

The Problem

20 years of research and yet
No standard evaluation of
low-power wireless protocols!



- Huge variety of settings
- Hard to compare against references
- Heterogeneous comparison (software only) vs (hardware + software)

The Vision



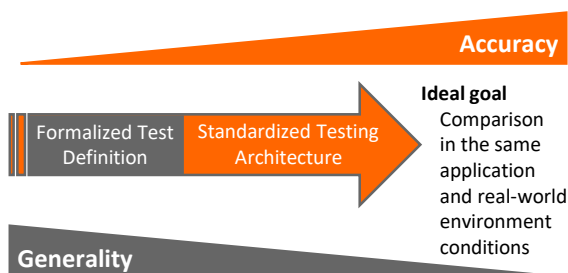
A benchmark designed by and for the community

- Set of tools and practices for performance evaluation
- Enable fair comparisons
- Enable some repeatability

The Challenge

How to design a benchmark that realizes our vision?

Generality vs Accuracy



#1 Formalized Test Definition

- Based on profiles
- Technology-agnostic
- Clear evaluation settings
 - ↳ # of runs, expected statistics

#2 Standardized Testing Architecture

- Isolate networking code from evaluation scenario
 - ↳ Nodes run networking code
 - ↳ Test environment (testbed or simulator) controls the evaluation
- Fully automated
- No misinterpretation of profiles
- More complex to setup
- More infrastructure maintenance

Metrics vs Profiles

Input	Assign values to inputs
↳ Traffic load and pattern	↳ 100 nodes, 1 pkt/s
Observed	Measure of observed and output metrics
↳ Wireless noise	
Output	
↳ Delivery, delay	↳ Link quality
	↳ Latency, energy

Get in touch and contribute!

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CPSBench

1st Workshop on Benchmarking Cyber-Physical Networks and Systems

Satellite workshop of CPSWeek 2018

cpsbench2018.ethz.ch



More information

IoT Benchmarks Initiative

www.iotbench.ethz.ch



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UNIVERSITY OF TRENTO - Italy



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