Reconstructing the Blade Technology Domain with Grounded Theory

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Abstract. Domain models are often reconstructed from different resources and contain domain elements, their properties and relationships. Ideally, the domain creation process is made transparent, so that each decision in the creation process can be traced back to the original source. One way to reach this goal is to use qualitative content analysis methods, e.g. the Grounded Theory. In this paper, the Grounded Theory is applied to the domain of IT infrastructures especially the blade technology and shows the necessary steps to extract a domain model from arbitrary documents.

Key words: Grounded Theory, IT infrastructure, blade technology, domain engineering

1 Introduction

One central question in domain engineering focusses on how a domain model can be extracted from a given field of application and/or its context. Starting from various definitions of the term “domain” e.g. [2, 11, 6, 12] it can be stated that many authors assume that most domains already exist. The domains are often implicitly given or hidden in various documents (e.g. specifications, requirement documents, textbooks, source code, and/or standards) and very well known and understood by domain experts. The challenge for domain language creators therefore is to externalize this knowledge from given sources and to build a widely accepted model with an appropriate abstract and concrete syntax.

One way to externalize this knowledge for a domain model (or product family) are commonality and variability analysis [11]. Both methods require existing products and/or product families, which are compared and result in a list of domain elements as well as a list of variation points. In [11] three different kinds of commonality and variability analysis are proposed: (1) The application requirement matrix based analysis contrasts a list of requirements with different products and marks requirements as mandatory or optional for a given product. If all products have the same mandatory requirement, the requirement belongs to a domain. (2) The priority based analysis involves different stakeholders in