PCEP extensions for a BGP/MPLS IP-VPN

draft-kumaki-murai-pce-pcep-extension-l3vpn-10.txt

K. Kumaki             KDDI Corporation
T. Murai                 Furukawa Network Solution Corp.
D. Dhody               Huawei Technology
P. Jiang                 KDDI Corporation
T. Miyasaka           KDDI Corporation

2012/11/06
Motivation

A VPN customer desires their MPLS TE LSPs for interconnectivity between BGP/MPLS IP-VPN sites.

The PCE architecture is the most suitable to calculate MPLS TE LSPs between BGP/MPLS IP-VPN sites.
Problem Statement

• The PCE2 can’t distinguish PCReq messages between the VPN1 and the VPN2 when it sends them to the same destination.
• The PCE 2 can’t calculate an appropriate TE LSP between CEs per a VPN.
• The PCE1 can’t distinguish PCRep messages between the VPN1 and the VPN2 when it sends them to the same destination.
• The PCE1 can’t reply the PCRep messages corresponding to the PCReq messages from PCC/PCE.
PCEP Extensions

- The new Object-Types for VPN-IPv4 address and VPN-IPv6 address in END-POINTS object.

- A new END-POINTS object consists of the original source/destination IPv4/IPv6 address and the Route Distinguisher (RD).

```
     0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+---------------------------------------------+
| Source VPN-IPv4 address (12 bytes)          |
+---------------------------------------------+
| Destination VPN-IPv4 address (12 bytes)     |
+---------------------------------------------+
```
Handling

- **PCReq messages**
  - An ingress PE (PCE1) puts VPN-IPv4/IPv6 address in the END-POINTS object and send the PCReq message to an egress PE.
  - An egress PE (PCE2) Identifies a VPN from the VPN-IPv4/IPv6 address in the END-POINTS object.

- **PCRep messages**
  - An egress PE (PCE2) can look up the new END-POINTS object associated with the PCReq message and puts VPN-IPv4/IPv6 address in the END-POINTS object and send the PCRep message to an egress PE.
  - An ingress PE (PCE1) Identifies a VPN from the VPN-IPv4/IPv6 address in the END-POINTS object.
Handling

- **PCReq messages**
  - An ingress PE (PCE1) puts VPN-IPv4/IPv6 address in the END-POINTS object and send the PCReq message to an egress PE.
  - An egress PE (PCE2) Identifies a VPN from the VPN-IPv4/IPv6 address in the END-POINTS object.

- **PCRep messages**
  - An egress PE(PCE2) can look up the new END-POINTS object associated with the PCReq message and puts VPN-IPv4/IPv6 address in the END-POINTS object and send the PCRep message to an egress PE.
  - An ingress PE (PCE1) Identifies a VPN from the VPN-IPv4/IPv6 address in the END-POINTS object.
Handling

- **PCReq messages**
  - An ingress PE (PCE1) puts VPN-IPv4/IPv6 address in the END-POINTS object and send the PCReq message to an egress PE.
  - An egress PE (PCE2) Identifies a VPN from the VPN-IPv4/IPv6 address in the END-POINTS object.

- **PCRep messages**
  - An egress PE (PCE2) can look up the new END-POINTS object associated with the PCReq message and puts VPN-IPv4/IPv6 address in the END-POINTS object and send the PCRep message to an egress PE.
  - An ingress PE (PCE1) Identifies a VPN from the VPN-IPv4/IPv6 address in the END-POINTS object.
Recent Update

• draft-kumaki-murai-l3vpn-rsvp-te-06
  – RSVP signaling extension for MPLS-TE LSPs between BGP/MPLS IP-VPN customer sites
  – in IESG State: Waiting for AD Go-Ahead

• New co-author
  – D. Dhody(Huawei) joined as co-author
Next Steps

• Need more comments and feedback from WG
• Request WG to accept this I-D as a WG document