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BASIL: Traceability as Code

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Traceability is a mandatory work product in safety-critical software development and is required by international standards across multiple domains. However, establishing and maintaining traceability becomes particularly challenging for large, fast-evolving, and historically grown code bases such as the Linux kernel. The kernel evolves rapidly, and many related work products—such as specifications, test suites, and documentation are maintained as independent projects in separate repositories, including the Linux Test Project and the Man-Pages project.

Additionally, a variety of community-driven test infrastructures, such as CKI and KernelCI, continuously validate the kernel in CI/CD pipelines, producing test-result data that must also be integrated into the traceability process.

In this complex ecosystem, BASIL The FuSa Spice, introduces a novel approach: Traceability as Code. This feature enables the automated generation of traceability matrices by defining, in a single configuration file:

- the repositories from which work items are extracted,
- the extraction rules for each work item, and
- the relationships between the various work-item types.

This session will go into the details of how BASIL streamlines the creation and maintenance of traceability matrices in a large-scale open-source project such as the Linux kernel, making compliance more accessible and sustainable.

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