

Framework For SDP Controller Generation From Policy Languages

Abstract

Simplify the usage of **S**oftware-**D**efined **D**ata **P**rotection (SDP) to hopefully increase the distribution. Construct a framework which combines the SDP controller and existing research of policy language and machine understandable forms of GDPR. This allows to create controller software by configuring the policy language rather than code the controller it self.

Further investigation might be needed to test if this construct might also be extensible and applicable for other use cases of SDP next to GDPR.

Problem

Prof. Dr. Zsolt István presented a way of decoupling the decision making from processing to reduce the overhead costs of policy compliance at the storage layer and create a common interface between hardware and software. A lot of complexity remains in the controller, like for example the translation from law to rules.

Piero A. Bonatti et al. [1] present a policy language and tools for automated checking of GDPR compliance. So do other: [2], [3], [4], [5]

To reduce the implementation complexity and effort for a SDP controller, it would be great to have a framework to create SDP controllers based on policy languages and policies.

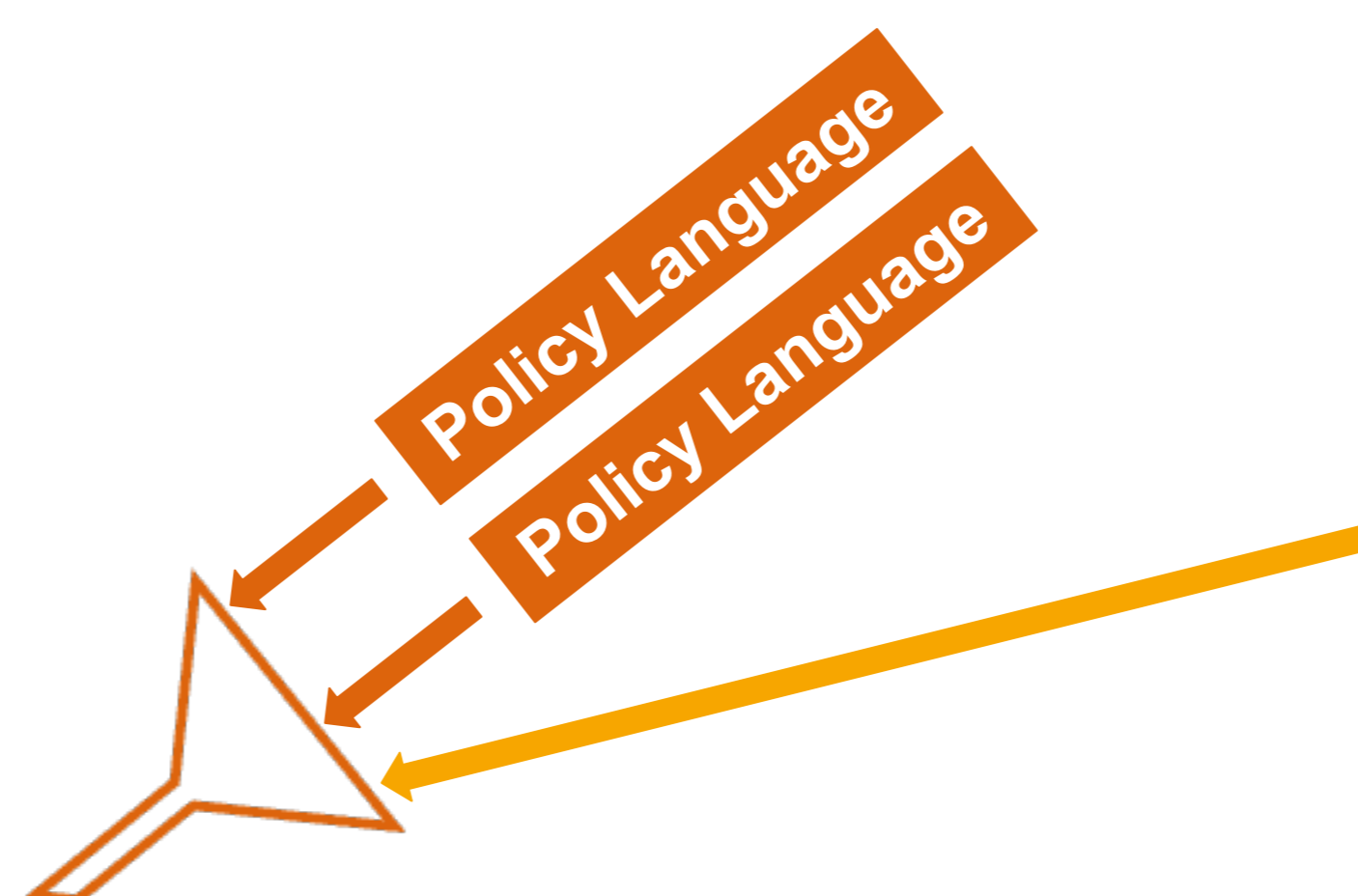
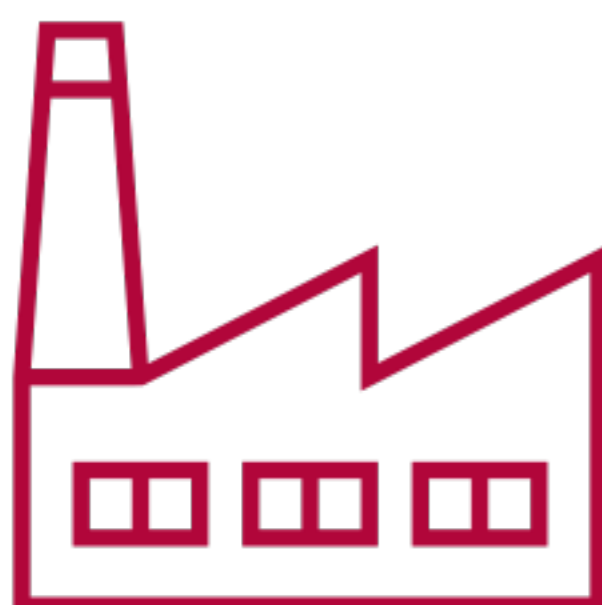
Research Question(s)

The goal of this research topic is the simplification of SDP in terms of the controller implementation and provide a framework for a further abstraction into Policies.

From the goal the following research questions might be derived:

1. How to derive a SDP controller from a policy language ?
2. Which policy language is best matching the SDP needs?
3. Can this approach be transferred to other problems than GDPR, business compliance etc.?

Approach



Other Policy Languages
(ISO 27001, compliance rules of partners, ...)

Policy Interpreter

Create an policy interpreter inside the SDP controller to abstract from coded decision logic to a policy language. Create a framework to rather configure controller than code.

Fitting Policy Language

Investigate which policy language might fit the most possible solution of step 1. Decide for an existing or extend if necessary.

Extend To Other Problems

Investigate if this approach is extendable to other policies like business compliances as ISO 27001 etc. Check if the SDP Interface needs adjustments.