

# SRv6-based BGP Service Capability

draft-lz-bess-srv6-service-capability-01

Yao Liu, ZTE--Presenter  
Zheng Zhang, ZTE  
Eduard Metz, KPN

BESS WG

IETF#111

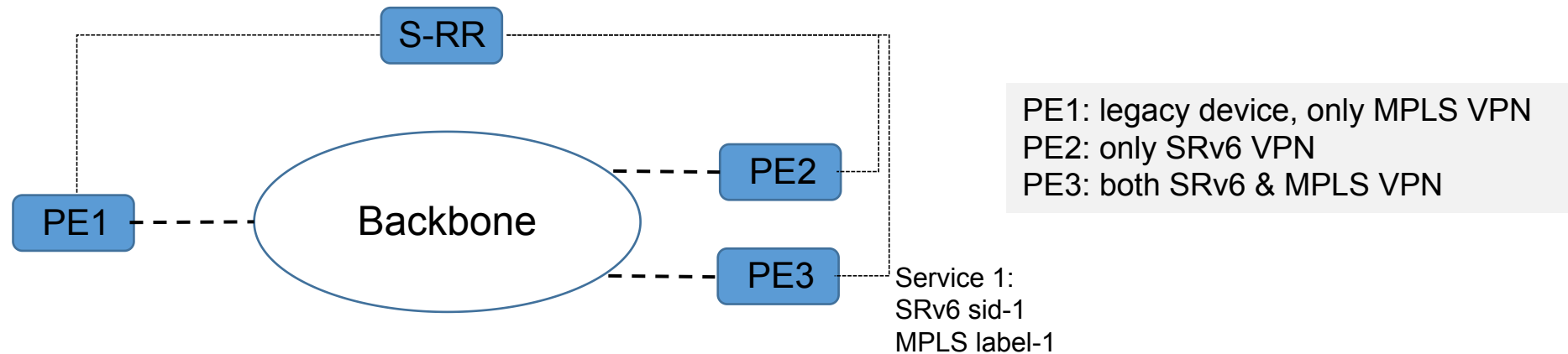
July, 2021

# Background

- SRv6 based BGP services [I-D.ietf-bess-srv6-services]
  - leverages the existing AFI/SAFIs of MPLS-based services
  - SRv6 Service SID: SID associated with the service-specific Endpoint behavior on PE, enclosed in SRv6 Service TLV(s) within the BGP Prefix-SID Attribute attached to MP-BGP NLRI
  
- Encoding of SRv6 service SIDs:
  - SRv6 Service SIDs encoded as a whole in the SRv6 Services TLVs, the MPLS Label field(s) of the NLRI set to Implicit NULL
  - locator carried in SRv6 Services TLV, function and/or argument in the MPLS Label field of the NLRI

MP-BGP NLRI  
BGP Prefix-SID Attribute  
SRv6 Service TLV(SRv6 Service SID)

# the Co-existence Scenario



Advertising SRv6-based service routes to legacy devices may result in service failure and/or abnormal extra traffic flows in the network.

PE1----PE3

- Control Plane
  - PE3: advertises both SRv6 VPN route and MPLS VPN route
  - PE1: discards the SRv6 Service TLV, treats the SRv6-based route as a MPLS-based route --> two MPLS VPN routes for the same service on PE1
- Data Plane
  - PE1: chooses the wrong route and uses the label field in the NLRI of SRv6 route as MPLS VPN label for packet encapsulation
  - PE3: sends packets to the wrong service instance/ drops them

# Advertisement of SRv6 Service Routes

“Implementations SHOULD provide a mechanism to control advertisement of SRv6-based BGP service routes on a per neighbor and per service basis.” *[I-D.ietf-bess-srv6-services]*

General configuration steps :

- Get each PE's capability for SRv6-based service routes.
- Config on PEs or S-RR based on their capabilities (per neighbor).
  - PEs: Specify which neighbors can the SRv6 service routes be advertised to when configuring SRv6 services on the PEs.
  - S-RR: SRv6 service routes would not be reflected to legacy devices that don't support SRv6.

Disadvantages :

- The per neighbor configuration needs to vary with the device capability.
- Additional steps increase the possibility of faults and the difficulty of troubleshooting.
- Possible interconnection problems among multiple vendors.

# SRv6-based BGP Service Capability

- The Capabilities Optional Parameter [RFC5492] in the BGP OPEN message allows BGP speakers to communicate capabilities.
- A new Capability Code for SRv6-based BGP service capability.
  - A BGP speaker MUST NOT send any UPDATE message that includes the SRv6 service TLVs, unless it has sent the SRv6-based BGP service capability in its BGP OPEN message , or it has received the SRv6-based BGP service capability in the BGP OPEN message from its peer.
  - If the capability for SRv6-based services is enabled or removed, an established session needs to be reset to resend the OPEN message.

The advertisement of SRv6-based BGP service routes is controlled without per neighbor configuration, which makes it easier to implement and manage SRv6-based services in the network.

# Next Steps

- Request feedbacks and comments

**Thank You !**