RPL Option for Carrying RPL Information in Data-Plan Datagrams
(draft-ietf-6man-rpl-option-00)

Jonathan Hui
JP Vasseur

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Background

- ROLL (Routing over Low-Power and Lossy nets)

  - RPL - DV-based routing protocol for IPv6

- Problem

  - How to manage control overhead with reactivity to link state changes?

- Solution

  - Slow proactive process - allow routing inconsistencies

  - Include routing info in data-plane packets to detect inconsistencies

  - React to inconsistencies when routes are used

- ***Operate on data-plane timescales***

Updates Since Anaheim

- Use IP-in-IP to insert/remove RPL Option

- Processing rules to enforce requirement that all datagrams in the RPL network contain RPL Option

- Processing rules to enforce constraint that RPL Option must be contained within a RPL domain

- Just adopted as WG doc

RPL Option Payload

- Container for TLVs (1-octet each for Type and Len)
  - Request a new IANA registry

- First RPL Option Type (draft-ietf-roll-rpl-11)

```
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
```
O	R	F	Flags	RPLInstanceID	SenderRank

- O: packet forwarded up/down on routing topology
- R: rank-error if packet previously encountered a SenderRank conflict
- F: forwarding-error indicates that the previous hop has no route
- Flags: unused for now
- RPLInstanceID: indicates routing topology to use for forwarding
- SenderRank: rank value of forwarding node

Next Steps?

- Comments/suggestions