

Challenges DSO

- load & load variation
 - household to adapt
 - plans for control
 - list of statistics } load
 - variation of supply
 - daily / weekly
 - seasonal
 - grid stability (3 point out)
 - Phase measurements (SOH $\pm$)
 - Variation:
- Solar
Wind
Others?
- Security & privacy

$$\text{Believe} = 0.53 \times 0.53 \times 0.4 \sim 0.11 \quad (\text{conf})$$

$0.5 \quad 0.5$

Dec	0	0	1	1
Conf	0	1	0	1

~ Believe
Plausibility

2. Rec 0.3 0.8

3. Three parameters

0.5

0.5

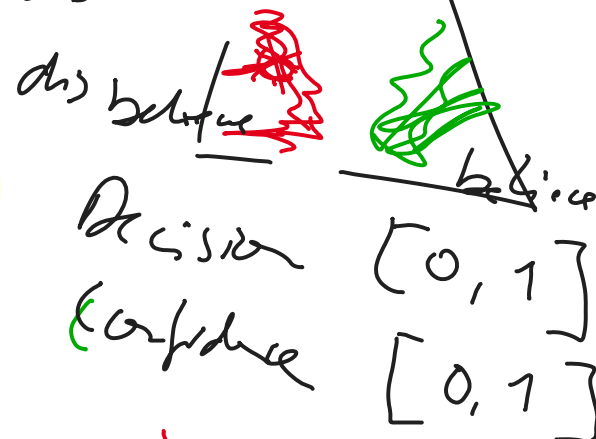
1

0

0.5

0.5

Input:



Decision [0, 1]
Confidence [0, 1]

- a) critical components
- b) high uncertainty

Argument types - Examples

- Alternative (A), e.g. "system is secure, if risk analysis is performed OR compliant with ISC"
- Complementary (C), e.g. "weights (100,50,...) on Encryption, key length, ..."
- Necessary (all of them are necessary) - e.g. encryption is necessary
- Sufficient (SC), if all the arguments are sufficient then the system is secure, if one of them

Models

- $P_1 \times P_2 \times P_3$

-

- weight

how important is a
a factor?

example: sec "the weakest link"

→ weak security

→ low confidence

()²

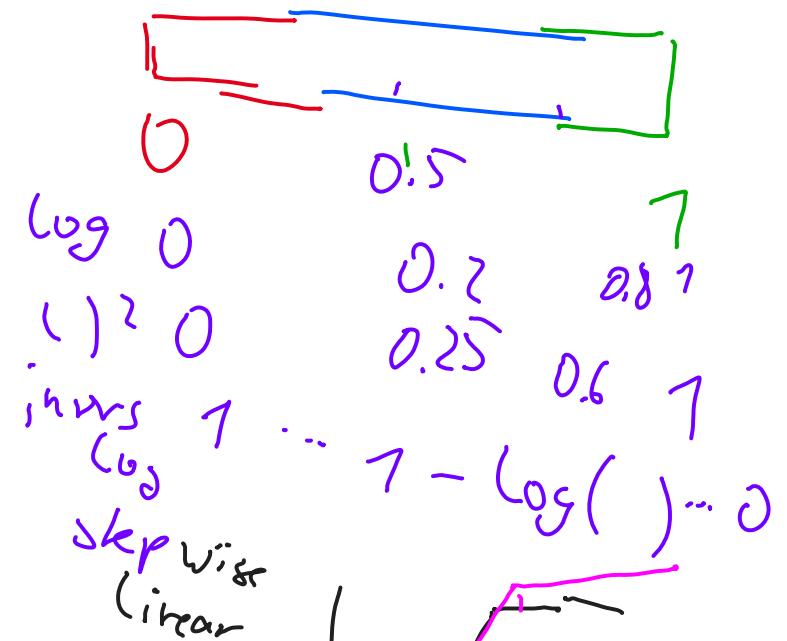
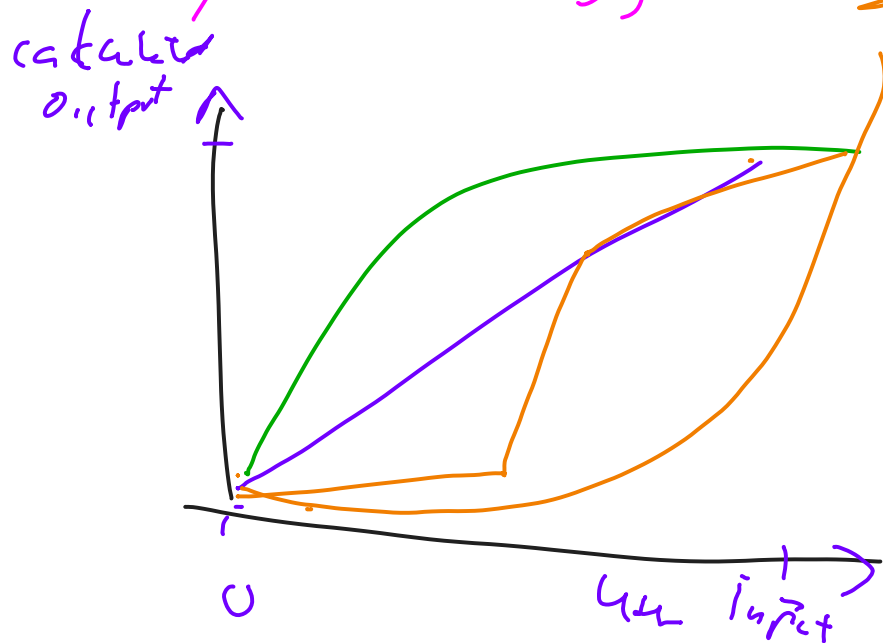
Argument types - Examples

- Alternative (A), e.g. "system is secure, if risk analysis is performed OR compliant with ISC"
- Complementary (C), e.g. "weights (100,50,...) on Encryption, key length, ..."
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1. Find out how NORSTA works

2. Critics to NORSTA < Linear Quadratic?

3. your suggestion ^{security}



Meeting 2Jul2019

Presentation:

Bottom line: title - author - page number

Dempster Shafer -> EXAMPLE: trust my smart meter

Mapping Decision and Confidence -> Example (Numbers)

Decision = Believe/Confidence

Typo NSC -argument

Argument types - Examples

- Alternative (A), e.g. "system is secure, if risk analysis is performed OR compliant with ISO xxxx standard"
- Complementary (C), e.g. "weights (100,50,..) on Encryption, key length, ..."
- Necessary (all of them are necessary) - e.g. encryption is necessary
- Sufficient (SC), if all the arguments are sufficient then the system is secure, if one of them

NOR-STA - add one column with example

Template can be provide:

highlight only the most important -> add: adequately evaluated

2. step . step decomposed

3. step

NSC Aggregation - example with numbers

(S)

$$Bel(c) = Bel(w) \cdot Bel(a) \quad (b) \quad (c)$$

70%

70%

70%

30%

(C)

7

x

$$0.7 + 0.7 + 0.7$$

3

$$\approx 0.3$$

Uncertainty = adds up

Exemplify:

Argument #1 Subsystem #2

Exemplify

Next steps

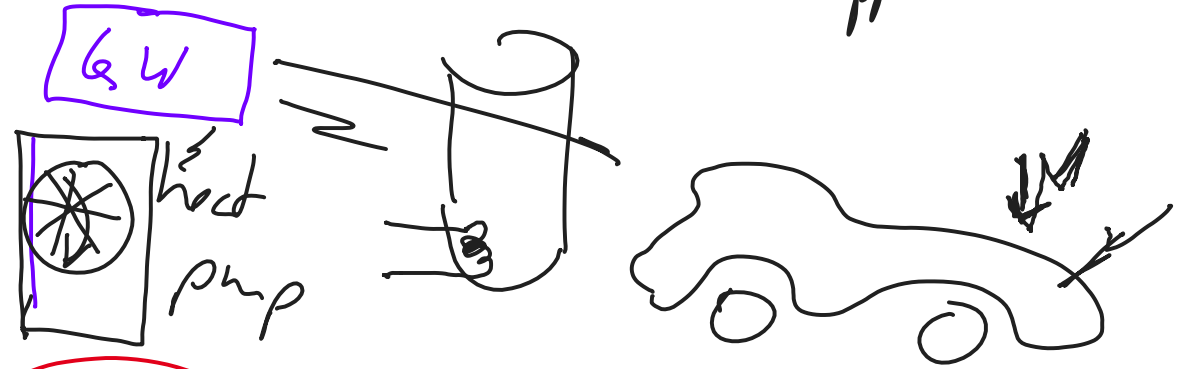
eSmart. Certification

Today: compliance

Tomorrow: security classes

Ckr A: configure
Csr B: health data
C: control electric

Future — stable & net#
— "control" Smart Home appliances



Secure & privacy aware

Methodology
— evaluate
— create

A

Enhanced ? Security
(Novel) Classification System

apply

More resilient
Security classes

or --- for IoT Systems mapped on Smart Grids

Conf.

Methodology for Security Classification

Critical infrastructures applied for Smart Grids

Attack-centric

resilient ² critical infrastructures

Journal

Designing

Security - and privacy enhanced

III for Security II classes Smart Grid
IoT systems, applied for Smart Grids Risk Analysis are defined
Spectrum

Cons ✓ abstract title
~~sec~~

Journal ✓ title

IEEE Spectrum

Design CI

~~Risk analysis~~ shorthand

A) Design

B) Analysis

AMI / security classification

applied to Smart Home

IEEE Spectrum
Design

new: (attack-centric)

→ security class

A system can have
subsystems. In smart home
overall have communication
device, alarms and other
systems. Consider
pricing designer.

centric

(A)

alarm

(A)

health
interaction

Comm device

class (C) - reliability

service

(A)

delivery chain
meter

Home

class A service
⇒ class A
system

(D)

device

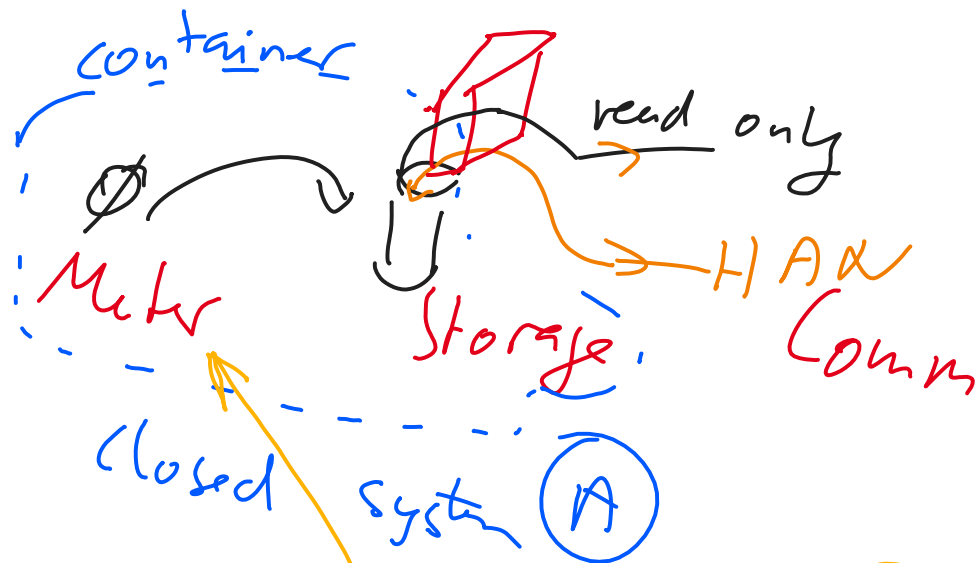
(F)

device

IOT lifecycle

Smart Meter

- design
- impl.
- installation
- operation

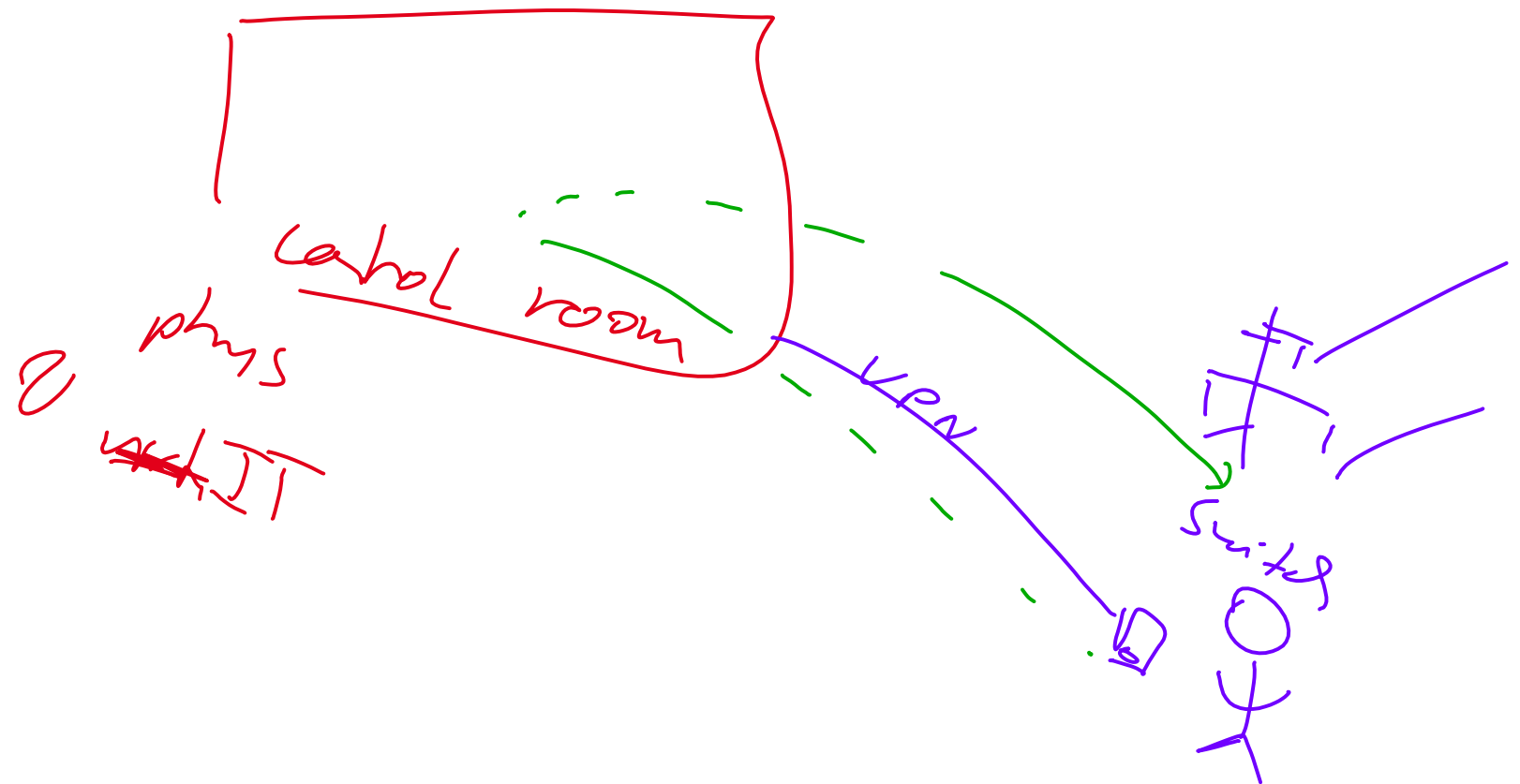


- maintenance
- destroy
decommissioning

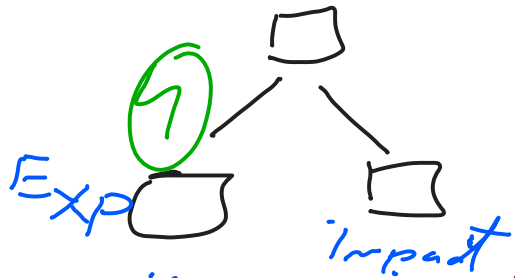
(emergency/attack)

SW update
configurer → (E)

Scada system



Method ①



Abstract
ANSI

③ Align the ~~running~~ tools

Sec. Funct
Multi-Metric

connect to

Methodology

- Sys. goal ①

- config

- ~~Arch.~~ architecture

- sec. funct. & risks

→ analysis

② Case Study on Real System

②.1 Smart Home (e2m)

②.2 Smart Meter

TLS
VPN
Eco
What
Labels

④ General Tool for the 17th century
using NOR-STH & R_{me}



IoT System

Security

Analysr:

impact

exposure

plus IT

System

eng.



firewall
encrypt
monitoring

Sec. functionality

eng.

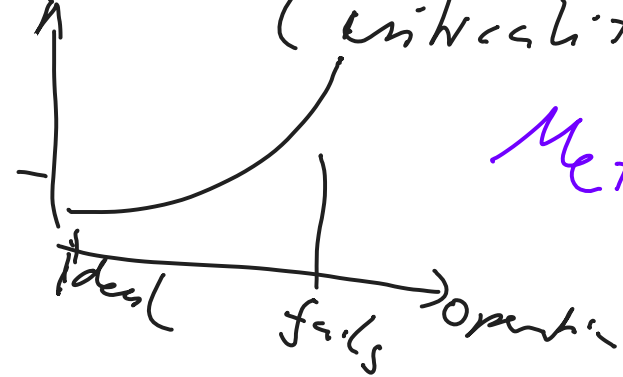
Struct + parameters

Sec. factor

(uniquality)

Metrics

Uniquality



Case: Apple vulnerability

Wifi;

Ethernet

USB ← auto run

Bluetooth
keyboard

10 Jan 2018

15 Mar
Apple root
→ 0.2

System
design

Class D

Sect
0.6

Secured.
1-factor

Auth. < 2-factor

Screen lock

↳ wake-up on
unlock

Sec
design
0.2 ~~0.6~~