

Generalized VPN Route Constrains

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

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IETF78 IDR, July 2010

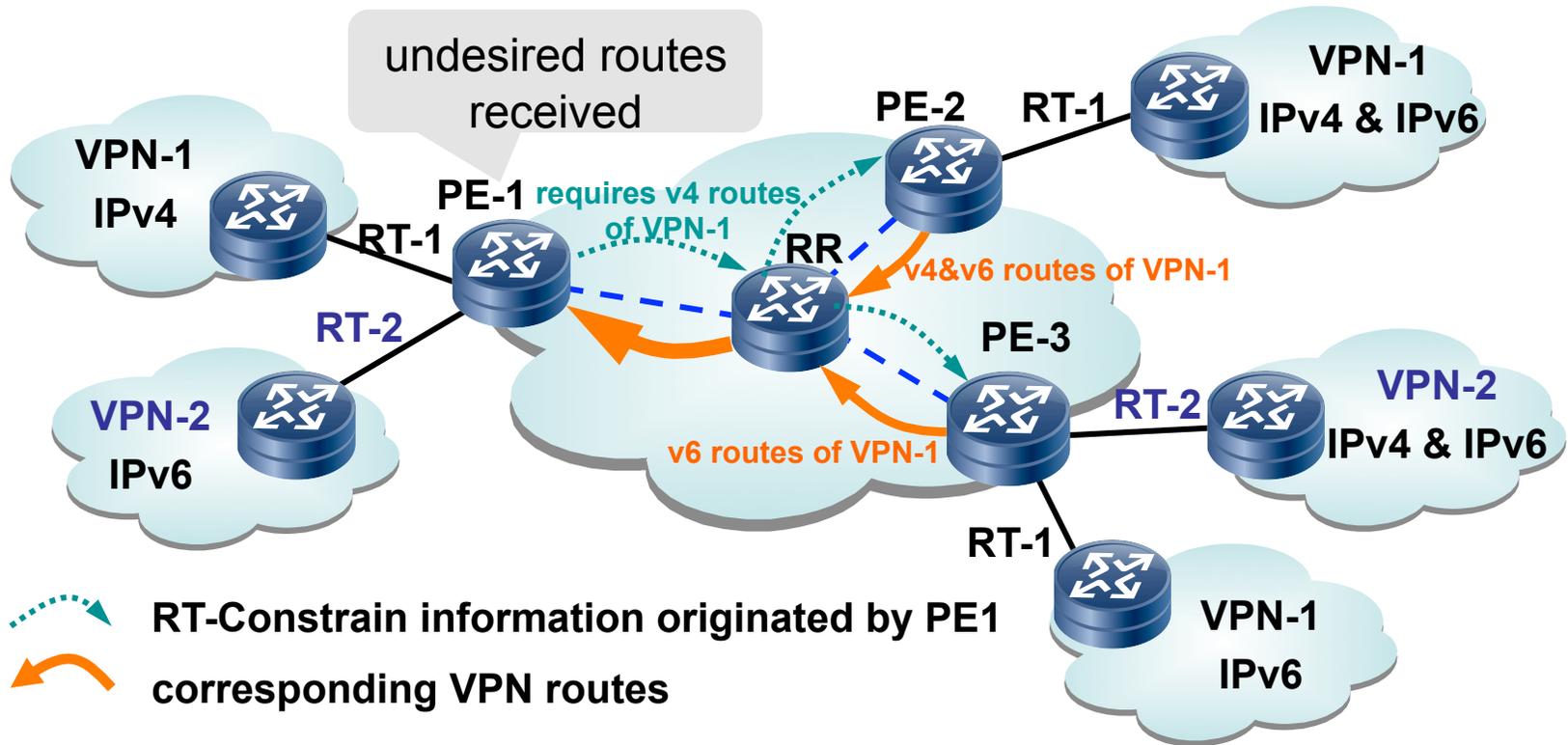
Updates in Ver-01

- 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:

Length (1 octet)
SAFI of VPN (1 octet)
Origin AS (4 octets)
Route Target (Variable)

- Benefits
 - Avoid sending & receiving of undesired routes
 - Deployment of new VPNs will not affect existing network

Next Steps

- Comments & feedbacks
- Improve the draft