



IETF 104 – Prague  
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IDR Working Group

# draft-dawra-idr-bgpls-srv6-ext-06

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# High Level Updates

- v00 presented at IETF 100 and v03 presented at IETF 101
- SRv6 specifications have matured with implementations and deployments
  - Relevant documents progressing in individual WGs
- Major update to this document to cover BGP-LS extensions for SRv6
  - Alignment with underlying IGP extensions for SRv6 (viz. draft-bashandy-isis-srv6-extensions-05)
  - Alignment with the latest SRv6 Architecture (viz. draft-filsfils-spring-srv6-network-programming-07) which is under adoption call in SPRING WG
  - Covers advertisement of all equivalent IGP SRv6 extensions and BGP EPE extensions for SRv6

# BGP-LS extensions for SRv6 – high level view

- Node Attributes
  - SRv6 Capabilities – new TLV
  - New MSD Types for SRv6 – leverage existing Node MSD TLV
  - Algorithm Support – use existing SR Algorithm TLV
- Link Attributes
  - SRv6 End.X SID for IGP adjacency and BGP EPE Peer Adjacency (equivalent to adjacency SID of SR-MPLS)
  - SRv6 LAN End.X SID for IGP adjacency to non-DR/DIS routers on LAN (equivalent to LAN adjacency SID of SR-MPLS)
  - New MSD Types for SRv6 – leverage existing Link MSD TLV
- Prefix Attributes
  - SRv6 Locator – new TLV

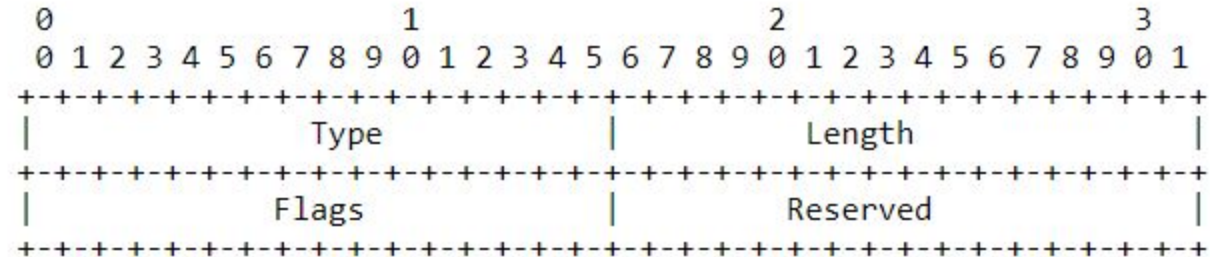
# New BGP-LS NLRI Type – SRv6 SID

- Used to advertise individual SRv6 SID (128 bit) instantiated in the 'My SID Table' on the SRv6 capable node
- Introduced as a New NLRI so that
  - Avoid overload of Node NLRI with large no. of SRv6 SIDs as its attribute
  - Enables granular BGP updates and reduces churn for Node NLRI
  - Each SRv6 SID attribute can be expressed in an extensible & granular way
- SRv6 SID Attributes
  - SRv6 Endpoint Function TLV – describes function associated with the SID
  - SRv6 BGP EPE Peer Node SID TLV – used for providing BGP peering context for the equivalent of the BGP Peer Node and Peer Set SIDs of SR-MPLS

# Node Attribute TLVs

- SRv6 Capabilities

- Indicate node supports SRv6
- Flags indicate other capabilities e.g. OAM support with O-bit of SRH



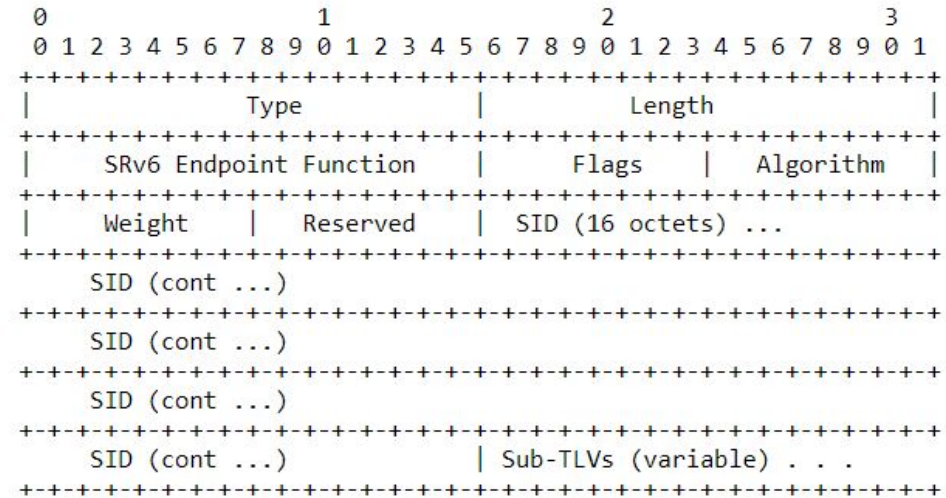
- Node MSD TLV leverage with definition of new MSD types for SRv6 SRH operations

MSD Type	Description
TBD	Maximum Segments Left
TBD	Maximum End Pop
TBD	Maximum T.Insert
TBD	Maximum T.Encaps
TBD	Maximum End D

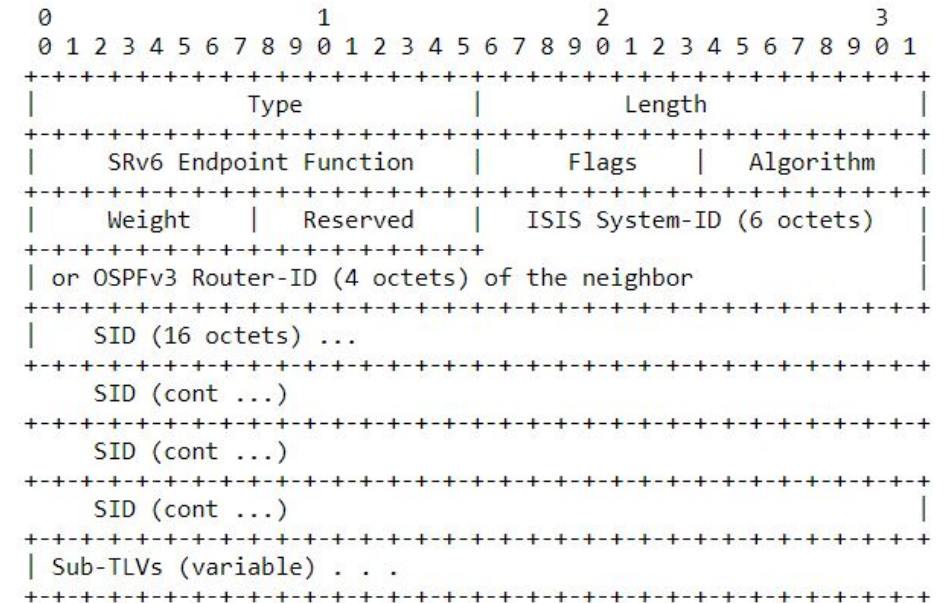
- SR Algorithm TLV (1035) is used for both SR-MPLS and SRv6

# Link Attribute TLVs

- SRv6 End.X SID TLV



- SRv6 LAN End.X SID TLV



# Link Attribute TLVs – contd.

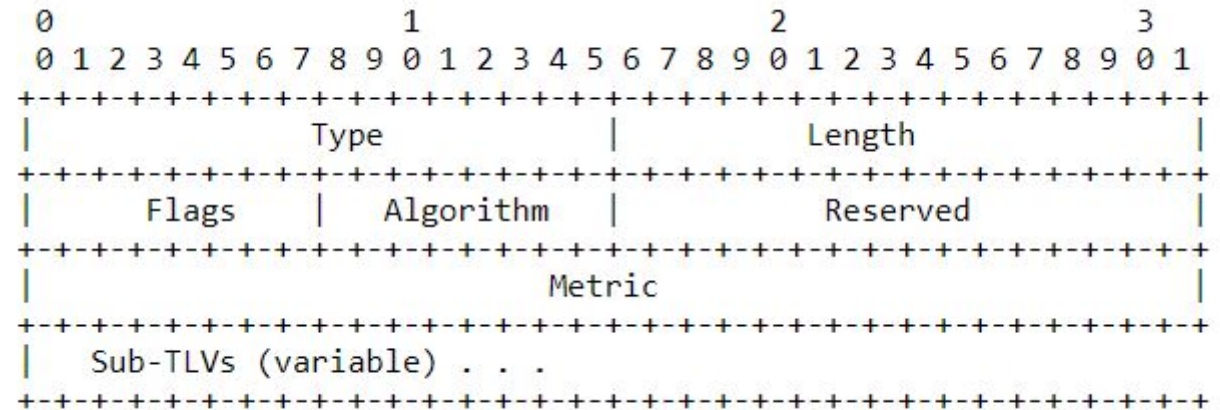
- Link MSD TLV leverage with definition of new MSD types for SRv6 SRH operations

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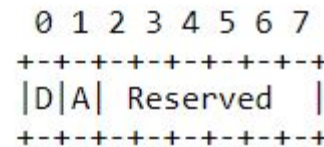
# Prefix Attribute TLV

- SRv6 Locator

- Indicates that the IPv6 prefix is a SRv6 Locator
- Associated algorithm (i.e. flex-algo)
- Metric of the locator
- Flags indicating its attributes (e.g. anycast, down-bit)



Flags: 1 octet of flags with the following definition:

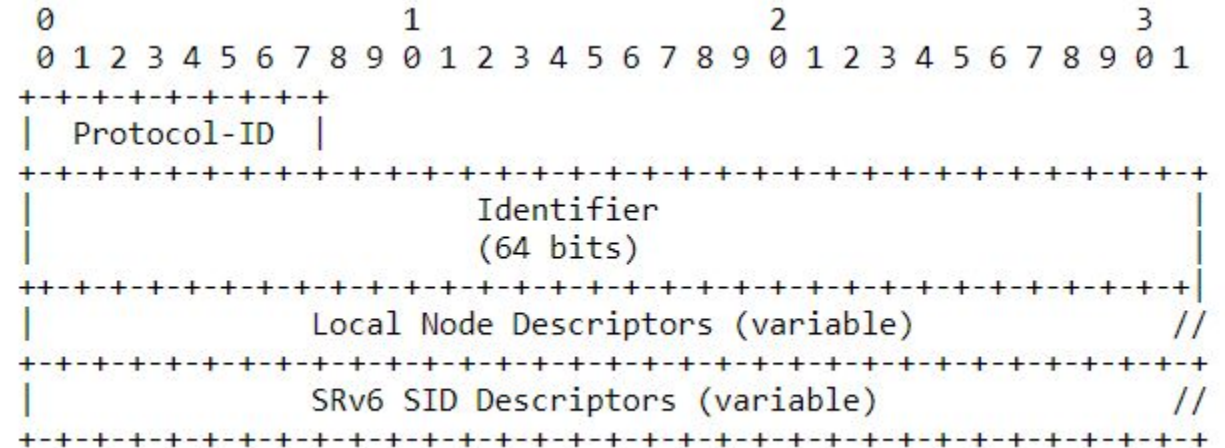




# SRv6 SID NLRI

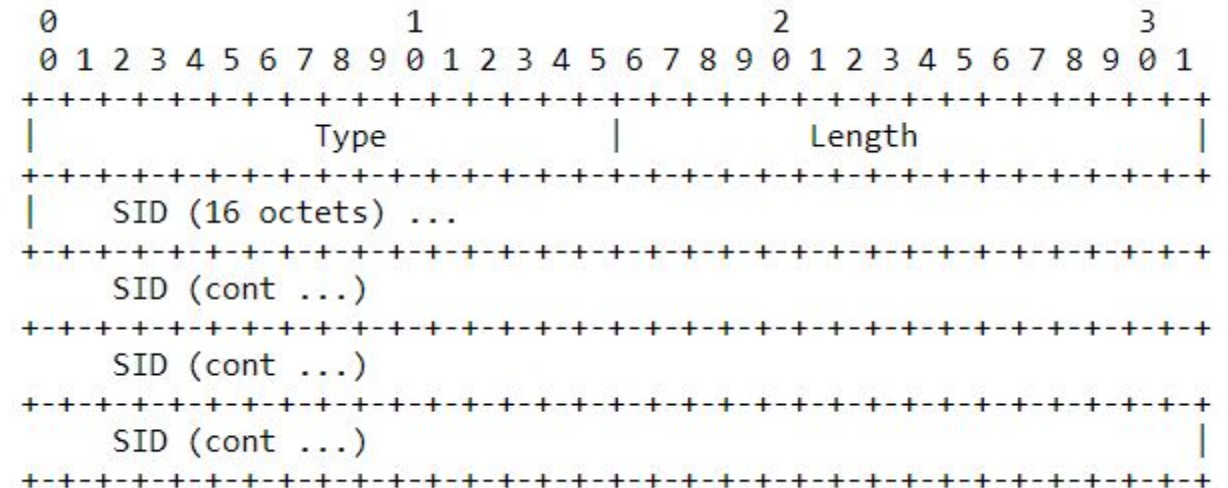
- SRv6 SID NLRI

- Carries a single SRv6 SID
- Local Node descriptors as per RFC7752



- SRv6 SID Descriptors

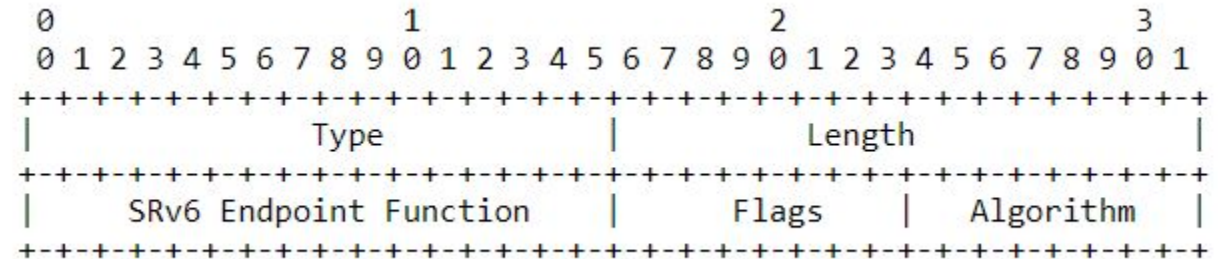
- SRv6 SID Information TLV (new)
- Multi-Topology Identifier TLV (existing)



# SRv6 SID Attributes

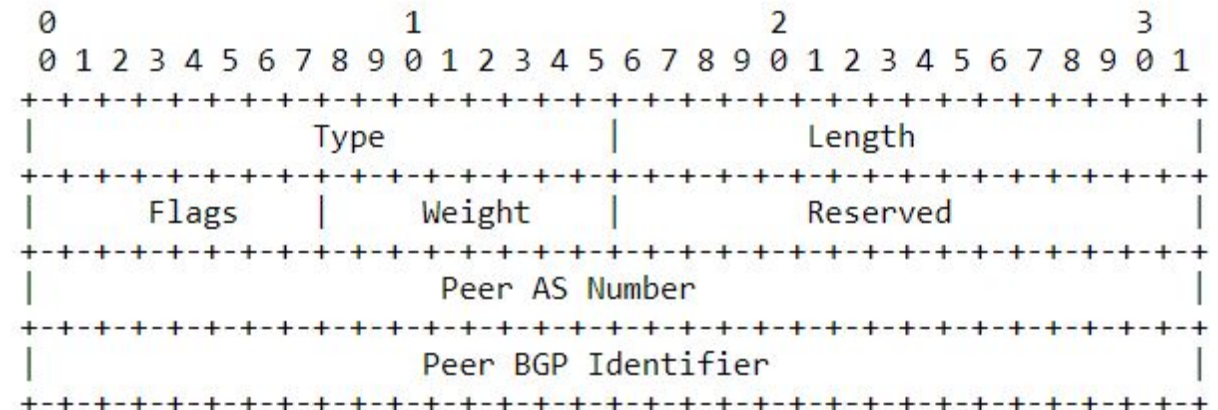
- SRv6 Endpoint Function TLV

- Indicates the function and algorithm of the SRv6 SID



- SRv6 BGP Peer Node SID TLV

- For BGP EPE Peer SID – single TLV describing the peer
- For BGP EPE Peer Set SID – multiple instances for TLV describing each peer in the set



# Next Steps

- Review and inputs/feedback are requested
- Requesting WG adoption