


Block mapping inside the disk controller (Technion)

code: COM-1582

Modern systems include multiple components that need to access the disk – from virtual machines to various accelerator devices. However, existing systems require that all file accesses be delegated to the operating system/hypervisor for the logical-to-physical mapping of files to disk blocks as well as to provide access permissions. This burdens the system's performance and power consumption. This invention adds a mapping mechanism to the disk controller that enables hardware and software entities in the computer to securely and directly access their files with low latency and high bandwidth access by removing the CPU and the management software system (operating system/hypervisor) from the critical path of disk data transfers. This mechanism also enforces access permissions.

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