BGP attribute for North-Bound Distribution of Traffic Engineering (TE) performance Metric
draft-wu-idr-te-pm-bgp-03

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Recap.

• TE performance related information is required by some external components (e.g., ALTO server, PCE server)
  – TE Performance information includes network delay, jitter, packet loss, bandwidths.
  – PCE Server can use network performance info as constraint for end to end path computation
  – ALTO server can gather and aggregate these dynamic network performance information and use these info to decide which endpoint to connect.

• TE performance can be hard to gather via ISIS or OSPF or need to gather using other means in some cases
  – Inter-AS PCE computation
  – Hierarchy of PCE
  – BGP
  – NMS/OSS
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• A new general mechanism is needed to collect and distribute TE performance information
  – draft-ietf-idr-Is-distribution describes a mechanism to distribute link state and TE information using BGP
  – This draft uses BGP to share additional TE performance related information to external components beyond linkstate and TE information contained in [I-D.ietf-idr-Is-distribution]
New BGP TLV attribute for TE performance info

- [I-D.ietf-idr-ls-distribution] defines new BGP path attribute (BGP-LS attribute) to carry link, node, prefix properties.
- This draft reuses existing BGP-LS attribute and defines 7 new TLVs that can be announced as BGP-LS attribute used with link NLRI.
- These BGP TLVs populate the following network performance information:
  - Unidirectional Link Delay
  - Min/Max Unidirectional Link Delay
  - Unidirectional Delay Variation
  - Unidirectional Packet Loss
  - Available bandwidth
  - Unidirectional Residual Bandwidth
  - Unidirectional Available Bandwidth
  - Unidirectional Utilized Bandwidth
- These network performance information carried in BGP TLV is same as one in IS-IS Extended Reachability TLV [I.D-ietf-isis-te-metric-extensions-00 ]
- The format and semantics of the 'value' fields in these BGP TLVs is same as one defined as sub TLV of IS-IS Extended Reachability TLV.
Update after IETF 87

• Complimentary to [I-D.ietf-idr-ls-distribution]
• Changes compared to (v-01)
  – Remove new metric ‘channel throughput’ from this draft based on discussion with ISIS-TE-extension draft authors
  – Move new metric ‘link utilization’ to [I.D-ietf-isis-te-metric-extensions-01] and define it as ‘unidirectional utilized bandwidth’ Sub TLV of IS-IS Extended Reachability TLV
  – Change metric name and add “Min/Max Unidirectional Link Delay ” as a new metric to get inline with [I.D-ietf-isis-te-metric-extensions-00 ].
  – Add ‘unidirectional utilized bandwidth’ as seventh metric carried in new BGP TLV.
  – Add ' Anomalous ' bit in the BGP TE performance TLV to indicate whether performance is in steady state.

• Thanks Hannes for arranging a offline discussion after Berlin meeting with ISIS-TE-extension authors on why two additional attributes should be added into IGP draft.

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Next Step

• Any comments?
• Request WG adoption