

RIOT Summit 2016

Using CoAP with RIOT

Lennart Dührsen, Raphael Hiesgen, Sebastian Meiling, Lotte Steenbrink



disclaimer

- sharing our experience on using IoT technologies
- very subject to personal opinions
- not about bashing, no offense

microcoap

- <https://github.com/1248/microcoap>
 - seems abandoned, no reaction to PRs
 - several forks, e.g. <https://github.com/i2ot/microcoap>
- really small, plain packet handler
- server-side only, no sending requests
- only core functions: GET, PUT, POST
- virtually no documentation, except the code itself

libcoap

- full (?) featured CoAP implementation
 - client + server side
 - supports OBSERVE
- lots of dependencies, e.g., to build docs
 - *annoying* when building with default config on RasPi
 - better build with: `./configure --disable-documentation`
- limited documentation and code examples
 - client example > 1000 LOCs
 - getting better, see <https://libcoap.net/>
- `coap-client` useful for testing

aiocoap

- Python 3, full (?) featured CoAP implementation
- ~~issue: cannot handle interface identifiers~~
 - ~~no link local IPv6 addresses~~
 - ~~e.g., [fe80::a:b:c:d%lowpan0]~~
 - libcoap will do
 - issue is fixed
- otherwise simple usage:

```
from aiocoap import *

protocol = yield from Context.create_client_context()
req_temperature = Message(code=GET)
req_temperature.set_request_uri('coap://'[2001:db09::1]'/temperature')
res_temperature = yield from protocol.request(req_temperature).response
print(res_temperature.payload.decode('utf-8'))
```

demo

- CoAP server
 - PhyTec PhyNode running RIOT with
 - <https://github.com/RIOT-Makers/climote>
- 6LoBR/gateway
 - Raspberry Pi with OpenLabs transceiver
 - latest Raspbian with custom Linux-Kernel 4.7.y
 - RADVD, linux-wpan fork, 6lowpan branch [<https://github.com/linux-wpan/radvd>]
 - <https://github.com/raspberrypi/linux>
 - [<https://github.com/RIOT-Makers/wpan-raspbian>]
- CoAP client
 - MacBook, OSX via ethernet
 - Firefox Copper
 - Python CoAP client
 - Wireshark, CC2531 sniffer



www.riot-os.org