smart innovation østfold

Norwegian Centres of Expertise
NCE Smart Energy Markets

IoTSec in the distribution grid

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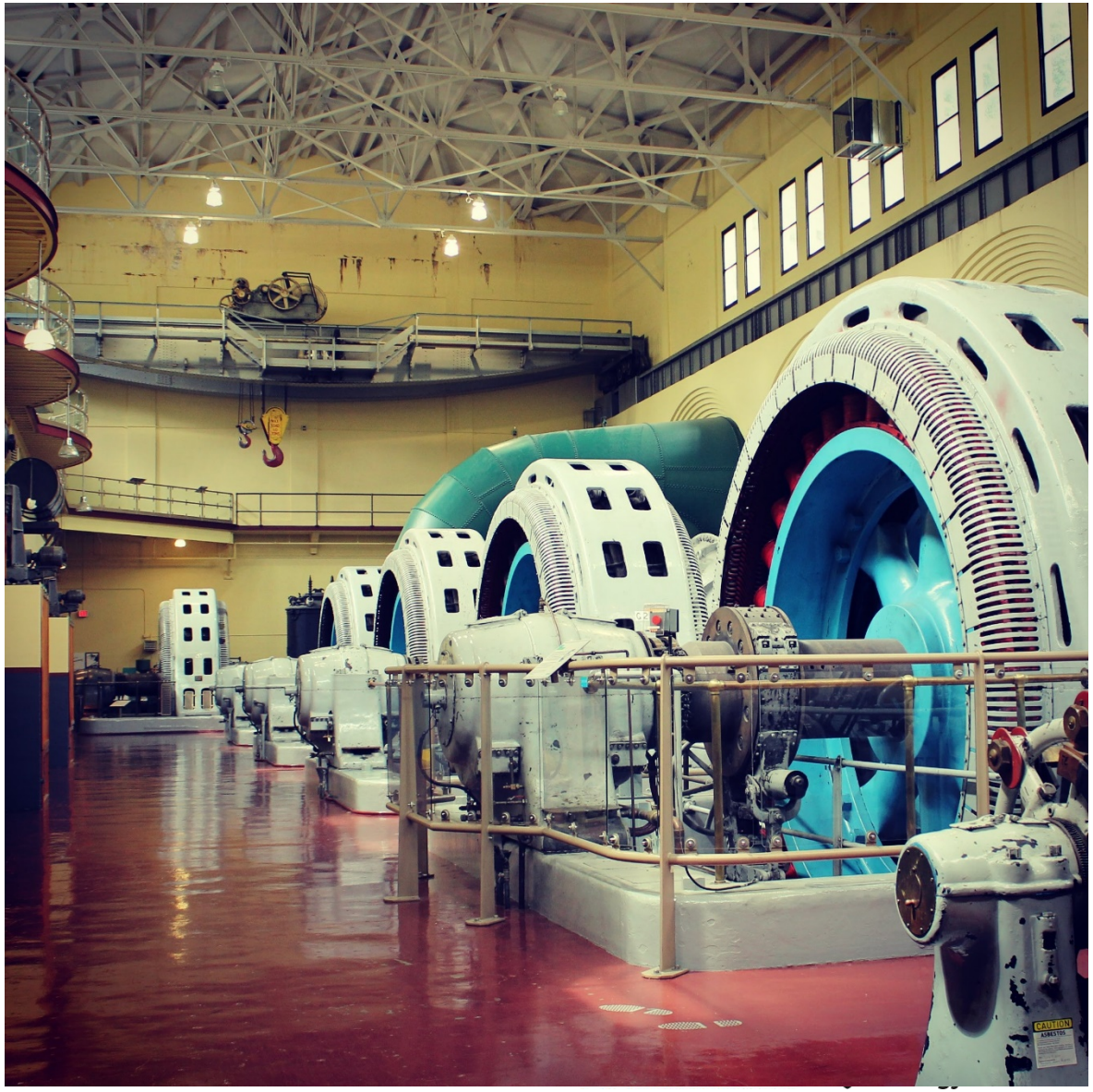
AGENDA

1. Today's situation
2. Challenges
3. Trends and development
4. «Connected grid»

TODAY'S SITUATION

Components

- Grid is about 100 years old
- Components live for an average of 50-60 years
- Mostly mechanical and dumb stuff
- Adding AMR and everything automatically becomes smart
- Almost no data or measuring-points in the grid

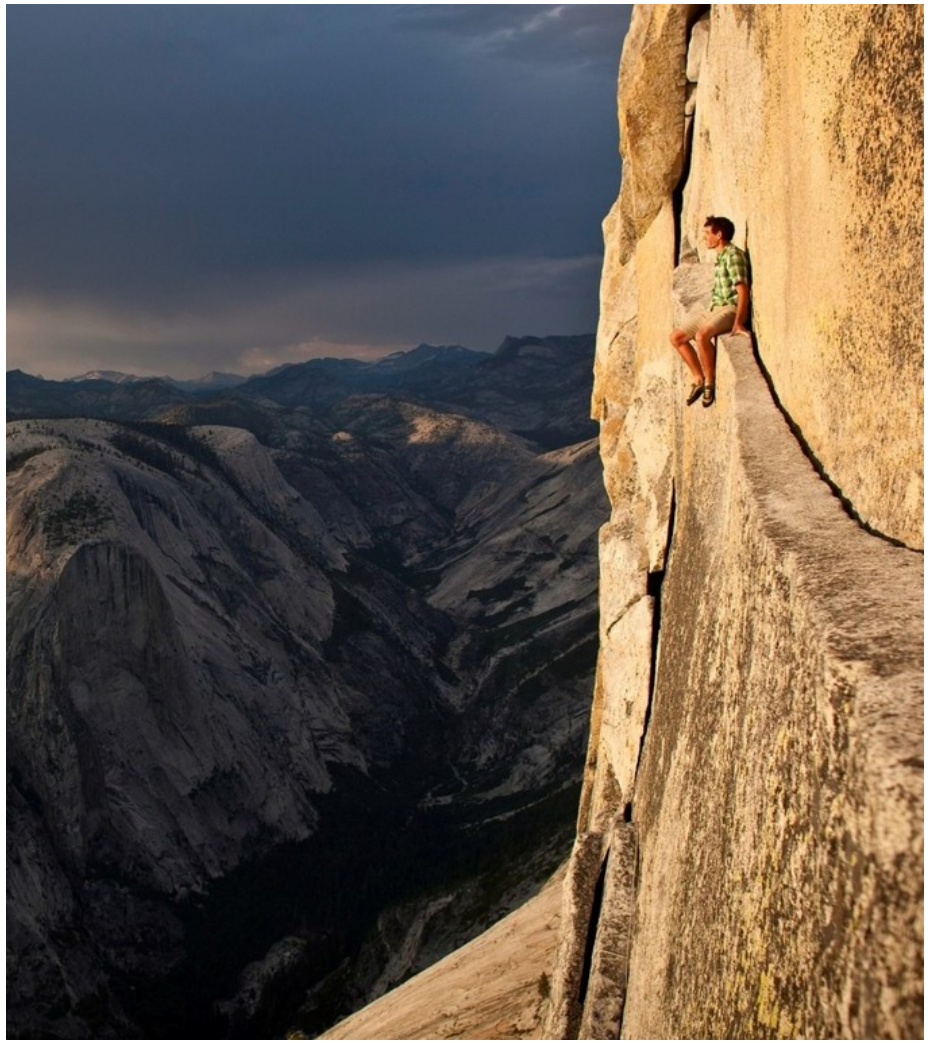


Security

- Typically «security by obscurity»
- Scada-system (control structure) is completely separated from the internet

CHALLENGES

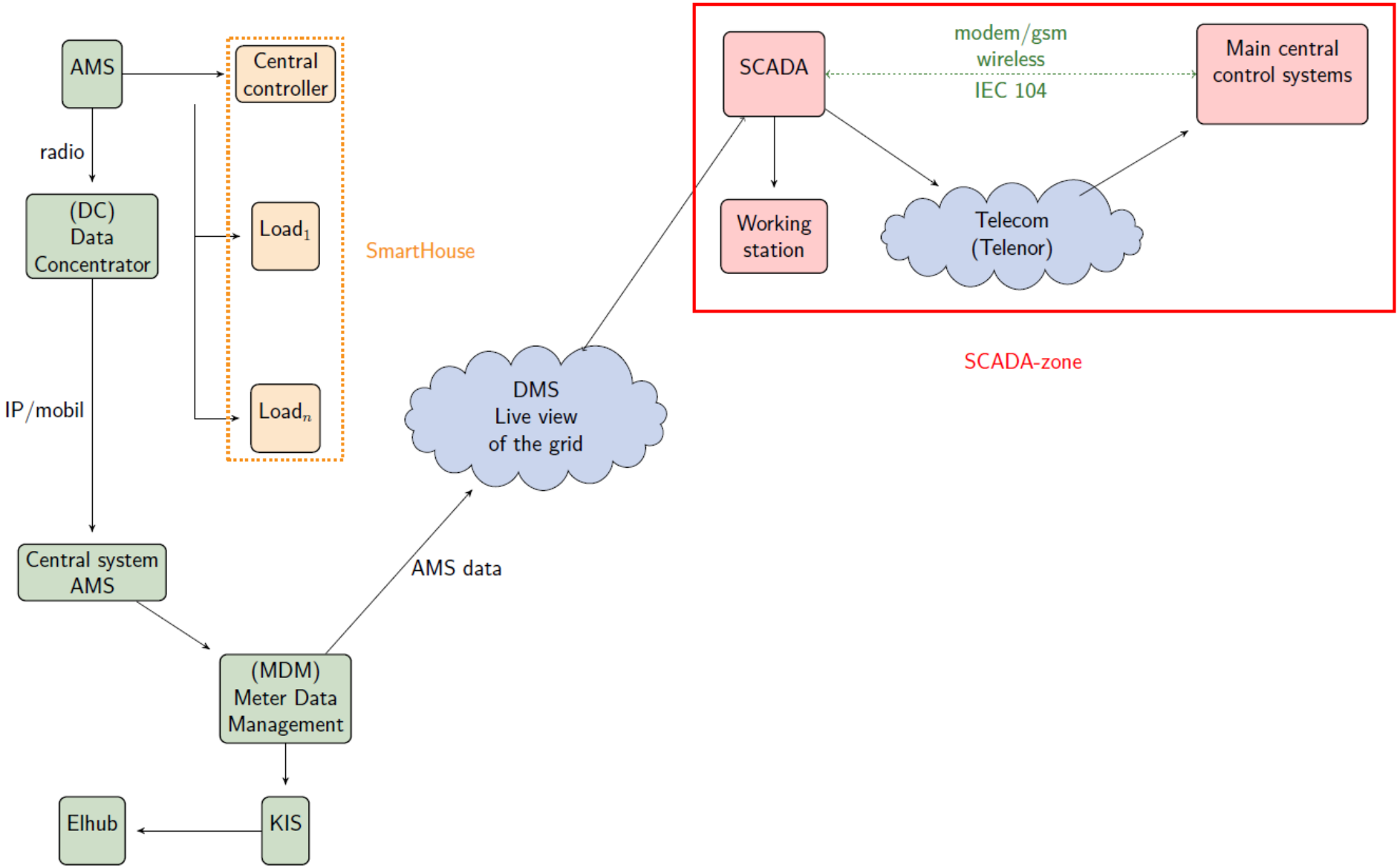
- Grid is quickly being connected to the internet
- Not adequate risk-assessment or security measures
- Human engineering, ref the Ukrainian grid hack
- Generally little focus on IT-security among the DSOs



TRENDS AND DEVELOPMENT

- Big Data
- IoT
- Digitalization
- Decentralisation
- Machine learning -> autonomous systems
- These will also affect the power-industry

CONNECTED GRID



CONNECTED GRID

Threats

- Privacy, not really addressed in NVEs guidelines for smart grids
- Hacking of components / systems (ref Ukrainian grid hack)
- Possibly connecting SCADA to the internet
- Third parties handle security / communications

Opportunities

- Automated home consumption, based on an hour to hour basis of prices / consumption
- Autonomous grids, reacting to events happening
- Intimate knowledge of grid loads and “health”
- Possible new services / markets for third parties regarding smart homes or grid handeling

Thanks for your attention