Vrije Universiteit Brussel

Proposal bachelor thesis

Title: Visualizing DVM Execution Traces

Promotor: Wolfgang De Meuter

Includes preparation course: ~~Yes~~ / **No** (Select the correct option)

Context

Dataflow is a computing paradigm that has the ability to automatically parallelize a given input program. A prototypical virtual machine called *DVM* (Dataflow Virtual Machine) has been created at SOFT to experiment with the highly parallel execution that such a machine offers. However, detecting errors that may occur while running a program on DVM can only be done after a program has finished executing. Doing this is only possible by investigating the logs that DVM generates, which are often long and tedious to read.

In order to support further work on DVM, we propose to create a graphical application. This application will visualize the logs that DVM generates, and allows users to explore this data in a visual, interactive manner. Since DVM is still very much a work in progress, this tool should be modular enough to support various input formats and visualizations.

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The goal of this project is to create a tool which allows the user to visualize the execution of a dataflow program on DVM. Concretely, the creation of this tool will involve the following steps:

- Parse DVM's logging output.
- Parse the (low-level) source of the program that DVM executed.
- Create an abstract internal representation of the data obtained from the parsing steps.
- Visualize the dataflow program as a graph
- Utilize the parsed logging output to showcase the state of the dataflow program at a given point in time. This encompasses the visualization of the data travelling through the program graph and the state of the various parts of the execution engine.
- Allow the user to use your tool to step through the execution of the dataflow program.

Contact

Mathijs Saey
Email: mathsaey@vub.ac.be
Office: 10F722