Standard Representation Of Domain Sequence

draft-dhody-pce-pcep-domain-sequence-02

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Updates from -01

•**Clear definition of Domain Sequence**

> *A domain-sequence is an ordered sequence of domains traversed to reach the destination domain. In this context a Domain could be an Autonomous System (AS) or an IGP Area. Note that an AS can be further made of multiple Areas.*

•**Provision to specify Boundary Nodes & Inter-AS Links as a part of Domain-Sequence**

> *Thus a Domain-Sequence MAY be made up of one or more of –*
> - o *AS Number*
> - o *Area ID*
> - o *Boundary Node ID*
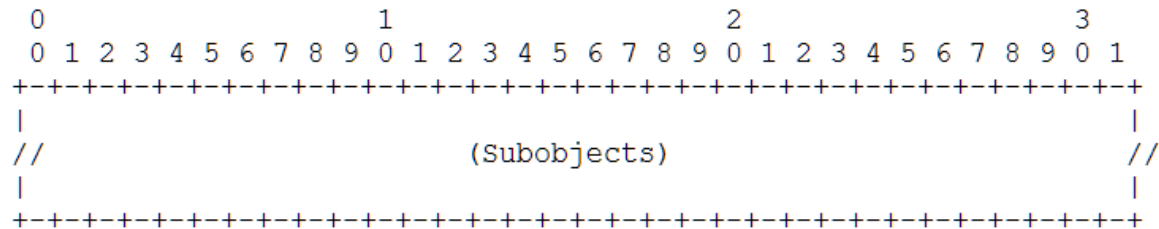> - o *Inter-AS-Link Address*

Updates from -01

- **Encoding of Domain Sequence**

```
We define a new type of IRO Object to define Domain Sequence.

   IRO Object-Class is 10.
   IRO Object-Type is TBD. (2 suggested value to IANA)


   0                   1                   2                   3
    0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
   +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
   |                                                               |
   //                          (Subobjects)                       //
   |                                                               |
   +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+


The following sub-object types are used.
           Type    Sub-object
            1       IPv4 prefix
            2       IPv6 prefix
            4       Unnumbered Interface ID
            32      Autonomous system number (2 Byte)
           TBD      Autonomous system number (4 Byte)
           TBD      OSPF Area id
           TBD      ISIS Area id
```

Updates from -01

- **Mode of Operation**
    Domain-Sequence can be used:
    o *by a PCE in order to discover or select the next PCE in a collaborative path computation, such as in BRPC [RFC5441];*

    o *by the Parent PCE to return the domain sequence when unknown, this can further be an input to BRPC procedure;*

    o *by a PCC (or PCE) to constraint the domains used in a H-PCE path computation, explicitly specifying which domains to be expanded;*

Algorithm that MAYBE used to select the next PCE

```
START
Get the first Sub-Object S1 from the Domain-Sequence
IF S1's Type is Area (OSPF or ISIS)
    IF S1's Domain is same as current PCE's Area
        Remove S1 from Domain-Sequence and Goto START
    ELSE
        Find the next PCE based on S1's Area within the AS
    ENDIF
ELSEIF S1's Type is AS (2 or 4 Byte)
    IF S1's Domain is same as current PCE's AS
        Remove S1 from Domain-Sequence and Goto START
    ELSE
        Get the next Sub-Object S2 from the Domain-Sequence
        IF the S2 is NULL or S2's type is AS
            Find the next PCE based on S1's Domain (AS) only
        ELSEIF S1's Type is Area
            Find the next PCE based on S1's Domain (AS)
            and S2's Domain (Area)
        ELSE
        ENDIF
    ENDIF
ENDIF
IF Domain-Sequence is empty or next PCE is not found
    Send PCRep with NO-Path
ENDIF
```

Next Steps

- **Request for WG adoption**

  - Key for all inter-domain PCE mechanism
    - BRPC
    - P2MP Inter domain
    - HPCE

  - Referenced in PCE documents (WG and otherwise)

Questions
&
Comments?

Thanks!