

# Operating System Support for Application-Driven Storage

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## Abstract

The cloud consists of software services provided via interconnected data centers organized as clusters of machines. Each machine contains resources (processing, memory and storage) pooled within a physical rack. The performance of rack-scale computers is expected to improve by two to three orders of magnitude in the next years due to hardware evolution. Keeping up with such trends requires breakthroughs in terms of software support. As the performance of rack-scale computers grows, the operating system kernel itself becomes a bottleneck. To address this problem, we propose a solution inspired by OpenFlow that distinguishes control and data path, and establishes direct channels between application and programmable storage devices on the data path.