RSVP-TE with ECMP

Kireeti Kompella

MPLS WG

IETF 87

Status

- Initial version back in 2010
- Versions spaced some time apart
  - Inter-version time gap shortening
  - Working to have a more regular cadence
- Good level of interest shown privately
  - Will encourage bringing these comments to the MPLS list

Changes in the latest version (04)

- New co-author: Mike Hellers/LINX
- New approach
  - LSP association vs. new sender template
  - Offers backward compatibility
- But mostly just refreshing the draft to rekindle interest, get feedback

Goals

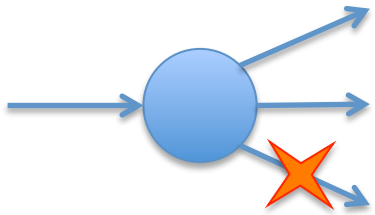
- Initial focus: TE *with* ECMP
  - Rather than TE (RSVP) *or* ECMP (LDP)
- Feedback: use the same technology for better "bin packing" of TE LSPs
  - Folks love the idea of ops specifying a single overarching LSP (say 80Gbps) with constraints
  - and routers automatically generating "sub-LSPs" of appropriate size (say 4 x 20Gbps)
- Also, FRR based on rebalancing load rather than rerouting traffic

Future Directions

- Current (IP/LDP) ECMP typically balances load equally across next hops
- With TE, fancier path computation can provide different load balancing algorithms
  - E.g., unequal load balancing
  - or load balancing based on end-to-end path
- Note that MLSPs make these approaches possible, but it is not the intent to specify load balancing or path computation algorithms

Next Steps

- Specify changes to signaling to support new load balancing approaches
- Discuss operation of FRR at LSRs with multiple next hops



- Discuss backward compatibility
- Get some feedback on the list