

# IGP Flexible Algorithm with Link Loss

[draft-wang-lsr-flex-algo-link-loss](#)

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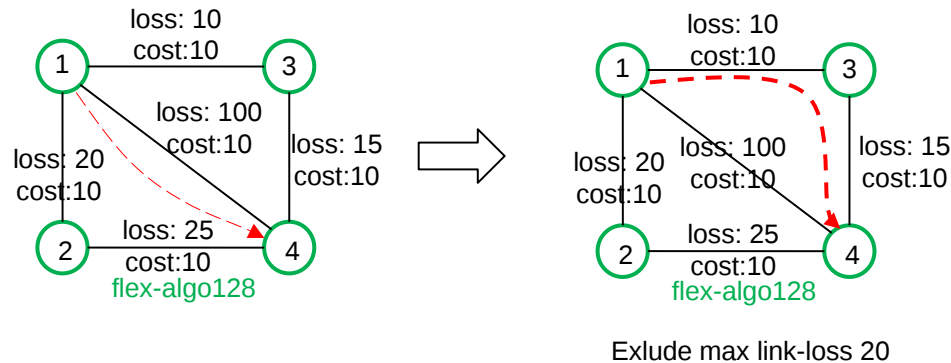
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# Motivation & Problem Statement

- The link loss is an important performance metric that directly impacts the quality of service. It is necessary to avoid passing through links with a high packet loss rate during forwarding.
- The link loss is advertised by the Unidirectional Link Loss Sub-TLV defined in [RFC8570] for IS-IS and [RFC7471] for OSPF, which describes the loss (as a packet percentage) between two directly connected neighbors.
- The flexible algorithm currently cannot support support path computation based on link loss, since link loss cannot be described as general addable metrics like IGP cost.
- New FAD constraints can be defined to exclude links that do not meet the link loss requirements during path calculation.

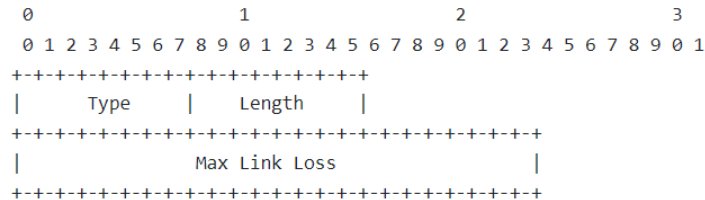
# Path Computation Based on Link Loss

- The link loss is used as a link constraint for path computation. That is, the links whose loss rate exceeds the specified value are excluded.
- Metric-type remains unchanged: IGP, TE, and delay.
- Goal: Pruning links with a high packet loss rate during path computation.



# The Exclude Maximum Link Loss Sub-TLV

- The Exclude Maximum Link Loss (FAEML) Sub-TLV is proposed to specify the upper limit of the link loss. It is defined as a sub-TLV of the FAD TLV.
- The maximum link loss advertised in FAEML Sub-TLV MUST be compared with the link loss advertised in the Unidirectional Link Loss Sub-TLV. If the actual link loss is larger, the link MUST be excluded from the Flex-Algorithm topology.



Type: 252(TBA)

Length: 3 octets

Max Link Loss: This 24-bit field carries link packet loss as a percentage of the total traffic sent over a configurable interval. The basic unit is 0.000003%, where  $(2^{24} - 2)$  is 50.331642%. This value is the highest packet-loss percentage that can be expressed. Therefore, measured values that are larger than the field maximum SHOULD be encoded as the maximum value.

IS-IS/OSPF FAEML Sub-Tlv

# Further Plan

- Common operators or constraints to support different kinds of metric in Flex-Algorithm path computation.
- Willing to get comments from mailing list

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