IETF 94th Yokohama

Generic Multicast Router Election on LAN's
draft-wijnands-bier-mld-lan-election-00.txt

IJsbrand Wijnands Cisco   ice@cisco.com

Pierre Pfister   Cisco   pierre.pfister@darou.fr

Figure 1

Introduction

- Transport multicast protocols
    - PIM
    - mLDP
    - RSVP-TE
    - BIER

- Overlay multicast protocols
    - PIM
    - mLDP in-band signaling
    - BGP (MVPN SAFI)
    - SDN
    - LISP
    - IGMP (draft-pfister-bier-mld-00)

- Many different combinations possible.

 Figure 2

Problem statement

- When PIM is not deployed in the network, who takes care of Designated Router (DR) and Designated Forwarder (DF) election on LANs?

- DR/DF election is only in PIM

- Is it desirable to run PIM just for DR/DF election?

- What if there is a mix of protocols?

                                                             Figure 3

Receiver multi-homed
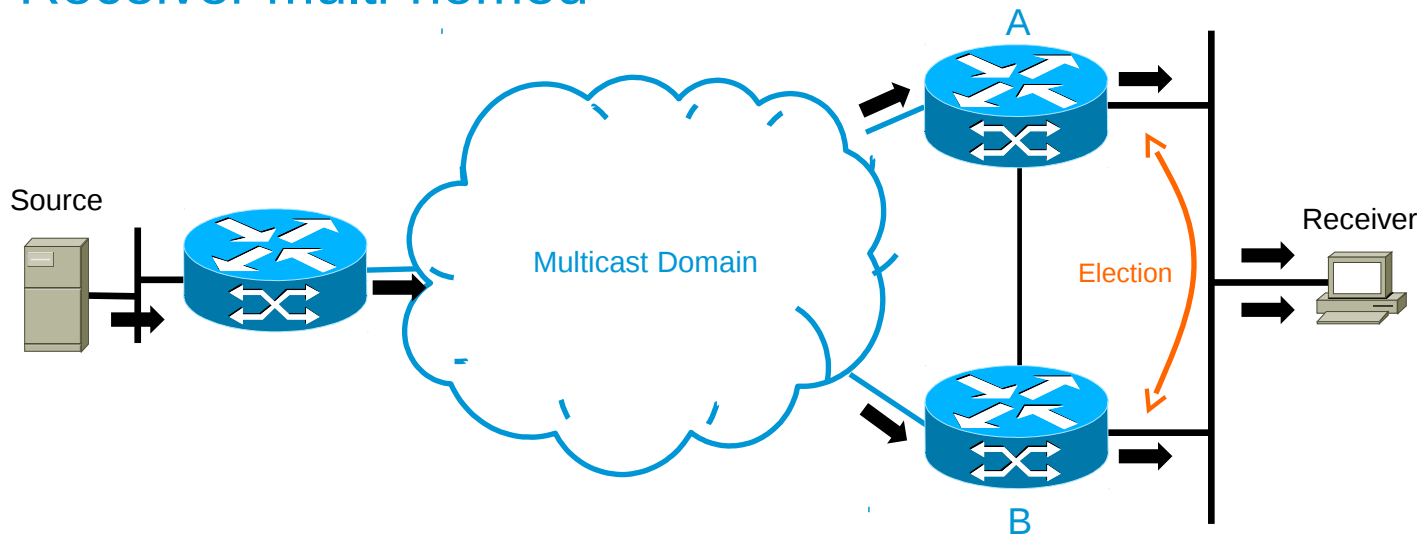
- When a Receiver is multi-homed on a LAN, only one of the routers on the LAN should forward the multicast packets on that LAN to avoid duplication

Figure 4

Source multi-homed

A

Multicast Domain

Source

Election

B
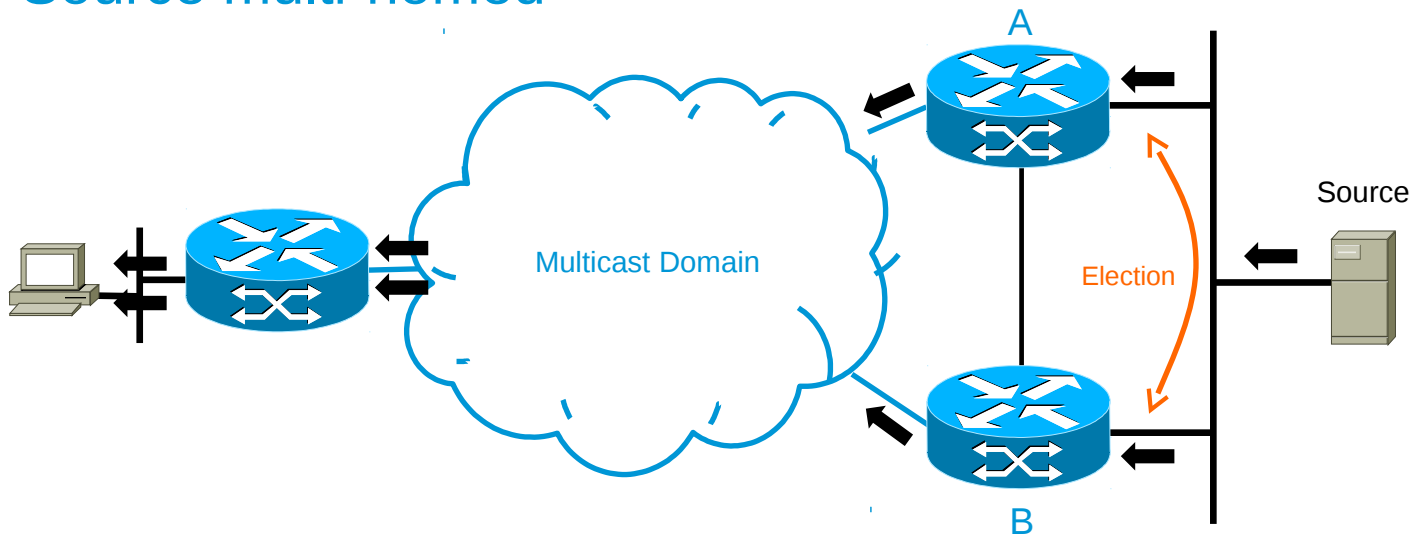
- When a Source is multi-homed on a LAN, only one of these routers should accept the packets from the LAN and forward them into the multicast network to avoid duplication.

Figure 5

From rfc2236 (IGMPv2)

The IGMPv2 spec now specifies a querier election mechanism. In IGMPv1, the querier election was left up to the multicast routing protocol, and different protocols used different mechanisms. This could result in more than one querier per network, so the election mechanism has been standardized in IGMPv2.

- Due to multiple protocols, querier is added into IGMPv2 to avoid multiple forwarders.

- Same problem applies to DR/DF election ☹

Figure 6

Proposed solution

- Add DR/DF election in IGMP!

- No need to add DR/DF election in each Transport or Overlay protocol.

- The elected DR/DF can determine the Overlay to use.

 Figure 7

Implementation details

- IGMP querier election is loosely defined. This will probably not be good enough to service as DR/DF.

- There is also a need for holdtime advertisement and per Group DR/DF election.

- Election will only be done between routers.

- The exact procedures will be added in the next revision.

Figure 8

Questions?

Figure 9