# BGP Extension for SRv6 Policy Segment List Optimization

draft-liu-idr-sr-segment-list-optimize-03

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# Problem Statement & Status

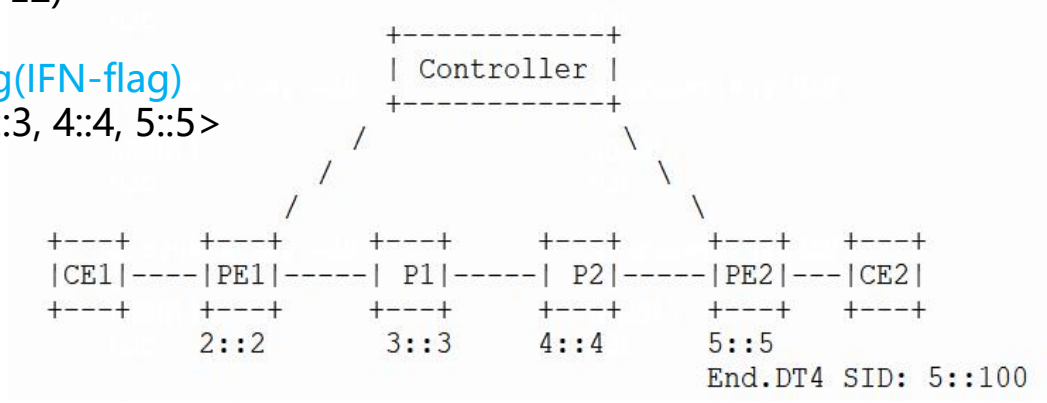
- Background
  - ✓ SRv6 Policies use a list of SIDs to steer traffic from a headend node, the final SID in the list is often the policy endpoint's own Node SID.
  - ✓ Traffic steered over the policy is already destined for the endpoint.
  - ✓ Including the endpoint's Node SID in the packet's SRH provides no routing benefit.
  - ✓ This redundancy wastes valuable header space and reduces forwarding efficiency, especially when Service SIDs are also present.
- Purpose
  - ✓ Define a method to optimize the SID list by excluding the endpoint's Node SID for data traffic.
  - ✓ Maintain the ability to use the full SID list for other purposes, like OAM.
- Status
  - ✓ The Spring WG has adopted the base : draft-ietf-spring-srv6-policy-sid-list-opt.
  - ✓ This draft as its BGP SR Policy protocol extention.

# Proposed BGP Extension and Operation

- Solution
  - ✓ IFN-flag (Install Final Node-sid flag) .
  - ✓ Flag alignment across SRPING, PCE and BGP-LS drafts
  - ✓ This flag is carried in the Candidate Path Administrative Flags Sub-TLV (defined in draft-lin-idr-sr-policy-admin-flags).
- Flag Semantics
  - ✓ IFN-flag = 1: The endpoint node SID MUST be included when installing the SID list for data traffic.
  - ✓ IFN-flag = 0: The endpoint node SID MUST NOT be included (i.e., it is excluded) for data traffic.
- Operational Considerations
  - ✓ A controller calculates an SRv6 Policy and distributes it to the headend via BGP.
  - ✓ The controller sets the IFN-flag to '0' for optimization.
  - ✓ The headend receives the policy and applies the logic during packet encapsulation.

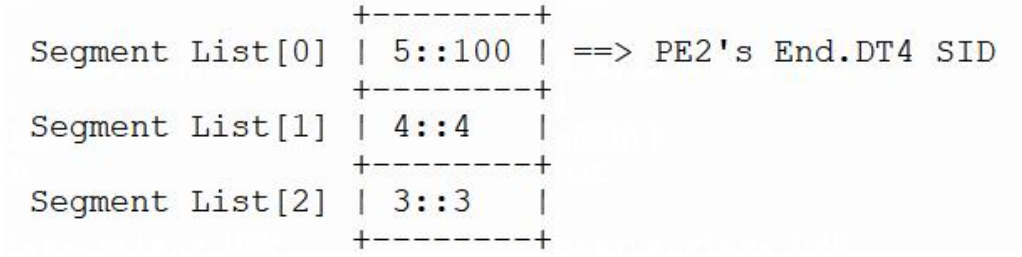
# Use Case

Policy (PE1, color=1, PE2)
Candidate Path CP1
Administrator Flag(IFN-flag)
segment list 1 <3::3, 4::4, 5::5>



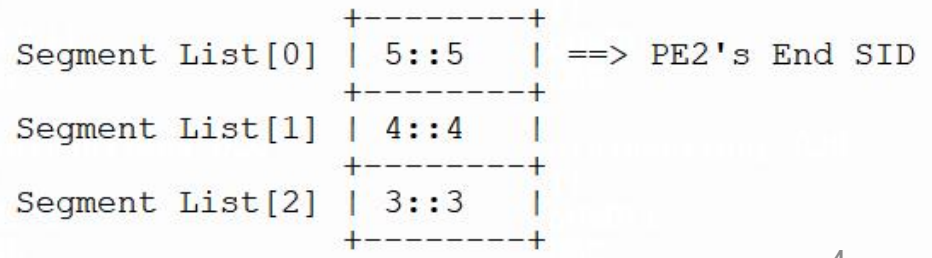

- Data Packet Processing (to VPN)
  - ✓ Headend (PE1) receives a data packet.
  - ✓ It steers the packet into the SRv6 Policy.
  - ✓ Because IFN-flag = 0, it excludes the endpoint's Node SID (5::5).
  - ✓ It includes the endpoint's Service SID (5::100).
  - ✓ Resulting SRH Segment List: <3::3, 4::4, 5::100>.

For data packets to VPN




- OAM Packet Processing (to Egress Node)
  - ✓ Headend sends a BFD OAM packet to check the policy path.
  - ✓ It uses the full segment list from the policy.
  - ✓ Resulting SRH Segment List: <3::3, 4::4, 5::5>.

For OAM packets



# Next Steps

- Further review
- Ready for WG adoption?