

Peer Review

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

Po-Chun Huang¹

1. National Yang Ming Chiao Tung University, Hsinchu, Taiwan

Motivated by the observation that shim layers can shield systems from changing hardware interfaces while benefiting from them, this work proposes Reshim, an all-userspace shim layer that performs affinity and lifetime-based data placement with no change to the operating system or the application.

In general, this is a nice work because relevant tools for federating ZNS SSDs and FDP SSDs are still in urgent need. The authors also provide much useful background knowledge in the introductory sections.

There seems to be some room for restatement in this work, say, the definition of “lifetime-aware placement.” Data with a similar lifetime means that the expected times between the creation and deletion of the data are similar, and this definition serves well for the purpose of FDP. It seems unnecessary that the creation and deletion of the data must happen together (i.e., with temporal locality).

The idea of device mapping such as dm-zoned existed in the kernel space. Like the shim layer proposed in this paper, it seems that these existing mappers are also application-agnostic and can optimize per application. Maybe the authors want to include some differentiation between Reshim and these existing mappers in Section 1?

Other comments:

1. Rough statistics such as “2–6 times” need more precision.
2. Upper-case issues: “nand” -> “NAND”, “zns” -> “ZNS”, “fdp” -> “FDP”, “ssd” -> “SSD”, etc.
5. Missing a space: “affinity-aware placementthat”.
6. Remove the commas: “Zoned Namespace SSDs (zns) [3], and Flexible Data Placement (fdp) [4]”.
7. “128 G of RAM” -> “128 GB of RAM”; “each 4 T in size” -> “each 4 TB in size”; etc.

8. “4.4. Overhead” -> “4.4. Overheads”

Declarations

Potential competing interests: No potential competing interests to declare.