Introduction

- PCE centralized calculation can solve network congestion because it have global view.

- Using Residual Bandwidth as IGP metric to calculation shortest path maybe a solution solving the link congestion problem, But it is difficult to converge to a steady state using this way.

- This document try to automatically optimize the path in the distributed computing scenario to solve the link congestion problem.
Concepts and Approach

- When the device detect that the link is congestion, It selects one or several Flows to change the path of the flow using local policy.
- The device automatically generates ACL rules to distinguish the flow which is selected from other flow.
Concepts and Approach

- IGP advertise a new Sub TLV in NBR TLV to carry the adjust metric and acl rule.
- The other nodes in the network receive the Sub TLV, use the adjusted metric value of the link to calculate the IGP shortest path.
- The device download the acl policy to the forward table, the nexthop using the results calculated according to the adjust metric.
Concepts and Approach

- Link TLV:
  - Sub TLV:
  - Adjust Metric: 65535
  - Acl rule: IP five tuple

- Flow A bandwidth: 80M -> 40M
- Flow B bandwidth: 20M

- Link bandwidth: 100M

- If the bandwidth of the link bandwidth is less than a certain threshold, the device deletes the sub-TLV and the traffic is restored to the original state.
IS-IS extension

• New TLV will be added to Router Information LSP.

• Type: TBD, 1 byte.
• Length: # Variable length (1 byte).
• Value: the value is the MTU size of a link.
Benefits

- This way can be used to slove network congestion problem without controller or traffic engineer.

- It is suitable for IP forwarding, SR and other distributed calculation path scenarios.
Next Steps

• Welcome comments on mailing list.