20 January 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.

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Agenda

- Administrivia [2min]
  - Agenda bashing
  - Approval minutes from last meeting
- draft-ietf-6tisch-minimal [25min]
- draft-ietf-6tisch-6top-protocol [25min]
- AOB [2min]

draft-ietf-6tisch-minimal

Responses to Reviewers

- Thanks to all reviewers!
- Review by Brian Carpenter
  - Review: https://www.ietf.org/mail-archive/web/6tisch/current/msg05064.html
  - Response: see https://www.ietf.org/mail-archive/web/6tisch/current/maillist.html
- Review by Ralph Droms
  - Review: https://www.ietf.org/mail-archive/web/6tisch/current/msg05101.html
  - Response: see https://www.ietf.org/mail-archive/web/6tisch/current/maillist.html
- Review by Tero Kivinen
  - Review: https://www.ietf.org/mail-archive/web/6tisch/current/msg05094.html
  - Response: see https://www.ietf.org/mail-archive/web/6tisch/current/maillist.html

draft-ietf-6tisch-minimal-18

- Published 20 Jan 2017
- Diff at https://tools.ietf.org/rfcdiff?url2=draft-ietf-6tisch-minimal-18.txt

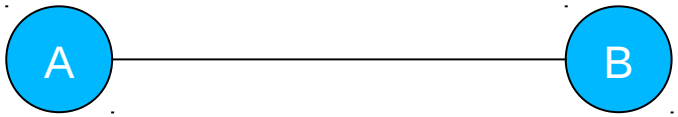
draft-ietf-6tisch-6top-protocol

6P signaling traffic

- Is there (should there be) a recommendation on which cells to use for 6P signaling traffic?

6P RELOCATE command

- In two-step transaction, how to distinguish:
  - Cell which needs to relocated
  - Candidate cells?



Slotframes & Priorities

6.2.6.4 Multiple slotframes

A given network using timeslot-based access may contain several concurrent slotframes of different sizes. Multiple slotframes may be used to define a different communication schedule for various groups of nodes or to run the entire network at different duty cycles by giving some devices many active timeslots in a slotframe, and others few or none.

A network device may participate in one or more slotframes simultaneously, and not all devices need to participate in all slotframes. By configuring a network device to participate in multiple overlapping slotframes of different sizes, it is possible to establish different communication schedules and connectivity matrices that all work at the same time.

Slotframes can be added, removed, and modified while the network is running. Even though this is the case, all slotframes are aligned to timeslot boundaries, and timeslot 0 of the first repetition of every slotframe is projected back to *macASN* = 0, which is determined by the PAN coordinator (or other network device that starts the network). Because of this, timeslots in different slotframes are always aligned, even though the beginning and end of a particular repetition of that slotframe may not be as illustrated in Figure 6-23. When, for any given timeslot, a device has links in multiple slotframes, transmissions take precedence over receives, and lower *macSlotframeHandle* slotframes takes precedence over higher *macSlotframeHandle* slotframes.

	ASN = 0	ASN = 1	ASN = 2	ASN = 3	ASN = 4	ASN = 5	ASN = 6	ASN = 7	
Slotframe 1 5 slots	TS0	TS1	TS2	TS3	TS4	TS0	TS1	TS2	…
Slotframe 2 3 slots	TS0	TS1	TS2	TS0	TS1	TS2	TS0	TS1	…

Figure 6-23—Multiple slotframes in the network

IEEE Std 802.15.4-2015

```
3.2.  Using 6top with the Minimal 6TiSCH Configuration

6P MAY be used alongside the Minimal 6TiSCH Configuration
[I-D.ietf-6tisch-minimal].  In this case, it is RECOMMENDED to use 2
slotframes, as depicted in Figure 3:

o  Slotframe 0 is used for traffic defined in the Minimal 6TiSCH
   Configuration.  In Figure 3, this slotframe is 5 slots long, but
   it can be of any length.
o  Slotframe 1 is used by 6top to allocate cells from.  In Figure 3,
   this slotframe is 10 slots long, but it can be of any length.

Slotframe 0 SHOULD be of higher priority than Slotframe 1 to avoid
for cells in slotframe 1 to "mask" cells in slotframe 0.  6top MAY
support further slotframes; how to use more slotframes is out of the
scope for this document.

                  | 0    1    2    3    4  | 0    1    2    3    4  |
                  +-------------------------+-------------------------+
    Slotframe 0   |    |    |    |    |    |    |    |    |    |    |
    5 slots long  | EB |    |    |    |    | EB |    |    |    |    |
   high priority  |    |    |    |    |    |    |    |    |    |    |
                  +-------------------------------------------------+

                  | 0    1    2    3    4    5    6    7    8    9  |
                  +-------------------------------------------------+
    Slotframe 1   |    |    |    |    |    |    |    |    |    |    |
   10 slots long  |    |A->B|    |    |    |    |    |    |B->A|    |
    low priority  |    |    |    |    |    |    |    |    |    |    |
                  +-------------------------------------------------+

Figure 3: 2-slotframe structure when using 6top alongside the Minimal
                        6TiSCH Configuration.
```

draft-ietf-6tisch-6top-protocol

6TiSCH interim 20 Jan 2017

About Cell Suggestion

When in a transaction, node A proposes a candidate CellList to node B and B cannot allocate any of those cells. Node B SHOULD respond with a CellList suggesting alternatives. This approach facilitates the agreement between A and B and enables A to not guess what cells may be not used in B. The following figure ilustrated these 3-step transaction.

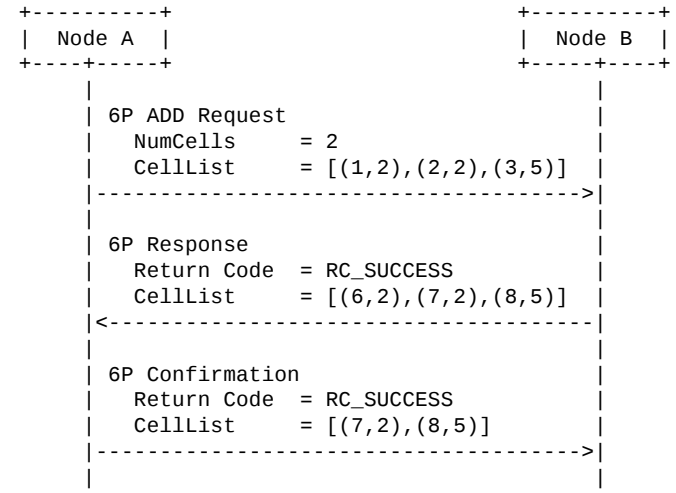


Figure 6: A 3-step 6P Transaction with cell suggestion.

Is that what we agreed upon?

“all SFs” SFID

- A 6P command applies to a particular SF
- This means that a STATUS command returns information only for one particular SFID
- But what if we want information about all SFIDs?

Proposal: `SFID=0xff` means “all SFIDs”

Mixing Long and Short Addresses

Problem statement

- A node has a unique 64-bit EUI-64
- A node learns its 16-bit short address through the join process (draft-ietf-6tisch-minimal-security)
- We want as many frames as possible to use short addresses for source and destination address (otherwise 12B wasted)

Questions

- What address is used in which frames?
- Must a node always know BOTH the short and long address of its neighbors?

editorial TODO list

- *All of the above*
- Add RC_END_OF_LIST
- Sentence that says that 3-step transaction used for case where requestee proposes cells
- 3-way → 3-step (same for 2-way)
- Section 4.2.13, the length of "Num. Cells" is 2-octet long in the text, but 1-octet in the figure.
- Figs 5 and 6 need to be re-written to reflect type and code fields
- Single generation number

AOB ?

Thank you!