

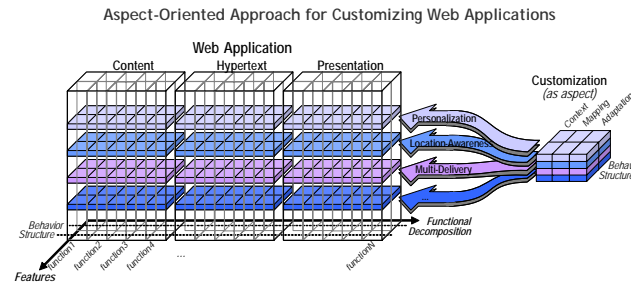
Motivation

- Facing a new generation of ubiquitous Web applications (UWA) due to the emergence of new access channels to the Internet
- Characterized by the anytime/anywhere/anymedia paradigm
- Services provided need to be adapted to a certain context
- Customization denotes the mapping of the context to the necessary adaptation
- One major challenge: model-driven development in order to counteract an ad-hoc, non-systematic, tool- and technology-driven approach
- Although some approaches for traditional Web applications exist, dealing with the ubiquitous nature of Web applications is still in its infancy



Problem

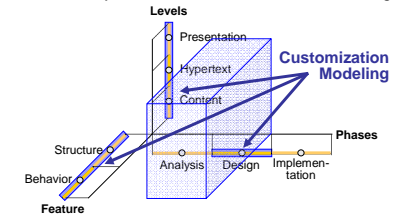
- Limited customization since focus is often on isolated context only and adaptation does not comprehensively support customization
- Intermingled representation of customization in current development methodologies meaning that neither a context model nor adaptation operations are modeled in an explicit, self-contained and extensible way
- Disregarded crosscutting nature influencing the two orthogonal dimensions of a Web application, namely *structure and behavior* for each Web application's levels, i.e., content, hypertext and presentation



Hypothesis

- Aspect-orientation has been proven as a promising mechanism providing a new way of modularization by clearly separating crosscutting concerns
- If applied to customization modeling, aspect-orientation prevents an intermingled representation by particularly taking into account customization's crosscutting nature

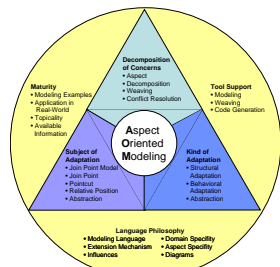
Dimensions of Aspect-Oriented Customization Modeling



Methodology

- Investigation of the state-of-the-art through structured evaluation frameworks
- Re-use of common concepts through abstracting them to a higher-level reference architecture
- Definition of an aspect-oriented modeling (AOM) language on basis of a standard modeling language
- Application to well-established Web modeling language
- Evaluation of the proposed approach through a case study with domain experts

Evaluation Framework for Aspect-Oriented Modeling



References

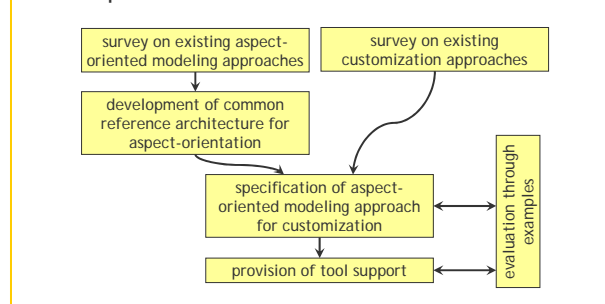
- Baumeister, Knapp, Koch, Zhang. Modelling Adaptivity with Aspects. Conf. on Web Engineering (ICWE05), Sydney, Australia, July 2005.
- Zhang, Baumeister, Koch, Knapp. Aspect-Oriented Modeling of Access Control in Web Applications. Workshop on Aspect Oriented Modeling (AOM), Chicago, USA, March 2005.
- Schauerhuber, Schwinger, Retschitzegger, Wimmer. Towards a Common Reference Architecture for Aspect-Oriented Modeling. Workshop on Aspect Oriented Modeling (AOM), Bonn, Germany, March 2006.
- Schauerhuber, Schwinger, Retschitzegger, Wimmer. A Survey on Aspect-Oriented Modeling Approaches. Technical Report, Vienna University of Technology, January 2006.

Goal

Investigation of the applicability of aspect-orientation and proposal of an aspect-oriented approach for modeling customization in the realm of ubiquitous Web Applications

- Identification of the requirements for comprehensively covering customization
- Proposal of an aspect-oriented modeling approach for UWAs
- Contribution to a common understanding of aspect-orientation
- Evaluation of applicability
- Provision of tool support
- Identification of the potential of existing aspect-oriented modeling approaches

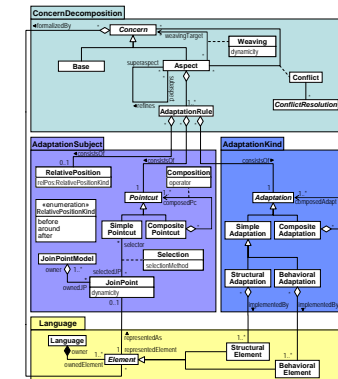
Workplan



Closely Related Work

- While the majority of aspect-oriented modeling (AOM) approaches is designed as general-purpose languages with respect to the application domain Baumeister et al. / Zhang et al. propose an approach specific to the Web application domain specializing in the Access Control aspect and Adaptive Navigation Aspect

Common Reference Architecture for Aspect-Oriented Modeling



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