TFP: Time-sensitive, Flow-specific Profiling at Runtime

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Abstract

Program profiling can help performance prediction and compiler optimization. This paper describes the initial work behind TFP, a new profiling stragegy that can gather and verify a range of flow-specific information at runtime. While TFP can collect more refined information than block, edge or path profiling, it is only 5.75% slower than a very fast runtime path-profiling technique. Statistics collected using TFP over the SPEC2000 benchmarks reveal possibilities for further flow-specific runtime optimizations. We also show how TFP can improve the overall performance of a real application.