EBOOK How to Increase Data Center Sustainability:

10 Best Practices to Reduce Your Carbon Footprint



Introduction

The demand for computing power and digital services is exploding. In the last decade, global internet traffic increased ten-fold and data center storage capacity increased by a factor of 25.

With transformative yet energy-hungry innovations such as 5G mobile networks, big data, and artificial intelligence still just taking off, data center demand is only going to continue to grow.

As data centers get bigger and require more energy to keep up with the demand of modern consumers and businesses, so too does the spotlight as customers, governments, and industry regulators increasingly push for increased sustainability and social responsibility.

While many hyperscalers have set goals to reduce their carbon footprint to zero by 2030, increasing energy efficiency is an objective every data center manager should have. Beyond reducing the data center's impact on climate change, driving efficiency reduces operating costs, maximizes the value of existing capacity, and helps compliance with regulations and initiatives.



In this eBook, we've compiled the top 10 best practices any data center manager can implement to dramatically reduce energy consumption and drive sustainability.



10 Best Practices to Reduce Your Carbon Footprint



Collect data on your energy consumption.

The first step to increasing your data center's sustainability is to collect data on how much power you are using. This data is critical for better decision-making and to see the impact of efficiency initiatives in your data center.

Intelligent rack PDUs are a must-have for determining power usage and available capacity at the rack. Outlet metered PDUs provide data at the device level so you can identify ghost servers that are wasting space and energy, see power hogs that can be replaced or virtualized, allocate costs to customers, and compare IT efficiencies. Switched PDUs with outlet control allow you to remotely power on and power off individual outlets when equipment is not in use to save energy, just like turning your lights off when you leave your house.

Metering and monitoring every connection point in your power circuits enables you to improve capacity planning, optimize management of existing resources, and report on efficiency metrics like PUE. Other power meter options include bus drops and busway end feeds, remote power panels, floor PDUs, UPSs, and building meters.



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Collect data on your environmental conditions.

Next, you need to deploy environment sensors. This will allow you to remotely monitor the conditions of your data center, know where opportunities to improve energy efficiency are, and ensure that your efficiency initiatives are not putting your equipment outside of recommended ranges and increasing the risk of downtime. Plus, sensors are easy to install and cost-effective.



Environment sensors that will help you increase efficiency include:

- Temperature. Temperature sensors placed at each rack give you data on if you are overcooling, and if so, by how much. With this data, you will know how much you can raise temperature set points by to save energy. Temperature sensors also help you ensure you don't raise temperatures above manufacturer or ASHRAE[®] recommendations which can damage equipment and cause downtime.
- **Humidity.** Humidity sensors placed at about every five racks will let you know if you are wasting energy by allowing your CRAC units to excessively humidify or de-humidify your environment.
- Airflow. Airflow sensors placed at each cold air supply and hot air return allow you to ensure the cooling system is functioning properly and that airflow is at the right level so that all your equipment is receiving cooling air as efficiently as possible.
- Air pressure. If you have a hot/cold aisle containment system in place, air pressure differences between the
 aisles could lead to partition leaks that lead to inefficient cooling and hot spots. Air pressure sensors placed under
 the raised floor can provide data to CRACs, CRAHs, or the building management system to vary fan speeds to
 efficiently cool the data center.





Deploy a complete data center management solution.

Data Center Infrastructure Management (DCIM) software—when combined with metered power infrastructure and environment sensors forms the complete solution to operate highly efficient data centers.

DCIM software provides an enterprise-class polling engine that collects live measured readings from your meters and sensors, stores that data over long periods of time, and transforms it into actionable insights that make increasing efficiency easy in the form of zero-configuration business intelligence dashboard charts, reports, and visual analytics on your floor map in 3D. You can also set warning and critical thresholds on your collected data to be the first to know of potential issues such as overcooling or overtemperature conditions.

Reasons to deploy DCIM software at the start of your green data center initiative include:

- Instant Accuracy. Have a complete picture of your energy usage and environmental conditions from day one and start trending that data so you can clearly see the state of your data center before and after you've increased efficiencies.
- **Data-driven decision-making.** Turn your meter and sensor data into actionable information. Easily assess, plan, and review your strategy to make the most informed decisions during your sustainability initiatives.
- **Perfect Timing.** Having an objective to increase your sustainability provides a fresh start to move away from manual, inaccurate, and antiquated tools and towards a modern solution. DCIM software will make up only a small part of the project scope, so it's a great time to get funds for a cutting-edge data center management platform.
- **Immediate return-on-investment.** Gain all the benefits of having a DCIM solution right away. Maintain uptime, improve capacity utilization, boost productivity, and reduce costs from the onset.





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