

Multi-Topology in PIM

draft-xz-pim-flex-algo-03

PIM WG
IETF121

Sandy Zhang
Benchong Xu
Stig Venaas
Jeffrey Zhang
Hooman Bidgoli

Updates of 03 version

In 03 version:

- Add two referenced drafts (draft-ginsberg-lsr-flex-soft-dataplane, RFC9502) to fill the gap raised in last meeting.
 - The Flex algorithm (RFC9350) requires a data plane context. So before the routers use the FA for routing computation, the routers must advertise the participation of associated FA and dataplane.
- Update the PIM extensions format to cover the associated dataplane.
- Improve the description for better reading.

Much appreciate for the help from Les and Peter!

Introduction

- This document defines the PIM message extensions to provide the way to build multicast tree through the combination of TAD (topology/ algorithm/ dataplane) instead of the shortest path.
- All the routers on a given PIM multicast tree MUST participate in the same TAD.

By using soft dataplane (draft-ginsberg-lsr-flex-soft-dataplane):

- The routers advertise the participation of FAs and soft dataplane.
- The prefix of multicast sources are advertised as usual.

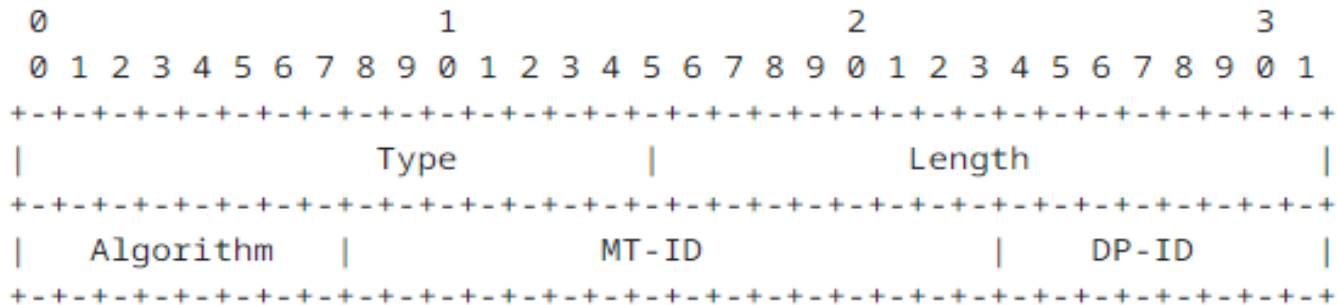
By using IP dataplane (RFC9502):

- The routers advertise the participation of IP dataplane.
- The prefix of multicast sources are advertised with associated FAs.

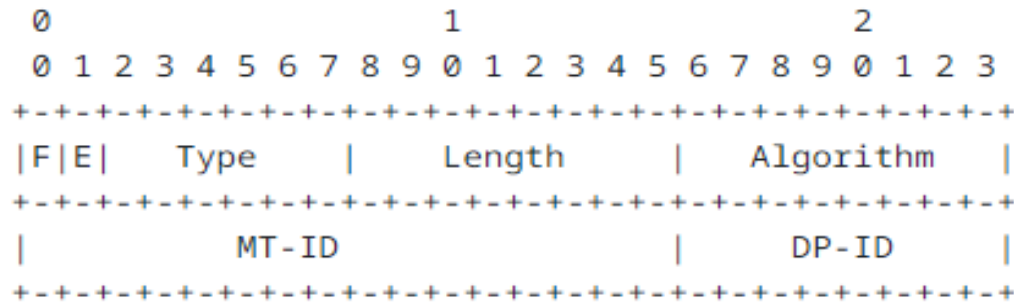
-
- The FHR advertises the TAD sub-TLV with Group Source Info TLV in the PFM function.
 - The LHR and the routers along the path get the upstream router from different TADs routing calculation, send the PIM join message with TAD attribute to build the paths.

PIM extensions format

- A new defined Group Source Info TAD Sub-TLV is used for the source

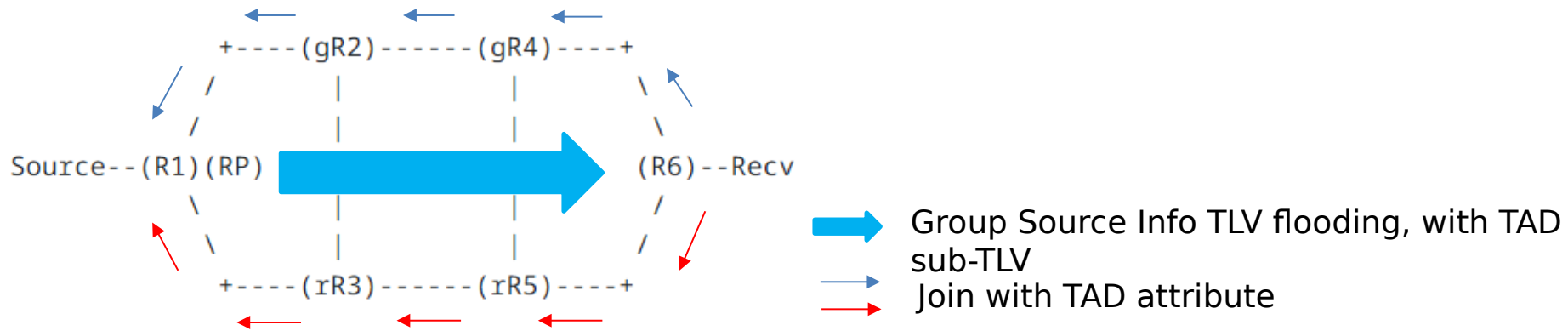


- A new defined TAD attribute is used for PIM join/prune.



- A new DP-ID field is added for indicating the type of dataplane.

Example



Before: two multicast flows are delivered by the shortest path, but the bandwidth is not enough, packet loss occurs.

After: two multicast flows are delivered by two different paths, there is no packet loss.

- Comments and review welcomed
- Would like to know if this draft can be adopted.

- **Thanks!**