



World Class Standards

**1st F-Interop 6TiSCH
Interoperability Event
*REPORT***

Maria Rita Palattella

Miguel Angel Reina Ortega

14-15 July 2017

Prague, Czech Republic

Overview of the Event



- Event organized by:
 - ETSI (European Telecommunications Standards Institute)
 - LIST (Luxembourg Institute of Science and Technology)



- Supporting Companies/Projects:
 - OpenMote (hardware, www.openmote.com)
 - OpenWSN (firmware www.openwsn.org)

- Event sponsored and funded by:
 - European Commission
 - through the H2020 F-Interop project

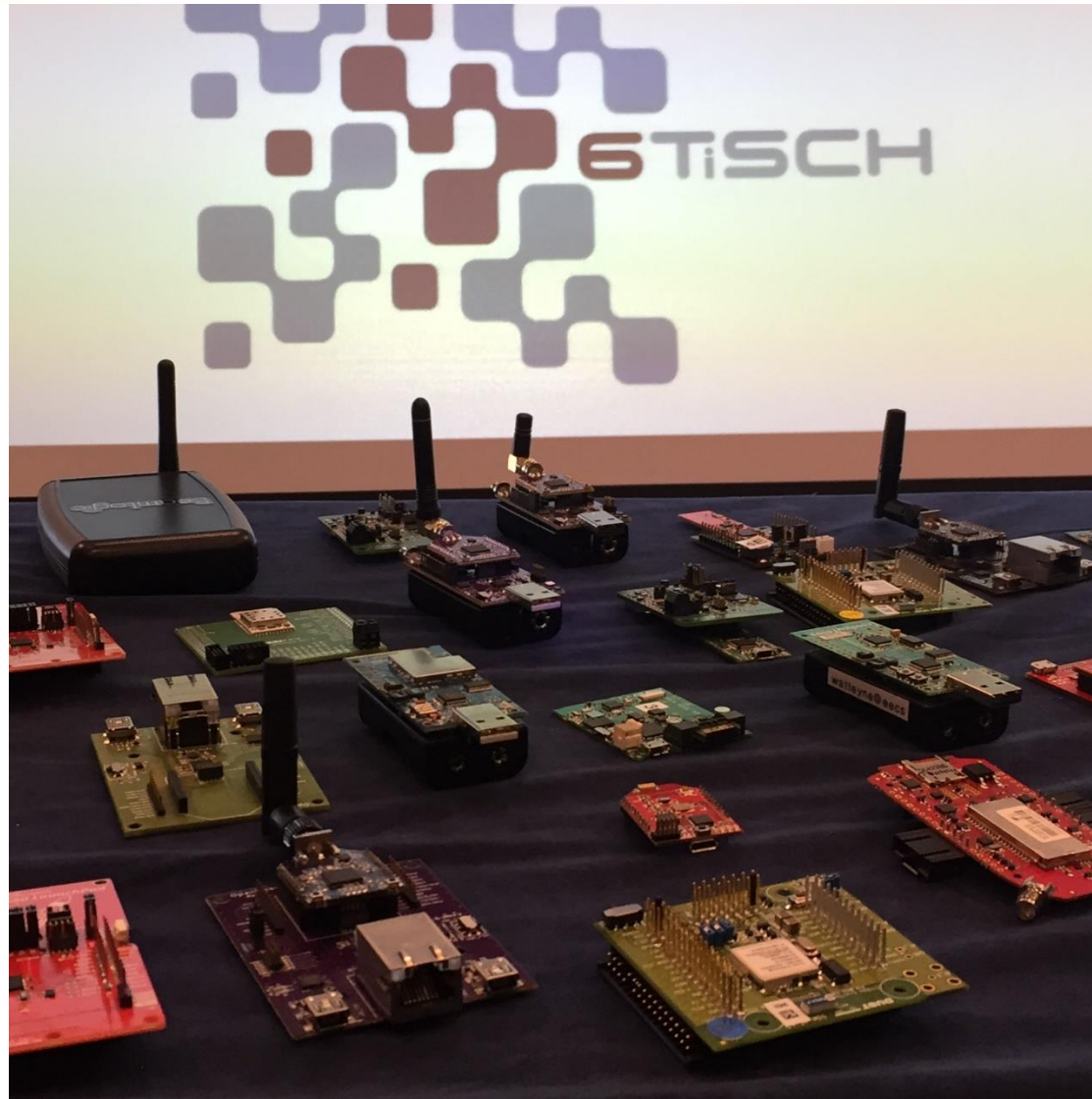


- 16 participating companies
- independent implementations
 - 5x 6TiSCH
 - 6x OSCOAP

Participating People



Participating Things 😊



- 1 preparation call
 - ETSI/LIST/Experts group led and organized
 - Collaborating Web conf (GotoMeeting) on 3.7.2017
 - Included Vendor Participants

- Test Plan Development
 - 6TiSCH -> Led by Maria Rita Palattella, Tengfei Chang, Malisa Vucinic
 - F-Interop Online Testing Tools -> Remy Leone
 - OSCoAP -> Led by Francesca Palombini

6TiSCH Tests description (publicly available)

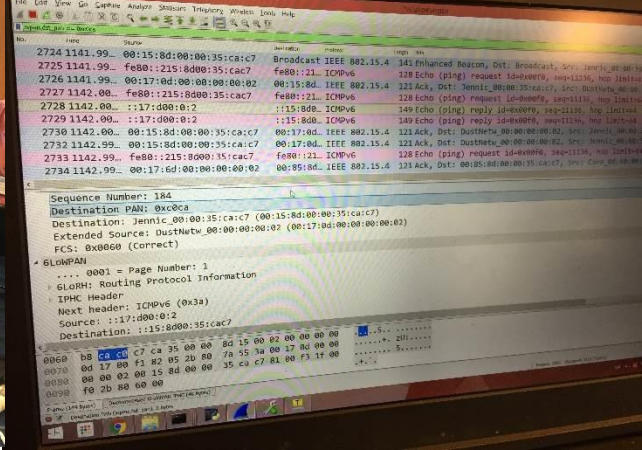
Testing: Synch, Minimal, 6top, L2 security, Secure joining


| | | | |
|---|----------------------|----|----------------------|
| 1 | TD_6TiSCH_SYN_01 | 9 | TD_6TiSCH_SECJOIN_01 |
| 2 | TD_6TiSCH_MINIMAL_01 | 10 | TD_6TiSCH_SECJOIN_02 |
| 3 | TD_6TiSCH_MINIMAL_02 | 11 | TD_6TiSCH_SECJOIN_03 |
| 4 | TD_6TiSCH_MINIMAL_03 | 12 | TD_6TiSCH_SECJOIN_04 |
| 5 | TD_6TiSCH_MINIMAL_04 | 13 | TD_6TiSCH_6P_01 |
| 6 | TD_6TiSCH_MINIMAL_05 | 14 | TD_6TiSCH_6P_02 |
| 7 | TD_6TiSCH_MINIMAL_06 | 15 | TD_6TiSCH_6P_03 |
| 8 | TD_6TiSCH_L2SEC_01 | 16 | TD_6TiSCH_6P_04 |

Agenda



| F-Interop 6TiSCH Agenda (14-15 JULY 2017) | | |
|---|-------------------------|---------------------|
| Time | Friday 14 | Saturday 15 |
| 08:00 11:00 | | TEST SESSIONS |
| 11:00 13:00 | SET-UP / REGISTRATION | |
| 13:00 14:00 | LUNCH BREAK | LUNCH BREAK |
| 14:00 19:00 | TEST SESSIONS | TEST SESSIONS |
| 19:00 19:30 | GOING TO THE RESTAURANT | WRAP UP / TEAR-DOWN |
| | DINNER | |



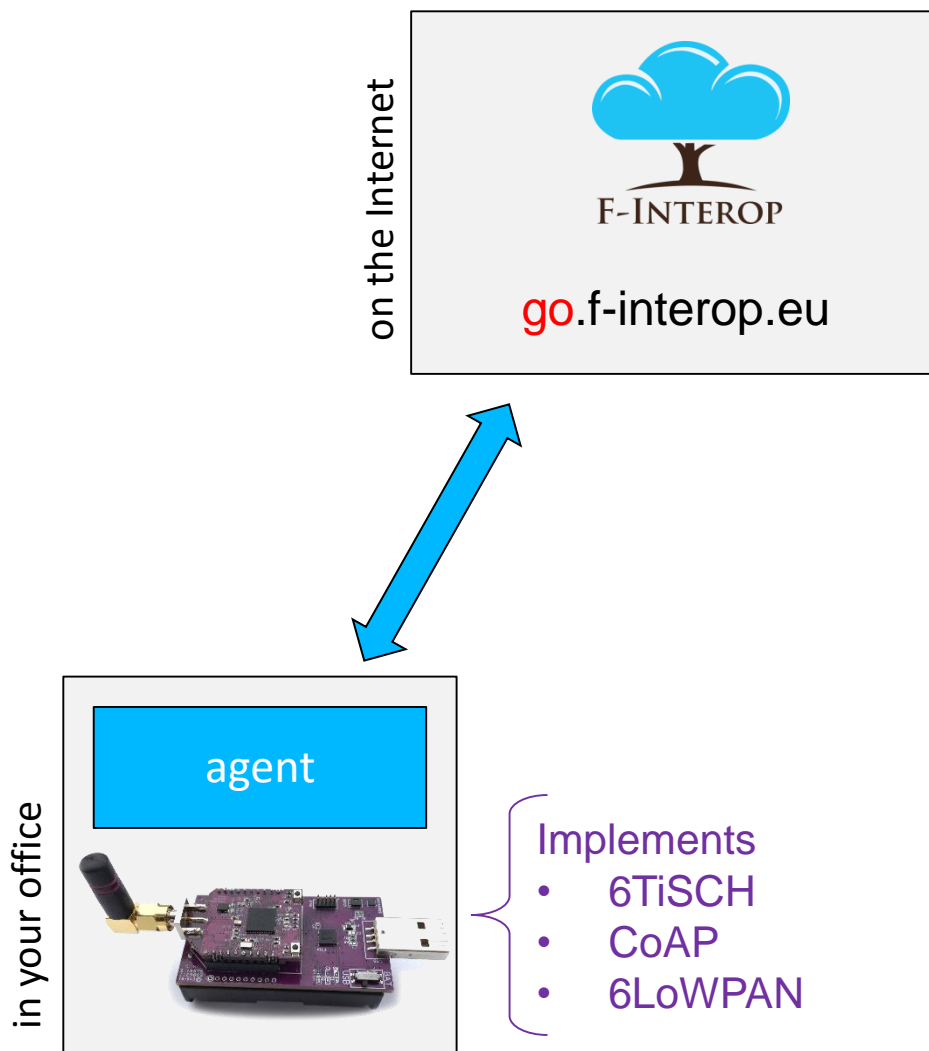
-  The results of each interoperability test session have been recorded in a dedicated web application software: the ETSI Test Report Tool (TRT)
 - After each test execution the interoperability result is agreed among all participants and then recorded
 - After each test session the report is submitted to ETSI

Tests Outcomes



| Total | Passed | Failed | Not Applicable |
|--------------|---------------|---------------|-----------------------|
| 156 | 85 | 14 | 57 |
| | 85,9 % | 14,1 % | 36,5% |

F-Interop Online testing tool



Tests for:

- 6TiSCH
- CoAP
- 6LoWPAN
- LWM2M
- OSCOAP
- 6TiSCH-join
- EDHOC
- LoRaWAN
- *your tests here!*

Implements

- 6TiSCH
- CoAP
- 6LoWPAN



- It works!
- RFC8180: works on all implementations 😊
- Minor suggestions for draft-ietf-6tisch-6top-protocol:
 - In ADD command, if no cell can be reserved:
 - return error code NORES with empty CellList
 - rather than error code SUCCESS with empty CellList
 - remove the text that recommends sending a CLEAR on a generation mismatch
 - rather, discuss "roll-back" policy

Conclusion

- Great success! Enabled to verify interoperability of RFC8180, and maturity of other drafts
- Progress through implementation and real testing.

Next plugtests

- Fully remote F-Interop based plugtests in the fall
- Date TBA



THANKS!

Maria Rita Palattella
Luxembourg Institute of Science and Technology
maria.rita.palattella@list.lu