Industrial Keynote — Feature Modeling in an Industrial Context

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The topic of feature modelling has recently been at the centre of intense research work, particularly in the domain of telecommunication systems. A feature can simply be defined as a capability or value which the user is willing to pay for. Mobile telephones, in particular, are heavily feature-oriented products, and features drive product scoping. Mobiletelephone manufacturers have striven to diversify their products for different markets, user interface styles and user categories. The result is a product line where variability spans in several dimensions. The scene is rendered more complex by the fact that the links and interactions between different features are built into the user interface software. This is inevitable in all embedded, resource-constrained products. Since product lines are scoped mainly by mapping the various product features, the need of some kind of formal feature modelling emerges. At Nokia we tackled the problem with different approach angles, one of them being textual feature description.

Use case description seems to work best when done with the aid of textual tables. This renders use case descriptions easy to understand (even for non-experts), tool-independent and maintainable. We follow Alistair Cockburn's approach in use case modelling. I devised a textual template for feature descriptions on the wake of the one we use for use cases. The adoption of such a description method has the same advantages as the one for use cases, with the (relevant) additional one that people are used to such kind of descriptions, and little extra training is needed.

In this talk I discuss the current practice in our organization with feature modelling for product lines, and bring up a number of open research issues. In particular, I face the issue how to link feature description with product configuration. I also discuss the problems of maintaining feature descriptions for large and complex systems, such as mobile phones.