

Survivability modeling of a Water cleaning facility

SCADA (Supervisory Control and Data Acquisition) systems are widely used for process control purposes, e.g., for control of power generation and distribution but also for control processes in water cleaning and production.

This work will be performed in close cooperation with a water production company that provides fresh water to the area of Amsterdam. The raw water, that is obtained from the dunes or from lakes, is cleaned in approximately ten steps, by sand filtration and by adding different chemicals. The cleaned water is then stored in a tank, before it is distributed to the area of Amsterdam.

In a nutshell, the project will answer the question how survivable the SCADA system is, in case attacks are successful (or failures of other causes happen), and what types of redundancy can best be put into place to make it more survivable.

The following steps should be taken:

- literature research on existing work on dependability of critical infrastructures
- model the production steps of the water cleaning facility as Markov model
- solve the derived models analytically or by simulation
- introduce different types of redundancy to the model and compare the resulting survivability
- interpretation of the results

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