

Interoperable Trust Assurance Infrastructure

Objective

Develop a dynamic and scalable framework to support **trustworthy** services and applications in heterogeneous networks and devices, based on the enforcement of interoperable and changing security policies

Addressing the needs of developers, integrators and operators

Rationale

- 🔔 **Using dynamic security Service Level Agreements:** the software services and components will interoperate communicating and sharing data in a secure trusted manner dictated by negotiated, common security policies
- 🔔 **Using advanced vulnerability detection techniques:** active and fuzz testing, to avoid security vulnerabilities introduced by the dynamic adaptation
- 🔔 **Using privacy-preserving negotiation and delegation mechanisms,** even in the presence of scarce resources. Integrating legal, social and economic constrains

Innovation

- 🔔 **New architecture** coping with **dynamic secure interoperability** by means of **Aspect-Oriented Programming (AOP)** techniques
- 🔔 New paradigms for **modelling secure interoperability policies**
- 🔔 **Combined techniques:** protection based on AOP, supervision based on monitoring and testing based on active and fuzz techniques
- 🔔 **Tools** to insure secure interoperability **in all phases** of software development

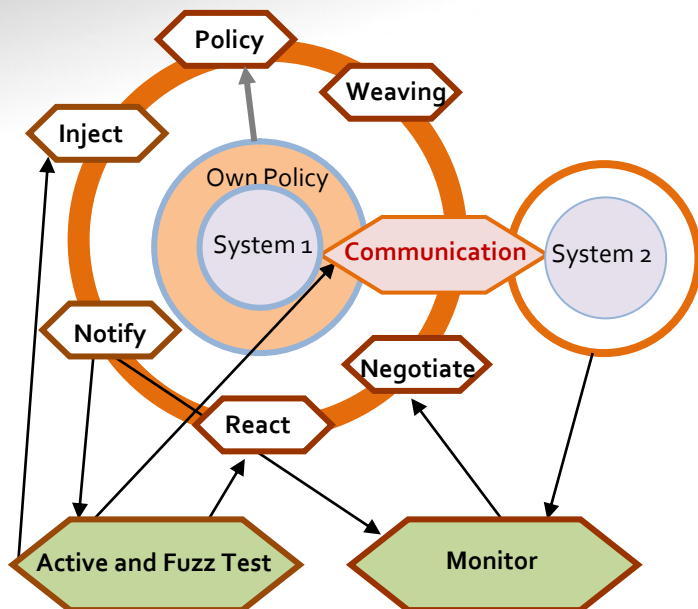
Case Studies

Two completely different case studies with complex, high-demand critical services

- 🔔 **Electronic voting,** to assure the required high level of trustworthiness for people voting from anywhere using a multiplicity of devices
- 🔔 **Vehicle-to-Vehicle** and **Vehicle-to-Infrastructure** Communications, to address the security needs in today's complex mobility scenarios for Citizens, Agencies, Mobility Services Providers and Car Manufacturers

INTER-TRUST Framework

How it works



- † **Modelling languages** to model security policies
- † **Negotiation/communication module** defines a common security **policy**
- † **Aspects Generation module** dynamically generates aspects
- † **Security Policy interpreter** interprets the negotiated policy
- † **Monitoring and testing modules** inject code for **active and fuzz testing**, generate traces (**Notify**) used by the **Monitoring** to generate warnings that will provoke the **Reaction** module
- † **Reaction module** performs protection and mitigation strategies
- † **Aspect Weaver module** weaves and un-weaves aspects

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