

CLAUDIA - CLOUD INTELLIGENCE FOR DECISION MAKING SUPPORT AND ANALYSIS

This is a study funded from EDA Operational Budget. OB-Studies contracted by EDA are preparatory activities to catalyse pMS investments in related defence R&T.

Consortia/Organization



This EDA Framework Contract is examining the application of the cloud concept to Defence, referring to the outsource of IT services like computing capabilities, data storage or software tools to external companies for the sake of providing information superiority to the European armed forces.

Operationally, outsourcing these services has advantages related to efficiency and freeing organizations from infrastructure maintenance costs but raise questions regarding security and dependence from these service providers. Specific advantages for Defence are the flexibility that virtualization offers, the capacity of sharing and working with Big Data together with the frameworks and tools of AI and Data Science provided by this model. This is complemented by connectivity ubiquity and the inherent interoperability that the cloud provides.

Objectives

» Claudia is a Framework Contract running from 2019 to 2023. A first Specific Contract SC01 has been implemented from 2019 to 2021. Currently, SC02 and SC03 have been launched in January 2021 covering the topics of Tactical Cloud and Distributed Simulation.

» The objective of Claudia is to investigate several TBBs included in CapTechs Information and Simulation and to provide solutions to the different challenges posed by them. Claudia has already demonstrated in a Pilot Project the kind of performances that can be expected in the application of the cloud potential to Hybrid Warfare, exemplified in Open Source Intelligence (OSINT) analysis through cross cueing data sources. This activity provided new means to gather knowledge on the causes behind time data series and contributed towards improving Situation Awareness.

Work Strands

» The solutions that can be given to the TBBs under study have been developed in the form of six business cases.

- Management and processing info from heterogeneous sources
- Tactical Cloud infrastructure for C4ISR systems
- Information process enhancement by using AI and big data
- AI and big data for decision making support
- Joint strategic, operational and tactical level simulators
- MSaaS for synthetic environment and rapid scenario generation

» A demonstration has been made by showing a prototype of the Software Analysis (SWAN) platform with specific functionalities based on Microsoft Azure. The human interface displays a map where the data series are geo-referenced to their place of origin. The interface also leads the operator to different sources of data scrutinised by AI, like medical, energy, social networks or fake news, raising alerts to the operator and allowing to cross those data in order to obtain knowledge and improve both understanding and situation awareness.

» In the new specific contracts, the use of fog computing is going to be explored and tested. In parallel, the federation of simulators, including an Agent Based Simulator will be studied and demonstrated.

» Previous OB projects like ABIDE and MODSIMMET have contributed to the CLAUDIA development.

Way Ahead

» As this field of research opens up a broad portfolio of new projects, the way ahead has to be carefully defined. The successful implementation of the pilot project has shown the versatility and capacity that this concept offers and the potential for integration of dissimilar data sources.

» Future activities will include:

» Gathering requirements from potential end users to drive the direction of this tool.

» Extending cloud computing to the tactical environment in order to effectively move information processing closer to the war-fighter, enabling increasingly autonomous operations and enhanced functionality at the edge.

» Demonstration and integration of the fog computing concept in the SWAN platform based in the enterprise cloud.

» Establishing the distributed simulation capability based in the cloud and exploring the concept of Modelling and Simulation as a Service (MSaaS), enabling ubiquitous simulation services implementation.

» Based on the overall outcome of this framework contract, a future operational tool designed to support Member States and the Council in the intelligent management of data sources (open or classified) and aimed at enhancing decision making can be developed.

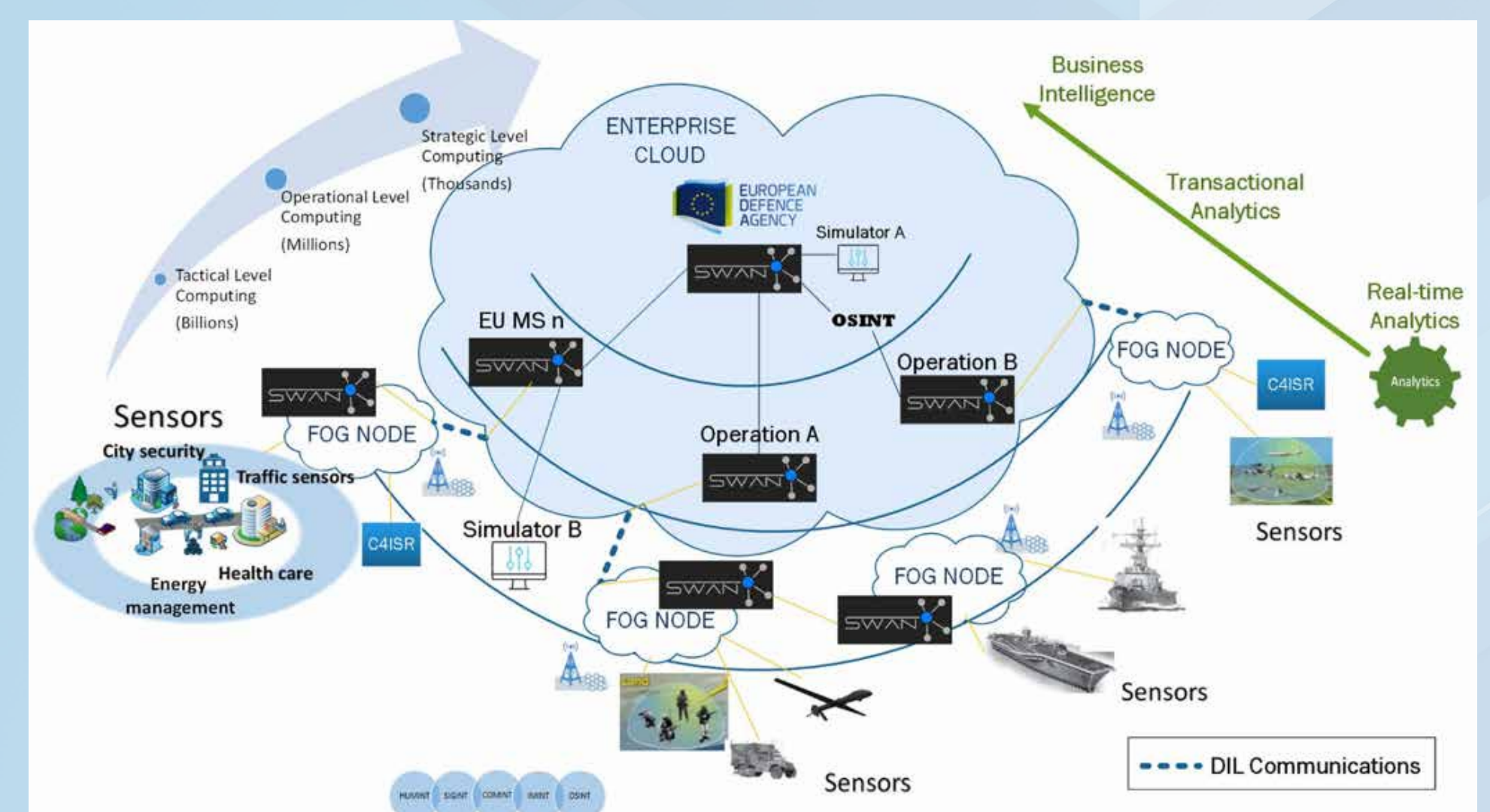
Link to TBBs, other CapTechs, and other links

CapTech Information

- OSRA TBB 65 Management and Processing Information from Heterogeneous Sources
- OSRA TBB 68 Tactical Cloud Infrastructure for C4ISR System
- OSRA TBB 70 Internet of Things (IoT) for Defence
- OSRA TBB 71 Information Process Enhancement by using AI and Big Data

CapTech Simulation

- OSRA TBB 129 Artificial Intelligence (AI) and Big Data (BD) for Decision Making Support
- OSRA TBB 132 Joint Strategic, Operational and Tactical level simulators
- OSRA TBB 133 Modelling & Simulation as a Service (MSaaS) for synthetic environment and rapid scenario generation



Claudia Overall Picture

Contact

Ignacio Montiel-Sanchez PO Information Technologies - CapTech Information
ignacio.montiel-sanchez@eda.europa.eu

Veronica Guidetti PO Emerging Technologies - CapTech Simulation
veronica.guidetti@eda.europa.eu