SARNET
Secure Autonomous Response Networks

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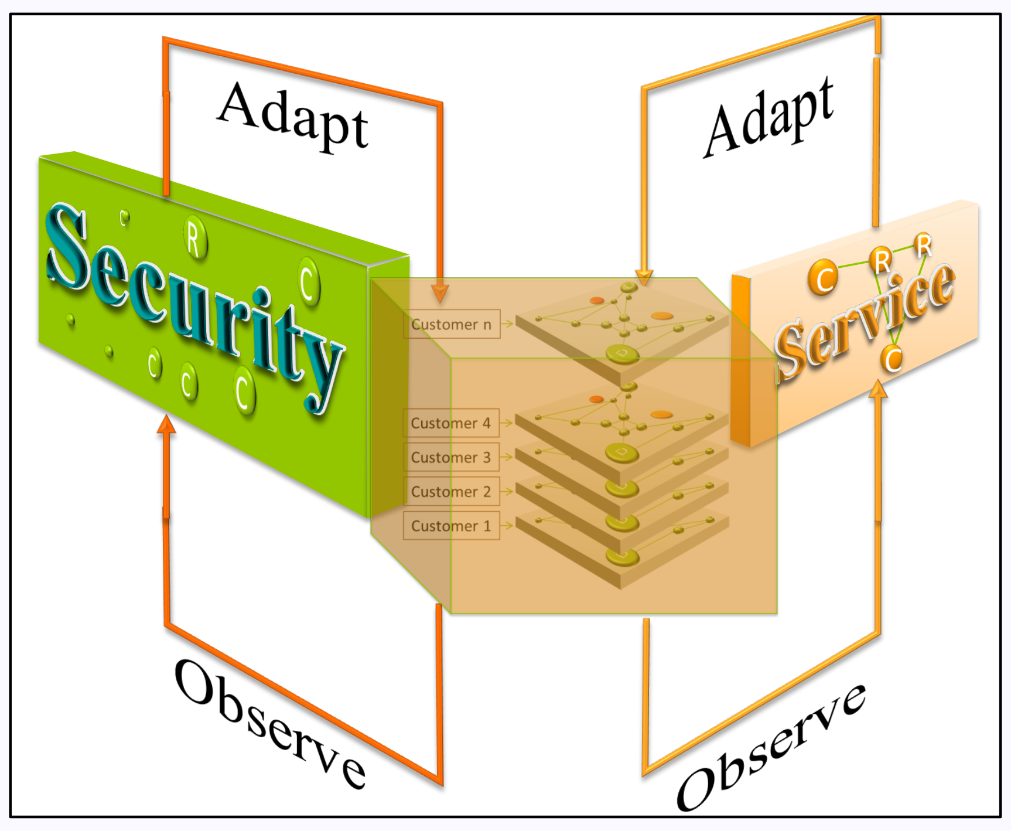
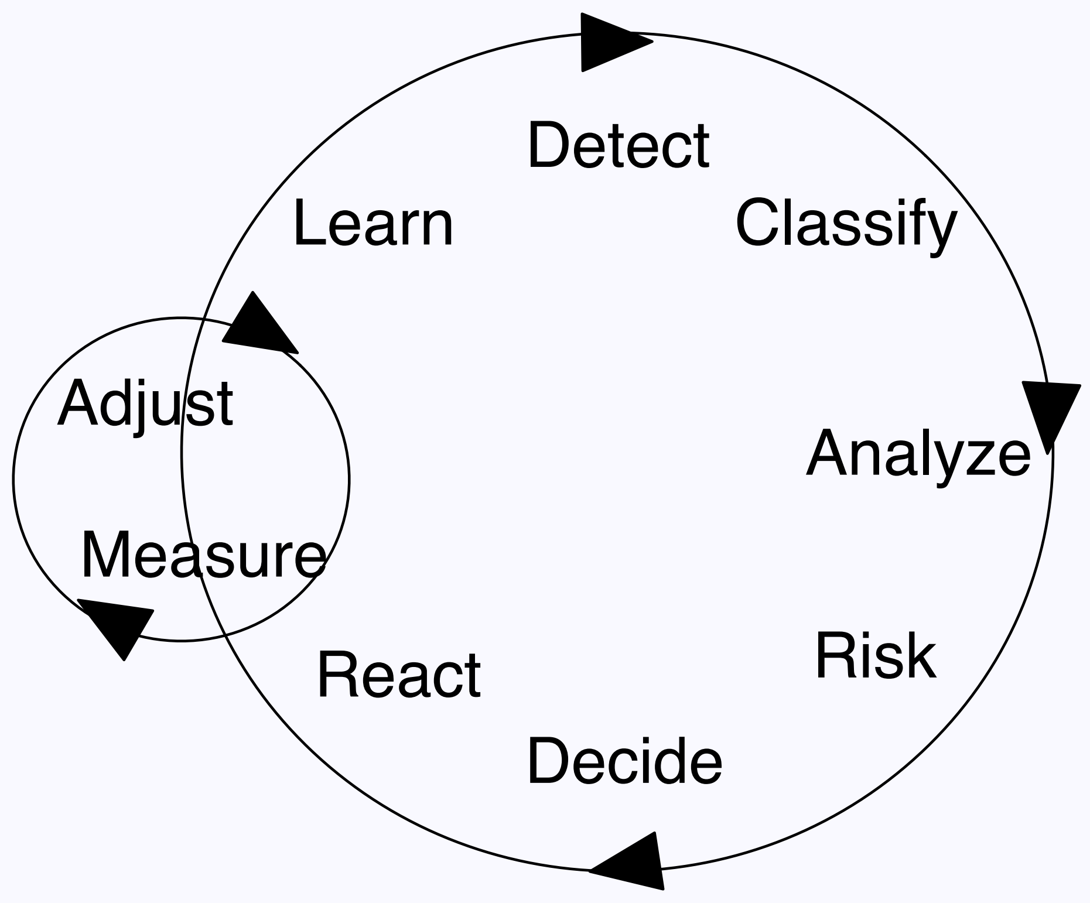
SARNET

SARNET, Secure Autonomous Response NETworks, is a project funded by the Dutch Research Foundation. The University of Amsterdam, TNO, KLM, and Ciena conduct research on **automated methods against attacks** on computer **network infrastructure**.

The research goal of SARNET is to obtain the knowledge to create ICT systems that

- **model** the system's state based on the emerging behaviour of its components,
- discover by observations and **reasoning** if and how an attack is developing and calculate the associated risks,
- have the **knowledge** to calculate the effect of countermeasures on states and their risks, and
- choose and **execute** the most effective **countermeasure**.





Control loops

The SARNET framework uses control loops to **maintain** the **security** state of the network. Its similar to the OODA (observe, orient, decide, act) loop but adds more granularity and an extra learning step.

A SARNET has one or more **security observables** derived from the network's **policies**. These observables are constantly monitored. When an anomaly takes place this triggers the control loop.

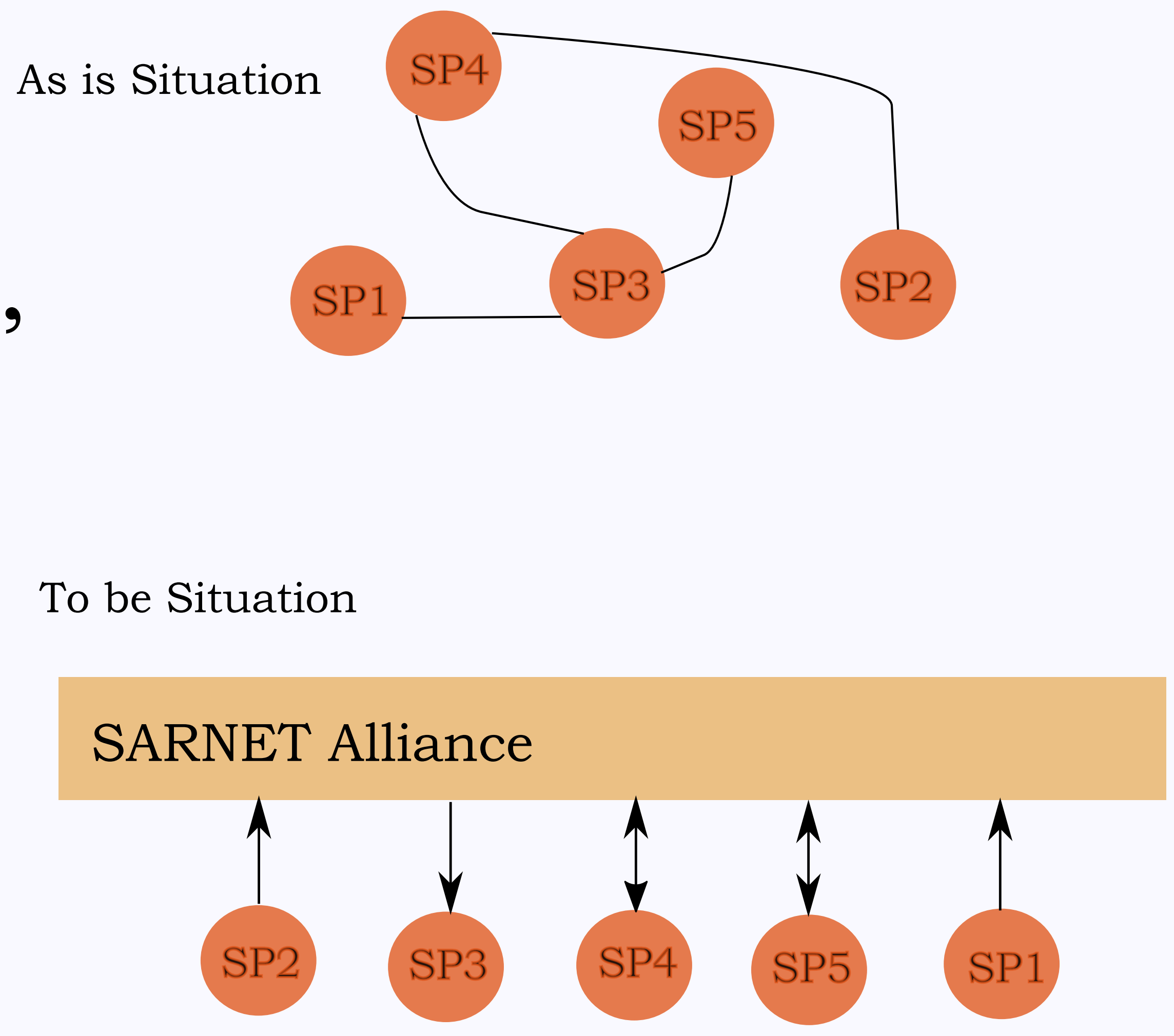
Software defined networking

By using the latest techniques in Software Defined Networking and Network Function Virtualisation, a SARNET can use **advanced methods** to defend against cyber attacks and return the network to its normal state.

SARNET Alliance

The **subject** of the SARNET alliance research is the value of **collaboration** between alliance members in terms of **risk reduction, cost benefit** and **revenue impact**.

The aim is to **provide** a-priori insight into the rationale of **collaboration**. Based on the **Service Provider Group** framework, the SARNET alliance institutionalises **trust** by arranging common **rules**, its **execution** and **judgment**. The research builds distributed computational models of an alliance that analyses the **policies** each autonomous member constructs from the common set of **rules**.



The models can become part of an Information Security Management System that establishes, reviews, maintains, and **improves information security** amongst alliance members.

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