mLDP Extensions for Multi-Topology Routing

draft-wijnands-mpls-mldp-multi-topology-00

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Background/History

• This draft was first submitted in 2011
draft-iwijnand-mpls-mldp-multi-topology-00

• Interest was lost and the draft died.

• New interest has been generated for supporting multiple IGP algorithms (sub-topologies)

• Draft as been re-named to:
draft-wijnands-mpls-mldp-multi-topology-00
Multi-Topphony Routing (MTR)

• In order to support MTR a new address families have been created for LDP (RFC 7307) (v4 and v6)

• This AF has created space to insert the 16 bit MT-ID and 16 bit Reserved.

<table>
<thead>
<tr>
<th>IPv4 Address</th>
<th>Reserved</th>
<th>MT-ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>012345678901</td>
<td>012345678901</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1: MT IP Address Family Format

<table>
<thead>
<tr>
<th>IPv6 Address</th>
<th>Reserved</th>
<th>MT-ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>012345678901</td>
<td>012345678901</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2: MT IPv6 Address Family Format
Multi-Topology Routing (MTR)

• This draft extends mLDP to use the same LDP AF’s to support MTR.

• Applies to the following mLDP elements:
  MP FEC Element
  Typed Wildcard MP FEC Elements

• Introduces a new Capability called “MT Multipoint Capability”
(Flex) IGP Algorithms

• There is new work being done in IETF to support sub-topologies using (flexible) algorithms.
  draft-hegdeppsenak-isis-sr-flex-algo-02
draft-ppsenak-ospf-sr-flex-algo-00

• A more light weight mechanism to define constraint-based topologies.

• Useful for creating live-live (red/blue) redundant topologies.
(Flex) IGP Algorithms

• In order to support IGP Algorithms in mLDP we augment the MT LDP AF.

• We use 8 bits of the Reserved Field to encode the IANA IGP Algorithm registry, we call this field IPA.
mLDP FEC’s

• Each combination of MT-ID and IPA creates a unique MLDP FEC.

• Each mLDP router can lookup the “Root” address in the topology identified by MT-ID and the specific sub-topology (algorithm) identified by the IPA.
Questions?