

June 2017 Progress Report

By

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Working Title

A Hybrid Centralized and Distributed Time Slot
and Channel Hopping Scheme for 6TiSCH Wireless
Sensor Networks

Main Objective

What is impact of a hybrid of a load-balanced centralized and distributed scheduling schemes on performance of 6TiSCH networks

Specific Objectives

Load-Balanced Objective Function for RPL to determine optimal routes

QoS Supervisor to monitor network Conditions and initiate switching between centralized and distributed scheduling

Minimal Idle-listening and Load-Balanced centralized Channel hopping and time slot scheduler

A hybrid of centralized and distributed scheduling schemes that outperforms both centralized and distributed scheduling schemes in 6TiSCH networks used in isolation.

Planned

- Finish experiment for Load-balanced RPL
- Finish Experiment for designing a tsch scheduling algorithm
- Finish the free and Open-source application

Progress

- RPL experiments
 - Shared with co-authors and finalizing corrections on Monday (To add: Test with more dense network, evaluate for fairness, effect of topology)
- Centralized 6tsch scheduler
 - No progress: when I load tsch driver, resources disappear
 - Not yet zeroed down on the CoAP library to use (erbiium or CoAPthon)
- Free and open-source application
 - Done

Plans

- Submit the RPL Paper
- tsch centralized scheduler
 - Choose a CoAP library and start the scheduling algorithm
 - Start paper on centralized scheduling (to 10%), to be submitted to a journal

Challenges

- Tsch driver
 - There seems to be a bug in the processor, causing a 2 byte overflow
- Scanty resources