Extensions to the PCEP to compute service aware LSP.

draft-dhody-pce-pcep-service-aware-03

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Introduction

- Many service providers wants performance metric SLAs –
  - Latency (delay)
  - Latency-Variation (jitter)
  - Packet loss

- Important Applications/Scenarios
  - Electronic Financial Market
  - High Performance computing on Cloud

- Moving forward the **service aware** network will become more and more critical and important to consider these parameters ***during path computation itself***.

- Extension to PCEP to support Latency, Latency-variation and Loss as constraints for end to end path computation.

Updates from -02

- Format and description for Metric Value
- Aligned with OSPF-TE-EXPRESS and ISIS-TE-EXPRESS drafts i.e. use of 24 bits in 32-bit metric value

Latency (Delay) Metric Value	The last 24-bits of the 32-bit metric value represents the end to end Latency (delay) quantified in units of microseconds and MUST be encoded as integer value. With the maximum value 16,777,215 representing 16.777215 sec. 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 +-+ | Resv | Latency (Delay) Metric | +-+
Latency Variation (Jitter) Metric Value	The last 24-bits of the 32-bit metric value represents the end to end Latency variation (jitter) quantified in units of microseconds and MUST be encoded as integer value. With the maximum value 16,777,215 representing 16.777215 sec. 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 +-+ | Resv | Latency variation (jitter) Metric | +-+
Packet Loss Metric Value	The last 24-bits of the 32-bit metric value represents the end to end packet loss quantified as a percentage of packets lost and MUST be encoded as integer. The basic unit is 0.000003%, with the maximum value 16,777,215 representing 50.331645% (16,777,215 * 0.000003%). This value is the highest packet loss percentage that can be expressed. 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 +-+ | Resv | Packet loss Metric | +-+

Updates from -02

- Inter-layer Consideration
  - Mechanism to support different Metric requirements for different Layers.
  - In order to allow different Metric-Value to be applied within different network layers, multiple METRIC objects of the same type MAY be present.
  - In such a case, the first METRIC object specifies an metric for the higher- layer network, and subsequent METRIC objects specify objection functions of the subsequent lower-layer networks.

- Reoptimization Consideration
  - PCC can monitor the LSP after setup and incase of degradation of network performance constraints (like delay), it MAY ask PCE for reoptimization as per [RFC5440].

Next Steps

- Request to be considered for WG adoption.

Questions & Comments?

Thanks!