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

• Version -04 posted
  • Restructured the document
  • Use Case section removed
    • They were generic FlexE Use Cases rather than Control Pane Use Cases
    • Requirements cleaned up
    • Converged on terminology
  • A lot of smaller editorial changes
• Remains to be done
  • Final clean up of requirements
  • Sort out if there is anything that needs to go into other documents
• Added information that will cover “What we want to do”.
Framework and Architecture:

FlexE Reference Model

OTN Network

n x PHY

n x PHY

n x PHY

n x crunched PHY

CE

PE

P

PE

CE

CE

CE

CE

CE
GMPLS may be used to

• Set up a FlexE Group
  • Out of band signalling required
• Set up a FlexE Client
  • As soon as the FlexE Group available the native FlexE signalling channel becomes available
• Advertise FlexE Groups and FlexE Clients (into the Routing System)
• Set up of an MPLS LSP, when a Flex infrastructure is required for this MPLS LSP.
FlexE Configuration

• FlexE Groups will be established from an NMS
  • To set up FlexE Groups by the control plane, a out of band signalling channel is required
• FlexE Clients and MPLS LSPs may be established an NMS or a GMPLS control plane
• Establishment of MPLS LSP will be done by the GMPLS control plane

• 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 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
Establishing a FlexE Group

Centralized Controller

Routing System

FlexE Capable Node 1

FlexE Capable Node 2

CP

Shim

Out of Band SCC
Establishing a FlexE Client

Centralized Controller

Routing System

FlexE Capable Node 1

FlexE Capable Node 2

CP

Shim
FlexE Capable Links - Finding a LSP path

[Diagram showing network with nodes connected by lines indicating FlexE Capable and Not FlexE Capable links]
Operator approaches

- Control the entire infrastructure, only allow LSP establishment by CP
  - FlexE Clients on a first come first served basis
  - FlexE Clients for a specific user by configuration
- Control the establishment of FlexE Groups, but let the FlexE Client setup to be triggered by the request for an LSP setup
  - FlexE Client set up triggered by request for MPLS LSP set up
  - FlexE Clients for specific user by signalling
  - Signalled FlexE Clients on first come first serve basis
- Allow establishment of FlexE Group + FlexE Client by signalling
  - Triggered by request for MPLS LSP set up
  - FlexE Clients for specific user by signalling
  - Signalled FlexE Clients on first come first serve basis
  - An out of band signalling channel required
Next steps

• WG review
• Involve more authors/contributors, more review and comments
• Adopt as WG document
Thanks!