Extensions to RSVP-TE to Support Route Exclusion Using Path Key Subobject

PCE WG, IETF 88th, Vancouver, Canada

draft-zhang-ccamp-route-exclusion-pathkey-00.txt

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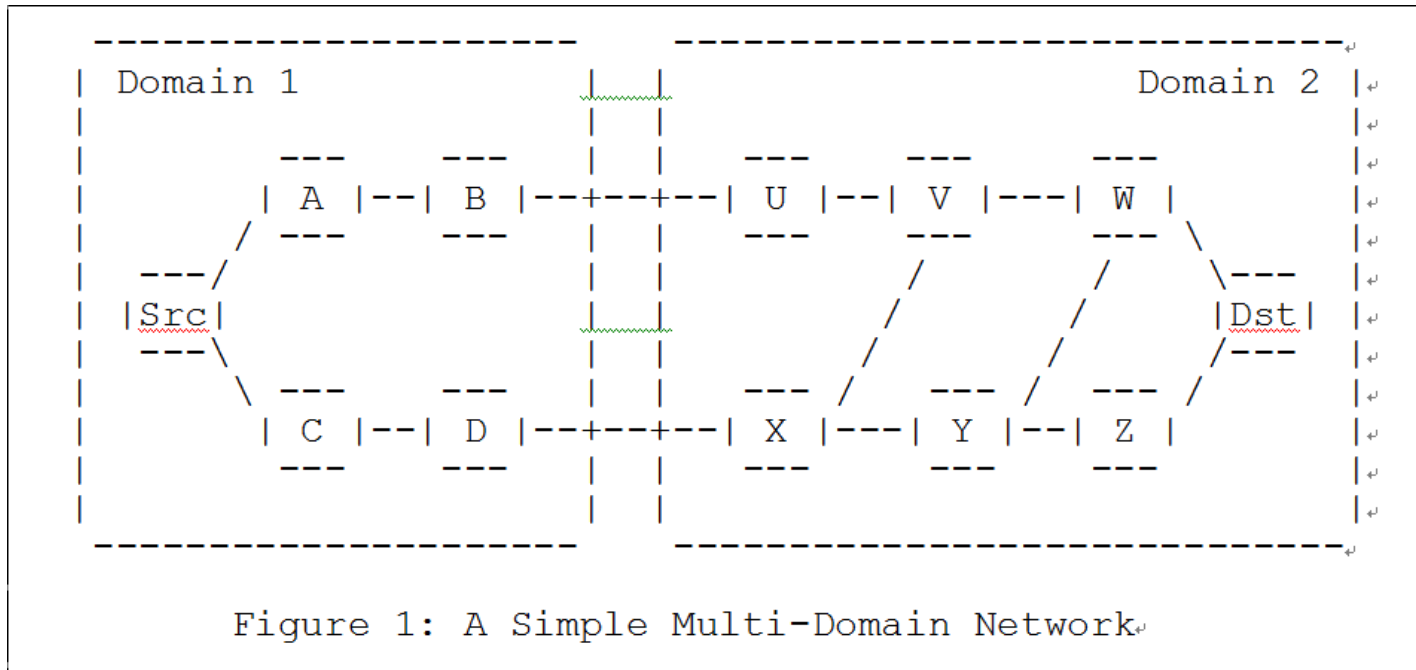Fatai Zhang (zhangfatai@huawei.com)

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Problem Statement

Problem: how to specify the diversity constraints during signaling?

Current Solutions and potential issues:

➢ Using node/link/SRLG list in XRO, may be stripped; ☹

➢ Using LSP identifier (5-tuple) in XRO, may not be functional without a stateful PCE;☹

```
 -------------------       ---------------------------
| Domain 1          |  |    |                 Domain 2 |
|                   |  |    |                          |
|    ---      ---   |  |   ---     ---       ---        |
|   | A |--| B |--+--+--| U |--| V |---| W |           |
|   / ---     ---   |  |  ---     ---       --- \       |
|  ---/             |  |          /         /    \---   |
| |Src|             |  |         /         /     |Dst|  |
|  ---\             |  |        /         /      /---   |
|    \   ---     ---|  |  ---  /    ---  / ---  /       |
|     | C |--| D |--+--+--| X |---| Y |--| Z |          |
|        ---     ---|  |   ---     ---    ---           |
|                   |  |                                |
 -------------------       ---------------------------

       Figure 1: A Simple Multi-Domain Network
```

Proposed Extensions

Core idea: taking advantage of RFC5553 (Path Key subobject in ERO), propose feasible *AND* minimal extensions.

Extensions: putting Path Key Subobject (PKS) in XRO and ERO EXRS.

Subobject format (IPv4 example) as below:

```
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|L|    Type     |     Length    |           Path Key            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                    PK-owner-ID (4 bytes)                      |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Note: the Path key-based solution does not enforce the implementation of full PCE functions but rather only the Path Key resolution capability.

Next Step

- This is a straightforward extension and well received in the mailing list ahead of meeting;

- The authors would like to ask for WG adoption;