A Property Based Workflow System for E-Theses

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Abstract

The process of electronic publishing nowadays is realized and supported by a multitude of tools, software components, and manual procedures. Especially for the purpose of providing value added services, enforcing well-defined formal and technical quality standards, and facilitating long-term availability of digital objects, each electronic document has to pass a diversity of work steps. While the more organizational parts of publication processes have been modeled and technically supported by specialized workflow systems – such as GAPWorks for the peer review process of electronic open access journals – technical procedures like document conversion (e.g. to XML, PDF), automatic checking routines, metadata registration and enhancement, generating digital signatures, etc. are often lacking sound interfaces and in many cases have to be executed manually.

Within the DFG funded SCOPE project (Service Core for Open Publishing Environments) we developed a generic workflow framework for publishing processes based on the award winning Open Source Business Library (OSBL) with its core component con:cern – an object oriented process engine following a rule-based modelling and execution approach. The framework supports the integration of nearly arbitrary software modules and facilitates complex publishing processes to be broken down into encapsulated, exchangeable units. The activation and execution of these so-called publication components depends on well-defined document properties – such as the correct application of a specific document style. Document properties in turn may be updated by the execution of components that actually change the document (i.e. conversion and transformation steps) or make attributes of the document known to the system (i.e. checking or validating steps).

In contrast to existing workflow and repository software the SCOPE framework realizes the integration of the organizational and technical workflow including its synchronous and asynchronous steps with (semi)automatic actions and those requiring user interactions. Using electronic dissertations as an example, the developed workflow framework shows its possibilities to help create efficient publishing processes and to comfortably control them by applying the con:cern approach: Manageability and scalability of workflows by a modular, self-organizing design.