04 September 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.

The brief summary:

- By participating with the IETF, you agree to follow IETF processes.
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- 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   [5min]

    Agenda

    Minutes Last meetings

    Status for draft-ietf-6tisch-architecture

    Status for draft-ietf-6tisch-minimal

- Mortem ETSI PlugTest   [15min]

- WG activities till Yokohama   [15min]

- New charter bashing   [20min]

- AOB   [1min]

Administrivia

Admin is trivia

- Approval Agenda
- Approval minutes
- 'e' removed from charter
- RFC 7554 (TSCH) is out!!!

IETF92 - Prague

Very full agenda:

- 1st ETFI 6TiSCH Plugtests
- OpenWSN/6TiSCH hackathon
- 6TiSCH WG meeting

6TiSCH plugtest

- Under NDA, so we cannot disclose company names or results
- participants
  - 21 participants
  - 12 participating companies
  - 3 observer company (4 people)
  - 4 independent implementations
- Tools:
  - OpenMote
  - OpenWSN-based Golden device
  - Wireshark dissector
- Tests and outcome
  - 18 tests (10 single-hop, 8 multi-hop)
  - 207 tests executed, 93.7% success rate!
- Thanks to ETSI and OpenMote!

09/04/15

OpenWSN/6TiSCH hackathon

11 projects presented!

Hands-on session

Thanks to support from:

- ETSI

- OpenMote

- Inria

09/04/15
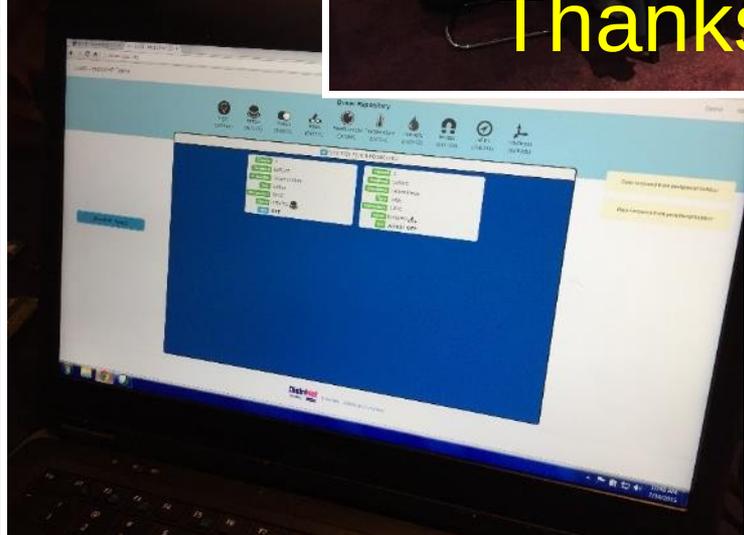
6TiSCH Action Plan
Sept 2015-February 2016

6TiSCH action plan – Sept 2015-February 2016 - DRAFT

JCE J

BBR

A

B

C

D

E node

G

F JA

H JN
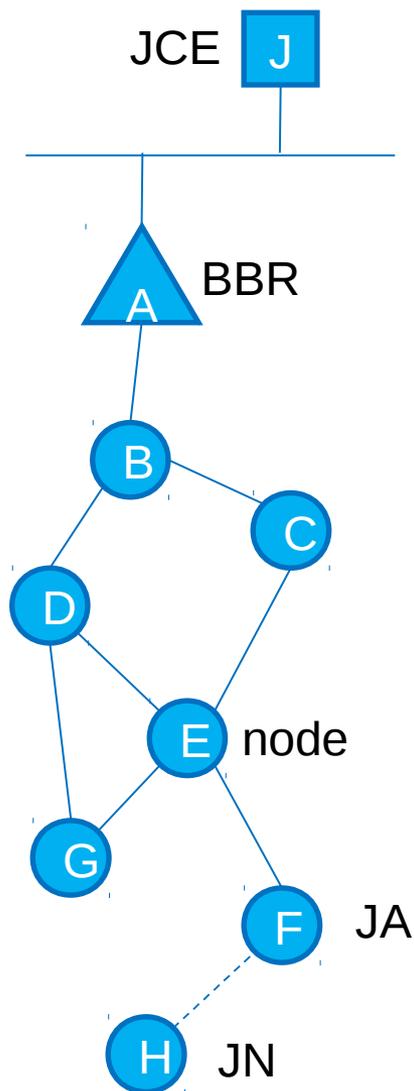
- Joining
  - PSK between node and JCE. One key per node possible.
  - Node announces itself to JCE through JA
    - CoAP packet with payload protected using COSE
      - TODO: COSE must be lean (overhead <10B)
      - Packet goes through JA
      - Replay protection with freshly learned ASN
  - JCE authenticates the node because it can authenticate/decrypt the COSE payload
    - TODO: JCE needs to know ASN window that it can accep?
  - JCE initiates a security session, based on the PSK (end-to-end session between JN <-> JCE)
    - *Option 1*: COSE object with PSK-encrypted session state, includes ASN for replay
    - *Option 2*: Abbreviated DTLS handshake (4-6 packets) using session resumption ticket
    - Note well: "session resumption ticket" is just way of encrypting new key with the PSK in DTLS-compliant way to get rid of extra packets (see discussion with Michael Richardson)
  - Over secure session, JCE installs network-wide L2-key "K2"
    - Simple CoAP resource for JCE to install in node keys
      - TODO: "simplified" 6top interface for security (/k2 resource)
      - TODO: "simplified" CoAP mapping of that interface
- Operation
  - Network starts with draft-minimal
    - TODO: Consolidate/publish minimal draft
      - Compliance with 15.4e-2012 vs -2015
      - Table 2a rewording (→ mail Xavi)
      - RPL: MUST non-storing, SHOULD storing
  - OTF to negotiate schedule between neighbor nodes
    - TODO: think about more efficient solution than CoAP IE? Simple(r) TLV?
    - TODO: discover OTF algorithm used
    - 6top negotiation interface. Soft cell reservation using BW requirements (not specific cells)

Status for draft-ietf-6tisch-architecture

Proposal

- 08 published
- Intended Track: Informational
- Ralph's suggestions:
    - Separate high level architecture
    - Complete the work (dyn sched, detnet, sec)
- WG taking the draft back to complete it

draft-ietf-6tisch-minimal

Xavi Vilajosana (Ed.)

Kris Pister

Status

Status:

Needs to be finished:

- ?

Rechartering

Complete ?

- Archie 1 and TSCH

- Minimal

- CoAP and 6top interface

Additions

- Security

  - Join Process

  - More?

  - In Archie 2?

- Dynamic scheduling

  - OTF

  - 6top

  - Archie 2

- Requirements to DetNet

  - Track organization and operation

Description of Working Group

The Working Group will focus on enabling **IPv6** over the **TSCH mode of the IEEE802.15.4e standard**. The extent of the problem space for the WG is **one or more LLNs**, eventually federated through a common backbone link via one or more LLN Border Routers (**LBRs**).

The WG will rely on, and if necessary extend, existing mechanisms for authenticating LBRs. **Initially, the WG will limit its scope to distributed routing over a static schedule**. In that case, a node's schedule can be either preconfigured, or learnt by a node when joining the network, but it remains unchanged after the node has joined a network.

The Routing Protocol for LLNs (**RPL**) is used on the resulting network. The WG will interface with other appropriate groups in the IETF Internet, Operations and Management, Routing and Security areas.

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Milestones

12/2013 - WG to adopt 6TiSCH terminology

12/2013 - WG to adopt IEEE802.15.4e TSCH overview

12/2013 - WG to adopt 6TiSCH architecture

12/2013 - WG to adopt 6TiSCH minimal configuration

04/2014 - WG to adopt 6top draft(s)

04/2014 - WG to adopt 6TiSCH data model for CoAP

08/2014 - Submit YANG data model in 6top draft for preliminary OPSDIR review

08/2014 - Submit 6TiSCH architecture for preliminary SECDIR review

11/2014 - Initial submission of 6TiSCH minimal configuration to the IESG

11/2014 - Initial submission of 6top draft(s) to the IESG

11/2014 - Initial submission of 6TiSCH data model for CoAP to the IESG

12/2014 - Initial submission of 6TiSCH terminology to the IESG

12/2014 - Initial submission of 6TiSCH architecture to the IESG

12/2014 - Evaluate WG progress, propose new charter to the IESG

06/2015 - 6TiSCH Minimal and 6top draft(s) in RFC publication queue

12/2015 - 6TiSCH architecture and terminology in RFC publication queue

Charter discussion

Non-Chartered Active Work

Security (Join Process)

    draft-richardson-6tisch--security-6top-03

6top Layer (vs. new work at IEEE 802.15.4)

    draft-wang-6tisch-6top-coapie (6top-to-6top comm.)

    draft-wang-6tisch-6top-sublayer

Dynamic Scheduling

    draft-dujovne-6tisch-on-the-fly

    (no draft yet) Chunk Appropriation / Spatial Reuse

Time-Sensitive Tracks

6TiSCH Archi. discusses track operation

DetNet (WG?) looks at the broader picture

Lacking Interactions and Data models

Relation with PCE and CCAMP TBD

Relation with IEEE and (ONF?) TBD

=> Requirements for DetNet ?

What Else?

Architecture Continuation

More on security

…

! Please speak up !

Mailing List is your friend

AOB ?

Thank you!