

Protocol Independent Multicast - Sparse Mode (PIM-SM) Designated Router (DR) Improvement

draft-ietf-pim-dr-improvement-13

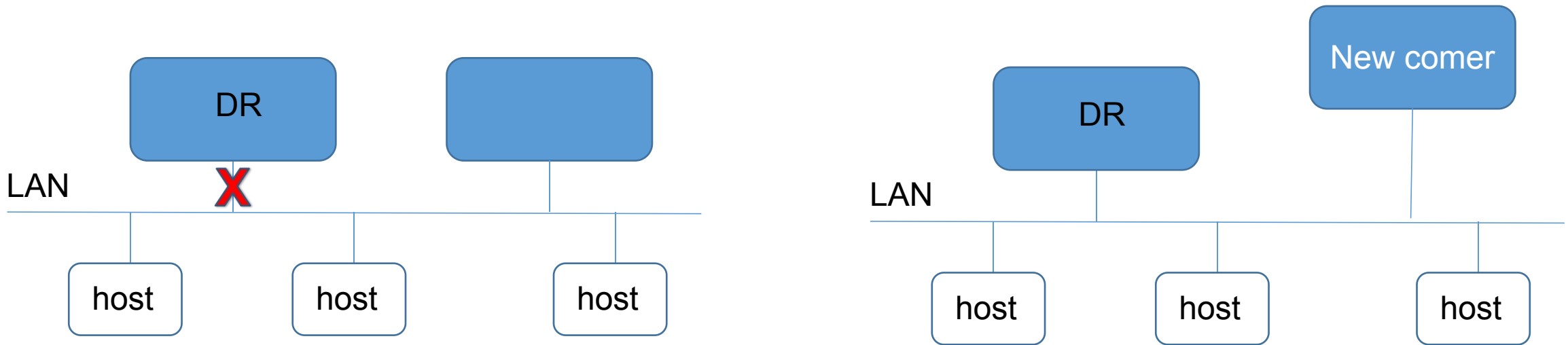
PIM WG

IETF 113

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The problem statement

- Fast changing of DR takes times to converge and causes packets lost, it takes affect on modern services, such as IPTV, Net-meeting, etc.



- The reasons for the DR changing include:
 - DR becomes unreachable
 - New router joins with higher priority

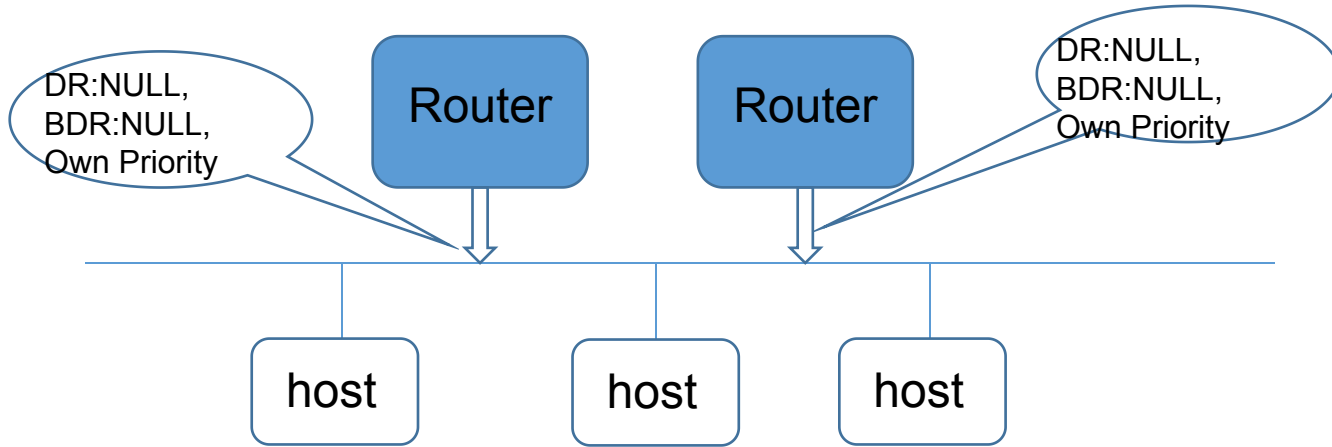
The solution requirements

- DR doesn't change (sticky solution)
 - DR doesn't change, even if the new comer has a higher priority.
- A new BDR role
 - The BDR monitors DR, it takes over the DR's responsibility as soon as DR fails in the LAN.

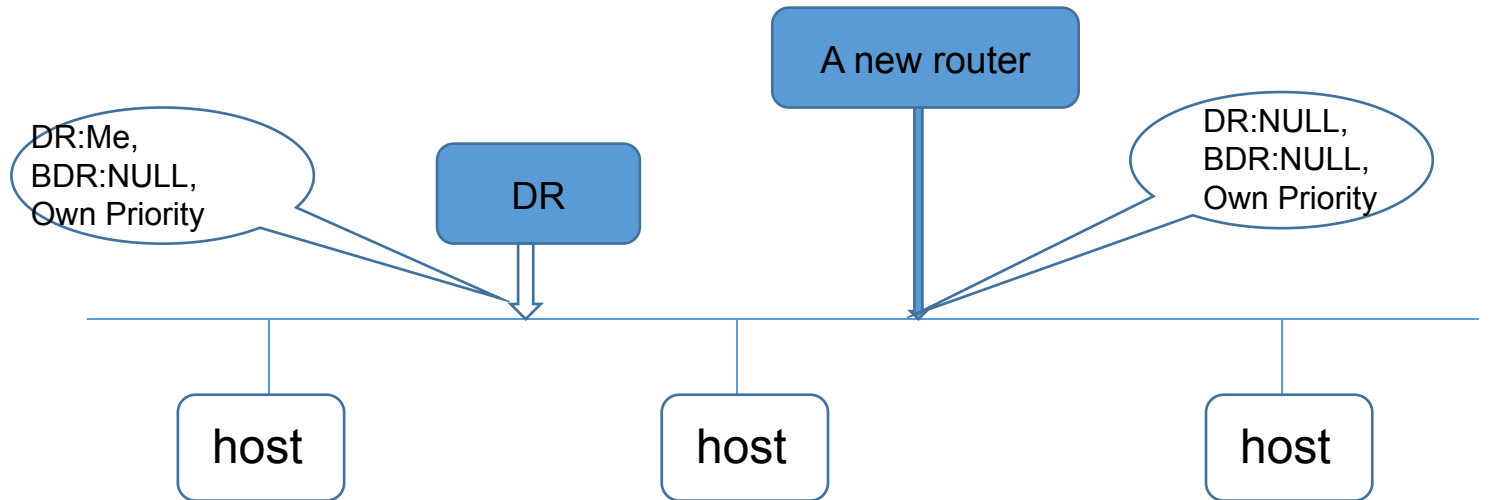
Solution introduction (1)

- Defines two new options in Hello message: DR option, BDR option.
- New router sends Hello message with DR/BDR option set to 0;
- When one Hello_Holdtime expires, the new router receives Hello message from other router;
 - If there is a router works as DR already, the new router receives the DR option with DR's IP address, the new router will not replace the existed DR.
 - The new router will be the new BDR if there is no other routers with higher priority.
- Compatible with RFC7761: if there is any router doesn't send DR/BDR option in Hello message, all the router will go back to use the election function defined in RFC7761.
- The BDR will be in standby mode but not forwarding flow until it finds that the DR can't forward flow.

Solution introduction (2)

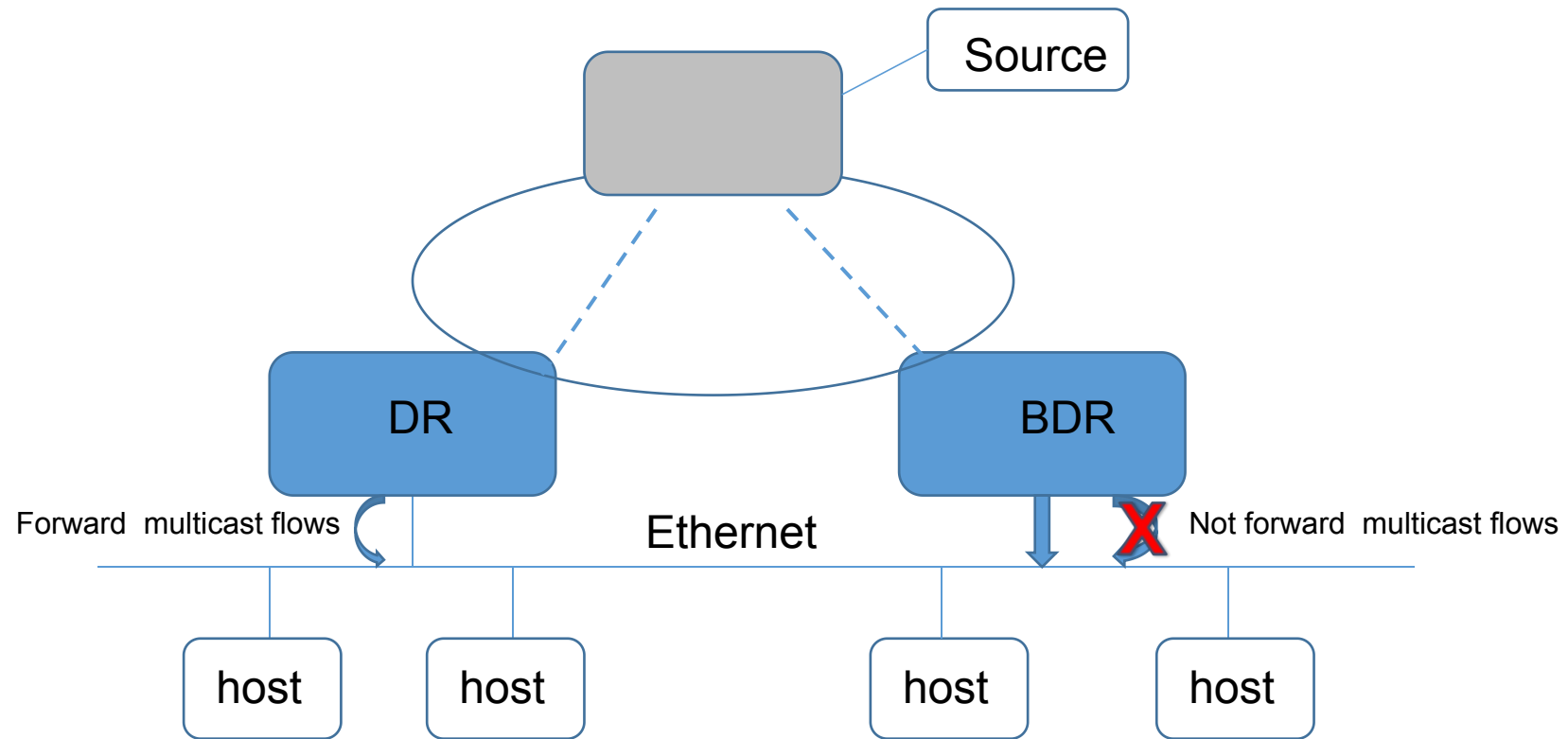


When all the routers start working in the LAN



There is working DR in the LAN already, a new router with higher priority than the DR connects in the LAN

Solution introduction (3)



The features of the solution

features	
Has BDR role	Yes
Minimize the packet loss during the switching	Yes
Convergence time	one Hello_Holdtime period
Explicit signaling	Yes
Certainty of Election result	Yes
Compatible with RFC7761	Yes

- comments welcomed :-)

Thanks!