Moore's Law is the idea by Gordon Moore that the number of transistors on a chip doubles every two years, leading to faster CPUs. Smaller transistors switch faster, but this trend is based on observation, not a physical law.

The Power Wall is the problem of increasing power use and heat as more transistors and higher CPU speeds are added. More power means more heat, which is hard to manage with standard air cooling, often requiring costly liquid cooling.

Additionally, voltage scaling, a key aspect of managing power, faces challenges like decreased noise margins and increased power consumption, complicating efforts to boost CPU performance.

Now, the CPU is faster than memory, Hence, there are times when the CPU is idle waiting for data from memory. To hide this latency, concurrent programming is implemented.