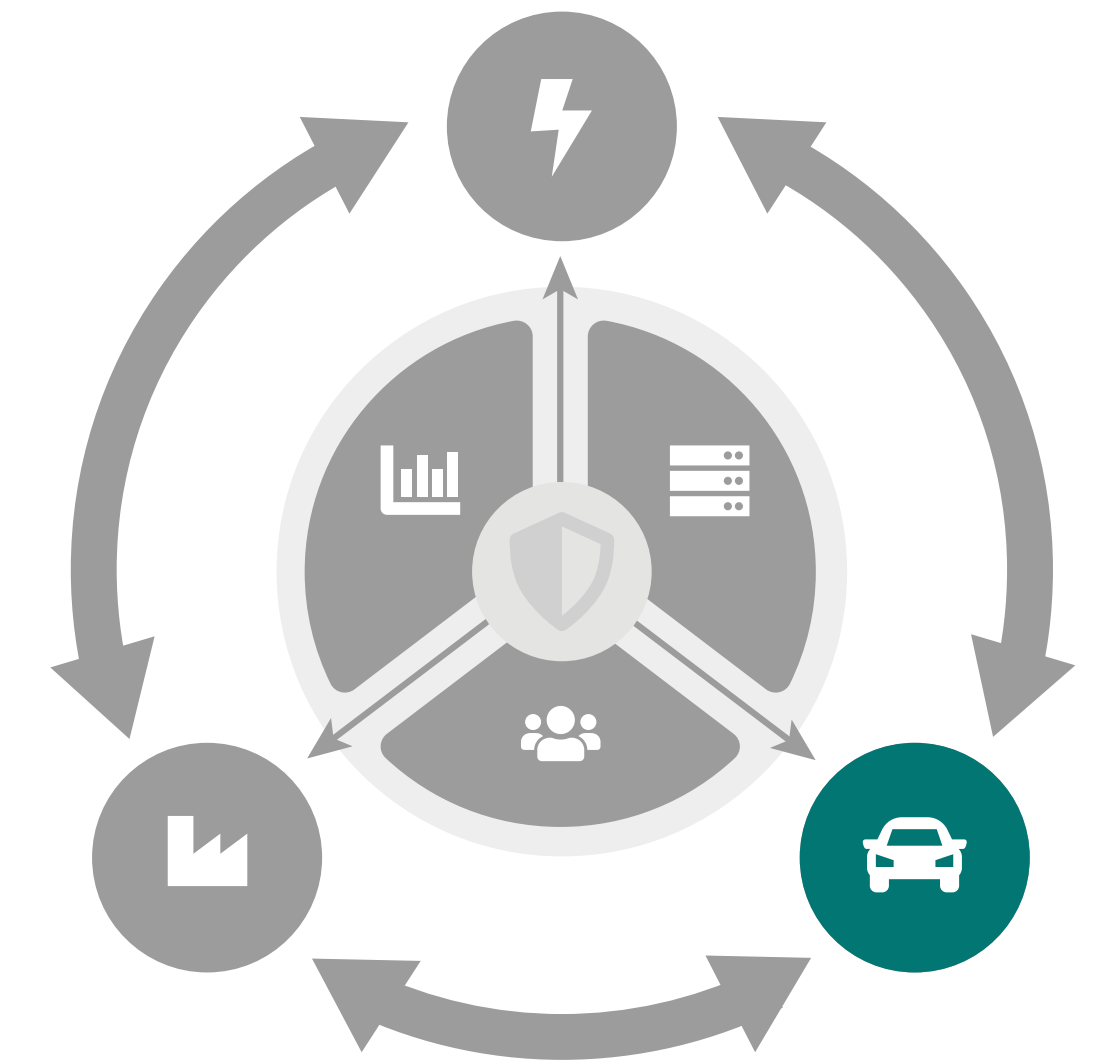




Modular Threat Analysis and Risk Assessment in Vehicle Supply Chains

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(Mobility Systems Security, Software Engineering)



Motivation

- Automotive vehicles are increasingly becoming connected **cyber-physical systems**
- Leads to **bigger attack surface**, more **impactful attacks**, necessitating **cross-organizational collaboration**
 - Manufacturers are obliged (per regulation) to establish cybersecurity management systems
 - TARA** is legally required for vehicle to be permitted on the road

Research Question

How can **TARA** be **modularized**, without losing security properties and guarantees using **untrustworthy infrastructure** for **secure cross-organizational collaboration**?

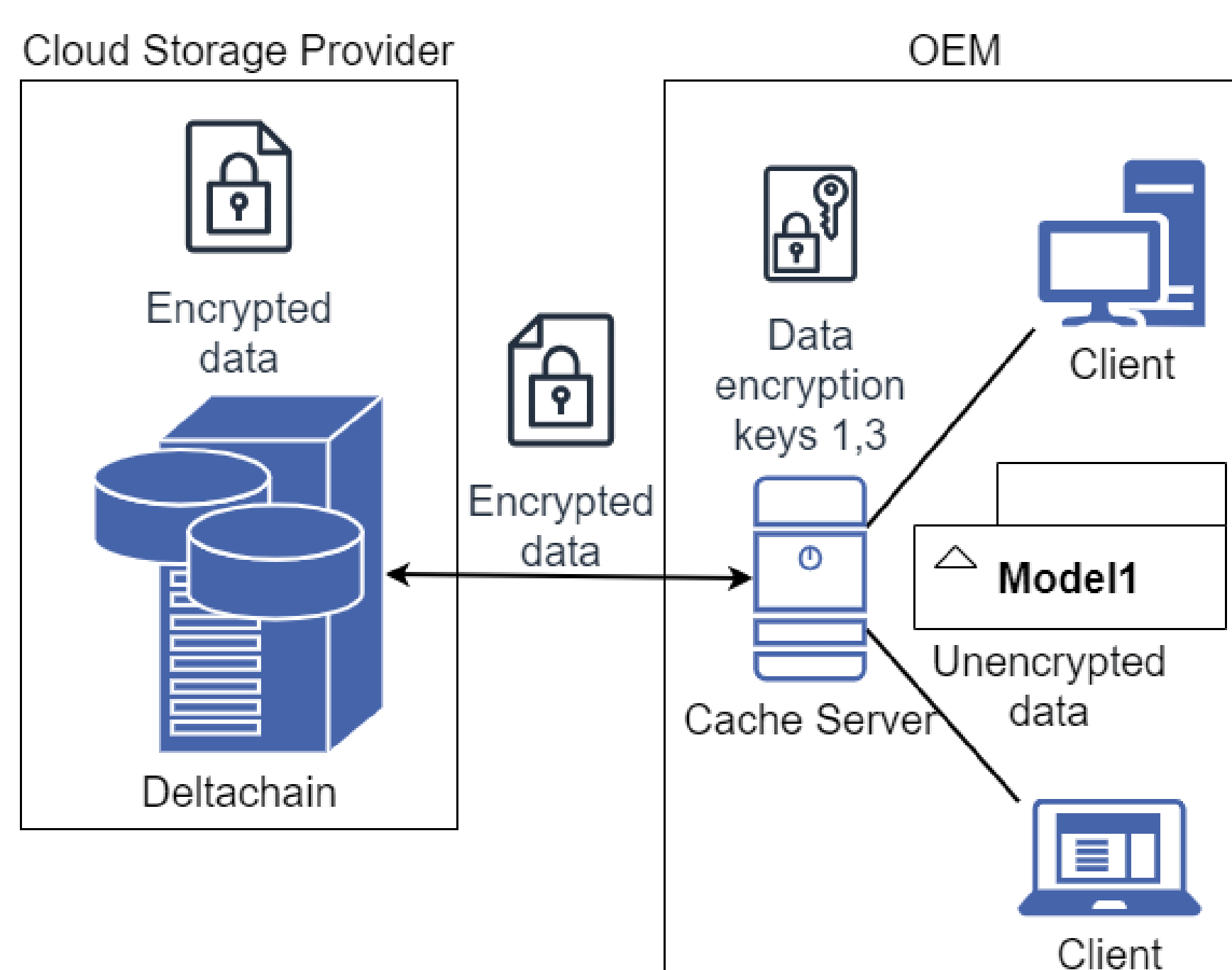
Impact

- More efficient system analysis process
- Enable agile threat analysis
- Simpler, more precise artifact sharing
- Improve cyber security resilience for vehicles

Research Activities and Results

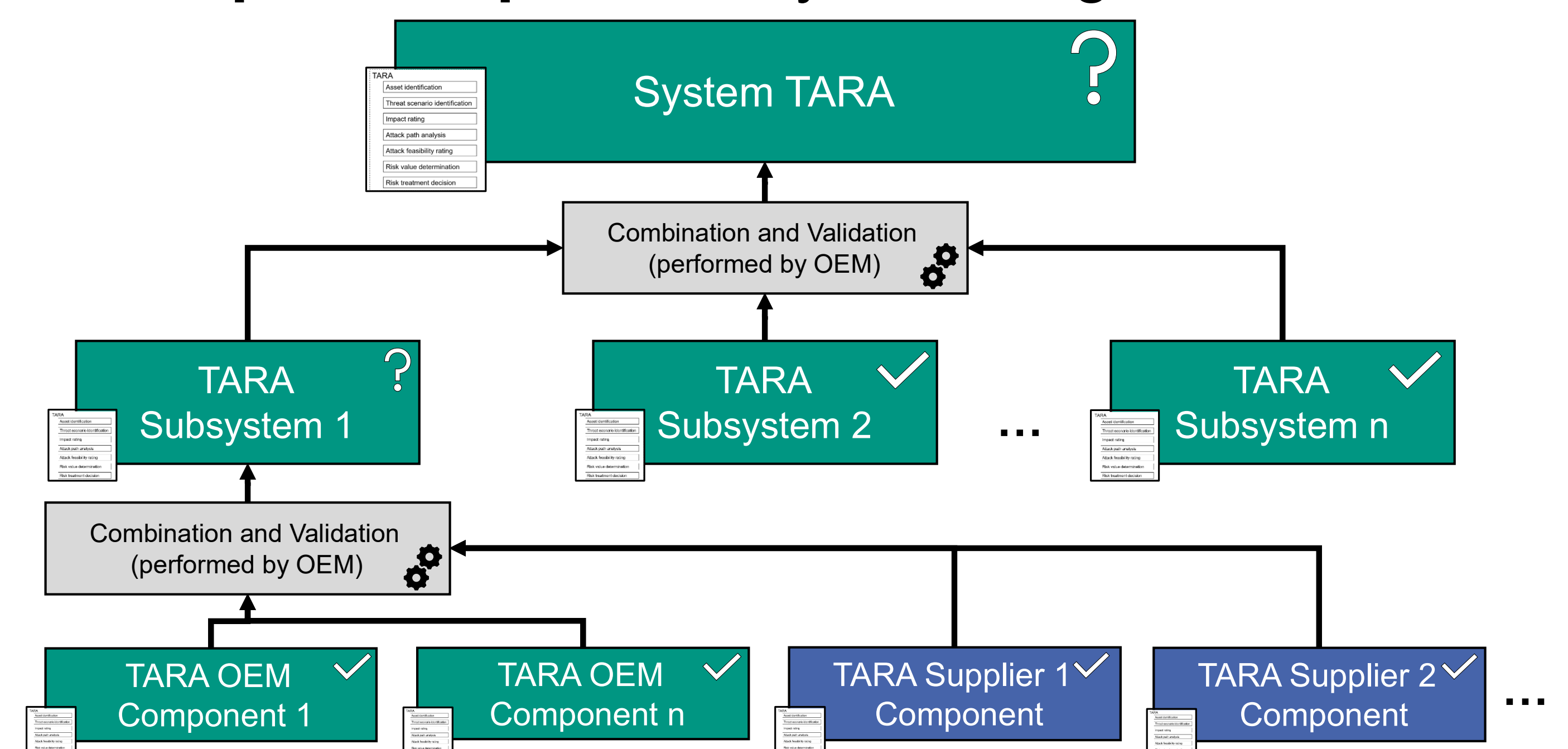
Infrastructure

- Use **encryption-based access control**
- Change-based model representations**
- Provide **infrastructure** for modularized TARA



Modularization

- Identify **system boundaries**
- Define **common model**
- Map **attack paths** to system diagram



Publications

- Weber, T., and S. Weber. "Model Everything but with Intellectual Property Protection-The Deltachain Approach." Proceedings of the ACM/IEEE 27th International Conference on Model Driven Engineering Languages and Systems. 2024.
- Weber, T., and S. Weber. "Towards a Single Source of Truth with a Freely Shareable Deltachain." 2024 IEEE 21st International Conference on Software Architecture Companion (ICSA-C). IEEE, 2024.

links to:

