GoodKit for userspace applications

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Description

Modern infrastructures combine several layers of isolation: applications, containers, virtual machines, and micro-VMs. These layers are essential for security, but they also make runtime monitoring more difficult. GoodKit proposes a new architecture for live VM introspection: an observer runs in a separate isolated VM and receives controlled access to selected state of the target.

This internship will extend this approach beyond guest-kernel structures toward user-space applications.

The main scientific challenge is to bridge the semantic gap without sacrificing isolation. At user level, the observer must reconstruct address spaces, mappings, libraries, runtime objects, and application-level state from low-level memory and execution information.

GoodKit is a recent research project at the intersection of systems, virtualization, and cybersecurity. Its foundational paper, "Inside Out: A Paradigm Shift In Live VM Introspection," was published at OSDI 2026, one of the leading international conferences in computer systems. GoodKit is covered by a filed patent and is developed within a structured collaboration between the KrakOS team, Orange Innovation and Thomas Pasquier at the University of Oxford. The project has also been presented at the Stanford Security Lunch. Discussions are ongoing with the security team of Stanford's data center regarding the use of GoodKit to deploy and evaluate defense mechanisms during their regular penetration-testing campaigns. These signals show that GoodKit is not only an academic prototype: it is already attracting concrete scientific, technological, and technology-transfer interest.