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Guider: Lightweight Real-Time Performance & Fault Monitoring Framework for Embedded Linux Platforms

Guider is an open-source, self-contained performance monitoring and observability framework designed for embedded and custom Linux platforms such as AGL, Android, Tizen, webOS, and custom distros.

With over 180 built-in commands and support for TCP/UDS-based remote APIs, Guider provides a flexible yet lightweight system for real-time monitoring, profiling, and fault detection. It continuously watches system behavior, evaluates thresholds defined via JSON configurations, and autonomously generates structured reports when anomalies or degradations are detected. These reports include past runtime traces, flame graphs, peak analysis, and resource usage summaries.

Guider integrates tightly with existing kernel infrastructure—leveraging ftrace, atrace, ptrace, kprobe, uprobe, DWARF, debugfs, and procfs—to support low-overhead, extensible event capture and visualization. In addition to system-level metrics, it also parses logging from multiple sources (kernel, journal, Android, DLT, syslog), correlates them with event timings, and renders them into interactive outputs including flamegraphs, stacked graphs, and histograms.

The talk will include a video demo of Guider's GUI-based Android profiler app that utilizes its command-layer API, and highlight use cases where Guider has been integrated in continuous monitoring, CI systems, and on-device diagnostics pipelines.

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