Framework for MPLS Over Composite Link

draft-so-yong-rtgwg-cl-framework-03.txt

Ning So   ning.so@verizonbusiness.com
Andrew Malis   andrew.g.malis@verizon.com
Dave McDysan   dave.mcdysan@verizon.com
Lucy Yong   lucyyong@huawei.com
Fredric Jounay   frederic.jounay@orange-ftgroup.com
Yuji Kamite   y.kamite@ntt.com

The Differences between V03 and V02 (I)

- Composite Link Capability Additions
  - Place a bi-dir LSP on the same component link in both directions if requested
  - Allow to configure multiple interfaces over a composite link
  - Place a LSP on the component link that meets the performance objective
  - Support graceful traffic movement among component links to facilitate an optimization task required by operator
- Signaling Extensions for a LSP over a composite link
  - Signal LSP performance criteria over a composite link
  - Signal an aggregated LSP in which the flows can be carried by different component links
    - Allow the aggregated LSP BW larger than any component link capacity
  - Signal a bi-dir LSP with an indication that its forward and backward traffic MUST be carried by the same component link

The Differences between V03 and V02 (II)

- Add the section of composite link in management plane
  - Ability to configure and monitor a composite link and individual component links
  - Ability to configure a LSP over a composite link and component link
  - Ability to trace the component link for a LSP to traverse
  - Ability to ping the component link for a LSP to traverse
  - Ability to ping and trace a flow within an aggregated LSP
  - Support different optimization tasks imposed by operator
- Align the terminologies with CL requirement doc.

The Differences between V03 and V02 (III)

- Clarify that the scope of the development is for MPLS network
  - IP packets are originated by MPLS control plane or management plan, not from customer data traffic
- Clarify that a composite link or a component link is a bi-directional link
  - If two uni-directional component links are used as a component
- Several editing changes

Next Steps

- Welcome the feedbacks
- Request for the adoption of the CL framework draft as WG draft

Acknowledgements

Co-Authors like to thank Tony Li, Curtis Villamizar, Adrian F., Lou B., Kireeti K., Eric Gray, Dmitri P., etc. for their reviews and suggestions

Protocol Extension Potentials

- Composite Link Advertisement in IGP or IGP-TE
  - Advertise a group of non-homogeneous component links within a composite link.
  - Add or delete a component link into/from a composite link
  - Protocol extension for two end-points of a composite link to sync-up the component link selection
- Signaling Protocol Extensions for a LSP over a composite link
  - Allow an aggregated LSP over a composite link. Indicate inner labels for load distribution within a LSP. Aggregated LSP BW may be larger than any component link capacity.
  - Signal a bi-dir LSP and indicate if it MUST be placed on the same component link in both directions
  - Allow indicating LSP performance metric over a composite link.
  - Allow two end-points of a composite link to sync-up the LSP placement when it is necessary.
  - Ping and trace the component link for a LSP to traverse
  - Ping and trace a flow within an aggregated LSP

Where Should We Work on these?

- Potential protocol extensions to support a composite link and its applications spread in many IETF WGs
  - RTG, OSPF, IS-IS, MPLS, CCAMP, PWE, IPPM, PCE, etc
  - More than 10 RFCs
- Where should the CL protocol extension drafts reside?
  - Rtgwg?
  - Like to hear the suggestions