

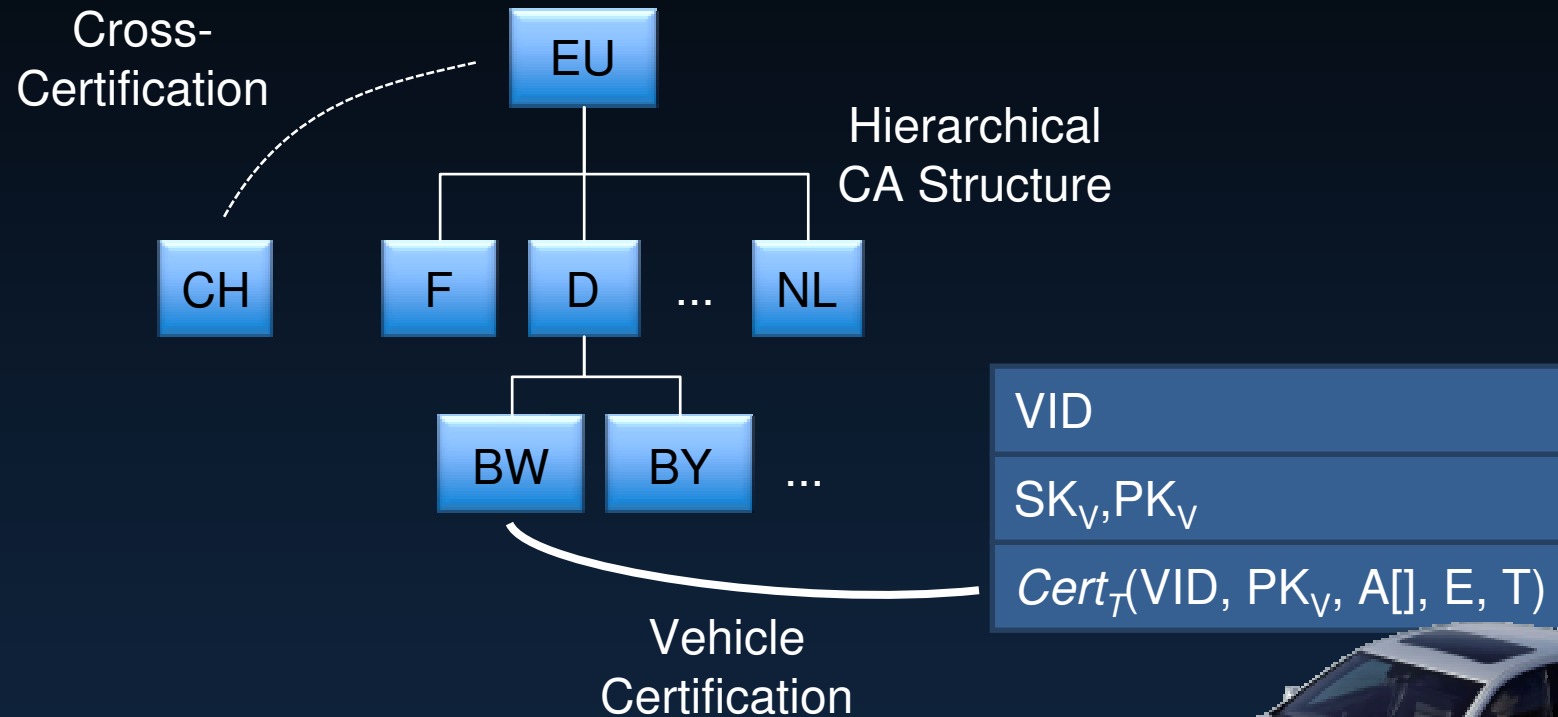


Enforceable Privacy with PRECIOSA

Frank Kargl – Ulm University

ITS World Congress 2009
SIS 46: Privacy and Data Protection within ITS
Stockholm, 24.09.2009

ID Management



What about Location Privacy in cITS?



“You have zero privacy
anyway. Get over it!”
- Scott McNealy (1999)

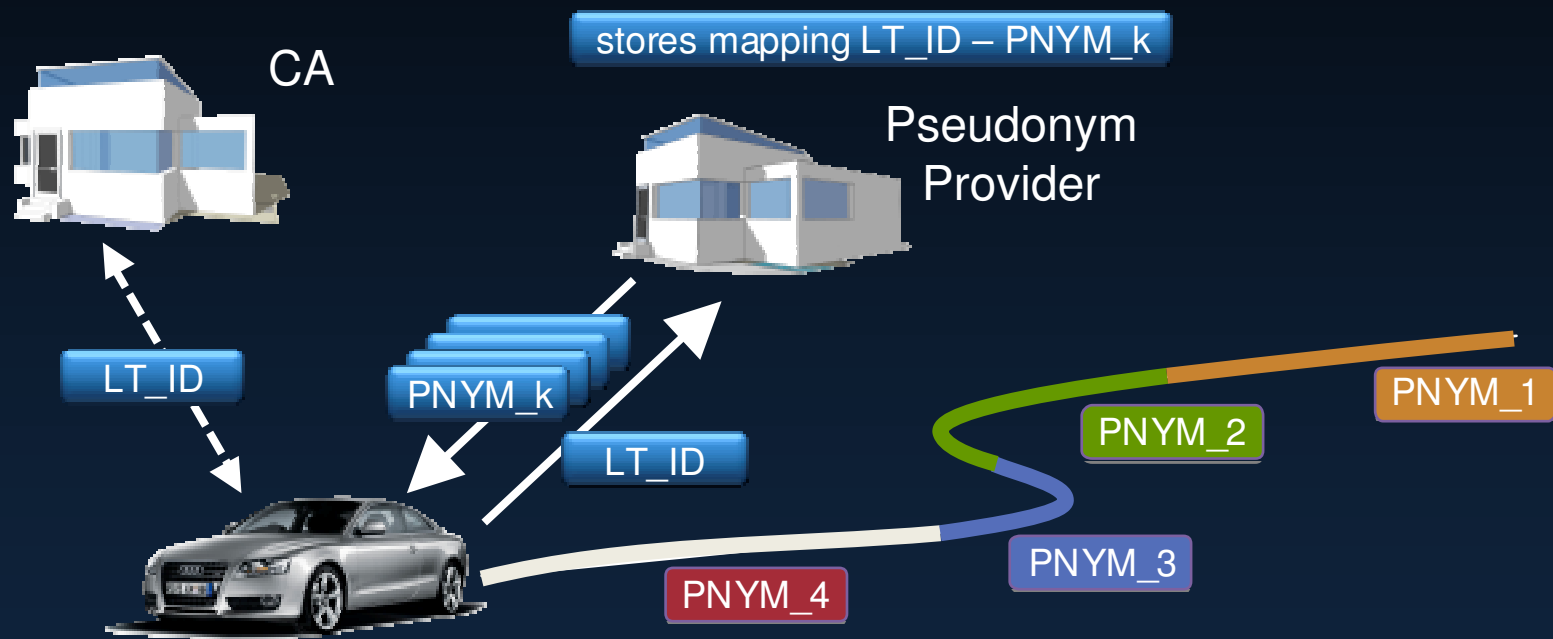


§

or



Pseudonym Approach



Open Issues

How to implement
Conditional
Pseudonymity?

Costs and Overhead?

Impact on
Communication
Protocols?

Sufficient level of
Privacy?

Privacy Issues in
Backend Systems



FP7 STREP Project
1/3/2008-31/8/2010

TRIALOG

ORACLE®



traffic mobility logistics.



ulm university universität
uulm

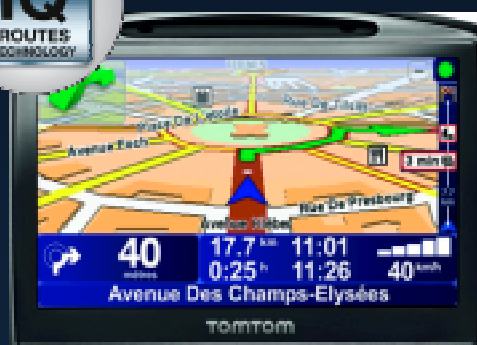
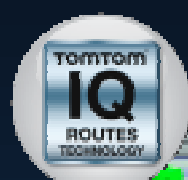
PRECIOSA – Verifiable Privacy



Privacy Guidelines

Design Process

Policy Enforcement

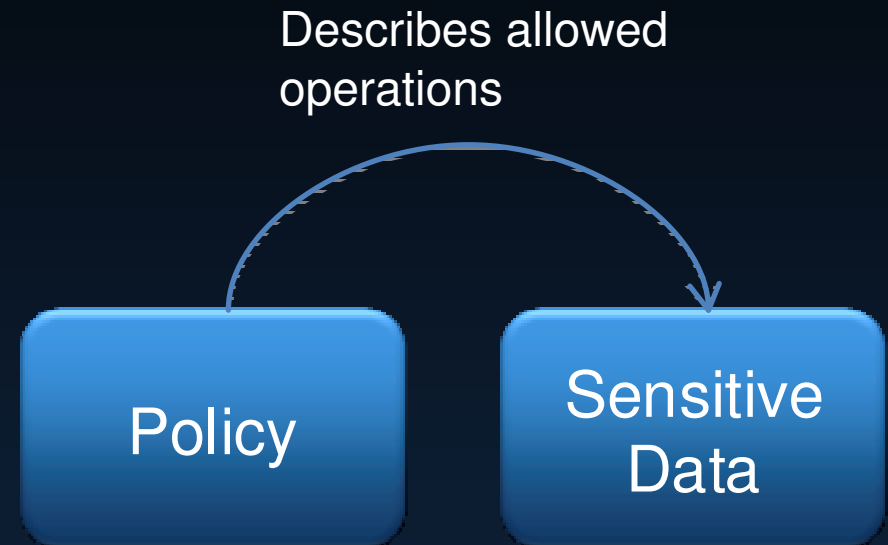


Privacy Verifiable Architecture

Sensitive
Data

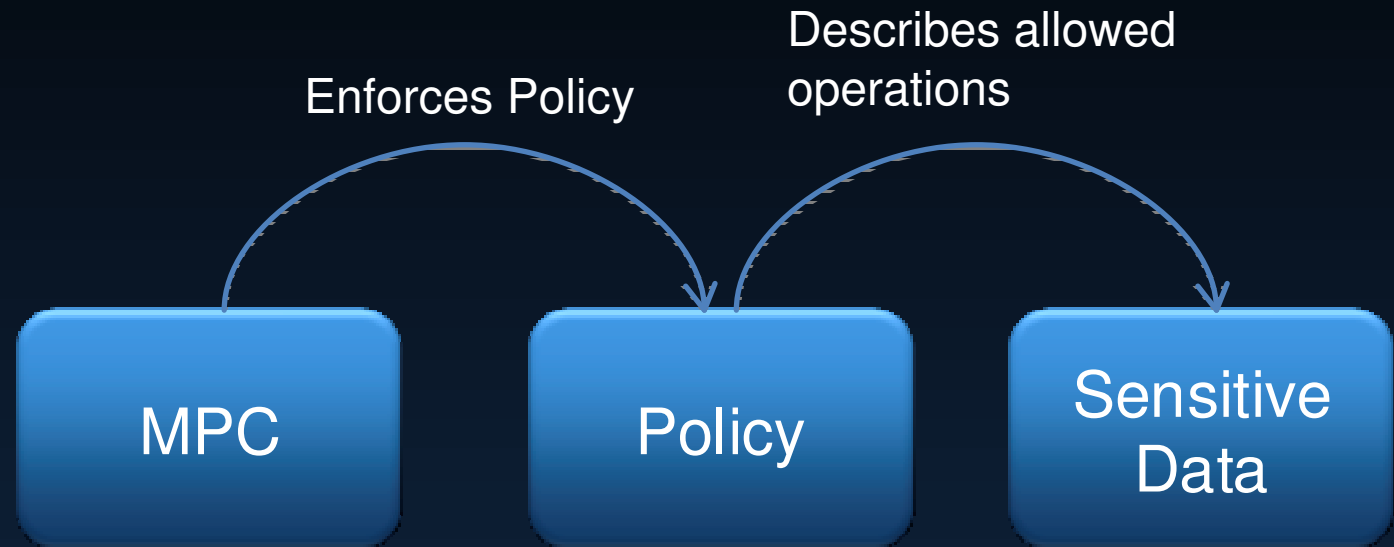
FCD Record <ref-URI>:
UID: UL-M 1234
pos: <lat>,<long>
speed: 134 km/h

Privacy Policies



```
FCD Policy:
BEGIN POLICY payd_policy:
  Controls:  payd_dataset(<ref_URI>)
  Role:      FlexiInsurance Inc.
  Purpose:   billing
  Retention: 6 months
  FIELD speed:  ALLOW AVG(per month)
  FIELD pos:    ALLOW SUM(distance(p1, ..., pn) per month)
  FIELD UID:    ALLOW ATOMIC
END POLICY.
```

Mandatory Privacy Control



Application Request:

BEGIN REQUEST `payd_request`:

Role: FlexiInsurance Inc.

Purpose: billing

Query: `SELECT AVG(speed) from payd_data WHERE timestamp IN(09-01-01, 09-02-01) AND UID=10`

END POLICY.

Match?

Policy:
`asset(<ref_URI>)`
Insurance Inc.

ALLOW AVG(per month)
FIELD pos: ALLOW SUM(distance($p_1, \dots, p_n$) per month)
FIELD UID: ALLOW ATOMIC
END POLICY.

Digital Privacy Protection

Protects data during transit and prevents lower layer attacks on MPC

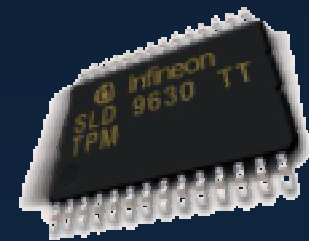
Enforces Policy

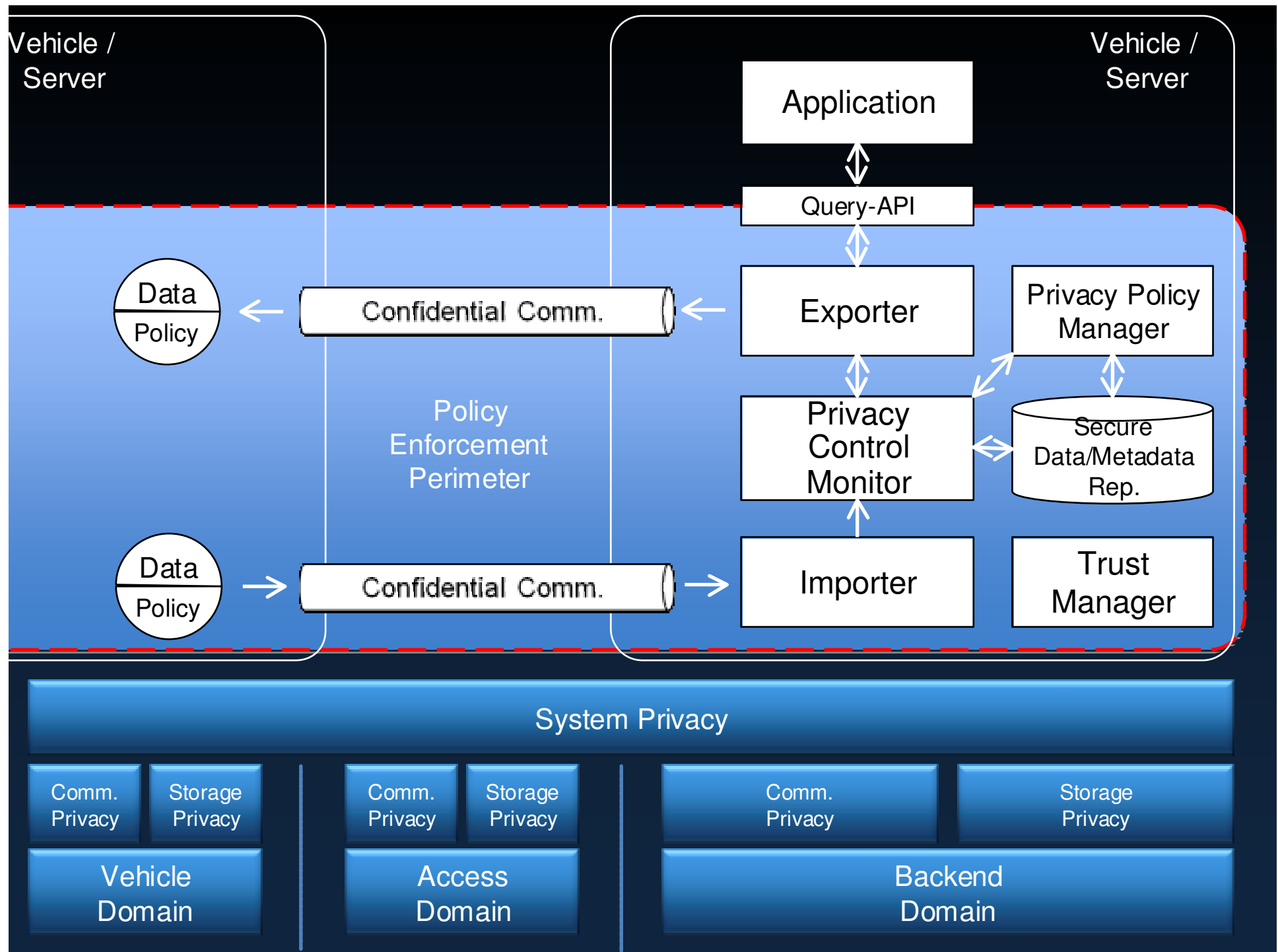
Describes allowed operations



Trusted Computing Principles

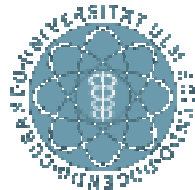
DRM Technology





Privacy is not just a matter of trust –
it can be technically enforced

PD Dr. rer.nat. Frank Kargl
Ulm University
Institute of Media Informatics
frank.kargl@uni-ulm.de / frank@kargl.net
<http://www.uni-ulm.de/in/mi/>
<http://www.kargl.net/>
<http://www.vanet.info/>



ulm university universität
uulm



Images: Frank Kargl, Elmar Schoch, Uni Ulm, sxc.hu