

interact. × **Financial services**

FINANCIAL SERVICES

Tripling compute, **cutting cost and carbon.**

When Moore's Law was in full swing, replacing hardware every few years made sense. For real-world workloads today, a current compute core does only about 1.6 times the work of one from nine years ago, and the case for the routine refresh has broken down.

available compute, for the same spend	procurement cost saving	Scope 3 CO2e saved
3×	£1.68m	27,660 kg

THE SITUATION

When Moore's Law was in full swing, CPU performance tracked transistor count, and replacing hardware every two to five years made perfect sense. That logic no longer holds. For real-world, transaction-based workloads, a current compute core does only about 1.6 times the work of a comparable core from nine years ago. Newer chips carry many more cores, but with performance-per-core improving so slowly, defaulting to a full refresh every few years had stopped paying off.

A global investment management firm, running large-scale simulation and analytics workloads, recognised this and looked for a smarter route. Moving everything to public cloud was not the answer. For long-running processes that lean heavily on CPU, memory and fast storage, cloud costs climb quickly. The cloud is, after all, still someone else's computer, and the cost of running infrastructure at scale still has to be paid. Some of the firm's data also has to sit close to the compute for latency, and some cannot leave its own environment for data-regulation reasons.

Given the commercially sensitive nature of the financial services sector, the client is not named in this case study.

WHY IT MATTERED

In financial services, infrastructure decisions of this scale are board-level, multi-year commitments the firm cannot afford to get wrong. They needed independent evidence of real-world performance, and a clear, like-for-like view of what the same workloads would cost in public cloud, before committing capital.

WHAT WE DID

Interact assessed the estate on measured performance per unit of energy, the real work done, rather than headline CPU benchmarks. For each processor type we modelled a core-improvement factor, so a newer core that does around 60% more work than an older one is counted as such, then multiplied it by core counts to give a real-world measure of what each machine actually delivers.

From that, we produced two sets of recommendations, one optimised for energy and emissions and one for cost, each with the total cost of ownership and carbon impact set out in full. The firm then validated the figures on its own terms, running representative

trading strategies against fixed datasets and measuring completion time for each option.

THE TWO OPTIONS

The results split cleanly. The energy-first option ran 22% faster and was 37% more energy efficient. The cost-first option delivered around three times the compute for the same budget, once threads and RAM were adjusted to the spend.

The firm chose the cost-first route, and extended the life of capable existing hardware to deliver it, which reduced Scope 3 emissions further still.

THE CLOUD QUESTION

To test the cloud alternative properly, the firm took a representative job from its compute cluster. It ran for 72 hours of wall-clock time, but consumed close to 12,000 hours of compute across all cores. Priced against an equivalent public-cloud instance, replacing the saturated cluster like-for-like would have cost millions of pounds a year, a premium paid simply to hold the same performance, with no headroom to grow. For these workloads, public cloud was not cost-effective.

THE RESULTS

The firm's own testing came back in line with Interact's recommendations, and the impact was substantial:

- Available compute tripled, with only a 20% rise in energy use and no increase in floor space
- The estate became over 2.5 times more efficient per server, a 257% performance improvement overall
- A procurement cost saving of £1,680,400
- Lower carbon: a Scope 3 saving of 27,660 kg CO₂e, by extending the life of capable hardware rather than replacing it
- Data sovereignty retained: sensitive data stayed within the firm's own environment throughout, meeting its data-regulation obligations
- Running the workloads in its own hybrid cloud, rather than public cloud, saved millions of pounds a year on top

Using a CO₂ estimation model spanning both manufacturing and power, the break-even point between buying new and extending existing hardware came out at seven years, a very long time in technology terms, and longer still at real-world utilisation levels.

THE WIDER PROGRAMME

The same evidence base now supports the firm's broader operational plans, including a move between data-centre locations. That calls for careful handling of legacy equipment, sustainable lifecycle management and strict data-handling compliance: identifying which assets are worth keeping, which should be decommissioned, and how to retire them securely and sustainably.