

Peer Review

Review of: "Host-Guided Data Placement—Whose Job Is It Anyway?"

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The paper introduces a shim layer between applications and the filesystem to enable affinity- and lifetime-aware data placement. This approach does not require modifications to application code and is designed to adapt easily to future storage devices. The paper is well-structured, strongly motivated, and presents a relevant and important topic. The evaluation is comprehensive, with solid results; I found it a pleasant read.

A few questions and comments:

- Instead of a dedicated interception layer, would it be possible to propose a standardized interface that could be implemented by I/O libraries or middleware?
- Page 2: "filesystems provide interfaces that are too narrow to take advantage of application-level semantics regarding lifetime and affinity. The cost of generality means failing to take advantage of device characteristics." Could you elaborate on this further? How does generalization at the system level impact performance? Do you have any quantitative analysis to support this claim?
- What workload was used for the fio benchmark? How many writes were performed, and what was the write size?
- Figure 2: What does "CVEs" on the right-hand Y-axis represent? Am I interpreting the figure correctly that LOC (lines of code) is decreasing in recent years? Additionally, why are the columns for versions 6.0 and 6.2 missing?
- Section 3: "As Reshim has insight into the application..." How does Reshim retrieve this insight?
- Section 3.2.1: "...simply map this two-level hierarchy into what is suitable for the device interface." What mapping strategy is used here?
- How does the proposed system ensure consistency and crash consistency?

Minor ones:

- Page 1, 2nd Paragraph. "can to" --> can?
- Page 8. "As seen in 3" --> "As seen in Fig. 3"
- Page 20. "uReshim" --> "Reshim"

Declarations

Potential competing interests: No potential competing interests to declare.