

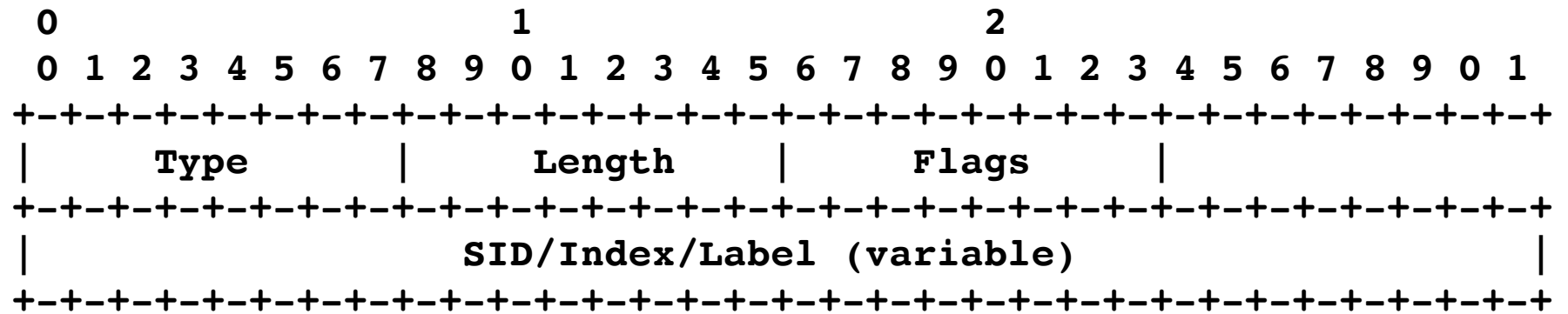
Area Proxy

draft-li-lsr-isis-area-proxy

Changes since IETF 106

- Added SR support specifics
- Proposing a new SID: Area Segment SID
 - Distributed by Area Leader
 - Accepted by Inside Edge Routers (anycast)
- Advertised in Proxy LSP

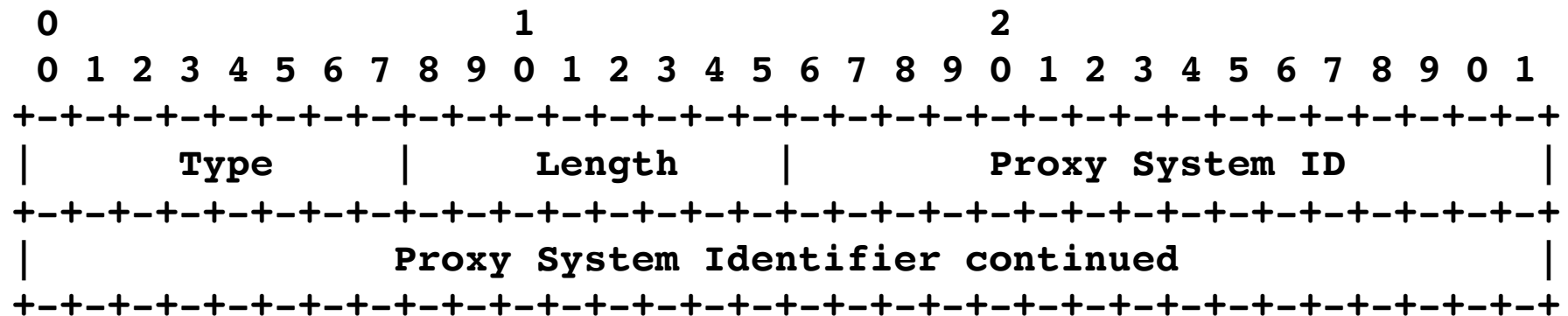
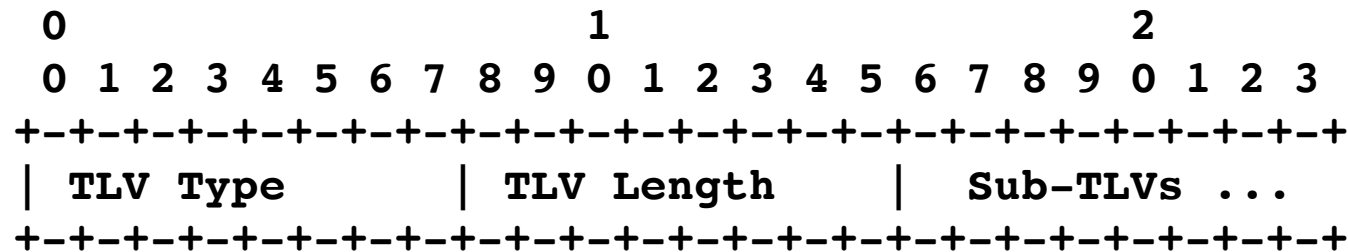
Area Segment SID TLV



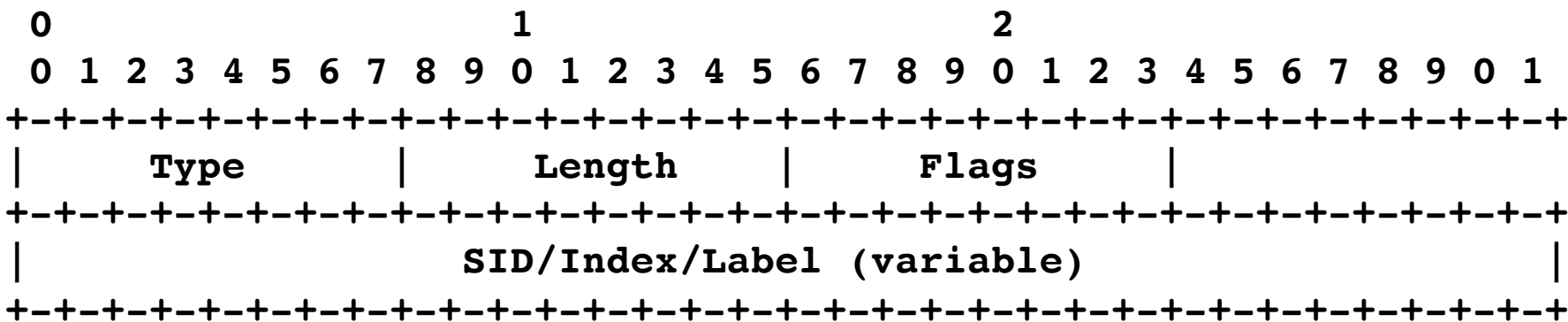
Changed TLVs

- Changed Area Proxy TLV to have subTLVs:
 - Area Proxy System ID subTLV
 - Area Segment SID subTLV

Area Proxy TLV & Area Proxy System ID subTLV

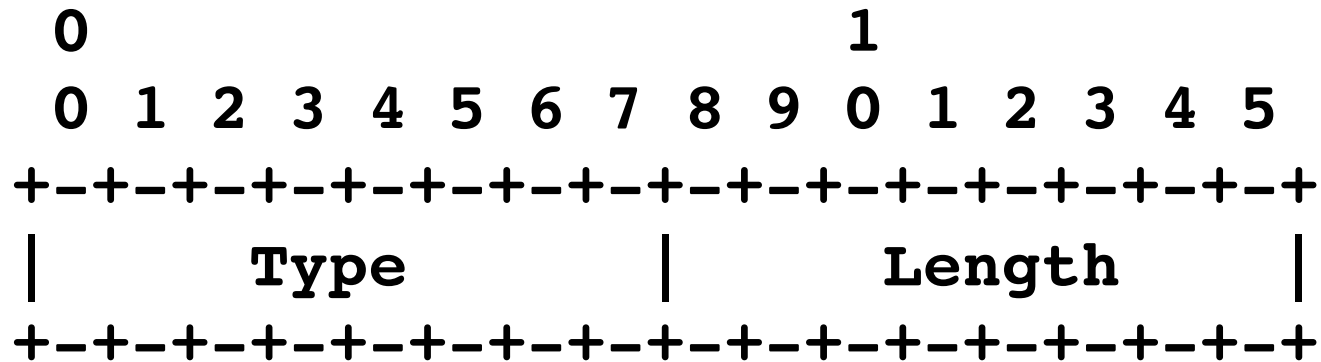


Area Segment SID subTLV



Inside Node TLV

- Used by Inside Nodes and Pseudonodes to indicate that they are inside.



More changes

- Fleshed out specifics for Proxy LSP contents — Enumerated obvious relevant TLVs and their handling
 - TLVs: Protocols Supported, Area Address, Dynamic Hostname, IS Neighbors, Extended IS Neighbors, MT Intermediate Systems, Reachability (6), Router Capability, Multi-Topology, SID/Label Binding, MT SID/Label Binding, Area Segment SID
- Implementation in progress, basics all working
- Still seeking WG adoption

Hierarchical IS-IS

draft-ietf-lsr-isis-extended-hierarchy

Changes since IETF 106

- Replaced Area Identifier TLV with Area Hierarchy TLV
- Publish entire hierarchy to protect against misconfiguration. Added an Appendix discussing the issue.

```
      8 7 6 5 4 3 2 1
+--+--+--+--+--+--+
|   TLV Type   |
+--+--+--+--+--+--+
| TLV Length   |
+--+--+--+--+--+--+
| Supp-Levels  |
+--+--+--+--+--+--+
```

- Supp-Levels: Bit mask of supported levels

Changes continued...

```

1                                     0
6 5 4 3 2 1 0 9 8 7 6 5 4 3 2 1
+-+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|          Level          | # of LSAIs          |
+-+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+
|Level Specific Area Id(s)          |
...
+-+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+--+

```

- Level Specific Area ID: 16 bits
- Clarification of Adjacency formation rules

Preventing Cross Branching

Rtr A	Rtr B	Rtr C
L3 Area 30	L3 Area 30	L3 Area 30
L4 Area 40		L4 Area 44

Neither Router A nor Router C can tell by inspecting hellos that not all routers in Level 3 area 30 have been configured to support the same Level 4 area. Cross Branching may be introduced after an area has been up and running for a long time.

Solution: Have all routers advertise full hierarchy.

Rtr A	Rtr B	Rtr C
L3 Area 30	L3 Area 30	L3 Area 30
L4 Area 40	L4 Area 40	L4 Area 44
L5 Area 50	L5 Area 50	L5 Area 50
...

Now Rtr B/Rtr C can detect mismatch at L4 when forming L3 adjacency.

Preventing Cross Branching(2)

- Routers MUST advertise at least one LSAI for all levels (2-8) even if they do not support all the levels.
- Advertise “dummy” LSAI (e.g., “0”) for levels not yet supported by any router in the network
- Adding a level can be achieved by configuring second LSAI on all routers in that branch – followed by removing the dummy LSAI

Legacy Routers

- No Area Hierarchy TLV will be advertised by legacy routers
- This could cause mismatched hierarchies at Level 1 or Level 2
- These can be detected/reported by inspecting Area Hierarchy TLVs in the level specific LSPs