



OpenBenchmark - Continuous Delivery Benchmarking for 6TiSCH

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www.soda.ucg.ac.me

<https://benchmark.6tis.ch/>

Project team:

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Motivation

- Although there are many academic papers on research optimizations of 6TiSCH, we generally lack a comprehensive benchmark of the solution in a real-world driven scenario.
- Standards are always evolving and constant performance evaluation is necessary
- A reliable tool for comparing the performance of research optimizations with state-of-the-art implementations in a real-world scenario is also necessary

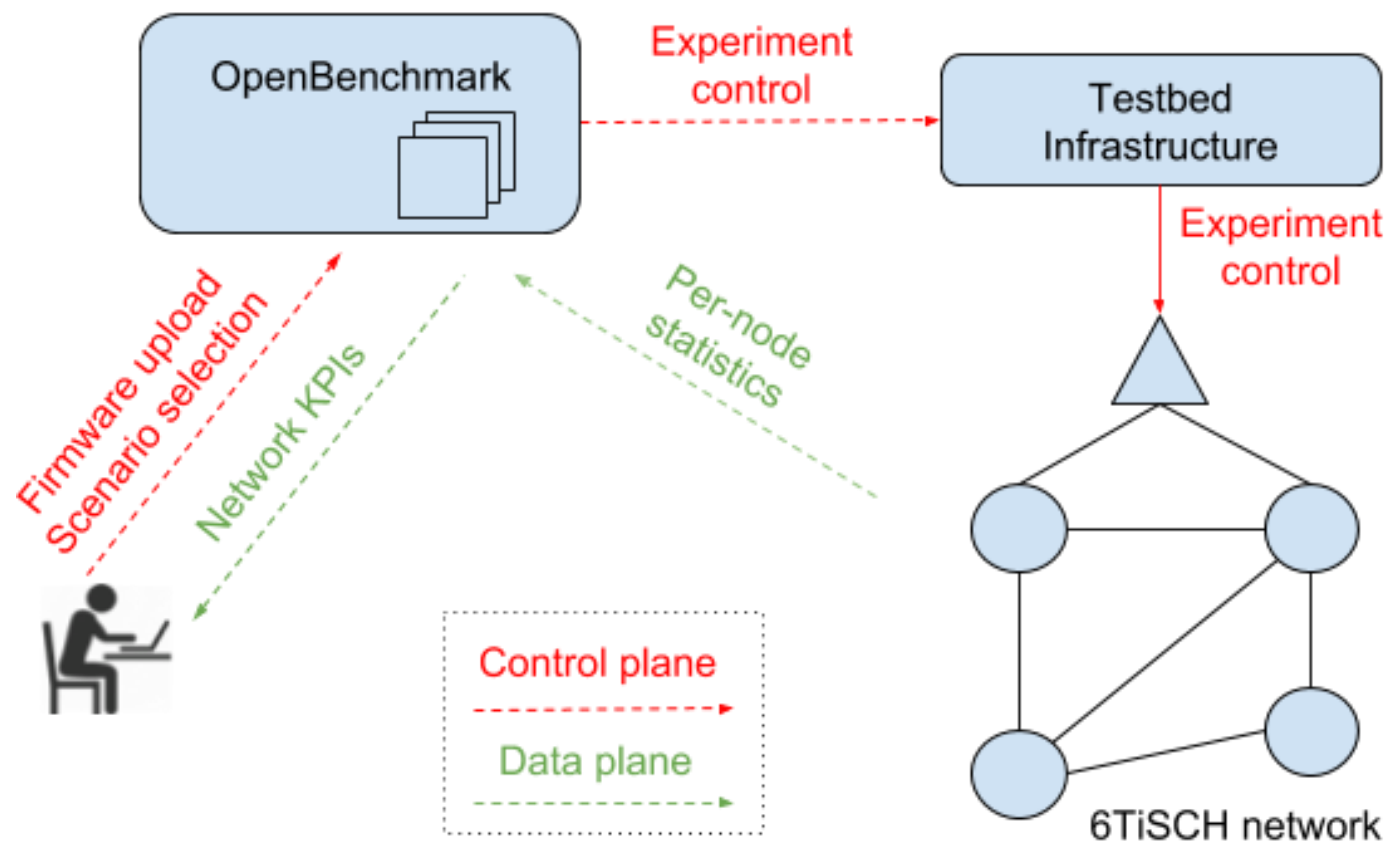
Proposed solution (1/3)

- In the frame of **SODA** project we are developing benchmarking platform with strictly defined:
 - Test scenarios based on RFCs
 - Set of KPIs
 - Test environments and conditions
- Means of access:
 - User friendly GUI
 - Exposed RESTful API for easy machine-user accessibility (continuous integration, nightly builds, etc.)

Proposed solution (2/3)

- Key performance indicators (KPIs) of a 6TiSCH implementation:
 - Reliability
 - Latency
 - Radio Duty Cycle
 - Number of Hops
 - Synchronization Precision
 - Network Formation Time

Proposed solution (3/3)



Work in progress... (1/3)

- Scenarios

- Home automation

- [RFC5826](#)

- Building automation

- [RFC5867](#)

- Industrial monitoring

- [RFC5673](#)

- Planned testbeds

- IoT-LAB, Saclay

- w-iLab.t, Ghent

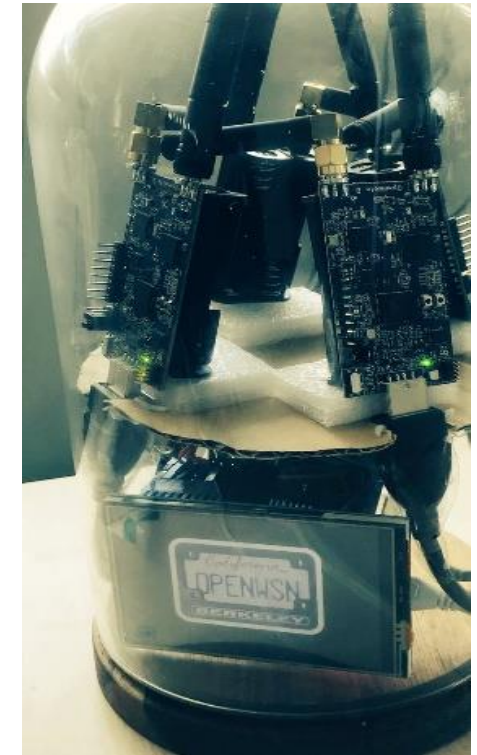
- OpenTestbed, Paris



w-iLab.t facilities in Ghent







IoT-LAB in Saclay






OpenTestbed in Paris

Work in progress... (2/3)

Scenario:

-  Industrial monitoring
-  Building automation
-  Home automation


Firmware:

- iotlab_fw - 735604 - success

+ Select files

↑ START UPLOAD

Testbed:



w-iLAB.t

Selected node:

OpenBenchmark ID: openbenchmark01

Testbed ID: a8-116

Transmission power: -7 dBm

Role: Monitoring Sensor

START EXPERIMENT



Work in progress... (3/3)





THANKS!