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## **CEPH: A SCALABLE, HIGH-PERFORMANCE DISTRIBUTED FILE SYSTEM**

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In this paper, a novel high-performance, distributed file system – Ceph – is proposed. This system supports extreme workloads such as workloads of supercomputers or large data centers.

In traditional file systems, in extreme workloads where tens or hundreds of thousands of host concurrently from reading or writing in the same directory, the hard disks are replaced by an Intelligent Object Storage Device (OSD) which is a combination of a CPU, a network interface and a local cache with underlying disk or RAID. Traditional storage cannot cope with the failure, replacement and increment of OSD.

The proposed solution is a distributed file system which as three main components: the client, a cluster of OSDs that collectively store all data and metadata, and a metadata server cluster that manages the namespaces. The separation of metadata management and the data will eliminate the bottleneck of centralized metadata management and increase scalability of file systems.

It would be interesting to show the impact of Ceph on smaller scale systems with fewer OSD and HDD to show its performance in multiple platforms.