Adaptive Stateless TE Multicast

draft-chen-pim-adaptive-te-02

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Overview

Thank people below for their comments

• Jeffrey Zhang
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Updates to previous versions

• Added Simplified Adaptive TE Multicast
• Made Comparisons
**Simplified Adaptive TE Multicast**

- Encoding each tree portion by a more efficient method from **two** methods.

**Full version of Adaptive TE Multicast:**

- Encoding each tree portion by a most efficient method among **multiple** methods.
  - ✓ Overhead is minimal (e.g., 23 (bytes) vs 33, 35, 38)

**Network with P2MP tree from PE1 to PE2 – PE19**

- P2MP path/tree is big, sporadic
  - At P1, scattered a big range of links: 4, 5, 108 - 119
  - At P4, a few links at one end: 54-57
- Encoding tree by one method not most efficient
Encoding tree (each portion):
link PE1 to P1 by link number in 3 bytes (byte 23 - 21)
links from P1 are split into groups G1 and G2 using SB links (in 4 bytes: 20 - 17)
  G1 by link numbers (in 4 bytes: 16 - 13), G2 by flexible bitstring (in 4 bytes: 12 - 9)
links from P2 to PE2 - PE3 by link number (in 2 bytes: 8 - 7)
link P3 to P4 by link number (in 3 bytes: 6 - 4).
links from P4 to PE4 - PE7 by flexible bitstring (in 3 bytes: 3 - 1)

Encoding Tree (Each Portion of Tree by link number or flexible bitstring)
Comparisons

Simplified vs Single Encoding
✓ Simplified is much more efficient
✓ Single Encoding is a little bit simpler.

<table>
<thead>
<tr>
<th></th>
<th>Simplified</th>
<th>Half Flex Bitstring</th>
<th>Flexible Bitstring</th>
<th>Link Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encoded Tree Size</td>
<td>23</td>
<td>35</td>
<td>33</td>
<td>38</td>
</tr>
<tr>
<td>More% ((size – 23)/23)</td>
<td>0</td>
<td>52%</td>
<td>43%</td>
<td>65%</td>
</tr>
</tbody>
</table>

Overall, Simplified is better than Single Encoding

Simplified vs Full version of Adaptive TE Multicast
✓ Simplified is simpler
✓ Full version is more extensible
✓ Encoding tree by Full version is optimal
✓ Encoding tree by Simplified is very close to optimal

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