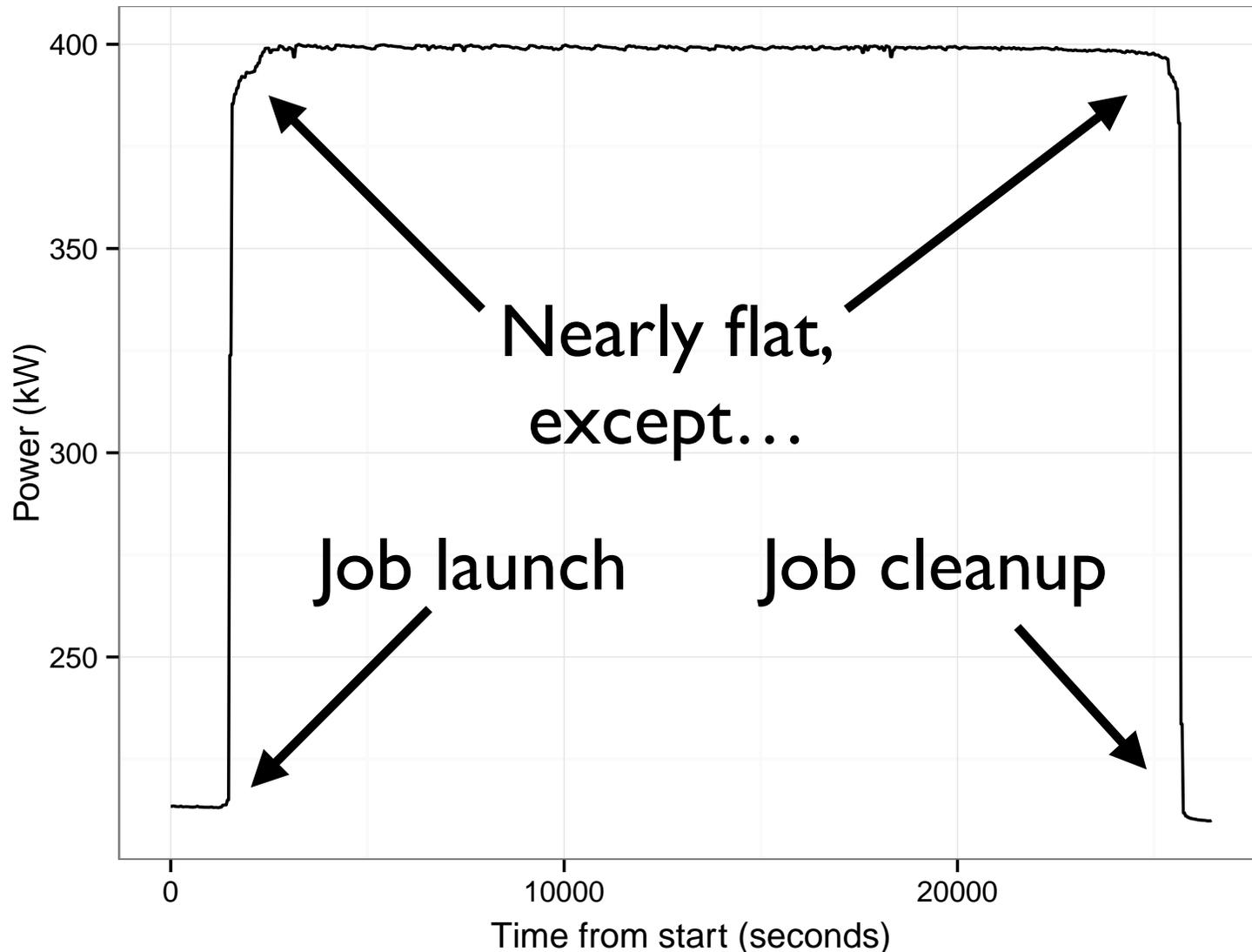


System Measurement: Workload phase

Thomas R. W. Scogland (LLNL/CASC, Green500)

What do we mean by “workload phase?”

A Classic Linpack Profile: Colosse

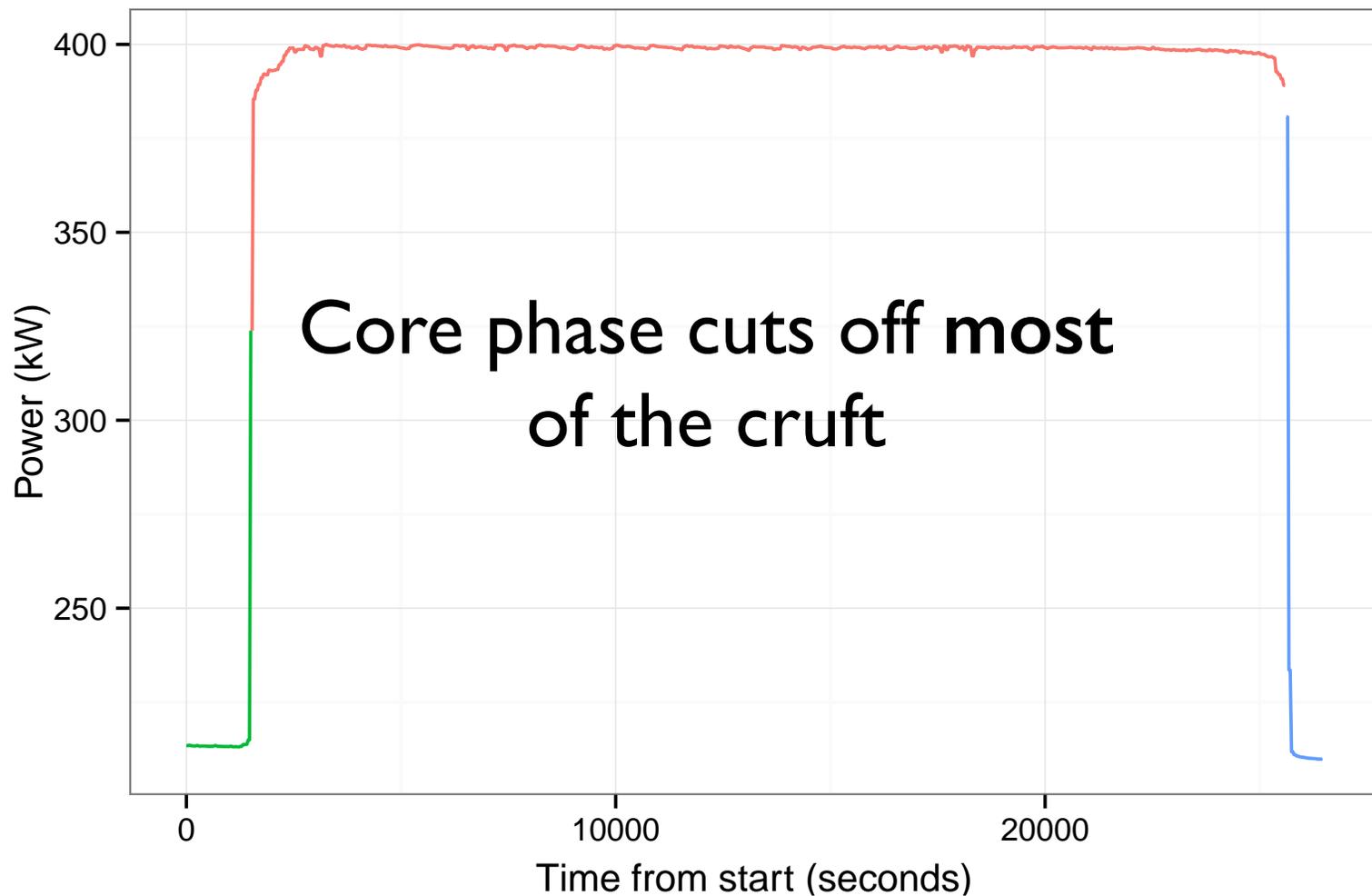


The Core Phase

- The time period under test
- Possible core phases:
 - Job scheduling -> Job completion
 - Application start -> application end
 - Benchmark start -> benchmark end
- Any is valid, so long as it matches your other metrics

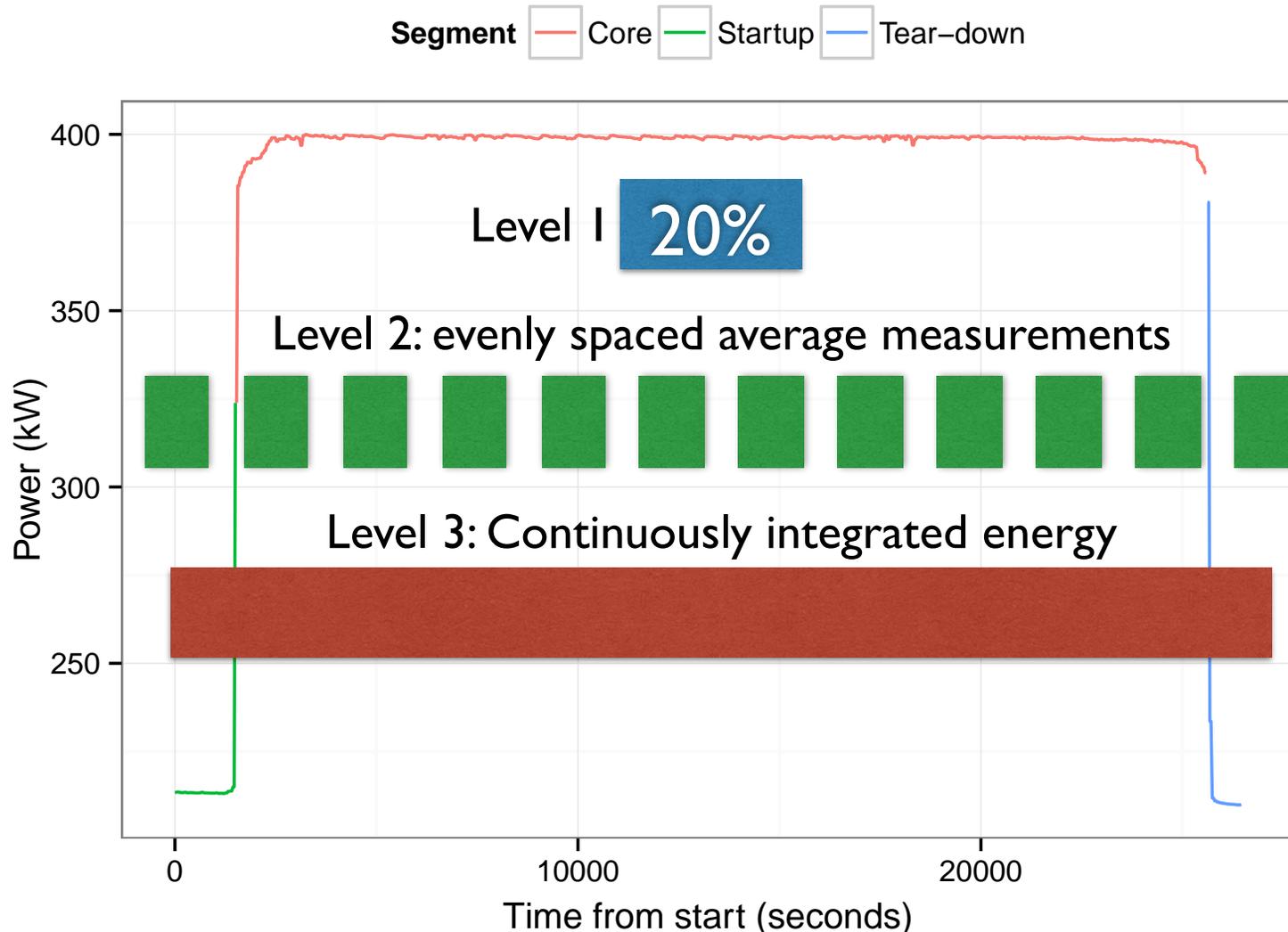
The Core Phase: Linpack Example

Segment — Core — Startup — Tear-down

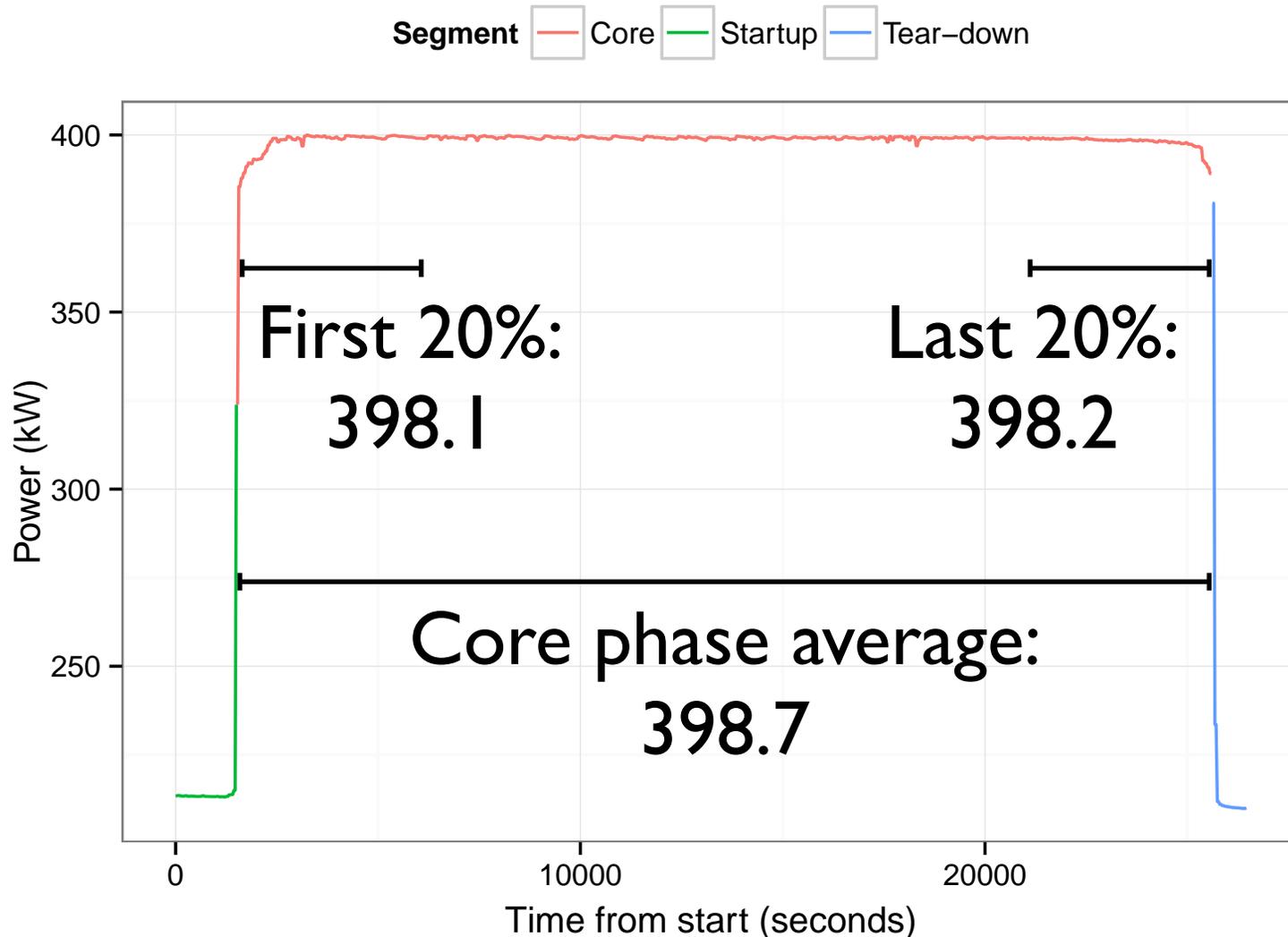


What do we require now?

Workload Timing by Measurement Level



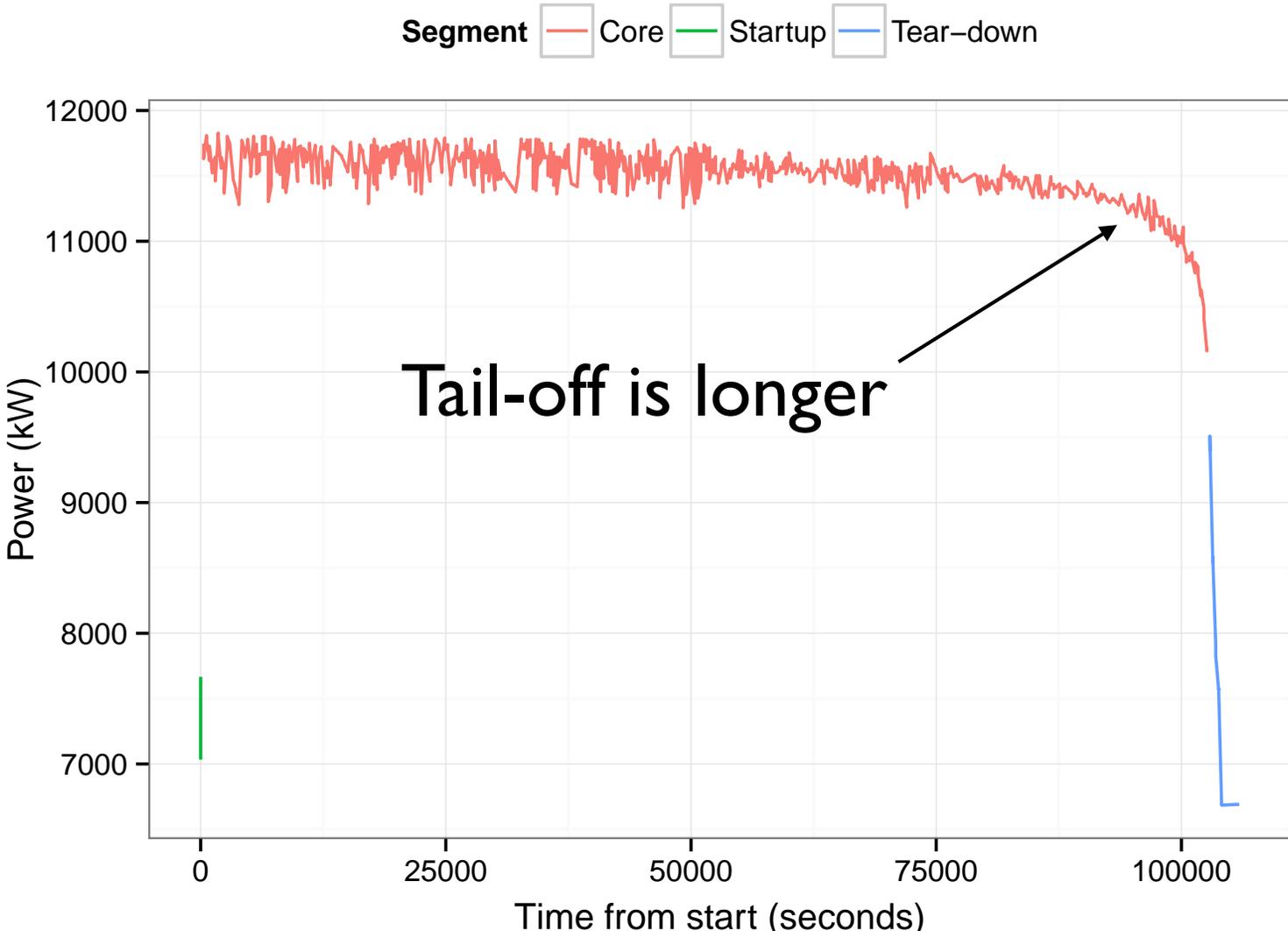
Power Variability



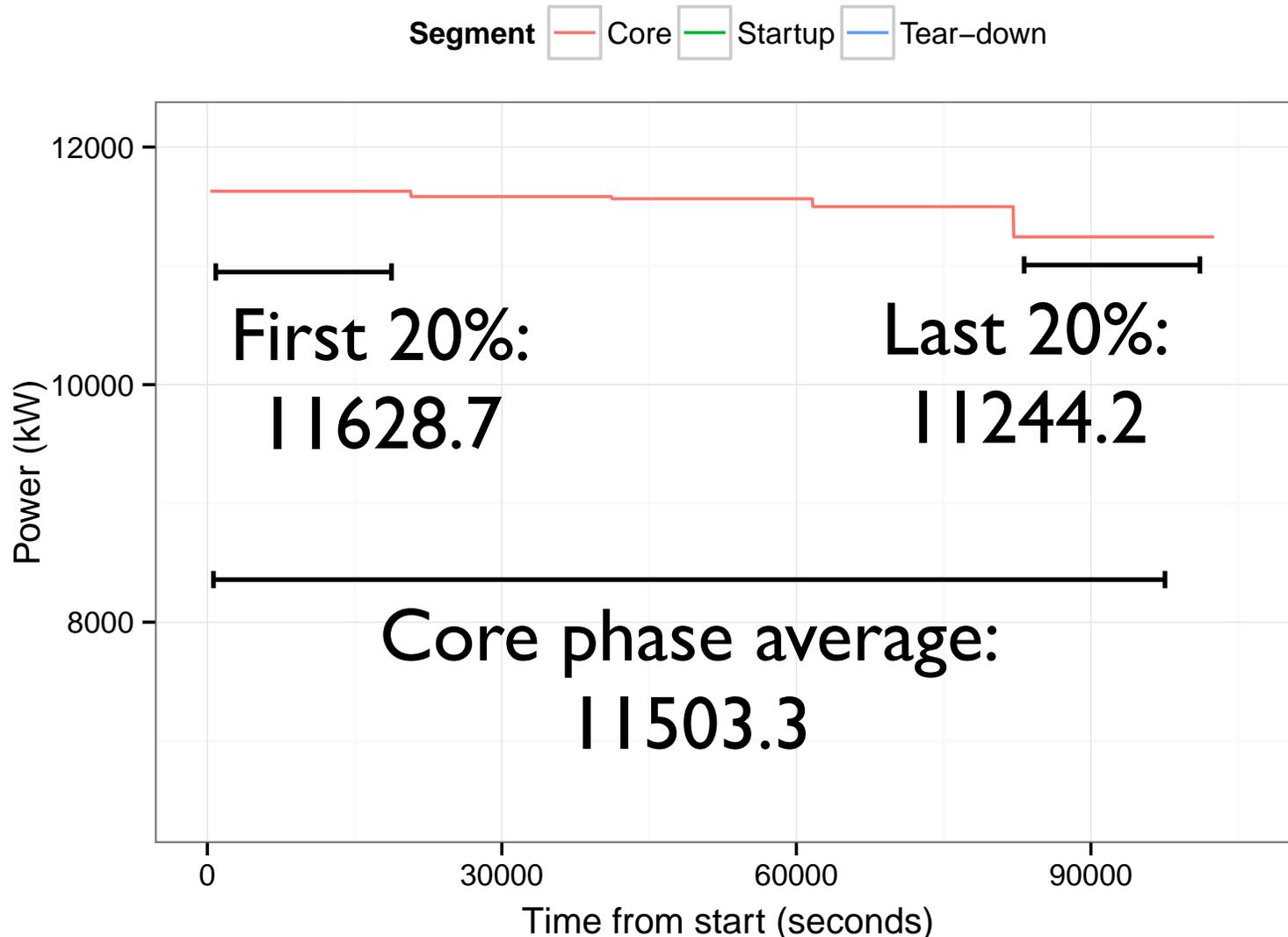
Why Change the Requirement?

Newer system designs
have a different pattern.

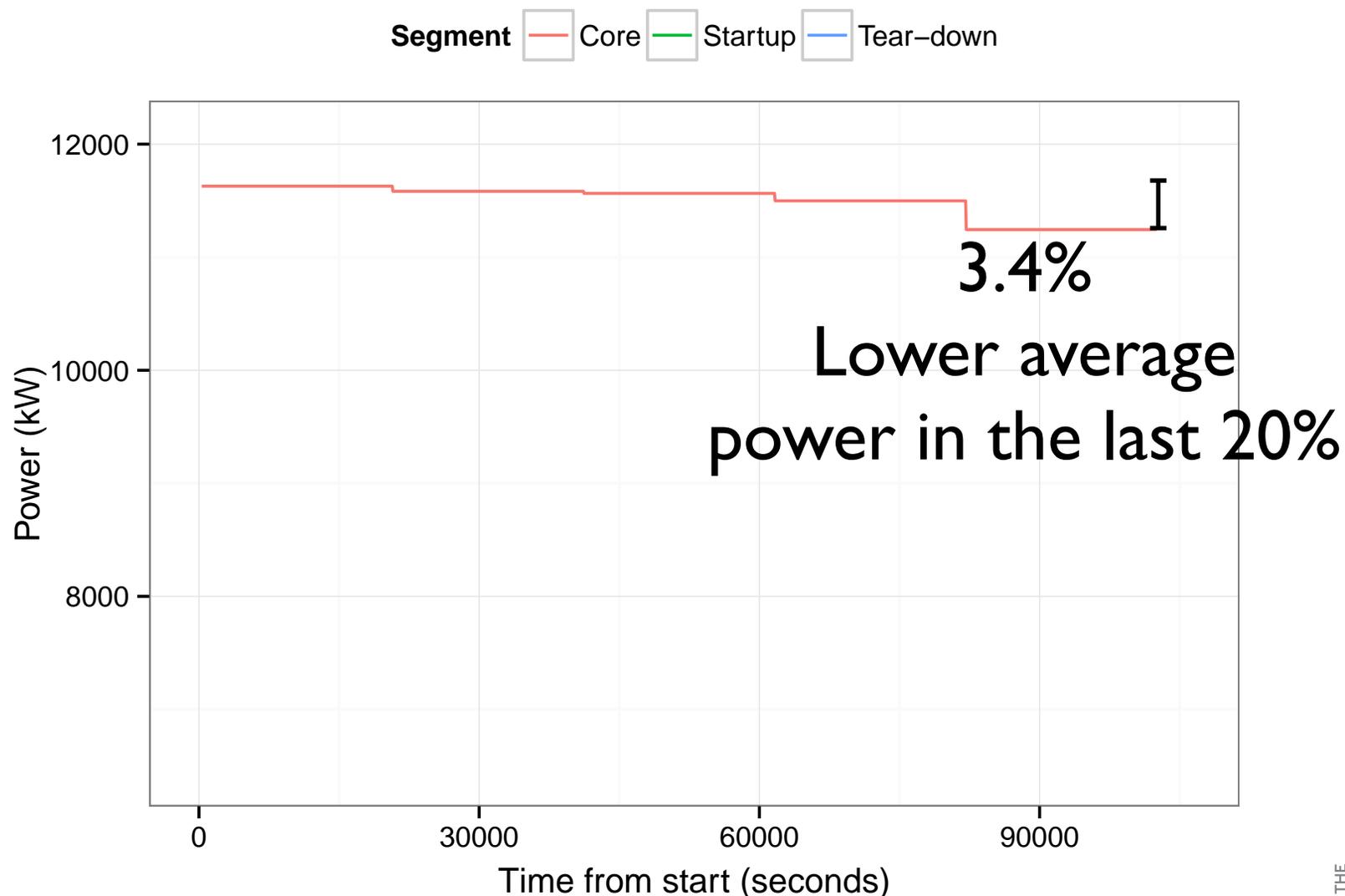
Sequoia25 Linpack Profile



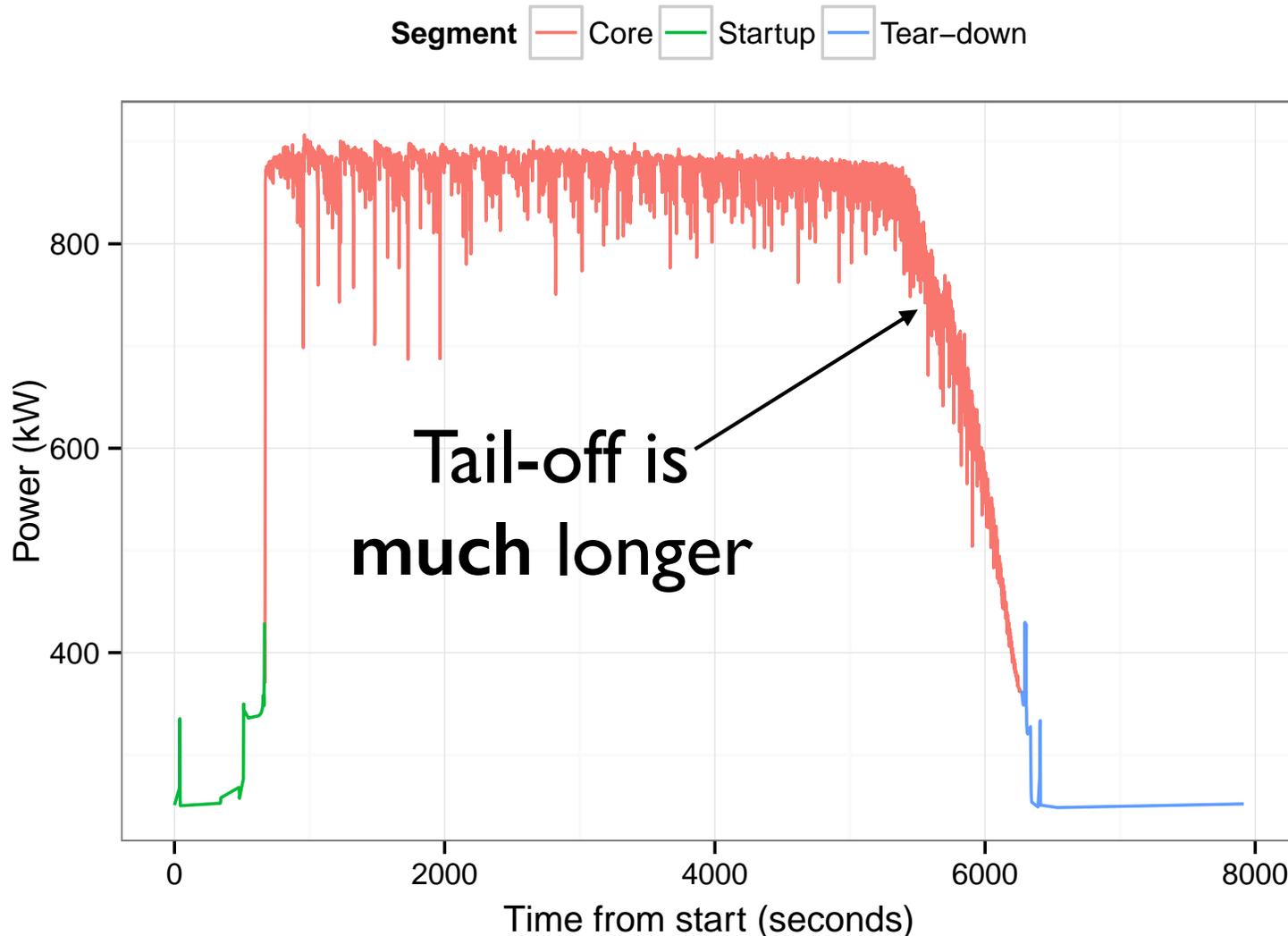
Core Phase Averaged in 20% Increments



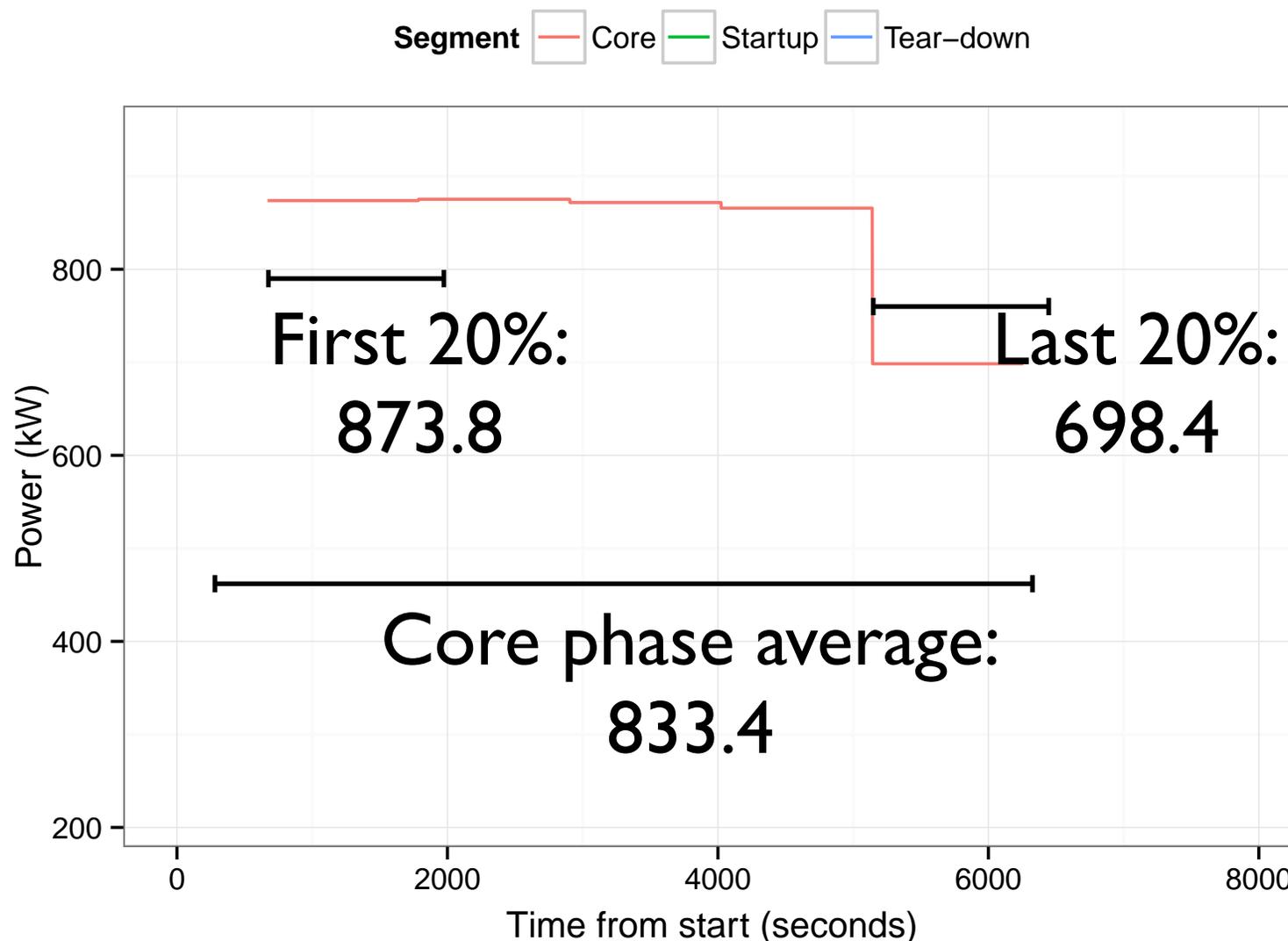
Core Phase Averaged in 20% Increments



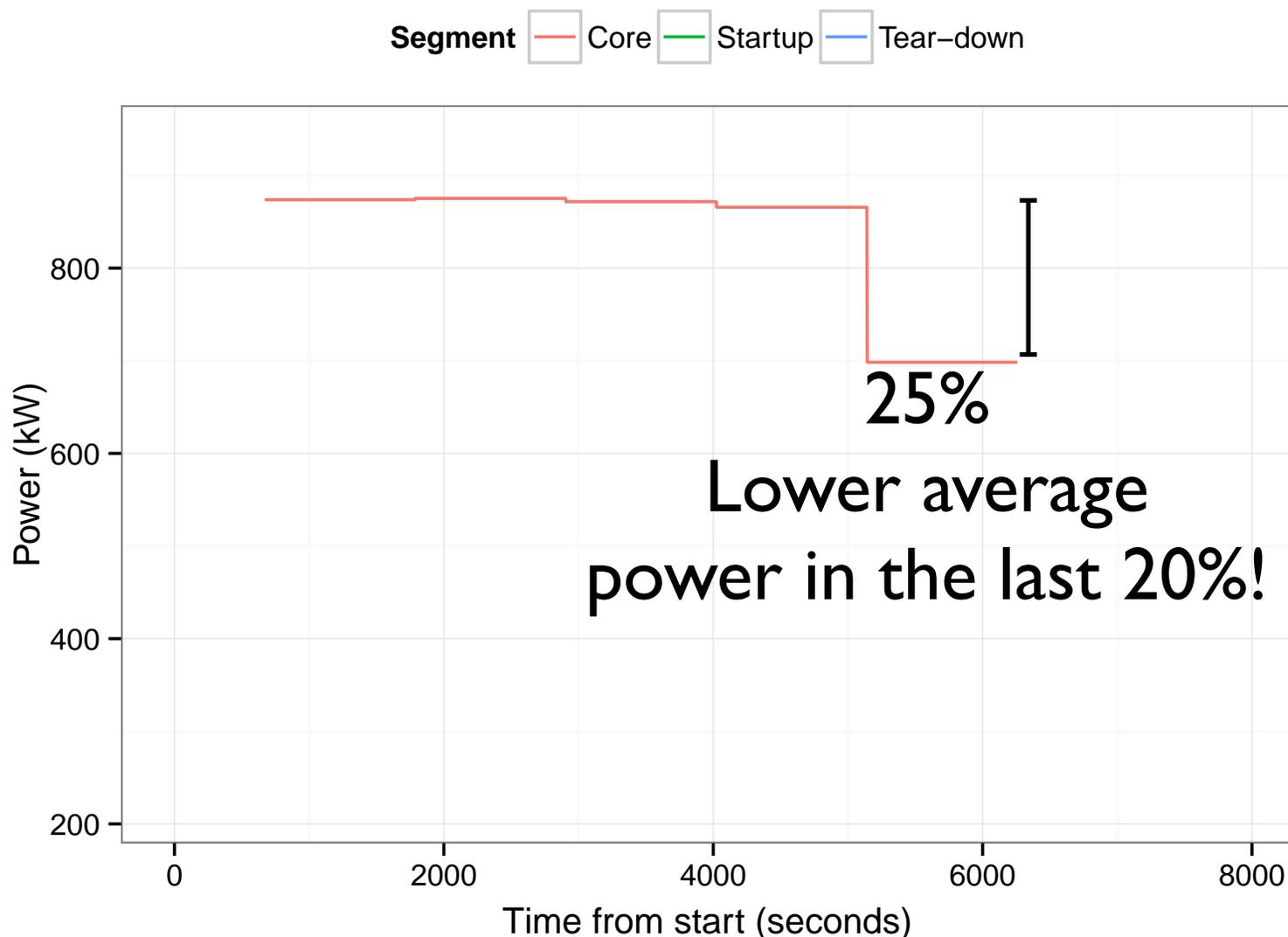
Piz Daint (GPU accelerated) Linpack Profile



Core Phase Averaged for Piz Daint

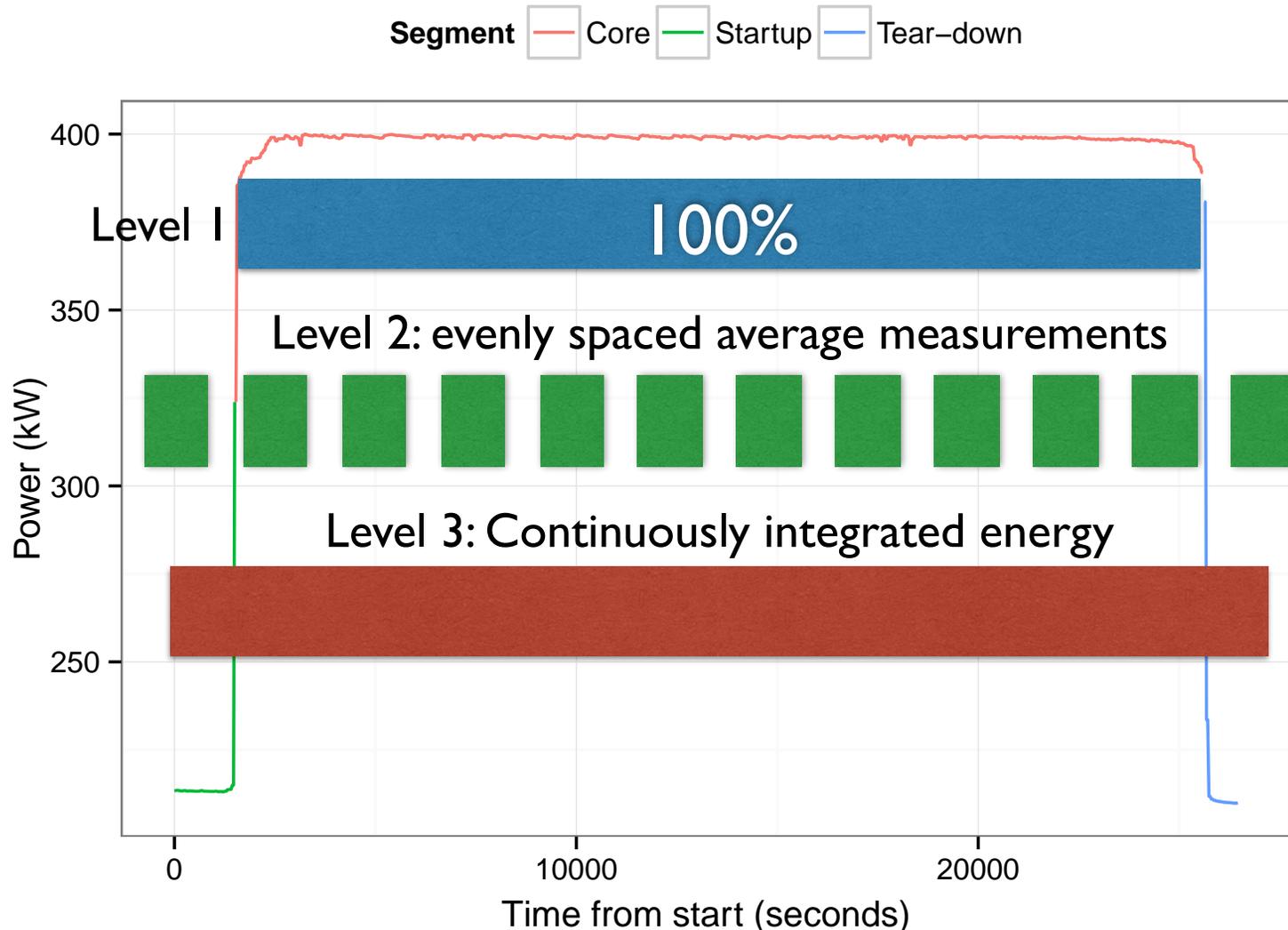


Core Phase Averaged for Piz Daint



What do we propose?

Workload Timing by Measurement Level



Conclusions

- Our current requirements for measurement timing are insufficient
- New system types require a longer measurement phase to get a true average
- We propose raising the requirement on Level 1 measurements to an average over the full core phase, or to use a higher level's measurement style