# **IoTSec.no**

Roadmap: "Research on IoT security"
"Building the national Security Centre for Smart Grid"
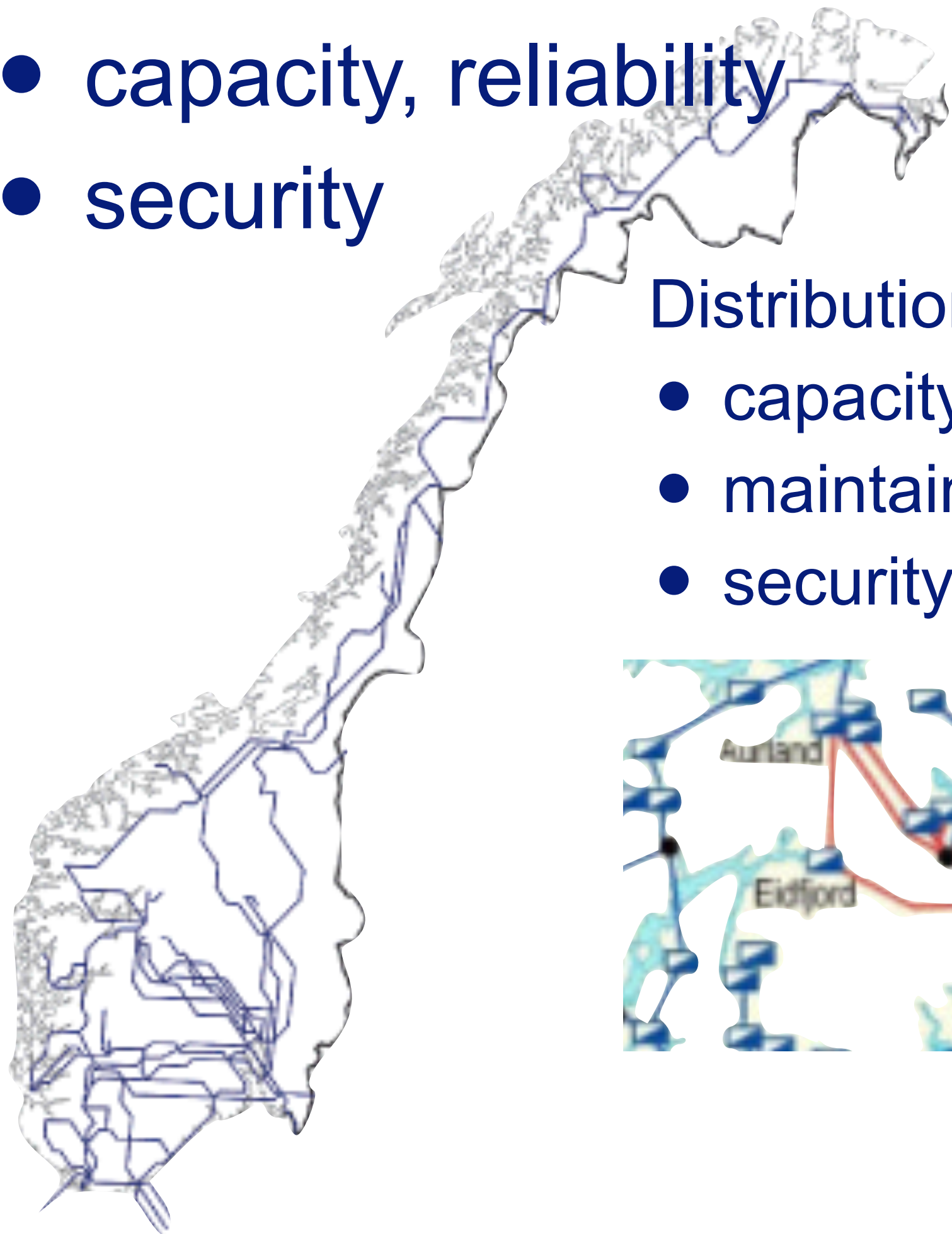
http://IoTSec.no
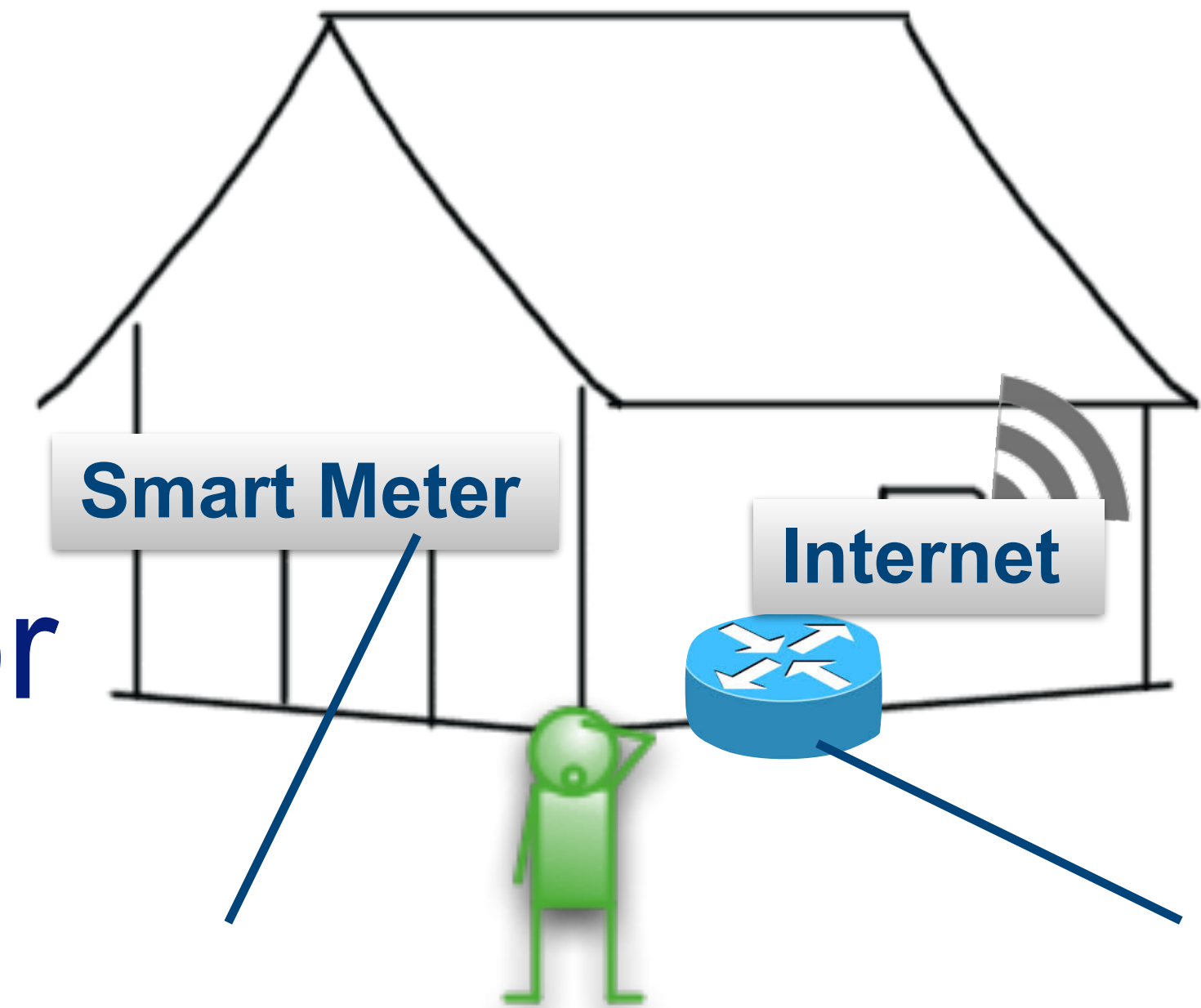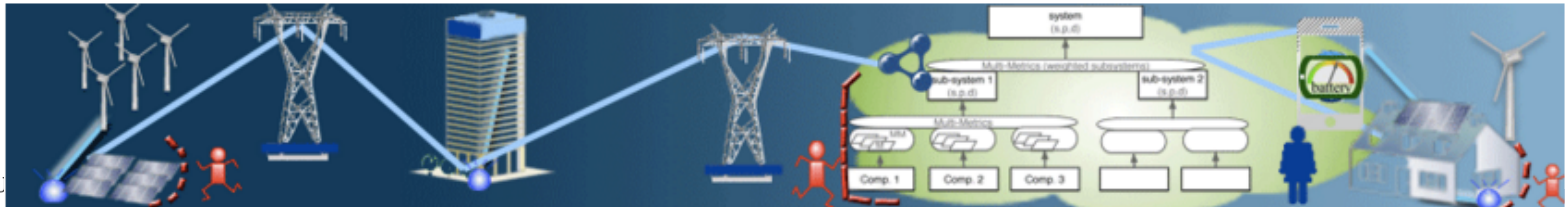
# From power lines
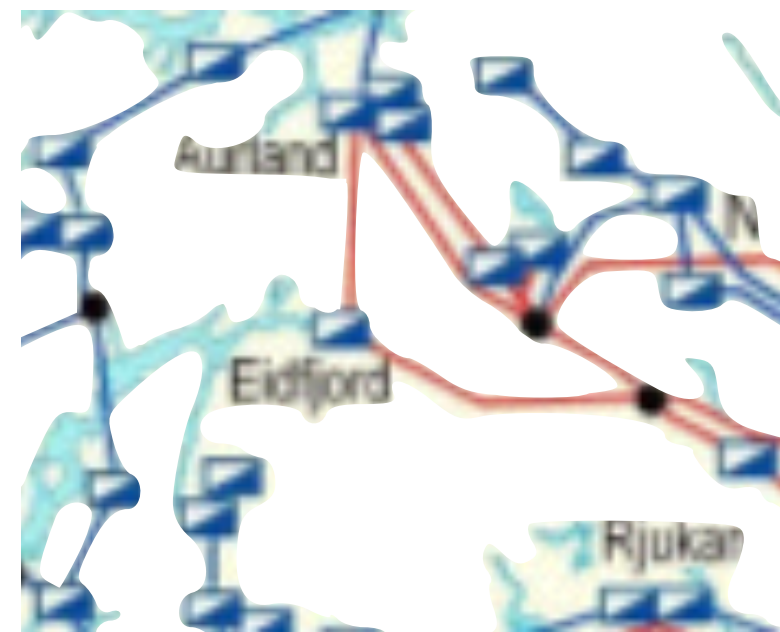# to Smart Meter Infrastructure & Services

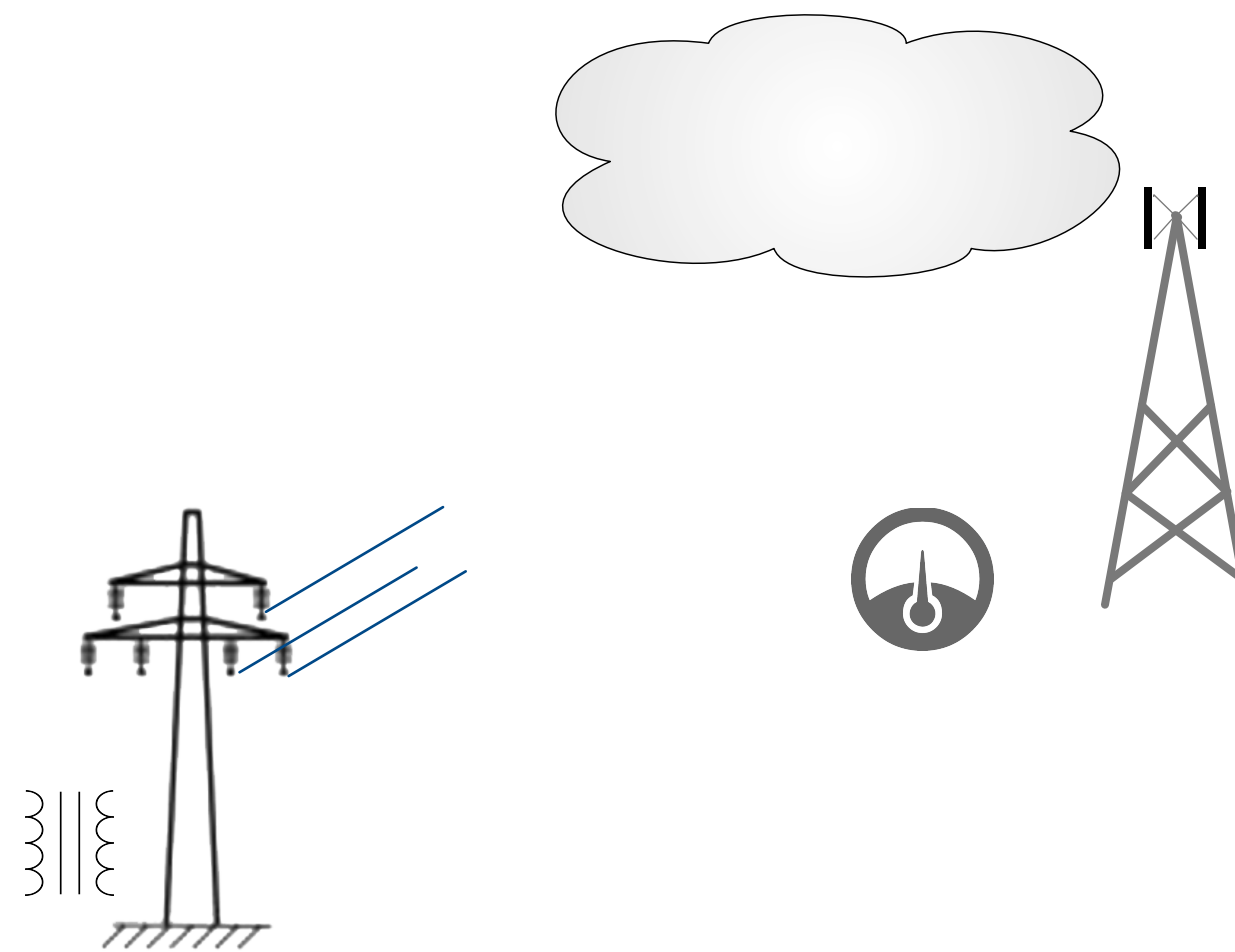**Transmission Grid**
- capacity, reliability
- security

**Distribution Grid**
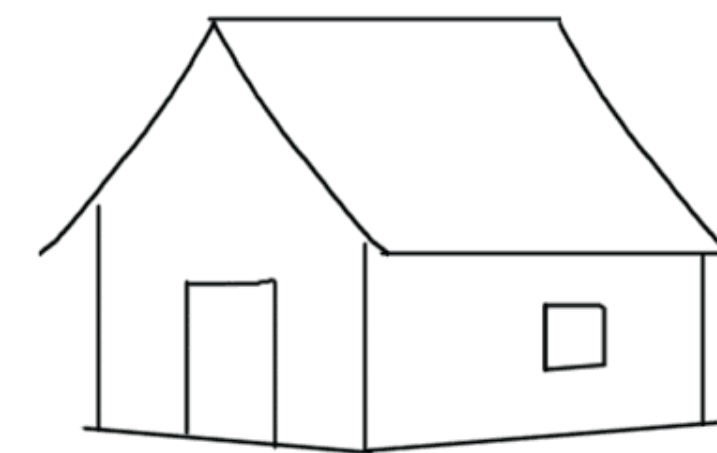- capacity, QoS
- maintainability
- security

**Smart Grid Infrastructure**
- smart meter
- security
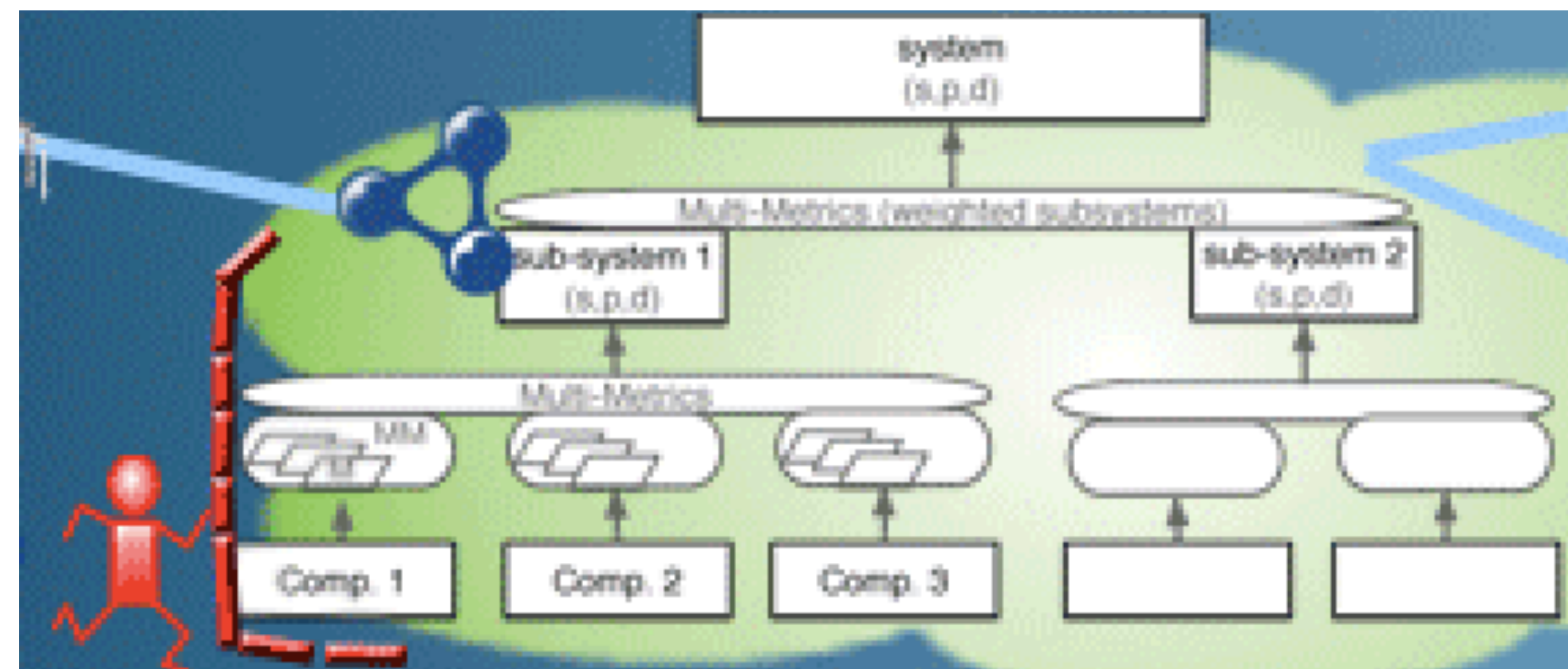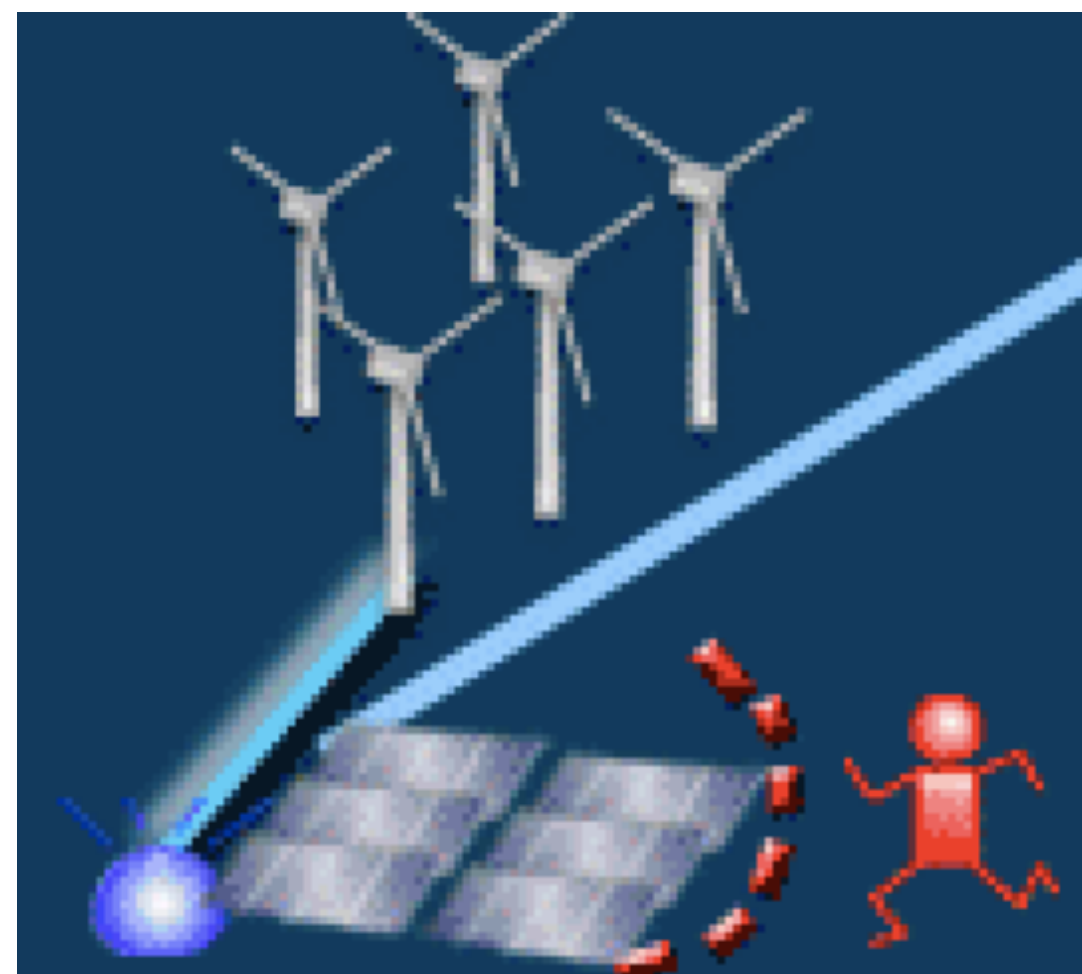
**Smart Home**
- privacy, security
- societal challenges

**Future infrastructure/ services**
- digitisation/Home4.0
- alarm, "green"

# "Building the national Security Centre for Smart Grid"

## http://IoTSec.no

# Opportunities for Smart Grids

- Smart House/Building
  - ➡ Power distribution
    - proactive maintenance
    - reliability
  - ➡ Meter infrastructure
    - Automatic Meter
    - Collector
    - Admin Cloud
  - ➡ House infrastructure
    - Hot-water, Heating
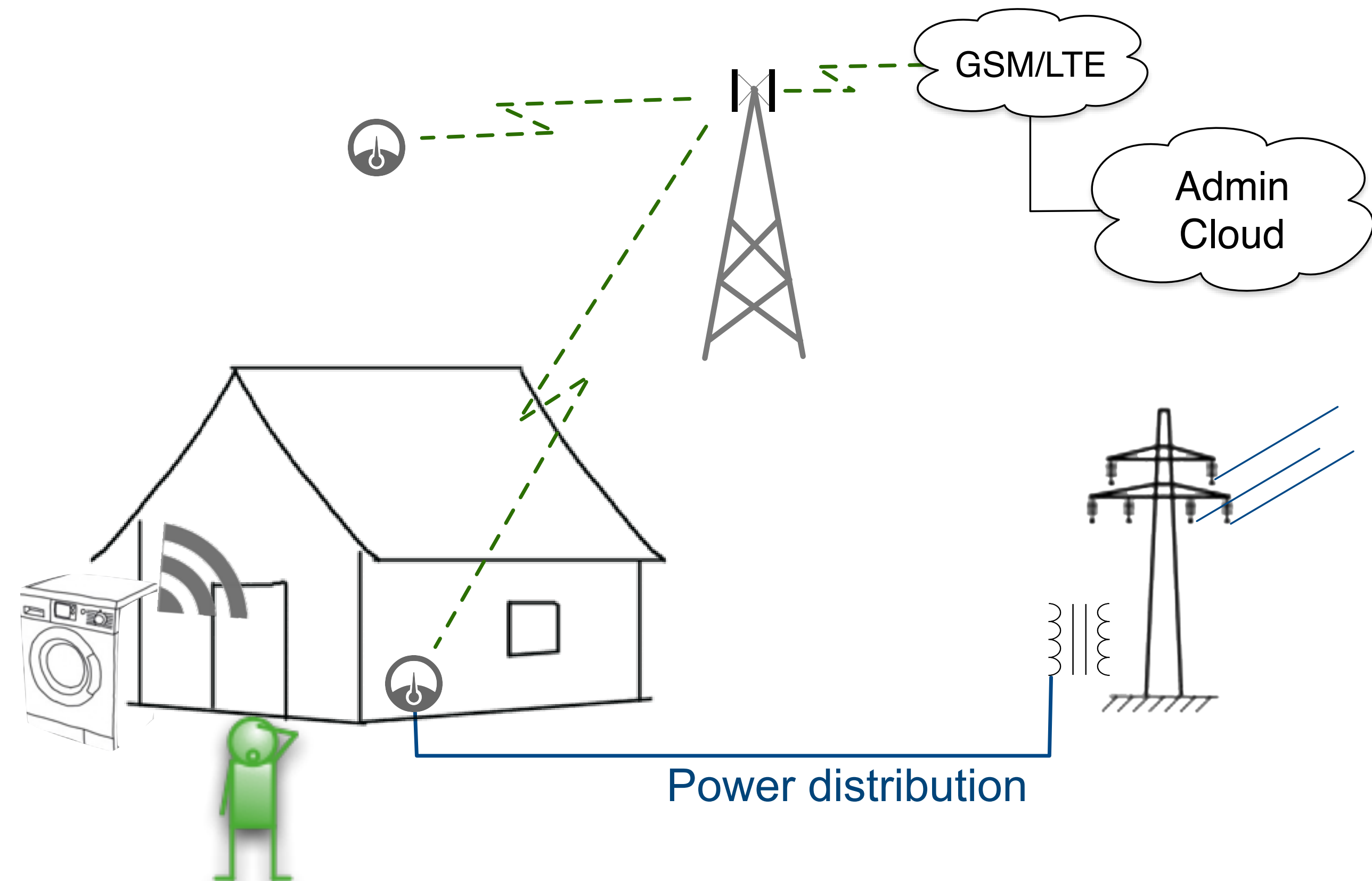    - White goods
- Novel services
  - ➡ energy saving
  - ➡ alarm
  - ➡ virtual fall sensor



GSM/LTE

Admin Cloud

Power distribution

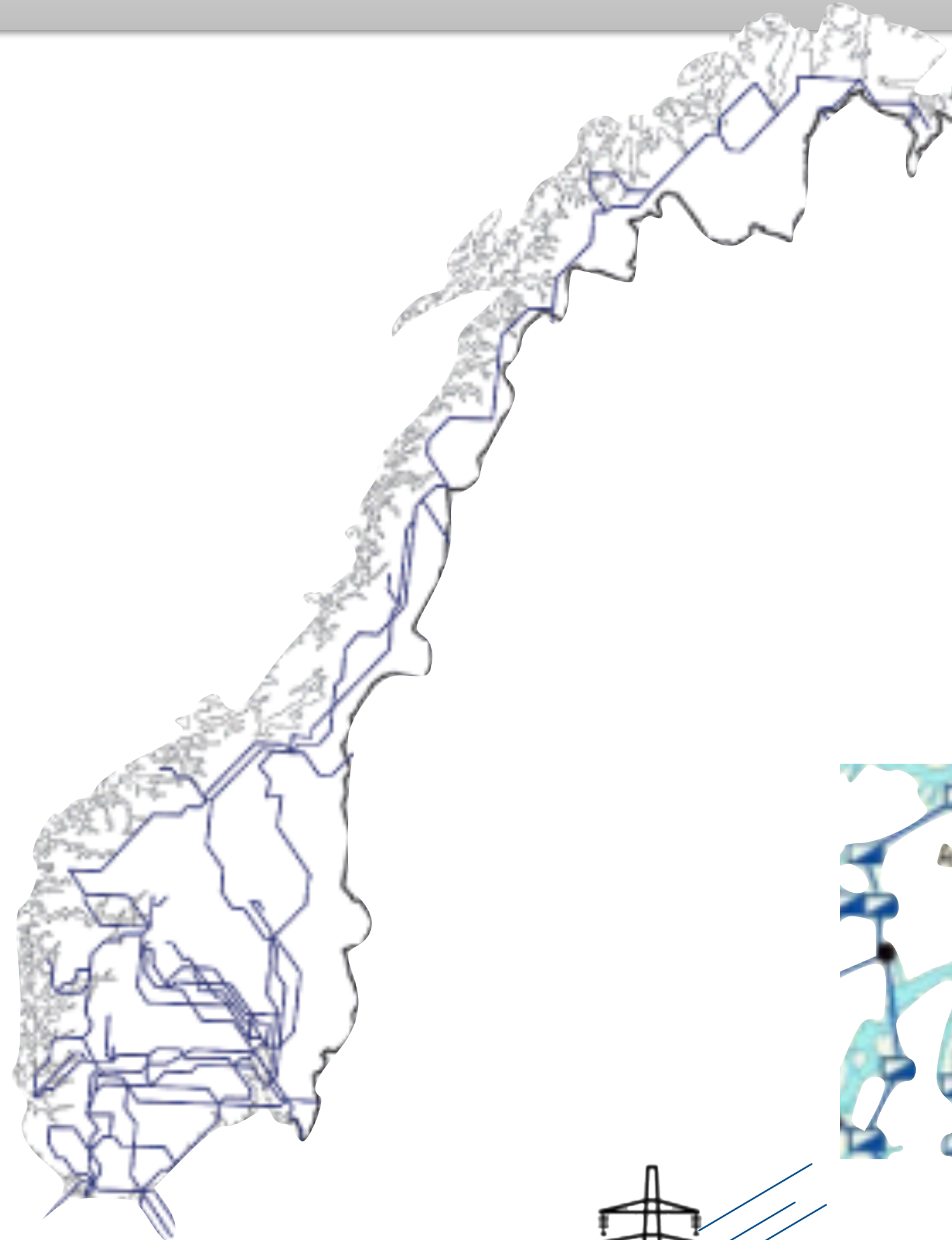Future infrastructure/services

- digitisation/Home4.0
- Digital Society
- Services: alarm, "green"

# The Open Ecosystems for Future Services

- Ongoing collaborations
- *KraftCert & mnemonic*
  - ➡ operational surveillance of the transport network
  - ➡ attack on the power infrastructure
- *Smartgridsenteret*
  - ➡ Conversion from power lines to smart grids
  - ➡ Conversion of industry
- A lot more to do …
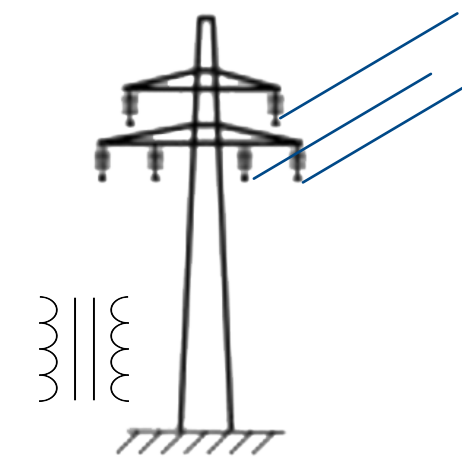
# Challenges from Public Partners

- **The Cloud**
  - ➡ Information handling
  - ➡ Information flow
- **Security of infrastructures**
  - ➡ Data handling
  - ➡ Data protection
- **Demand of inhabitants**
  - ➡ new services
  - ➡ technology inclusion
- **Security and Privacy in Future services**
  - ➡ Upcoming challenges (SGSC)
  - ➡ Analysis of information flow (Academia)
  - ➡ In-depth analysis (Institutes)

"The Cloud"

Future services

protect

Data

Data

Data

Services

Web

detect

react
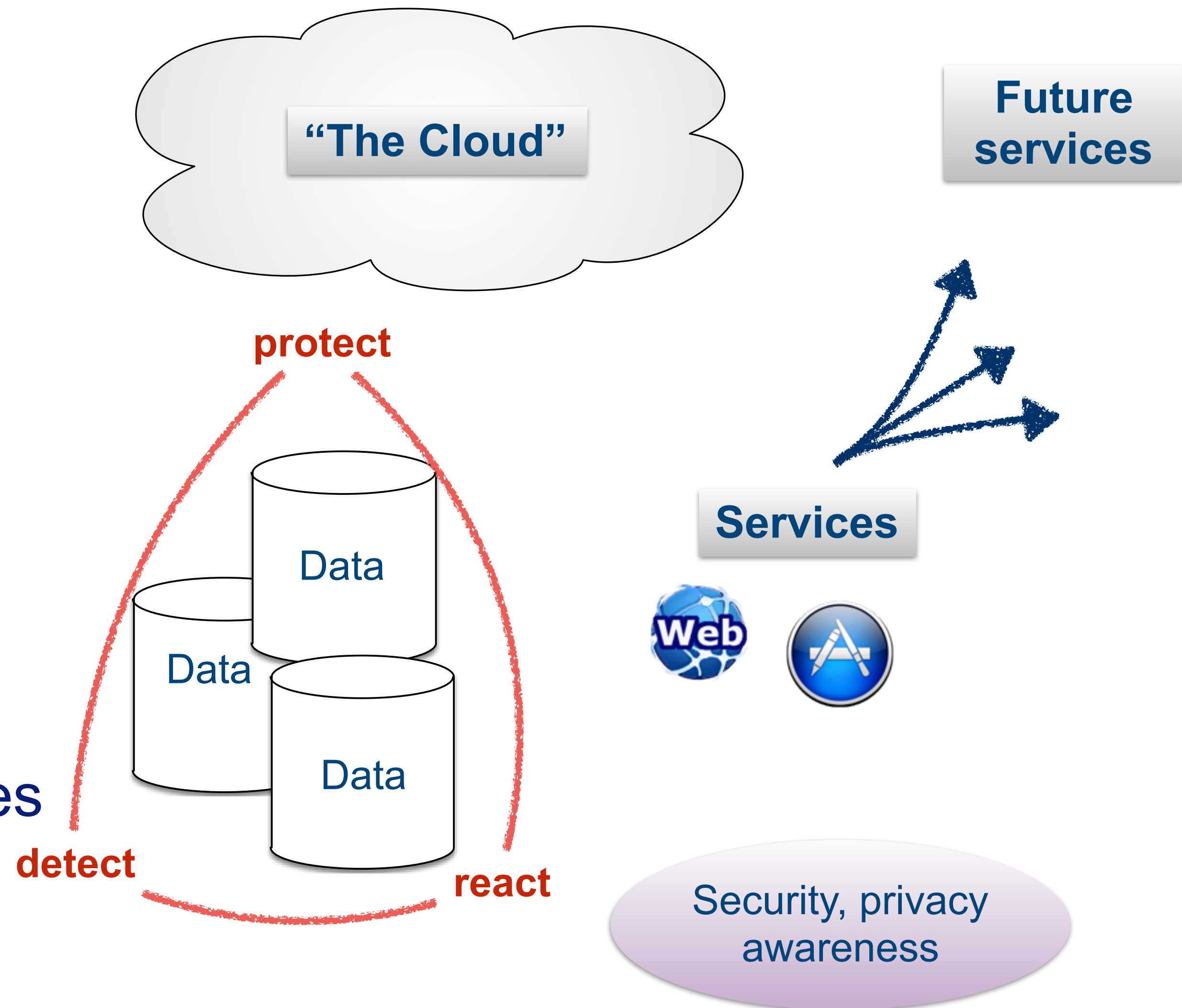
Security, privacy awareness

- Proactive maintenance
  - ➡ Quality of Services (QoS)
  - ➡ cost saving, reliability
  - ➡ security
- Novel services
  - ➡ Security and Privacy requirements
  - ➡ Opportunities

- Changing Business Ecosystem
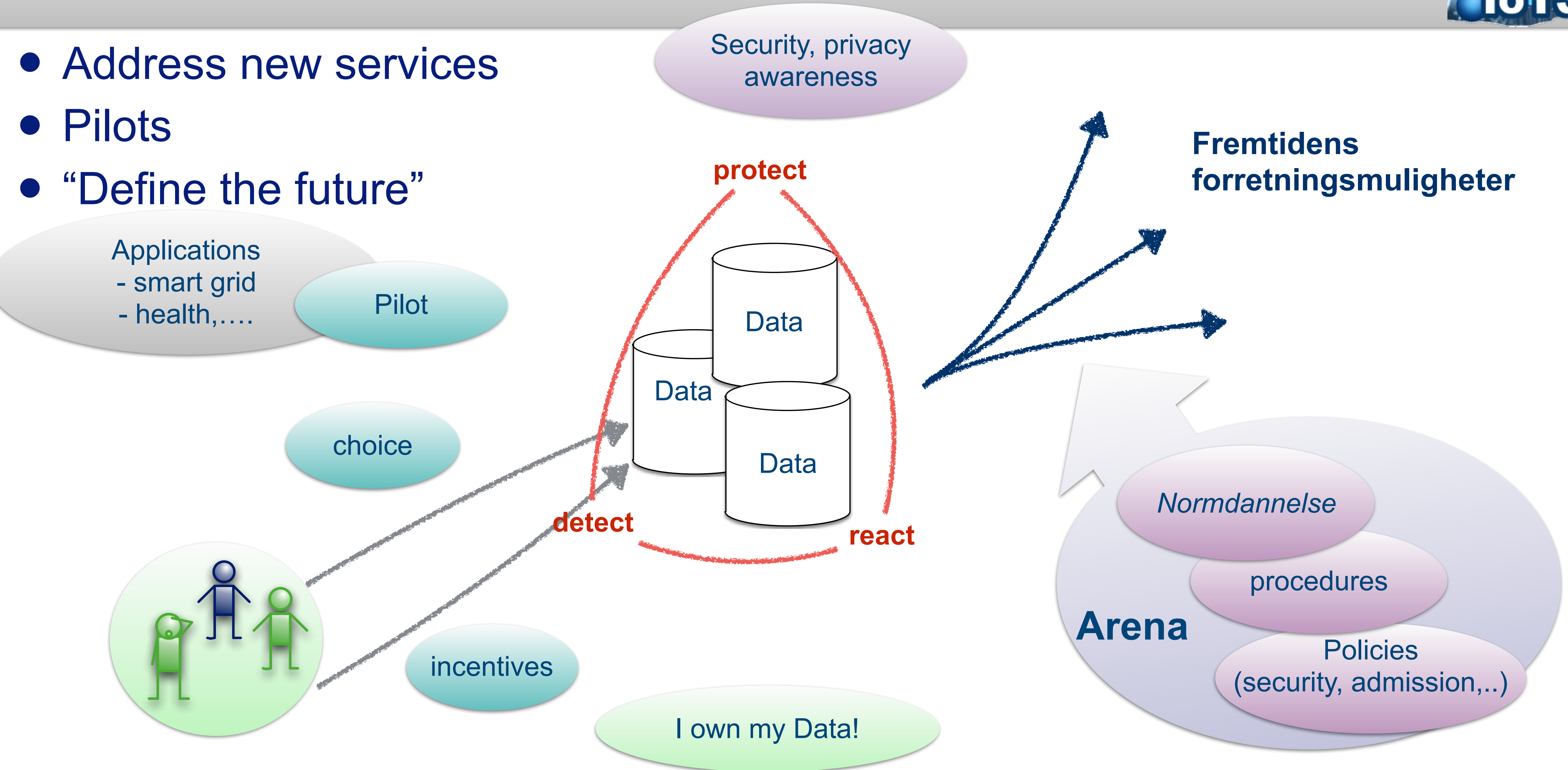  - ➡ Innovation
  - ➡ digital industries
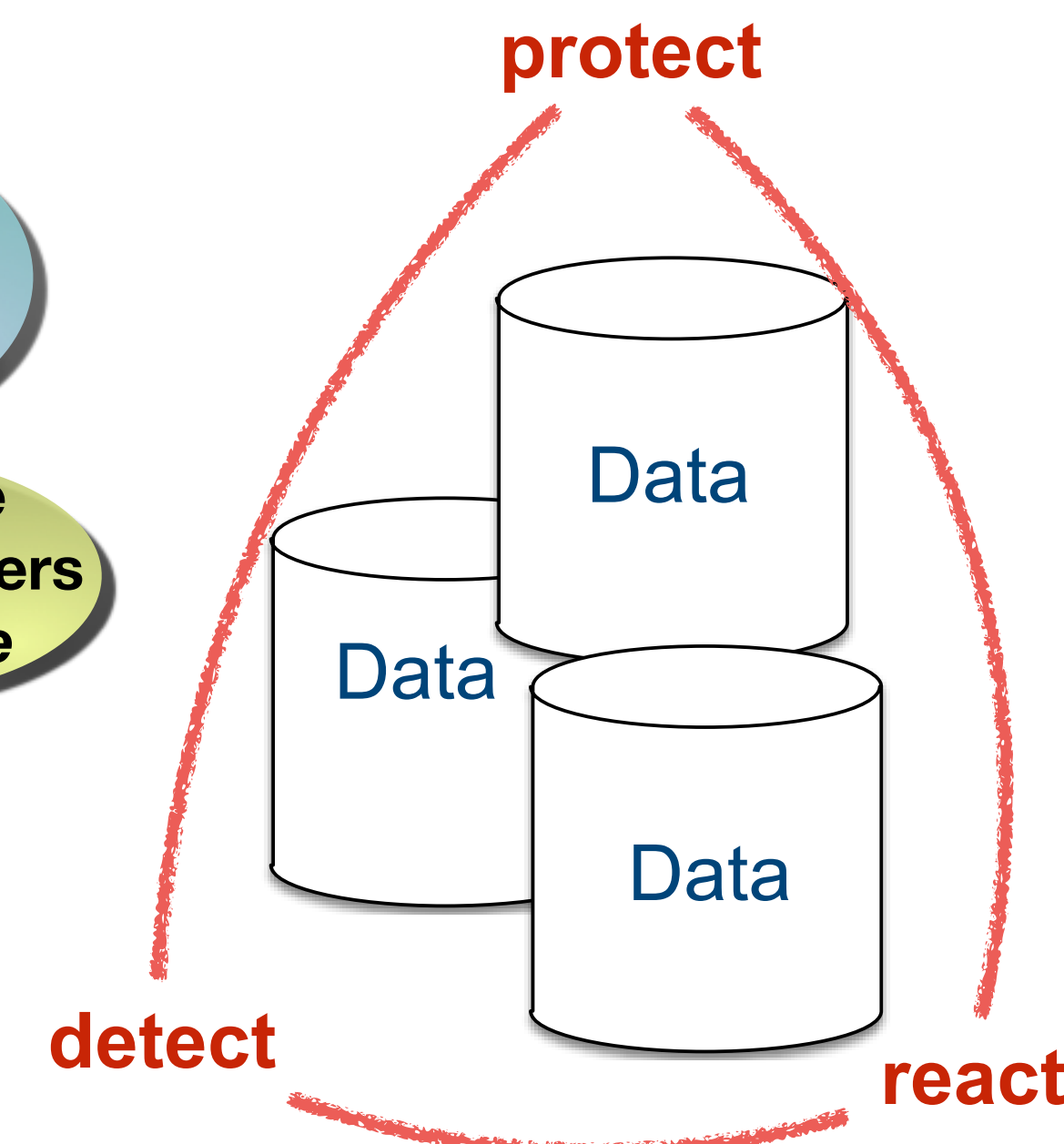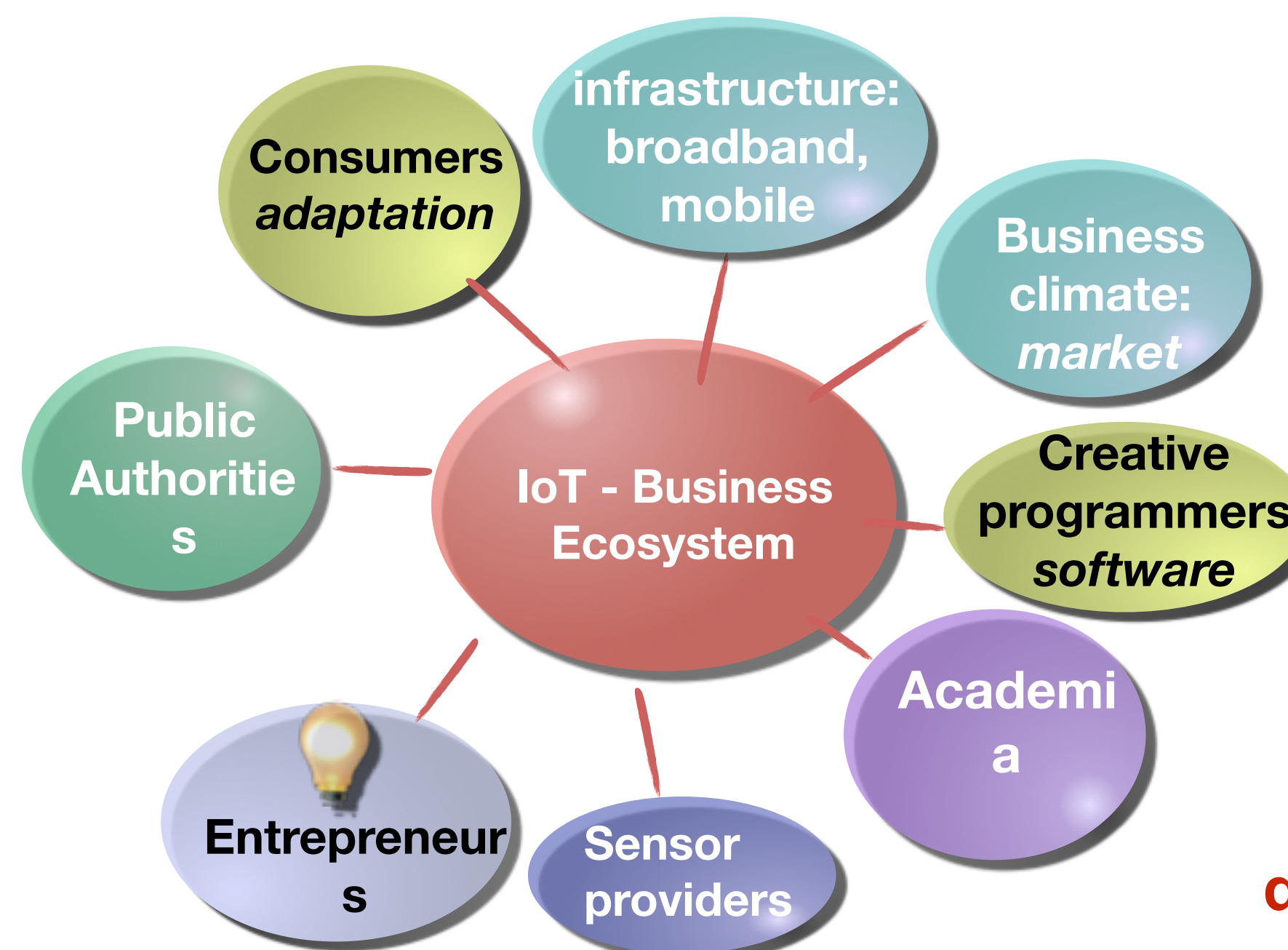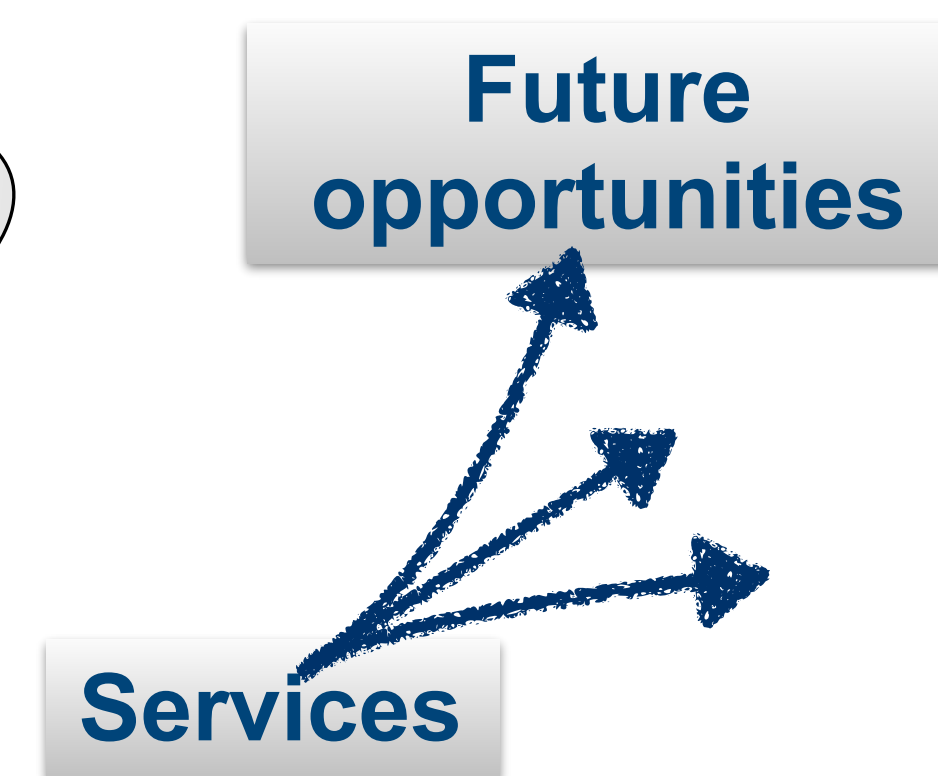
# Opportunities for End-Customers

- Address new services
- Pilots
- "Define the future"

Security, privacy awareness

Applications
- smart grid
- health,….

Pilot

choice

incentives

I own my Data!

protect

Data

Data

Data

detect

react

Fremtidens forretningsmuligheter

Arena

*Normdannelse*

procedures

Policies
(security, admission,..)

Mar 2016, Josef Noll

8

- Centralised Architectures
  - ➡ cloud administration
  - ➡ concentrated logic
- EU directive
  - ➡ Privacy: Health data, …

- De-centralised architectures
  - ➡ smart grid & Internet
  - ➡ distributed logic & control
  - ➡ Internet & Smart Grid Infrastructure
  - ➡ trust & privacy handling
  - ➡ novel services in the home

**Admin Cloud**

**centralised control**

**Internet**

**fog logic**

**distributed control**