In the Modeling of Software Product Line

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The Software Product Line (SPL) is an emerging methodology for developing software products. SPL has two main processes, the domain-engineering process and the application-engineering process. Collecting software assets regarding a specific business area is a domain-engineering consciousness. The process of presenting the software assets (in domain engineering) is called variability modelling. The principal objective of application-engineering is to configure a successful specific software product from the domain-engineering process by managing SPL assets using variability modelling technique.

Hence, the main challenge in domain engineering is the representation of software artifacts and the dependency constraint relations between them while the main challenge in application engineering is the configuration of a correct software product. To ensure the correctness of the generated software product from application engineering, user or developer should evolve in the process. Therefore, the applicable and suitable model of SPL should handle these two challenges in addition to supporting Visualization.

As a conclusion, the successful SPL modeling technique should be able to:
- Represent all software artifacts in the domain engineering;
- Provide an interactivity during the configuration process;
- Have an ability of extending. Developing SPL is dynamic, and continuous process where new software artifacts might be added from time to time.
- Have an ability to represent the lifecycle of SPL: design, implementation, and testing.
- Support Visualization

Selecting the suitable modeling technique is the most important and first decision that should be considered when there is a plan for developing SPL. Nowadays, in both academic and industry, there are many working SPL models that could support one or more of the successful modeling criteria. And according to the best of our knowledge, still there is a critical need for finding one model that can achieve all issues of successful modeling criteria in SPL community.
References


