



17 March 2017 Webex

IPv6 over the TSCH mode of IEEE 802.15.4

Chairs:

Pascal Thubert

Thomas Watteyne

Etherpad for minutes:

<http://etherpad.tools.ietf.org:9000/p/6tisch?useMonospaceFont=true>

Note Well

This summary is only meant to point you in the right direction, and doesn't have all the nuances. The IETF's IPR Policy is set forth in BCP 79; please read it carefully.

The brief summary:

- By participating with the IETF, you agree to follow IETF processes.
- If you are aware that a contribution of yours (something you write, say, or discuss in any IETF context) is covered by patents or patent applications, you need to disclose that fact.
- You understand that meetings might be recorded, broadcast, and publicly archived.

For further information, talk to a chair, ask an Area Director, or review the following:

- BCP 9 (on the Internet Standards Process)
- BCP 25 (on the Working Group processes)
- BCP 78 (on the IETF Trust)
- BCP 79 (on Intellectual Property Rights in the IETF)

Reminder:

Minutes are taken *

This meeting is recorded **

Presence is logged ***

* Scribe; please contribute online to the minutes at:

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** Recordings and Minutes are public and may be subject to discovery in the event of litigation.

*** From the Webex login

Agenda



- Administrivia [2min]
 - Agenda bashing
 - Approval minutes from last meeting
- Status of drafts (chairs) [5min]
- Update on security (Michael) [15min]
- Update on 6P (Xavi) [10min]
- Update on SF0 (Xavi) [10min]
- Preparation for IETF 98 (Pascal) [15min]
- AOB [3min]

Draft status



draft-ietf-6tisch-minimal-21

OPSDIR Last Call Review (of -20): Ready

SECDIR Telechat Review (of -19): Has Issues

GENART Telechat Review (of -19): Ready

SECDIR Last Call Review (of -17): Serious Issues

GENART Last Call Review (of -17): Almost Ready

INTDIR Early Review (of -15): Ready with Nits

INTDIR Early Review (of -13): Ready



Update on security Design team meetings

Meetings occurred:

2017-01-17, 2017-01-31, 2017-02-14,
2017-02-21 (extra), 2017-02-28.

next: 2017-03-14

Typically present:

Michael Richardson, Tero Kivinen, Pascal Thubert,
Thomas Watteyne, Mališa Vučinić, Göran Selander, Toerless Eckert, Peter van der Stok

Recent minutes so far:

<https://www.ietf.org/mail-archive/web/6tisch-security/current/msg00661.html>

Update on 6P



Reordering

4.2. Message Format	4. 6top Protocol (6P)	6
4.2.1. 6top Information Element	4.1. 6P Transaction	7
4.2.2. General Message Format	4.1.1. 2-step 6P Transaction	7
4.2.3. 6P Message Types	4.1.2. 3-step 6P Transaction	8
4.2.4. 6P Command Identifiers	4.2. Message Format	10
4.2.5. 6P Return Codes	4.2.1. 6top Information Element	10
4.2.6. 6P CellOptions	4.2.2. Generic 6P Message Format	10
4.2.7. 6P Cell Format	4.2.3. 6P CellOptions	11
4.2.8. 6P ADD Request Format	4.2.4. 6P CellList	12
4.2.9. 6P DELETE Request Format	4.3. 6P Commands and Operations	13
4.2.10. 6P STATUS Request Format	4.3.1. Adding Cells	13
4.2.11. 6P LIST Request Format	4.3.2. Deleting Cells	15
4.2.12. 6P CLEAR Request Format	4.3.3. Relocating Cells	16
4.2.13. 6P RELOCATE Request Format	4.3.4. Counting Cells	18
4.2.14. 6P Response Format	4.3.5. Listing Cells	19
4.2.15. 6P Confirmation Format	4.3.6. Clearing the Schedule	20
4.3. Protocol Behavior	4.4. Protocol Functional Details	21
4.3.1. Version Checking	4.4.1. Version Checking	21
4.3.2. SFID Checking	4.4.2. SFID Checking	22
4.3.3. Concurrent 6P Transactions	4.4.3. Concurrent 6P Transactions	22
4.3.4. Timeout	4.4.4. Timeout	22
4.3.5. SeqNum Mismatch	4.4.5. SeqNum Mismatch	23
4.3.6. Clearing the Schedule	4.4.6. Aborting a 6P Transaction	23
4.3.7. Adding Cells with 2-step Transaction	4.4.7. Generation Management	23
4.3.8. Aborting a 6P Transaction	4.4.8. Handling Error Responses	24
4.3.9. Deleting Cells		
4.3.10. Listing Cells		
4.3.11. Cell Relocation		
4.3.12. Cell Suggestion		
4.3.13. Generation Management		
4.3.14. Handling error responses		

Changes

- Full reordering of commands
 - Put together frame format and description of the operation
- Renamed STATUS to COUNT
- Removed cell suggestion example (was confusing)

Next Steps

- Will be published the 27th of March
- Authors will be looking for feedback during IETF meeting.
 - Important is relation with SF0.
- Will ask for Last Call



6TiSCH 6top Scheduling Function Zero (SF0)

draft-ietf-6tisch-6top-sf0-03

Cell Estimation Algorithm

- Changed to Alternative 3 presented at IETF97:



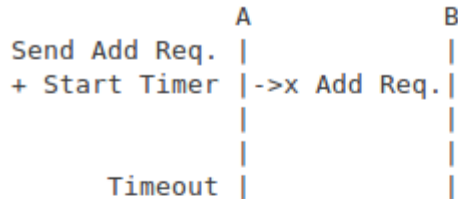
- SF0 is based on a **neighbor-to-neighbor** negotiation.
- We do not know if the incoming requested add/delete cell destination is the **local node** or if it will be routed to another **neighbor**
- Including it would add **unnecessary uncertainty**, resulting in possible under- or over-provisioning.
- **OVERPROVISION** value is implementation-specific

PDR Calculation

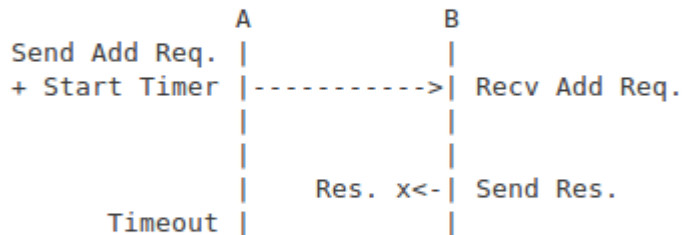
- Added PDR Calculation:
- “Packet Delivery Rate (PDR) is calculated per cell, as the quotient of the number of successfully delivered packets to 10, for the last 10 packet transmission attempts, without counting retransmissions.”
- Is 10 a good value for the sliding window? Shall leave the value as implementation-specific?

Timeout Calculation

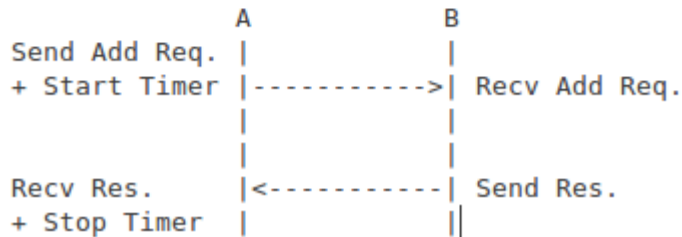
(2-step.1) Request is lost: A gets Timeout



(2-step.2) Response is lost: A gets Timeout



(2-step.3) Everything is fine: no timeout



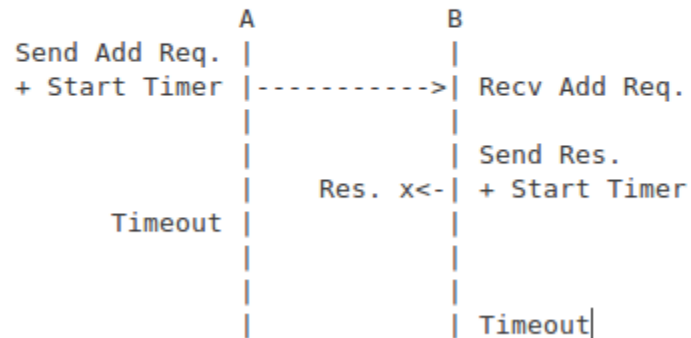
- Yasuyuki's proposal without MAC-level timeout (Dec 12)
- Requires 6P modification.

Timeout Calculation

(3-step.1) Request is lost: A gets Timeout

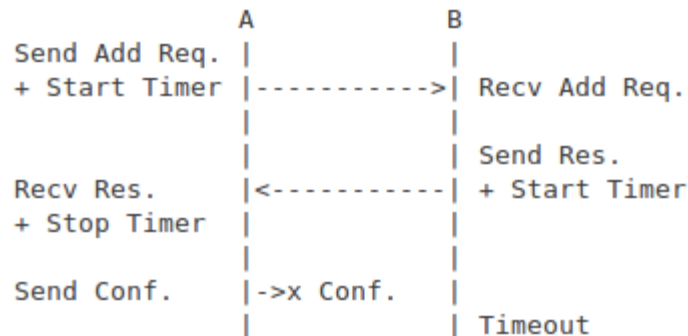
Same as (2-step.1)

(3-step.2) Response is lost: A and B gets Timeout

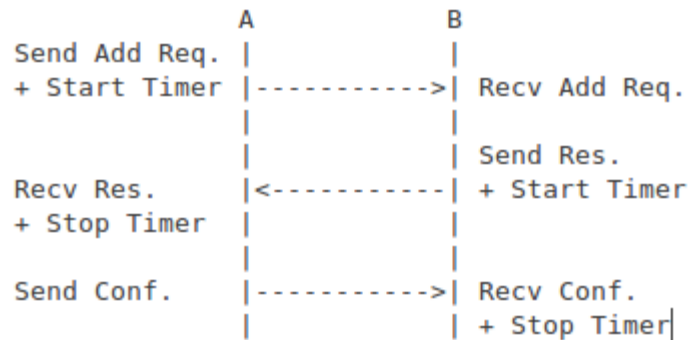


Timeout Calculation

(3-step.3) Confirmation is lost: B gets Timeout



(3-step.4) Everything is fine: no timeout



Typos and text changes

- Eliminated the term “effectively” from “effectively used cells”. Now we have only non-allocated, allocated and used cells, following Randy’s and Yasuyuki’s comments.
- Forced Deletion: Implementation Specific

Cell Relocation

- PDR_THRESHOLD: Defined as a percentage of the average of the PDR of the rest of the scheduled cells,
- SF0 relocates each of the cell(s) to a number of available cells selected randomly.
- PDR_THRESHOLD is out of the scope of this document and it is implementation-dependent.



Preparation for IETF 98

Meeting

- Thomas remote, Michael sitting
- 6P: Xavi and Qin remote
 - 15mn? Ready for LC? Std track?
- SFO: Diego Present
 - 15mn? Ready for LC? Exp track?
- Security:
 - 4 drafts: 1 hour + ?



Volunteers

notetaker 1: Dominique Barthel

notetaker 2: Geraldine Texier

notetaker 3: Francesca Palombini (?)

notetaker 4: Alexander Pelov

notetaker 5: Tero Kivinen

notetaker 6: Xavi Vilajosana

notetaker 7: Pascal Thubert

Jabber scribe: Ines Robles, MCR



Agenda

- Intro and Status (Chairs) [10min]
 - Note-Well, Blue Sheets, Scribes, Agenda Bashing [5min]
 - [draft-ietf-6tisch-minimal-21](#), [draft-ietf-6tisch-terminology-08](#), progress vs. charter [5min]
- Security [75min]
 - Presenting the drafts and the flow between them (Michael) [25min]
 - [draft-ietf-6tisch-dtsecurity-secure-join-01](#) (Michael) [15min]
 - [draft-ietf-6tisch-minimal-security-02](#) (Mališa) [15min]
 - [draft-richardson-6tisch-join-enhanced-beacon-01](#) [10min]
 - [draft-richardson-6tisch-minimal-rekey-01](#) [10min]
- 6top protocol [draft-ietf-6tisch-6top-protocol-03](#) (Xavi) [15min]
- Service Function 0 [draft-ietf-6tisch-6top-sf0-03](#) (Diego) [15min]
- Architecture [draft-ietf-6tisch-architecture-11](#) (Pascal) [10min]
- Detnet backhaul [draft-wang-detnet-backhaul-architecture-00](#) (Lun) [10min]
- AOB, News from IEEE [15min]

draft-...-6tisch-...

Author1

Author2

Author3

Meeting

- STATUS -> COUNT?

AOB ?



Thank you!