

ISIS extensions for SRv6

draft-bashandy-isis-srv6-extensions-02

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Key SRv6 Documents

draft-filsfils-spring-srv6-network-programming

draft-ietf-6man-segment-routing-header

OSPFv3 Equivalent

draft-li-ospf-ospfv3-srv6-extensions-01

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Changes since V1

Alignment with latest Network Programming Draft/function registry and terminology

Support for OAM (O-bit in SRH and End.OTP function) added

Convert Function Descriptor from sub-TLV to direct encoding in the appropriate TLV/sub-TLVs (multiple functions/SID is not required)

Some TLV/sub-TLVs renamed for clarity

New Advertisements

SRv6 Capabilities (sub-TLV of Router Capabilities)

SRv6 Node SIDs (new top level TLV)

Endpoint functions types associated w SRv6 Node SIDs

SRv6 SIDs Associated w a Neighbor (sub-TLVs of IS-Neighbor)



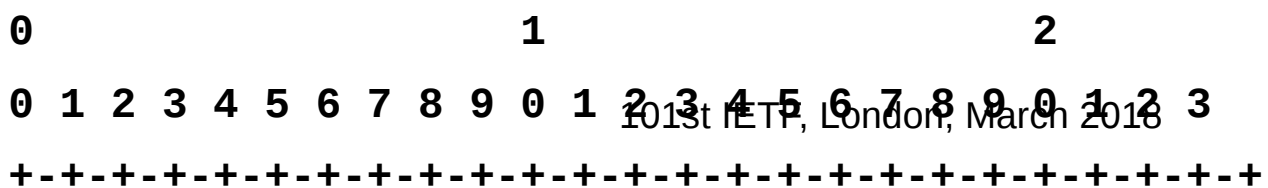
Flags



E-flag: Indicates router is able to apply "T.Encap" function

0-flag: Indicates the router supports use of the 0-bit in SRH (OAM)

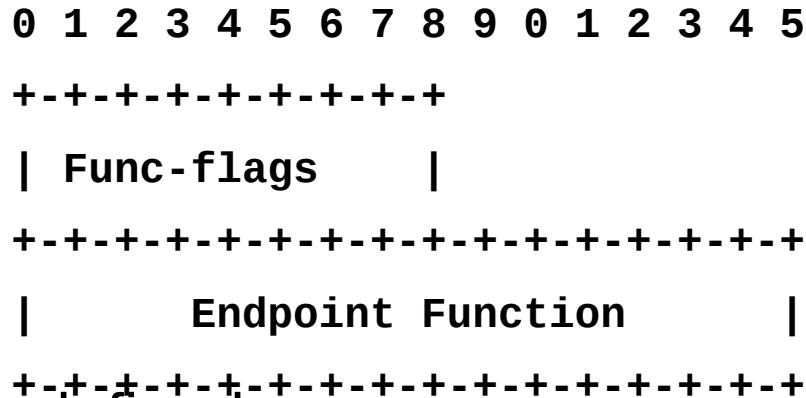
sub-sub-TLVs:



SRv6 Capabilities Sub-sub-TLVs

- Max-SL: Maximum Received **SL** in the **SRH**
- Max-End-Pop-SRH: Maximum number of SIDs when applying **PSP** or **USP** flavors (0 => not supported)
- Max-T-Ins-SRH: Maximum number of SIDs when applying **T.insert** (0 => *not supported*)
- Max-T-Encap-SRH: Maximum number of SIDs when applying **T.Encap** (Valid when E-flag is set)
- Max-End-D-SRH: Maximum number of SIDs when applying **End.DX6** or **End.DT6**

SRv6 Endpoint Function Descriptor



No func-flags defined

Endpoint Functions:

End (no PSP, no USP)

End with PSP

End with USP

End with PSP&USP

End.X (no PSP, no USP)

End.X with PSP

End.X with USP

End.X with PSP&USP

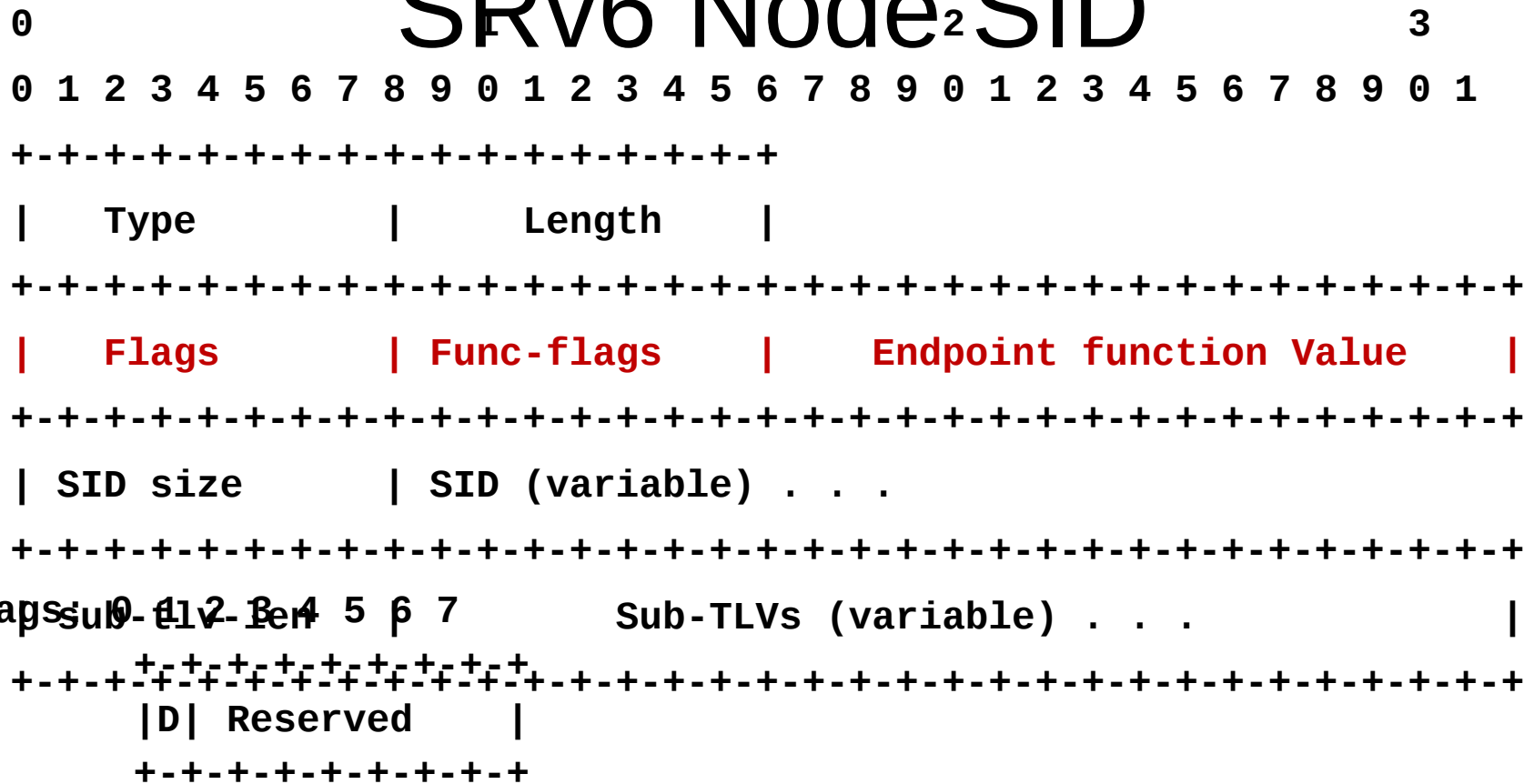
End.DX6 Function 101st IETF, London, March 2018

End.DT6 Function

SRv6 Node SID TLV

- Top Level TLV
 - Non-SRv6 capable nodes ignore this TLV
 - Not a prefix to be installed in RIB/FIB
 - Minimum impact on existing routing functionality
- Advertises SRv6 Node SIDs and the associated attributes
- Used for SIDs not related to neighbors
- Does **NOT** result in **routing** action on its own
- Shares sub-TLV space with prefix reachability TLV (135/235/236/237)
- Can be leaked between levels
- Advertised SRv6 SID **need not** be covered by IPv6 prefix reachability (TLV 236 and 237)
 - E.g. may be reachable via static route

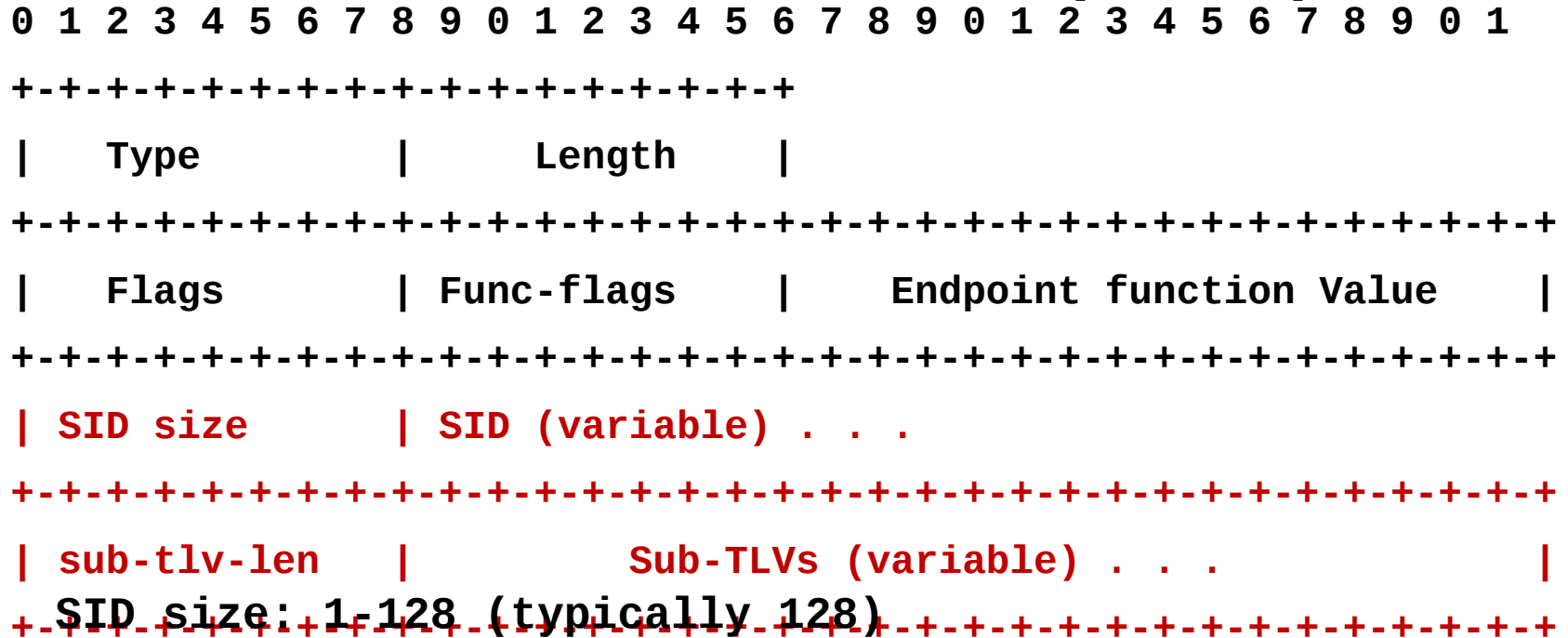
SRv6 Node SID



D bit: When the SID is leaked from level-2 to level-1, the D bit MUST be set.

Function variants: End, End.OTP

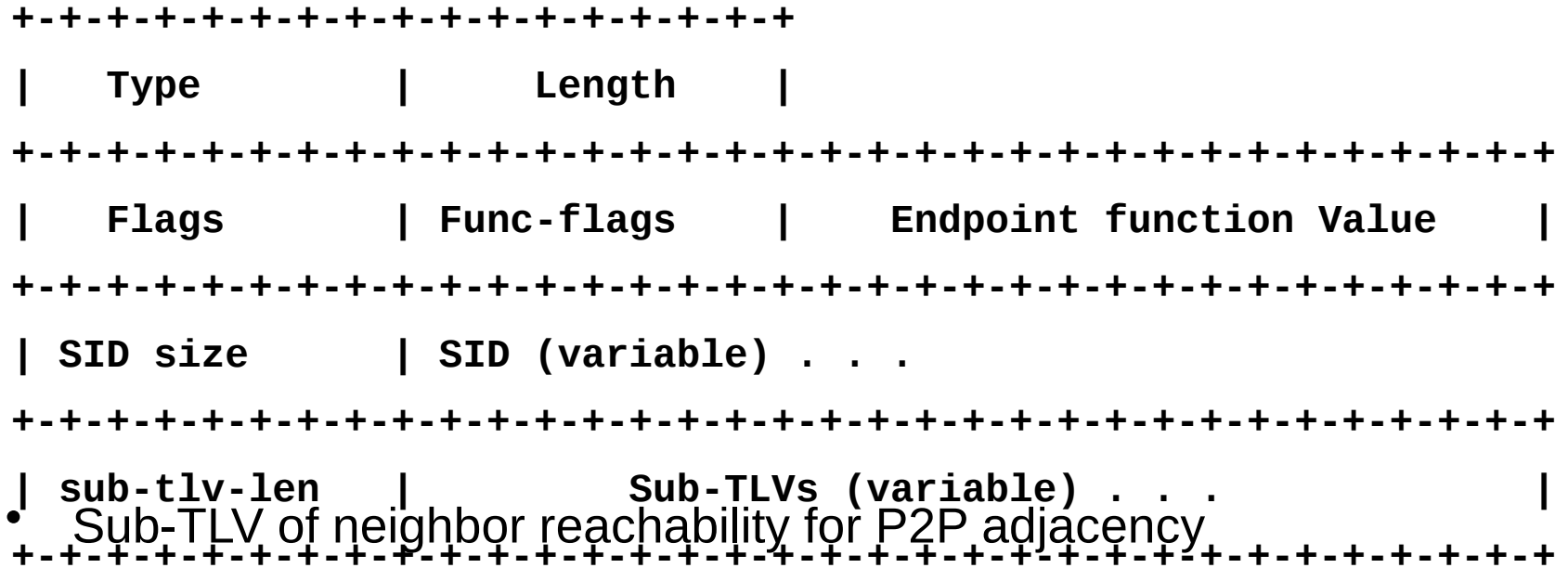
SRv6 Node SID₂ (cont)



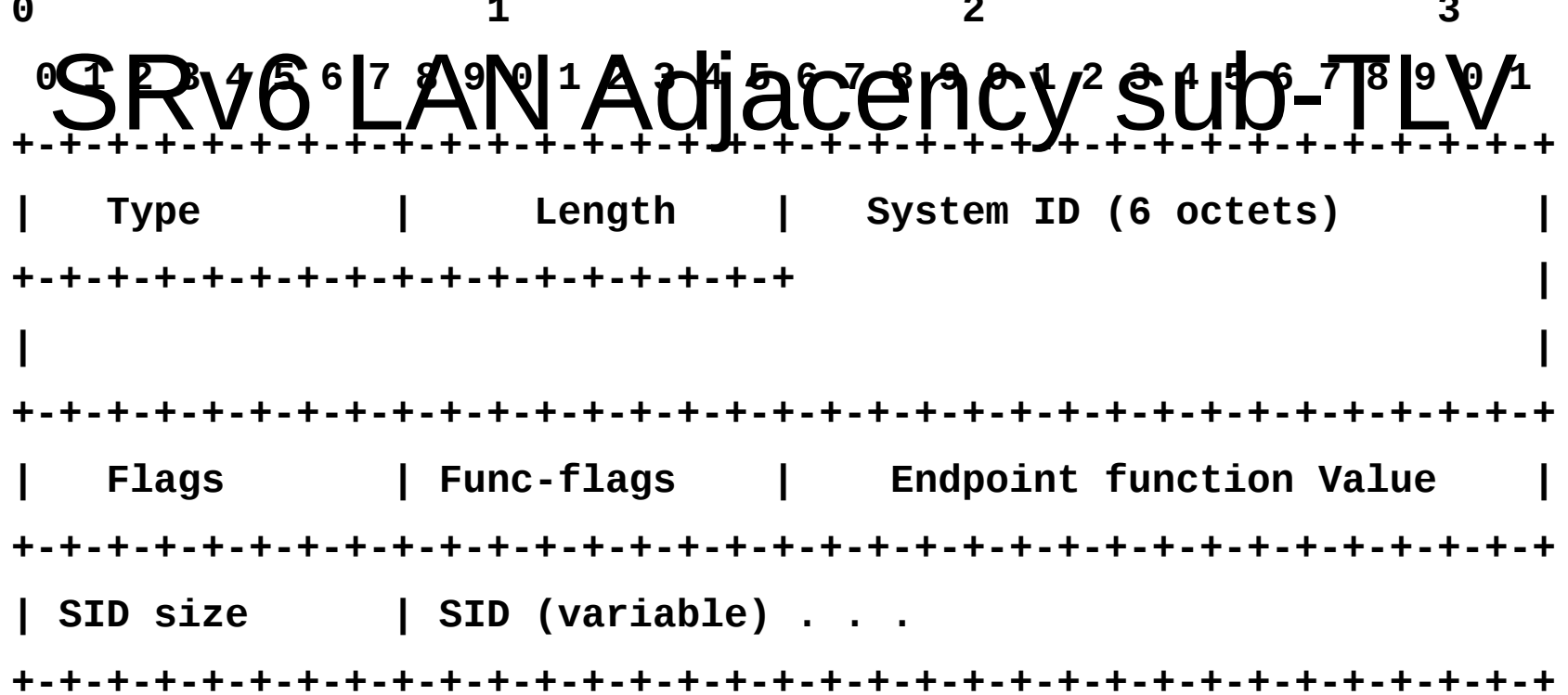
SID: (SID size +7)/8 octets

Sub-TLVs: None defined yet

SRv6 Adjacency² sub-TLV ³



- Sub-TLV of neighbor reachability for P2P adjacency
- Same structure as SRv6 Node SID TLV
- No flags defined
- Function variants:
 - End.X, End.DX



- Sub-TLV for neighbor reachability for LAN adjacency.
- Same structure as SRv6 Adjacency SID-TLV plus neighbor system-id
- No flags defined
- Function variants:
 - End.X, End.DX

Next Step

WG adoption