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Kernel Testing & Dependability MC

The Linux Plumbers 2024 Kernel Testing & Dependability track focuses on advancing the current state of testing of the Linux Kernel and its related infrastructure. The main purpose is to improve software quality and dependability for applications that require predictability and trust. We aim to create connections between folks working on similar projects, and help individual projects make progress.

This track is intended to promote collaboration between all the communities and people interested in kernel testing and dependability. This will help move the conversation forward from where we left off at the LPC 2023 Kernel Testing & Dependability MC.

We ask that any topic discussions focus on issues/problems they are facing and possible alternatives to resolving them. The Microconference is open to all topics related to testing on Linux, not necessarily in the kernel space.

Potential testing and dependability topics:

KernelCI: Improving user experience and new web dashboard (https://github.com/kernelci/kernelci-project/discussions/28)

Growing KCIDB, integrating more sources (https://kernelci.org/docs/kcidb/)

Better sanitizers: KFENCE, improving KCSAN. (https://lwn.net/Articles/835367/)

Using Clang for better testing coverage: Now that the kernel fully supports building with clang, how can all that work be leveraged into using clang's features?

How to spread KUnit throughout the kernel?

Building and testing in-kernel Rust code.

Identify missing features that will provide assurance in safety critical systems.

Which test coverage infrastructures are most effective to provide evidence for kernel quality assurance? How should it be measured?

Explore ways to improve testing framework and tests in the kernel with a specific goal to increase traceability and code coverage.

Regression Testing for safety: Prioritize configurations and tests critical and important for quality and dependability

Transitioning to test-driven kernel release cycles for mainline and stable: How to start relying on passing tests before releasing a new version?

Explore how do SBOMs figure into dependability?

Things accomplished from last year:

Storing and Outputting Test Information: KUnit Attributes and KTAPv2 has been upstreamed.

KUnit APIs for managing devices has been upstreamed.

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