

EINLADUNG

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Referent: Götz Graefe, Ph.D.
HP Labs, Palo Alto

Titel: The five-minute rule twenty years later,
and how flash memory changes the rules

Abstract:

In 1987, Gray and Putzolo presented the five-minute rule, which was reviewed and renewed ten years later in 1997: A database record (or page) should be kept in memory if it is accessed more often than every five minutes; otherwise, it should remain on disk and read when needed.

With the advent of flash memory in the gap between traditional RAM main memory and traditional disk systems, the five-minute rule now applies to large pages appropriate for today's disks and their fast transfer bandwidths, and it also applies to flash disks holding small pages appropriate for their fast access latency.

Flash memory fills the gap between RAM and disks in terms of many metrics: acquisition cost, access latency, transfer bandwidth, spatial density, and power consumption. Thus, within a few years, flash memory will likely be used heavily in operating systems, file systems, and database systems. Research into appropriate system architectures is urgently needed.

The basic software architectures for exploiting flash in these systems are called "extended buffer pool" and "extended disk" here. Based on the characteristics of these software architectures, an argument is presented why operating systems and file systems on one hand and database systems on the other hand will best benefit from flash memory by employing different software architectures.

Es laden ein: Die Dozenten der Informatik