

## Model Based Software Development Lifecycle

The aim of the project is to help defining a model based software methodology, covering the entire lifecycle. Taking the TASTE toolset as a baseline, we explored the areas where lifecycle is not deeply covered by the toolset, selected available tools that cover some of these areas, integrated them into the toolset and evaluated their applicability into the space domain modelling a flight formation mission.

In particular, the toolset has been extended integrating the jUCMNav and RDALte tools and providing integration hooks with a WCET tool (rapitime).

The Eclipse/RDALte is a tool in which the user can create and analyze the requirements model using RDAL. Since the RDAL textual syntax (which will be AADL based) is not yet available, the Eclipse distribution provided has been modified to be able to create a textual representation of the requirements model. A new TASTE tool has been developed to link the textual representation of the rdal requirements with the current TASTE AADL objects. The tool modifies AADL model to add requirement references which, later, may be browsed from the Interface view tool.

Eclipse/jUCMNav is a graphical editor for modelling use cases using URN notation and representing them in form of scenarios. They are represented as a flow of responsibilities assigned to a subcomponent. Modelling scenarios may help in identifying and discovering new requirements, which contribute to the completeness of the requirements model. Scenario simulation may help to understand and validate the behavior of complex and dynamic systems.

Finally, a specific ad-hoc mission (Flight Formation) has been modelled using the extended TASTE toolset in order to evaluate the potentiality of rdal language and its integration with other TASTE models from the point of view of SW developers, system engineers and reviewers.

Presentation will focus on the advantages of Rapitime integration into TASTE, the use of the rdal language, and particularly the expressiveness of the Use Case Maps using the flight formation mission example.