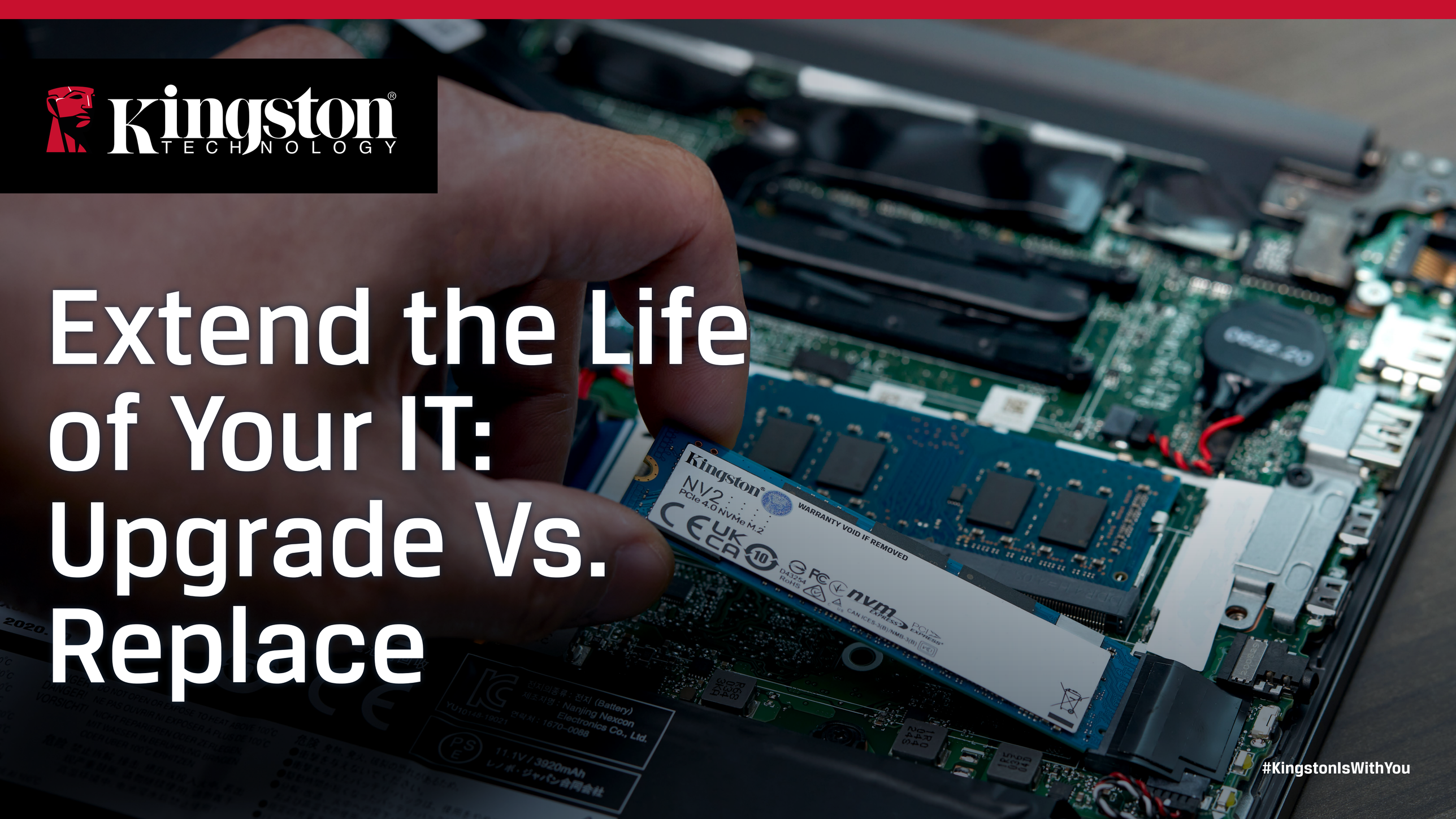
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TECHNOLOGY
Extend the Life of Your IT: Upgrade Vs. Replace
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PCIe 4.0 NVMe M.2
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Extend the Life of Your IT: Upgrade Vs. Replace

Foreword and Contents

Nothing really lasts forever. In the business world, nowhere is this more readily apparent than your IT assets. As any tech-reliant business will agree, all hardware is on a ticking clock, and it is only a matter of time before soaring maintenance costs outweigh the benefits. Even more concerning is when assets no longer perform and cause downtime that leads to lost customers.

But is it best to refresh your assets or upgrade? What is the driving force for upgrading IT infrastructure with SSDs and memory? And can upgraded devices really cope with emerging and maturing technology? We check in with some of the industry's leading experts and, in this eBook, share their insights into the tangible benefits, use cases, and thoughts on what the future holds for a more sustainable long-term IT strategy.

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Extend the Life of Your IT: Upgrade Vs. Replace

Contributors

This eBook has been created by two industry experts in IT and emerging technologies.

Rafael Bloom

Rafael has spent his career in senior Technology Product, Marketing Communications, and Business Development roles. His advisory practice focuses on the new organizational, product, and communications challenges of technological and regulatory changes. This highly diverse work involves subject matter expertise on information governance and compliance by design, data privacy, and emerging technologies such as AdTech, mobile & 5G, AI, and machine learning.

Neil Catermull

Neil has over 35 years of experience working with technology across multiple sectors and brings a unique perspective on easily understood technical strategies to technical and non-technical audiences. Technology analyst and social media influencer across emerging technology sectors. Leading industry analyst across multiple business sectors, including cloud, blockchain, 5G, storage, and many others, as well as the CEO at the Future as a Service—enabling consumers of technology to make the right choice, one service at a time.

Why Upgrade IT with Memory and SSDs

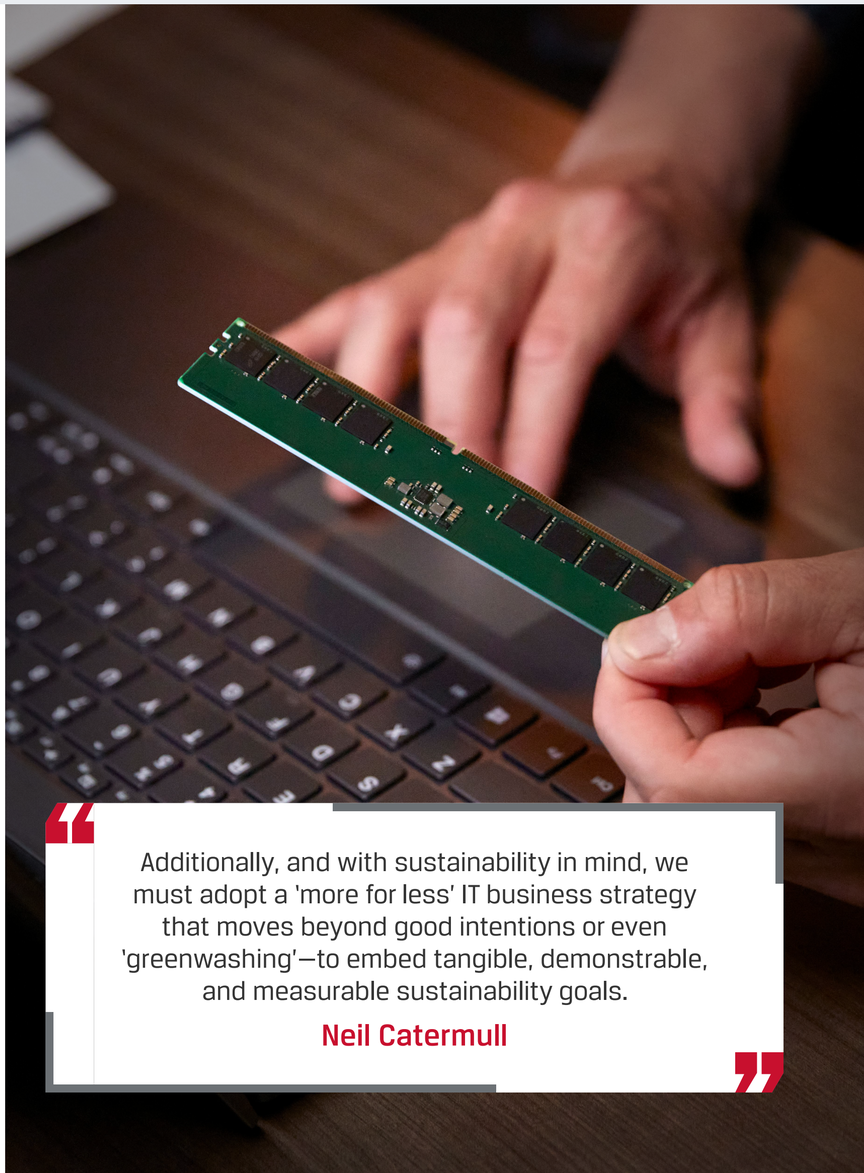
Managing an IT estate can be a highly complex and long-term task. But while a rolling program of upgrades may have always played a major part in the IT manager's role, there are several new factors coming into play. Firstly, surging electricity costs place an ever-increasing demand to somehow balance the books.

Secondly, there are performance requirements for the newest tech such as IoT devices and edge computing, challenging new demands for content delivery at scale, and even for different modes of computation found in the world of AI and machine learning.

This is where upgrading to SSDs and increasing memory comes into play, starting with cost savings and return on investment. The consumable marketplace has matured to such a degree over the past decade that it now enables even the most frugal firms to benefit from the additional performance benefits SSDs can bring at an accessible price point. This means cost is no longer an inhibitor for modernization.

This holds true for another reason and enforces why now is a good time to invest in memory and storage upgrades. IT refreshes can be challenging to achieve when the cost of living and operations have dramatically increased. However, this can be mitigated with a staggered refresh approach where partial upgrades can be performed with additional memory options, as well as increasing speed and additional capacity by utilizing SSDs.

> All of these factors, and others besides, constitute major drivers for upgrades, and all within a general climate of cost-cutting. It makes abundant sense in this context to extend the life of existing equipment and lower TCO. A partial IT lifecycle refresh can extend the life of hardware, as well as being easier on the wallet, and the planet too.
>
> **Rafael Bloom**



> Additionally, and with sustainability in mind, we must adopt a 'more for less' IT business strategy that moves beyond good intentions or even 'greenwashing'—to embed tangible, demonstrable, and measurable sustainability goals.
>
> **Neil Catermull**

The pandemic: A catalyst for change

Supply chains across all industries have been affected by the global pandemic. And along with it, the demand to support evolved ways of working that are set to stay, especially hybrid work. This is not limited solely to platforms such as Zoom and Teams. We also need to spare a thought for access devices too. In these cases, simple memory/SSD upgrades will make life on the road much more tolerable and compatible when upgrading your input device of choice.

The pandemic has also made organizations more risk-averse, shifted operational models, and altered spending patterns across many operational areas, of which IT is just one. Nonetheless, the need for increased performance and resilience has arisen at the same time as the global supply-side crunch. It is therefore only logical that people will try to find ways around this, for example by boosting the performance of existing infrastructure via the latest NVMe drives.

> "I have done exactly this with my own IT Infrastructure, enabling me to do more with the same IT devices that are simply faster and easier on the budget for another 12 months."
>
> **Neil Catermull**

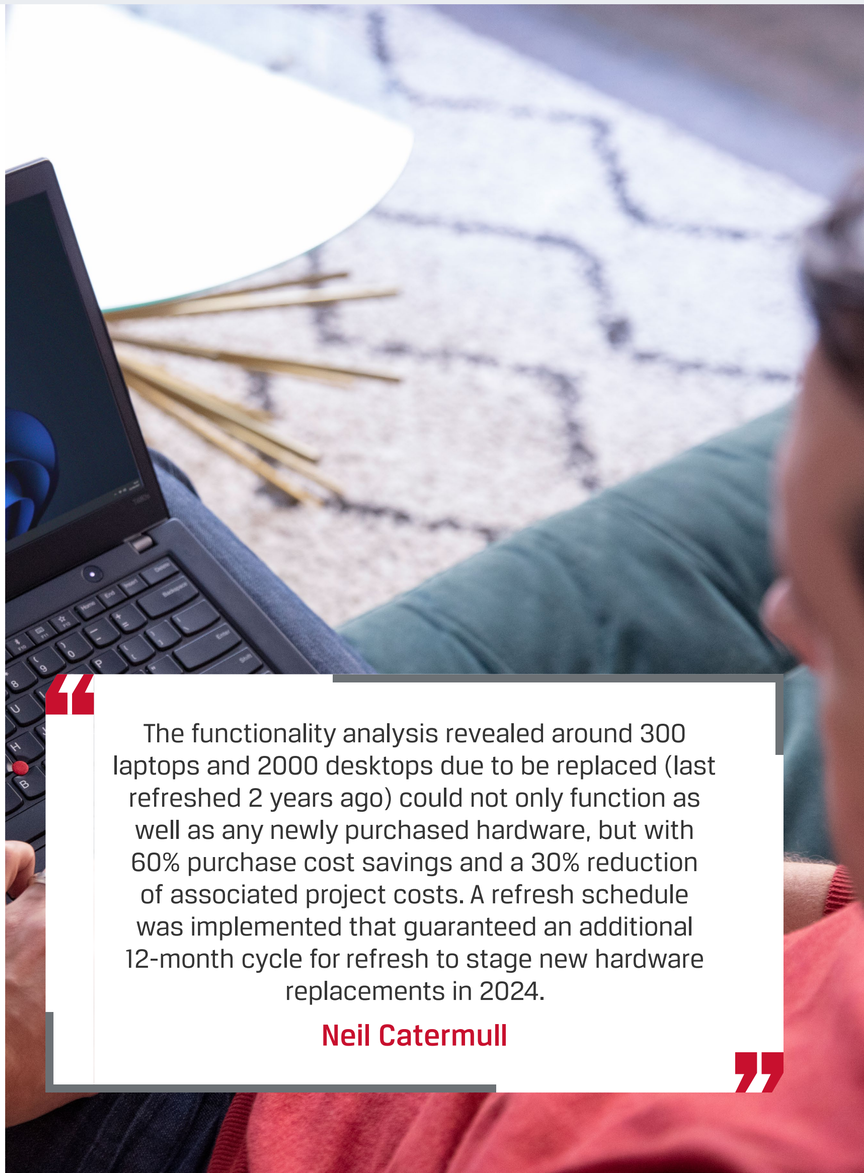
How Upgrading Has Opened Doors for Extending Device Lifecycle

While the benefits of refreshing operational IT devices such as increasing hardware resiliency and capability hardware may come as no surprise, when discussing cross-vertical benefits it is important to note that cost is not the only factor. Storage and memory are two pillars to transformation that are rarely recognized as enhancements. But with dependencies and future requirements frequently changing, this focus is critical. Organizations must future-proof access devices by ensuring they can manage the ever-expanding workloads of today's remote or road warriors, on demand.

As little as five years ago it was technically possible to choose NVMe over SATA but this was probably not economical or a technical requirement. Now that the price differential has pretty much disappeared, and the server housing the drive can handle M.2/U.2 form factors and NVMe connectivity requirements, organizations are given an easy yet game-changing upgrade pathway.

From SATA to NVMe, laptop to server, Kingston SSDs provides the speed and reliability organizations need to upgrade PC builds, servers, and system builders. At Kingston, we have been developing data center and enterprise laptop and desktop SSDs that help solve the many modern-day challenges we face. We take speed, capacity, and reliability even further, adding an arsenal of enhanced features that improve stability at extreme speeds where it is most needed. We enable our customers to cut significant costs over time, with enterprise-grade SSDs designed to keep pace with demanding workloads. Our team combines the skills, technical expertise, and direct support needed to ensure a successful outcome for the long run and deliver the longevity and performance you need.

> One notable example of a vertical-specific benefit for upgrading IT Infrastructure I recall is the upgrade of desktop and laptop devices at a mid-cap financial bank I was asked to consult on.
>
> **Neil Catermull**



> The functionality analysis revealed around 300 laptops and 2000 desktops due to be replaced (last refreshed 2 years ago) could not only function as well as any newly purchased hardware, but with 60% purchase cost savings and a 30% reduction of associated project costs. A refresh schedule was implemented that guaranteed an additional 12-month cycle for refresh to stage new hardware replacements in 2024.
>
> **Neil Catermull**

The Ability for Upgraded Devices to Cope with Emerging Technologies

> I remember the days of waiting 20 minutes for a 48k game to load from a cassette tape—the game, when loaded, was just as fun as if it had loaded instantly. But today's consumers of digital products and services are less patient—if a CTV streaming service became known for being annoyingly laggy, it would cause consumers to go elsewhere, regardless of the quality of the content.
>
> **Rafael Bloom**

Necessity is normally the mother of invention. But today's shifts toward the widespread use of AI, edge, 5G, the growth of IoT, digital twins, and beyond mean that, effectively, invention is creating the necessities. These technologies and the new and ever-evolving ways of digital living have created surging demand for bandwidth, computation, content delivery, and more. The need for an upgrade cycle never goes away, so alongside the need to cope and keep pace, success is breeding yet more demand.

When looking at these maturing technologies, it is important to remember the need for two of the pillars that underpin operational technology: storage and memory. Both new and maturing technologies rely on these, and other core elements, to be agile and operationally capable. Simply put, additional memory and faster storage will enhance any IT system, regardless of its ultimate application. For example, higher memory bandwidth and low latency are a must to provide the performance of parallel computing using GPUs. This delivers the required increase in bandwidth, processing speeds, and workflows required for AI and ML applications.

Kingston's SSDs are one solution range designed specifically for the most demanding workloads. Our products are capable of helping organizations manage and instantly access large volumes of data with consistent, rigorously tested memory and SSDs. Power-fail features keep mission-critical environments up and running all day, every day, while extreme speeds meet exceptional QoS demands.

> Additionally, SSDs deliver several benefits and advantages to AI and ML applications too. The ability to manage the throughput of data with low latency means applications can access and process data faster, process requests in parallel, and ultimately support extracting optimum data value from our ever-rising data olume.
>
> **Neil Catermull**

The Impact of Recent Redundancies

With the cost of living and the operations crisis impacting the globe, redundancies are inevitable. The recycling of IT hardware and internal equipment may be an ongoing task that never sleeps; however, more organizations are donating surplus IT equipment to charities and charitable causes.

In addition, economic cycles have been taking place since well before the advent of the integrated circuit. Landfills full of discarded equipment exist from 50 years ago, so where sustainability is concerned the focus should be on changing mindsets. Being able to upgrade and self-repair IT kit should be a right, while regulations should force cross-industry collaboration.

> Look at how long it took to stop companies supplying superfluous USB cables with literally every single device they ship—how many have you had sitting in drawers for years when you simply didn't need another cable!
>
> **Rafael Bloom**

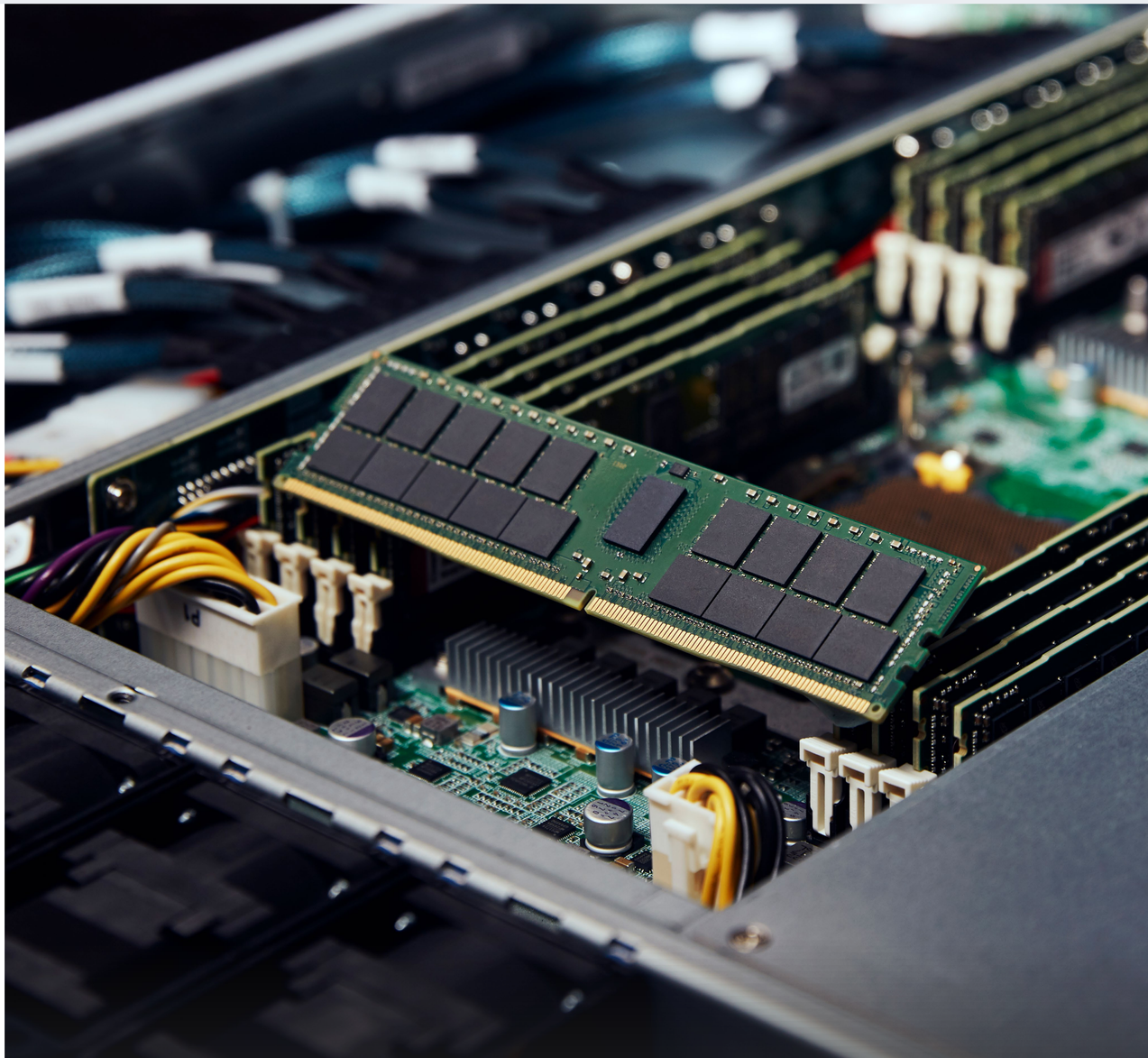
> There are many underprivileged nations and indeed places in a city or town near you that would benefit from warm-hearted donations to schools and not-for-profit initiatives. I'm sure we all have many devices gathering dust in cupboards, these will be well received at any school, college, or university.
>
> **Neil Catermull**

Ensuring Device Compatibility and Extending the IT Refresh Cycle

Looking ahead, for the modern IT department extending refresh duration is inevitable. However, amid today's uncertain economic times we believe it would be prudent to do so, and with an additional reason: specifically DDR5. Back in 2020, DDR5 emerged with significant benefits over previous models, namely reduced power consumption alongside efficiency, performance, and stability advances. One of its most significant selling points is the higher level of bandwidth it can feed to processors with tons of cores. DDR5 also offers higher capacity per memory module. Memory density and banks go hand-in-hand so when density is increased, the number of banks must also be augmented to accommodate the extra capacity.

That said, DDR5—whether for server or laptop—is not compatible with DDR4 motherboards and last-gen CPUs. As a result, you would likely need to replace your equipment to take advantage of the speeds and features that DDR5 memory offers.

This is an important consideration, as—unless the application or usage warrants it—it might be more cost-effective to upgrade, to get the maximum out of your DDR4 based infrastructure.



A New Approach to Long-term IT Strategy

What we are also seeing is increasing numbers of organizations taking a different approach to long-term IT infrastructure strategy. Much of this is driven by the need to balance the books. So, whether organizations directly adopt a strategy to extend their IT refresh cycle, or decide to subcontract their IT infrastructure, there will be an exponential demand to deliver digital services at scale and in a cost-efficient manner.

Most importantly, it is essential to do things properly and for the right reasons. With tech products in general, from servers to televisions, the top end of the market with all the latest bells and whistles can be very attractive. However, going after unnecessary features may only result in overspend.

> My advice would be to try to develop an overall tech and data strategy for your organization as a whole and not treat this as an 'IT issue.' Only when you understand properly what you need can you make an appropriate choice.
>
> **Rafael Bloom**

> When I had a huge hardware refresh project but with a somewhat diminished budget, I personally contacted Kingston Technology and asked for advice. With the assistance of a division of Kingston Technology (Ask an Expert) I was able to capacity plan appropriately for over 4000 desktops and laptops, with over 400 servers too!
>
> **Neil Catermull**

Summary

Whatever stage you are at on your IT refresh or transformation journey, Kingston Technology can help you make informed choices based on your current architecture and business priorities. Whether you want to evaluate your existing hardware needs, long-term strategy, compatibility, or become more sustainable, we can help with industry leadership offering proven expertise and best practices.

From stunning endurance to overall performance, large capacity to unmatched data protection, our memory and storage solutions deliver what is needed to support your IT refresh and upgrade initiatives. While our expert team offers the knowledge and resources you need to decide your next steps with confidence.

About Kingston

With over 35 years of experience, Kingston has the knowledge, agility, and longevity to enable both data centers and enterprises to respond to the challenges and opportunities presented by the emergence of 5G, IoT, and edge computing.

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