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Forrester Research advices companies to skip tiered storage architectures in favour of moving to an all-SSD architecture, even if figuring out how to use such a system might be a "challenge."

Enterprise-class SSDs still remain more expensive than HDDs on a per-gigabyte basis-- up to 10x more so-- but deduplication architectures can reduce capacity requirements, making flash a cost-effective, better-performing alternative, Forrester says.

SSDs are not only faster, but also consume less power and have no moving parts, thus eliminating seek times and variable performance.

Currently vendors sell SSDs as a top storage tier in external storage arrays, alongside a combination of SATA, SAS and Fibre Channel drives-- "shoehorning" SSD storage into existing disk arrays. Tiered storage architectures require either knowledge of what data to place on SSD or still-nascent automated data tiering software like Dell Compellent's Fluid Data Storage or EMC's Fully Automated Storage Tiering (FAST).

Forrester mentions a new architecture using an all-SSD infrastructure-- in-line data deduplication, which eliminates redundant data sets and thus reduces backend capacity requirements. However deduplication requires sufficient CPU capability, an effective deduplication algorithm and data (such as emails and documents) lending itself to data reduction.

Go Forrester: SSD-Only Storage Challenges the Need for Tiers