Supporting explicit inclusion or exclusion of abstract nodes for a subset of P2MP destinations in Path Computation Element Communication Protocol (PCEP).

draft-dhody-pce-pcep-p2mp-per-destination-03

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Updates

Removed the word explicit-path

- As conflicting use in RSVP
- Instead - explicit inclusion or exclusion of abstract nodes

Added clarifying text behind the motivation for this work

Simplified the encoding of P2MP Path request

- Inclusion or exclusion applied to all destinations in one ENDPOINTS object.
- Section on ordering removed (as a result of simplified encoding).

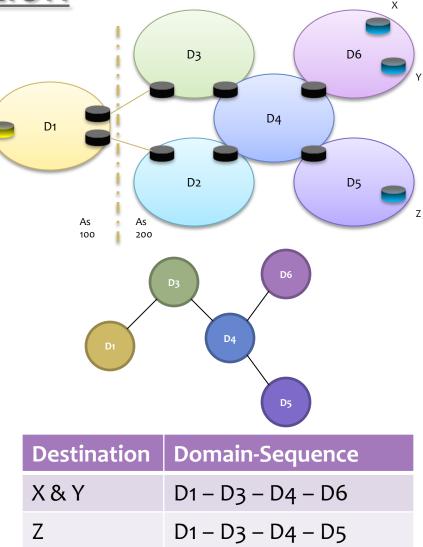**Security, IANA & Manageability Consideration**

Other editorial changes!

Motivation

P2MP Inter-domain Core-tree procedure (draft-ietf-pce-pcep-inter-domain-p2mp-procedures)

Assumption that the sequence of domains for a path (the path domain tree) will be known in advance .	For a group of destination which belong to a destination domain, the domain-sequence needs to be encoded separately.

The mechanism of explicitly specifying abstract nodes for inclusion or exclusion for a subset of destinations can be used for this purpose. (Here abstract nodes are domains)

X

D3

D6

D4

Y

A

D1

As 100

As 200

D2

D5

Z

D3

D6

D1

D4

D5

Destination	Domain-Sequence
X & Y	D1 – D3 – D4 – D6
Z	D1 – D3 – D4 – D5

Motivation

ENDPOINTS Type
• New leaves to add • Old leaves to remove • Old leaves whose path can be modified / re-optimized • Old leaves whose path must be left unchanged

BNC Object
• mechanism to specify branch nodes that can or cannot be used via Branch Node Capability (BNC) object • Format same as IRO but only support IP Prefix subobject

Consider,
o Existing P2MP tree that has a preferred branch node through which most of the leaves are connected
o When adding a set of new leaves, administrator may want to exclude that branch node (as it may soon be overloaded)

But,
o BNC Object applies to full P2MP tree and thus to all leaves in path request.
o Also inclusion/exclusion of any abstract node (not just branch nodes) can be helpful for the administrator, ex to avoid a malfunctioning or compromised node.

o The mechanism of explicitly specifying abstract nodes for inclusion or exclusion for a subset of destinations can be used.

Path Request Message Format

```
<PCReq Message>::= <Common Header>
                        <request>
where:
     <request>::= <RP>
                        <end-point-iro-xro-rro-pair-list>
                        [<OF>]
                        [<LSPA>]
                        [<BANDWIDTH>]
                        [<metric-list>]
                        [<IRO>]
                        [<LOAD-BALANCING>]

where:

     <end-point-iro-xro-rro-pair-list>::=
                        <END-POINTS>
                        [<IRO>]
                        [<XRO>]
                        [<RRO-List>][<BANDWIDTH>]
                        [<end-point-iro-xro-rro-pair-list>]

     <RRO-List>::=<RRO>[<BANDWIDTH>][<RRO-List>]
     <metric-list>::=<METRIC>[<metric-list>]
```

The mechanism of explicitly specifying abstract nodes for inclusion or exclusion for a subset of destinations!

Questions
&
Comments?

Thanks!