



# HOW ON SITE AND OFF SITE DATA CENTERS CAN LOWER YOUR CARBON FOOTPRINT

Angie Keeler CEO & Co-founder, Zella DC

**ZELLA DC**™



# INTRODUCTION

Computer power has had a transformative influence on most businesses. It has enabled even small companies to improve the customer experience, encourage collaboration between previously siloed departments, generate deeper insights, and lower overhead costs.

As a result, most businesses have embraced the latest in tech innovations and cloud technology. And their growing reliance on technology is only expected to grow: [experts expect the market for public cloud to be worth over \\$800 billion by 2025.](#)

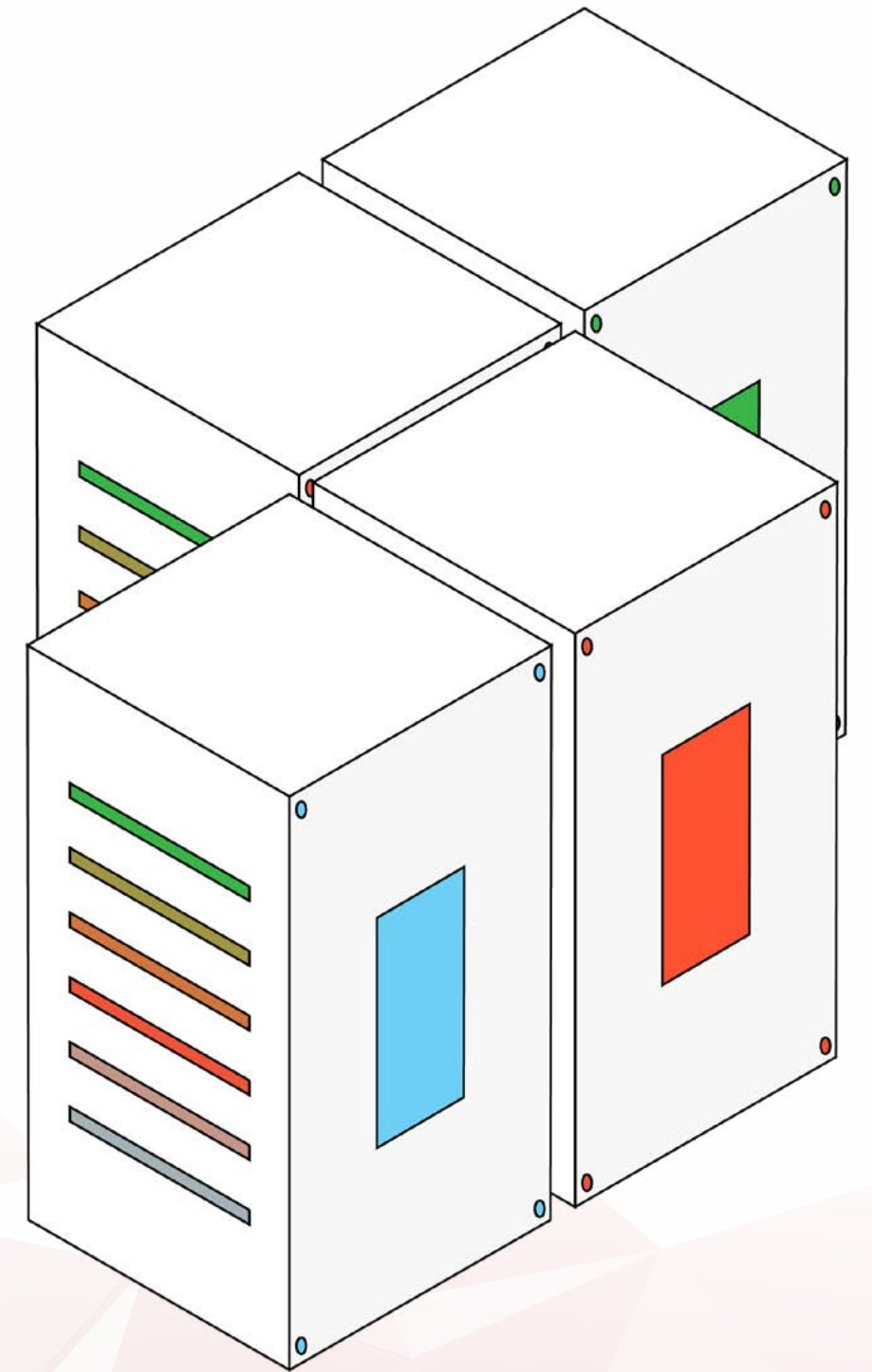
Companies use servers to harness computer power for their businesses. Nearly every organization relies on multiple servers to run applications, provide productivity tools, and enable omnichannel customer support. However, they often do not realize the actual cost these servers have on the environment and their bottom line.

For most companies, their technological revolution is slow and not planned in advance.

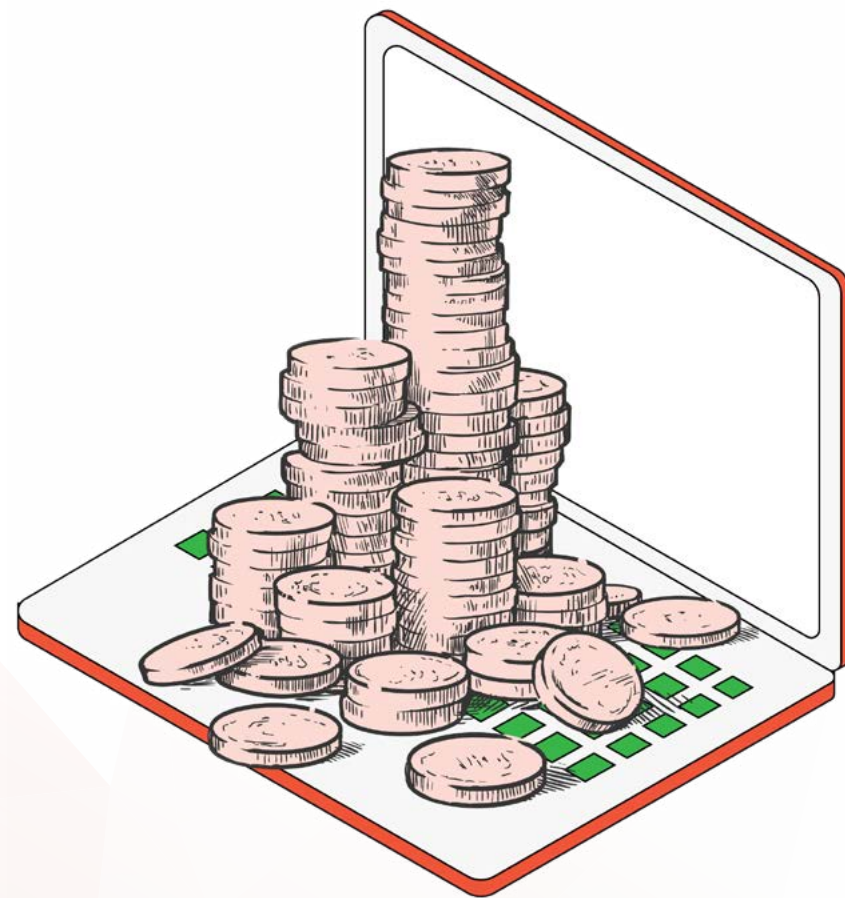
This gradual adoption in computers caused many businesses to slowly convert rooms and closet spaces into on premise server rooms that were not originally intended to be one. Without the right cooling and energy-saving capabilities, these companies waste energy and money to keep their hardware up and running.

Other companies realize the cost and time of an on-premises solution, so they opt for a cloud or third-party data center to handle their infrastructure. However, many data centers are not environmentally friendly and pass on the extra costs for maintaining the hardware onto their customers.

This whitepaper will dive into the vital aspects of maintaining hardware, its impact on the environment and business, and how companies can lower their carbon footprint with better data centers.



# THE HIDDEN COST OF DIGITAL TRANSFORMATION



The latest cliché environmentalist often state is that data is the new oil. It is the high-tech fuel that is now foundational to 21st-century progress. Unlike oil, though, we often forget about the environmental impact of data because it does not have a physical form.

However, data, data centers, and on-premises server rooms have a significant impact on both business and the world.

## INCREASED ENVIRONMENTAL IMPACT

Few people question the seriousness of the current state of the environment. As nearly every part of the globe is experiencing record-shattering weather changes and natural disasters, government agencies, companies, and consumers are searching for better ways to manage the environment.

When we consider what industries have the largest impact on the environment, most of us think of the transportation industry or energy sectors. We understand that airplanes affect climate change or coal reduces air quality, but many of us don't realize that data centers have an alarming impact on the Earth.

Data's impact on [our collective carbon footprint is about 3.7% of total carbon emissions](#), which is the

equivalent of the entire airline industry. As cloud technology continues to expand, that number is expected to double by 2025.

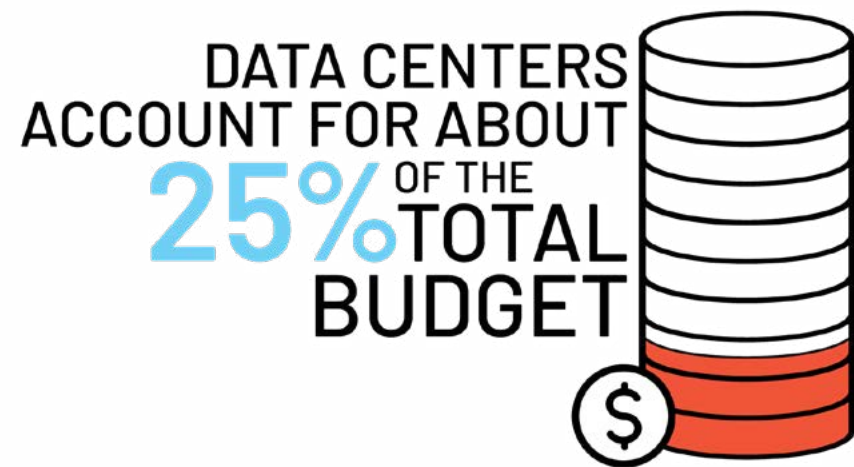
The energy that it takes to run the machines and keep them at the right temperature causes companies to have a bigger impact on the environment than ever before. Research shows that [40% of a company's overall electricity is used to cool its IT infrastructure](#).

Not only is this a serious concern for the future of the planet, but it can also impact a company's brand reputation. [In a recent survey, 77% of Americans said they are concerned about the environmental impact of their purchases](#), and 75% of Millennials would pay more for environmentally sustainable companies. Companies that take notice and adjust their habits to be more environmentally friendly are in-demand with consumers today.



Research shows that 40% of a company's overall electricity is used to cool its IT infrastructure.

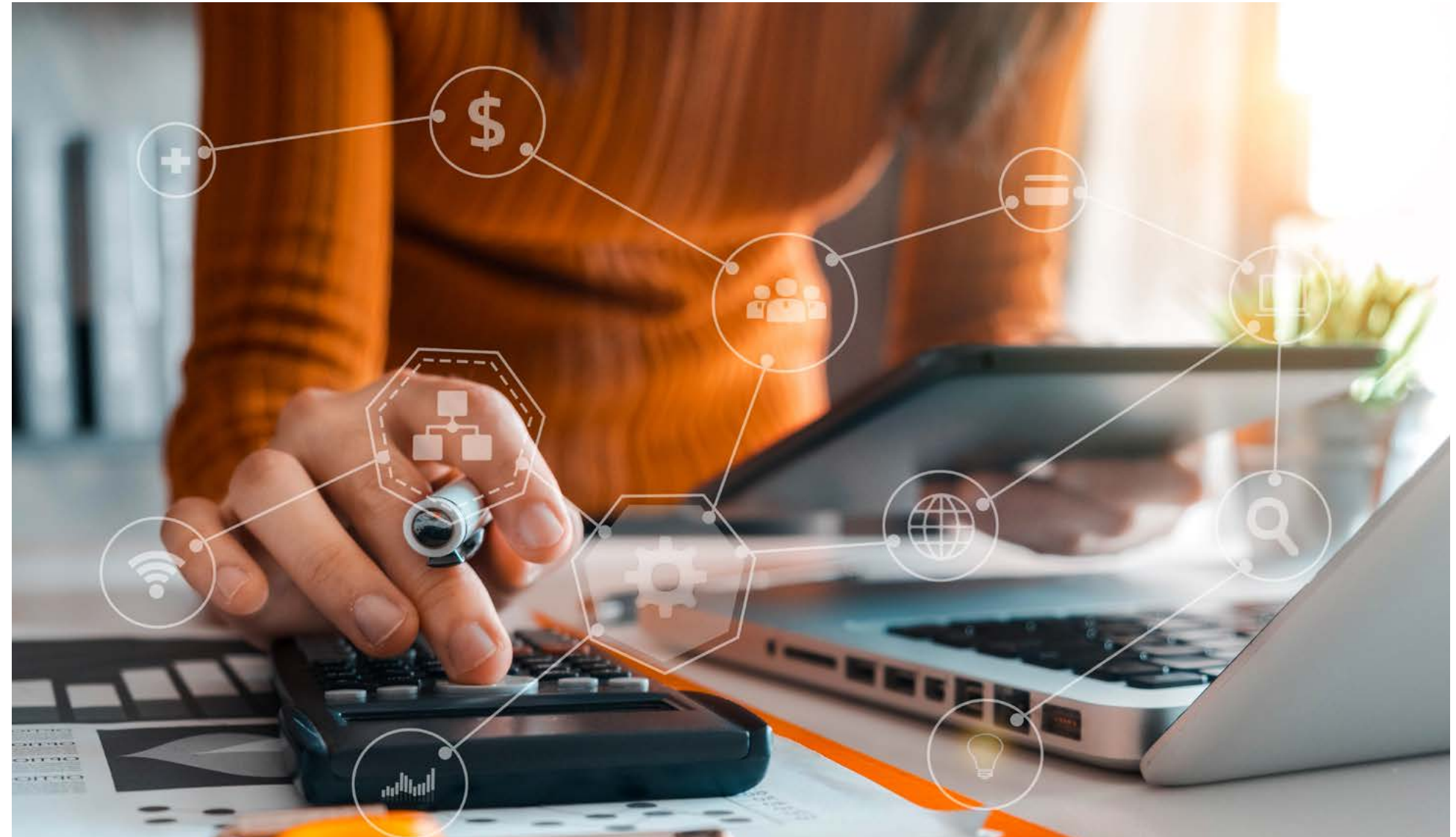




## SOARING OVERHEAD COSTS

Beyond the broader environmental concerns, the current conditions for data centers are not practical for businesses either. Server rooms are expensive for companies to cool and run. Many organizations don't have a dedicated server room or closet that is better equipped to keep servers at ambient temperatures, and they are forced to use even more energy keeping the area cool.

Those who outsource the care of their servers to data centers also pay exorbitant amounts to maintain their infrastructure as well. [Data centers account for about 25% of the total budget for most companies](#) between the cost of the facility, storage device, servers, and staffing.



For those who have a poorly maintained system, this percentage can be even higher. Without strict temperature-controlled elements in the room, companies often find that their cooling costs skyrocket. Plus, they are at risk of burning out their costly hardware more quickly.

Ignoring the physical aspect of their data centers or on-premises server room is having a serious

impact on the bottom line and overhead costs for many businesses. They may not be saving as much money as they think by relying more on technology to perform important functions of their organizations. Plus, it's money that does not need to be wasted since there are multiple options for lowering their energy consumption and improving their data centers.





## HOW TO FIGHT BACK AGAINST CARBON EMISSIONS AND HIGHER OVERHEAD

The concerns over the environment and rising costs of doing business are growing. As companies rely more on technology to perform the critical aspects of their business, these troubles will only increase.

However, many companies are starting to do their part to increase the efficiency of their data. They are looking to lower their costs, improve their brand images, and reduce the environmental concerns that accompany digital transformation.

Some ways that businesses can fight back require the size and infrastructure of a large enterprise for now. However, some answers are practical steps for small-and-medium-sized businesses (SMB) to help combat the increasing issues with their data centers or on-premises server rooms.

## UTILIZE RENEWABLE ENERGY

One of the long-term solutions is changing the energy that we use. Many large corporations are turning to renewable energy to help offset their carbon footprint.

Amazon, for example, [recently became the largest purchaser of renewable energy](#). In addition, both [Microsoft and Google are investing more of their resources](#) into renewable energy to reduce the overall impact of their solutions on the environment. These corporations use a considerable amount of energy to run their infrastructure, so their investments in renewable energy is critical.

While renewable energy can help reduce the carbon footprint of data centers and on-premises hardware, it is not currently a practical solution for SMBs and organizations that are not large enterprises. They may be an option in the future, but now [only half of businesses in the U.S. can purchase renewables](#) from power suppliers. However, that does not mean that smaller businesses do not have options to improve their impact on the planet and create more profit.

## KNOW YOUR CURRENT COSTS

Many companies aren't even aware of the significant cost of their new technology. They often count cloud adoption as cost-saving, but they may be paying more than they realize.



Only **3%** of IT departments pay for the energy consumption from their own budget.



Only **12%** of server rooms have installed power meters, which means they have no idea how much power their server rooms are using.

Not only are these companies unaware of the total cost, but they may also be using more energy than necessary.



**45%** of companies don't know the cooling temperature of their server rooms.



And of the **45%** ones who do, **46%** are using too low temperatures and wasting more energy than necessary.

One of the reasons that energy costs go unaddressed is that it is a part of the budget that slips through the cracks. Who is responsible for checking the temperatures and setting a budget? Some companies leave that to the IT department, while others depend on leadership to get a better overall picture. However, it is critical that companies take a look at how much they are spending and clearly allocate the responsibility of management.

If you don't have a server room and use the cloud or third-party data center, do you know how green that solution is? Just because you do not pay the energy bill directly does not mean that waste doesn't affect your bottom line. You may be paying more than you realize with an unsustainable solution.

Find out the carbon footprint of your data if it is kept externally. Consider changing providers or data centers to find a more sustainable solution.



## MITIGATE SERVER INEFFICIENCIES

One of the fastest ways that companies dramatically decrease their energy consumption and lower their overhead costs is by reducing the use of idle servers. Businesses of all sizes benefit from mitigating server inefficiency.

“Zombie servers” are an alarming expense that has no reason to be running. A large amount of energy waste and company costs come from maintaining idle servers. [In one survey of 100 companies that each had close to a \\$1 million budget for cloud computing](#), half had a CPU utilization of only 20-40%. Underutilized infrastructure is costing organizations significant amounts of money and employee time to maintain.

Take inventory of all your IT assets to identify any potential inefficiencies. Analyze and identify your current usage patterns across all of your equipment to reconfigure, upgrade and remove your inefficient servers.

## MICRO DATA CENTER

Once you have removed the inefficient servers, you can then start to reduce the carbon footprint of the hardware that you do have. There are ways to decrease your environmental burden, no matter the size of your business and hardware. Micro data centers offer companies of all sizes a way to lower

the overall cost of maintaining their data centers. Micro data centers offer many of the benefits of data centers that can be placed anywhere. Instead of taking up an entire room or closet space to house your hardware, micro data centers can be used anywhere that is convenient for your business, including outdoors.

Not only are micro data centers convenient for businesses, but they enable companies to lower their overall carbon footprint. The containers are energy efficient to help reduce as much consumption as possible.



It is also easy for IT or leadership to monitor, automate, and manage their overall consumption. If you are part of the 45% that is unsure of the temperature of their rooms, micro data centers make it easy to monitor and reduce the temperature, so you don't use more energy than necessary. You can also stop running servers when you don't need them.

Micro data centers can be automated to shut down during weekends and holidays, for example, so that you are no longer paying to maintain servers that aren't in use.

Micro data centers provide companies with a convenient solution and a practical way to lower their overall energy consumption. It allows organizations to undergo a digital transformation without hidden costs or compromising the wellbeing of the planet. Their reputations won't suffer from inefficient and environmentally unfriendly practices, and they can boost profits at the same time.

For most businesses, micro data centers are one of the most practical ways to address growing concerns without compromising their current IT infrastructure.

## REFERENCES

- [1] Cision PR Newswire. 2020. Cloud computing market worth \$832.1 billion by 2025- Exclusive report by MarketsandMarkets. <https://www.prnewswire.com/news-releases/cloud-computing-market-worth-832-1-billion-by-2025-exclusive-report-by-marketsandmarkets-301106529.html>
- [2] Griffiths, S. 2020. Why your internet habits are not as clean as you think. <https://www.bbc.com/future/article/20200305-why-your-internet-habits-are-not-as-clean-as-you-think>
- [3] Zhang, X, Lindberg, T., et al. 2017. Cooling energy consumption investigation of data center IT room with vertical placed server. [https://www.researchgate.net/publication/317308758\\_Cooling\\_Energy\\_Consumption\\_Investigation\\_of\\_Data\\_Center\\_IT\\_Room\\_with\\_Vertical\\_Placed\\_Server](https://www.researchgate.net/publication/317308758_Cooling_Energy_Consumption_Investigation_of_Data_Center_IT_Room_with_Vertical_Placed_Server)
- [4] Businesswire. 2021. GreenPrint survey finds consumers want to buy eco-friendly products, but don't know how to identify them. <https://www.businesswire.com/news/home/20210322005061/en/GreenPrint-Survey-Finds-Consumers-Want-to-Buy-Eco-Friendly-Products-but-Don't-Know-How-to-Identify-Them>
- [5] Forrest, W., Kaplan, J., et al. 2008. McKinsey on business technology. <ftp://public.dhe.ibm.com/software/uk/itsolutions/optimiseit/greenhub/carbon-managment/pov-mckinsey-report.pdf>
- [6] Amazon. 2020. Amazon becomes the world's largest corporate purchaser of renewable energy. <https://www.aboutamazon.com/news/sustainability/amazon-becomes-the-worlds-largest-corporate-purchaser-of-renewable-energy>
- [7] Steffen, A. 2020. Big tech leads the way with renewable energy purchases. <https://www.intelligentliving.co/big-tech-renewable-energy-purchases/>
- [8] Energy.gov. Buying clean energy. <https://www.energy.gov/energysaver/buying-clean-electricity>
- [9] Schalm, D. 2021. Granulate issues findings from state of cloud computing survey highlighting underutilizing of IT infrastructure. <https://devops.com/granulate-issues-findings-from-state-of-cloud-computing-survey-highlighting-underutilization-of-it-infrastructure/>



# ZELLA DC™

Over a decade ago Zella DC pioneered the micro data centre. Since then, our next-generation server room in a box have been proven to work in the harshest environments on earth. The result is a vendor-agnostic approach to software, hardware manufactured to global standards, and partners across six continents.

## Angie Keeler CEO & Co-founder

Angie Keeler is the CEO and co-founder of Zella DC. Angie has over 10 years experience within the IT and micro data centre industry with practical hands-on experience bootstrapping a company and growing a business through sales and international distribution across six continents.