

1. Ceph: a scalable, high-performance distributed file system

(1) Ceph is a distributed file system that provides scalability, reliability, and performance. Ceph has two ideas; object-based storage device (OSD), and decoupled data and metadata (CRUSH). OSDs handle migration, replication, failure detection and recovery. CRUSH, files striped onto predictably named objects, maps objects to storage devices. Therefore, Ceph has excellent performance and metadata management.

(2)

(+): Ceph is good performance and metadata management

2. Barrier-enabled IO stack for flash storage

(1) Modern I/O stack is orderless because command queue is an optimization to maximize throughput by reordering requests inside a disk drive. So, the existing block device adopts expensive approach, Transfer-and-Flush, in order to ensuring the storage ordering. So, researchers solve this problem using Epoch-based I/O scheduling, Order-Preserving Dispatch, and Dual-Mode Journaling. As a result, there are a huge performance increase in SQLite server workloads.

(2)

(+): Eliminate the Transfer-and-Flush in controlling the storage order.