

**Write a paragraph about why and how Twitter shrunk its Hadoop Clusters:**

Twitter was adding more spindles to Hadoop until the number of HDDs reached critical mass. This is because although HDD capacities have increased over time, their throughput and input/output operations per second have remained relatively stagnant. Hence, the number of IOPS/GB was becoming limited and also limited potential architectural and hardware choices. Twitter tried selectively placing data on SSDs, resulting in a significant decrease in runtime for Gridmix and Terasort. Intel ran similar tests, and had an even higher reduction percentage because they used processors with higher thread counts. Twitter also realized that it was possible to reduce HDDs by 75% without increasing the Gridmix runtime when SSDs were being used to store temporary data. Densification in this manner leads to savings through employing fewer HDDs and fewer servers, as well as less power and cooling costs.