

Framework for MPLS Over Composite Link

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

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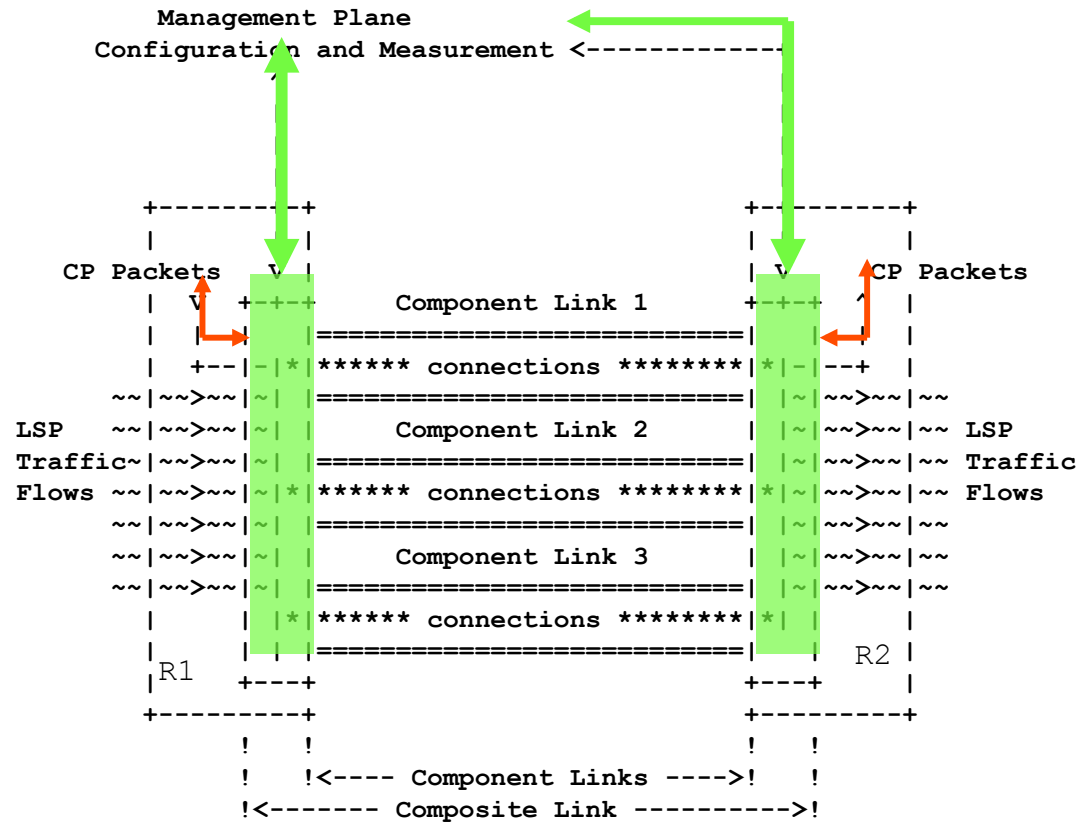
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The Differences between Version 1 and Version 0

- ⊕ 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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