BGP MPLS Namespaces

Inter-AS Option C Label AntiSpoofing support


IETF 117

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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 Use case
  • Option C Label AntiSpoofing support
• Added Co-Author.
Problem statement (Recap)

• Improve Inter-AS option-C solution, with MPLS Namesapces:
  • 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)
Inter-AS option C - Label Spoof protection - with MPLS namespaces.

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