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DIS modifications-00

`draft-goyal-roll-dis-modifications-00`

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Document status

- Merger of
  - draft-dejean-roll-selective-DIS
  - draft-goyal-roll-defunct-dags
- Submitted on Sept 5th 2011
  - no comments received so far

What is it about?

- Legalize DMC in DIS
  - only Constraints are legal
- Decouple Trickle reset and transmission mode
  - a flag in DIS to say “no inconsistency”
- Decouple request and response modes
  - a flag in DIS to say “respond in multicast”
- Opt. spread responses

Use #1: new node insertion

- With current RPL spec
  - Node either waits for incoming DIOs
    - Long time, any router, suppression
  - Or multicasts DIS to prompt for DIOs
    - All routers nearby reset their Trickle timer
    - Lots of DIOs will be sent until timers relax to long period
    - Each DIO triggers energy consumption in vicinity (multicast)

Use #1: new node insertion

- With this proposal
  - set N flag in DIS header to mean “no inconsistency”
    - do not reset your Trickle timer
    - reply to me with unicast DIO
  - use DMC option in DIS messages
    - targets "good" candidates

Use case #2: defunct DAGs

- With current RPL spec
  - Freeing up resources potentially delayed
    - missed DIO
    - unreachability not detect if no data transmission

Use case #2: defunct DAGs

- With this proposal
  - set N flag in DIS header to mean “no inconsistency”
    - do not reset your Trickle timer
  - set T flag in DIS header to mean “reply with multicast DIO”
    - other routers in the vicinity won’t have to repeat DIS

Conclusions

- Real industrial use case
- Implemented

- Please provide feedback

Thank you!

Backup

Collision mitigation

- **Optional**: spread out DIO responses

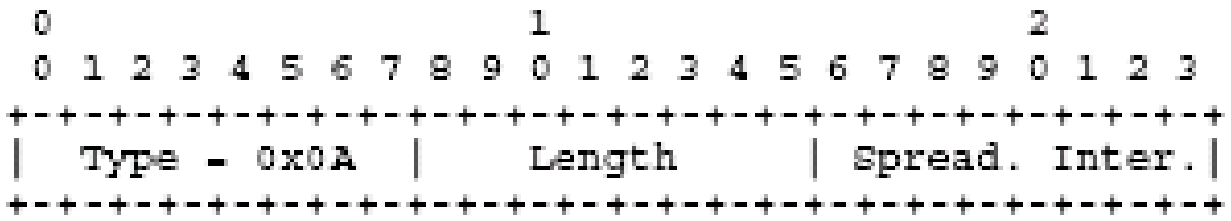

Figure 2: The Response Spreading option

  - Uniform random time within interval [0 .. 2^SpreadingInterval]
- Not needed if decent MAC and application known