

MSD Considerations in PCEP

draft-ali-pce-sr-policy-msd-consideration

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Problem Statement

- MSD may become one of the limitations that need to be considered when computing an SR-TE path in PCE.
 - PCEP for SR-MPLS: [RFC8664], once an SR-capable PCEP session is established with a non-zero MSD value, the corresponding PCE MUST NOT send SR-TE paths with a number of SIDs exceeding that MSD value.
 - PCEP for SRv6: Similar rules are specified in [RFC9603].
- **The limitation of MSD could be loosen to allow one more SID in the SID list that is sent by the PCE in the following scenarios:**
 - When the first SID in an SR Policy SID list is an adjacency SID attached by the headend, the top adjacency SID is not imposed on the packet(for both SR-MPLS and SRv6).
 - For SRv6, when a reduced SRH is used, the first segment of the related SR Policy is not imposed.
- **Note: Not all types of the SRv6 MSDs are about the limitation of the headend, thus some SRv6 MSDs are not necessary restrictions to when sending an SRv6 path to the PCC.**

Overview of PCEP Changes for SR-MPLS

➤ SR-MPLS

- A new A-Flag(Adjacency SID exclusion for MSD consideration flag) in SR-PCE-CAPABILITY sub-TLV.
- The procedure MUST only be applied if both the PCE and PCC have advertised support for the capability by setting the A-flag in their respective SR-PCE-CAPABILITY sub-TLV.
- Under these conditions, if the first SID in an SR-TE path is an adjacency SID, the PCE MUST NOT send SR-TE paths with a number of SIDs exceeding that (MSD+1) value.

Overview of PCEP Changes for SRv6

- A-Flag (Adjacency SID exclusion for MSD consideration flag) in the SRv6-PCE-CAPABILITY sub-TLV
 - When both the PCE and PCC have advertised support for the capability by setting the R-flag in their respective SRv6-PCE-CAPABILITY sub-TLVs, if the first SID in an SRv6-TE path is an adjacency SID attached with the headend node, the PCE MUST NOT send SR-TE paths with a number of SIDs exceeding that (Maximum H.Encaps MSD+1) value.
- R-Flag (Reduced SRH for MSD consideration flag) in the SRv6-PCE-CAPABILITY sub-TLV
 - When both the PCE and PCC have advertised support for the capability by setting the R-flag in their respective SRv6-PCE-CAPABILITY sub-TLVs, the PCE MUST NOT send SR-TE paths with a number of SIDs exceeding the (Maximum H.Encaps MSD+1) value.
- Coexistence of Flags
 - Both A-Flag and R-Flag are set, the PCE MUST NOT send SR-TE paths with a number of SIDs exceeding the (Maximum H.Encaps MSD+2) value, since A-Flag and R-Flag are both about omitting the first SID in the SID list.

Merge Summary

- draft-ali-pce-sr-policy-msd-consideration-00, defines the A-flag for both SR-MPLS and SRv6, presented in IETF123
- draft-liu-pce-srv6-msd-consideration-00 analyzed the SRv6 MSD types and defines R-Flag for SRv6, presented in IETF124
- Two draft merged:
 - draft-ali-pce-sr-policy-msd-consideration-01(this version) covers both aspects.

Update Summary

- Addressed comments received during IETF124
 - It's better if we consolidate the drafts than do it separately
 - Already merged.
 - Whether the type of the MSD needs to be mentioned explicitly
 - Since the R-flag and A-flag are only related with the Maximum H.Encaps MSD in SRv6, it seems more clear to mention the type. Done!

Next Steps

- The authors would like to request WG adoption

Thank You !