GMPLS Routing and Signaling Framework for Flexible Ethernet (FlexE)
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Authors
Iftekhar Hussain (ihussain@infinera.com), Radha Valiveti (rvaliveti@infinera.com), Qilei Wang (wang.qilei@zte.com.cn), Loa Andersson (loa@pi.nu), Mach Chen (mach.chen@huawei.com), Haomian Zheng (zhenghaomian@huawei.com)

Contributors
Khuzema Pithewan (kpithewan@infinera.com), Fatai Zhang (zhangfatai@huawei.com), Jie Dong (jie.dong@huawei.com), Zongpeng Du (duzongpeng@huawei.com), Xian Zhang (zhang.xian@huawei.com), James Huang (james.huang@huawei.com), Qiwen Zhong (zhongqiwen@huawei.com), Yongqing Zhu (zhuyq@gsta.com), Huanan Chen (chenhuanan@gsta.com)
What has happened since Singapore

• Version -05 posted
  • Add a new Section 5.5 Open Issues
    • Note: This section is intended to be removed and the results of the discussion are supposed to be brought into the relevant sections of this document.
    • The intention is to trigger a discussion.
    • It is about the relationship of RSVP-TE Session and the network layer information
  • Some minor editorial changes
  • Remains to be done
    • Final clean up of requirements
    • Sort out if there is anything that needs to go into other documents
Reminder: GMPLS Control Plane may be used to

- Set up a FlexE Group or FlexE Client
  - By using a Communication channel available in FlexE overhead.

- Advertise FlexE Groups and FlexE Clients into the Routing System

- Set up of an MPLS LSP, when a FlexE infrastructure is required for this MPLS LSP.

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Figure 3: GMPLS controlled network with FlexE infrastructure
Multi-layer control plane options

- While working on the FlexE Control Plane, questions around the relationship of entities as "control plane / multi-layer control plane", RSVP-TE session and the information relating to a layer network.
- The table below summarizes the possibilities we see.

<table>
<thead>
<tr>
<th>Control Plane</th>
<th>Session</th>
<th>Network layer info</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLCP-1</td>
<td>One session</td>
<td>Info for all network layers</td>
</tr>
<tr>
<td>MLCP-2</td>
<td>Session for each network layer</td>
<td>Each session have info for one network layer</td>
</tr>
<tr>
<td>MLCP-12</td>
<td>More than one session</td>
<td>info for each network layer included in the session</td>
</tr>
<tr>
<td>MLCP-3</td>
<td>One session</td>
<td>info for a single network layer</td>
</tr>
</tbody>
</table>

Figure 3: GMPLS controlled network with FlexE infrastructure
Multi Layer Control Plane Typ-1 (MLCP-1)

- A multi layer control plane type 1 (MLCP-1) has one single control plane that controls all layer networks that two nodes interact over.

- The control plane sets up one single RSVP-TE session and all layer networks are controlled over that single session.

- For each layer network there is a set of information that the control plane manages over that session.

Figure 3: GMPLS controlled network with FlexE infrastructure
Multi Layer Control Plane Typ-2 (MLCP-2)

- A multi layer control plane type 2 (MLCP-2) has one single control plane that controls all layer networks that two nodes interact over.

- The control plane sets up one RSVP-TE session for each layer network and the layer networks are controlled over a dedicated session.

- For each layer network there is a set of information that the control plane manages over the dedicated session.

Figure 3: GMPLS controlled network with FlexE infrastructure
Multi Layer Control Plane Typ-12 (MLCP-12)

• A multi layer control plane type 12 (MLCP-12) is a mix between MLCP-1 and MLCP-2, the control plane still controls all layer networks that two nodes interact over.

• However, for some layer networks it sets up an RSVP-TE session that may control more than one layer network.
  • For other layer networks, an RSVP-TE session is used to control a single layer network.

• For each layer network, there is a set of information that the control plane manages over dedicated sessions.

Figure 3: GMPLS controlled network with FlexE infrastructure
Multi Layer Control Plane Typ-3 (MLCP-3)

- A multi layer control plane type 3 (MLCP-3) may be viewed as a set of confederated control planes, where each control plane controls one layer network, via an RSVP-TE session.

- For each layer network there is a set of information that the control plane manages over the dedicated session.

- For the case that there are more than one layer network between two nodes that needs to controlled, there is one dedicated control plane for each layer network.

Figure 3: GMPLS controlled network with FlexE infrastructure
Next steps

• WG review
• Solicit more review and comments
• Adopt as WG document?
Thanks!