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LDP End-of-LIB

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Abstract

There are situations following LDP session establishment where it would be useful for an LDP speaker to know when its peer has advertised all of its labels. These include session re-establishment following loss of an LDP session when LDP graceful restart is in use

and session establishment when LDP-IGP sync is in use. The LDP specification provides no mechanism for an LDP speaker to notify a peer when it has completed its initial label advertisements to that peer. This document specifies means for an LDP speaker to signal completion of its initial label advertisements following session establishment.

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1. Introduction

There are situations following LDP session establishment where it would be useful for an LDP speaker to know when its peer has advertised all of its labels. For example, after an LDP session is re-established when LDP graceful restart [RFC3478] is in effect it would be helpful for each peer to signal the other after it has advertised all its label bindings. Similarly when an LDP speaker is using LDP-IGP synchronization procedures [LDPSynch] it would be useful for the speaker to know when its peer has completed advertisement of its IP label bindings.

The LDP specification [RFC3036] provides no mechanism for an LDP speaker to notify a peer when it has completed its initial label advertisements to that peer.

This document specifies use of a Notification message with the "End-of-LIB" Status Code for an LDP speaker to signal completion of its label advertisements following session establishment.

RFC3036 implicitly assumes that new Status Codes will be defined over the course of time. However, it does not explicitly define the behavior of an LDP speaker which does not understand the Status Code

in a Notification message. To avoid backward compatibility issues this document specifies use of the LDP capability mechanism [LDPCap] at session establishment time for informing a peer that an LDP speaker is capable of processing Notification messages that carry the "End-of-LIB" Status Code.

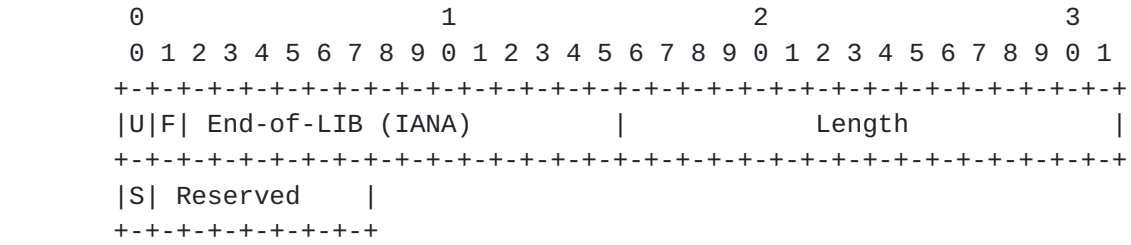
2. Specification Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

3. Signaling Completion of Initial Label Advertisement

An LDP speaker MAY include a Capability Parameter in an Initialization message to inform a peer that it is capable of processing Notification Messages that carry a Status TLV with the End-of-LIB Status Code.

The Capability Parameter for the End-of-LIB capability is a TLV with the following format:



where:

U and F bits: As specified by RFC3036.

End-of-LIB: TLV code point to be assigned by IANA.

S-bit: Must be 1 (indicates that cability is being advertised).

An LDP speaker MUST NOT send a Notificiation which carries a Status TLV with the End-of-LIB Status Code unless its peer had advertised the End-of-LIB capability during session establishment.

If its peer had advertised the End-of-LIB capability during session establishment an LDP speaker MAY signal completion of its label advertisements to the peer by means of a Notification message. Such

a Notification message MUST carry:

- An "End-of-LIB" Status Code in the Status TLV. This is a new Status Code.

- A FEC TLV with the Typed Wildcard FEC Element [TypedWC] that identifies the FEC type for which initial label advertisements have been completed. In terms of Section 3.5.1 of RFC3036 this TLV is an "Optional Parameter" of the Notification message.

4. IANA Considerations

This draft introduces a new LDP Status Code and a new LDP Capability both of shich require IANA assignment.

5. Security Considerations

No security considerations beyond those that apply to the base LDP specification and described in [RFC3036] apply to use of the Typed Wildcard FEC Element defined in this document.

6. References

Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC2119, March 1997.

[RFC3036] Andersson, L., Doolan, P., Feldman, N., Fredette, A. and Thomas, B., "LDP Specification", RFC 3036, January 2001.

[LDPCap] Thomas, B., Aggarwal, S., Aggarwal, R., Le Roux, J.L., "LDP Capabilities", draft-ietf-mpls-ldp-capabilities-00, Work in Progress, May 2007.

[TypedWC] Thomas, B., Minei, I., "LDP Typed Wildcard FEC", draft-ietf-mpls-ldp-typed-wildcard-01, Work in Progress, May 2007.

Informative References

[LDPCap] Thomas, B., Aggarwal, S., Agarwal, R., Le Roux, J.L., "LDP Capabilities", Work in Progreaa, May 2007.

[LDPSynch] Jork, M., Atlas, A., Fang, L., "LDP IGP Synchronization", draft-jork-ldp-igp-sync-02, Work in Progress, June 2006.

[RFC3478] Leelanivas, M., Rekhter, Y., Aggarwal, R., "Graceful Restart Mechanism for Label Distribution Protocol", February 2003.

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