IGP-TE Extensions for DetNet Information Distribution

don

draft-geng-detnet-info-distribution-02

Xuesong Geng (gengxuesong@huawei.com)
Mach Chen (mach.chen@huawei.com)
Zhenqiang Li (lizhengqiang@chinamobile.com)
DetNet Topology Attribute

- Node Type
  - Edge Node/Relay Node/Transit Node
- Replication Capability
- Elimination Capability
- Queuing Management Algorithm
  - Type
  - Basic Parameters
- Resource Reservation Base
  - Max FanIn Ports
  - Max Packet Size
- Bandwidth Metric
  - DetNet Unreserved Bandwidth
  - Maximum DetNet Reservable Bandwidth
- Delay Metric
  - Link Delay (defined in RFC7471 and RFC 7810)
  - Maximum Packet Processing Delay
  - Minimum Packet Processing Delay
  - Maximum Output Queuing Delay
  - Minimum Output Queuing Delay
OSPF Extension for DetNet

• Define sub-TLVs to Link TLV:
  • Congestion Control Method sub-TLV
  • Max DetNet Reservable Bandwidth sub-TLV
  • Available DetNet Bandwidth sub-TLV
  • Min/Max Queuing Delay sub-TLV
Congestion Control Mechanism sub-TLV

- This Congestion Protection (CP) Method sub-TLV is used to advertise the DetNet flow congestion protection methods used in transit nodes.

<table>
<thead>
<tr>
<th>Value</th>
<th>Congestion Control Mechanisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Reserved</td>
</tr>
<tr>
<td>1</td>
<td>Time Aware Shaper</td>
</tr>
<tr>
<td>2</td>
<td>Credit Based Shaper</td>
</tr>
<tr>
<td>3</td>
<td>Time Aware Shaper and Credit Based Shaper</td>
</tr>
<tr>
<td>4</td>
<td>Cyclic Queuing and Forwarding</td>
</tr>
<tr>
<td>5</td>
<td>Asynchronous Traffic Shaping</td>
</tr>
<tr>
<td>6-254</td>
<td>Unassigned</td>
</tr>
<tr>
<td>255</td>
<td>Reserved</td>
</tr>
</tbody>
</table>
Max DetNet Reservable Bandwidth sub-TLV

• This sub-TLV specifies the maximum amount of bandwidth that is reserved for DetNet on this link. Note that this value SHOULD be smaller than the value of Maximum Reservable Bandwidth sub-TLV [RFC3630].
Available DetNet Bandwidth sub-TLV

- This sub-TLV specifies the available bandwidth that can be reserved for DetNet flow on this link.
Min/Max Queuing Delay sub-TLV

- This sub-TLV advertises the minimum and maximum queuing delay values of specific DetNet flow in the link.

```
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
| (Type) TBD4               | (Length) 8               |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
| RESERVED            | Minimum DetNet Queuing Delay |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
| RESERVED            | Maximum DetNet Queuing Delay |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
```
Next Steps

• Align with the topology data model

• Solicit more comments from the WG

• Improve the document based on received comments and feedbacks

• Given that this work is not in the current charter, how to process this document?
Thanks