Path Computation Based on Precision Availability Metrics

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Motivation

• Some communication services present performance requirements expressed as Service Level Objectives (SLO)
  • E.g., RFC XXXX Network Slice [I-D.ietf-teas-ietf-network-slices] or deterministic [RFC5878] [RFC8655] services

• IPPM WG is defining Performance Availability Metrics (PAM) for defining and monitoring SLOs [I-D.ietf-ippm-pam]

• PCE can compute or select paths based on metrics that can represent a bound or maximum
  • The path metric must be less than or equal such value
  • The path metric observed represents the current behavior

• For services with SLOs is convenient to evaluate the path behavior along the time
PAM metrics

- **Violated Interval (VI)** is a time interval during which at least one of the performance parameters presents degradation respect to a predefined optimal level threshold.

- **Severe Violated Interval (VI)** is a time interval during which at least one of the performance parameters presents degradation respect to a predefined critical level threshold.

- **Violated Interval Ratio (VIR)** is defined as the ratio of the summed numbers of VIs and SVIs to the total number of time unit intervals along a predefined availability period.

- **Severely Violated Interval Ratio (SVIR)** is defined as the ratio of SVIs to the total number of time unit intervals along a predefined availability period.
Extension

METRIC Object as per RFC5440

PAM metric assessed against a multi-tiered SLO, presenting different thresholds per tier

PAM metric assessed against an optimal (for VI) and a critical (for SVI) thresholds

METRIC Object extension (for T == PAM type)
Statistical distribution (e.g., histogram)
Next steps

• -01 released during IETF week for fixing missing information

• Collect feedback from the WG

• Prepare new version for IETF 119