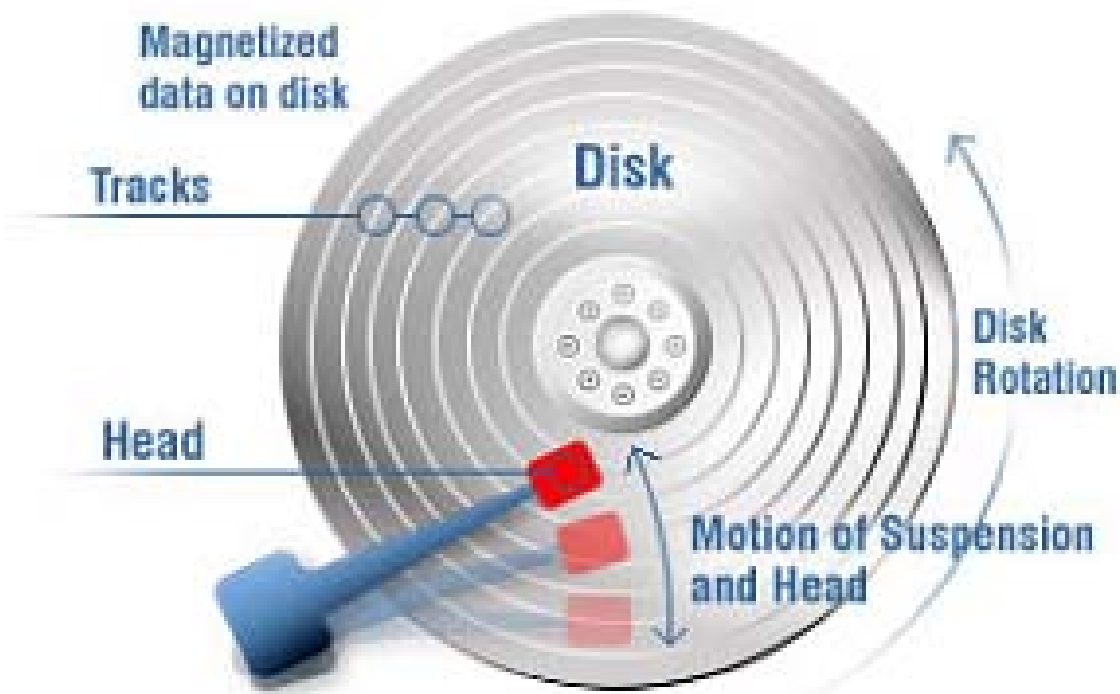


## What is a Solid State Disk

Conventional wisdom says that computer systems and networks are becoming faster and faster by orders of magnitude as time goes on. In terms of processor clock rates, this is largely true. Storage devices, however, are relatively stagnant. Storage speed- measured by seek time, operations per second, total bandwidth, and other rubrics- has increased at a snail's pace compared to other aspects of computing.

This difference has created a substantial performance gap over the years, and more often than not computer systems experience some kind of substantial performance bottleneck due to storage devices (See: "Why Disks are Obsolete" by Burleson Consulting). In high-demand networks, the performance gap is painfully obvious. All the fast servers in the world are wasted if storage can't carry out its orders fast enough. And in situations where "hot-files" and databases are constantly read from or written to by multiple sources across a network, this bottleneck creates a crisis for the entire network infrastructure.

Storage speeds lag behind processors because most storage is constrained by physical considerations. A magnetic, spinning disk must be written to or read from by a physical arm traveling across the disk. Precious milliseconds go by as one part starts to spin up, then another moves to the appropriate area. According to StorageReview.com, the fastest hard disk drives have access times equal to 5 milliseconds (peak performance). Multiply this by the billions of operations demanded by users daily, and a considerable lag results.



### Hard Disk Drive - Moving Parts and Slow Storage Speeds

Enter solid state disks. Solid state disks solve the problem of physical constraints by replacing hard disk drives with high speed circuitry. Instead of a rotating disk, a solid state disk uses memory chips (typically DDR RAM or Flash Memory) to read and write data. Solid state disks allow storage to catch up with the rest of the computing world. Texas Memory Systems RAM solid state disks have a 15 microsecond access time (250 times faster than hard disk drives) and our Flash systems have 80-200

## What is a Solid State Disk

microsecond access times. The result is full utilization of existing processors. Instead of allowing expensive servers to constantly sit and wait for hard disk drives your servers are busy increasing performance and operations per second. When servers are doing more transactions every day, the bottom line is directly improved.

The immediate concern voiced about RAM solid state disks regards data persistence and volatility. Unlike magnetic disk drives, RAM-based disks require power to maintain their data. The solution to this is surprisingly simple: solid state disks include backup batteries and backup Flash or hard disk drives so that any data written to the DDR RAM can be mirrored to or backed-up onto these drives. Our Flash solid state disks use Flash memory as the primary storage media. Flash memory is inherently non-volatile. Additionally, the Flash systems use DDR memory as cache, which is capacitor or battery backed-up and flushes any unwritten data to the Flash memory in the event external power fails.

Texas Memory Systems' RamSan® line of solid state disks are designed to perfectly fulfill this need. Dubbed "The World's Fastest Storage®," RamSan disks not only outperform the fastest conventional drives hundreds of times over, but are many times faster than the closest competitor. Each RamSan model outperforms all other brands of solid state disks while remaining simple in design, fully integratable with existing storage area networks, affordable and scalable.



# What is a Solid State Disk

