GMPLS Routing and Signaling Framework for Flexible Ethernet (FlexE)
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What has happened since Last

• Version -07 posted
  • Quite a bit of comments and reviews
  • Restructured the document (again 😊)
    • Added info to the Introduction on “What we want to do”.
    • Moved requirements to an Appendix
    • A lot of smaller editorial changes
    • Logical Interfaces
  • The document is reasonably stable
  • Improvements but no technology changes
Framework and Architecture:

FlexE Reference Model
FlexE Group and Client vs. Interfaces

• In RFC 4201 Link Bundle are defined as a logical interface on a router
• Similarly from a control plane perspective
  • A FlexE Group may be defined as a logical Ethernet Interface on a FlexE capable node.
  • A FlexE Client maybe defined as a logical Ethernet sub-Interface on a FlexE capable node.
• FlexE Group resources are allocated to FlexE Clients.
• The logical link between two directly connected FlexE capable nodes can be seen as a TE link (see section 2 of RFC 4201)
• The TE link can then be advertised by an IGP (section 2.2) and referred to in signalling by RSVP (section 2.3).
GMPLS Control Plane may be used to

• Set up a FlexE Group / Ethernet Interface
  • Out of band signalling
• Set up a FlexE Client / Ethernet sub-Interface
  • Use of native FlexE signalling channel
• Advertise FlexE Groups and FlexE Clients (into the Routing System)
• Set up of an MPLS LSP, when a FlexE infrastructure is required for the
  MPLS LSP.
• A real life deployment may use all of this or any subset
• Alternatives are NMS, centralized controller and/or model driven
FlexE Configuration Alternatives (examples)

• Configuration by NMS only
  • FlexE Group, FlexE Client, MPLS LSP setup by NMS

• Combination of NMS and GMPLS control plane
  • FlexE Group setup by NMS
  • FlexE Client and MPLS LSP setup by GMPLS Control Plane

• Combination of NMS, model driven and GMPLS Control Plane
  • FlexE Group set up from NMS
  • FlexE Client set up using e.g. YANG
  • MPLS LSP set up by GMPLS Control Plane

• Any (reasonable) permutation of the above
  • E.g. everything done by YANG

• Signalling Channel
  • There is a native signalling/section management channel available as soon as FlexE Group is established
  • This channel may be used by both the NMS, YANG and the control plane

• Routing System
  • The FlexE configuration needs to be exported to routing system
Establishing a FlexE Group

FlexE Capable Node 1

Routing System

FlexE Capable Node 2

CP

Shim

NMS/Controller
LSPs over FlexE Capable Links
Finding a LSP path
Next steps

• Update according to existing reviews
• More reviews
• Adopt as WG document
Thanks!