

Implementation and Performance Optimization of SCM Adapters

Summary

Many organizations adopt inner source (utilization of open source development practices within an organization) to develop software more efficiently. Collaboration in inner source can be quantified by measuring the so called patch-flow (flow of patches across intra-organizational boundaries). We developed a Java tool (the patch-flow crawler) that uses source code management (SCM) adapters to measure the patch-flow from SCMs. Currently, crude adapters for Git and TFS' exports are existing.

In this project, the student will develop new adapters for Git and TFS and evaluate the performance of both the newly implemented and the existing adapters.

Work Results

- Literature review
 - Load and performance measurement and evaluation
 - Measurement, extraction strategies for and crawling of SCM data
- Thesis methods
 - Design and implementation work in Java
 - Extension of the patch-flow model to have data about patches' file changes
 - Investigation of existing open source solutions (and potentially integration)
 - Implementation of TFS and Git adapters using their APIs (not export files)
 - Extensive (!!!) use of existing open source components, documentation using SPDX
 - Performance evaluation (runtime, RAM usage, HDD usage)
 - Iterative optimization of student's implementation
- Thesis results
 - SCM adapters for TFS and Git
 - Performance (runtime, RAM usage, HDD usage) optimized
 - Properly tested (automated unit and integration tests)

Supervisor

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