LDP extensions for Explicit Pseudowire to transport LSP mapping

draft-cao-pwe3-mpls-tp-pw-over-bidir-lsp-05.txt

Mach Chen (mach.chen@huawei.com)
Wei Cao (wayne.caowei@huawei.com)
Attila Takacs (Attila.Takacs@ericsson.com)
Ping Pan (ppan@infinera.com)
It’s desirable to aggregate user circuits into the same “pipes”

- Easy to manage (e.g. protection)
- Predictable service qualities (e.g. delay)
- Can deliver over multiple transport domains
Problems

- Essentially, this is a PW-LSP binding problem
  - PW’s (fwd + reverse) → bi-dir co-routed LSP’s
  - Be able to support MS PW’s (a.k.a. FEC129)
- Issues today:
  - PEs select and bind PW’s to uni-directional LSP’s locally
  → Difficult to manage for bi-directional LSP binding (especially, over multiple segments)
Solution Overview (Single-Hop) (Strict Mode)

Setup Forward PW using PSN1; Make sure Reverse PW using PSN 1

OK

or, NO!

Don't want to use PSN1
Solution Overview (Single-Hop) (Congruent Mode)

Setup Forward PW using PSN1; Make sure Reverse PW using a PSN with the same route as PSN1
Hmm… OK, how about PSN2?
Solution Overview (Multi-Segment) (Strict Mode)

1. Setup Fwd PW1 using PSN1; Reverse PW1 needs to be PSN1

2. Setup Fwd PW2 using PSN3; Reverse PW2 needs to be PSN3

3. OK

4. OK

Setup Fwd PW1 using PSN1; Reverse PW1 needs to be PSN1

Setup Fwd PW2 using PSN3; Reverse PW2 needs to be PSN3
Protocol Extension

- PSN Tunnel Binding TLV (optional)

```
+---------------------------------------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+---------------------------------------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+---------------------------------------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+---------------------------------------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+---------------------------------------------+
```

- IPv4 PSN Tunnel sub-TLV format

```
+---------------------------------------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+---------------------------------------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+---------------------------------------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
+---------------------------------------------+
| 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 |
```

IETF 83\textsuperscript{th} PWE3 WG Paris
Changes since last version

• Rewrite the Abstract and Introduction sections to make the motivation and requirement clearer

• Some editorial changes
Key Comments from the list

- Suggest re-work procedures to withdraw such an advertised binding
- Need more explanation on the usage of FEC 128 (for SS-PW) and FEC 129 (for SS-PW and MS-PW)
Next steps

• Resolve the received comments and re-submit new version after this meeting

• Like to request for WG document?