**Moore’s law** refers to Moore’s perception that the number of transistors on a microchip doubles every 2 years. Moore’s Law states that we can expect the speed and the capability of our computers to increase every couple of years, and we will pay less for them.

Its **not a physical law, but an observation**.

**Physical limitations** that have prevented Moore’s law from continuing to be true:

**F**or decades, as transistors got smaller, they became more energy sufficient. Now, however, they have gotten so small, as small as 10 nanometres, that the channel that carries the electrical current through the transistor cannot always contain it. This generates heat which can wear out the transistors more quickly, making them even more susceptible to **leakage**.

And as billions of transistors leaking can seriously threaten the integrity of the whole chip, the processor must either **reduce the amount of voltage** it takes in or **throttle the number of transistors** in use to prevent **overheating**, limiting the processing power of the chip.

Andwhen the number of transistors doubles, so does the amount of heat they generate. **The cost of cooling** large server rooms is getting more and more untenable for many businesses who are biggest purchasers of the most advanced processing chips.