



Contribution ID: 315

Type: **not specified**

Reducing Android Boot Times: Evaluating Proactive File Prefetching

Thursday 11 December 2025 15:00 (28 minutes)

Proactive file prefetching has proven effective in reducing system boot times. This presentation details the evaluation of a prefetch solution for Android, inspired by its successful deployment on ChromeOS. We analyze its performance impact through Perfetto traces, confirming notable boot time reductions. The core of the implementation involves a two-phase “Record and Replay” process, and we will discuss the key integration challenges encountered on low memory devices.

Furthermore, we extend this investigation to virtualized environments, presenting I/O trace analysis for integrating the prefetch into a Debian OS running on the Android Virtualization Framework (AVF). We conclude by outlining next steps, focusing on continuous record/replay mechanisms and the utilization of new kernel tracepoints for enhanced observability.

Primary author: KAILASH, Akilesh

Co-author: SAEKI, Takaya

Presenter: KAILASH, Akilesh

Session Classification: Embedded & Internet of Things MC

Track Classification: Embedded & Internet of Things MC