Path Computation Based on Precision Availability Metrics

draft-contreras-pce-pam-04

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Recap

- Some communication services present performance requirements expressed as Service Level Objectives (SLO) (e.g., [RFC9543])
- 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

- The draft has been already presented at IETF 118, 119 and 120

Changes in -04

- New section for better motivate the need of a new object to express precision metrics.
  - The notion of “precision” refers to how the metric is described (i.e., a statistical distribution). Extending the type field in the METRIC object for defining an existing metric as “precision” metric can create inconsistencies.
  - Not all the existing metric types currently defined for the METRIC object could (easily) adhere to the notion of precision metrics (e.g., number of layers on a path).
  - The current structure of the METRIC object is not sufficiently flexible for permitting a clean description of the precision metrics.
  - The precision metrics can be independent of the existing metric in the METRIC object, and can be used simultaneously or separately.
- In our view, these limitations make preferrable the introduction of a new object for precision metrics

Next steps

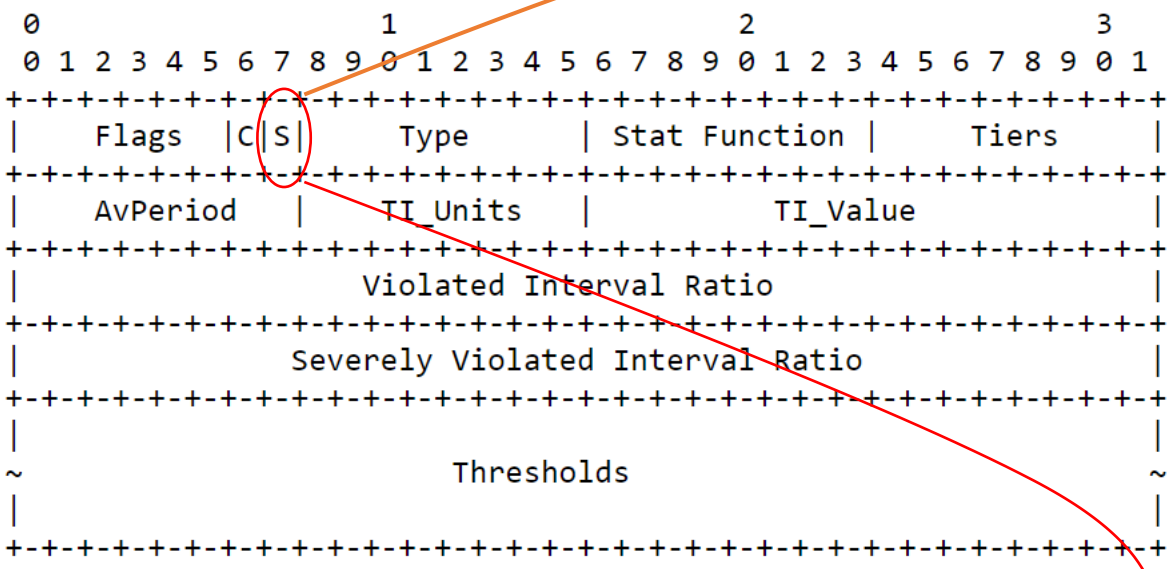
- Mail has been sent to IPPM wg mailing list for requesting comments
  - Some comments already received (Ruediger, Greg)
  - A short presentation is schedule during IPPM session for socializing the draft there
- Collect more comments from PCE wg
- Confirm if the direction of defining a new object is agreed by the WG

- Prepare new version for IETF 123 with the comments collected in both PCE and IPPM working groups
  - After that, look for adoption if no major concerns exist

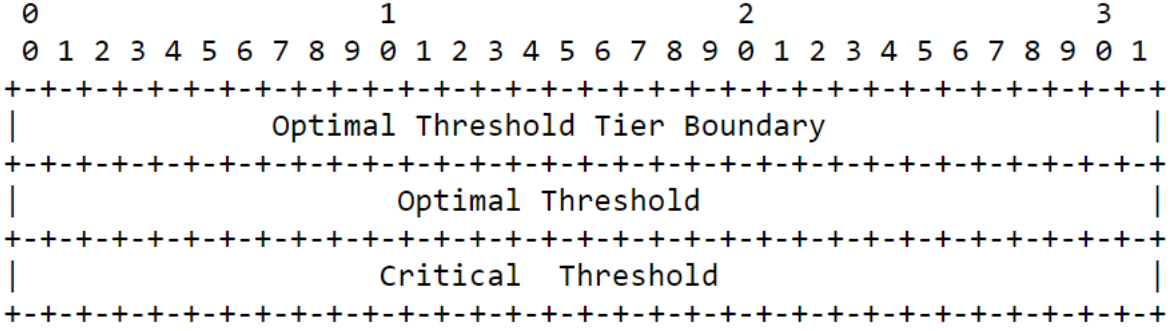
Backup

PRECISION METRIC Object

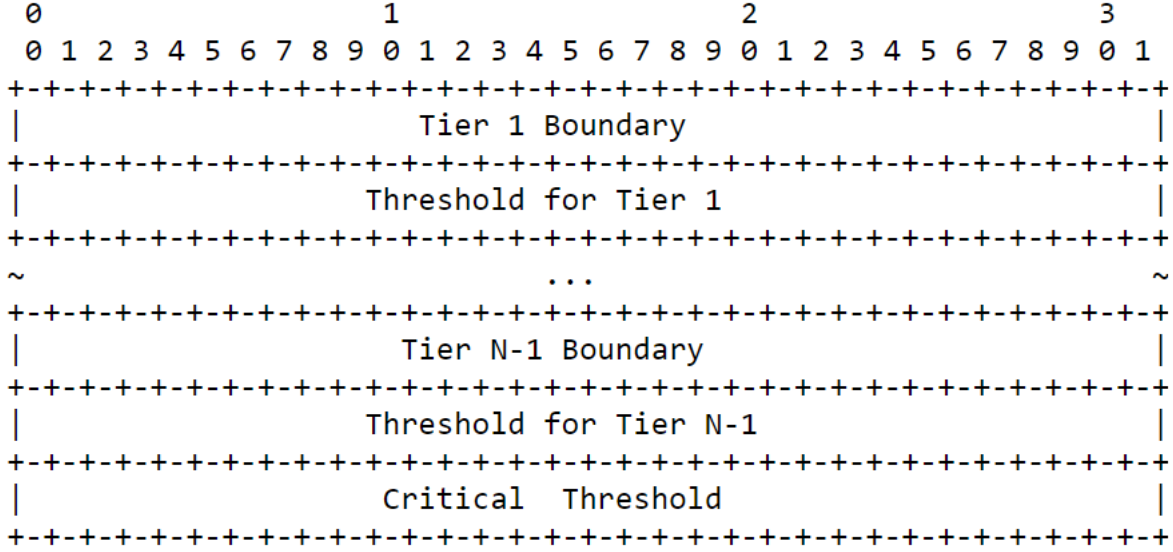
Proposed new PRECISION METRIC Object



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>]
```