

Integrated refinement of non-functional requirements

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The goal of this workshop was to discuss how non-functional requirements, such as maintainability or performance, could be described quantitatively under consideration of different viewpoints (i.e., customer, supplier) and different abstraction levels (i.e., system, software). Non-functional requirements have to be investigated together with functional requirements and architectural decisions because there are different types of dependencies between them. Non-functional requirements constrain, for example, architectural decisions, whereas the architecture realizes functional and non-functional requirements and constraints functional requirements.

At first, we discussed the term “non-functional requirement” that is somehow ambiguous because it is used for various system properties. Therefore, research should determine the concrete non-functional requirements investigated. Then, we discussed how to handle different types of non-functional requirements, especially maintainability. Maintainability seems to be more difficult to measure than other types of non-functional requirements. Further on, we discussed how different precise descriptions of non-functional requirements might look. On the one hand, a non-functional requirement can be described more precisely without determining a certain solution (e.g., change of type x shall be performed in time y). Such a description is especially important for the customer. To get a more precise description of maintainability, a better understanding of the types of changes that may occur in the domain is required. Therefore, typical changes have to be anticipated and documented. Questionable was whether it is reasonable to document a certain time in which a type of change shall be performed because precise estimation of time is difficult. On the other hand, a non-functional requirement can be described more precisely with determining a certain solution (e.g., to ease change, each requirement shall be traceable to design and code). Such a description supports the supplier in achieving a non-functional requirement described by the customer.