

Advertising S-BFD Discriminators in BGP

<https://datatracker.ietf.org/doc/draft-wang-bess-sbfd-discriminator>

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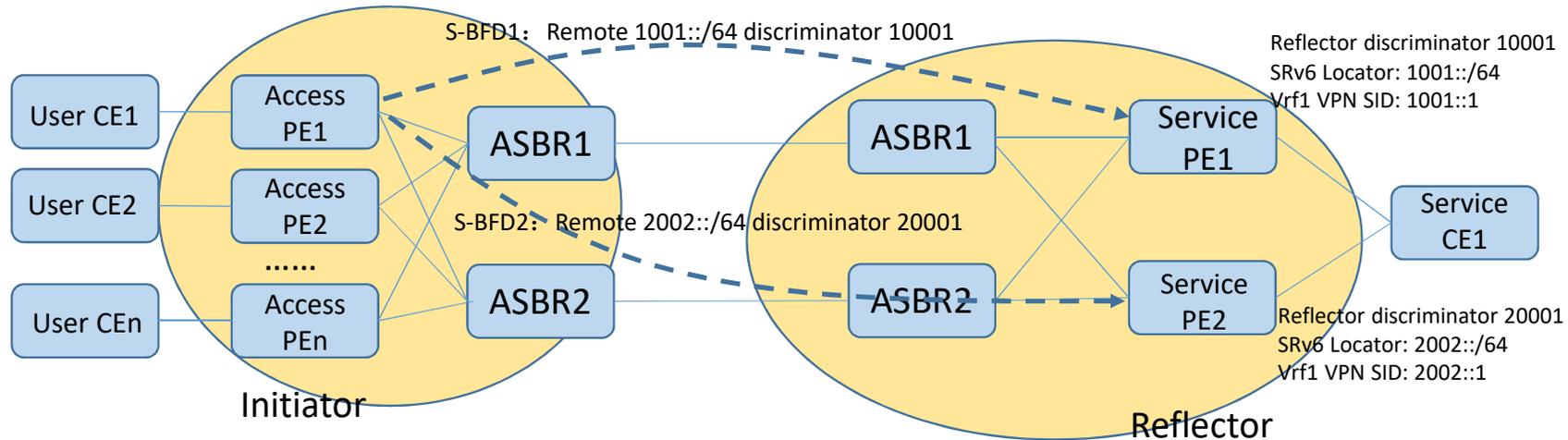
Changes from last version

- Add Greg as co-author
- Updated the scenario description

Motivation

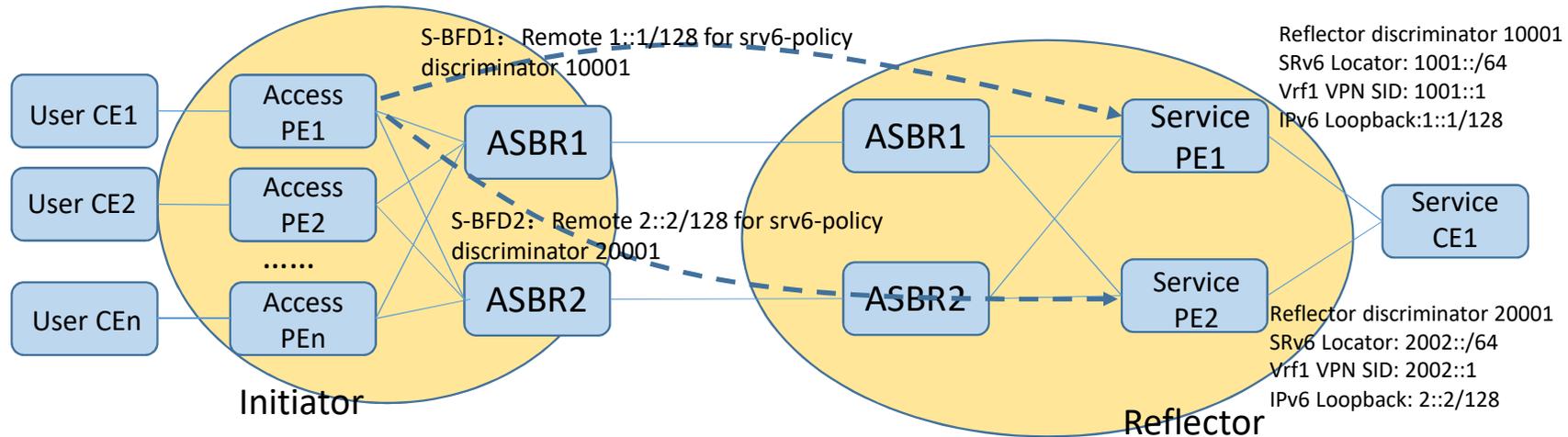
- Using BFD can accelerate fault detection, but BFD sessions need to be provisioned on both ends of the BFD session, which occupies the resources of both PEs.
- S-BFD is especially useful in multi-homing PE scenarios, especially 3PE scenarios, and reduces resource overheads on the dual-homing PEs.
- To deploy S-BFD, the initiator needs to know the reflector's IP address and its discriminator.
- [[RFC7883](#)] and [[RFC7884](#)] introduced an IGP-based S-BFD discriminator advertisement mechanism to simplify S-BFD deployment, but it doesn't satisfy inter-area or inter-domain scenario.

Scenario1: Service Over SRv6 BE



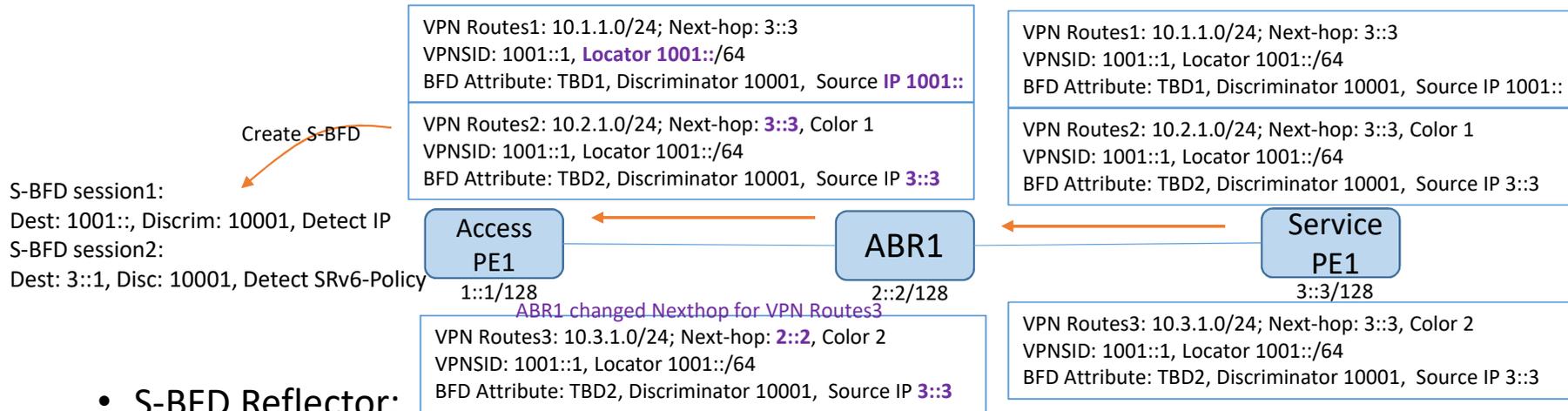
- This is a typical 3PE inter-domain scenario with E2E SRv6 BE (the inter-area case is similar)
- User CE single-homed to Access PE (APE)
- Service CE multi-homed to Service Pes (SPE)
- Use S-BFD instead of BFD session, can save the resources of Service PE
- Each Access PE will create S-BFD session to detect Service PE's reachability
- Remote discriminator needs to be configured for each S-BFD session
- Create S-BFD session on remote SRv6 Locator prefix rather than VPNSID can also save resources

Scenario2: Service Over SRv6 Policy



- This is a 3PE inter-domain scenario with E2E SRv6 Policy
- User CE single-homed to Access PE (APE)
- Service CE multi-homed to Service Pes (SPE)
- Compared with scenario 1, the Access PE here will use SRv6 Policy for service
- Each Access PE will create S-BFD session for SRv6 Policy to detect the path to remote Service PE

Procedures



- **S-BFD Reflector:**
 - BGP VPN routes are advertised with the local discriminator carried in the BFD Discriminators attribute
 - BFD mode is set to one of the new modes defined
 - Source IP Address TLV is carried as optional TLV
- **S-BFD Initiator:**
 - Notify the BFD module to create an S-BFD session with received discriminator
 - For Type 1 routes, if the source IP address carried in the BFD attribute matches the SRv6 locator address carried in the VPN routes, use the source IP as the destination and the discriminator attribute carried in the BFD attribute to create an S-BFD session. The S-BFD session will be used to detect the SRv6 locator address's reachability.
 - For Type 2 routes, if the source IP address carried in the BFD attribute matches the next-hop carried in the VPN routes, use the source IP as the destination and the discriminator attribute carried in the BFD attribute to create an S-BFD session. The S-BFD session will be used to detect the SRv6 Policy's reachability.

Next steps

- Welcome more comments and discussion
- Request WG adoption

Thank you!