Persistent Route Oscillation in BGP Constrained Route Distribution
draft-idr-bgp-rt-oscillation-01
Bestpath due to metric

RT-1 NH=::6 metric=1
RT-1 NH=::5 metric=2
Metric is equal, bestpath due to peer address

RT-1 NH=::6 peer=::3
RT-1 NH=::6 peer=::4

RT-1 NH=::6 metric=1
RT-1 NH=::5 metric=2

Best Path
Other Path

RT-1 NH=::6 metric=1
RT-1 NH=::5 metric=2
Choose this client path at random
This replaces the previous path from peer ::4

RT-1 NH=::6 orig=::6 peer=::3
RT-1 NH=::5 orig=::5 peer=::4

RT-1 NH=::6 m=1 orig=::1 peer=::1
RT-1 NH=::6 m=1 orig=::6 peer=::6
RT-1 NH=::5 m=2 orig=::5 peer=::5

Best Path
Other Path

RT-1 NH=::6 m=1 orig=::1 peer=::1
RT-1 NH=::6 m=1 orig=::6 peer=::6
RT-1 NH=::5 m=2 orig=::5 peer=::5
Drop this path due to cluster id in list

RT-1 NH=::5 m=1 orig=::1 peer=::1
RT-1 NH=::6 m=1 orig=::6 peer=::6
RT-1 NH=::5 m=2 orig=::5 peer=::5
The Problem

RFC 4684: RT Constrain, Section 3.2

ii. When advertising an RT membership NLRI to a non-client peer, if the best path as selected by the path selection procedure described in Section 9.1 of the base BGP specification [4] is a route received from a non-client peer, and if there is an alternative path to the same destination from a client, the attributes of the client path are advertised to the peer.

When there's more than one client path?
The Solution

The solution is for the Route Reflector always to prefer the client paths when selecting a best path. This preference MUST be expressed before step f) of the BGP Decision Tie Breaking rules in Section 9.1.2.2 of [RFC4271]. It MAY be expressed at a higher step.