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DAMON: Current Status and Future Plans

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DAMON[1,2] is a Linux kernel subsystem that provides efficient data access monitoring and access-aware system operations (DAMON-based Operation Schemes, a.k.a DAMOS). A service provider reported that they are showing about a 16% reduction in memory usages with modest overhead on their products by utilizing a DAMON-based system operation scheme.

After its initial introduction[3], it has continued to develop in response to the voices from the users and kernel hackers. We also proactively tried to get more feedback by sharing the status and discussing future works in multiple venues including every kernel summits since 2019[3,4,5,6] and DAMON community[7,8]. As a result, DAMON made substantial improvements while the list for future works never emptied.

This talk will aim to continue the sharing and discussion at the kernel summit of 2023. We will share what feedback we received, what patches have been developed or are under development, what requests are still in the planning stage, and what the plans are. With that, hopefully we will have discussions that will be helpful for improving and prioritizing the plans and specific tasks, and finding new requirements.

Specific sub-topics would include, but are not limited to:

- Efficient ABI and a convenient user-space tool
- Fine-grained DAMOS control
- Partial self-tuning of DAMOS
- Extension of DAMON monitoring targets
- Plan for collaborative memory-overcommit VM system management
- Plan for tiered-memory management
- Plan for DAMON accuracy improvement

Based on the progress until the summit, some items can be added or dropped.

[1] project homepage, <https://damonitor.github.io>

[2] official doc, <https://docs.kernel.org/mm/damon/index.html>

[3] ksummit 2019, <https://linuxplumbersconf.org/event/4/contributions/548/>

[4] ksummit 2020, <https://www.linuxplumbersconf.org/event/7/contributions/659/>

[5] ksummit 2021, <https://linuxplumbersconf.org/event/11/contributions/984/>

[6] ksummit 2022, <https://lpc.events/event/16/contributions/1224/>

[7] DAMON mailing list, <https://lore.kernel.org/damon>

[8] DAMON meetup, <https://lore.kernel.org/damon/20220810225102.124459-1-sj@kernel.org/>

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