OpenBenchmark - Continuous Delivery Benchmarking for 6TiSCH

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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
Work in progress... (2/3)
Work in progress... (3/3)
THANKS!