Beyond the Data Event Horizon

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Definitions

• **Touch rate** is defined as the portion of the total capacity of a system that can be accessed in a given interval of time.
  
  – Touch Rate/Year  \[ Touch/Y = \frac{ObjectSize(MB)}{ResponseTime(s) \times Capacity(PB) \times 0.0315} \]

• The **response time** is the time to complete an IO operation, including the transfer of data and restoring the system for a subsequent IO operation. The response time is therefore a function of the IO object size as well as the speed of ancillary support operations.
Touch rate versus response time indicating various types of uses
Digital storage technologies regions overlaid on the Touch Rate/Response Time chart
Touch/Y and response time for 100% random IO in a 4 TB capacity HDD
Comparison of archive storage
HDD-Flash tiering/caching touch rate chart
4 TB capacity HDD data event horizon
Reference

• Touch Rate: A metric for analyzing storage system performance, Steven Heltzer and Tom Coughlin, 2015, http://www.tomcoughlin.com/techpapers.htm
Thanks