Chapter 2.16

RapidOWL:
A Methodology for Enabling Social Semantic Collaboration

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ABSTRACT

In this chapter we give a brief overview on the recently emerging concepts of Social Software and Web 2.0. Both concepts stress the adaptive, agile methodological character of communication and collaboration. In order to lift the adaptive collaboration and communication patterns of Social Software and the Web 2.0 towards a truly semantic collaboration, we outline an adaptive knowledge engineering methodology–RapidOWL. It is inspired by adaptive software development methodologies from software engineering and emphasises support for small end-user contributions to knowledge bases.

INTRODUCTION

Examples from software development, communication and knowledge management show that the support for agile collaboration scenarios has an enormous potential for the reduction of resources, reducing development times and increase of quality. In software engineering, for example, the shift towards more adaptability in processes started long ago with methodologies like eXtreme Programming, Scrum and Adaptive Software Development. These individual approaches were later unified by the "Manifesto for Agile Software Development" (Beck et al. 2001). Subsequently, agile methods in software engineering led to the creation of complex software applications like the GNU/Linux operating system, the Web browser Mozilla Firefox, and the office software OpenOffice. But the success of adaptive methodologies is by far not limited to software engineering: just recently, adaptive communication methods of social software (such as blogs, the Jabber or Skype networks and platforms like LinkedIn) have enabled entirely new communication patterns. The domain of collaborative publishing and content management was revolutionized by blog and wiki technologies, which resulted in far reaching news networks without central control and made the creation of the most comprehensive encyclopedia possible, which is edited solely by volunteers - Wikipedia.

The aim of RapidOWL now is to take advantage of the potential of adaptive processes for collaborative Knowledge Engineering. The major aim of RapidOWL is to make the elicitation, structuring and processing of knowledge and thus the cooperation among domain experts and knowledge engineers more efficient. The RapidOWL methodology is based on the idea of iterative refinement, annotation and structuring of a knowledge base. Central to the paradigm for the RapidOWL methodology is the attention given to the smallest possible information chunks (i.e. RDF statements). The collaborative aspect comes into its own by allowing those information chunks to be selectively added, removed, or annotated with comments and/or ratings. Design rationales for the RapidOWL methodology are to be light-weight, easy-to-implement, and supportive spatially distributed and highly collaborative scenarios.

RapidOWL is, on the one hand, inspired by the XP.K methodology (eXtreme Programming of Knowledge-based systems, (Knublauch 2002)), which extends Extreme Programming to an agile methodology for the development of knowledge-based systems. On the other hand, RapidOWL is influenced by the Wiki idea (Leuf & Cunningham 2001}, which established agile practices for collaborative text editing. However, contrary to XP.K the RapidOWL methodology stresses the generic nature of a knowledge base and thus focuses on development of knowledge bases, whose final usage scenario is either not a priori known or a single usage scenario is not easily definable. This is usually the case for conceptualizations targeting at information integration as well as for shared classification systems and vocabularies. Different from the Wiki idea on the other side RapidOWL's artifacts are structured information and knowledge represented in statements rather than the Wiki's unstructured text documents. Wiki's are commonly seen as part of a development described by the terms Social Software or Web 2.0.

The concepts *Social Software* and *Web 2.0* were coined to characterize a variety of (some-times minimalist) services on the Web, which rely on social interactions to determine additions, annotations, or corrections from a multitude of potentially minor user contributions. Non-profit, *collaboration-centered* projects such as the free encyclopedia Wikipedia belong to this class of services, as well as commercial applications that enable users to publish, classify, rate and review objects of a certain content type. Examples for this class of *content-centered* Web 2.0 projects are del.iciou.us (for Web links), Digg.com (for news), Flickr (for images), YouTube (for movies). *Communication-centered* services such as MySpace or XING enable individual communication and search for and within spatially distributed communities. So-called Web 2.0 *mashups* integrate and visualize the collected data and information in novel ways, unforeseen by the original content providers. The most prominent examples of mashups are based on Google Maps and overlay external content on a map. All these developments have a common approach of collecting metadata by making participation and contribution as easy and rewarding as possible.

Even before Social Software and Web 2.0 applications emerged, prior attempts had been made to enable rapid assembly of data on the Web into more informative content: the most well-known such project is the *Semantic Web*, although researchers had been working on "information integration for the Web" for many years prior (Ambite et al. 1998, Garcia-Molina 1997), with very different methodologies but a similar end goal. The Semantic Web is conceived as an extension of the existing Web to enable machine reasoning and inference: a prerequisite to this is that "information is given well-defined meaning" (Berners-Lee, 2001). This approach is based on a standardized description model (Resource Description Framework, RDF (Lassila et. al, 1999)) and semantic layers on top for semantic nets and taxonomies (RDF-Schema) as well as ontologies, logic axioms and rules (OWL and SWRL). However, the Semantic Web is not ubiquitous to this point, in part because of the

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