Novel Architecture for Executable UML Tooling[1]

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Executable UML[1] models define both behavior and structure of software. These models can be executed, debugged and tested independently of the target platforms, providing early validation[2]. Model compilers translate them to efficient, platform-specific target code.

Providing a practical toolchain for large scale executable UML modeling in industrial setup is challenging: version control, compare and merge functions, convenient editor, debugging support, high quality diagrams and model compilation need to be provided. On the other hand, the toolchain should be lightweight for scalability, stability and for low tool development costs.

In this paper we propose an architecture for executable UML modeling to achieve these goals using a text-based approach[3]. We discuss how technologies like Xtext[4] and Xbase[5], language embedding, JDT and Papyrus UML[6] can be integrated into a practical toolchain to design, debug, visualize[7] and translate models. The proposal is based on working implementation: *txtUML*[8], which is now used in a pilot project by our industrial partner.

References

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