

How mid-market businesses can become more energy-efficient and sustainable

From no-cost ways to reduce power usage, to best practices for designing a future-fit data centre, experts offer advice on lowering the financial and environmental impact of your IT infrastructure



Efficiency: a business imperative

As the UK's mid-market businesses look to drive growth following the unprecedented disruption of recent years, the energy crisis remains a huge financial strain. In February 2023, the Financial Times reported that British companies faced an "energy cost cliff edge" when the introduction of a reduced government support package pointed to a jump in billsⁱ. This added to the pressure already caused by a 349% rise in electricity costs and 424% rise in gas between 2021 and 2022ⁱⁱ.

Reducing energy consumption is therefore one of today's most urgent business priorities. Indeed, a recent Gartner report found "75% of surveyed organisations are already reducing energy demand through optimisation activities"ⁱⁱⁱ. At the same time, a growing number of companies are making bold commitments to reduce their environmental impact and meet the expectations of regulators, stakeholders, employees, customers and society as a whole.



But organisations can often lack an enterprise-wide strategic vision for energy-efficient sustainability. Gartner found "conflicting priorities" to be the greatest challenge "business leaders face when making decisions about their organisation's energy related activities", with 44% listing the challenge in their top three and 14% making it their first choice.^{iv}



Data centre focus

The need to improve the efficiency of IT infrastructure in support of financial and sustainability targets has therefore never been greater. The priority area of focus is the data centre: according to the International Energy Agency, data centres consume approximately 200 terawatt-hours of electricity annually, or nearly 1% of global electricity demand, contributing to 0.3% of all global CO2 emissions.

And those organisations operating data centres could be looking at a 40% increase in costs due to the energy crisis, according to Gartner. Many mid-market organisations will understandably feel that they urgently need to address this issue, but many also lack the available capital to adequately optimise and modernise their data centres in the current financial climate.

However, there are steps that IT leaders can start making today to increase the energy-efficiency of their data centres: from no-cost actions utilising tools already at their disposal, to financially flexible methodologies for designing a future-ready energy-efficient data centre.

The partnership of Dell Technologies and Microsoft is highly committed to supporting business efficiency and sustainability. We understand the role IT can play in achieving carbon reduction goals and, as such, we innovate sustainable end-to-end data centre solutions.

Together, we help organisations become more efficient and sustainable using four main principles: reducing energy consumption by modernising IT infrastructure; lowering carbon emissions by consolidating data centre space requirements; reducing waste by increasing current hardware utilisation and adopting cloud flexibility; and lowering water usage by reducing the cooling needed through a consolidated, efficient data centre footprint.

In this short paper, experts share our top advice for leveraging what you already have to become more energy-efficient, along with best practices for evolving your IT infrastructure to support a more cost-effective, sustainable future.



75%
of organisations are reducing
energy demand through
optimisation activities



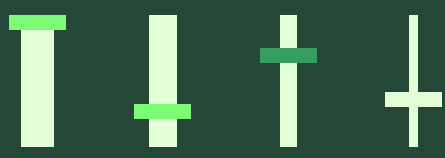
Take control of data centre energy usage

Research has shown that 60% of a data centre's operating budget is typically lost to energy costs. For many organisations, a lack of visibility and management control over the energy usage of the data centre is principally to blame: resulting in higher energy usage and emissions.

Gareth Flynn, a server expert for Dell Technologies, works with organisations to help enhance the energy-efficiency of their data centres. He says:

"We find that many companies are not yet utilising tools that they already have available to increase energy efficiency. This is leading to the emergence of unmonitored 'zombie servers' that are draining more power, costing more money and generating more emissions than they need to.

"The good news is, this can be quickly addressed right away with software and tools you already have available to you. With Dell Technologies servers, for example, we have the Integrated Dell Remote Access Controller – or iDRAC – which is designed for secure local and remote server management and helps



"We find that many companies are not yet utilising tools that they already have available to increase energy efficiency."

Gareth Flynn
Server expert for Dell Technologies

IT administrators deploy, update and monitor servers anywhere, at any time. If you don't have our servers, our competitors will have their equivalents of this, and it's a great way to manage server activity and optimise usage, even without being physically there."



Artificial intelligence and machine learning

Flynn continues: “Integrated with iDRAC, you can take advantage of OpenManage Enterprise Power Manager, which enables you to monitor via dashboards and analytics, and budget server power based on your consumption and workload needs – as well as keep an eye on the thermal conditions. It’s a smart tool that uses artificial intelligence and machine learning and can send you alerts as you require when your servers are running at a defined capacity and level of energy usage.

“In this way you can assess your whole data centre environment in real-time and identify where and when you need server capacity where and when you don’t. Armed with that information you can leverage virtual machines to accurately allocate just the right amount of capacity needed and never run more server resources than you need to.”

“At the end of the month, when the organisation’s energy bill comes in, you’ll be able to see how you’ve taken advantage of the technology already available to you and made greener and more cost-effective choices about the way you operate.”

Gareth Flynn
Server expert for Dell Technologies



60%
of a data centre’s operating budget is typically lost to energy costs




Design a future-ready data centre

The data that you can obtain by utilising tools already at your disposal can also provide vital intelligence for taking a longer-term view of modernising your data centre for a future of cost-efficiency, sustainability and business resilience. This is particularly important, given that research by Forrester has found that storage environments tend to be overprovisioned by an average of 37%.^{viii}

“It can really help you identify the hotspots in your business activity and data centre usage,” says Flynn. **“On the one hand, you can ensure you always have the capacity to meet spikes in demand: when you run your payroll, for example, or if you have times of particularly high demand on your systems from customers. Not being able to meet those demands can mean failures that have an impact on operations, revenue, even reputation.**

“On the other hand, it can help ensure you’re only using what you need to use and not overprovisioning. Then you can start having conversations like: ‘Do we really need to have six servers plugged into a wall draining power, or can one modern energy-efficient server meet our needs?’”



“On the other hand, it can help ensure you’re only using what you need to use and not overprovisioning. Then you can start having conversations like: ‘Do we really need to have six servers plugged into a wall draining power, or can one modern energy-efficient server meet our needs?’”

Gareth Flynn
Server expert for Dell Technologies



To gain even deeper insights into the real day-to-day needs of your organisation, so that you can design the optimal sustainable data centre environment to meet them, you can also leverage a free Dell Technologies tool called Live Optics. This online software enables you to collect, visualise and share data about your IT environment and workloads: helping you understand your workload performance, so that you – and the IT vendor you are working with to modernise your data centre – can gain a clear understanding of your precise needs.

Trusted advice

Flynn recommends combining this insight with the views of a trusted technology partner that can take an end-to-end view of your data centre requirements in the context of your business goals, and include vital considerations such as cooling:

“Anyone who has ever been into a data centre during a period of peak usage will recall two things: the noise and the heat,” he says.

“Cooling technology such as air conditioning is a significant source of energy use and emissions, while the potential for overheating and technology failure causes a risk to business operations.

“Finding the right strategy is therefore a holistic conversation that needs to take the data and the business needs into account, and bring together key stakeholders including IT leaders, facilities management and your IT vendor. This is what we consider to be best practice and we recommend that organisations demand this approach from the technology partners they choose to work with.”



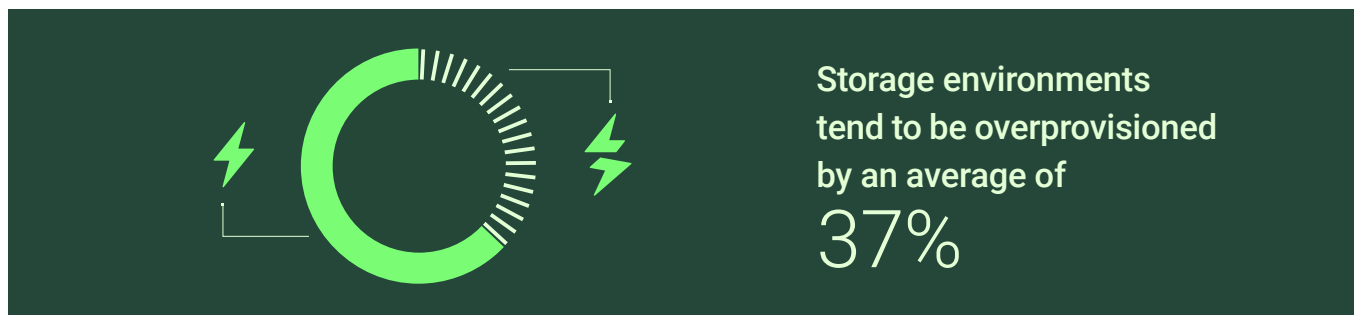
“Finding the right strategy is therefore a holistic conversation that needs to take the data and the business needs into account, and bring together key stakeholders including IT leaders, facilities management and your IT vendor.”

Gareth Flynn
Server expert for Dell Technologies



As Flynn also notes, this process should include the key consideration as to whether certain workloads should remain on-premises in the data centre at all. Transitioning workloads to Microsoft Azure in the cloud, for example, can produce up to 98% more carbon efficiency and up to 93% more energy efficiency than on-premises options, depending on the specific server usage, renewable energy purchases, and other factors.^{ix}

Meanwhile Microsoft's Azure Arc technology enables cloud-native app development – and cloud scale, cloud elasticity, and centralised management – on premises. And Azure Stack HCI combines compute, storage, and networking in a single system to help reduce power consumption, space requirements and cooling costs.





The financial freedom to drive sustainability

In the current economic climate, mid-market organisations face the challenge of ensuring financial discipline today while needing to invest in technologies that will be more energy-efficient, cost-effective and sustainable over the long-term. Leaders are therefore increasingly turning to as-a-service models for a flexible and direct route to IT infrastructure modernisation and responsible consumption.

For example, a lifecycle management service – like the Technology Rotation solution offered by Dell Technologies – allows for the implementation of regular refresh cycles to take advantage of the most current energy-efficient technology: this reduces upfront costs and total cost of use while driving operational benefits and supporting sustainability objectives.

“By leveraging vendor financial and lifecycle management services that enable you to pay for only the technology you need, when you need it, you can avoid large upfront capital expenditures,” says Sue Scriven from Dell Financial Services.



“By leveraging vendor financial and lifecycle management services that enable you to pay for only the technology you need, when you need it, you can avoid large upfront capital expenditures”

Sue Scriven
Dell Financial Services

“In this way you can ensure you obtain the most energy-efficient and sustainably produced data centre technologies available.”




Circular economy

She continues: “For example, the energy intensity of Dell’s PowerEdge server portfolio has been reduced by 83% since 2013^x. Meanwhile, the Technology Rotation service enables businesses to contribute to the circular economy by having their older assets sanitised, refurbished and resold, or responsibly recycled.

“Our latest technologies utilise as many recycled elements for products and packaging as possible, and we take measures such as producing servers without paint – to cut the carbon footprint of paint products out of the supply chain of our products.”

This type of approach is growing in significance, with research by IDC finding that 31% of European organisations now value circular economy principles when selecting IT suppliers.^{xi} By leveraging Windows Server 2022 with the support and flexibility provided by Dell Financial Services, for example, you can enable your servers to run as efficiently as possible while meeting workload performance needs.

Windows Server helps you tune server settings to obtain performance or energy efficiency gains, especially when the nature of the workload varies little over time. It helps you find the right balance between power and performance to avoid running at maximum CPU frequency.



“Another key consideration when modernising your data centre to be more energy efficient and sustainable is the temporary cost burden of running two environments in parallel during the migration phase.”

Sue Scriven
Dell Financial Services



Many mid-market businesses today also have a lot of scope to increase data density, which frees up space and reduces the cost of maintaining more physical hardware than you need. For instance, Dell PowerStore storage and PowerProtect data-protection solutions can deliver significant reductions and allow for energy-efficient flash storage.

“Another key consideration when modernising your data centre to be more energy efficient and sustainable is the temporary cost burden of running two environments in parallel during the migration phase,” says Scriven. **“Dell Financial Services offers a ‘bridge’ to support this process, meaning that you pay nothing for the first six months while also receiving free maintenance.”**



Support and advice

The trusted partnership of Dell Technologies and Microsoft is ready to support you in enhancing the energy-efficiency and sustainability of your IT infrastructure.

Contact the mid-market solutions team:

0800 587 0798



Dell Technologies Moonshot Goals

At Dell Technologies we are committed to enabling human progress and have set out our 2030 “Moonshot Goals” so we can all move forward together:

Advancing sustainability: For every product a customer buys, we will reuse or recycle an equivalent product; 100% of our packaging will be made from recycled or renewable material; and more than half of our product content will be made from recycled or renewable material.

Cultivating inclusion: By 2030, 50% of our global workforce and 40% of our global people leaders will be those who identify as women.

Transforming lives: With our technology and scale, we will advance health, education and economic opportunity initiatives to deliver enduring results for 1 billion people.

Upholding ethics and privacy: We’re putting customers in the driving seat. By 2030, we will automate our data control processes, making it easy for our customers to control their personal information.



Microsoft's commitment to a more sustainable future

Microsoft is accelerating progress towards a more sustainable future by reducing our environmental footprint, accelerating research, helping our customers build sustainable solutions, and advocating for policies that benefit the environment.

Carbon negative: Microsoft is committed to be a carbon negative company by 2030.

Water positive: Microsoft is committed to be a water positive company by 2030.

Zero waste: Microsoft is committed to become a zero waste company by 2030.

Ecosystems: Microsoft is committed to protect more land than we use by 2025 while also building a Planetary Computer – a computing platform to measure, monitor, model, and manage healthy ecosystems.



- i. [British companies face energy bill cliff edge, experts warn - Financial Times](#)
- ii. [Small business warn they may not survive winter due to UK energy bills - The Guardian](#)
- iii. [How CIOs Can Mitigate Energy Costs and Risks, Gartner, October 2022](#)
- iv. [How CIOs Can Mitigate Energy Costs and Risks, Gartner, October 2022](#)
- v. [Renewable Energy Alone Can't Address Data Centers' Adverse Environmental Impact - Forbes](#)
- vi. [Gartner predicts energy crisis will hit data centre budgets by 40% or more - ITPro](#)
- vii. Based on calculations using Schneider Electric's Data Centre PUE Calculator assuming a range of 1.4 - 1.6 PUE.
- viii. [New Technology: The Projected Total Economic Impact of Dell Technologies APEX Data Storage Services Forrester, June 2021](#)
- ix. [Sustainability outcomes and benefits for business - Microsoft Build](#)
- x. Based on internal Dell Technologies analysis, June 2022
- xi. [Enabling a Sustainable Approach to Your Digital Growth, IDC sponsored by Dell Technologies, April 2022](#)