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Applicability of LDP Advertisement Mode

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Kamran Raza
Sami Boutros
Luca Martini
(Cisco Systems, Inc.)

Nicolai Leymann
(Deutsche Telekom)

Draft Objective

- A single LDP session can be shared by different applications [e.g. LDP, mLDP, PW] to exchange label advertisements.
- LDP peers exchange “Label Advertisement” Discipline/Mode at the time of session negotiation. [RFC3036]
  - Downstream Unsolicited, or Downstream On Demand
- Different applications sharing the same LDP session may need different modes of label advertisement, “but” there is only one type of label advertisement mode that is negotiated and used per LDP session.
- This draft clarifies the use and the applicability of session's negotiated label advertisement mode. The draft:
  - Categorizes LDP applications with respect to the applicability of label advertisement mode
  - If approved, updates RFC-5036 (LDP) and RFC-4447 [PW Signaling using LDP] specs.

LDP Applications Categorization

- Two broad categories from label advertisement mode usage point of view:
  - Session mode-bound Applications
  - Session mode-independent Applications
- Mode-Bound Applications:
  - The FEC label binding exchange for such LDP applications MUST use the negotiated label advertisement mode.
  - Applications that fall into this category: (The early LDP applications)
    - Dynamic Label Switching for IP Prefixes
    - Label-controlled ATM/FR
- Mode-Independent Applications:
  - The FEC label binding, or any other application data, exchange is NOT tied to the negotiated label advertisement mode of the session; rather, the information exchange is driven by the application need and procedures as described by their respective specifications.
  - Following Applications [or procedures] fall into this catogory:
    - PW (P2P and P2MP)
    - MLDP
    - ICCP

Update to RFC 5036

For clarification reasons, this draft updates the section 3.5.3 of [RFC5036] to add following two statements under the description of "A, Label Advertisement Discipline":

- **The negotiated label advertisement discipline only applies to FEC label binding advertisement of "Address Prefix" FECs;**

- Any document specifying a new FEC SHOULD state the applicability of the negotiated label advertisement discipline for that FEC.

Update to RFC 4447

[RFC4447] specifies LDP extensions and procedures to exchange label bindings for P2P PW FECs. The section 3 of [RFC4447] states:

"LDP MUST be used in its downstream unsolicited mode."

Since PW application falls under session mode-independent application category, the above statement in [RFC4447] should be read to mean as follows:

"LDP MUST exchange PW FEC label bindings in downstream unsolicited manner, independent of the negotiated label advertisement mode of the LDP session."

Future Work

- This document only clarifies the existing behavior for LDP label advertisement mode for different applications without defining any protocol extensions.
- In future, a new LDP Capability-based mechanism can be defined to signal/negotiate label advertisement mode per FEC/Application.

I-D Status

- Next Steps:
  - Seeking feedback
  - Looking for WG adoption
- Acknowledgments:
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- Open Questions:
  - ???