Summary
Whole Program Paths

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1 To be completed before class

What are the problems solved by this paper? (50 words)

Program Paths give the dynamic behavior of a program by listing the sequence of basic blocks executed sequentially. Previous path profiling algorithms captures only short acyclic paths ending at function calls or loop boundaries. There by limiting the optimizations that can be performed on a hot path.

What are the approaches attempted by this paper? (50 words)

This paper proposes a new approach to obtain the whole program path in two phases as described. In the first phase, a trace of the acyclic paths is produced and in the second phase, the trace is compressed using an enhanced version of the SEQUITUR algorithm to produce a compact and usable grammar. The program is then analyzed to identify hot paths which are later used for optimization.

What are the main conclusions of this paper? (50 words)

The WPP is a dag representation of a context free grammar that generates the programs acyclic path. The overhead of the path profiling instrumentation and WPP processing are moderate and the traces generated are used for finding hot subpaths in WPP. WPP exposes large-scale optimization opportunities that cross procedure and module abstractions. The authors claim that WPP can be used for detecting program errors that do not manifest as erroneous outputs.

2 To be completed after class

Did this paper address an important issue? Explain. (100 words)

Are the proposed approaches valid? Describe its strength and weakness. (100 words)

Do the results support the conclusions? Explain. (100 words)

Describe the potential future works? (100 words)