

A Generic Metamodel for Dependability Analysis

Authors : Moomen Chaari, Wolfgang Ecker, Thomas Kruse, Bogdan-Andrei Tabacaru

Abstract : In our daily life, we frequently interact with complex systems which facilitate our mobility, enhance our access to information, and sometimes help us recover from illnesses or diseases. The reliance on these systems is motivated by the established evaluation and assessment procedures which are performed during the different phases of the design and manufacturing flow. Such procedures are aimed to qualify the system's delivered services with respect to their availability, reliability, safety, and other properties generally referred to as dependability attributes. In this paper, we propose a metamodel based generic characterization of dependability concepts and describe an automation methodology to customize this characterization to different standards and contexts. When integrated in concrete design and verification environments, the proposed methodology promotes the reuse of already available dependability assessment tools and reduces the costs and the efforts required to create consistent and efficient artefacts for fault injection or error simulation.

Keywords : dependability analysis, model-driven development, metamodeling, code generation

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