

Use Cases for an Interface to MPLS Protocol

draft-chen-i2rs-mpls-ldp-usecases-00/
draft-huang-i2rs-mpls-te-usecase-00

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Introduction

- Traditionally MPLS LDP protocol or MPLS TE may be managed via CLI, SNMP or NETCONF.
- Interface to the Routing System's (I2RS) Programmatic interfaces provide an alternate way to control the configuration and diagnose the operation of the LDP protocol or MPLS TE.
- These two drafts describe fundamental use cases and requirements for MPLS-based scenarios and protocols for which I2RS can be used.

Procedures

- Use cases for which I2RS can be used for MPLS LDP protocol :
 - LDP Configuration
 - LDP Events
- Use cases for which I2RS can be used for MPLS TE:
 - MPLS TE Configuration
 - MPLS TE Protection
 - MPLS TE Traffic Switching-over
 - Monitoring of MPLS TE

Use cases -- LDP Configuration

- LDP can be used to create transport LSPs to carry MPLS-based service and establish the pseudowires for MPLS PWE3 service or MPLS VPLS service. LDP is deployed widely in the network because of its simple protocol configuration and flexible policy.
- By I2RS interface the network application can configure LDP sessions to deploy PWE3 or MPLS VPLS service and can configure LDP policy to control the setup of LDP LSPs. The application can select proper programmatic interface.

Use cases – LDP Events

- I2RS could provide a publish-subscribe capability to applications to:
 - subscribe state of LDP sessions or LSPs and related events; and,
 - subscribe number of LDP sessions or LSPs or other protocol-related events of interest.

Use cases – MPLS TE configuration

- Static CR-LSP is used in small, simple topology and less service for its complex configuration.
- RSVP-TE path calculation are closely related with the request order.
- Network programming software may be put in I2RS controller. With I2RS, it will greatly improve static CR-LSP configuration efficiency and global concurrent re-optimization may be triggered to re-optimize MPLS TE network.

Use cases – MPLS TE protection

- There are many types of protection for MPLS TE, such as TE FRR protection (link and node protection), LSP backup and TE tunnel protection (1:1 and 1+1 protection).
- With I2RS, I2RS controller can define the protection mode according to the service requirement and the network resource.

Use cases – MPLS TE Traffic Switching-over

- I2RS could provide a publish-subscribe capability to applications to:
 - subscribe failure events,
 - Subscribe overloading events such as CPU overloading, memory overloading, label overloading or LSP number overloading in some nodes,and the following path calculation will by pass the failure / updating / overloading points.
- I2RS controller could provide a graceful mechanism to avoid traffic disruption in network upgrading.

Use cases – Monitoring of MPLS TE

- I2RS could provide a publish-subscribe capability to applications to:
 - subscribe network performance information such as traffic statistics.
 - Subscribe network fault events.
 - Subscribe state of TE LSP or LSPs or other protocol-related events of interest.

Next Steps

- Advanced MPLS use cases are to be considered such as MPLS MT, P2MP MPLS, etc.
- Solicit more comments on MPLS-based use cases for I2RS.
- Information Model will be proposed.