Modeling Nonfunctional Requirements: A Basis for Dynamic Systems Management

Abstract:
The management of dynamic systems is an upcoming challenge for software engineers in automotive and other embedded systems. The complexity of current automotive computing systems is already difficult to handle for car makers and the expected growth in the area of electronic devices in vehicles will even intensify this situation. This paper presents a model based approach for enabling automatic configuration of distributed component oriented systems. Nonfunctional requirements and capabilities of software components and platforms are explicitly modeled and provide for well founded statements whether a component is able to execute on a certain platform or not. With application models and platform models the validity of a configuration is defined in this paper. The models even allow reconfigurations based on information regarding the actual system context like user behavior, backend or environmental sensor information.

Stichworte:
NFR, application model, capability, component, configuration, nonfunctional requirement, platform model, software management, system management

Dewey Dezimalklassifikation (Liste):