Abstract:

Model-based development aims at reducing the complexity of software development by the pervasive use of adequate models throughout the whole development process starting from early phases up to implementation. Models are used by different stakeholders (from system integrators to suppliers) as the single development artifact. They describe the system both at different levels of granularity and from different points of view. Models can describe the whole system in a coarse grained manner as well as small parts of the system in high detail - specification models developed by system integrators are refined by suppliers, that can in turn be integrators of lower level functionality modeled a level deeper in the development hierarchy. Models describe the system from different points of view, each view concentrating on a particular kind of information that is relevant for describing interesting aspects of the system. For example, models of the system functionality are implemented by using models of the architecture that are subsequently deployed on models that describe the hardware. In this document we present a conceptual framework that holistically comprises models that are used for development of the software product and that are at different levels of abstraction. We do this by using adequate abstractions for different development stages while ignoring the information that is not relevant at a particular development step or for a certain stakeholder. The abstraction is achieved in terms of the granularity level of the system under study (e. g., system,
sub-system, sub-sub-system) and in terms of the information that the models contain (e.g., specification of functionality, description of architecture, deployment on specific hardware). We also present the relation between different models (that describe different views of the system or are at different granularity levels) in order to offer guidelines about their usage in a sound and disciplined manner. However, in this document we do not address the process to be followed for building these models.