HSB
Hochschule Bremen
City University of Applied Sciences

Trusted Monitoring mit Hilfe eines TPMs durch das Trusted Attestation Protocol

Martin Müller
Matrikelnr.:358740
29. April 2020

Masterseminar - Initialvortrag

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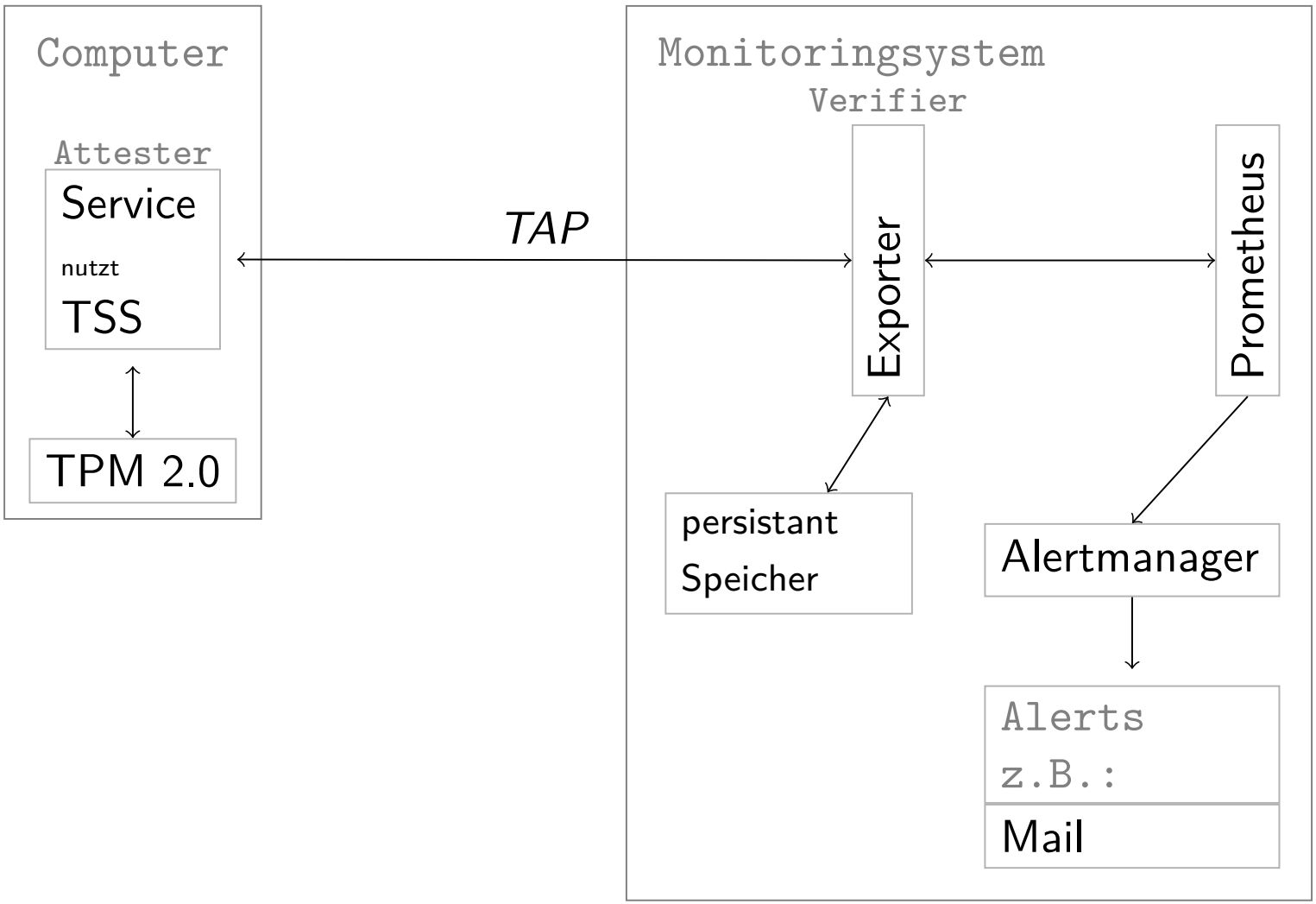
Trusted Monitoring



Idee vom TPM

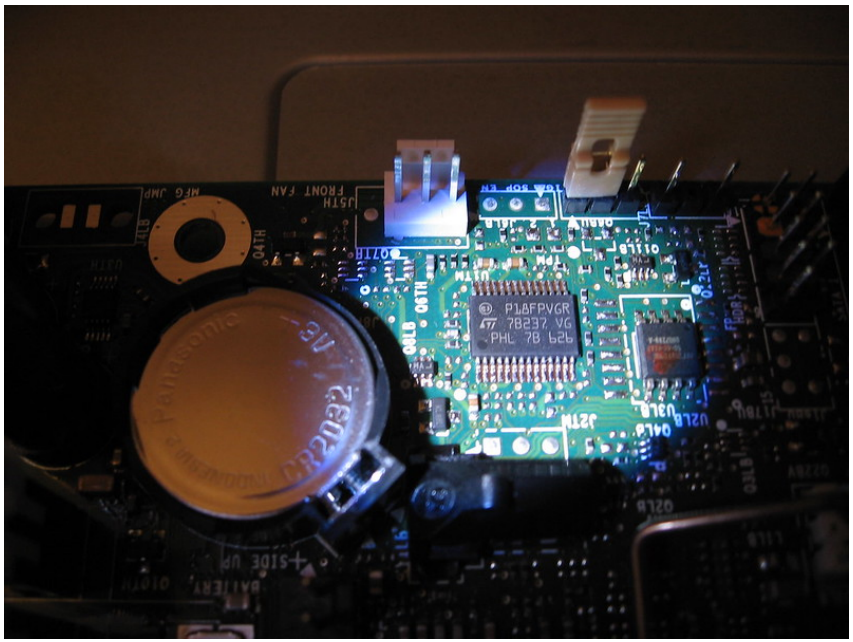
Hardware Security Modul (HSM):

- Schlüsseln sicher vor Software aufbewahren
  z.B. Dateisystem, Memory-Dump

Besonderheit für TPM

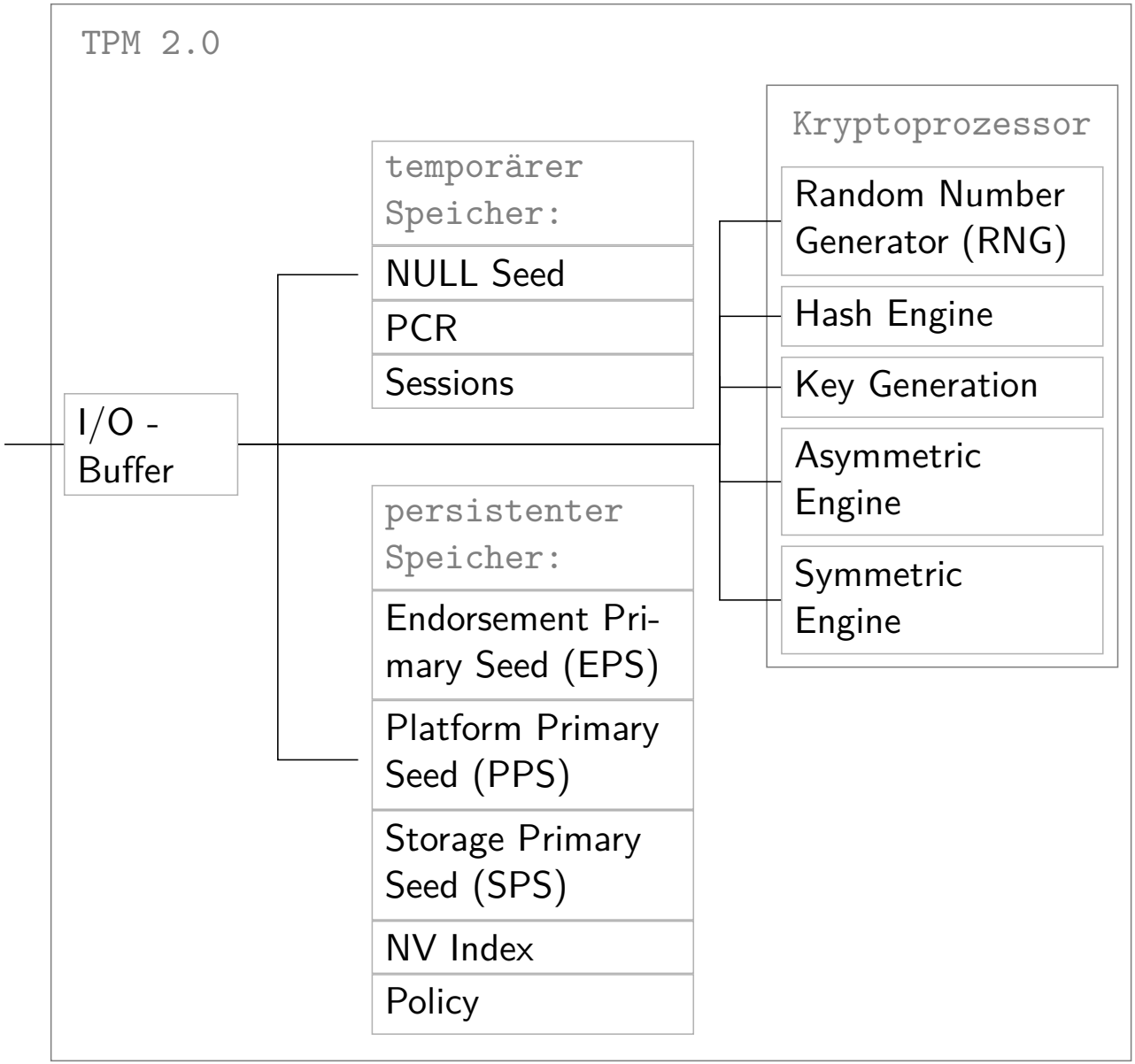
- Smartcard dauerhaft im PC gelassen
- Security per Computer
  vs. per Person

Verbreitung des TPMs

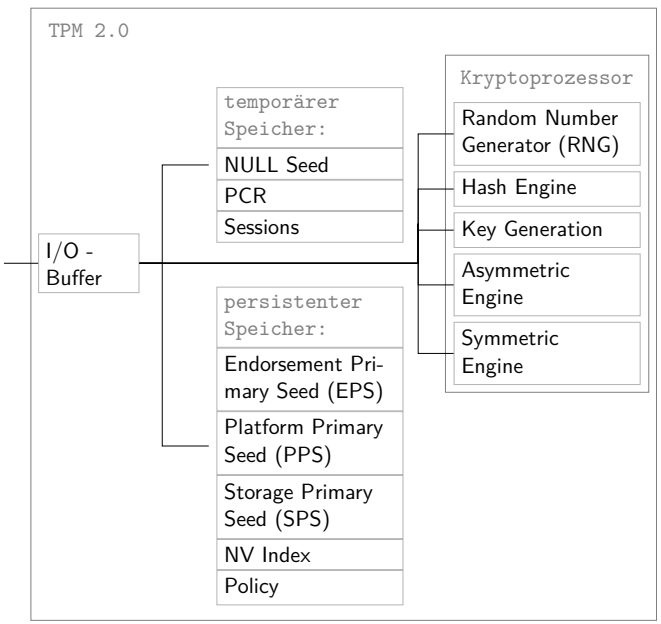


- Dank Microsoft und UEFI nun in fast allen Computern

Aufbau des TPMs



Aufbau des TPMs



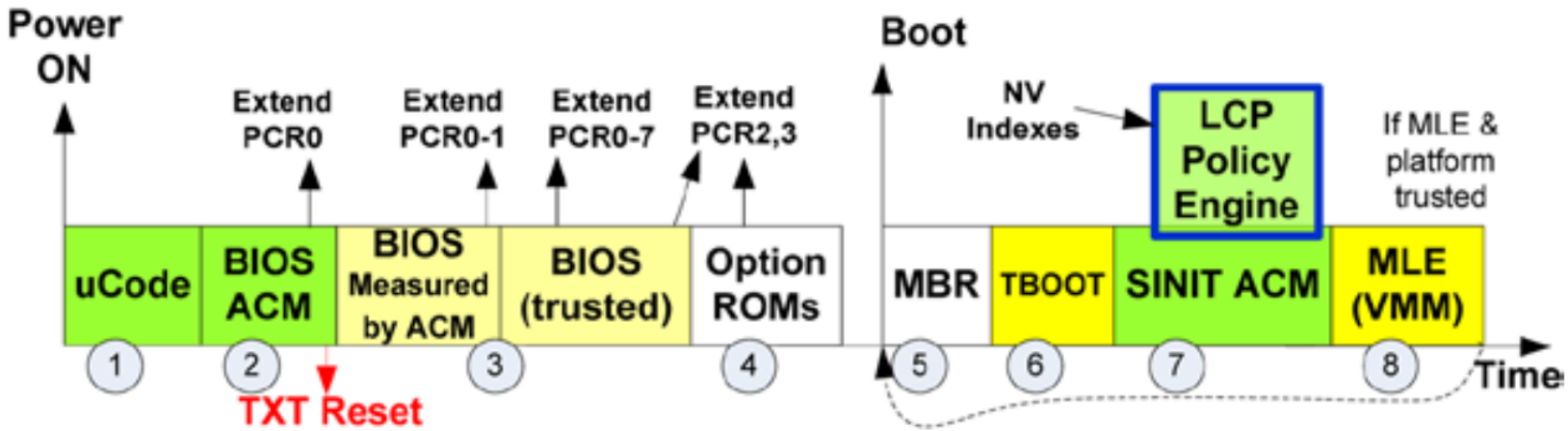
PCR-Bänke nur Extends oder Clean:

$$PCR_{new\_value} = Digest(PCR_{old\_value}||data)$$

Quote PCR-Values + Nonce signiert

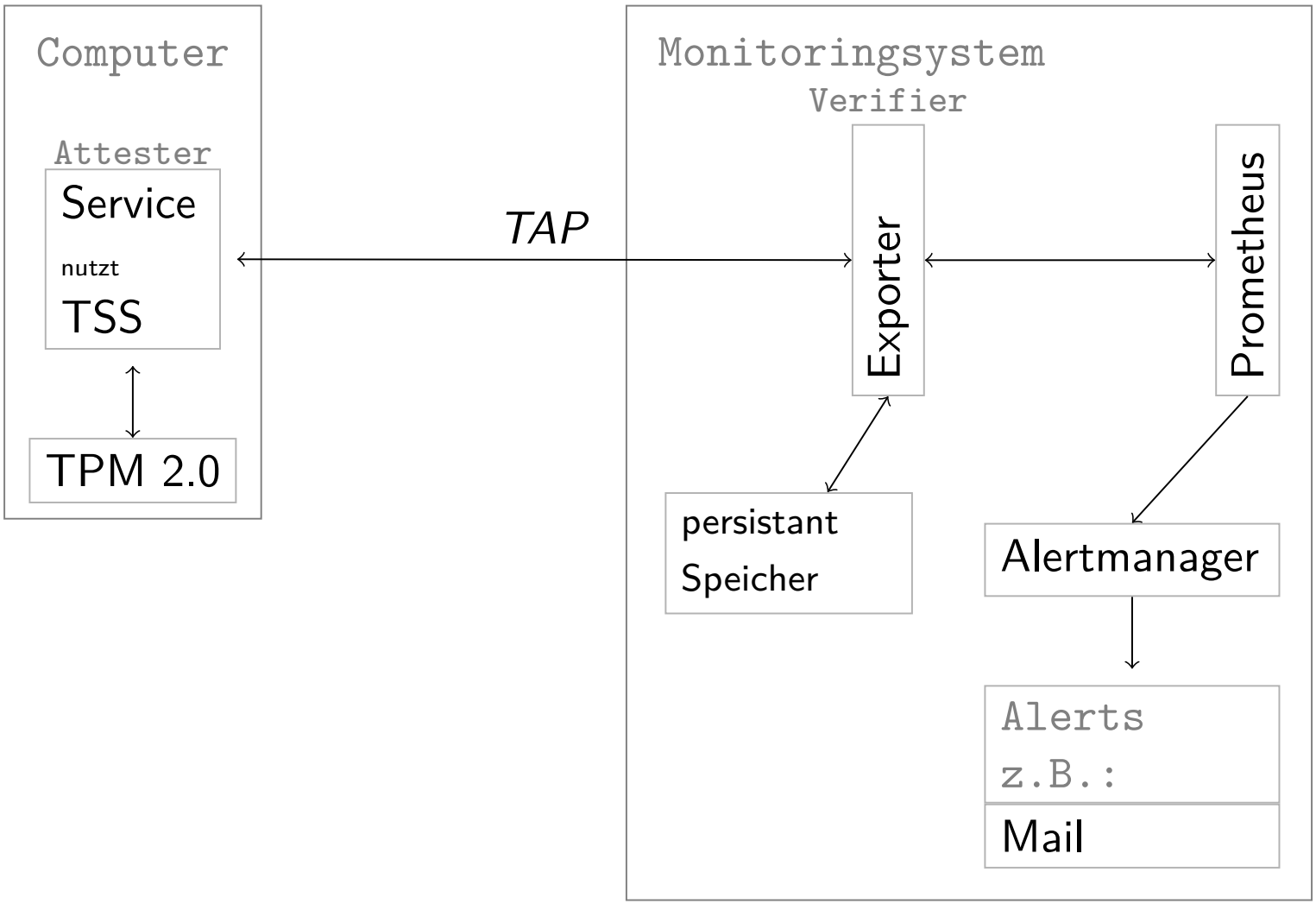
Einsatzmöglichkeiten

Measured Boot



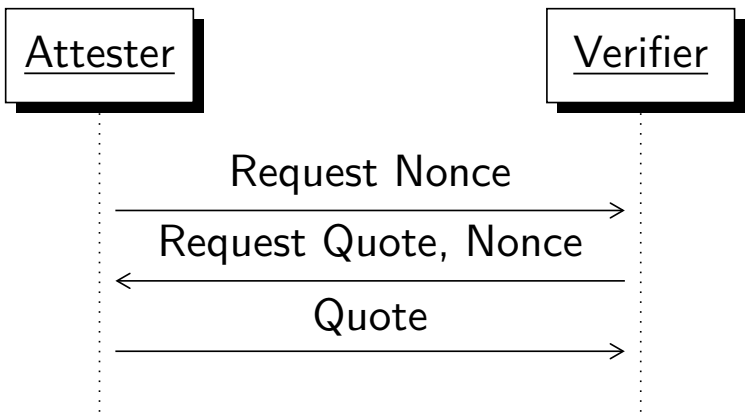
Trusted Monitoring

Trusted Attestation Protokoll (TAP)



Trusted Attestation Protokoll (TAP)

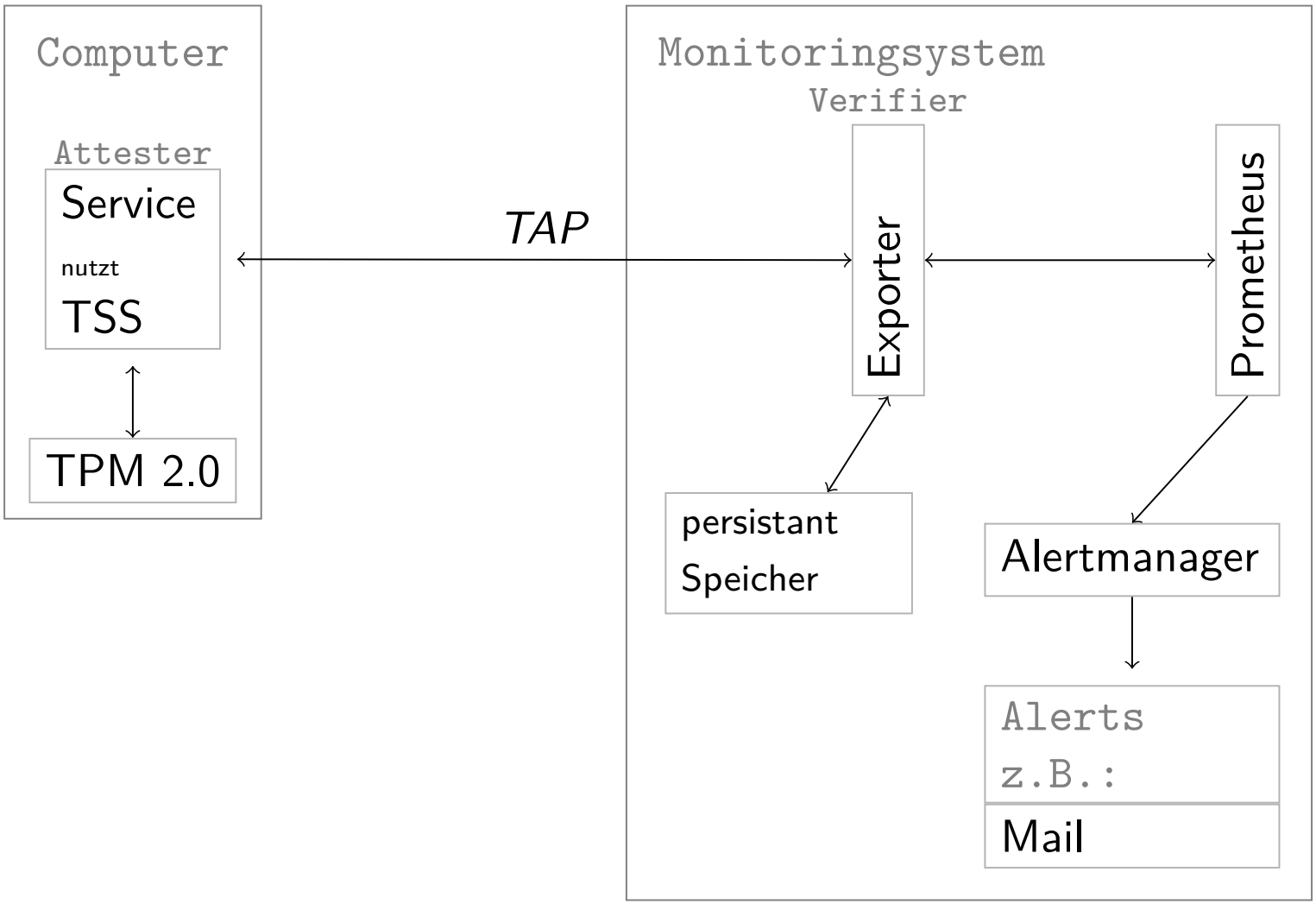
Einsatzmöglichkeiten



- Zugang (zum Netzwerk)
- **Remeasurement**
- Unidirektional
- Sitzungloses

Monitoringsystem

Idee meiner Thesis



Trusted Monitoring mit Hilfe eines TPMs
durch das Trusted Attestation Protocol

Vielen Dank für Ihre Aufmerksamkeit

Fragen?

TPM im Browser zum Experimentieren:
`https://google.github.io/tpm-js/`

"Hacking (with) a TPM" von Andreas Fuchs:
`https://media.ccc.de/v/36c3-10564-hacking_with_a_tpm`

Quellen

Trusted Computing Group

`https://trustedcomputinggroup.org/resources/`

A Practical Guide to TPM 2.0

Will Arthur, David Challener und Kenneth Goldman

`https://rd.springer.com/book/10.1007/978-1-4302-6584-9`

OSS implementation of the TCG TPM2 Software Stack (TSS)

`https://tpm2-software.github.io/`