11 December 2015 Webex

IPv6 over the TSCH mode of IEEE 802.15.4e

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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- BCP 25 (on the Working Group processes)
- BCP 78 (on the IETF Trust)
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*** From the Webex login

Agenda

- Administrivia   [3min]
  - Agenda bashing
  - Approval minutes from last meeting
- Charter Update   [5min]
  - Status of discussions with responsible A-D (Brian)
- 802.15.4: Status   [5min]
- 6lo drafts: [5min]
  - draft-thubert-6lo-backbone-router
  - draft-thubert-6lo-routing-dispatch
- PlugTest: Scope   [15min]
- 6top drafts: next steps   [20min]
- AOB   [2min]

Administrivia

Admin is trivia

- Approval Agenda
- Approval minutes

Charter

Recharter status

- Exchanges with Brian
- Suggestion to maintain the following item
- Indicating dependency:

- Produce an Information Model containing the management requirements of a 6TiSCH node. This includes describing how an entity can manage the TSCH schedule on a 6TiSCH node, and query timeslot information from that node. A data model mapping for an existing protocol (such as Concise Binary Object Representation (CBOR) over the Constrained Application Protocol (CoAP)) will be provided. This work depends on the standardization of a method to access management data resources in constrained devices, such as proposed by CoMI or COOL.

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802.15.4 2015 status

IETF Conference Call 11 Dec 2015

IEEE 802.15 PROJECT UPDATE FOR IETF 6TISCH

IEEE 802.15 Subgroups of Interest

- 802.15.4t – New Regulatory PHY (addresses recently opened 865-867MHz band in India w/power levels up to 4W)

- 802.15.4u – High Rate PHY (2 Mb/s backward compatible with original 250 kb/s PHY in 2450 MHz band)

- 802.15.9 – KMP (Key Management Protocol)

- 802.15.10 – L2R (Layer 2 Routing Mesh)

- 802.15.12 – Study Group for ULI project

Approved PAR for 802.15.4t

- **Expected Date of submission of draft for Sponsor Ballot:** 12/2016

- **Projected Completion Date for Submittal to RevCom:** 05/2017

- **Scope:** This amendment defines a PHY layer enabling the use of the 865-867 MHz band in India. The supported data rate should be at least 40 kbits per second and the typical Line of Sight (LOS) range should be on the order of 5 km using omni directional antennae. Included are any channel access and/or timing changes in the MAC necessary to support this PHY layer.

- **Need:** The Ministry of Urban Development (MoUD) in India has released a concept note on Smart Cities. The Department of Telecommunications (DoT) has formulated a roadmap for deployment of M2M communications. The Telecommunication Engineering Centre (TEC) has formed several M2M Working Groups to delve deeply into various aspects of M2M Communications. The Department of Electronics and Information Technology (DietY) has recently released a draft an Internet of Things Policy. The India Smart Grid Forum (ISGF) is in the process of preparing a standard framework for smart cities for submission to MoUD. Lastly, the Telecommunications Standards Development Society, India (TSDSI) is in the process of preparing technical reports containing use cases on various domains of Machine to Machine Communications/Internet of Things. Many of these activities are recommending the use of sub 1 GHz bands and in particular the 865-867MHz band in India which has recently been opened for broader unlicensed at power levels up to 4 watts. This amendment enables that capability

Approved PAR for 802.15.4u

- **Expected Date of submission of draft for Sponsor Ballot:** 2/2017

- **Projected Completion Date for Submittal to RevCom:** 08/2017

- **Scope:** This amendment defines a physical layer for IEEE Std. 802.15.4 current revision, capable of supporting 2 Mb/s data rates, utilizing the 2400 - 2483.5 MHz band, having backwards-compatibility to, and the same occupied bandwidth as, the present 2450 MHz O-QPSK physical layer, and capable of simple implementation. Target range should be at least 10 meters. This amendment defines modifications to the Medium Access Control (MAC) layer needed to support this new physical layer.

- **Need:** …there is growing need for higher data rates while, at the same time, supporting backward compatibility and continuing to reduce the energy consumption of IEEE Std. 802.15.4 devices even further. This enhanced performance is needed to help IEEE Std. 802.15.4 maintain its leadership position and compete against other IoT oriented communication protocols that are expected to emerge in the near future.

Draft PAR for 802.15.12

- **Expected Date of submission of draft for Sponsor Ballot:** 12/2017

- **Projected Completion Date for Submittal to RevCom:** 08/2018

- **Scope:** This standard defines an Upper Layer Interface (ULI) sublayer in the Data Link Layer (DLL), between Layer 3 (L3) and the IEEE 802.15.4 Media Access Control (MAC) sublayer. The ULI adapts L3 protocols and provides operational configuration including network and regulatory (see 8.1) of the IEEE 802.15.4 MAC. Furthermore, the ULI integrates Layer 2 (L2) sub-layer functionalities such as Key Management Protocols (KMP), L2 routing (L2R) protocols for IEEE Std. 802.15.4. Additional L2 sublayer functionalities and protocol extensions for the IEEE 802.15.4 MAC are candidates for inclusion in the ULI (see 8.1). Finally, the ULI provides protocol differentiation to support multiple, diverse higher layer protocols.

- **Purpose:** This standard integrates sublayer protocols developed to support the IEEE 802.15.4 MAC and harmonize their ancillary functionality, e.g. fragmentation and protocol differentiation, along with providing the IEEE 802.15.4 MAC and PHY configuration that is required by IEEE Std. 802.15.4.

Draft PAR for 802.15.12 (continued)

- **Need for the Project:** As IEEE 802.15.4 has become widely deployed, deficiencies in IEEE Std. 802.15.4 became apparent as an expanding set of applications were addressed. Many sublayer protocols independently developed for IEEE 802.15.4 MAC sublayer to address IEEE Std. 802.15.4 deficiencies, such as KMP, L2R, network layer abstraction, replicated ancillary functionality, e.g. fragmentation and protocol differentiation, in an inconsistent and often incompatible manner. The ULI is needed to harmonize the sublayer protocols and provide necessary IEEE 802.15.4 MAC and PHY configuration to:
  - Enable IEEE 802.15.4 devices to support multiple diverse higher layer protocols by using the EtherType mechanism and also fragmentation to allow longer datagrams/packets
  - Integrate DLL protocols that interface to the IEEE 802.15.4 MAC providing services such as Key Management Protocol (KMP) and L2 routing (L2R)
  - Enhance L3 IP connectivity by providing network layer IP abstraction
  - Fulfill IEEE 802.15.4 MAC and PHY configuration needs for operation such as:
    - network configuration
    - configuration for regulatory requirements
    - channel configuration
    - transmit power control configuration
    - modulation encoding configuration

Questions on the following?

- Approval of 802.15.4 revision (as per email sent out 7 Dec 2015)

- Recommendation for use of sub-IDs with respect to IETF's IE (as per document sent out 1 Dec 2015)

- PAN ID compression bit setting (as per document sent out 1 Dec 2015)

- Return to the original 4-octet frame counter in 802.15.4-2015, as opposed to 5-octet as stated in 15.4e

6lo drafts

Status

- **6lo-routing-dispatch**
  - Adopted, draft-ietf-*-00 published
  - Pending Split to separate the page system
  - Candidate for PlugTest in Berlin
- **6lo-backbone-router**
  - Pending adoption (hopeful)
  - Also candidate for PlugTest in Berlin

PlugTest: Scope

PlugTest

- Where
- When
- Accomodations

6top drafts

[6tisch] Comments on the 6top-sublayer and 6top-sf0 drafts
by Diego
(1) Add a cell direction indicator in the messages?
(2) Add a sequence number to keep track of transactions in the messages?

[6tisch] New Version Notification for draft-wang-6tisch-6top-sublayer-03.txt
By Charlie Perkins
(1) There is a strong need for non-local statistics, for instance flow statistics
(2) Is it mandated that bootstrapping uses "minimal"?
(3) Shouldn't a retry facility be standardized?
(4) Shouldn't IETF try to either use existing IEs, or explain the need for new ones?

[6tisch] IEEE 802.15 6T Interest Group responses to IETF 6tisch requests
By Pat Kinney
response to Thomas Watteyne's email dated 23 October requesting the
EEE 802.15 6T interest group to make a recommendation on IE format

AOB ?

Thank you!