Tropos and SecureTropos

Tropos proposes a software development methodology founded on concepts used to model early requirements. In particular, the proposal adopts Eric Yu’s modelling framework, which offers the notions of actor, goal and (actor) dependency, and uses these as a foundation to model early and late requirements, architectural and detailed design. The methodology complements proposals for agent-oriented programming platforms. Tropos is derived from the Greek τρόπος, which means "way of doing things"; also τρόπος, which means "turn" or "change".

SecureTropos is an agent-oriented software development methodology, tailored to describe both the organization and the system with respect to both functional and security requirements. The key intuition is that in modeling security and trust, we need to distinguish between the actors that manipulate resources, accomplish goals or execute tasks, and actors that own the resources or the goals.

SecureTropos extends the Tropos methodology and has the concepts of actor, goal, task, resource and social relationships for defining the obligations of actors to each others. Requirements model and its refinement is accomplished by: Actor modelling, Permission Trust modelling, Execution Trust modelling, Execution Delegation modelling, Permission Delegation modelling, and Goal refinement.

Tropos models involve two different levels of analysis: social and individual. In the social level we analyze roles and positions of the organization, whereas in individual level the focus is on single agents.

The formal framework allows for the automatic verification of security and trust requirements by using a suitable delegation logic that can be mechanized within ASP.

Integrating ST-Tool and TAOM4E

The Tool for Agent-Oriented modeling for Eclipse (TAOM4E) is a visual modeler supporting the Tropos methodology. It has been developed as an extension (plug-in) of the Eclipse Platform in order to ensure highly-expressibility and standard compliance. The tool enables the specification of Tropos models that are compliant with a meta-model specified following the OMG’s MDA standard for interoperability, that is the Meta Object Facility (MOF), which allows to specify, build and manage technology neutral meta-models.

TAOM4E architecture follows the MVC paradigm and has been devised as an extension of two existing plug-ins:
- The Eclipse Modeling Framework (EMF) which offers a modeling framework for building applications based on a structured data model;
- The Graphical Editing Framework (GEF) which allows developers to create graphical editor around existing models.

TAOM4E is mainly composed of:
- model (M): implementing the Tropos meta-model exploiting EMF’s functionality;
- platform (VC): covering the visual modeling activity required to build and manage a Tropos model.

ST-Tool provide functionality not managed by TAOM4E (security-aware models and analysis capability), but given a common meta-model layer it is possible to envision a scenario in which the functionality of the former could be reused by the latter via a shared code approach. The capability of ST-Tool could become an extension of the TAOM4E one.

Compliance to the Italian data protection law

As a CIO, Alice delegates the Database security operator.

For further information:
http://www.troposproject.org