Topic: TiSCH for RIOT *BEFORE*

MVP:

RIOT HAL

sock

UDP

OpenWSN
(6TiSCH)

802.15.4

netdev

EUI64

UART

Timer
(periph/rtt)

LED &
Debug Pins
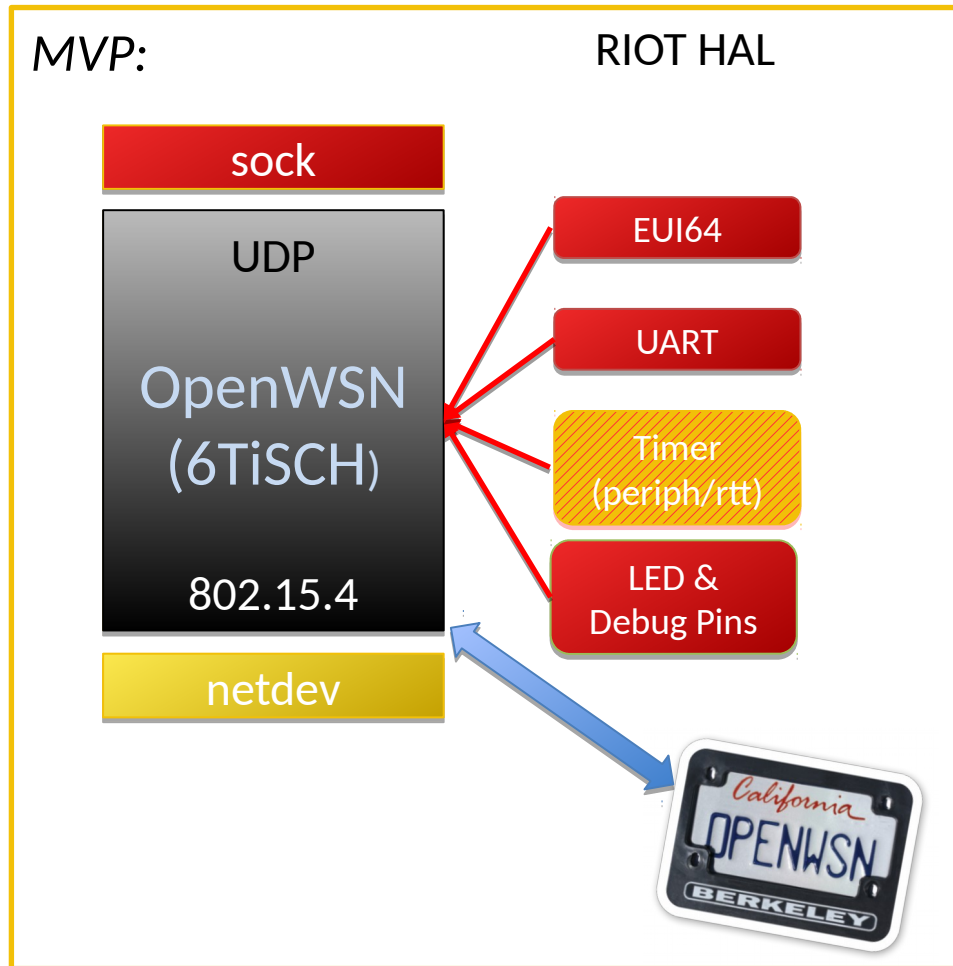
Legend:

Not implemented

Not Tested at all

Tested

Extern

+

Build System & Includes

Demo app (RIOT)

SCHLOSS DAGSTUHL
Leibniz-Zentrum für Informatik

Topic: TiSCH for RIOT **AFTER**

MVP:

RIOT HAL

sock

UDP

OpenWSN (6TiSCH)

802.15.4

netdev

EUI64

UART

Timer (periph/rtt)

LED & Debug Pins
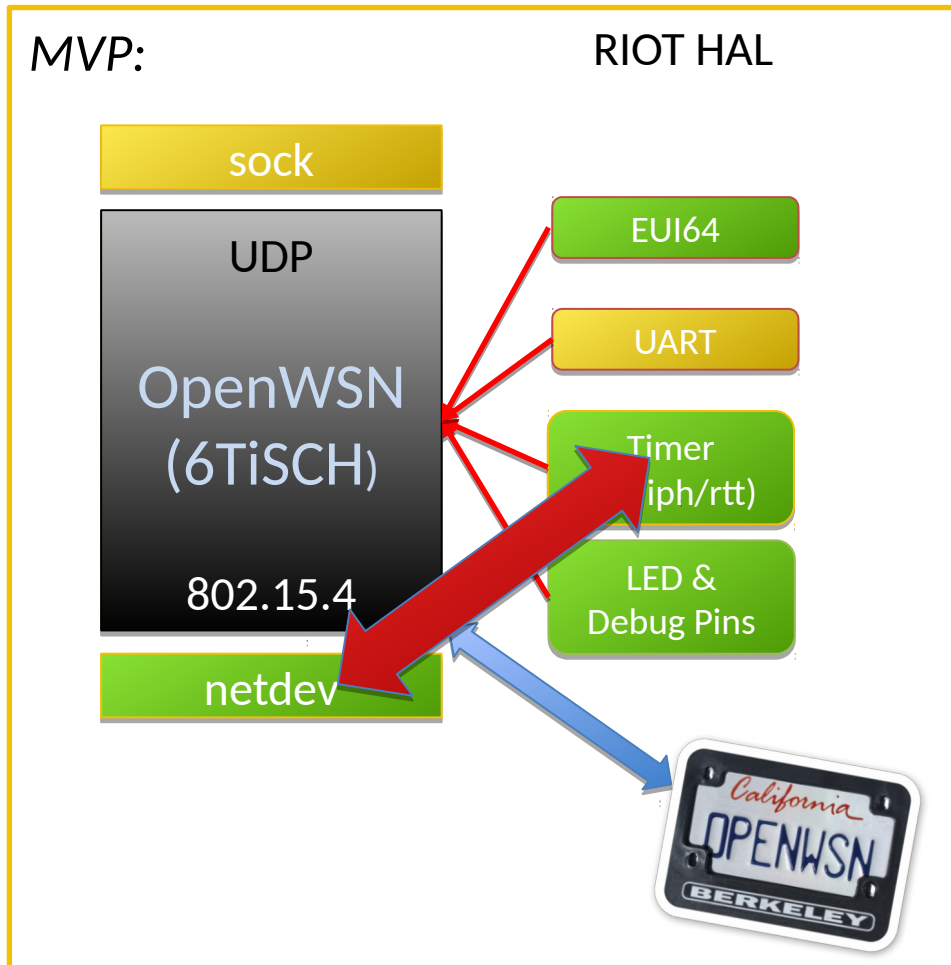
California OPENWSN BERKELEY
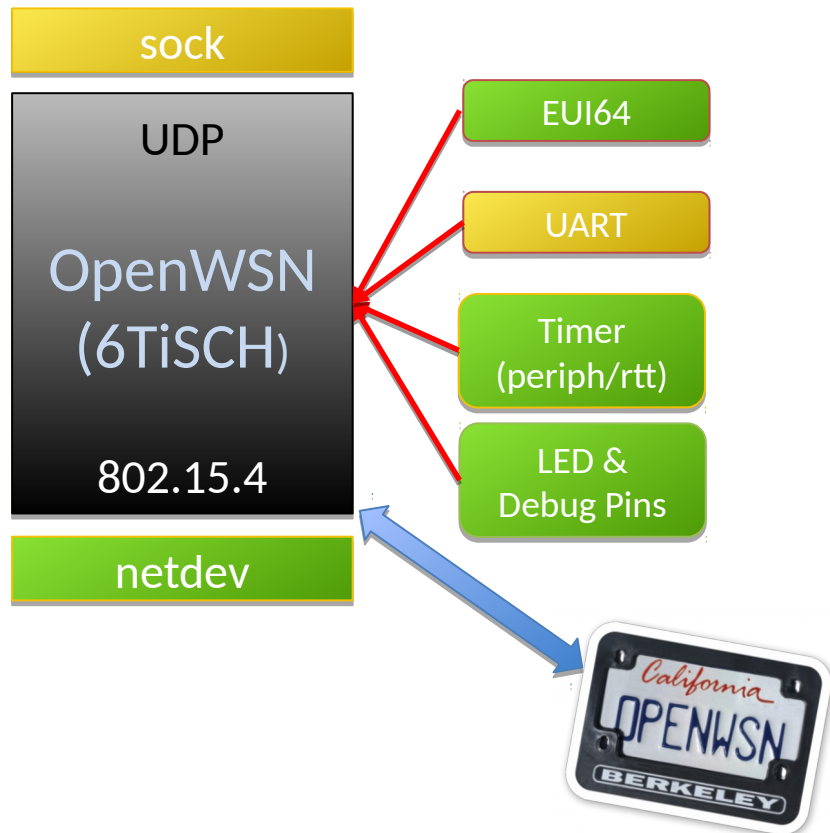
Root node sends enhanced Beacons (synchronization)

- RIOT root & OpenWSN slave: rather stable

- RIOT root & RIOT slave: synchronization "*works, sometimes, for a short time*"

- Needs further testing

Topic: *TiSCH for RIOT* **DEBUGING**

MVP: RIOT HAL

sock

UDP

OpenWSN (6TiSCH)

802.15.4

netdev

EUI64

UART

Timer (iph/rtt)

LED & Debug Pins

California OPENWSN BERKELEY

- Timing constraints & distribution

- Radio device handling

- State machine(s)?

- LED and PIN debugging

    → hardware abstraction

- Compiler optimizations

What is next?

- Further synchronization debugging/fixing

- UDP traffic over *sock*

- Use "OpenVisualizer" tool with RIOT

- Plain TSCH

Industrial Wireless IP-Based Cyber –Physical Systems-Article in Proceedings of the IEEE · March 2016DOI: 10.1109/JPROC.2015.2509186

SCHLOSS DAGSTUHL
Leibniz-Zentrum für Informatik
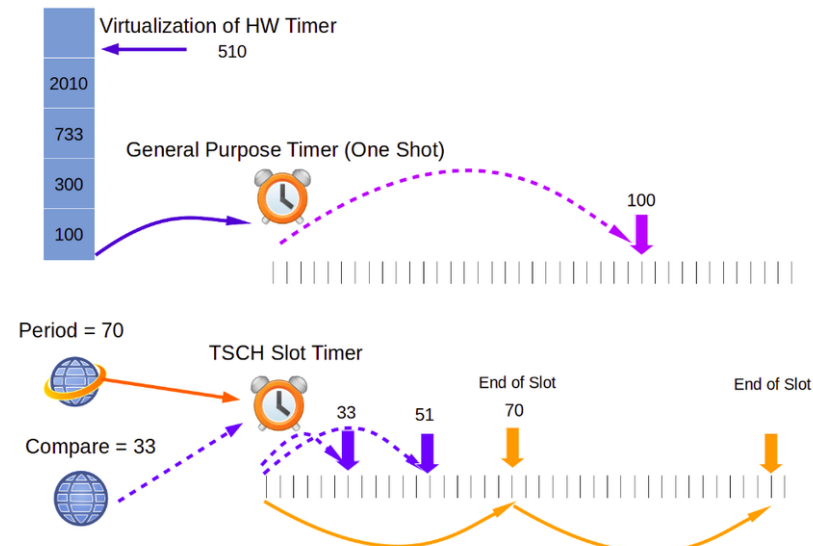
General Obstacles

- (No) transparency of complex code
  - e.g. *scheduler_start()*
  - Incomplete documentation
  - Copy-Pasta incorrect comments
  - No speaking function names

- Coupling different HAL approaches

- Distributed coding in an early software state
  - 7 Commiters over last 2 weeks