

BGP MPLS Namespaces

Inter-AS Option C Label AntiSpoofing support

<https://datatracker.ietf.org/doc/html/draft-kaliraj-bess-bgp-sig-private-mpls-labels-06>

IETF 117

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(on behalf of co-authors)

Juniper Networks
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Agenda

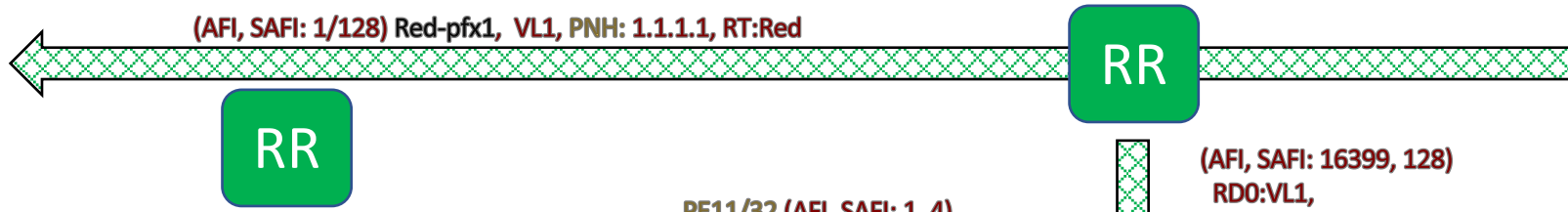
- Changes to the draft – since IETF 111, 2021.
- Recap: Problem statement.
- Usecases illustration
 - Inter-AS Option C Label AntiSpoofing support
- Next Steps

Changes to the draft – since IETF 111, 2021

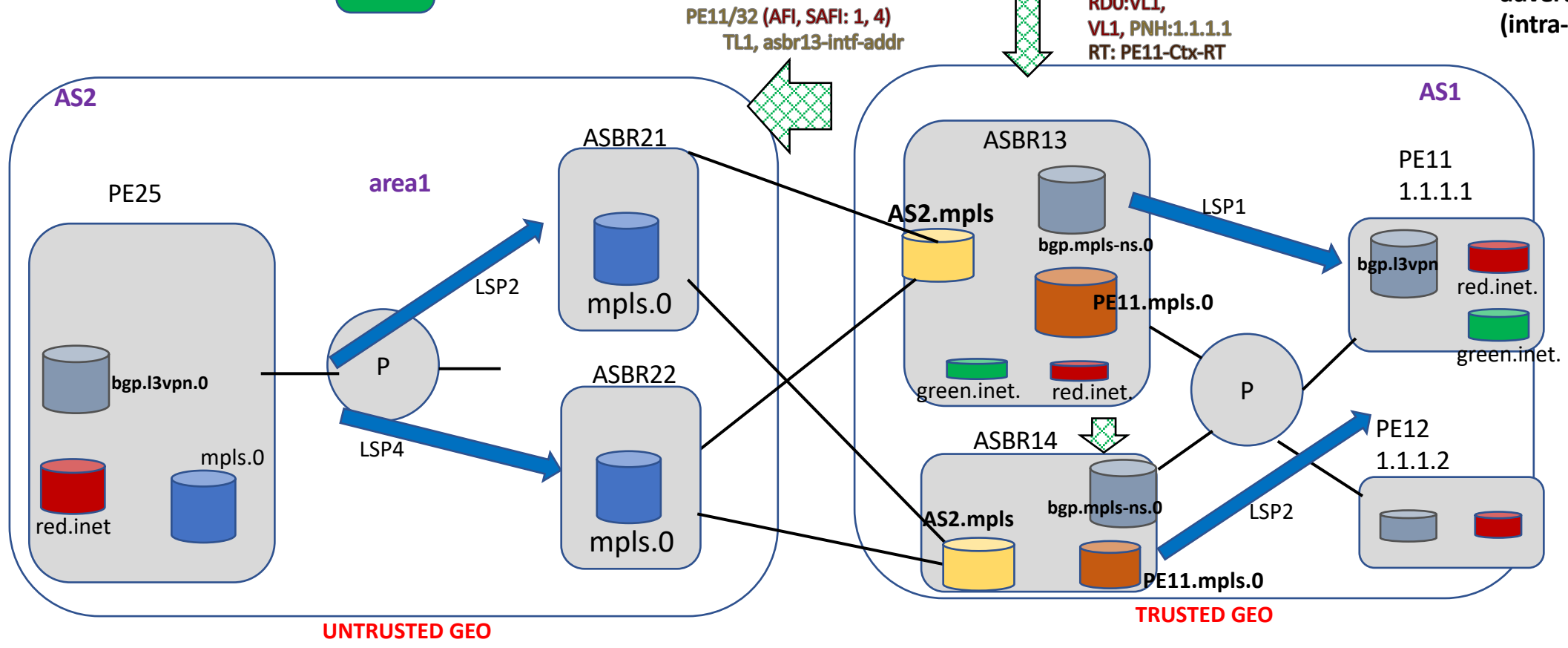
- Editorial changes
- IANA allocation for new AFI.
- Added illustration of Usecase
 - Option C Label AntiSpoofing support
- Added Co-Author.

Problem statement (Recap)

- Improve Inter-AS option-C solution, with MPLS Namespaces:
 - Better Scaling by not having to expose all PE loopbacks network wide.
 - Quicker end to end Convergence.
(BGP PIC and Egress Protection using MPLS-namespaces)
 - Legacy PEs support.
 - Security against Label spoofing. (covered in this session)



- PE11 only Red VRF is advertised to AS2
- PE12 loopback is not advertised to AS2 (intra-AS services)



red.inet.0 PE25
Pfx1 -> Push VL1, PE11

AS2.mpls ASBR13
TL1 -> Pop, Lookup(pe11.mpls)
PE11.mpls
VL1 -> Swap VL1, Push PE11 Labelstack

Inter-AS option C - Label Spoof protection - with MPLS namespaces.

Transport Label spoof check

- Context Tables at ASBRs to hold LU advertised Labels
 - “AS2.mpls” MPLS-namespace context table created at transport ASBRs
 - Interfaces connecting transport-ASBRs are confined in AS2 context table.
 - PE11/32 is advertised in BGP LU (AFI, SAFI: 1,4) with label TL1
 - TL1 route is installed in AS2.mpls
 - Traffic from AS2 will be accepted only for PE loopback labels advertised to AS2 peers

Service Label spoof check

- Context Tables at ASBRs to hold PE advertised L3VPN Labels
 - “toPE11.mpls” MPLS-namespace context table created at transport ASBRs
 - Transport label TL1 points to toPE11 context table.
 - VPN prefix Pfx1 is advertised in BGP L3VPN (AFI, SAFI: 1/128) with label VL1
 - MPLS Namespace family (AFI, SAFI: 16399, 128) used to install Label VL1 route into toPE11.mpls context table at the two ASBRs.
 - **MPLS traffic from AS2 will be accepted only for**
 - Outer label: LU labels advertised to AS2 ASBRs, and
 - Inner label: L3VPN labels advertised to AS2 PEs.

Next Steps

- WG Adoption Request
- More review or feedback on draft
- Productize Implementation in Junos.
- Implementation requests - Other vendors.
- Help customers in having an improved Inter-AS option-C with
 - Better security
 - Better end to end convergence
 - Better scaling.
 - All these with legacy PEs. with new intelligence mainly on Border Nodes.

Thank you.