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Protecting Tactical Service Oriented Architectures

TACTICS (TACTICal Service oriented architecture) is a European project supported by EDA (European Defense Agency) and the corresponding ministries of defense of Finland, France, Germany, Italy, Norway and Poland. The project is undertaken by twelve main partners across these countries and additional subcontractors, both from industry and academia. The duration of the project is three years with initiation time at February of 2014 and estimated completion at April of 2017.

The main goal of the project is the definition and experimental demonstration of a Tactical Services Infrastructure (TSI) able to allow tactical radio networks (without any modifications on the radio part) to participate in service oriented infrastructures. The defined TSI must enable the radio networks to provide and consume both core and functional services. This must be feasible in cooperation with the strategic domain and independent of the user's location, while optimizing efficiency and robustness to disruptions and attacks.

A summary of TACTICS objectives, as presented in the project proposal, is:

- Propose the definition of a service-oriented architecture (SOA) compatible with the constraints of tactical radio networks,
- Suggest feasible ways of adapting services to the constraints of the tactical radio networks, and
- Demonstrate the capacity of a TSI to offer operational services in a real tactical environment.

-Proposal for EDA ad hoc B Program TACTICS

Under this scope, the role of NTNU is the study of security related aspects both in terms of a dedicated work package, but also in respect to other studied topics, such as service delivery,

routing, quality of service assurance and TSI definition. Some of the security related aspects studied by NTNU within TACTICS are:

- Monitor and advice on security related aspects/ requirements.
- Secure cross-layer network capabilities.
- Secure protocols and algorithms for robust distributed service storage, retrieval, and discovery.
- Secure, efficient and robust overlay routing with the incorporation of cross-layer information.
- Necessary enhancements for the optimized performance of routing and QoS mechanisms.
- Investigation of protection goals and requirements for tactical SOA.
- Robust and adaptable security policies for tactical SOA.
- Lightweight and dynamic protection mechanisms.
- Information filtering, classification and provenance assurance.

During the presentation for Finse winter school, these aspects will be analysed focusing on the definition of robust and adaptable security policies, dedicated to the constraints of tactical service oriented architectures. More precisely, the focus will be on the following aspects:

- Which are the constraints of the tactical environment?
- Which are the security requirements of tactical systems?
- How these elements can be consolidated within tactical security policies?
- Which additional requirements can be imposed by such an approach
    - Policy distribution
    - Policy reconciliation
    - Interoperability with other subsystems (e.g. Quality of Service)

This approach aims to highlight the main contributions of NTNU within TACTICS, as well as the corresponding scientific results, in conjunction with the identified shortcomings and utilized methods at each step.