PCEP Extension for NRP-ID

draft-xiong-pce-nrp-id-01

Quan Xiong,Shaofu Peng(ZTE)
Vishnu Pavan Beeram,Tarek Saad(Juniper)

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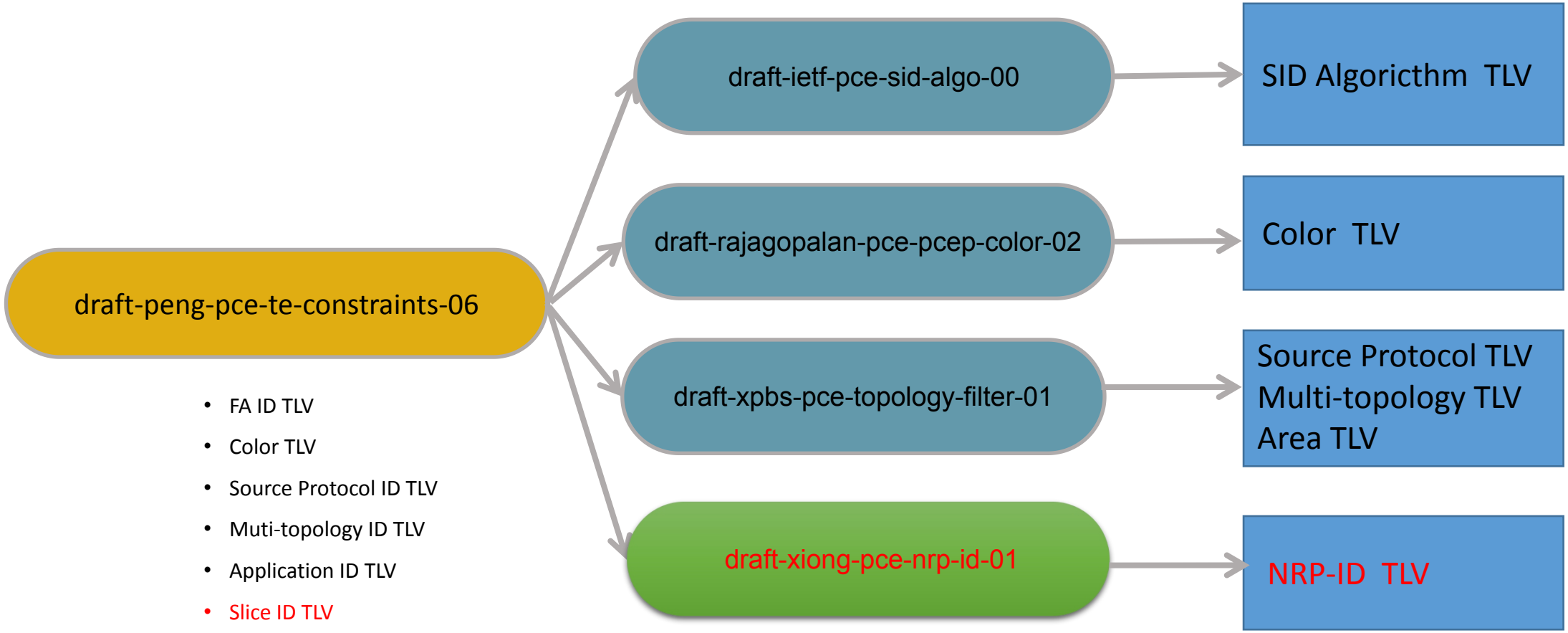
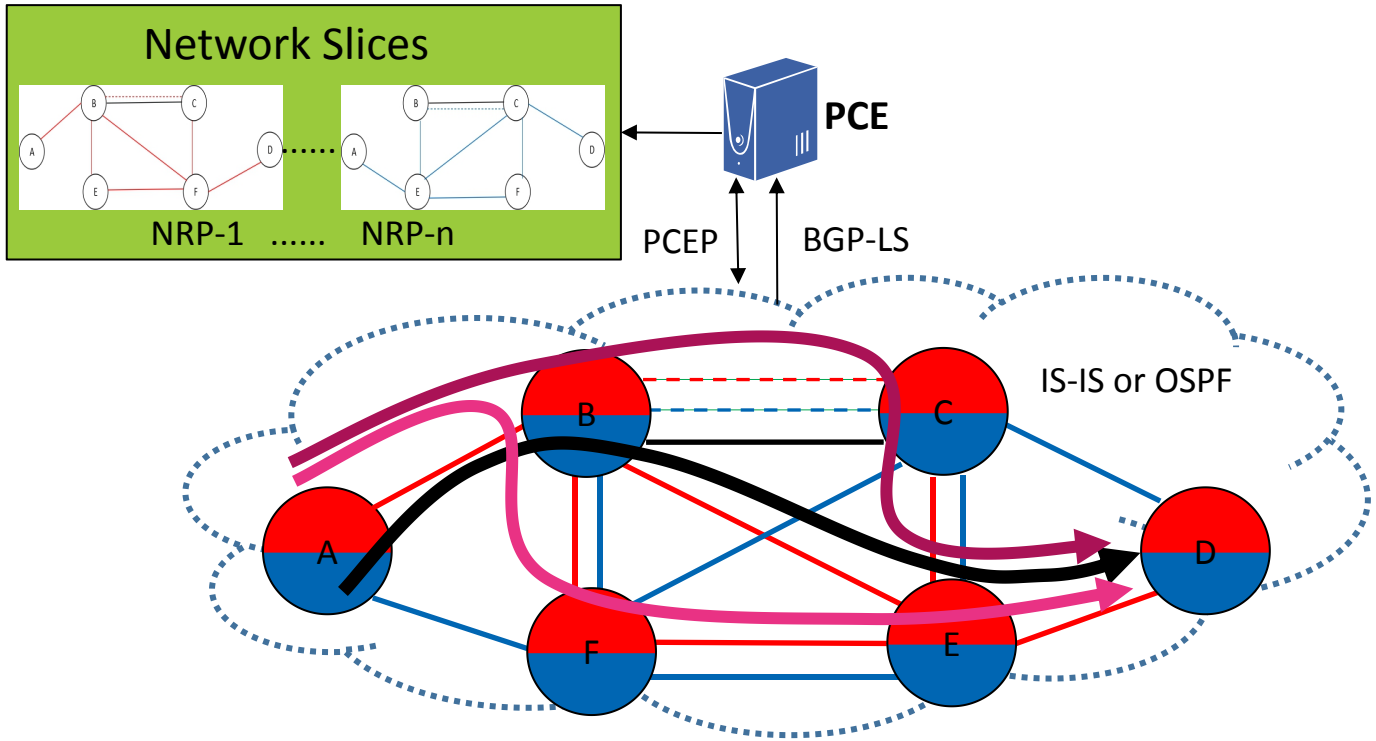
Recap

- draft-peng-pce-te-constraints-06 proposes a set of constraints for PCEP with the network information and has been replaced by servaral drafts as the following shown.



Overview of NRP-ID

- As per [I-D.ietf-teas-ns-ip-mpls], NRP Identifier (NRP-ID) indicates an identifier that is globally unique within an NRP domain and that can be used in the control or management plane to identify the resources associated with the NRP.
- This document proposes a set of extensions for PCEP to support the identifier of Network Resource Partition (NRP-ID) as the constraint of network slicing during path computation.



NRP-ID TLV

- The NRP-ID could be used to identify the slice and network resource and viewed as constraints of network slicing when PCE is deployed. The PCE may maintain network resources per path and the NRP state within the resource pool identified by NRP-ID.
- The NRP-ID TLV should be carried in PCEP messages when computing NRP stateaware TE paths.
  - In a PCReq message, a PCC MAY request the PCC to compute the NRP-TE path and insert a NRP-ID TLV to indicate the resources within a NRP domain.
  - In a PCInit/PCUpd message, the PCE MAY compute the optimal NRP-TE path and carry the NRP-ID TLV so as to provide the network slicing information.
- The NRP-ID TLV is optional and is defined to carry the slice specific constraint.
  - NRP-ID (32 bits): indicates a NRP Identifier as defined in [I-D.ietf-teas-ns-ip-mpls].

```
 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
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|         Type=TBD1             |            Length=4           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                            NRP-ID                             |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Figure 1: Figure 1: NRP-ID TLV

Next Step

- Thank the suggestions from Dhruv in the mailing list. NRP capability would be added in Open message.
- Make clarification for the path computation with NRP-ID constraint and add reference to IGP Extensions for NRP as per [I-D.bestbar-lsr-spring-nrp].
- Comments and discussions are very welcome!
- Thanks!