

PCEP Extensions for SFC in SR Networks

draft-xu-pce-sr-sfc-02

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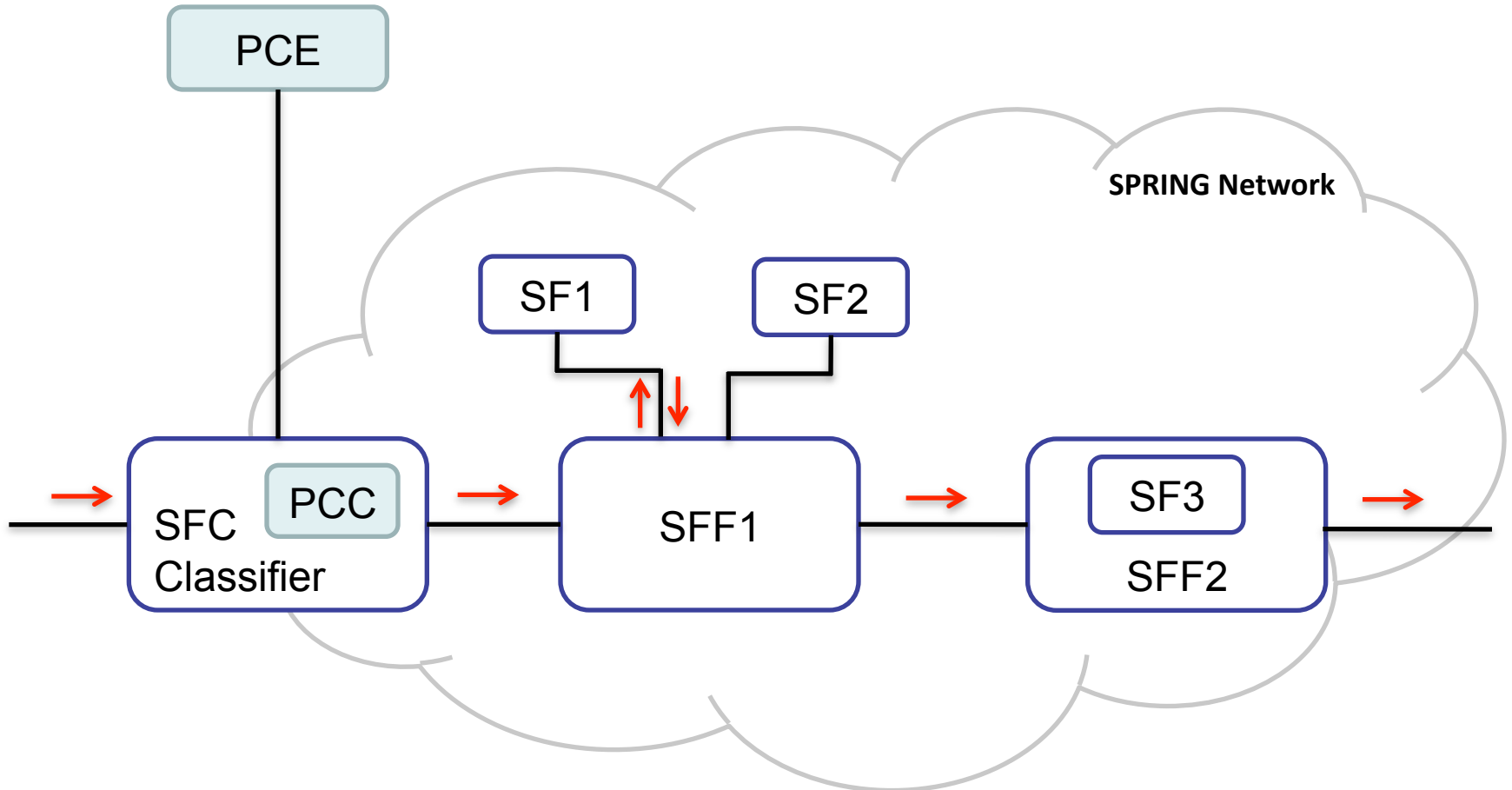
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Motivation

- Allow a PCE to compute and instantiate service function paths in SPRING networks
- Support different types of service function paths by PCE
- Specify extensions to both stateless PCE model and stateful PCE model

PCE-based SFC in SPRING Network



PCE is used to compute an SFP in SPRING networks, for example, an SFP corresponding to an SFC of {SF1 ->SF3} can be expressed as {SFF1 -> SF1 -> SFF2 -> SF3}. An SR-specific SFP can be described as an ordered list of node SIDs (representing SFFs) and Service Function SIDs (representing SFs).

PCEP Message Extensions

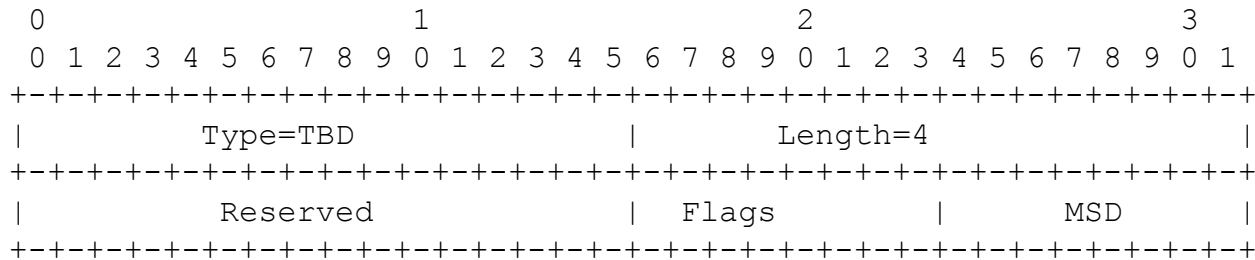
- PCReq Message
 - no changes to the PCReq message format
 - requires the PATH-SETUP-TYPE TLV [I-D.sivabalan-pce-lsp-setup-type] to be carried in the RP Object in order for a PCC to request a particular type of SFP.
 - requires the Include Route Object (IRO) to be carried in the PCReq message in order for a PCC to specify SFC. A new IRO sub-object type needs to be defined for SF.
- PCRep Message
 - define the format carrying an SFP from a PCE to a PCC
`<response>::=<RP> [<NO-PATH>] [<path-list>]`
where, `<path-list>::=<SR-SFC-ERO>[<path-list>]`
- PCUpd Message
 - define the format carrying an SFP from a PCE to a PCC
`<update-request>::=<SRP><path-list>`
where, `<path-list>::=<SR-SFC-ERO>[<path-list>]`
- PCRpt Message
 - define the format carrying an SFP from a PCC to a PCE
`<state-report>::=[<SRP>]<path-list>`
where, `<path-list>::=<SR-SFC-ERO>[<path-list>]`

Object Formats 1/2

- OPEN Object

- SR-SFC PCE Capability TLV

Optional, to negotiate SR-SFC capability on the PCEP session



- RP/SRP Object

- the RP or SRP object MUST carry a PATH- SETUP-TYPE TLV specified in [I-D.sivabalan-pce-lsp-setup-type].

- PST = 2: The path is an SFP

- PST = 3: The path is a compact SFP

- PST = 4: The path is an SR-specific SFP

- PST = 5: The path is a compact SR-specific SFP

Object Formats 2/2

➤ SR-SFC-ERO Subobject

```
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|L|   Type   | Length   | NSIT   | Flags   |P|F|S|C|M|
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
//           SID (variable:4 or 16 octets)           //
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

- This draft has been sufficiently discussed since Toronto
- This draft has been sufficiently discussed since Toronto meeting and all received comments have been addressed.

Thank You!