Application-aware Targeted LDP

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Central Idea

- Initiating and responding LSR are made aware of targeted LDP application that needs a tLDP session

Benefits
- Establishment of automatic tLDP session based on negotiated targeted LDP applications
- Establishment of limited number of tLDP sessions for certain automatic applications
- Targeted application mapped to LDP FEC elements to advertise only necessary FEC label bindings over the session
Protocol changes

- Advertise and negotiate targeted applications capability (TAC) during tLDP session initialization.

- The TAC TLVs capability data consists of one or more targeted application element (TAE) each pertaining to unique targeted application.

- On the receipt of a valid TAC TLV, an LSR must generate its own TAC TLV with TAEs.

- If there is at least one TAE common between the TAC TLV it has received and its own, the tLDP session proceed to establishment as per RFC 5036. If not, a LSR sends a ‘Session Rejected/Targeted Application Capability Mis-Match’ message to the peer and close the session.
# New since last update

## Targeted application FEC advertisement procedures

<table>
<thead>
<tr>
<th>Targeted Application</th>
<th>Description</th>
<th>FEC type mappings</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDPv4 Remote LFA</td>
<td>LDPv4 over LDPv4 or other MPLS tunnel</td>
<td>IPv4 prefix</td>
</tr>
<tr>
<td>LDPv6 Remote LFA</td>
<td>LDPv6 over LDPv6 or other MPLS tunnel</td>
<td>IPv6 prefix</td>
</tr>
<tr>
<td>LDP FEC 129 PW</td>
<td>LDP FEC 129 Pseudowire</td>
<td>Generalized Pwid FEC Element</td>
</tr>
<tr>
<td>mLDP Node Protection</td>
<td>mLDP nodeprotection</td>
<td>P2MP, MP2MP-up MP2MP-down HSMPdownstream HSMP-upstream</td>
</tr>
<tr>
<td>mLDP Tunneling</td>
<td>etc</td>
<td>PWid FEC Element ..</td>
</tr>
<tr>
<td>LDP FEC 128 PW</td>
<td>LDP FEC 128P pseudowire</td>
<td>..</td>
</tr>
</tbody>
</table>

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New since last update

- Interaction of targeted application capabilities and state advertisement control capabilities
  - **TAC**
    - Facilitates the awareness of targeted applications to both the peers
    - The set of applications negotiated by the TAC mechanism is symmetric between the two LDP peers
  - **SAC**
    - Responding LSR is not aware of targeted applications
    - Creates asymmetric advertisement of state information between the two peers.
- Thus the TAC mechanism enables two LDP peers to symmetrically advertise state information for negotiated targeted applications while SAC mechanism enables both of them to asymmetrically disable receipt of state information for some of the already negotiated applications
Use cases

• Remote LFA

• FEC 129

• LDP over RSVP tunneling

• mLDP node protection
Next steps

• Summary
  • Latest version addresses all the comments that we have received so far
    – Of course, more comments are always welcome
  • Draft addresses real deployment use-cases

• The authors believe that the draft is ready for WGLC