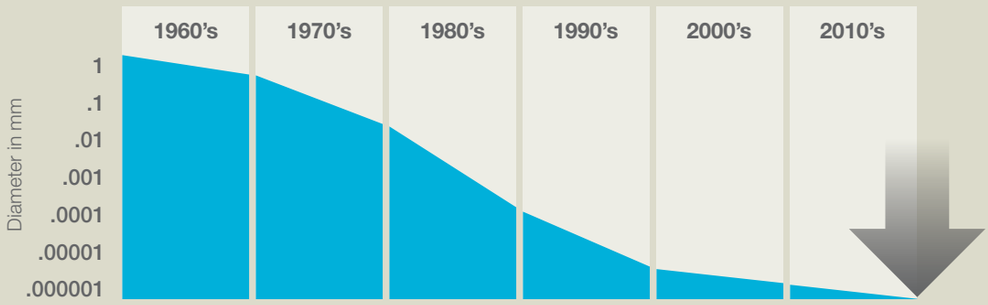
Atomic-Scale Magnetic Memory



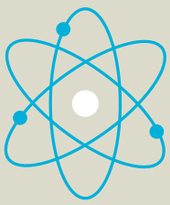
Decrease in silicon transistor size over the years

Current silicon transistor storage technology size has continued to shrink over the years and will approach the atomic level.

IBM's approach

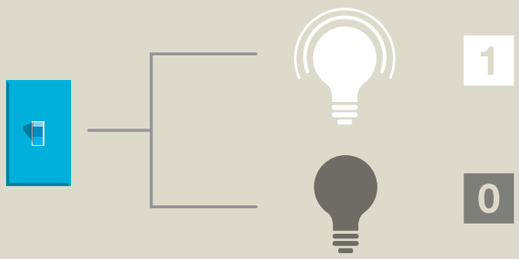
IBM researchers start at the **atomic level** to see how many atoms are needed to store

1-bit of data



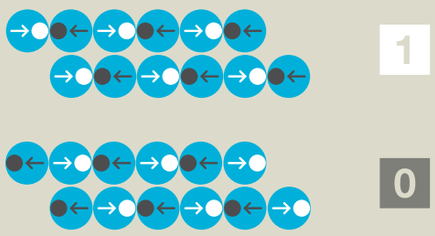
What is a bit?

A bit is the most basic piece of information that a computer understands. A bit has one of two values, on or off, like a light switch: "1" or "0."



12 Atoms needed to store one bit of data

IBM researchers have successfully used 12 atoms to store one bit of data by aligning their magnetic properties so that the group of atoms would not interfere with their neighboring group of atoms.

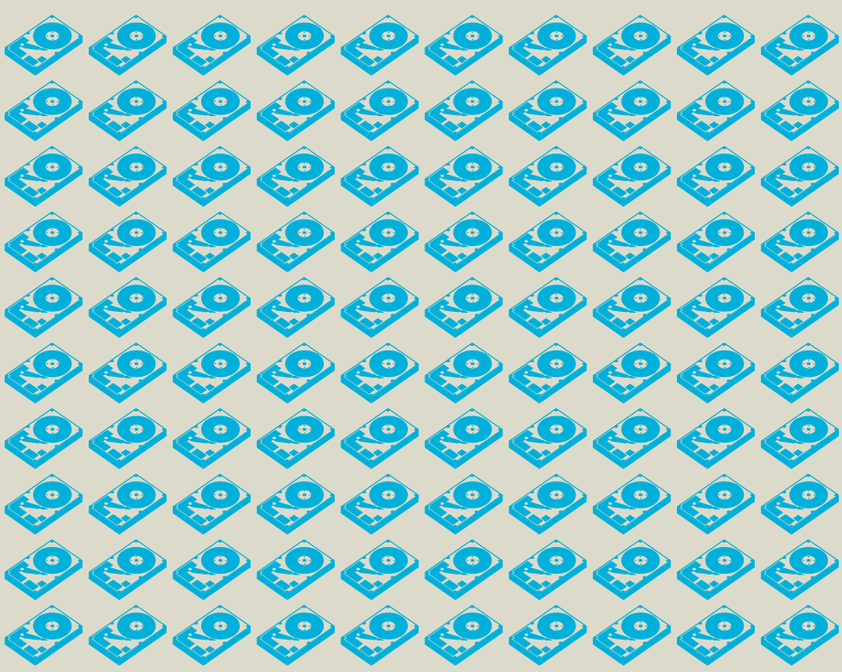


What does this mean for potential storage density?

100x

Atomic-scale magnetic memory is potentially 100x denser than today's hard disk drive technology.

Today's Memory Technolgy



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