Week 13 Critique

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1. [Barrier-enabled IO stack for flash storage](https://www.usenix.org/system/files/conference/fast18/fast18-won.pdf)

Storage order is guaranteed when order of issue is equal with order of persist. To achive it, order of issue should equal with order of dispatch and order of dispatch should equal with order of transfer and order of transfer should equal with order of persist. traditionally, storage order is guaranteed by *transfer-and-flush* operation. unlike traditional hard disk storage, flash memory can control storage order without *transfer-and-flush operation.*

This paper present barrier-enabled IO Stack which guarantees storage order when using flash memory. To control persist order, the stack uses barrier write which guarantees persistence of write before barrier without flush. To preserve order of dispatch, the stack give *barrier-write* command priority to ‘ORDERED’. By doing so, order of dispatch preserved without DMA transfer. To control the dispatch order, the stack introduces epoch based IO scheduling. This can control dispatch order with existing IO scheduler.

Barrier-enabled Filesystem can reduce overhead of *fsync* operation by reducing DMA transfer overhead, flush overhead, context switch.