Reengineering Tools: A Perspective from the Trenches

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Abstract

Software systems are growing in size (tens of millions of lines), complexity (application, number of languages and implementation technologies involved), and age (decades). The larger the size, the larger the investment, and the more important it becomes to preserve that investment. As with remodeling houses, demands for new functionality and the need to integrate with newer technology often require massive changes to the software base. These two factors suggest that massive software remodeling will become long-term steady-state phenomena for these systems. Software change scale suggests that automation is necessary to accomplish this remodeling.

Semantic Designs has been building the DMS ® Software Reengineering Toolkit to support these kinds of tasks in commercial contexts. DMS consists of a set of integrated compiler-like technologies, composed to solve custom reengineering problems. Scale and integration are a key theme. This talk will examine some applications of DMS (e.g., to large C and C++ systems) to motivate the technologies behind DMS. It will sketch the technologies used and their shortcomings in functionality, scale and usability, and suggest future directions. The talk should be of wide interest to reverse- and re-engineering researchers by exhibiting needs driven by very practical concerns.