BGP Metric Credit

draft-peng-idr-bgp-metric-credit-00

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Motivations

- BGP intent routes includes not only the route with minimum delay, but also the route with specific cumulative delay, e.g, 100ms.

- A single intent template configured on the intermediate BGP speaker may be used for multiple paths destinated to different endpoints, with different resolution delay requirements.

  – Thus, the additional resolution delay requirements that can not be covered by intent template, need to be advertised in routes.
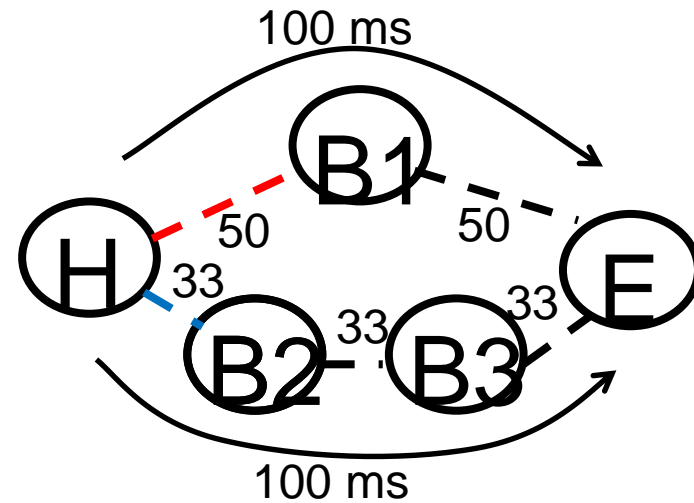
Typical Scenarios

For intent route <E, I> with delay 100ms

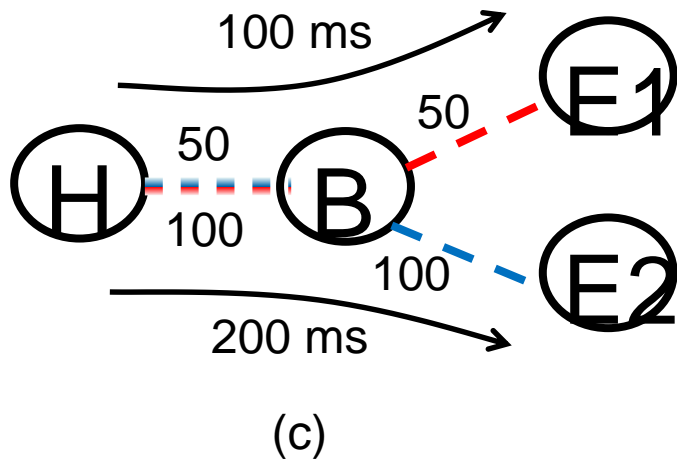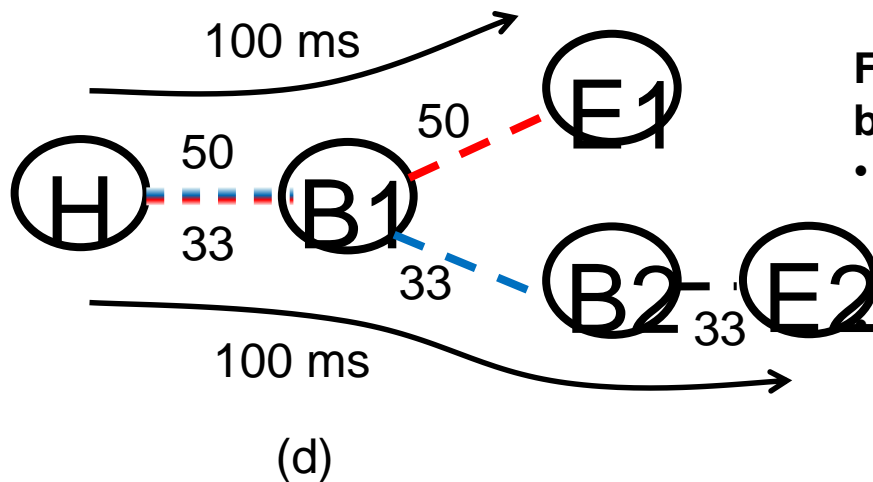- how does H determine the different delay requirements for segment H---B1 and H---B2 respectively ?
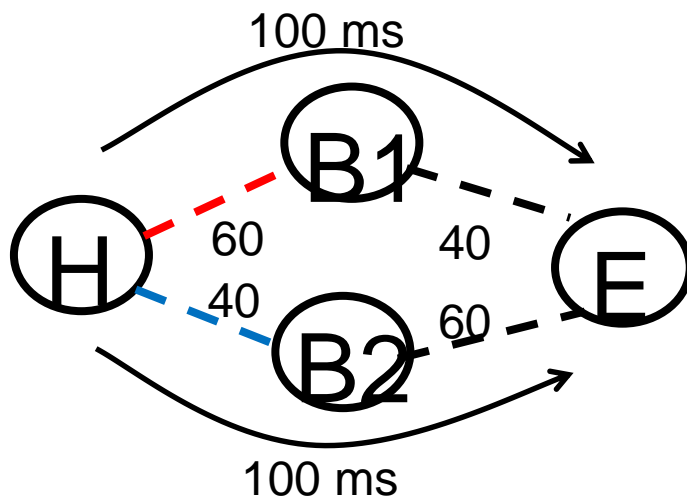
(a)   (b)

Typical Scenarios (cont...)

(c)

For two intent routes, <E1, I> with delay 100 ms, and <E2, I> with delay 200 ms
- how does B determine the different delay requirements for segment B---E1 and B---E2 respectively ?
- and how does H determine the different delay requirements for the common segment H---B of two intent routes ?

(d)

For two intent routes <E1, I> and <E2, I> both with delay 100 ms
- how does B1 determine the different delay requirements for segment B1---E1 and B1---B2 respectively ?
and how does H determine the different delay requirements for the common segment H---B1 of two intent routes ?

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Schemes

- **Premise**: intent routing is established between known and determined endpoints, with **predictable propagation path controlled by policy**.
    - For **multiple propagation paths with very different hop-counts**, suggest: using different intents; or using Explicit Propagation Object (EPO) list.

- METRIC-CREDIT attribute

metric credit information per target headend:

Total E2E Metric Credit
Estimated Hop-counts

Optional:
   Credit Piece [Hop-count]
   or EPO ilst

Applicable for simple scenarios,such as single path .

TBD in next version, for complicated scenarios.

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Get Metric Credit for Resolution

- Method 1: using average metric credit.

  Average Metric Credit Piece   =   Total E2E Metric Credit / Estimated Hop-counts
  Residual Metric Credit   =   Total E2E Metric Credit - AIGP metric
  Get min(average, residual) for resolution.

- Method 2: using explicit credit piece [].

  Explicit Metric Credit Piece   =   Credit Piece [index]
  Residual Metric Credit   =   Total E2E Metric Credit - AIGP metric
  Get min(explicit, residual) for resolution.

- Method 3: using Explicit Propagation Object (EPO) list (TBD)

Next step

- Any questions and comments ?

Thank you!