# RIOT in a Nutshell

## I3 Kickoff
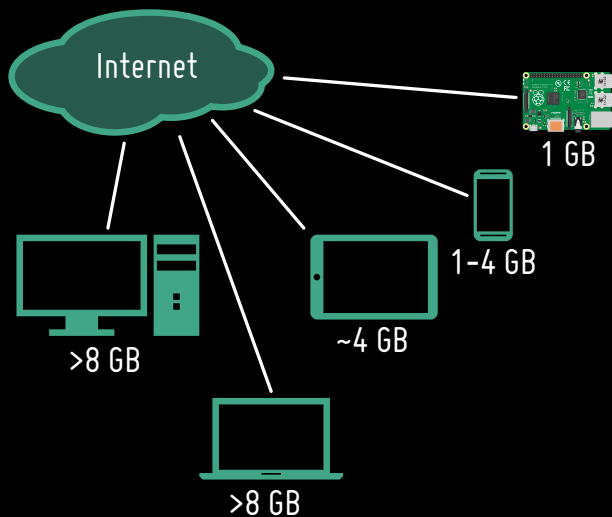
Martine Lenders

12.09.2016

1. Why an Operating System for the IoT/Industry 4.0?

2. Why RIOT?

3. Outlook: RIOT and I3

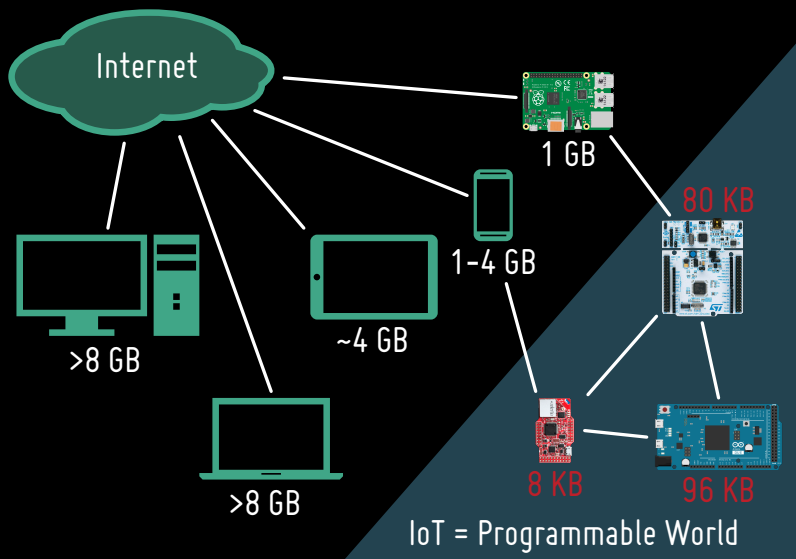1. Why an Operating System for the IoT/Industry 4.0?
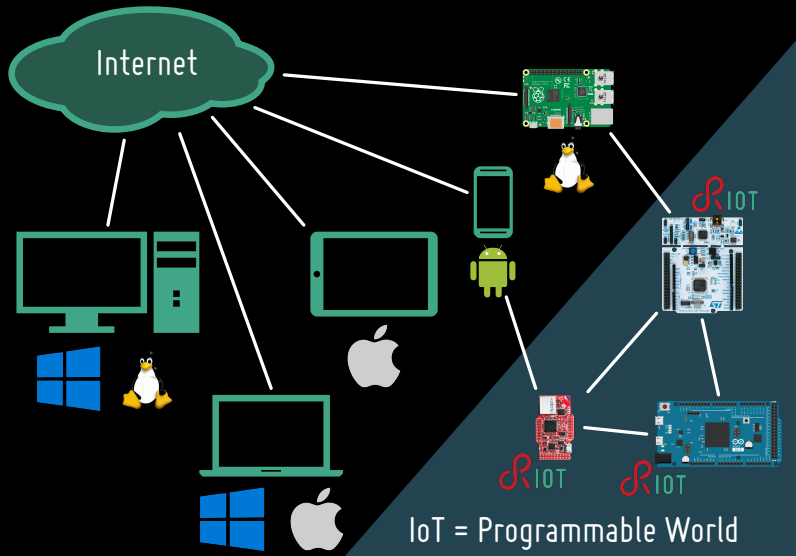
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# Why an Operating System for the IoT?

# Why an Operating System for the IoT?



Internet

1 GB

80 KB

1–4 GB

~4 GB

>8 GB

>8 GB

8 KB

96 KB

IoT = Programmable World

# Why an Operating System for the IoT?
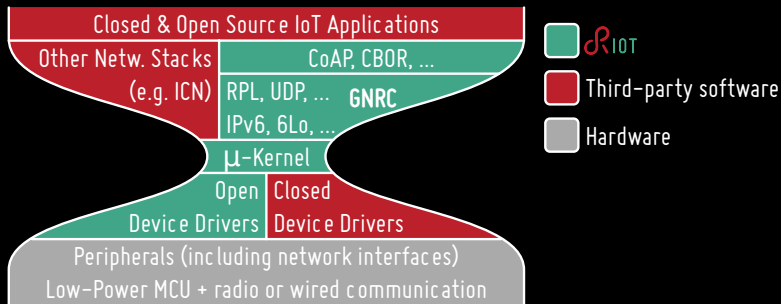


IoT = Programmable World

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# RIOT in One Slide



- RIOT = a platform for **portable IoT software** based on:
  - open-source
  - open-access protocol specs
  - community-driven development

# Benefits of RIOT

- RIOT is the combination of

  - **memory & energy efficient** design to fit IoT devices

    - RAM/ROM requirements <5 KB

  - functionalities of a **full-fledged operating system**

    - real-time capabilities
    - multi-threading
    - modular design
    - advanced, consistenet API across 32-bit, 16-bit, 8-bit hardware
      (incl. POSIX)
    - easy integration of third-party software packages

  - well-known development tools, standard C and C++ programming

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# RIOT Today

- >100 contributors from all around the world
- contributions from
    - industry
    - academia
    - makers/tinkerers

- support for ICN technologies as third-party software packages:
    - CCN-lite
    - NDN-RIOT

# Our Vision

- secure and efficient 5G industrial Internet by lightweight system and network solutions
- RIOT as open platform to promote and develop open Information Centric Networking standards
- RIOT envisioned as the Linux for constrained IoT devices
    - in terms of technology, openness, and community

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