

Comparison of Service and Software Product Family Modeling

Mikko Raatikainen, Varvana
Myllärniemi, Tomi Männistö

Helsinki University of Technology
Finland



Agenda

- Problem
- Modeling in software product family
- Modeling in Services
- Comparison
- Conclusions
- Question specific to this paper



Problem

- Similarities in software product families and service oriented computing
 - Both aim at efficiently developing application from existing pieces of software
 - Both rely on models
 - But also differences
 - Typically services are dynamic computational elements
 - Typically software product families deal with static elements
- we discuss the similarities and differences in service oriented computing modeling and software product family modeling



Software Product Family Modeling

- Domain model including variability and product model to express the product of a software product family
- Several approaches to model variability
 - Specific approaches for variability modeling
 - Extension to existing approaches such as UML
 - Variability models to augment existing models



Service Oriented Computing Modeling

- Dominated by web service initiatives
- Basic concepts relatively mature such as WSDL
- Advanced concepts not as established
- Typically driven by different standards, such as WSDL and BPEL



Comparison

- No domain or variability modeling in services
- Service typically composition whereas software product family decompositional
 - No technical reason to do the opposite
- Both focus on architectural level concepts
 - Services typically dynamic elements whereas components static
- Composition, interfaces, and connections in both approaches



Comparison

- Notations in software product families typically graphical whereas in service XML-based
- Service modeling driven by standards, whereas in software product families plethora of approaches
- Services focus on dynamic aspect and stakeholders relevant to that whereas software product family adhere to different architectural viewpoints



Conclusions

- Feasibility of variability modeling in services
- Behavior modeling and analysis of services in software product families
- The actually needed concepts for modeling of services and software product families
 - Different viewpoints in services
- Unify variability modeling concepts
- Apply and reuse the modeling methods from other approaches



Question specific to this presentation

Are there detailed examples or a comparison of models, e.g. feature models vs. SDL/BPEL/BPMN

- To best of our knowledge modeling in the approaches has not been compared before
- We have tried to apply our software product family modeling tools (KumbangTools) to service composition
 - To some extent feasible
 - Not suitable for complex behavior



Thank you!

Questions?

mikko.raatikainen@tkk.fi

