Contribution ID: **78**   Type: **not specified**

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

Thursday 11 December 2025 13:10 (20 minutes)

Modern embedded systems such as automotive IVI and custom Linux distributions are becoming increasingly complex, making real-time performance diagnosis difficult using traditional tools like ftrace or perf alone. Developers often face fragmented data sources, high analysis overhead, and the need for manual correlation across logs and traces.

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.

Guider repository is https://github.com/iipeace/guider.

Primary author: Mr LEE, Peace

Presenter: Mr LEE, Peace

Session Classification: Linux System Monitoring and Observability MC

Track Classification: Linux System Monitoring and Observability MC