15-745 Optimizing Compilers
Project Milestone

Symbolic Execution in Difficult Environments

David Renshaw
renshaw@cmu.edu

Soonho Kong
soonhok@cs.cmu.edu

April 14, 2011

This project is hosted at `http://code.google.com/p/cmu15745/`.

- Goal:
  1. Extend KLEE's filesystem model to support directory hierarchies. Currently, it only supports a flat filesystem.
  2. Extend KLEE's filesystem model to always handle filesystem operations symbolically. Currently, it distinguishes concrete files and symbolic files.
- Major Changes : None.
- Accomplishments So Far
  - Understand KLEE internals.
  - Design the strategy for each goal and start implementation.
    1. For the first goal, we figure out that KLEE only models C standard APIs for file-level operations in `stdio.h`, such as `fopen` and `fclose`. We are extending the POSIX library for directory-level operations, especially functions in `/sysdeps/linux/common/bits/dirent.h` of μ`Clibc` library.
    2. For the second goal, we are modifying the current implementation of the KLEE's file-system model in `klee/runtime/POSIX`.
  - Build an environment and scripts to reproduce the `coreutils` results of the KLEE paper so that we can easily compare the performance of our version of KLEE with the original one.
- Meeting Our Milestone : We are almost on schedule. We found ways to achieve the goals. Implementation takes more time than we expected. But we already finished the process for experiments and evaluation so that we can save time for that.
- Surprises : Not much.
- Revised Schedule

	Week	David Renshaw	Soonho Kong
5	(4/13 - 4/19)	Implementation of the goal 2	Implementation of the goal 1
6	(4/20 - 4/26)	Write documentation	Perform Experiments

- Resources Needed : We have all the resources needed, including LLVM suite, KLEE source code, and coreutils benchmark