Extended Community
Derived from
Route Targets

draft-zzhang-idr-rt-derived-community

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A General Example Use Case

- A VPN of 10 PEs
  - With Route Target RT1, which is an EC (say EC1) with sub-type 0x2
  - RT1 == EC1
    - But when we say “Route Target”, we emphasize that it is an EC used to control the propagation and importation of routes
      - Routes with RT1 will be propagated to and imported by all the 10 PEs of the VPN
    - When we just say “Extended Community”, the above semantics is not implied
- Now a PE10 needs to propagate a route to PE1 only and PE1 needs to know that the route is related to the VPN
  - A Route Target (RT2) is attached to the route so that only PE1 imports it
  - An EC (EC2) is attached and PE1 knows EC2 is related to the VPN
  - RT2 != EC2 != RT1
  - While RT1 is for the VPN, it can’t be attached to the route
  - While EC2 can be an arbitrary EC configured to be related to the VPN, it would be nice to derive the EC2 from RT1

RT-derived EC

- For any RT, an EC can be derived from it by changing the sub-type to a new value
  - And the original RT can be recovered by changing the sub-type back
- IANA has assigned sub-type 0x15 for this purpose from the following registries:
  - Transitive Two-Octet AS-Specific Extended Community Sub-Types
  - Transitive Four-Octet AS-Specific Extended Community Sub-Types
  - Transitive IPv4-Address-Specific Extended Community Sub-Types
  - Non-Transitive Opaque Extended Community Sub-Types
  - EVPN Extended Community Sub-Types
- IANA has assigned a new type "RT-derived-EC" with value 0x0015 from Transitive IPv6-Address-Specific Extended Community Types registry

Specific Use Cases

- draft-ietf-bess-bgp-multicast-controller-06, section 2
- draft-ietf-bess-evpn-igmp-mld-proxy-11, section 9.5
  - Similar problem domain, but four EVPN specific ECs are defined corresponding to four types of RTs that EVPN uses:
    - Two-octet AS-Specific RT, Four-octet AS-Specific RT
    - IP4-Address-Specific RT, IP6-Address-Specific RT
  - RT-derived EC could have been used but not
    - The RT-derived EC concept was brought up late
    - EVPN specific ECs (type 0x6) are preferred
  - *This document does not attempt to change existing behavior*; it's mentioned purely as a theoretical example use of RT-derived EC

Next Steps

- Comments appreciated!
- A simple ***informational*** draft
  - To share the idea for any applicable uses
- Seek WG adoption