# ECE5658

# Critiques - week14

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## 1 FlashFQ: A Fair Queueing I/O Scheduler for Flash-Based SSDs

(1) **summary of the paper:** This paper presents a new I/O scheduler called *FlashFQ* that achieves both fairness and high responsiveness. SSD has two characteristic that differentiated with HDD, that are restricted parallelism and diminishing benefit of spatial proximity. They started building from *SFQ* (Start time Fair Queueing) and add their new mechanisms. The throttled dispatch mechanism is aim to exploit restricted Flash I/O parallelism and I/O anticipation technique minimize fairness violation from deceptive idleness.
(2) **strengths/weakness of the paper:**

## 2 mClock: Handling Throughput Variability for Hypervisor IO Scheduling

(1) **summary of the paper:** This paper presents IO scheduler working on hypervisor. Virtualization and scheduling for CPU and memory is pretty mature but scheduling and allocation for IO resources is much more rudimentary. This unbalance development cause slow adoption of IO-intensive applications. Unlike CPU and memory's fixed capacity, IO resource capacity fluctuates dynamically so they use the notion of clocks and tags to adjust dynamically.
(2) **strengths/weakness of the paper:** This work mainly focus on virtual environments and hypervisor, however they also expended proposed idea to distributed environments like cluster-based storage system called *dmClock*.