths, but
    - Current mechanisms can not guarantee this, especially when:
        - there are multiple LSPs with different paths and/or QoS levels between the two Pes.
    - Manual configuration is an alternative method, but
        - prone to configuration errors
        - difficult to maintain a large number of PWs

- Explicit control of PW to PSN tunnel binding is required
    - Stated in Section 5.3.2 of MPLS-TP control plane framework

Solution

- Extensions to PW signaling protocol
  - Two new optional TLVs: IPv4/v6 PW to LSP Binding TLV
  - Carried in LDP messages for communicating tunnel LSP selection when setup PW
- To make both ends bind to the same bidirectional LSP or two unidirectional LSPs with congruent paths


```
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|0|0| IPv4 PW to LSP binding TLV|          TLV Length          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                        East Global ID                        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                         East Node ID                         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     East Tunnel Number      |       East LSP Number          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                        West Global ID                        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                         West Node ID                         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     West Tunnel Number      |       West LSP Number          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
        Figure2 IPv4 PW to LSP Binding TLV format
```

Unidirectional LSP

Bidirectional LSP

PW

Updates from 01-->02

- Editorial changes

- Align the LSP identifier description with the newest MPLS-TP identifier draft

  – "Source/Destination…" to "East/West…"

Next steps

- Refine the draft according to received comments.

- WG document?

Thanks!