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# TRIS: A Three-Rings IoT Sentinel to Protect Against Cyber-Threats

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## Abstract

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The Internet of Things (IoT) is considered as an emerging technology with considerable potentialities. Its paradigm of everything connected together invaded the real world, with smart objects located in several daily appliances able to communicate autonomously through already existing network infrastructures. On the downside, the great advance carried by IoT in our life brings at the same time serious security issues, since the information flow among the objects remains mainly unprotected from malicious attackers. The paper at hand proposes TRIS, a novel sentinel to protect smart environments from cyber threats. Our sentinel shields the IoT devices using three defense rings, resulting in a more accurate protection. Additionally, we discuss the actual deployment of the sentinel using open-source tools. Exhaustive experiments are conducted on the sentinel, showing that the deployed sentinel performs meticulously even in heavily stressing conditions, thus demonstrating the applicability of TRIS in a distributed and dynamic scenario such as IoT.

## Document Sections

- I. Introduction
- II. State of the Art
- III. Three-Rings IoT Sentinel
- IV. IoT Sentinel Use Cases
- V. Experiments

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