

BGP Colorful Prefix Routing (CPR) for SRv6 based Services

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Recap of CPR

- Different SRv6 sub-locators are assigned to represent different “color” or “intent”
 - SRv6 Service SIDs are allocated from the SID space of the corresponding Colorful locators
 - These colorful SRv6 locators are treated as **Colorful Prefixes** by BGP
- Colorful prefix routing (CPR) is a mechanism to establish inter-domain intent-aware paths for SRv6 based services **based on existing BGP technologies**
 - IPv6 Unicast address family is used for the advertisement of Colorful Prefix Routes
 - Color extended community is used to indicate the intent associated with the Colorful Prefix in each network domain
 - Resolution of CPR routes to intra-domain intent-aware paths is based on (Nexthop, Color) tuple
- CPR also provides **optimized data plane** for inter-domain SRv6 services
 - Takes advantage of the IP reachability of SRv6 SIDs (they are routable in the network)
 - IP longest prefix matching is used for service SID to CPR route steering
 - Dedicated SRv6 transport SIDs are not required, thus encapsulation efficiency is improved

Recent Updates

- Version -01

- Clarifies the mechanism and procedures when some of the transit domains are MPLS-based
- Add reference to the SRv6-MPLS interworking draft
- Editorial changes

- Version -02

- Clarifies the data plane optimization with longest prefix matching of SRv6 Service SIDs
- Revises the operational considerations to clarify the relationship with the BGP “route with color” extension mechanisms (BGP CT and CAR)
- Editorial changes

Next Steps

- The CPR mechanism is straightforward, stable and well documented
- It is considered complementary to the BGP extension mechanisms of “Route with Color”
 - Provides an alternative approach for better interoperability and incremental deployment required in some network scenarios
 - BGP extensions with new BGP SAFI/NLRI and new attributes could be introduced when required for other network scenarios, while the data plane operations for SRv6 could be aligned
- Document is ready for WG adoption

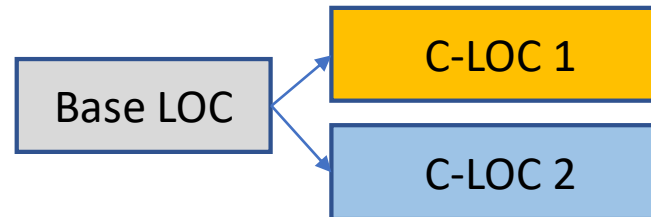
Thank You

SRv6 Service SID and Colorful Locator Prefix

- An SRv6 SID consists of: Locator, Function and optional Argument



- SRv6 Service SIDs are routable according to its locator prefix
- On each node, different SRv6 sub-locators can be allocated for different intent
 - These locators are called **Colorful Locators**



- SRv6 service SIDs with specific intent are allocated using the corresponding Colorful Locators as the covering prefix

Service SID with low latency:



Service SID with high bandwidth:

