

Neighbor Management Policy for 6LoWPAN

<https://tools.ietf.org/html/draft-ietf-lwig-nbr-mgmt-policy-01>

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History:

IETF97: Presented the problem statement, without the draft

IETF98: First draft, sample reservation policy described

IETF99: WG Adopted

IETF100: Clarifications. Described non-storing mop implications...

IETF101: Updated security considerations...

IETF102: Implementation strategy and difficulties faced...

Briefly ...

- Doing neighbor management
 - On constrained devices with multihop networks
 - With limited neighbor cache size
 - With uneven node densities
- What happens without proper neighbor management?
 - Unstable network, routes do not converge
 - High control overhead, highly impacts PDR

What does the draft convey?

- A reservation based policy which helps to
 - Form neighbor adjacencies deterministically
 - Reduces unnecessary table churn, reducing control overhead
- Draft specifies NDP signaling guidelines
- Draft also talks about handling secure/unsecure NCEs and corresponding signaling

Implementation status

- Contiki already has a basic neighbor management policy
 - Some details are not covered in the implementation, such as
 - Handling of unsecure NCEs
 - Handling of NDP during pre-authentication phase
- Huawei has a private implementation which handles these scenarios
 - Working towards updating Contiki implementation to handle all scenarios
- Implementation team (Rabi/Rahul) decided to:
 - Keep a separate library which does neighbor management
 - This can be integrated with UIP/Contiki and if required with LWIP as well.

Other work in IETF that has implications...

- Current Problems with Neighbor management:
 - Reactive-Only policy has some limitations
 - What happens if the evicted neighbor keeps coming back periodically?
 - Without proactive signaling neighbor does not know of the resource crunch on the peer
- Some other work which we feel might help in the context
 - draft-richardson-6tisch-enrollment-enhanced-beacon
 - draft-richardson-6tisch-roll-enrollment-priority
 - This work might help with proactive discovery of resource constraints

Discussions

- Next steps:
 - Need Reviewers.

Thank You