Path Computation Based on Precision Availability Metrics

draft-contreras-pce-pam-06

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History

- The draft has been already presented in PCE at IETF 118, 119, 120, 122 and 123
- It was also presented in IPPM at IETF 122, in DetNet at IETF 123 and in TEAS at IETF 124
- Comments received from PCE, IPPM, DetNet, and TEAS

Changes in -06

Table of Contents

- New section 3.4 introducing the process for calculation or selection of a path based on precision metrics
- New Appendix describing ways of histogram composition for deriving the performance metrics of a path
  - Consideration of additive metrics, multiplicative metrics and minimal/maximal metrics
- Removal of previous section on related work
- Correction of typos

Next Steps

- To address comments from TEAS and PCE in IETF 124 (if any)
- The draft has been well received in IPPM and DetNet (also TEAS tbc) showing interest on it
- Ask for adoption since the draft is stable from authors' perspective

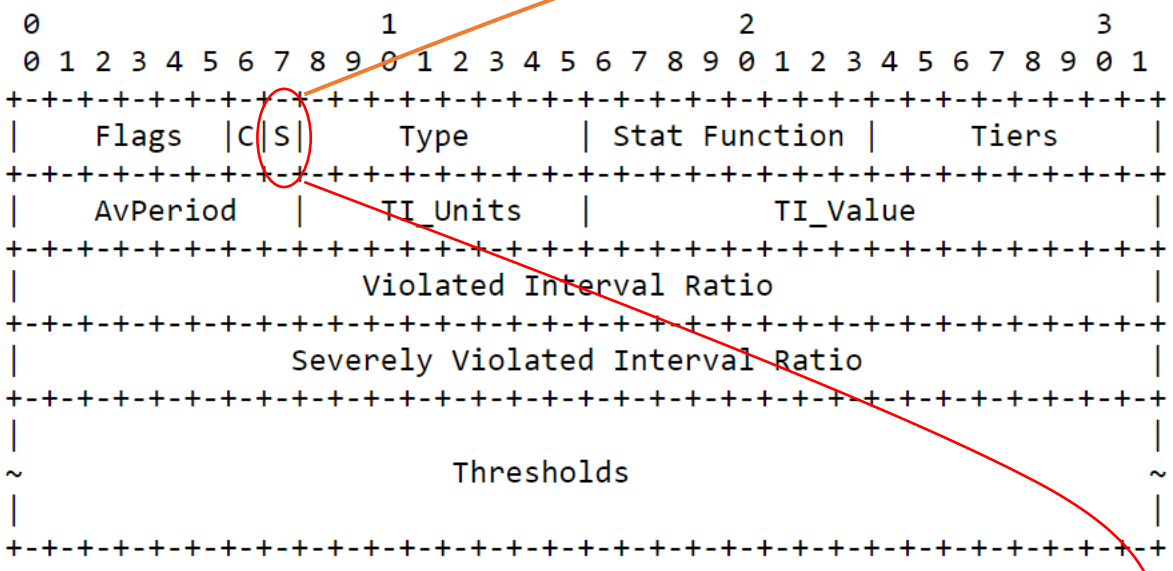
Backup

Recap

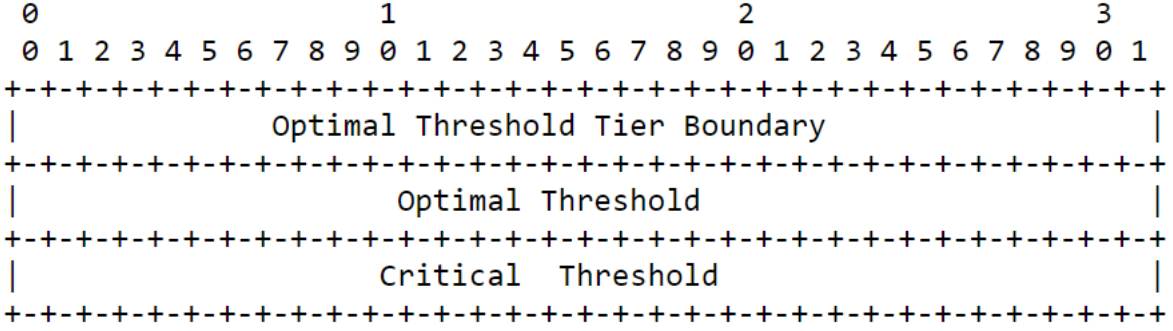
- Some communication services present performance requirements expressed as Service Level Objectives (SLO) (e.g., [RFC9543] [RFC8655])
- IPPM WG has defined Performance Availability Metrics (PAM) for describing and monitoring SLOs [RFC9544]
- PCE nowadays can compute or select paths based on metrics that can represent a bound or maximum, but not in the form of PAM
- For services with SLOs is convenient to create / select a path knowing its behavior along the time

PRECISION METRIC Object

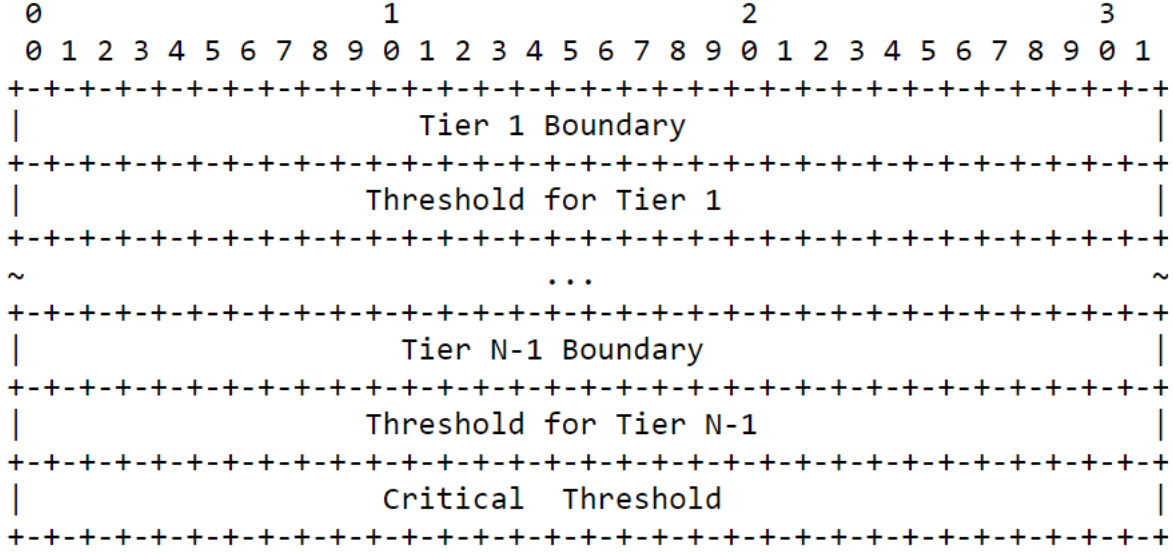
Proposed new PRECISION METRIC Object



S=0 - only an optimal and critical thresholds are considered



S=1 - several thresholds are considered



PCEP messages

```
<PCReq Message> ::= <Common Header>
                    [<svec-list>]
                    <request-list>
where:
     <svec-list> ::= <SVEC>
                     [<OF>]
                     [<metric-list>]
                     [<precision-metric-list>]
                     [<svec-list>]

     <request-list> ::= <request> [<request-list>]

     <request> ::= <RP>
                   <END-POINTS>
                   [<LSP>]
                   [<LSPA>]
                   [<BANDWIDTH>]
                   [<bu-list>]
                   [<metric-list>]
                   [<precision-metric-list>]
                   [<OF>]
                   [<RRO>[<BANDWIDTH>]]
                   [<IRO>]
                   [<LOAD-BALANCING>]

and where:
     <precision-metric-list> ::= <PRECISION-METRIC>[<precision-metric-
list>]
```

```
<PCRep Message> ::= <Common Header>
                    [<svec-list>]
                    <response-list>

where:

      <svec-list> ::= <SVEC>
                      [<OF>]
                      [<metric-list>]
                      [<precision-metric-list>]
                      [<svec-list>]

     <response-list> ::= <response> [<response-list>]

     <response> ::= <RP>
                    [<LSP>]
                    [<NO-PATH>]
                    [<attribute-list>]
                    [<path-list>]

     <path-list> ::= <path> [<path-list>]

     <path> ::= <ERO>
                <attribute-list>

and where:

     <attribute-list> ::= [<OF>]
                          [<LSPA>]
                          [<BANDWIDTH>]
                          [<bu-list>]
                          [<metric-list>]
                          [<precision-metric-list>]
                          [<IRO>]

     <precision-metric-list> ::= <PRECISION-METRIC>[<precision-metric-
list>]
```