Generalized VPN Route Constrain

draft-dong-idr-vpn-route-constrain-01

Jie Dong (Huawei)
Mach Chen (Huawei)
Guiyan Liu (Huawei)
Hui Ni (Huawei)
Zhenqiang Li (China Mobile)

IETF78 IDR, July 2010
Updates in Ver-01

• Coauthor from SP
  – China Mobile

• Comparison of alternate solutions for problem of receiving undesired VPN routes
  – Use global unique RT
  – Use generalized RT membership NLRI

• Enumerate specifications about RT in existing RFCs/drafts
Brief Review

• RT-Constrain procedures defined in RFC4684
  – Advertise import RT using RT membership NLRI (1/132)
  – VPN routes are advertised based on received RT-Constrain info

• Goal/Benefit of RT-Constrain
  – VPN routes only advertise to where needed, bandwidth and processing savings

• Problems with current RT-Constrain
  – Fixed RT field (8 octets)
    • Not compatible with IPv6 address specified RT [RFC5701] (20 octets)
  – Potential degradation in multi-vpn-service network
    • PEs may receive undesired VPN routes
Example of undesired routes

- Same RT used for different AFI/SAFI
  - In some scenarios is preferred by SPs
- Fails to achieve the goal of RT-Constrain
Root Cause of Undesired routes

- RT membership NLRI can not identify type of the requested VPN routes

- Different kinds of VPNs may use same/overlapping RT space
  - Different kinds of VPNs should be deployed and maintained independently
  - In some scenarios using same RT for different kinds of VPNs is preferred
Proposed Solution

• A Generalized RT-Constrain solution
• New SAFI: Generalized RT membership NLRI (TBA)
• AFI/SAFI: 1/TBA, 2/TBA, 25/TBA,…
• Extended NLRI format:

<table>
<thead>
<tr>
<th>Length (1 octet)</th>
<th>SAFI of VPN (1 octet)</th>
<th>Origin AS (4 octets)</th>
<th>Route Target (Variable)</th>
</tr>
</thead>
</table>

• Benefits
  – Avoid sending & receiving of undesired routes
  – Deployment of new VPNs will not affect existing network
Next Steps

• Comments & feedbacks
• Improve the draft