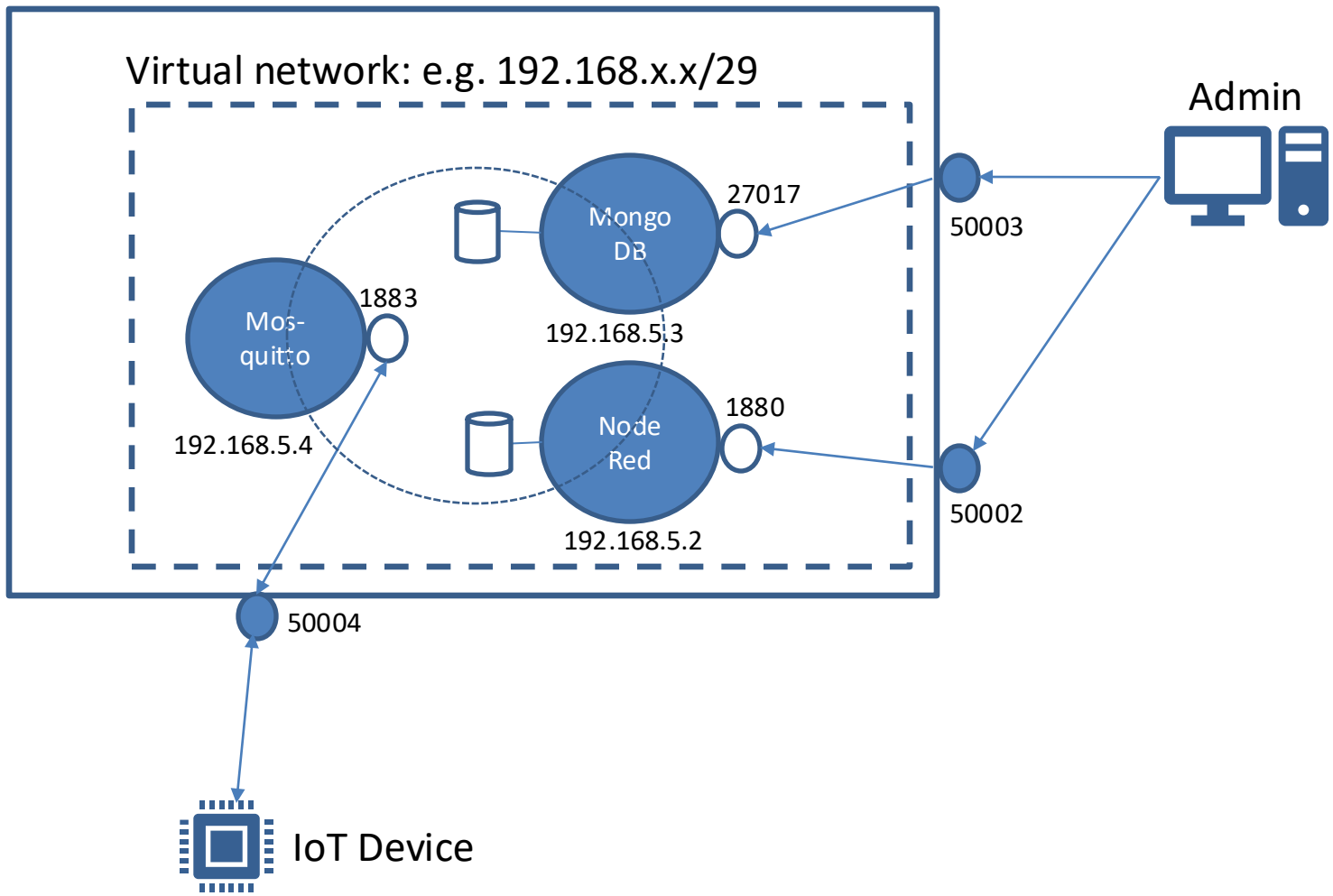
Example of IoT Scenario



IoT Lab 0:

Preparations for Lab:

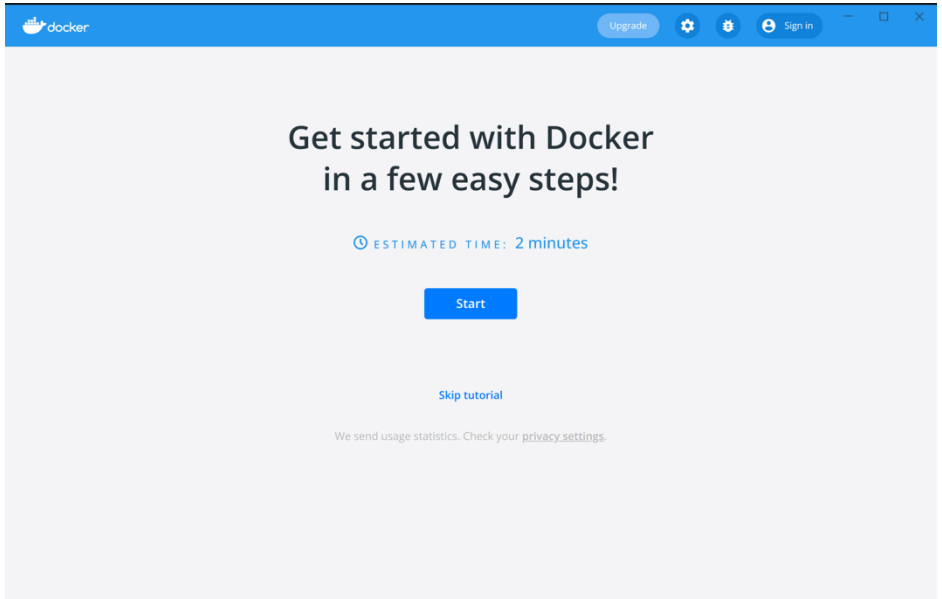
IoT und Funksysteme

Docker Desktop

- **! in EI Labs already installed ! → for practicing at home:**
- download and install docker desktop for your OS (e.g. WSL2 backend for Windows OS, read and follow the manual carefully):
  - https://www.docker.com/products/docker-desktop/
- please find some manuals here:
  - https://docs.docker.com/desktop/
  - if your admin account is different to your user account, you must add the user to the **docker-users** group:
    - *net localgroup docker-users <user> /add*
- start docker desktop
- check docker cli version in cmd / terminal

```
markweber@MacBook-Pro-2 ~ % docker version
Client:
 Cloud integration: v1.0.28
 Version:           20.10.17
 API version:       1.41
 Go version:        go1.17.11
 Git commit:        100c701
 Built:             Mon Jun  6 23:04:45 2022
 OS/Arch:           darwin/amd64
 Context:           default
 Experimental:      true

Server: Docker Desktop 4.11.0 (83626)
 Engine:
  Version:          20.10.17
  API version:      1.41 (minimum version 1.12)
  Go version:       go1.17.11
```



https://docs.docker.com/desktop/images/docker-tutorial-linux.png

MQTT Broker and Topics

- mqtt.ei.thm.de:1993 / 9993 (TLS)
  - User: **iotlab**, Password: **iotlab**
  - Topic to publish: **THM/IoTLab/**…
- if you want to practice with real data from Marks Office, subscribe to following topic:
  - THM/Weber/IoT/Box-Test

WIFI Configurations

- **WIFI IoT Boxes (RPI / ESP32)**
  - **SSID: THMnet**
  - **PW:** see boxes (RPI pre-configured)

LoRa Configurations

- **LoRa TTN MQTT Broker → user / password**
  - iot-seminar
  - NNSXS.UZ6YYQTK3BBZS2BJIRNWXP47DZHNJU44CRD3NJI.KNNISGOUGCHOQVNLKAUNHFL6OJKKW4XAGRGTCJRHTWAGH2LJUFUA
- **app-eui**: 0000000000000000
- **App-ID:** iot-seminar
- **Device-IDs / App-Keys (next slide)**
  - **(in code use without *eui-*, for Node-Red with: e.g. ei-iot-heltec-20: eui-87416e4a5d8f0468 --> const char* devEui = "87416E4A5D8F0468";):**

LoRa Configurations

- **ei-iot-heltec-01**: eui-e0e2e601562c0208 / 0A006ACF09FFC27C781A0B171C85AE8E
- **ei-iot-heltec-02:** eui-e0e2e6006bd80208 / B7BFF413E622D2417435AA09CEEBC624
- **ei-iot-heltec-03:** eui-e0e2e60156200208 / C017BED6F95CB11D5A324FE8E926F381
- **ei-iot-heltec-04:** eui-e0e2e6006d540208 / C38758CE05283DDF773345400ECAFF32
- **ei-iot-heltec-05:** eui-e0e2e60151ec0208 / 540E864BC449C64D8D7B46D35057DEBD
- **ei-iot-heltec-06:** eui-e0e2e6015ba80208 / D7B2BBF5E2F9F49A47ADE0556896AD79
- **ei-iot-heltec-07:** eui-e0e2e6015b700208 / 54183F1D9502D70C8BB6A165B54EE710
- **ei-iot-heltec-08:** eui-e0e2e60068bc0208 / 04624244C76D2158092C06ECDDA6646A
- **ei-iot-heltec-09:** eui-e0e2e6015d880208 / 9C0CC65C5B0985C16282833F2D69A6CD
- **ei-iot-heltec-10:** eui-e0e2e6015b440208 / AF6A3CAC101D726A3B76048B3988E06A
- **ei-iot-heltec-11:** eui-e0e2e6015c980208 / A7D7959D08C1C0F6FE624A6B806A8D1F
- **ei-iot-heltec-12:** eui-e0e2e60154f00208 / 43E776E105A05A31E340A9143220F31F
- **ei-iot-heltec-13:** eui-e0e2e601603c0208 / 285B73555EF222ED96B815F6E2EDA7FC
- **ei-iot-heltec-14:** eui-e0e2e60151100208 / 7E1938BA3EE0BB848DB0B37109815C31
- **ei-iot-heltec-15:** eui-e0e2e6015b6c0208 / 6966E61ECF4FF9CCE506142C14E986CC
- **ei-iot-heltec-16:** eui-e0e2e6015fbc0208 / E0283318F470BEB83100CC2B4AB853A4
- **ei-iot-heltec-17:** eui-e0e2e60158140208 / 946A4FB07D526BBBC087B8F9882D0796
- **ei-iot-heltec-18:** eui-e0e2e6015a600208 / A053875BBAE37F4DABB3815EEA614803
- **ei-iot-heltec-19:** eui-e0e2e601600c0208 / C06BC478BCEB52C9E29AC8215059DACC
- **ei-iot-heltec-20:** eui-87416e4a5d8f0468 / ADC56211826DEF4A17819A34DAAB8867