

## Linux Plumbers Conference 2024



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# Initiatives in boot time reduction - boot time markers, boot phases and profile-guided optimizations

*Friday, 20 September 2024 16:00 (30 minutes)*

This session is intended to present and discuss 3 different technology areas surrounding boot-time reduction for Linux systems: 1) boot time markers, 2) boot phases, and 3) profile-guided boot-time optimizations. Boot-time markers is a proposed set of well-defined measurement points in the Linux boot process, used for testing improvements and regressions in boot time. “Boot phases” refers to dividing the kernel boot process into two distinct phases: a time-critical phase and non-time-critical phase, and investigating how to initialize time-critical drivers and features, while still supporting full operation of a system in the long term. Finally, profile-guided boot-time optimizations refers to utilizing run-time data from one instantiation of the kernel, to drive the optimization of subsequent instantiations, through things like an init data cache, that holds probed values, that can be incorporated into re-compilations of the kernel source to shorten boot times on dedicated or specialized hardware. Finally, I would like to discuss how to instantiate a working group of developers in the area of boot time reduction, when there is no centralized maintainer for this “feature” of the kernel.

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