Efficient No-Path DAO for RPL Storing MOP

(clarification according to discussion during adoption call)

https://tools.ietf.org/html/draft-ietf-roll-efficient-npdao-00

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History:

IETF95 - Presented the problem statement

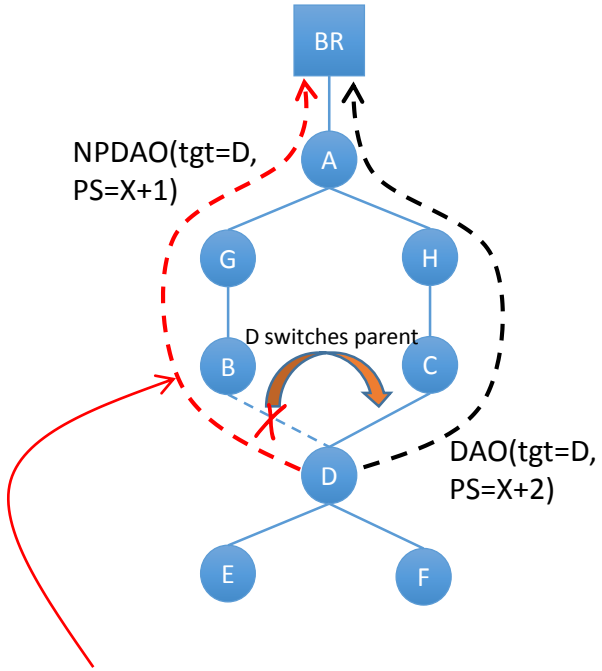
IETF96 - Presented existing solutions based on comments rcvd and why those fall short

IETF98 – Presented new solution for improving route invalidation

Pre IETF99 – adopted as WG document , THANK YOU SO MUCH FOR THE REVIEW

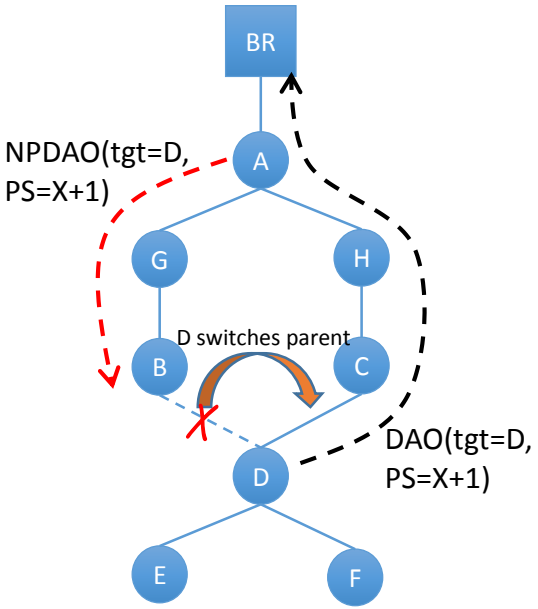
Recap: the problem and the solution

Current RPL NPDAO



NP-DAO via broken links will cause many problems such as reachability and efficiency

Proposed Change



- Send the DAO via the new parent;
- Trigger the common parent to send the NP-DAO downstream to invalidate the broken path

PS = PathSequence
Tgt = Target

Clarification#1: Compatibility with current NPDAO…

Is it needed to be compatible?

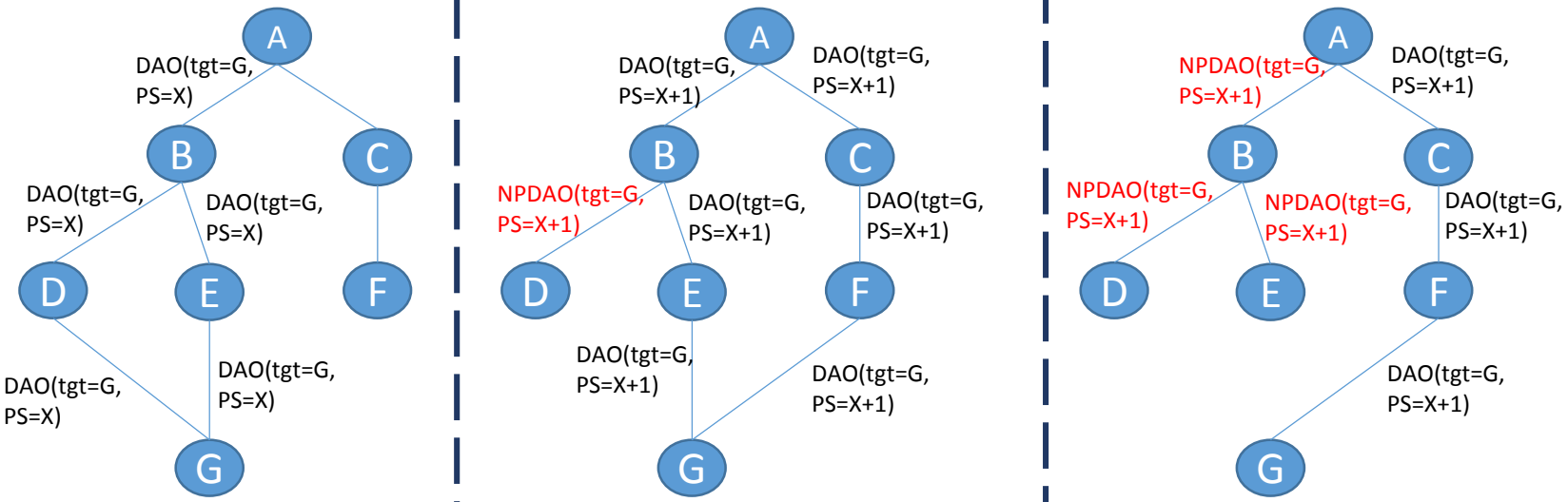
- Yes. Scenario: Gracious node shutdown should result in an upstream NPDAO.

- The newly proposed downstream NPDAO is compatible with upstream NPDAO.

Clarification#2: Impact on Multipath routing

Node may send the same DAO with the same PathSequence to multiple preferred parents to establish multipath routing.

Proposed downstream NPDAO is compatible with current multipath routing semantics.



Clarification #3: a new DAO is needed?

- We extended the existing DAO messaging since most of the containers and the header flags that are used would be same.
  - For e.g. Target container, Transit Information container
- Current NPDAO clears the route only when it is received from the same next hop based on which the route entry was previously established.
  - Downstream NPDAO does not follow this rule.

Next Step

- Contiki based implementation in-progress…
- Welcome any feedback from the Open-source community (while we believe the technique description is stable enough)

Thank you