Model Management for Multi-Paradigm Modeling for Cyber-Physical Systems

Dominique Blouin[1]

[1] Telecom Paris, Institut Polytechnique de Paris, France
dominique.blouin@telecom-paris.fr

Abstract Multi-Paradigm Modeling (MPM) is an approach to tackle the complexity of Cyber-Physical Systems (CPS) by modeling every aspects of a system explicitly using the most appropriate formalism(s) at the most appropriate level(s) of abstraction. With this approach, several modeling paradigms and their supporting formalism must be jointly employed to cover the heterogeneity of domains of CPSs. Managing these models is therefore essential to ensure that their interplay and the activities performed on them do not lead to inconsistencies, which can be the source of costly errors introduced during concurrent engineering. Despite its importance, model management is not yet well addressed. In this presentation I will introduce current approaches on model management and its application to Architecture-Centric Virtual Integration. I particularly focus on the challenges faced when applying these model management techniques to industrial modeling settings and present our ongoing work to address these problems.

Keywords model management, multi-paradigm modeling, virtual integration, model transformations