Sampling-based Steal Time Accounting under Hardware Virtualization

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Steal Time

Hypervisor must suspend virtual CPUs:

Goals:

- get per-thread steal time and adjusted resource usage
- within VM, unmodified hypervisor and guest OS
Steal Time Accounting Approach

Reported total CPU times

Steal time

Corrected CPU time
Aspects

Hypervisor suspension changes over time
Aspects

Hypervisor suspension changes over time

Multiple virtual CPUs
Aspects

Hypervisor suspension changes over time

Multiple virtual CPUs
Experimental Evaluation

openSUSE 13.1, physical quad-core CPU, four virtual CPUs per VM, Oracle JDK 8u20, DaCapo 9.12
**Compensation of Steal Time**

DaCapo 9.12 benchmarks

No load
- Under load, steal time accounted
- Under load, steal time unaccounted
Questions