BGP Extended Community for Identifying the Target Nodes

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Recap of Motivation

• The target of some BGP routing or policy information may be one or a small group of BGP speakers in the network
  • BGP Flow Spec, SR policy, etc.

• For BGP SR Policy, Route Target is used to determine the target node

• For other address families, RT may still need to be used for VRF matching
  • In some cases, using RTs for both target node identification and VRF matching could be problematic
An example to show the problem

- Node A advertises a VPN FlowSpec route targeted at VRF RED on node B

- If RT is used to designate the target node B
  - Both RT Node-B and RT RED are carried in BGP Update
  - But both node B and node D would import the VPN FlowSpec route to VRF RED

- This document proposes a generic mechanism to designate the target nodes for information advertised using BGP
  - Independent from the use of RT
Proposed Solution

• A new BGP extended community to carry the target node information
  • Node Target extended community (NT)
  • Target BGP Identifier: 4-octet unsigned, non-zero integer to identify a BGP node

• One or more Node Target extended communities may be carried in BGP Update
Procedures

• The sending BGP speaker adds one or more NTs to BGP update
• If one of the NTs match with the local BGP ID, information in the update is eligible to be kept and installed on the receiving BGP node
  • For RR, the route is eligible to be reflected if there is other NTs in the Update
    • RR MAY reflect the route only to BGP peers whose BGP IDs match with one of the NTs
  • For ASBR, the route is eligible to be advertised to EBGP peers whose BGP IDs match with one of the NTs in the Update
• If none of the NTs match with the local BGP ID, information in the update is not eligible to be installed on the receiving BGP node
  • For RR, the route is eligible to be reflected
    • RR may reflect the route only to BGP peers whose BGP IDs match with one of the NTs
Updates in -03 version

• Describe a problem case with RT based mechanism in Introduction section
• Use BGP Identifier instead of IPv4/IPv6 addresses in the Node Target extended community
• Re-organize the procedures section, include the procedures of RR and ASBR for intra-domain scenarios
• A Compatibility Considerations section is added
Next Steps

• Comments and feedbacks are welcomed

• Revise the draft accordingly
Thank You