ICCP Application TLVs for VPN Route Label Sharing

Mingui Zhang, Peng Zhou
Huawei
A brief Intro to the application: VPN route label sharing

- Ingress PEs: PE1, PE2
- Egress PEs: PE3, PE4, they share the label 1100 for VRFs that CE2 is associated with.
- vNH: the virtual BGP Next Hop
- Primary tunnel: PE1->P1->PE3-vNH
- When PE3 fails, backup tunnel P1->P2->PE4->vNH can be used.
What to sync?

• Egress PEs in the same Redundant Group utilize the ICCP connection to negotiate the "VPN route label" and the "BGP next hop" for each VPN.
Label sharing connect & disconnect

- The connection for the application is set-up/destroyed using these TLVs.
Label sharing Application Data TLVs

- There are three TLVs to be included in the Application Data TLVs
## Sharing the label

The "VPN Label TLV" is utilized to deliver the VPN route label to be shared among the egress PEs.

The VPN Label announced by the PE with the highest priority will be used by all PEs in the RG.

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>Type=0x0102 (TBD)</td>
</tr>
<tr>
<td></td>
<td>Length</td>
</tr>
<tr>
<td>4-6</td>
<td>Priority</td>
</tr>
<tr>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>7-9</td>
<td>VPN Label</td>
</tr>
<tr>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td></td>
<td>Lower Label</td>
</tr>
<tr>
<td></td>
<td>Upper Label</td>
</tr>
</tbody>
</table>

ICCP Application TLVs for VPN Route Label Sharing
Share the label for routes from VPN1

PEs in an RG use the same VPN route label for the routes of one VPN.
Sharing the vNH IP address

- The IP Address for the vNH is also shared by the egress PEs.
- The PE with the highest priority determines the IP address to be used.
- All egress PEs use this IP address as the BGP next hop when they propagate VPN routes.
One vNH for a set of CEs

- Egress PEs in an RG create a vNH for the set of CEs connected to them.
Next steps

• Get direction from the WG.
• Comments are welcome.
Thanks!