

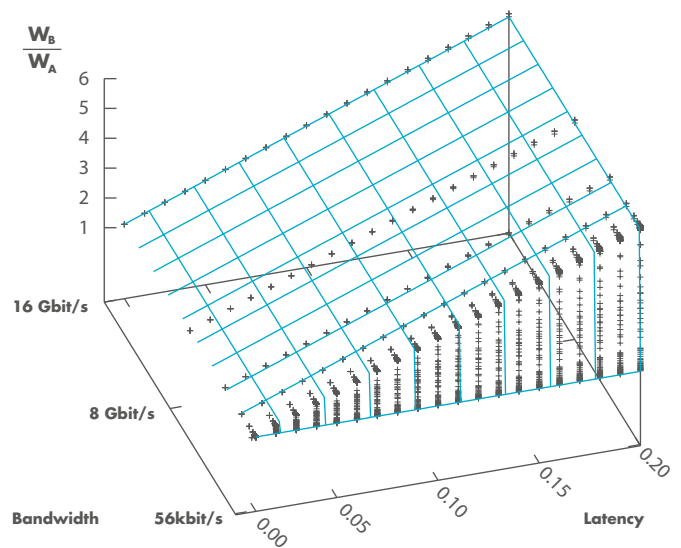
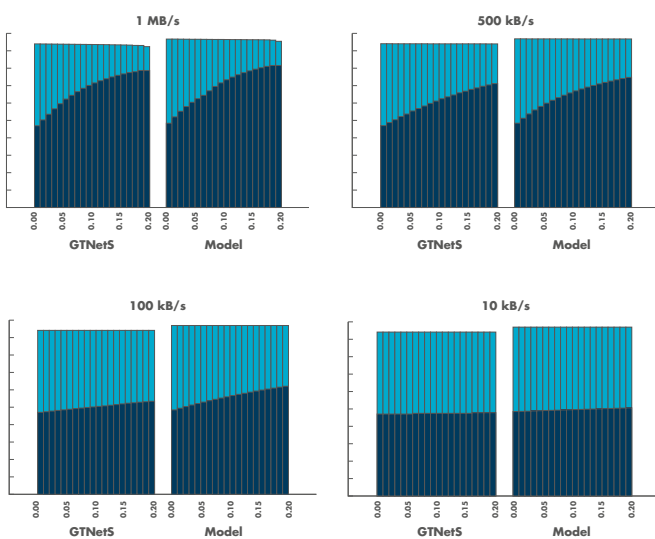
_____ Want to know what is **under the hood**?

_____ Feels like a **future developer**?

_____ Hey, it's **open source!** ;)

- + “Validated” models (at least, we tried to invalidate them! ;)
- + Scalable, compact and hierarchical execution environment description and modeling
- + Fast (clever and ad hoc C data structures)
- + Modular (easy to switch from one model to another or compose models)
- + Built-in and extensible event-based resource utilization trace

SimGrid vs. Packet-level simulator (GTNetS)



References

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- P.-N. Clauss, M. Stillwell, S. Genaud, F. Suter, H. Casanova, and M. Quinson.
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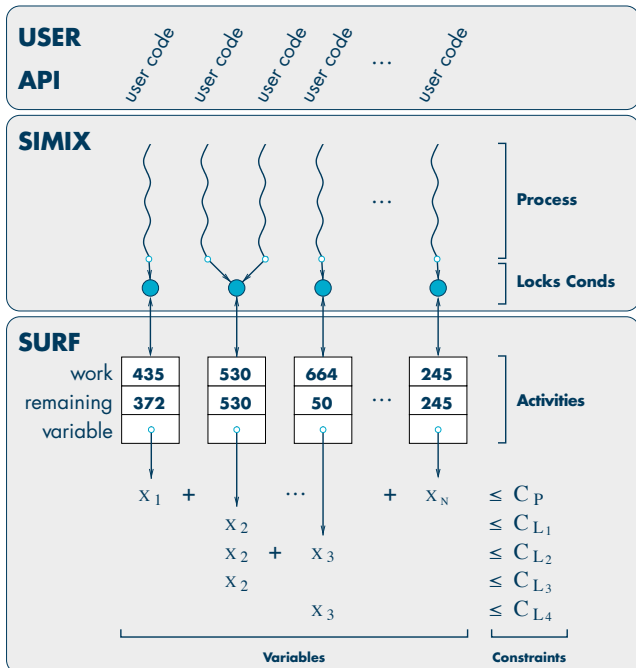
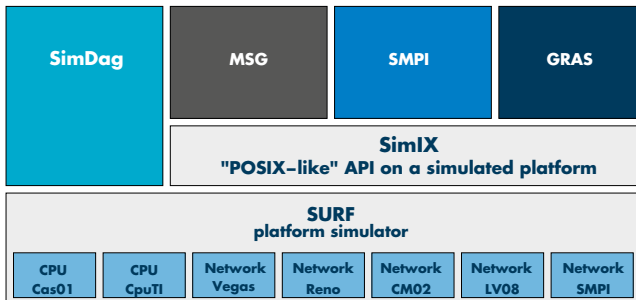
Fast simulation kernel

- + Highly optimized C code and efficient data structures
- + Fast context switching between user processes (re-implementation of System-V like contextes in ASM)

Parallel simulation

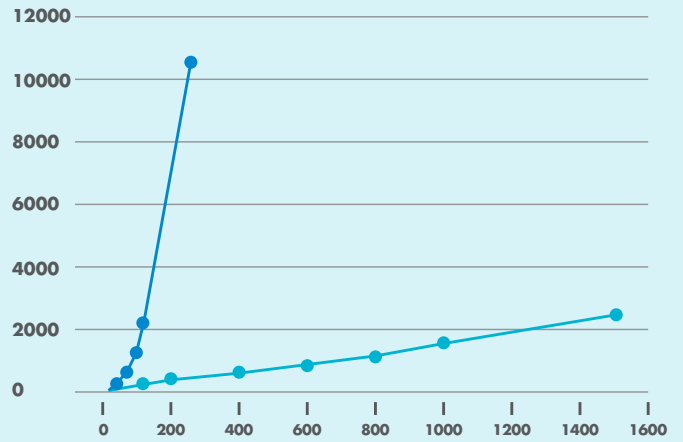
- + User processes can be executed in parallel
- + Multi-threading architecture inspired from operating systems with system calls
- + Interaction with the sequential simulation kernel through system calls

SimGrid's internal organization and simulation process



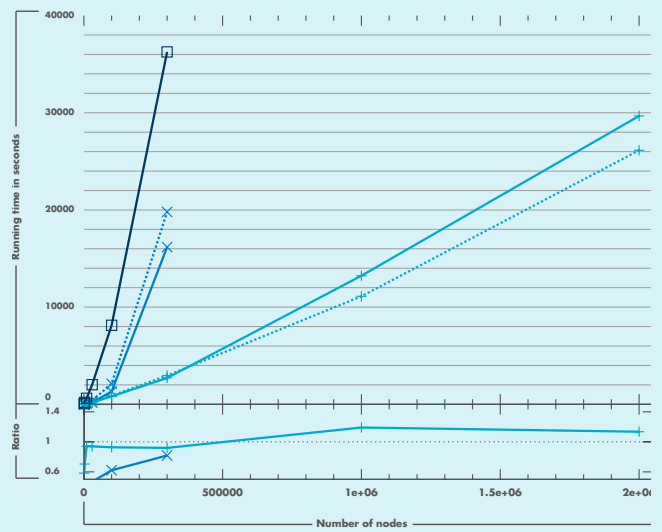
Success stories

- + Invalidate state-of-the-art TCP models
- + Much faster than other simulators



Package performance

x. File transfers X1000
y. Execution time (sec.)



- Oversim (simple underlay)
- × Precise network (0.00001), sequential
- × Precise network (0.00001), parallel
- + Precise network (0.1), sequential
- + Precise network (0.1), parallel