draft-venaas-pim-pfm-sd-subtlv

PIM Flooding Mechanism and Source Discovery Sub-TLV

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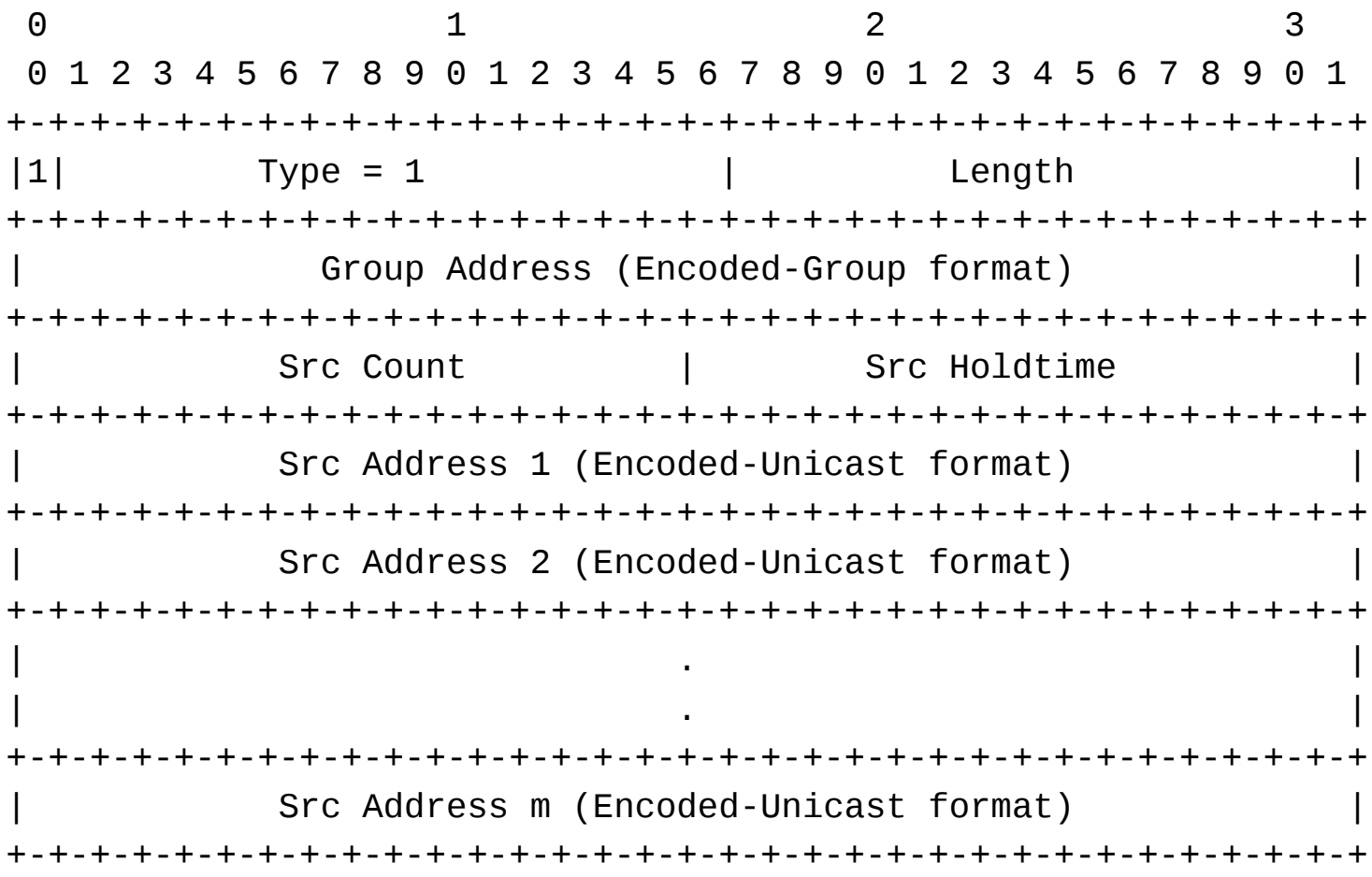
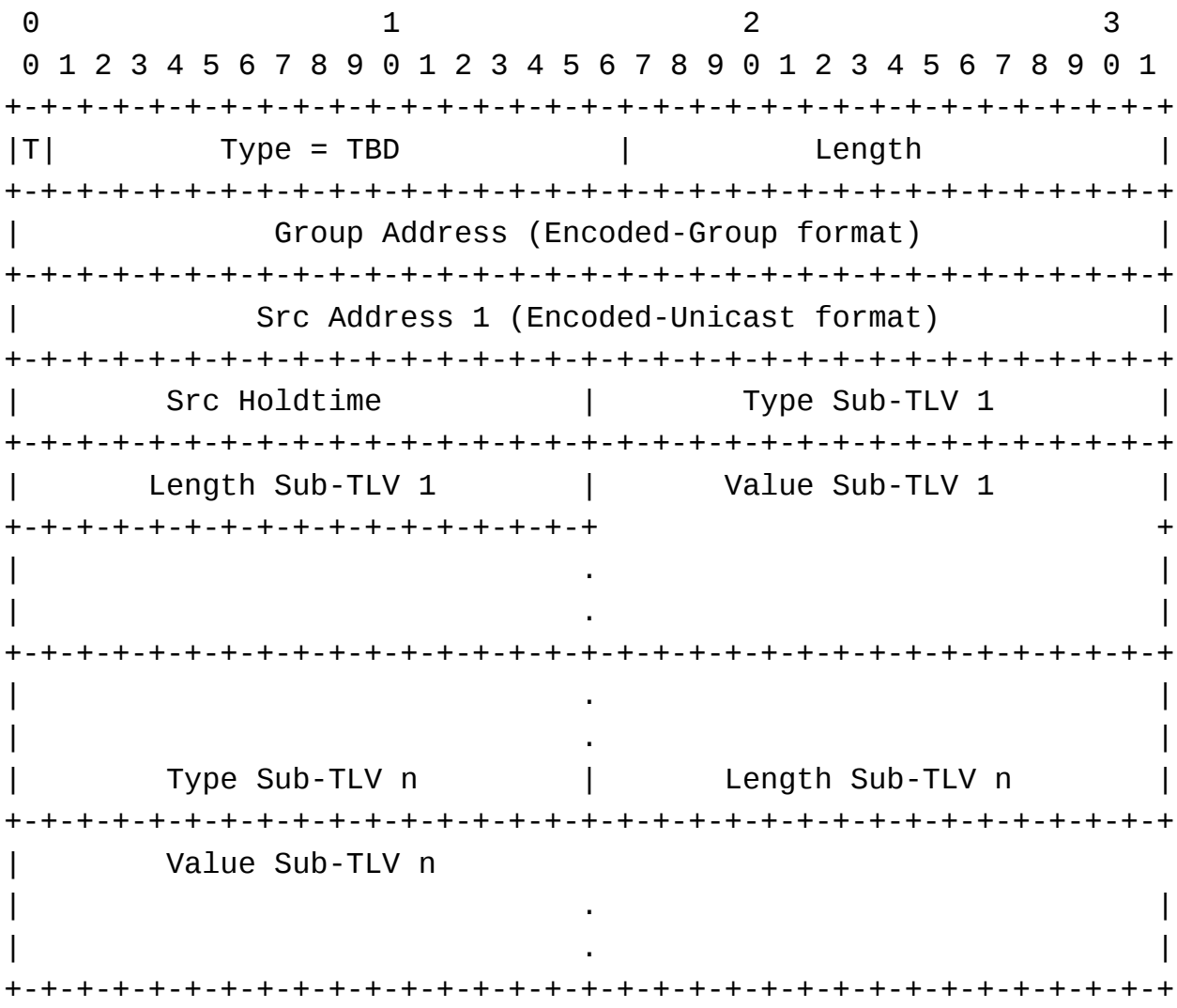
Announcing additional flow info

- PFM-SD RFC 8364 has a single TLV defined for announcing source address, group address and holdtime.
- May be useful to announce additional info about a flow.
  - Data rate may be one example
  - May allow router to only join if sufficient bandwidth is available.
  - In case of ECMP, may allow router to prefer link with sufficient bandwidth.
- No easy way of doing this using the existing TLV. If we add a new TLV for data rate, how do we associate the rate with the corresponding source, group, holdtime TLV?

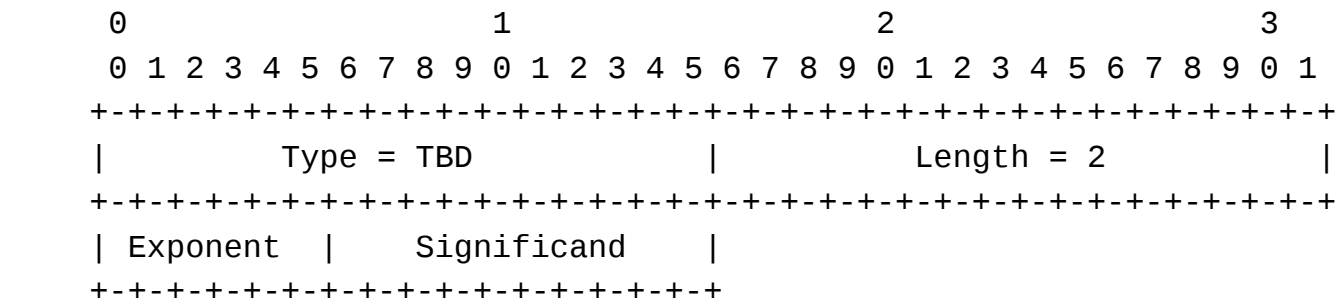
RFC 8364 source, group holdtime TLV



New source, group holdtime TLV with sub-TLVs



Proposed flow rate sub-TLV



The data rate of a flow is specified using the Exponent and Significand fields. The rate is Significand * 10 ^ Exponent kbps. This allows specifying the rate with up to 3 decimal digits precision and speeds from 1 kbps to 10 ^ 67 kbps. A computed speed of 0 kbps means the rate is less than 1 kbps.

Here are some examples of how this is used:

Link Speed	Exponent	Significand
500 kbps	0	500
500 kbps	2	5
155 Mbps	3	155
40 Gpbs	6	40
100 Gpbs	6	100
100 Gpbs	8	1