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**Flash Research Assignment #2: Server & Storage Technologies**

For many customers, even a 400 millisecond delay in access time would be enough to lose their business. When it comes to speed, finding the bottleneck, or limiting factor, often comes down to the hard drive. This is why we need to utilize the faster technology of enterprise-grade solid-state drives (SSDs) over the standard legacy hard-disk drives (HDDs). In addition to speed, SSDs carry a much smaller electrical footprint and are much less liable to break than HDDs; therefore, not only can an SSD translate into revenue from increased customer traffic but it can also cut costs in utility and maintenance.

There are many factors involved in evaluating storage technology, but the most important are latency and input/output operations per second (IOPS). Latency refers to loading time which is how long it takes the end user to access a file or load a specific page on our website. IOPS captures how quickly inputs can be converted into outputs. Unlike HDDs, SSDs have no movable parts and therefore can run nearly 100 times faster than the average HDD, both cutting down latency and boosting IOPS. This difference is crucial in increasing customer access and smoothing out transaction times and sales. In addition, because they lack movable parts, SSDs do not add additional heat to the environment and are much less likely to break than HDDs.

SSDs have a higher cost per gigabyte than HDDs, but they offer a cost to performance ratio that HDDs cannot match. If a server running HDDs experienced a bottleneck at 1,000 customers, that same server running on SSDs would not experience a bottleneck until 100,000 customers. An SSD heavy server farm greatly decreases latency times which mean that customers can navigate our website with greater ease and are therefore less likely to drop out during e-commerce browsing. In addition, the SSD server farm would need only a third of the capacity and thus require less space and electricity. This investment is the difference maker in turning our business into an enterprise level business.

**Bibliography**

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