

BGP CT SRv6 - WGLC

<https://datatracker.ietf.org/doc/draft-ietf-idr-bgp-ct-srv6/00/>

IDR Interim Meeting

Jan 29, 2024

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On behalf of co-authors

Agenda

- BGP-CT-SRv6: Background
- BGP-CT-SRv6: SID Stacking Approach
- BGP-CT-SRv6: No Transposition
- BGP-CT-SRv6: Support for CPR: (Color Encoded Service SID)
- BGP-CT-SRv6: Current Status and Next Steps

BGP-CT-SRv6: Background

- This IDR draft details BGP CT support for SRv6 Dataplane
 - Link: <https://datatracker.ietf.org/doc/draft-ietf-idr-bgp-ct-srv6/01/>
- This IDR draft was created as a result of WG decision that the SRv6 portions of BGP-CT be moved to a separate document.
 - Issue Tracking: <https://github.com/ietf-wg-idr/draft-ietf-idr-bgp-ct/issues/30>
 - Issue Tracking: <https://github.com/ietf-wg-idr/draft-ietf-idr-bgp-ct/issues/54>
- Employs SID stacking approach, using SRv6 endpoint behaviors defined in RFC-8986 and <https://datatracker.ietf.org/doc/draft-salih-spring-srv6-inter-domain-sids/04/>
- BGP-CT Adoption Call: Verification of SID Stacking Approach and its applicability to BGP-CT
 - BGP-CT Adoption Call PART 3: <https://mailarchive.ietf.org/arch/msg/idr/Ymh-bVFoNKGo9IdiPO6JzJhL73A/>

BGP-CT-SRv6: SID Stacking Approach (Gold Plane)

CT NLRI: **ASBR1 -> PE1**

prefix: RD1:PE2-LPBK
 NHOP: ASBR1 loopback
 Gold SID:
B:ASBR1:REPLACE::1
 Transport-RT: **Gold**

CT NLRI: **ASBR2 -> ASBR1**

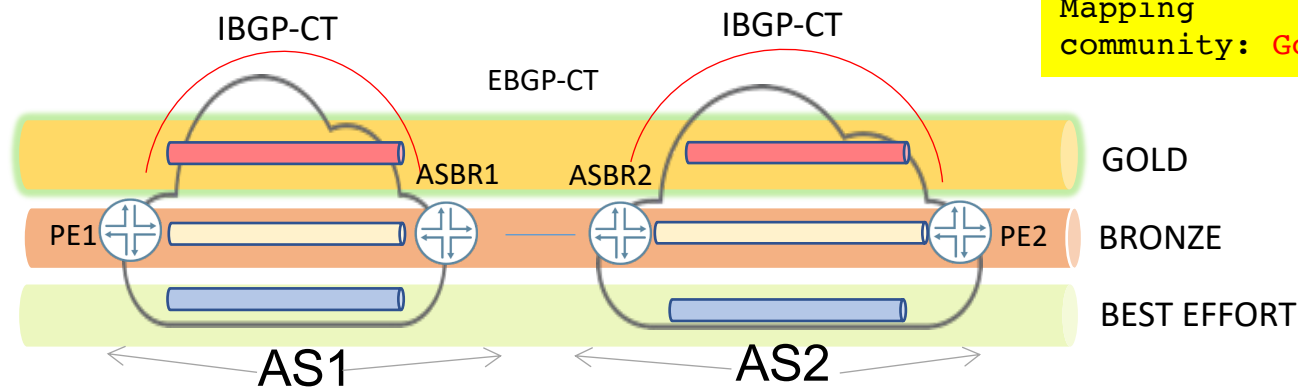
prefix: RD1:PE2-LPBK
 NHOP: ASBR2 loopback
 Gold SID:
B:ASBR2:REPLACE.B6::1
 Transport-RT: **Gold**

CT NLRI: **PE2 -> ASBR2**

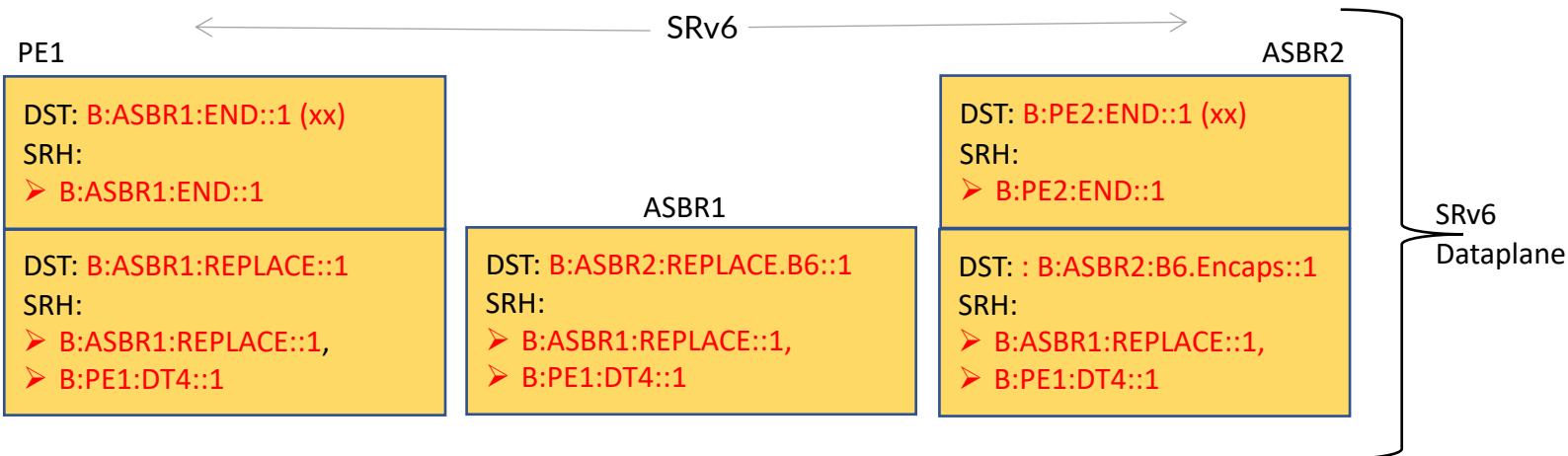
prefix: RD1:PE2-LPBK
 NHOP: PE2 loopback
 Gold SID:
B:ASBR2:B6.Encaps::1
 Transport-RT: **Gold**

SERVICE NLRI

PREFIX: Service Prefix:1
 RD,RT,
 NHOP: PE2_LPBK
 Gold SID:
B:PE2:DT4::1
 Mapping
 community: **Gold**



- B6:Encaps and B:END
 - Encap: Intra Domain SRv6 Tunnel
- B:REPLACE (One Hop)
 - Update IPv6 DA to First SID in segment
- B:REPLACE.B6 (Multi Hop)
 - Update IPv6 DA (SRH, Next Segment)
- RFC 8277 NLRI MPLS Label
 - Label: 3 (PHP)
- Transposition
 - Set Transposition Length and Offset to 'zero' in "SRv6 SID Structure Sub-Sub-TLV"



BGP-CT-SRv6: No Transposition

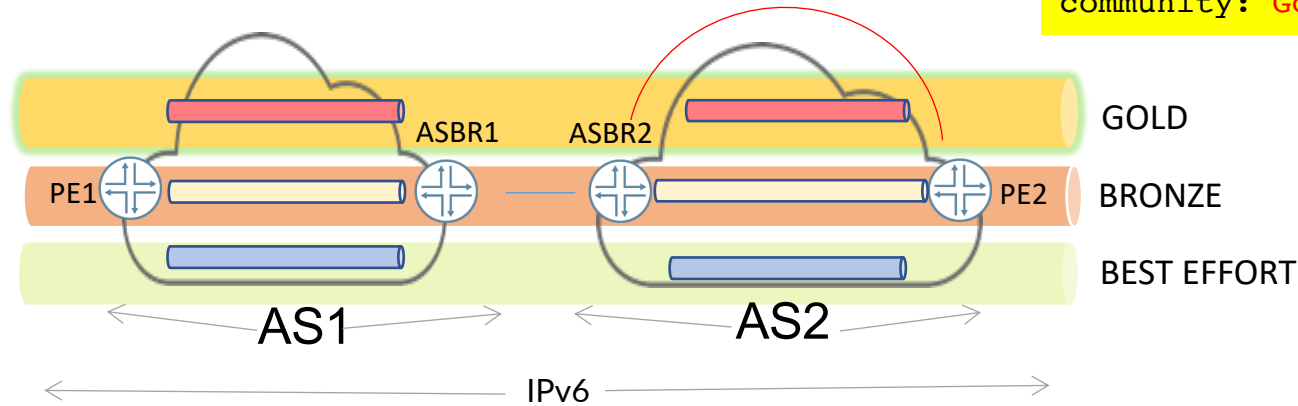
- For BGP-CT family, SRv6 Transposition is turned off
 - Transposition Length and Offset is set to "zero" in "SRv6 SID Structure Sub-Sub-TLV" (RFC 9252) of the Prefix SID attribute
 - Draft Link: <https://www.ietf.org/archive/id/draft-ietf-idr-bgp-ct-srv6-00.html#name-srv6-encapsulation-informat>
- To ensure correctness during MPLS/SRv6 Interworking scenarios
- Transposed part of the SRv6 shall not pollute the MPLS Label in RFC 8277 NLRI encoding used by BGP-CT

BGP-CT-SRv6: Support for CPR (Color Encoded Service SID)

- In Color Prefix Routing (CPR), Service SIDs are color encoded
- There is one unique Service SID per color allocated from a Colored SRv6 Locator (IPv6 address)
- IPv6 is used as both Service and Transport family
- The colored SRv6 Locator is advertised in IPv6 family with Mapping Community (Color Community in this case)
- Colored SRv6 Locators resolve to the corresponding Colored SRv6 Intra Domain tunnel in IPv6 RIB using Resolution Scheme construct applied to IPv6 family for each Mapping Community
- There is no SID stacking and the packet containing the Colored Service SID is forwarded in IPv6 dataplane

BGP-CT-SRv6: Support for CPR (Color Encoded Service SID)

SERVICE NLRI
 PREFIX: Service Prefix:1
 RD,RT,
 NHOP: PE2_LPBK
 Gold SID:
B:PE2:DT4::1
 Mapping
 community: **Gold**



- Colored SRv6 Locators: Gold, Bronze
- Colored Service SIDs: Gold-SID-1, Bronze-SID-1
- Transport Family: IPv6 + Mapping Community (Color)
- Resolution Scheme: IPv6 Locator resolution over Intra Domain SRv6 Tunnel in IPv6 RIB using Mapping Community (color)
- PE1, ASBR1 and ASBR2 will have resolution schemes configured for IPv6 family
- Mapping Community will be a Color EC
- Forwarding: IPv6, Color Coded Service SID LPM to IPv6 Color Locators Gold and Bronze

BGP-CT-SRv6: Current Status and Next Steps

- Scheduled for WGLC
- Progress <https://datatracker.ietf.org/doc/draft-salih-spring-srv6-inter-domain-sids/> for adoption
- Updated the draft of the final comments from Susan
 - <https://datatracker.ietf.org/doc/draft-ietf-idr-bgp-ct-srv6/01/>
- Address editorial and further review comments post review

Thank you.