Automatic Route Target Filtering for legacy PEs

draft-l3vpn-legacy-rtc-00

Pradosh Mohapatra, Arjun Sreekantiah, Keyur Petal, Alton Lo

IETF 82, Nov 2011, Taipei, Taiwan
Motivation

- Current VPN Route Target Constraint mechanism requires all the BGP speakers in the network are upgraded to support this functionality.

- In a network with route reflectors (RR), if one PE client does not support RT constraint distribution, the cluster degenerates into storing and processing all the VPN routes.
  - RR needs to request and stores all the network routes since they do not receive route target membership information from the legacy PEs.
  - RR will also generate all those routes to the legacy PE which end up filtering the routes and store the subset of VPN routes that are of interest.
Legacy PE Method

- Create a special “route-filter VRF”.
- Originate one or more routes from this VRF and attach a subset of Import Route Target (IRT) to each route.
- To refrain from importing “route-filter” VRF routes into VPN VRFs, two approaches:
  - Use of translation of IRTs to RT.
  - Use of outbound policy to avoid route-filter VRF routes from import into VPN VRFs.
Route-Filter routes handling by RR

- RR translates the attached route-target extended communities (TRT) to equivalent import route-target (IRT).
- RR also creates the route-target filter list for each legacy client by collecting the entire set of route targets.

Generating Route Target Membership NLRIs for the legacy PE client by following:
  - Translate the received extended communities into RT membership NLRIs.
  - Allow further propagation of the NLRIs to rest of the network to create RT membership flooding graph.
Exchanging RTC between legacy PE and RR

1. Legacy PE send RTC NLRI \{RT 1, RT 2\} to RR-1
2. RR-1 install an outbound Filter (Permit RT 1, RT 2) for PE-3
3. RR-1 converts the special VPN routes into RT-Constraint NLRI and propagates this update to connecting RR-2.
Status

- Received initial feedback from a few network operators.
- Implemented in both Cisco IOS and IOS-XR Routing System.
Next Step

- We would like to make this document as a WG document.
Thank You!