

Resilient Information and Control Systems (RICS)

Simin Nadjm-Tehrani
Linköping University

What's RICS?

- 20MSEK project over 5 years financed by Swedish civil contingencies agency (MSB)
 - Supported by SvK and collaborating with FOI
 - A three year extension started 2020, slowly picking up after the pandemic
- Has contributed to
 - Over 95 publications from three universities, 2 PhDs, 2 Associate Prof. qualifications, International collaborations
 - Over 74 Master and Bachelor theses

Research in three pillars



Creation of a
**data
emulation**
layer relevant
for critical
infrastructures



Development
of techniques
to prevent
unwanted
events



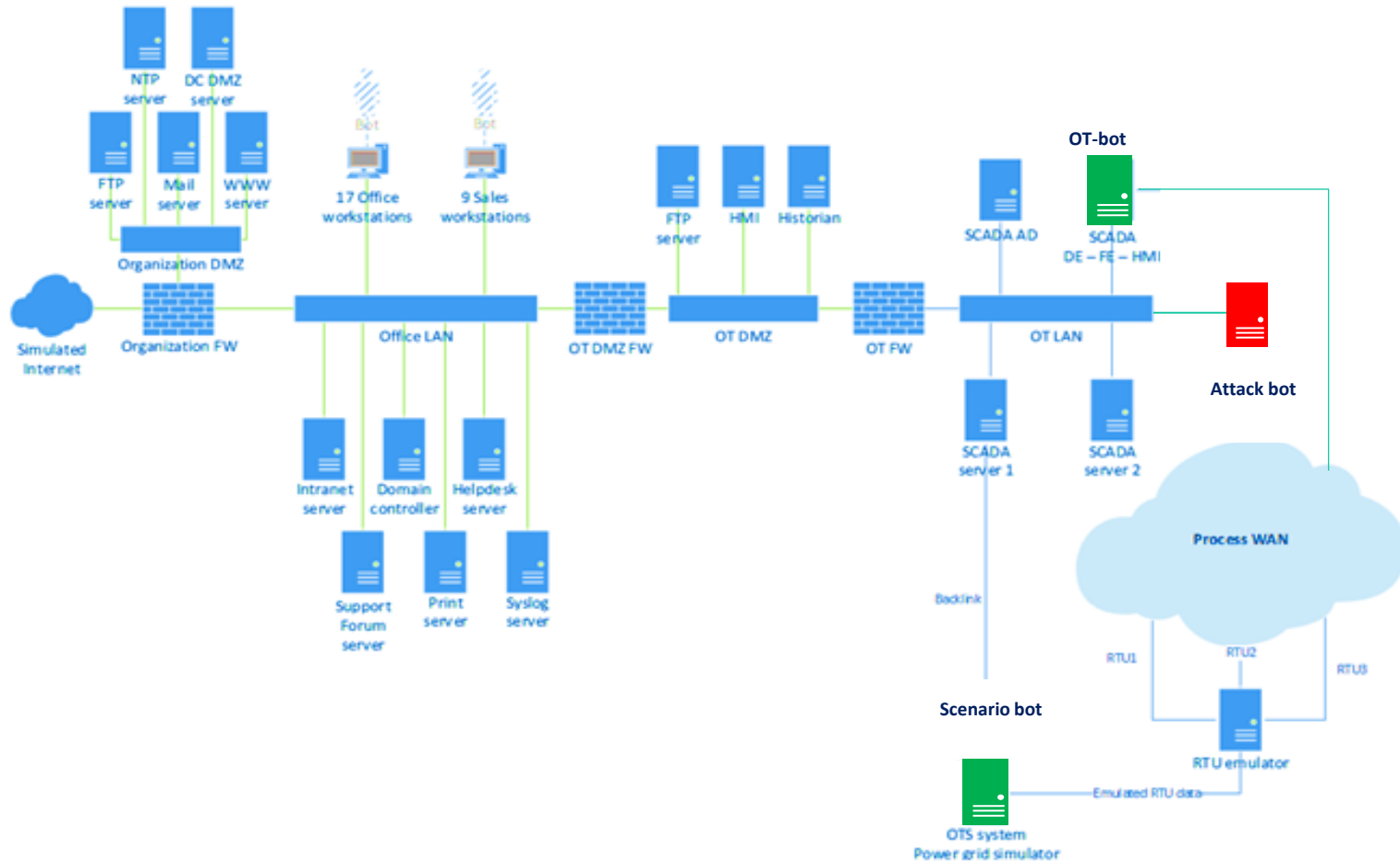
Advanced
incident
detection and
reaction
capability

RICS scientific achievements (selection)

- RICS-el: A testbed emulating a power distribution systems operator
 - Built in Scenario agent, OT agent, and attack agents
 - Anomaly detection techniques
 - Process variables, using spectral analysis (Chalmers)
 - Network packet flow timing, statistical methods and machine learning (LiU)
 - Modelling language for specific attack trees (KTH)
-

Benefits to stakeholders

RICS-el maintained at FOI



Realistic scenarios (digital “twin”)

- 20 emulated substations connected to emulated RTUs
- 12 attack scenarios demonstrated



Anomaly detection

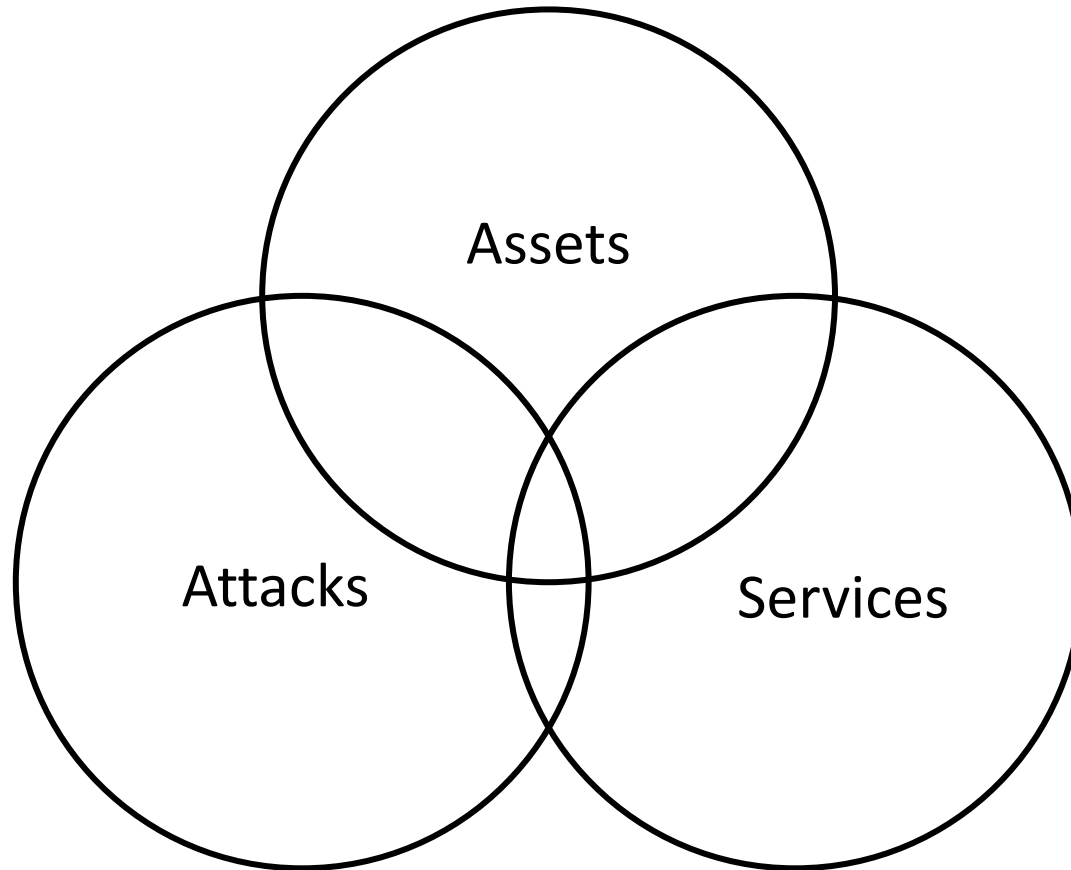


- Chalmers: start-up company Omen Technologies attracted investment by Clavister (October 2021)

CLAVISTER®

- LiU: demonstrated successful detection based on regular data from a real utility

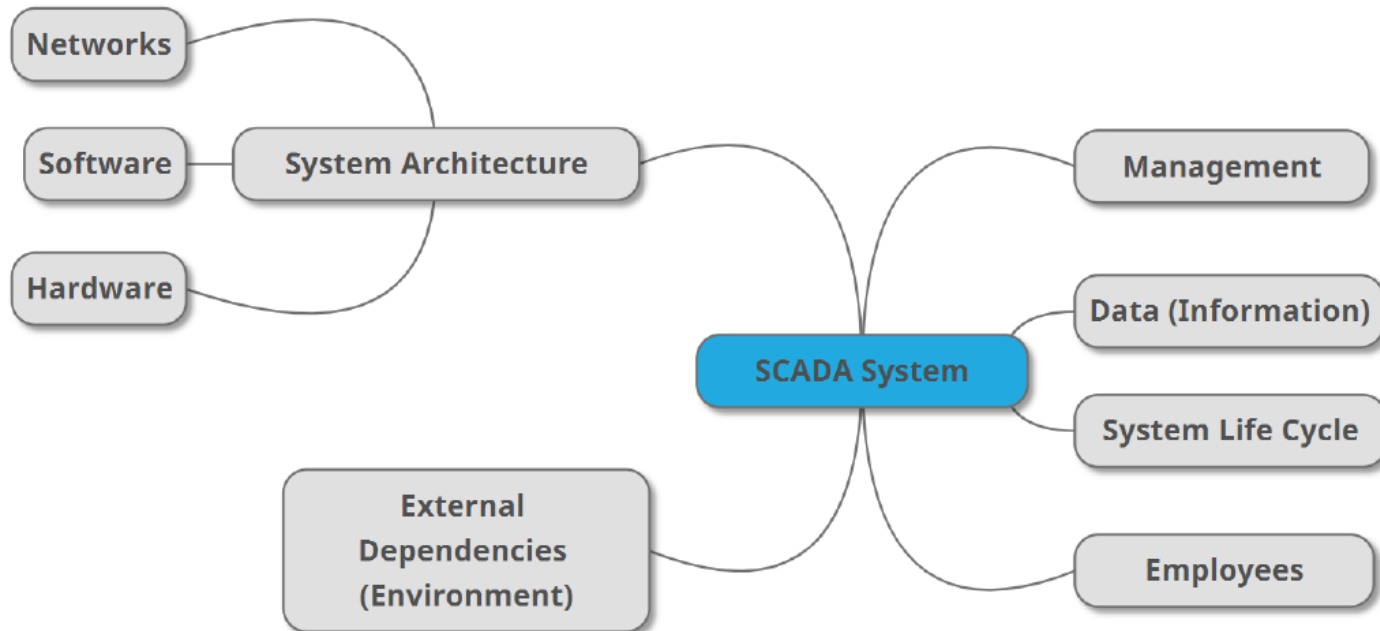
Risk assessment approaches within RICS



Publication:
MSB1701



Expert based generic SCADA system blueprint



The tool/approach will be available for use cases, e.g. cloud control for virtual batteries during RICS-2

Questions?
Simin.nadjm-tehrani@liu.se

www.rics.se



RICS Reference group & collaborators

- Critical infrastructure operators
- Control system vendors
- Cyber security product vendors and consultants
- Agencies, standardisation bodies, awareness raising organisations

