



Simulation-Based Tracing and Profiling for System Software Development

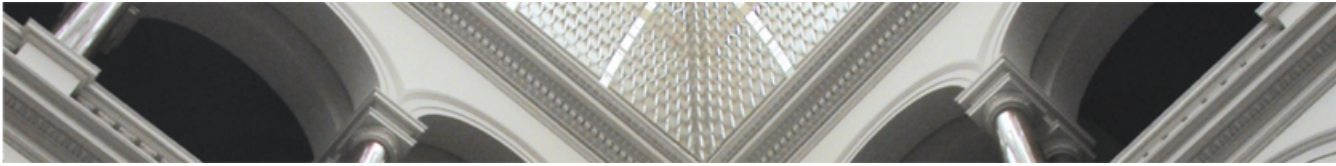
Anselm Busse, Reinhardt Karnapke, and Helge Parzyjeglja | SYSTOR 2017 | Haifa 2017-05-22



Motivation

Tracing and profiling is crucial to system software development

- State of the art is in-system tracing (e.g. Perf)
- Shortcomings regarding precision and bias
 - Tracing overhead
 - Data collection and storage
- Results may not be deterministic
- Not everything is traceable



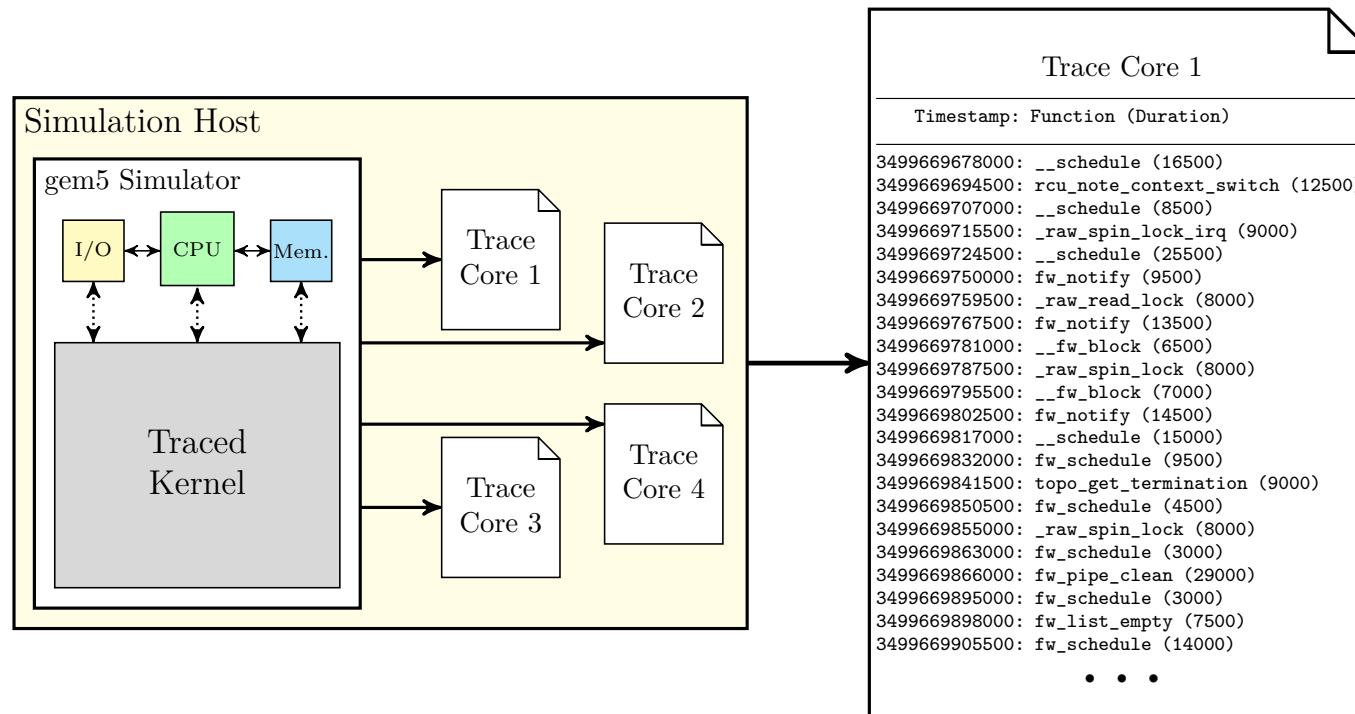
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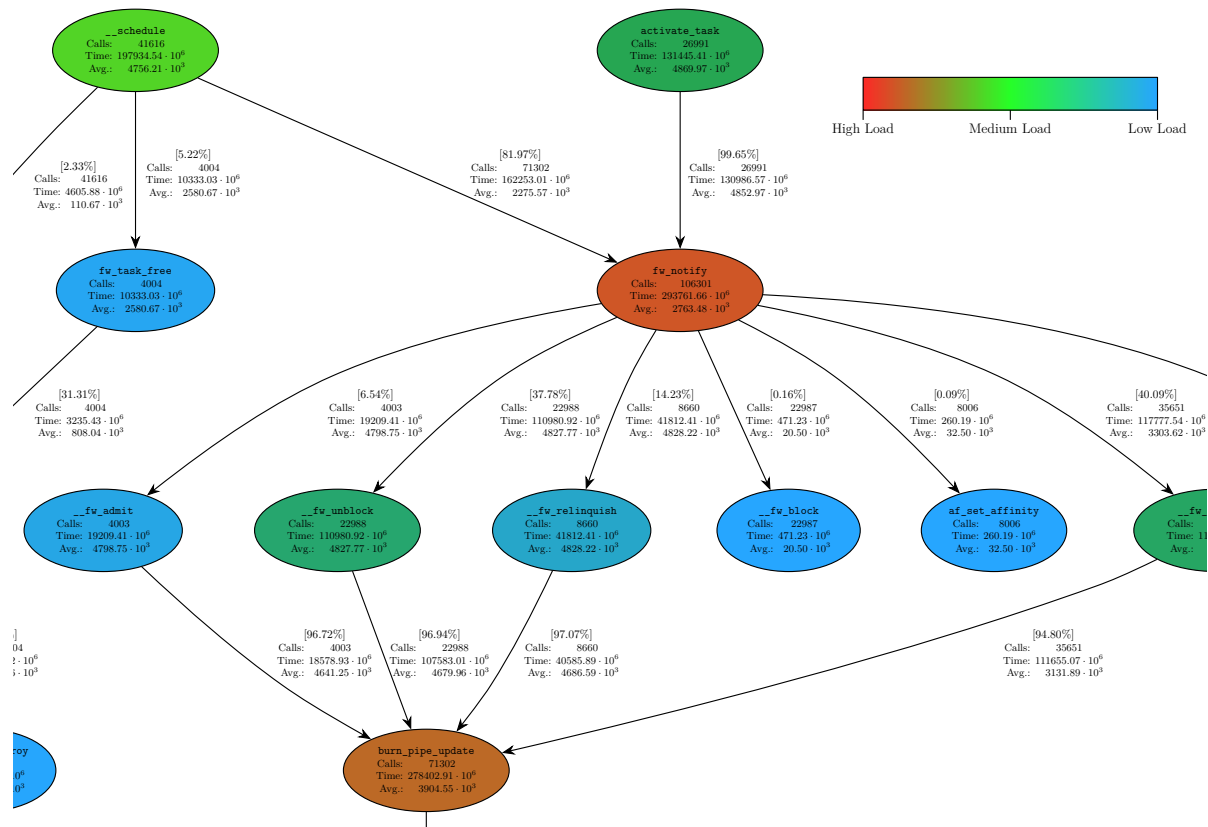
An outside view might have better and more precise results!

Simulation Based Tracing Setup

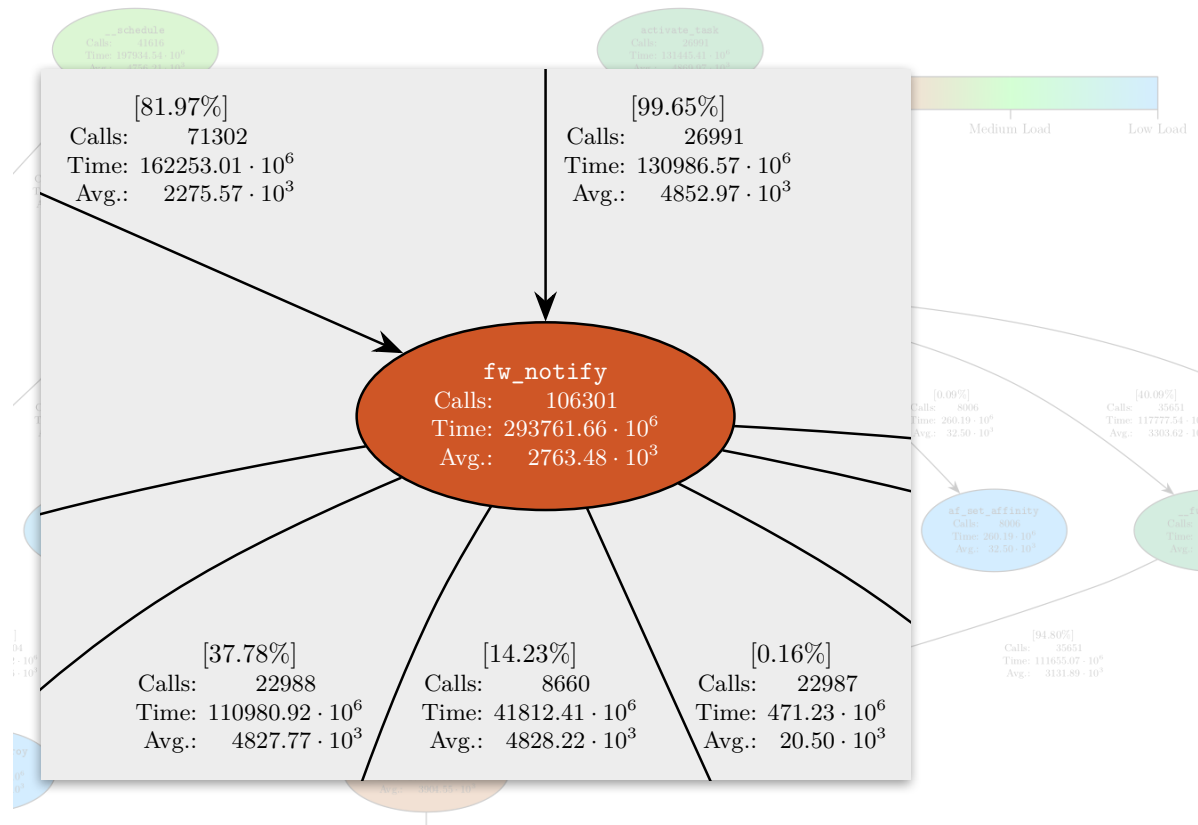


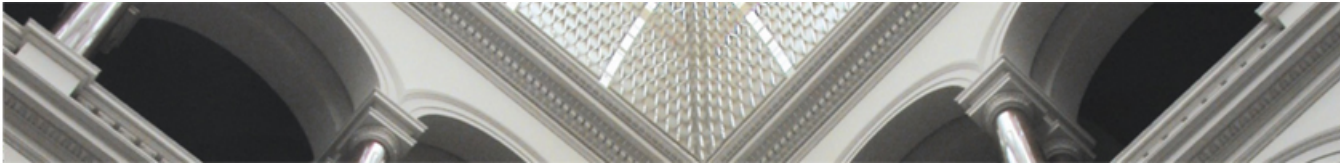


Annotated Call Tree



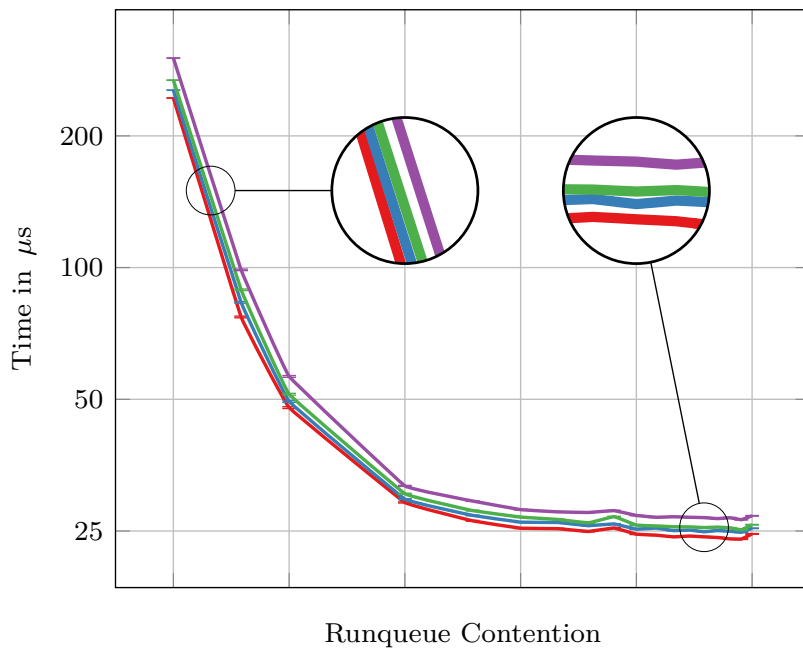
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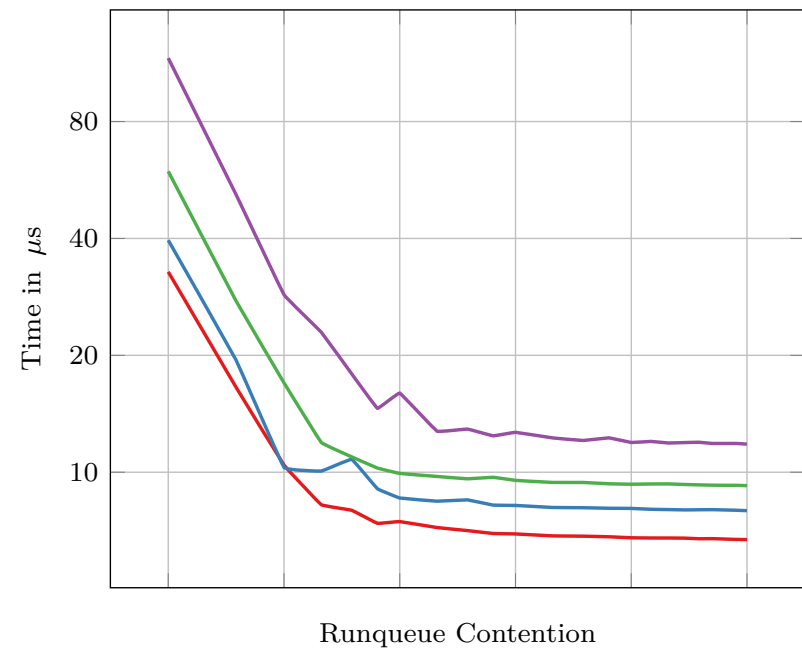


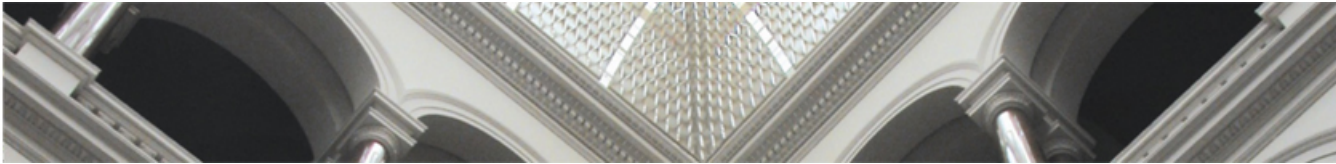
Measurement Precision

Perf



Simulation Based





Conclusions and Future Work

Simulation-based tracing and profiling has several advantages

- Little to no measurement bias
- Deterministic execution
- No in-code tracing facilities necessary

Future work may include

- Further performance characteristics (e.g. cache-misses)
- Improved data post-processing
- Extension to a complete tracing and profiling framework