14 April 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

6TiSCH interim 14 April 2017
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: http://etherpad.tools.ietf.org:9000/p/6tisch?useMonospaceFont=true
** 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)  [15min]
  • Adoption of Michael’s drafts on security – co authors?
  • Terminology draft
  • 6TiSCH for detnet
  • 6P and SF0 – launching last calls?
• 6P finalization (Thomas, Qin) [10min]
• Update on security (Michael/Malisa) [10min]
• Research Liaison Task Force (Thomas) [15min]
• AOB [3min]
Plugtests

- Discussion between Thomas, Xavi, Carsten
- Tentative dates: Friday 14 July afternoon, Saturday 15 July all days
- We are discussing with ETSI
- We are discussing with CoRE/6lo about possible co-located events
- Scope for 6TiSCH? Minimal, 6P, SF0, minimal-security? Something else?
- We might be able to use the F-interop testing platform
Draft status
Michael’s drafts on security

• draft-richardson-6tisch-join-enhanced-beacon-01
  IEEE802.15.4 Informational Element encapsulation of 6tisch Join Information

• draft-richardson-6tisch-minimal-rekey-01
  Minimal Security rekeying mechanism for 6TiSCH
Terminology

• Complete?
6TiSCH for DetNet

• Complete? Missing items?
• is there a need for a doc beyond retrofit in Archie?
• If so, Adopt?
• Goal: Leave as is or Publish one day?
6P and SF0

- Launch last call?
Update on 6P
Charlie’s review of
draft-ietf-6tisch-6top-protocol-04

I think the document has issues, some technical, mostly editorial. They can be easily fixed but some decisions have to be made. All of my comments can be found in the attached output of 'rfcdiff'. The editorial suggestions I mostly incorporated into a revised version of the file, which is also visible in the output of 'rfcdiff'. If this is unclear, please let me know. I think that there should be a new section for "Terminology", and various TSCH, 6TiSCH, and 6top terms explained in that section for convenience.

Here are some of my technical comments about the document. Some of my questions might arise from my own misunderstandings, in which case perhaps a few more sentences or cross-references could be inserted for explanations.

• ERR_EOL is defined as an error, but it is used as a flag for protocol signaling
• Why is any negotiation needed for node A to delete cells?
• If a negotiation is needed, then isn't NumCells needed somewhere in the message format?
• In Figure 13, If you have a Candidate CellList, don't you also need "NumCandCells"?
• GEN and SeqNum play similar roles. The protocol could be cleaner if their roles were combined. Plus you would have more bits, making rollover far less frequent.
• Some of the suggestions for SF specification seem impractical.
• Not clear why LIST and COUNT are needed except possibly for reboot or operating system errors.
• Not clear how to abort the CONFIRMATION step of a 3-step transaction.
• In Figure 14, is NumCells needed for the RELOCATE Response?
Technical comments about draft-ietf-6tisch-6top-protocol-04

April 14, 2017 interim teleconference
Charles Perkins
Futurewei
ERR_EOL is defined as an error, but it is used as a flag for protocol signaling.

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GEN and SeqNum play similar roles. The protocol could be cleaner if their roles were combined. Plus you would have more bits, making rollover far less frequent.
Some of the suggestions for SF specification seem impractical.

“MUST specify the behavior of a node when it boots.”

Do we really need a registry of application domains?

Not clear why LIST and COUNT are needed except possibly for reboot or operating system errors.

Not clear how to abort the CONFIRMATION step of a 3-step transaction.

In Figure 14, is NumCells needed for the RELOCATE Response?
Update on security
Design team meetings

Typically present:
Michael Richardson, Tero Kivinen, Pascal Thubert,
Thomas Watteyne, Mališa Vučinić, Göran Selander,
Toerless Eckert, Peter van der Stok
Research Liaison Task Force
Research Liaison idea

• idea
  • Issue requests for simulation, implementation
  • Gather feedback/performance results

• Discussion
  • Is “research” the right term?
  • How to liaise with the community? Wiki? I-D?
  • Propose to have one person in charge of:
    • Issuing calls
    • Coordinating results to WG
    • Maintain list of ongoing work (papers, groups, etc)
The 6TiSCH simulator

Thomas Watteyne
Kazushi Muraoka
Nicola Accettura
Xavier Vilajosana
Mališa Vučinić
Motivation

Predict the performance of a 6TiSCH network

Feedback to protocol designers

Research tool
What is it?

Discrete-event simulator

Time proceeds in TSCH slots

Written in Python

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<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TSCH</td>
<td>✓</td>
</tr>
<tr>
<td>minimal schedule</td>
<td>✓</td>
</tr>
<tr>
<td>RPL with source routing</td>
<td>✓</td>
</tr>
<tr>
<td>6top(^1)</td>
<td>✓</td>
</tr>
<tr>
<td>on-the-fly(^2)</td>
<td>✓</td>
</tr>
<tr>
<td>join process(^3)</td>
<td>✓</td>
</tr>
</tbody>
</table>

3 - generic
Metrics

Energy consumption
Performance of Slotted-Aloha cell
Reliability
Latency
Duration of the join process, time until first beacon
and many more…
early results on join process

- slotframe length = 11 (slots)
- beacon period = 10 (s)
AOB ?
Thank you!