BGP CT SRv6 - WGLC


IDR Interim Meeting
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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/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)

- 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"

### 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

### AS1
- ASBR1
- PE1
- SRv6 Dataplane

### AS2
- ASBR2
- PE2

### IBGP-CT

### EBGP-CT

### ASBR1
- DST: B:ASBR1:END::1 (xx)
- SRH:
  - B:ASBR1:END::1

### ASBR2
- DST: B:ASBR2:REPLACE.B6::1
- SRH:
  - B:ASBR1:REPLACE::1,
  - B:PE1:DT4::1

### DST: B:PE2:END::1 (xx)
- SRH:
  - B:PE2:END::1
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)

- 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
- Updated the draft of the final comments from Susan
- Address editorial and further review comments post review
Thank you.