Framework for MPLS Over Composite Link

draft-so-yong-rtgwg-cl-framework-01.txt

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The Differences between Version 1 and Version 0

- Minimal changes has been made to the CL Framework draft since last meeting
  - Updated Composite Link definition with ITU-T G.800 definition
  - The focus of the co-authors has been on the Requirement draft, which has been made into WG draft since last meeting
CL Framework

- Composite link consists a set of component links that have the same end points.
- Component links may have different TE parameters.
- Composite link can carry LSP traffic and control plane packets.
- LSP traffic flows and CP packets first is mapped into a connection, then connections are mapped to a component link.

Interior Functions: Data/forwarding, determination of component link.
Management Control of these functions important for interoperability.

Exterior Functions: Routing and Signaling
Interior Functions

- Implement locally on LSRs that are connected via a composite link directly
  - Mapping of traffic flows to connections
  - Mapping of connections to component links
  - Bandwidth assignment per connection
  - Component link failure recovery
  - Component link congestion prevention
  - Operator configuration
    - Composite link, component link, connection, LSP placement, etc
  - Management plane Support
    - Report which component link a LSP is assigned to
    - Alarms on component link failure

- Although interior functions are local, it is important to standardize for interoperability
**Interior Functions**

- **LSP flows with TE information**
  - Get LSP parameters from RSVP-TE messages
- **LSP flows without TE information**
  - LSP is signaled via LDP messages
  - Assign LDP LSP to pre-configured connection
  - Measure and manage connection BW
- **Hybrid case - LSPs with and without TE information**
  - Separate RSVP-TE LSP and LDP LSP into different connections
  - Pre-empt the flows based on the priority when congestion happens
Exterior Functions

- Apply to MPLS routers via signaling or routing protocols
  - Protocol enhancement needs further study
  - Requirements are listed in a separate draft

- Composite Link Advertisement
  - Advertised as a single virtual interface between connected routers within IGP
  - Possible to advertise multiple latency values and a range of BW values

- Component Link Setup
  - TE LSP may be signaled as a component link
  - TE LSP component link may be MPLS-TP LSP on GMPLS enabled transport network
Exterior Functions

- **LSP Flows with TE information**
  - RSVP-TE PATH and RESV messages are used for LSP establishment
  - LSR selects a label for LSP over a composite link
  - LSP parameters in PATH and RESV are used in LSP assignment

- **LSP Flows without TE information**
  - FEC is bound to a connection on a composite link
  - LDP Label Request message and Label Mapping message are used for LDP LSP establishment
  - Traffic volume measurement per connection

- **Hybrid Case – LSPs with TE and without TE**
  - Facilitate flow preemption during the capacity shortage
Next Steps

Seeking the adoption of the CL framework draft as WG draft

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